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DATE: October 15, 2009

TO: Greg Powell, EPA/ERT Work Assignment Manager

THROUGH: Dennis Miller, REAC Program Manager *D. Miller*

FROM: Ken Woodruff, REAC Task Leader *K.W.*

SUBJECT: TRIP REPORT – MONITOR WELL INSTALLATION; GEOPHYSICAL LOGGING; PACKER SAMPLING; STREAM, SOIL GAS AND SOIL SAMPLING.
MILLS GAP ROAD GROUNDWATER CONTAMINATION SITE; ASHEVILLE, NORTH CAROLINA
WORK ASSIGNMENT # 0-296

PURPOSE

The objective of this mobilization was to resolve the source (or sources) of the volatile organic compound (VOC) trichloroethylene (TCE) that has been detected in residential wells of the Oaks subdivision and other wells located north of the Mills Gap Road Groundwater Contamination Site. Scheduled field activities included (1) installing three bedrock groundwater monitor wells, (2) geophysically logging the new wells, (3) sampling selected depth zones in the new monitor wells and in an abandoned domestic well, now used for quarterly sampling, (4) conducting a soil gas survey with subsequent shallow soil sampling, and (5) collecting stream and sediment samples. Unscheduled activities included geophysically logging an additional orphaned domestic well and sampling an active domestic well. Work was completed by staff of the Response Engineering and Analytical Contract (REAC) in consultation with the Environmental Protection Agency Environmental Response Team (EPA/ERT) from August 10 through 21, 2009.

BACKGROUND

The Mills Gap Road Groundwater Contamination site (EPA ID NCSFN0406988) is located in Asheville, Buncombe County, North Carolina (Figure 1). CTS of Asheville (CTS), a manufacturer of auto parts, formerly occupied the site until operations ceased in 1986. The facility then passed to Mills Gap Road Associates and apparently has been leased to other interests until occupancy ceased in the mid-1990s. Records indicate that TCE was one of the solvents used at the plant during the ownership by CTS. Investigations by the North Carolina Department of Environment and Natural Resources (NCDENR) originally identified two springs and one private well located down gradient from the site that were contaminated with TCE, petroleum hydrocarbons, and other solvents. Sampling in and around the site by the EPA Region IV Superfund Technical Assistance and Response Team (START) contractor in 1999, ERT/REAC in 2000, and START and ERT/REAC in late 2007 and early 2008 (Lockheed Martin, 2008) confirmed the presence of various concentrations of VOCs in underlying soils and shallow groundwater. The NCDENR also completed a residential well sampling program within a one-mile radius of the site in late 2007. A TCE concentration of 57 micrograms/liter ($\mu\text{g/L}$) was initially found in one well located approximately 0.75 mile northeast of the site (TN & Associates, 2008). TCE was also detected in a nearby well at concentrations below the maximum contaminant level (MCL) during a NCDENR follow-up survey in early 2008. A residential well, located a short distance southeast of the site on Concord Road, was abandoned in 1999 because of TCE contamination.

In January 2009, a geophysical logging contractor was retained by the REAC program to conduct a logging program in six domestic wells located east to northeast of the Site. All of the wells were open-hole installations with depths ranging between approximately 300 and 700 feet. The results were discussed in a REAC March 2009 Trip Report (Lockheed Martin, 2009) and were used to select straddle packer test intervals to be sampled for VOCs. The intent was to determine if VOCs were entering the domestic wells within discrete depth zones. In April 2009, straddle-packer testing was attempted in four of the six domestic wells previously logged. However, because of severe hole



deviations from vertical, a packer sample could only be obtained from one well. A shallow zone in each of two other wells was also able to be accessed with the packer assembly but both were pumped dry and no samples were collected. A submersible pump, lowered to selected depth zones above 300 feet in the open hole, was subsequently used to complete the sampling in all wells. The results indicated that TCE concentrations were relatively constant with depth, and of the same magnitude as previously found in sampling by EPA Regional START personnel. Toluene, at a concentration of approximately 100 µg/L, was also detected in a shallow packer sample from one of the Oaks subdivision wells. The compound had not been detected in previous sampling. Although a local source for the TCE was considered a possibility, the overall sampling results were not definitive in confirming a source area.

METHODS

The various sampling and other field methods employed in this investigation are discussed below. To protect privacy, locations of domestic wells referenced in this report are indicated by a sample number rather than an address. Note that well "ERT-7" was installed under this investigation, whereas well "AW-7" refers to a pre-existing domestic well.

Soil Gas Monitoring and Soil Sampling

A soil gas survey was conducted along a portion of Sandra Drive with soil gas monitor points located as shown on Figures 1 and 1A. The survey location was immediately downgradient from a potential local source of VOCs as suggested by anecdotal evidence. Fourteen soil gas holes on 20-foot centers were installed using a portable drill and a 3.5-foot long bit. Because shallow groundwater was encountered at a depth of approximately 2.5 feet it was not possible to sample soil gas conventionally using stainless steel tubing and a personal air pump. The holes were therefore field screened directly with a Toxic Vapor Analyzer (TVA)-1000™ combination flame ionization detector (FID) and photoionization detector (PID) calibrated with "zero" air, isobutane, and methane. Based on the screening results, soil samples were collected at approximately 1.5 feet below ground surface and placed into 4-ounce (oz) glass jars at five of the soil gas hole locations (SG-7, 8, 9, 12, 13) and submitted to the ERT/REAC Laboratory in Edison, New Jersey (NJ) for analysis of VOCs.

Stream and Sediment Sampling

Nine surface water samples were collected from local streams within or near the Oaks subdivision at locations selected by the Work Assignment Manager (Figure 1). Samples were collected directly into 40-milliliter (mL) vials, preserved with hydrochloric acid (HCL) to a pH of less than 2, and submitted to an outside laboratory for analysis of VOCs with a reporting limit of 1 µg/L. Stream sediment samples were also collected into 4-oz glass jars at the same locations and sent to the ERT/REAC Laboratory for analysis of VOCs.

Monitor Well Installation

Three bedrock monitor wells, ERT-6, 7 and 8 (Figure 1) were installed to depths between approximately 150 and 180 feet by a drilling subcontractor. At each location, four-inch nominal diameter, schedule 80 polyvinyl chloride (PVC) surface casing was first set several feet into bedrock, grouted in place, and allowed to set for 24 hours before drilling resumed. Each hole was then advanced to total depth using air hammer methods and completed as an open-hole installation. A fourth location had also been planned but buried utility locations prevented drilling on right-of-way and access to the adjacent private property was not available.

Geophysical Logging

Each of the new monitor wells was geophysically logged by an outside contractor using caliper, temperature, fluid conductivity, natural gamma-ray, multiple-spaced resistivity, self-potential (SP), acoustic televiewer (ATV) and electromagnetic (EM) flow-meter tools. Flow-meter measurements were made at stationary locations within the borehole and were generally located on either side of fractured zones or, in the absence of fractures, were spaced approximately equidistant within the borehole. In addition to the new monitor wells, a fourth orphaned domestic well (AW-7), located along Sandra Drive (Figure 1), was also logged. The well was approximately 580 feet deep but was never placed into service. All but the ATV logs were reprocessed using Viewlog™ software for a more compatible report format.

Well Sampling

The geophysical logs were used to select straddle packer sampling zones based on the detection of fracture zones and anomalies in the temperature or fluid conductivity curves. In addition to sampling the new monitor wells, orphaned domestic well AW-4 (Figure 1) was also resampled in selected depth zones. The initial packer assembly consisted of two 3.5-inch diameter pneumatic packers separated by 20 feet of 2-inch nominal diameter perforated pipe. However, because of excessive drilling bit wear, hole diameters in the lower portions of the new monitor wells were less than optimal and it was necessary to retool with 3-inch diameter packers to complete the sampling. The original 3.5-inch diameter packers were used to sample domestic well 4. Water levels were measured in both the open hole and in the packed off zones before purging began in an attempt to determine heads in each zones. It was apparent, however, that in most cases several hours would probably be necessary for levels to equilibrate completely. To avoid excessive delay in sampling, final head values were not always obtained. Sampling was subsequently completed with a variable speed submersible pump, lowered into the packer assembly. Purge rates varied between approximately 0.1 to 0.5 gallons per minute, depending on drawdown. Temperature, pH, oxidation reduction potential (ORP), fluid conductivity and dissolved oxygen were measured at 5- to 10-minute intervals during purging. All monitor well samples were preserved with HCL to a pH of less than 2 and submitted to an outside laboratory for analysis of VOCs.

ERT-6

Because of site conditions and the potential for damage to the residential septic system, a decision was made not to remobilize the drilling truck to complete packer sampling in this well. Instead, the well was pumped in the open hole with a submersible pump lowered to approximately 167 feet bgs (2 feet off the bottom of the well).

ERT-7

ERT-7 was sampled with a single packer because of equipment restrictions imposed by hole conditions. Progressively shorter intervals from bottom to top were packed off that included (1) nearly the entire well volume, (2) approximately the top one-half of the hole (above 80 feet), and (3) the top one-quarter of the hole (above 40 feet).

ERT-8

Only approximately 60 feet of saturated thickness was available in ERT-8 and the well was therefore sampled with a submersible pump lowered to near the bottom of the well in the open borehole.

AW-4

Well AW-4 is approximately 700 feet deep and was removed from domestic service when public water became available in the Oaks subdivision. The well is presently used for periodic sampling by EPA Region IV and is still equipped with the original submersible pump. A local drilling contractor was therefore retained to remove the existing pump so packer sampling could be completed. Straddle-packer samples from the upper portion of the well were of most interest in this mobilization. The packer intervals therefore included 145 to 165, 125-145 and 95-115 feet below ground surface (bgs). During the April 2009 mobilization, a packer interval from 69 to 90 feet bgs was pumped dry with no recovery.

Domestic Well CHR

During field activities a local resident provided information on his domestic well located south of the Oaks subdivision (Figure 1). The well reportedly is over 500-feet deep with a yield of several tens of gallons per minute (gpm). Because the location was critical in determining the extent of local TCE contamination, ERT/REAC personnel requested and received permission to sample the well. On August 16, 2009 samples were collected from an outside spigot after purging the system for approximately 10 minutes. Samples were collected into 40-ml glass vials and returned to the ERT/REAC Laboratory for analysis of VOCs.

Conceptual Cross-Section

Geophysical logs were used to construct a conceptual hydro-geological cross-section of the Oaks subdivision area. The line of section is indicated on Figure 1. For clarity, only the natural gamma-ray, point resistivity, fluid conductivity and caliper curves are shown. The logs were reformatted using Viewlog software and replotted at a vertical scale of 40 feet per inch. This provides a manageable scale for the deeper logs but still retains reasonable resolution of key features. Horizontal log scales may vary for the gamma-ray and fluid conductivity logs and zero reference points are not indicated. Therefore, the logs on the cross-section should not be used for detailed analysis of individual wells.

Global-Positioning System (GPS) Surveying

The locations of all sampling locations and monitor wells were determined using GPS technology. Approximate elevations of the monitor wells were also obtained by GPS to help in initial determination of groundwater flow directions.

Investigation-Derived Waste

All drill cuttings were drummed on-site and the drums transferred to a large portable storage box brought to the site by the Region IV START contractors. At the conclusion of field activities, samples of cuttings were collected and sent to the ERT/REAC Laboratory for analysis of VOCs.

RESULTS

Soil Gas Monitoring and Soil Sampling

PID values, somewhat elevated above background, were recorded at locations SG-7, 8 and 9 (Figure 1A). FID values notably above background were detected at locations SG-7, 11, 12 and 13 with a value of approximately 1,622 parts per million (ppm) measured at location SG-12. Anecdotal evidence indicates that equipment used in road paving may have been stored and/or serviced at the location of the elevated FID readings. No VOCs were detected in soil samples SG-7 and SG-9 but small concentrations of TCE below reporting limits were detected in the soil samples from locations SG-8, 12 and 13. Soil gas screening and soil sampling results are given in Table 1. The preliminary analytical results for the soil samples are included in Appendix A.

Stream and Sediment Sampling

No VOCs were detected in the stream samples from any of the nine locations, or from sediment sample locations SW-1 through SW-8 (Table 2; Figure 1). However, TCE at 0.2 micrograms/kilogram ($\mu\text{g/kg}$) was detected in a relatively fine-grained sediment sample collected at location SW-9, the most upgradient sampling location. The analytical results for the stream samples were validated and the Final Analytical Report is provided in Appendix B. The analytical results for sediment sample SW-9 was also validated and is also included in the Appendix B report. The analytical results for the remaining sediment samples are preliminary only and are included in the Appendix A report.

Monitor Well Installation

Information gathered during monitor well installation procedures is described in this section. Final sampling results are discussed beginning on page 6. Drill cuttings in all boreholes were mostly very fine-grained and appeared to consist of granitic gneisses or schists. Meaningful descriptive logs were not possible given the drilling method and general mixing of the returns.

ERT-6

Monitor Well ERT-6 is located near the west end of Shelby Drive (Figure 1) and was completed to a total depth of 169 feet below land surface (bgs). Competent rock was encountered at approximately 4 to 5 feet bgs and surface casing extended to 6.5 feet bgs. The bedrock is exposed in a stream located only a few feet

away. No water was encountered while the hole was being drilled, but shallow surface water, probably flowing on top of bedrock and discharging to the nearby tributary of Robinson Creek, was observed in the surface casing 24 hours after the casing was installed, and before the open hole was advanced.

ERT-7

Monitor Well ERT-7, located along Sandra Drive, was completed to a total depth of 153 feet bgs with competent rock at 4 feet bgs and surface casing extending to 7.5 feet bgs. Approximately 0.2 gpm was encountered between 60 and 70 feet bgs during drilling. Drilling was temporarily stopped, drill rods were pulled and a submersible pump was used to sample the water after approximately 6 gallons were pumped from the open hole with a pump setting of 50 feet. Samples were collected into 40-mL vials and sent to the ERT/REAC Laboratory for a VOC screening analyses. Drilling then resumed to total depth but no additional yield was obtained. No VOCs were detected by the subsequent analysis.

The well is situated in the Robinson Creek valley bottom where water levels in both the surface casing and the completed borehole were only approximately 2.5 feet bgs and slightly above stream level. These levels are similar to those observed in the shallow soil-gas holes installed earlier in the mobilization and are indicative of a groundwater discharge area.

ERT-8

Monitor Well ERT-8 is located along Chapel Hill Church Road and was advanced to 177 feet. The top of bedrock occurs at 24 feet bgs and surface casing was installed to 27 feet bgs. The hole was dry following completion, but after 24 hours approximately 41 feet of water was measured in the hole, and after 48 hours the water level column had risen to 60 feet. The well was then pumped for 1.5 hours at approximately 0.1 gpm using a submersible pump set near the bottom of the hole and then sampled for VOCs. Total drawdown was approximately 20 feet.

Geophysical Logging

Geophysical logs are included in Appendix C. Interpretations for the individual wells are discussed below.

ERT-6

The caliper log indicates very minor fracturing in the upper 70 feet of the borehole and from approximately 126 to 150 feet bgs. The ATV log suggests that many of the individual fractures are probably not open and are non-water-bearing. Temperature and fluid anomalies occur near the top of the borehole and suggest more dilute water at elevated temperatures is entering the borehole, but does not appear to be mixing at depth. The static water level measured before subsequent sampling of the well was only about 2 feet bgs which is only slightly higher than the adjacent stream level. Water could also be heard entering the borehole at very shallow depths as a result of drawdown during sampling as discussed below. EM flowmeter results indicated a small component of upward flow of perhaps 0.04 gpm, suggesting that the well is located in a local groundwater discharge area. Heavy rains that occurred consistently during this mobilization probably contributed to shallow groundwater flow that entered the well along or near the top of bedrock.

ERT-7

Approximately the upper 80 feet of the borehole appears to be fractured as indicated by both the caliper and ATV log. The caliper log also appears to be somewhat noisy with small cyclic variations that are not indicative of variations in borehole diameter. The temperature log and drilling data suggest that fractures centered at about 42 and 52 may be water bearing. In particular, a marked low-resistance inflection centered at 50 feet on the single-point resistance log (Appendix C, far-right curve) and also on the 16-inch and 64-inch resistivity curves is probably indicative of a water-bearing zone. The lateral resistivity curve is not responding to the high rock resistivities which is characteristic of this log. As indicated above, water was first observed during drilling at approximately 60 feet. The actual entry zone of groundwater in low-

yielding formations drilled with air rotary methods is often somewhat shallower than first observed during drilling.

Below 120 feet, the ATV log suggests a hard uniform rock with no fractures. Drilling in this zone was marked by slow penetration, increased bit wear and a marked decrease in borehole diameter. The bottom 30 feet of borehole would have been too small in diameter to accommodate the original packers. There is no indication that any water-bearing zones are present below those indicated above. The EM flowmeter log suggests a probable small upward flow of about 0.1 gpm, peaking at about the 51 foot depth measuring point. This is consistent with the observed water levels and the location of the well in a probable discharge area.

ERT-8

The water level in the borehole was about 120 feet bgs at the time of logging, and therefore, only about 40 feet of data were obtained for the fluid conductivity, temperature, resistivity, SP and ATV logs. Borehole fluid is necessary for the operation of these logs and the subsequent interpretation of borehole conditions. Because of the limited saturated thickness interval, an EM flowmeter survey was not conducted.

The caliper log indicates the borehole is relatively unfractured throughout and decreases in diameter from slightly less than 4 inches at the top to 3.5 inches at the bottom. Bit wear was excessive, even though a new bit was used to advance the hole. The ATV log further confirms the absence of open fractures. There is no definitive indication of water entry zones on any of the geophysical logs and it is possible that the water in the borehole entered from above the water level observed during geophysical logging.

AW-7

An abandoned 6.5- to 7-inch diameter domestic well located along Sandra Drive was logged as a target of opportunity during this mobilization and subsequently designated as orphaned well 7 (Figure 1). The well is approximately 678 feet deep with 16 feet of steel surface casing. The caliper log indicates minor fracturing below the surface casing to approximately 125 feet bgs and a more pronounced fractured zone from approximately 544 to 555 feet bgs. The well diameter also decreases from approximately 6 inches to 3 inches in the bottom 20 feet of the well. However, the ATV log suggests that only a prominent fracture at approximately 55 feet bgs, and possibly a fracture at 90 feet bgs, are open in the upper portion of the borehole. A possible open fracture at 411 feet bgs indicated on the ATV log is not apparent on the caliper log. The ATV log also suggests that the fracture zone from 544 to 555 feet bgs has been artificially induced by hydraulic fracturing or other methods in an attempt to increase well yield. Intensive vertical fracturing, not completely apparent on the caliper log, extends on the ATV log from approximately 534 feet bgs to total well depth. There is no indication from the geophysical logs that the induced fractured zone yields additional water to the well.

Anomalies on the resistivity, differential temperature and fluid conductivity logs indicate that the fracture at 55 bgs is water-bearing and, when the well is pumped, may contribute water to the borehole. This may be the same zone in ERT-7, located nearby, that also appeared to be water-bearing. The differential temperature log indicates additional small temperature anomalies at 194 and 406 feet bgs. However, no definitive flow within the borehole was detected by the EM flowmeter which has a lower detection limit of approximately 50 milliliters per minute. Generally, the water level in the borehole appears to be in equilibrium, with little or no apparent internal flow.

Well Sampling

Analytical results are summarized in Table 3. Except for the first groundwater sample from well CHR, all groundwater data were validated. The validated results for the groundwater samples are included in the Appendix B Final Analytical Report which includes both the results for surface and groundwater samples. For convenience, however, the pertinent pages indicating only the groundwater results have been provided as Appendix D. This appendix also includes the preliminary analytical reports for the first sample collected from well CHR.

ERT-6

Before sampling, the well was pumped at approximately 0.5 gallons per minute (gpm) for 3.5 hours. Total drawdown was approximately 106 feet with a total pumped volume of approximately 120 gallons. The only VOC detected was toluene at 4.3 µg/L.

ERT-7

Toluene was detected in all three depth samples and ranged between 9.0 and 11.9 µg/L. No TCE was detected in the intermediate depth sample (above 40 feet bgs) but trace amounts below the reporting limit of 1 µg/L were found in both the deep (150 feet bgs) and the shallow (40 feet bgs) sample. As indicated previously, no VOCs were detected in the sample initially collected during drilling.

ERT-8

ERT-8 was pumped for 1.5 hours at approximately 0.1 gpm for a total drawdown of 18 feet. Toluene at 3.3 µg/L was detected in the single sample collected from the well.

AW-4

The compounds cis-1,2-dichloroethene (cis-1,2-DCE), TCE and toluene were found in all three packer intervals. Concentrations of cis-1,2-DCE were nearly identical in all three zones, ranging only between 13.6 and 14.9 µg/L as were TCE concentrations which ranged only between 41.6 and 46.1 µg/L. Toluene concentrations decreased with depth from 21.8 µg/L in the 95- to 115- foot packer interval to 6.3 µg/L in the 145- to 165-foot interval. All analyte concentrations and the toluene distribution pattern with depth were similar to those found in the April 2009. (In the Appendix D laboratory analytical reports, well AW-4 is referred to by the prefix "2J".)

Domestic Well CHR

The screening of the initial sample from domestic well CHR indicated an estimated ("E") TCE concentration of 842 µg/L and a cis-1,2-DCE concentration of 65.8 µg/L. Because the well is in use, the results were immediately conveyed to the homeowner by EPA and arrangements were made to provide bottled water as an interim measure. The original sample was reanalyzed to resolve values for the estimated concentration and the well was then resampled. The second set of samples was again sent to the ERT/REAC Laboratory for Target Compound List (TCL) VOC analysis with data validation. Results of the reanalysis for the first samples indicated a TCE concentration of 1,400 µg/L (duplicate) and a cis-1,2-DCE concentration of 78.6 µg/L. Final analytical results for the second set of samples indicated an estimated (J value) TCE concentration of 599 µg/L and cis-1,2-DCE concentration of 67.8 µg/L.

Investigation-Derived Waste

No target compounds were found in any of the samples collected from the drummed drill cuttings. The complete laboratory report is part of the Final Analytical Report found in both appendices B and D. The waste samples are designated only by the numerals 1 through 4 which refer to the individual drums from which the samples were collected.

CONCLUSIONS

The analytical results from the packer and well sampling suggest that TCE contamination in orphaned well AW-4 in the Oaks subdivision is originating in the upper portion of the well, perhaps in approximately the upper 250 feet. Results of the straddle packer sampling in this mobilization for the three sampling zones (Table 3) are in good agreement with the results from the April 2009 mobilization in which samples were collected from the open borehole. This suggests that fractures in the upper portion of the borehole are probably hydraulically connected and function as a single unit. VOC concentrations in deeper bedrock zones, if any, are still unknown. However, the

following indirect factors suggest that the VOC concentrations observed to date in the Oaks subdivision probably originate from either one or more local sources, or from a source other than the Mills Gap Road site:

- The Oaks subdivision is spatially removed from the Mills Gap Road site by at least two surface drainage sub-basins. Groundwater flow in the mountain region of North Carolina is generally confined to local drainage basins, originating in the uplands and discharging to local streams. Topographic divides control the direction of flow which is usually relatively short. The North Carolina Department of Environment and Natural Resources uses this concept in their master conceptual model for site characterization in the region (LeGrand, 2004), designating the sub-basins as a "slope-aquifer" system. Figure 2 illustrates such a model for the Mills Gap Road study area where sub-basin boundaries are defined by topographic highs. The Oaks subdivision wells with confirmed VOC concentrations are all situated in sub-basin E-2 or adjacent to that system boundary. Conversely, other domestic wells located along Jean Drive, well AW-6 which had no VOC detections, and Monitor Well ERT-7, which had only a trace of TCE, are located in adjacent sub-basin F. Under this concept, VOCs might be expected in Monitor Well ERT-6, which is also located in sub-basin E-2. However, the borehole was dry during drilling. Water in the well likely originated from relatively clean groundwater flowing on top of the shallow bedrock as a result of local heavy rainfall.
- Conceptual cross-section A-B (Figure 2) illustrates a zone of high groundwater conductivity at the top of the water column in abandoned wells AW-4 and AW-5. Specific conductivity values from the geophysical logs in this zone range from about 1,000 to 2,000 microsiemens/centimeter ($\mu\text{S}/\text{cm}$). Toluene, up to 100 $\mu\text{g}/\text{L}$, and TCE have also been detected in the same depth zone as the groundwater conductivity anomaly. Because these wells are no longer pumping, natural groundwater gradients should now be established, which implies a source topographically upgradient (to the north) of the affected wells. The high TD concentrations suggest a septic system source.
- The Phase 1 Remedial Investigation Report for the Mills Gap Road site (MACTEC, 2009) indicates that shallow overburden groundwater flows towards Mills Gap Road from both the north and south, and that groundwater in the underlying partially weathered zone of the bedrock flows southeast. These directions are compatible with the local topography and the "slope-aquifer" concept discussed above. Because of the lack of data, the direction of deep bedrock groundwater flow is not specified. However, it would be highly unlikely that a deeper groundwater flow direction would be established in this terrain at a cross-gradient to the shallower flows and would move laterally across two or more sub-basins (Figure 2).
- Assuming that a cone of depression from the Oaks subdivision wells was indeed reaching to the Mills Gap Road site, the cone should dissipate once the domestic wells were removed from service and VOC levels should begin to decline. Although public water became available in 2008, VOC levels have remained relatively constant according to data collected by START.
- Toluene, up to 100 $\mu\text{g}/\text{L}$, was found in all of the abandoned domestic wells sampled during the previous mobilization and in all of the new monitor wells (and Domestic Well AW-4) sampled during this mobilization. Data collected by MACTEC (2009) indicate that toluene concentrations in groundwater immediately downgradient of the Mills Gap Road site do not appear to be as pervasive, and concentrations are generally lower than in the Oaks subdivision wells. This suggests a separate source of VOCs for the Oaks subdivision wells.
- Sediment sample SW-9, the only sediment sample containing TCE, is located in the upgradient portion of the sub-basin containing the Oaks subdivision wells.

The relationship of the high TCE concentrations in well CHR to the Oaks subdivision wells and the Mills Gap Road site is not clear. It is possible that at least two sources and possibly more may be present.

RECOMMENDATIONS

A nearby source of the TCE in domestic well CHR (if present) might be located with a soil gas survey, using the ERT/REAC Trace Atmospheric Gas Analyzer (TAGA) mobile laboratory to analyze samples collected in Tedlar™ bags. The survey should initially concentrate on areas along Chapel Hill Church Road. However, the soil gas survey may not be effective if the source is further upgradient (westerly).

Domestic well CHR should be geophysically logged, and packer sampled to determine the entry zone of the TCE contamination. This will require access agreements from the well owner.

Installation of diffusion bag samplers at multiple depths in selected wells will provide relatively inexpensive information on the ambient vertical distribution of TCE. The results of the diffusion bag analyses can be used to guide subsequent packer sampling efforts.

Orphaned domestic well AW-7 (along Sandra drive), which was geophysically logged during this mobilization, should be packer sampled.

Orphaned domestic well AW-4, and possibly AW-5, should be sampled for fecal coliform, chloride and phosphate to determine the possibility of septic system infiltration.

Future packer sampling at depths below about 300 feet will be difficult both because of pump requirements and excessive hole deviations from vertical in all of the local wells. The straddle packer interval should be limited to no more than 10 feet and, if possible, the packer assembly should be lowered on a wire-line assembly rather than on a pipe string. This will require a longer than usual initial set-up time and will involve a higher risk of equipment loss in the borehole than with using a conventional pipe string. However, it has a better chance of reaching target depths in the deviated boreholes and will allow much faster sampling once the initial set-up is complete.

Consideration should be given to converting one or more of the deep domestic wells to a multi-port installation. This would allow periodic head measurements and groundwater sample collection in individual zones without the need for truck-mounted equipment or purging (beyond an initial purge).

Age dating of groundwater from selected wells using tritium/helium-3 ($^3\text{H}/^3\text{He}$) ratios may provide estimates of flow path lengths. The helium samples are collected in special copper tubes and require some care in collection.

Additional sampling should be directed at filling in data gaps between the Oaks subdivision area and the Mills Gap Road site. Groundwater level measurements and GPS elevations should also be collected wherever possible. Water level measurements in open bedrock wells usually represent composite heads and are therefore subject to some uncertainty. Nevertheless, an attempt should be made to construct a preliminary water-level map to assess the potential for groundwater flow between sub-basins, i.e., between the Mills Gap Road site and affected domestic wells to the north.

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TABLE 1
SOIL GAS AND SOIL SAMPLING RESULTS
MILLS GAP ROAD SITE
ASHEVILLE, NORTH CAROLINA

Location	Soil Gas Screening		Soil Sample
	PID * PPM	FID* PPM	TCE µg/kg
SG-1	<DL	0.8	NS
SG-2	0.5	0.6	NS
SG-3	2	5.4	NS
SG-4	3.2	2.2	NS
SG-5	<DL	1.4	NS
SG-6	2.9	2.9	NS
SG-7	15.4	32.7	ND
SG-8	12.8	<DL	2.84 J
SG-9	36.7	1.2	ND
SG-10	10.3	0.37	NS
SG-11	7.7	48.4	NS
SG-12	1.6	1,622	2.46 J
SG-13	3.8	94	1.84 J
SG-14	2.8	2.4	NS

* Change from background

PID = photoionization detector

FID = flame ionization detector

PPM = parts per million

µg/kg = micrograms per kilogram

TCE = Trichloroethylene

NS = not sampled

ND = non-detect

J = estimated value below reporting limit

<DL = below detection limit

TABLE 2
RESULTS OF STREAM AND SEDIMENT SAMPLING
MILLS GAP ROAD SITE
ASHEVILLE, NORTH CAROLINA

Location	TCE Concentrations*	
	Stream Sample $\mu\text{g/L}$	Sediment Sample $\mu\text{g/kg}$
SW-1	ND	ND
SW-2	ND	ND
SW-3	ND	ND
SW-4	ND	ND
SW-5	ND	ND
SW-6	ND	ND
SW-7	ND	ND
SW-8	ND	ND
SW-9	ND	2.23 J

TCE = trichloroethylene

$\mu\text{g/L}$ = micrograms/liter

$\mu\text{g/kg}$ = micrograms/kilogram

ND = non-detect

J = estimated value below reporting limit

*No other analytes were detected

TABLE 3
GROUNDWATER SAMPLING RESULTS
MILLS GAP ROAD SITE
ASHEVILLE, NORTH CAROLINA

Well No.	Total Depth Feet bgs	Surface Casing Feet bgs	Elevation Feet amsl	Zone Sampled Feet bgs	Cis-1,2-DCE µg/L	TCE µg/L	Toluene µg/L
ERT Monitor Wells							
ERT-6	169	0-6.5	2351 (GPS)	open hole	ND	ND	4.3
ERT-7	153	0-4	2319.6 (GPS)	0-40	ND	0.85 J	10.9
				0-80	ND	ND	9
				0-150	ND	0.4 J	11.9
ERT-8	177	0-27	2399.2 (GPS)	open hole	ND	ND	3.3
Domestic Wells							
AW-4	705	0-23	2400.87 (ES)	95-115	13.6	41.6	21.8
				125-145	14.9	46.1	13.1
				145-165	14.5	44.2	6.3
				145-165 dup	14.1	42.8	6.1
CHR (1)*	500 +	NA	NA	open hole	77.6/78.6	1290/1400	ND/ND
CHR (2)**				open hole	67.8	599 J	ND/ND

amsl = above mean sea level

bgs = below ground surface

dup = duplicate

ES = engineering survey

GPS = global positioning system

NA = not available

ND = not detected

µg/L = micrograms/liter

Cis-1,2,DCE = cis-1,2-dichloroethene

TCE = trichloroethene

* original sample; duplicate results indicated

** resample results

J = estimated below reporting limit

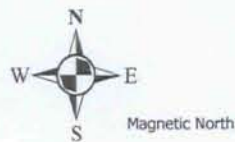


Map created using 2006 high resolution color orthoimagery supplied by North Carolina State, Site GPS survey data, contour line derived from DEM data.
Website: <http://www.nconemap.com/>

Map Creation Date: 25 September 2009

Coordinate system: North Carolina State Plane
FIPS: 3200
Datum: NAD83
Units: Feet

250 0 250
Feet



Legend

- Stream and Sediment Sampling Location
- Soil Gas and Soil Sampling Location
- ⊕ Monitor Well Location
- ERT: ERT/REAC Well
- AW-4: Orphaned Well
- Cross Section Location
- Major Road
- Road
- Stream
- Topographic Contour (C.I. = 20 feet)

Note: Domestic Well CHR not shown to protect privacy



U.S EPA Environmental Response Team
Response Engineering and Analytical Contract
EP-C-04-032
W.A.# 0-296

Figure 1
Sampling Locations
Mills Gap Road Site
Asheville, North Carolina



Map created using 2006 high resolution color orthoimagery supplied by North Carolina State, Site GPS survey data, contour line derived from DEM data.
Website: <http://www.nconemap.com/>

Map Creation Date: 16 September 2009

Coordinate system: North Carolina State Plane
FIPS: 3200
Datum: NAD83
Units: Feet

50 0 50
Feet

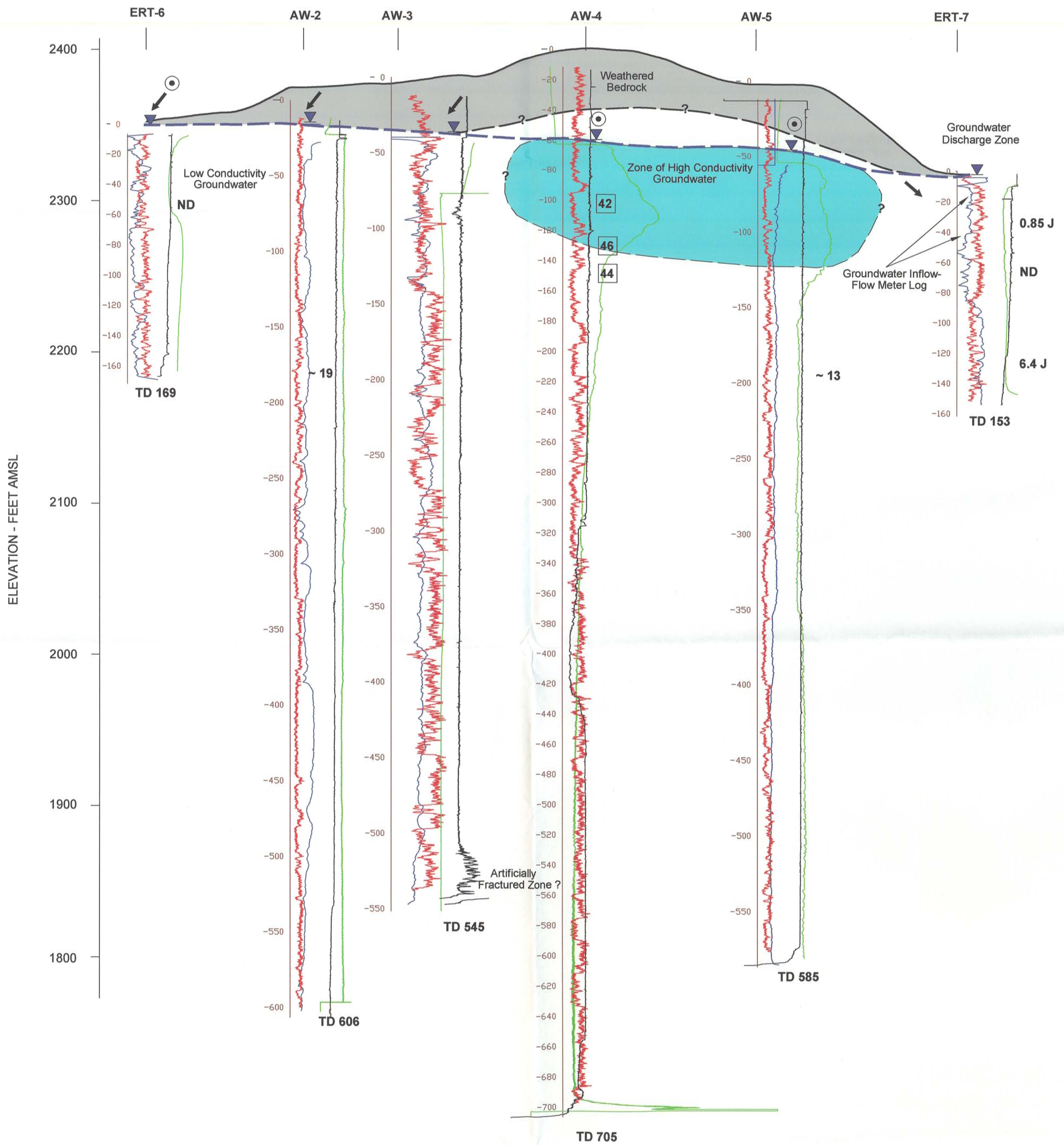


Legend

- Sampling Location
- Stream
- Topographic Contour (C.I. = 20 feet)

A
(West)

B
(East)



Geophysical Logs

	Relative Scale Unit
Gamma-Ray (API Units)	0-500
Point Resistance (ohms)	0-2500
Caliper (inches)	0-2
Specific Conductivity (microsiemens / centimeter)	0-60 (ERT-6,7) 0-600 (AW-2,3,4,5)

Vertical Scale

40 FT

Horizontal Scale

60 FT

Legend

AMSL	Feet Above Mean Sea Level
	Open-Hole Groundwater Level (Approximate Levels January-August 2009)
	Southerly Groundwater Flow
	Southwesterly Groundwater Flow
	Southeasterly Groundwater Flow
TCE	Trichloroethylene
ug/L	Micrograms / Liter
42	TCE Results (ug/L) Packer Sample
13	TCE Results-Open Hole or Single Packer (ug/L)
~	Approximately
ND	Non Detect
J	Estimated Value Below Reporting Limit
TD	Total Depth (feet)
?	Correlation Uncertain

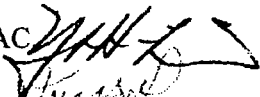
FIGURE 2
CONCEPTUAL CROSS-SECTION A-B
MILLS GAP ROAD SITE
ASHEVILLE, NORTH CAROLINA

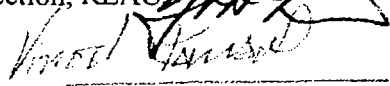
U.S. EPA ENVIRONMENTAL RESPONSE TEAM
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
EP-C-04-032
W.A.# 0-296

APPENDIX A
SOIL AND SEDIMENT SAMPLING ANALYTICAL RESULTS
MILLS GAP ROAD SITE
ASHEVILLE, NORTH CAROLINA

Date: 08/19/09

To: Work Assignment Manager G. Powell, EPA/ERTC

From: Yi-Hua Lin, Organic Group Leader, Analytical Section, REAC 

Thru: Vinod Kansal, Analytical Section Leader, REAC 

Subject: Preliminary Results of Project Mills Gap Road WA# 0-296

Attached please find the preliminary results of the above referenced project for the following samples:

Chain(s) of Custody No.:0296-081009-51, 07124

Analysis: VOC

No. of Samples: 16

Matrix: Soils

cc Raj Singhvi
Central File
Analyst: Y. Nerus

Table 1.1 Result of the Analysis for VOC in Soil
WA # 0-296 Mills Gap Rd.

Method: REAC SOP

Sample Number	Soil Blank 081409-1		51623		51625		51626		51653	
Sample Location:			SW-1 DUP		SW-2		SW-3		SW-4	
Dilution Factor	1		1		1		1		1	
Percent Solids	100		81		54		71		77	
Analyte	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg
Dichlorodifluoromethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Chloromethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Vinyl Chloride	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Bromomethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Chloroethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Trichlorofluoromethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Acetone	U	20.0	U	24.7	14.4 J	37.0	U	28.2	U	26.0
1,1-Dichloroethene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Methylene Chloride	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Carbon Disulfide	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Methyl tert-Butyl Ether	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
trans-1,2-Dichloroethene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,1-Dichloroethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
2-Butanone	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
2,2-Dichloropropane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
cis-1,2-Dichloroethene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Chloroform	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,1-Dichloropropene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,2-Dichloroethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,1,1-Trichloroethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Carbon Tetrachloride	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Benzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Trichloroethene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,2-Dichloropropane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Bromodichloromethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Dibromomethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
cis-1,3-Dichloropropene	U	20.0	U	24.7	U	37.0	U	28.2	U	26.0
trans-1,3-Dichloropropene	U	20.0	U	24.7	U	37.0	U	28.2	U	26.0
1,1,2-Trichloroethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,3-Dichloropropane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Dibromochloromethane	U	20.0	U	24.7	U	37.0	U	28.2	U	26.0
1,2-Dibromoethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Bromoform	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
4-Methyl-2-Pentanone	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Toluene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
2-Hexanone	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Tetrachloroethene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Chlorobenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,1,1,2-Tetrachloroethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Ethylbenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
p,m-Xylene	U	10.0	U	12.3	U	18.5	U	14.1	U	13.0
o-Xylene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Styrene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Isopropylbenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,1,2,2-Tetrachloroethane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,2,3-Trichloropropane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
n-Propylbenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Bromobenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,3,5-Trimethylbenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
2-Chlorotoluene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
4-Chlorotoluene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
tert-Butylbenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,2,4-Trimethylbenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
sec-Butylbenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
p-Isopropyltoluene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,3-Dichlorobenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,4-Dichlorobenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
n-Butylbenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,2-Dichlorobenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,2-Dibromo-3-Chloropropane	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,2,4-Trichlorobenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Hexachlorobutadiene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
Naphthalene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49
1,2,3-Trichlorobenzene	U	5.00	U	6.17	U	9.26	U	7.04	U	6.49

Table 1.1 Result of the Analysis for VOC in Soil
WA # 0-296 Mills Gap Rd.

Method: REAC SOP

Sample Number	Soil Blank 081409-1		51627		51628		51629		51630	
Sample Location:			SW-5		SW-6		SW-7		SW-8	
Dilution Factor	1		1		1		1		1	
Percent Solids	100		85		61		77		73	
Analyte	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg
Dichlorodifluoromethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Chloromethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Vinyl Chloride	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Bromomethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Chloroethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Trichlorofluoromethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Acetone	U	20.0	U	23.5	U	32.8	U	26.0	U	27.4
1,1-Dichloroethene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Methylene Chloride	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Carbon Disulfide	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Methyl tert-Butyl Ether	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
trans-1,2-Dichloroethene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,1-Dichloroethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
2-Butanone	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
2,2-Dichloropropane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
cis-1,2-Dichloroethene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Chloroform	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,1-Dichloropropene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,2-Dichloroethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,1,1-Trichloroethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Carbon Tetrachloride	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Benzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Trichloroethene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,2-Dichloropropane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Bromodichloromethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Dibromomethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
cis-1,3-Dichloropropene	U	20.0	U	23.5	U	32.8	U	26.0	U	27.4
trans-1,3-Dichloropropene	U	20.0	U	23.5	U	32.8	U	26.0	U	27.4
1,1,2-Trichloroethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,3-Dichloropropane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Dibromochloromethane	U	20.0	U	23.5	U	32.8	U	26.0	U	27.4
1,2-Dibromoethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Bromoform	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
4-Methyl-2-Pentanone	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Toluene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
2-Hexanone	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Tetrachloroethene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Chlorobenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,1,1,2-Tetrachloroethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Ethylbenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
p&m-Xylene	U	10.0	U	11.8	U	16.4	U	13.0	U	13.7
o-Xylene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Styrene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Isopropylbenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,1,2,2-Tetrachloroethane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,2,3-Trichloropropane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
n-Propylbenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Bromobenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,3,5-Trimethylbenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
2-Chlorotoluene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
4-Chlorotoluene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
tert-Butylbenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,2,4-Trimethylbenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
sec-Butylbenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
p-Isopropyltoluene	U	5.00	U	5.88	U	3.20	U	6.49	U	6.85
1,3-Dichlorobenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,4-Dichlorobenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
n-Butylbenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,2-Dichlorobenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,2-Dibromo-3-Chloropropane	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,2,4-Trichlorobenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Hexachlorobutadiene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
Naphthalene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85
1,2,3-Trichlorobenzene	U	5.00	U	5.88	U	8.20	U	6.49	U	6.85

Table 1.1 Result of the Analysis for VOC in Soil
WA # D-296 Mills Gap Rd,

Method: REAC SOP

Sample Number	Soil Blank 081409-1	51632	51633
Sample Location		SG-7	SG-9
Dilution Factor	1	1	1
Percent Solids	100	73	75

Analyte	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg
Dichlorodifluoromethane	U	5.00	U	6.85	U	6.67
Chloromethane	U	5.00	U	6.85	U	6.67
Vinyl Chloride	U	5.00	U	6.85	U	6.67
Bromomethane	U	5.00	U	6.85	U	6.67
Chloroethane	U	5.00	U	6.85	U	6.67
Trichlorofluoromethane	U	5.00	U	6.85	U	6.67
Acetone	U	20.0	U	27.4	U	26.7
1,1-Dichloroethene	U	5.00	U	6.85	U	6.67
Methylene Chloride	U	5.00	U	6.85	U	6.67
Carbon Disulfide	U	5.00	U	6.85	U	6.67
Methyl tert-Butyl Ether	U	5.00	U	6.85	U	6.67
trans-1,2-Dichloroethene	U	5.00	U	6.85	U	6.67
1,1-Dichloroethane	U	5.00	U	6.85	U	6.67
2-Butanone	U	5.00	U	6.85	U	6.67
2,2-Dichloropropane	U	5.00	U	6.85	U	6.67
cis-1,2-Dichloroethene	U	5.00	U	6.85	U	6.67
Chloroform	U	5.00	U	6.85	U	6.67
1,1-Dichloropropene	U	5.00	U	6.85	U	6.67
1,2-Dichloroethane	U	5.00	U	6.85	U	6.67
1,1,1-Trichloroethane	U	5.00	U	6.85	U	6.67
Carbon Tetrachloride	U	5.00	U	6.85	U	6.67
Benzene	U	5.00	U	6.85	U	6.67
Trichloroethene	U	5.00	U	6.85	U	6.67
1,2-Dichloropropane	U	5.00	U	6.85	U	6.67
Bromodichloromethane	U	5.00	U	6.85	U	6.67
Dibromomethane	U	5.00	U	6.85	U	6.67
cis-1,3-Dichloropropene	U	20.0	U	27.4	U	26.7
trans-1,3-Dichloropropene	U	20.0	U	27.4	U	26.7
1,1,2-Trichloroethane	U	5.00	U	6.85	U	6.67
1,3-Dichloropropane	U	5.00	U	6.85	U	6.67
Dibromochloromethane	U	20.0	U	27.4	U	26.7
1,2-Dibromoethane	U	5.00	U	6.85	U	6.67
Bromotorm	U	5.00	U	6.85	U	6.67
4-Methyl-2-Pentanone	U	5.00	U	6.85	U	6.67
Toluene	U	5.00	U	6.85	U	6.67
2-Hexanone	U	5.00	U	6.85	U	6.67
Tetrachloroethene	U	5.00	U	6.85	U	6.67
Chlorobenzene	U	5.00	U	6.85	U	6.67
1,1,1,2-Tetrachloroethane	U	5.00	U	6.85	U	6.67
Ethylbenzene	U	5.00	U	6.85	U	6.67
p&m-Xylene	U	10.0	U	13.7	U	13.3
o-Xylene	U	5.00	U	6.85	U	6.67
Styrene	U	5.00	U	6.85	U	6.67
Isopropylbenzene	U	5.00	U	6.85	U	6.67
1,1,2,2-Tetrachloroethane	U	5.00	U	6.85	U	6.67
1,2,3-Trichloropropane	U	5.00	U	6.85	U	6.67
n-Propylbenzene	U	5.00	U	6.85	U	6.67
Bromobenzene	U	5.00	U	6.85	U	6.67
1,3,5-Trimethylbenzene	U	5.00	U	6.85	U	6.67
2-Chlorotoluene	U	5.00	U	6.85	U	6.67
4-Chlorotoluene	U	5.00	U	6.85	U	6.67
tert-Butylbenzene	U	5.00	U	6.85	U	6.67
1,2,4-Trimethylbenzene	U	5.00	U	6.85	U	6.67
sec-Butylbenzene	U	5.00	U	6.85	U	6.67
p-Isopropyltoluene	U	5.00	U	6.65	U	6.67
1,3-Dichlorobenzene	U	5.00	U	6.85	U	6.67
1,4-Dichlorobenzene	U	5.00	U	6.85	U	6.67
n-Butylbenzene	U	5.00	U	6.85	U	6.67
1,2-Dichlorobenzene	U	5.00	U	6.85	U	6.67
1,2-Dibromo-3-Chloropropane	U	5.00	U	6.85	U	6.67
1,2,4-Trichlorobenzene	U	5.00	U	6.85	U	6.67
Hexachlorobutadiene	U	5.00	U	6.85	U	6.67
Naphthalene	U	5.00	U	6.85	U	6.67
1,2,3-Trichlorobenzene	U	5.00	U	6.85	U	6.67

Table 1.1 Result of the Analysis for VOC in Soil
WA # 0-296 Mills Gap Rd.

Method: REAC SOP

Sample Number	Soil Blank C 081809		51624		51634		51635		51637	
Sample Location:			SW-1		SG-8		SG-12		SG-13	
Dilution Factor	1		1		1		1		1	
Percent Solids	100		79		85		80		90	
Analyte	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg
Dichlorodifluoromethane	U	20.0	U	25.3	U	23.5	U	25.0	U	22.2
Chloromethane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Vinyl Chloride	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Bromomethane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Chloroethane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Trichlorofluoromethane	U	20.0	U	25.3	U	23.5	U	25.0	U	22.2
Acetone	U	20.0	U	25.3	U	23.5	U	25.0	U	22.2
1,1-Dichloroethene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Methylene Chloride	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Carbon Disulfide	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Methyl tert-Butyl Ether	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
trans-1,2-Dichloroethene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,1-Dichloroethane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
2-Butanone	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
2,2-Dichloropropane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
cis-1,2-Dichloroethene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Chloroform	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,1-Dichloropropene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,2-Dichloroethane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,1,1-Trichloroethane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Carbon Tetrachloride	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Benzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Trichloroethene	U	5.00	U	6.33	2.84 J	5.88	2.23 J	6.25	1.84 J	5.56
1,2-Dichloropropane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Bromodichloromethane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Dibromomethane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
cis-1,3-Dichloropropene	U	20.0	U	25.3	U	23.5	U	25.0	U	22.2
trans-1,3-Dichloropropene	U	20.0	U	25.3	U	23.5	U	25.0	U	22.2
1,1,2-Trichloroethane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,3-Dichloropropane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Dibromochloromethane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,2-Dibromoethane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Bromoform	U	20.0	U	25.3	U	23.5	U	25.0	U	22.2
4-Methyl-2-Pentanone	U	20.0	U	25.3	U	23.5	U	25.0	U	22.2
Toluene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
2-Hexanone	U	20.0	U	25.3	U	23.5	U	25.0	U	22.2
Tetrachloroethene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Chlorobenzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,1,1,2-Tetrachloroethane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Ethylbenzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
p,m-Xylene	U	10.0	U	12.7	U	11.8	U	12.5	U	11.1
o-Xylene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Styrene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Isopropylbenzene	U	20.0	U	25.3	U	23.5	U	25.0	U	22.2
1,1,2,2-Tetrachloroethane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,2,3-Trichloropropane	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
n-Propylbenzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Bromobenzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,3,5-Trimethylbenzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
2-Chlorotoluene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
4-Chlorotoluene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
tert-Butylbenzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,2,4-Trimethylbenzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
sec-Butylbenzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
p-Isopropyltoluene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,3-Dichlorobenzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,4-Dichlorobenzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
n-Butylbenzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,2-Dichlorobenzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
1,2-Dibromo-3-Chloropropane	U	20.0	U	25.3	U	23.5	U	25.0	U	22.2
1,2,4-Trichlorobenzene	U	20.0	U	25.3	U	23.5	U	25.0	U	22.2
Hexachlorobutadiene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56
Naphthalene	U	20.0	U	25.3	U	23.5	U	25.0	U	22.2
1,2,3-Trichlorobenzene	U	5.00	U	6.33	U	5.88	U	6.25	U	5.56

EP-C-04-032

LM Contact: R. Woodruff Phone: 609-865-9317

(for addnl. samples use new form)

R 908 CC7

Analyses Requested

REACH#	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCs
01	51623	SW-1 Dup	SD	8/10/09	1	4 oz glass / 4°C	X
02	51624	SW-1			1		X
03	51625	SW-2			2		X
04	51626	SW-3			1		X
05	51653	SW-4			1		X
06	51627	SW-5			1		X
07	51628	SW-6			1		X
08	51629	SW-7			1		X
09	51630	SW-8	Y		1		X
10	51632	SG-7	S		1		X
11	51633	SG-9	S		2		X
12	51634	SG-8	S		1		X
13	51635	SG-12	S		1		X
14	51637	SG-13	S	↓	1	↓	X

Special instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

Received 5°C ~~7/1~~ 8/13/00

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time
Cell Analysis	H. Wroblewski	8/12/09	Tracy McMillin	8/13/09	10:30	All Analysis	Tracy McMillin	8/14/09	J. Wroblewski	8-14-09	9:00

EP-C-04-032

LM Contact: K. Woodruff Phone: 609-865-9317

Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

R9C8007

Analyses Requested

REAC#	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOC's
15	51636	SG-12 Dup	S	8/10/09	1	4oz glass/4°C	✓
16	51631	SW-9	↓	↓	↓	↓ ↓	✓
<div style="border: 1px solid black; width: 100px; height: 100px; margin: 0 auto; transform: rotate(45deg); transform-origin: center;"> <div style="position: relative; width: 100%; height: 100%;"> <div style="position: absolute; top: -50px; left: 50%; transform: translateX(-50%);"> <div style="border: 1px solid black; padding: 5px; transform: rotate(-45deg);"> M 8/13/09 </div> </div> </div> </div>							

Special Instructions:

Samples received on 8/13/09 with samples that appear on COC# 0296-081004-51. Task lead requested I put them on a COC and get them Analyzed. Jm 8/18/09

CHAIN OF CUSTODY #:

Received 5°C Jm 8/13/09

[illegible]

Table 1.1 Result of the Analysis for VOC in Soil
WA # 0-296 Mills Gap Rd.

Method: REAC SOP

Sample Number	Soil Blank C 081809	51636	51631
Sample Location:		SG-12 Dup	SW-9
Dilution Factor	1	1	1
Percent_Solids	100	79	62

Analyte	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg
Dichlorodifluoromethane	U	20.0	U	25.3	U	32.3
Chloromethane	U	5.00	U	6.33	U	8.06
Vinyl Chloride	U	5.00	U	6.33	U	8.06
Bromomethane	U	5.00	U	6.33	U	8.06
Chloroethane	U	5.00	U	6.33	U	8.06
Trichlorofluoromethane	U	20.0	2.78 J	25.3	U	32.3
Acetone	U	20.0	U	25.3	U	32.3
1,1-Dichloroethane	U	5.00	U	6.33	U	8.06
Methylene Chloride	U	5.00	U	6.33	U	8.06
Carbon Disulfide	U	5.00	U	6.33	U	8.06
Methyl tert-Butyl Ether	U	5.00	U	6.33	U	8.06
trans-1,2-Dichloroethene	U	5.00	U	6.33	U	8.06
1,1-Dichloroethane	U	5.00	U	6.33	U	8.06
2-Butanone	U	5.00	U	6.33	U	8.06
2,2-Dichloropropane	U	5.00	U	6.33	U	8.06
cis-1,2-Dichloroethene	U	5.00	U	6.33	U	8.06
Chloroform	U	5.00	U	6.33	U	8.06
1,1-Dichloropropene	U	5.00	U	6.33	U	8.06
1,2-Dichloroethane	U	5.00	U	6.33	U	8.06
1,1,1-Trichloroethane	U	5.00	U	6.33	U	8.06
Carbon Tetrachloride	U	5.00	U	6.33	U	8.06
Benzene	U	5.00	U	6.33	U	8.06
Trichloroethene	U	5.00	2.46 J	6.33	2.23 J	8.06
1,2-Dichloropropane	U	5.00	U	6.33	U	8.06
Bromodichloromethane	U	5.00	U	6.33	U	8.06
Dibromomethane	U	5.00	U	6.33	U	8.06
cis-1,3-Dichloropropene	U	20.0	U	25.3	U	32.3
trans-1,3-Dichloropropene	U	20.0	U	25.3	U	32.3
1,1,2-Trichloroethane	U	5.00	U	6.33	U	8.06
1,3-Dichloropropane	U	5.00	U	6.33	U	8.06
Dibromochloromethane	U	5.00	U	6.33	U	8.06
1,2-Dibromoethane	U	5.00	U	6.33	U	8.06
Bromoform	U	20.0	U	25.3	U	32.3
4-Methyl-2-Pentanone	U	20.0	U	25.3	U	32.3
Toluene	U	5.00	U	6.33	U	8.06
2-Hexanone	U	20.0	U	25.3	U	32.3
Tetrachloroethene	U	5.00	U	6.33	U	8.06
Chlorobenzene	U	5.00	U	6.33	U	8.06
1,1,1,2-Tetrachloroethane	U	5.00	U	6.33	U	8.06
Ethylbenzene	U	5.00	U	6.33	U	8.06
p&m-Xylene	U	10.0	U	12.7	U	16.1
o-Xylene	U	5.00	U	6.33	U	8.06
Styrene	U	5.00	U	6.33	U	8.06
Isopropylbenzene	U	20.0	U	25.3	U	32.3
1,1,2,2-Tetrachloroethane	U	5.00	U	6.33	U	8.06
1,2,3-Trichloropropane	U	5.00	U	6.33	U	8.06
n-Propylbenzene	U	5.00	U	6.33	U	8.06
Bromobenzene	U	5.00	U	6.33	U	8.06
1,3,5-Trimethylbenzene	U	5.00	U	6.33	U	8.06
2-Chlorotoluene	U	5.00	U	6.33	U	8.06
4-Chlorotoluene	U	5.00	U	6.33	U	8.06
tert-Butylbenzene	U	5.00	U	6.33	U	8.06
1,2,4-Trimethylbenzene	U	5.00	U	6.33	U	8.06
sec-Butylbenzene	U	5.00	U	6.33	U	8.06
p-Isopropyltoluene	U	5.00	U	6.33	U	8.06
1,3-Dichlorobenzene	U	5.00	U	6.33	U	8.06
1,4-Dichlorobenzene	U	5.00	U	6.33	U	8.06
n-Butylbenzene	U	5.00	U	6.33	U	8.06
1,2-Dichlorobenzene	U	5.00	U	6.33	U	8.06
1,2-Dibromo-3-Chloropropane	U	20.0	U	25.3	U	32.3
1,2,4-Trichlorobenzene	U	20.0	U	25.3	U	32.3
Hexachlorobutadiene	U	5.00	U	6.33	U	8.06
Naphthalene	U	20.0	U	25.3	U	32.3
1,2,3-Trichlorobenzene	U	5.00	U	6.33	U	8.06

Lockheed Martin
Response Engineering Analytical Contract
2890 Woodbridge Avenue Building 209 Annex
Edison, NJ 08837-3679
Telephone 732-321-4200 Facsimile 732-494-4021

LOCKHEED MARTIN



DATE: October 7, 2009
TO: R. Singhvi, EPA/ERT Analytical Work Assignment Manager
FROM: V. Kansal, REAC Analytical Section Leader *Vinod Kansal*
SUBJECT: DOCUMENT TRANSMITTAL UNDER WORK ASSIGNMENT # 0-296

Attached please find the following document prepared under this work assignment:

Mills Gap Road - Analytical Report

K. Woodruff	Work Assignment Manager (w/o attachment)
G. Powell	Task Leader (w/o attachment)
J. Soroka	Data Validation and Report Writing Group Leader (w/o attachment)
Central File	WA # 0-296 (w/attachment)

ANALYTICAL REPORT


Prepared by
LOCKHEED MARTIN, Inc.

Mills Gap Road
Asheville, North Carolina

October 2009

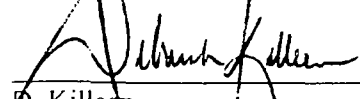
EPA Work Assignment No. 0-296
LOCKHEED MARTIN Work Order EAC0296
EPA Contract No. EP-C-04-032

Submitted to
G. Powell
EPA-ERT

 10/7/09

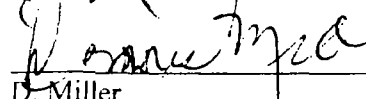
V. Kansal
Analytical Section Leader
Date

Analysis by:
REAC
Accutest

 10/2/09

D. Killeen
Quality Assurance Officer
Date

Prepared by:
Y. Mehra

 10/7/09

D. Miller
Program Manager
Date

Reviewed by:
J. Soroka

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Correspondence
Chains of Custody

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The appendices will be furnished on request

Introduction

REAC, in response to WA# 0-296, provided analytical support for environmental samples collected from the Mills Gap Road Site located in Asheville, North Carolina, as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at REAC were treated with the procedures consistent with those specified in REAC SOP# 1008.

COC #	Number of Samples	Sampling Start Date	Date Received	Matrix	Analysis/ Method	Laboratory	Data Package
0296-081009-50	10	08/10/09	08/13/09	Water	VOC/ SW846 8260B	Accutest ¹	U 313
0296-081909-56	1	08/19/09	08/24/09			VOC/REAC SOP 1806	REAC ²
	4			Soil	VOC/REAC SOP 1807		
07124	2 ³	08/10/09	08/13/09				
0296-081009-51	14 ⁴	08/10/09	08/13/09				
0296-080709-54	3 ⁴						
0296-081809-55	1	08/17/09	08/22/09	Water	VOC/SW846 8260B	Accutest ¹	U 328
	4	08/18/09					
0296-082009-57	4	08/20/09	08/21/09				
	2	08/21/09					

¹ Accutest is NELAC certified for VOC analysis in water

² REAC is NELAC certified for VOC analysis in water and soil

³ As per the WAM's request, only sample 51631 was validated and included in this report.

⁴ As per the WAM's request, these samples were not validated and are not included in this report.

Case Narrative

The laboratory reported the data to two or three significant figures. Any other representation of the data is the responsibility of the user. All data validation flags have been inserted into the results tables. The laboratory did not report results less than the RL.

VOC in Water Package U 313

The data package was examined and found to be acceptable.

VOC in Water and Soil Package U 315

The sample used for the 10x dilution of sample 51649 was taken from the original vial which was used for the non-diluted analysis and had headspace above the water. The trichloroethene result from the 10x dilution for sample 51649 is qualified estimated (J).

The 5 ppb calibration standard for dichlorodifluoromethane, trichlorofluoromethane, cis- and trans-1,3-dichloropropene, bromoform, 4-methyl-2-pentanone, 2-hexanone, isopropylbenzene, 1,2-dibromo-3-chloropropane, 1,2,4-trichlorobenzene and naphthalene were not used to generate the initial calibration curve for soil of 08/18/09. The RLs for these compounds are raised to the next calibration standard (20 ppb) for samples 51631, 51663, 51658, SMB-C-081809 and SMB-C-082509.

Dichlorofluoromethane, acetone and 1,2-dibromo-3-chloropropane did not meet the %D criterion for the continuing calibration of 08/25/09. The acetone result in sample 51663 is qualified estimated (J).

Samples 51697 and 51657 were initially analyzed and did not meet the QC criteria for two internal standards. The samples were reanalyzed one day past holding time and the internal standard responses were acceptable. In the professional judgment of the validator, the results for these samples were reported from the reanalysis and are qualified estimated non-detect (UJ).

VOC in Water Package U 328

The data package was examined and found to be acceptable.

Summary of Abbreviations

BFB	Bromofluorobenzene
C	Centigrade
CLP	Contract Laboratory Program
COC	Chain of Custody
conc	concentration
cont	continued
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
D	(Surrogate Table) value is from a diluted sample and was not calculated
Dioxin	Polychlorinated dibenzo-p-dioxins (PCDD) and Polychlorinated dibenzofurans (PCDF)
DFTPP	Decafluorotriphenylphosphine
EMPC	Estimated maximum possible concentration
GC/MS	Gas Chromatography/ Mass Spectrometry
IS	Internal Standard
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MDA	Minimum Detectable Activity
MS (BS)	Matrix Spike (Blank Spike)
MSD (BSD)	Matrix Spike Duplicate (Blank Spike Duplicate)
MW	Molecular Weight
NA	Not Applicable or Not Available
NAD	Normalized Absolute Difference
NC	Not Calculated
NR	Not Requested/Not Reported
NS	Not Spiked
% D	Percent Difference
% REC	Percent Recovery
SOP	Standard Operating Procedure
ppbv	parts per billion by volume
ppm	parts per million
pptv	parts per trillion by volume
PQL	Practical Quantitation Limit
PAL	Performance Acceptance Limit
QA/QC	Quality Assurance/Quality Control
QL	Quantitation Limit
REAC	Response Engineering and Analytical Contract
RL	Reporting Limit
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
SIM	Selected Ion Monitoring
Sur	Surrogate
TIC	Tentatively Identified Compound
TCLP	Toxicity Characteristic Leaching Procedure
VOC	Volatile Organic Compound
*	Value exceeds the acceptable QC limits

m ³	cubic meter	g	gram	kg	kilogram	L	liter
μg	microgram	μL	microliter	mg	milligram	mL	milliliter
ng	nanogram	pg	picogram	pCi	picocurie	s	sigma

Data Validation Flags

J	Value is estimated	R	Value is unusable
J+	Value is estimated high (metals only)	U	Not detected
J-	Value is estimated low (metals only)	UJ	Not detected and RL is estimated
N	Presumptively present (Aroclors only)		

Rev. 1/14/09

Table 1.1 Results of the Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Method SW846 8260B

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Sample Number Sample Location	8/22/2009 Method Blank		51695 SW-2		51693 SW-1		51694 SW-1 DUP		51696 SW-3	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Acetone	U	10	U	10	U	10	U	10	U	10
Benzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromodichloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromoform	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0
Bromomethane	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
2-Butanone (MEK)	U	10	U	10	U	10	U	10	U	10
Carbon disulfide	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Carbon tetrachloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chlorobenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroform	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Dibromochloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloropropane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Ethylbenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
2-Hexanone	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
Methylene chloride	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Styrene	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Tetrachloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Toluene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,1-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,2-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Trichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Vinyl chloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene (total)	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Method SW846 8260B

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Sample Number Sample Location	51618 SW-4		51617 SW-5		51619 SW-6		51620 SW-7		51621 SW-8	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Acetone	U	10	U	10	U	10	U	10	U	10
Benzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromodichloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromoform	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0
Bromomethane	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
2-Butanone (MEK)	U	10	U	10	U	10	U	10	U	10
Carbon disulfide	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Carbon tetrachloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chlorobenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroform	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Dibromochloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloropropane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Ethylbenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
2-Hexanone	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
Methylene chloride	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Styrene	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Tetrachloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Toluene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,1-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,2-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Trichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Vinyl chloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene (total)	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Method SW846 8260B

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Sample Number 51622
Sample Location SW-9

Analyte	Result µg/L	RL µg/L
Acetone	U	10
Benzene	U	1.0
Bromodichloromethane	U	1.0
Bromoform	U	4.0
Bromomethane	U	2.0
2-Butanone (MEK)	U	10
Carbon disulfide	U	2.0
Carbon tetrachloride	U	1.0
Chlorobenzene	U	1.0
Chloroethane	U	1.0
Chloroform	U	1.0
Chloromethane	U	1.0
Dibromochloromethane	U	1.0
1,1-Dichloroethane	U	1.0
1,2-Dichloroethane	U	1.0
1,1-Dichloroethene	U	1.0
cis-1,2-Dichloroethene	U	1.0
trans-1,2-Dichloroethene	U	1.0
1,2-Dichloropropane	U	1.0
cis-1,3-Dichloropropene	U	1.0
trans-1,3-Dichloropropene	U	1.0
Ethylbenzene	U	1.0
2-Hexanone	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0
Methylene chloride	U	2.0
Styrene	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0
Tetrachloroethene	U	1.0
Toluene	U	1.0
1,1,1-Trichloroethane	U	1.0
1,1,2-Trichloroethane	U	1.0
Trichloroethene	U	1.0
Vinyl chloride	U	1.0
Xylene (total)	U	1.0

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Method REAC SOP 1806

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Sample Number Water Blank C082509-1 51649
Sample Location CHR-2

Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Dichlorodifluoromethane	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00
Acetone	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	1.54 J	5.00
Methylene Chloride	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00
Methyl tert-Butyl Ether	U	5.00	U	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00
1,1 Dichloroethane	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	67.8	5.00
Chloroform	U	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00
Benzene	U	5.00	U	5.00
Trichloroethene	U	5.00	599 J	50.0
1,2-Dichloropropane	U	5.00	U	5.00
Bromodichloromethane	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00
Dibromochloromethane	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00
4-Methyl-2-Pentanone	U	5.00	U	5.00
Toluene	U	5.00	U	5.00
2-Hexanone	U	5.00	U	5.00
Tetrachloroethene	U	5.00	U	5.00
Chlorobenzene	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00
Styrene	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00
1,2-Dibromo-3-Chloropropane	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA # 0-296 Mills Gap Road

Method : SW846 8260B

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Sample Number Sample Location	Method Blank 8/31/2009; 0843		51648 TB		51644 TB		51642 ERT-7,80		51641 ERT-7,40	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Acetone	U	10	U	10	U	10	U	10	U	10
Benzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromodichloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromoform	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0
Bromomethane	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
2-Butanone (MEK)	U	10	U	10	U	10	U	10	U	10
Carbon disulfide	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Carbon tetrachloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chlorobenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroform	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Dibromochloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloropropane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Ethylbenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
2-Hexanone	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
Methylene chloride	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Styrene	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Tetrachloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Toluene	U	1.0	U	1.0	U	1.0	9.0	1.0	11	1.0
1,1,1-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,2-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Trichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	0.85 J	1.0
Vinyl chloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene, m-&p-	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene, o-	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA # 0-296 Mills Gap Road

Method : SW846 8260B

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Sample Number	51640		51650		51647		51651		51652	
Sample Location	2J-115		ERT-8		2J-145		2J-165		2J-165 DUP	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Acetone	U	10	U	10	U	10	U	10	U	10
Benzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromodichloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromoform	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0
Bromomethane	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
2-Butanone (MEK)	U	10	U	10	U	10	U	10	U	10
Carbon disulfide	U	2.0	0.53 J	2.0	U	2.0	U	2.0	U	2.0
Carbon tetrachloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chlorobenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroform	0.56 J	1.0	U	1.0	0.51 J	1.0	0.49 J	1.0	0.52 J	1.0
Chloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Dibromochloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,2-Dichloroethene	14	1.0	U	1.0	15	1.0	15	1.0	14	1.0
trans-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloropropane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Ethylbenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
2-Hexanone	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
4-Methyl-2-pentanone(MiBK)	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
Methylene chloride	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Styrene	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Tetrachloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Toluene	22	1.0	3.3	1.0	13	1.0	6.3	1.0	6.1	1.0
1,1,1-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,2-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Trichloroethene	42	1.0	U	1.0	46	1.0	44	1.0	43	1.0
Vinyl chloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene, m-&p-	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene, o-	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA # 0-296 Mills Gap Road

Method : SW846 8260B

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Sample Number Sample Location	Method Blank 8/31/2009; 2106		51643 ERT-6		51645 ERT-7, 150	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Acetone	U	10	U	10	U	10
Benzene	U	1.0	U	1.0	U	1.0
Bromodichloromethane	U	1.0	U	1.0	U	1.0
Bromoform	U	4.0	U	4.0	U	4.0
Bromomethane	U	2.0	U	2.0	U	2.0
2-Butanone (MEK)	U	10	U	10	U	10
Carbon disulfide	U	2.0	U	2.0	U	2.0
Carbon tetrachloride	U	1.0	U	1.0	U	1.0
Chlorobenzene	U	1.0	U	1.0	U	1.0
Chloroethane	U	1.0	U	1.0	U	1.0
Chloroform	U	1.0	U	1.0	U	1.0
Chloromethane	U	1.0	U	1.0	U	1.0
Dibromochloromethane	U	1.0	U	1.0	U	1.0
1,1-Dichloroethane	U	1.0	U	1.0	U	1.0
1,2-Dichloroethane	U	1.0	U	1.0	U	1.0
1,1-Dichloroethene	U	1.0	U	1.0	U	1.0
cis-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0
trans-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0
1,2-Dichloropropane	U	1.0	U	1.0	U	1.0
cis-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0
trans-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0
Ethylbenzene	U	1.0	U	1.0	U	1.0
2-Hexanone	U	5.0	U	5.0	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0	U	5.0	U	5.0
Methylene chloride	U	2.0	U	2.0	U	2.0
Styrene	U	5.0	U	5.0	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0	U	1.0	U	1.0
Tetrachloroethene	U	1.0	U	1.0	U	1.0
Toluene	U	1.0	4.3	1.0	12	1.0
1,1,1-Trichloroethane	U	1.0	U	1.0	U	1.0
1,1,2-Trichloroethane	U	1.0	U	1.0	U	1.0
Trichloroethene	U	1.0	U	1.0	0.40 J	1.0
Vinyl chloride	U	1.0	U	1.0	U	1.0
Xylene, m-&p-	U	1.0	U	1.0	U	1.0
Xylene, o-	U	1.0	U	1.0	U	1.0

Table 1.2 Results of the TICs for VOC in Water
WA# 0-296 Mills Gap Road

Page 1 of 1

Sample Number	Analyte	Concentration*, µg/L
Water Blank 08/22/09	No TICs Detected	
51693	No TICs Detected	
51694	No TICs Detected	
51695	No TICs Detected	
51696	No TICs Detected	
51618	No TICs Detected	
51671	No TICs Detected	
51619	No TICs Detected	
51620	No TICs Detected	
51621	No TICs Detected	
51622	No TICs Detected	
Water Blank C082509-1	No TICs Detected	
51649	No TICs Detected	
Method Blank 08/31/09 0843	No TICs Detected	
51648	No TICs Detected	
51644	No TICs Detected	
51642	No TICs Detected	
51641	No TICs Detected	
51640	No TICs Detected	
51650	No TICs Detected	
51647	No TICs Detected	
51651	No TICs Detected	
51652	No TICs Detected	
Method Blank 08/31/09 021.03	No TICs Detected	
51643	No TICs Detected	
51645	No TICs Detected	

* Estimated Concentration (Response Factor = 1)

Table 1.3 Results of the Analysis for VOC in Soil
WA# 0-296 Mills Gap Road
Based on Dry Weight

Method REAC SOP 1807

Page 1 of 2

Sample Number	Soil Blank C 081809		51631		Soil Blank C082509		51663		51658	
Sample Location			SW-9				4		2	
Percent Solids	100		62		100		80		95	
Analyte	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Dichlorodifluoromethane	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Chloromethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Vinyl Chloride	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Bromomethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Chloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Trichlorofluoromethane	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Acetone	U	20.0	U	32.3	U	20.0	58.2 J	25.0	U	21.1
1,1-Dichloroethene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Methylene Chloride	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Carbon Disulfide	U	5.00	U	8.06	U	5.00	3.93 J	6.25	U	5.26
Methyl tert-Butyl Ether	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
trans-1,2-Dichloroethene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,1 Dichloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
2-Butanone	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
2,2-Dichloropropane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
cis-1,2-Dichloroethene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Chloroform	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,1-Dichloropropene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2-Dichloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,1,1-Trichloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Carbon Tetrachloride	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Benzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Trichloroethene	U	5.00	2.23 J	8.06	U	5.00	U	6.25	U	5.26
1,2-Dichloropropane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Bromodichloromethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Dibromomethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
cis-1,3-Dichloropropene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
trans-1,3-Dichloropropene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
1,1,2-Trichloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,3-Dichloropropene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Dibromochloromethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2-Dibromoethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Bromoform	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
4-Methyl-2-Pentanone	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Toluene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
2-Hexanone	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Tetrachloroethene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Chlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,1,1,2-Tetrachloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Ethylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
p&m-Xylene	U	10.0	U	16.1	U	10.0	U	12.5	U	10.5
o-Xylene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Styrene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Isopropylbenzene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
1,1,2,2-Tetrachloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2,3-Trichloropropane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
n-Propylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Bromobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,3,5-Trimethylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
2-Chlorotoluene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
4-Chlorotoluene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
tert-Butylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2,4-Trimethylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
sec-Butylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
p-Isopropyltoluene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,3-Dichlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,4-Dichlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
n-Butylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2-Dichlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2-Dibromo-3-Chloropropane	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
1,2,4-Trichlorobenzene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Hexachlorobutadiene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Naphthalene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
1,2,3-Trichlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26

Table 1.3 Results of the Analysis for VOC in Soil
WA# 0-296 Mills Gap Road
Based on Dry Weight

Method REAC SOP 1807

Page 2 of 2

Sample Number	Soil Blank C 090309		51697		51657	
Sample Location			1		3	
Percent Solids	100		82		82	
Analyte	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg
Dichlorodifluoromethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Chloromethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Vinyl Chloride	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Bromomethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Chloroethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Trichlorofluoromethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Acetone	U	20.0	U J 24.4	24.4	U J 24.4	24.4
1,1-Dichloroethene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Methylene Chloride	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Carbon Disulfide	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Methyl tert-Butyl Ether	U	5.00	U J 6.10	6.10	U J 6.10	6.10
trans-1,2-Dichloroethene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,1 Dichloroethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
2-Butanone	U	5.00	U J 6.10	6.10	U J 6.10	6.10
2,2-Dichloropropane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
cis-1,2-Dichloroethene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Chloroform	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,1-Dichloropropene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,2-Dichloroethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,1,1-Trichloroethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Carbon Tetrachloride	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Benzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Trichloroethene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,2-Dichloropropane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Bromodichloromethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Dibromomethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
cis-1,3-Dichloropropene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
trans-1,3-Dichloropropene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,1,2-Trichloroethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,3-Dichloropropane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Dibromochloromethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,2-Dibromoethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Bromoform	U	5.00	U J 6.10	6.10	U J 6.10	6.10
4-Methyl-2-Pentanone	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Toluene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
2-Hexanone	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Tetrachloroethene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Chlorobenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,1,1,2-Tetrachloroethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Ethylbenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
p&m-Xylene	U	10.0	U J 12.2	12.2	U J 12.2	12.2
o-Xylene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Styrene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Isopropylbenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,1,2,2-Tetrachloroethane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,2,3-Trichloropropane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
n-Propylbenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Bromobenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,3,5-Trimethylbenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
2-Chlorotoluene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
4-Chlorotoluene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
tert-Butylbenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,2,4-Trimethylbenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
sec-Butylbenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
p-Isopropyltoluene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,3-Dichlorobenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,4-Dichlorobenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
n-Butylbenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,2-Dichlorobenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,2-Dibromo-3-Chloropropane	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,2,4-Trichlorobenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Hexachlorobutadiene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
Naphthalene	U	5.00	U J 6.10	6.10	U J 6.10	6.10
1,2,3-Trichlorobenzene	U	5.00	U J 6.10	6.10	U J 6.10	6.10

Table 1.4 Results of the TICs for VOC in Soil
WA# 0-296 Mills Gap Road

Page 1 of 1

Sample Number	Analyte	Concentration*, µg/Kg
Soil Blank C 081809 51631	No TICs Detected No TICs Detected	
Soil Blank C082509 51663 51658 51697 51657	No TICs Detected No TICs Detected No TICs Detected No TICs Detected No TICs Detected	

* Estimated Concentration (Response Factor = 1)

Table 2.1 Results of MS/MSD Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Sample Number: 51695

Page 1 of 2

Analyte	Sample Result µg/L	MS/MSD Spike Added µg/L	MS Result µg/L	MS % Recovery	MSD Result µg/L	MSD % Recovery	RPD	QC Limits	
								RPD	% Recovery
Acetone	U	50.0	49.6	99	48.4	97	2	20	44-157
Benzene	U	50.0	41.4	83	38.0	76	9	13	38-139
Bromodichloromethane	U	50.0	41.8	84	39.1	78	7	13	70-135
Bromoforn	U	50.0	41.1	82	38.2	76	7	13	53-139
Bromomethane	U	50.0	35.7	71	32.8	66	8	18	44-150
2-Butanone (MEK)	U	50.0	47.8	96	44.9	90	6	14	58-140
Carbon disulfide	U	50.0	36.4	73	31.2	62	15	21	34-136
Carbon tetrachloride	U	50.0	44.7	89	40.1	80	11	18	50-161
Chlorobenzene	U	50.0	41.2	82	37.7	75	9	12	65-128
Chloroethane	U	50.0	33.4	67	30.8	62	8	18	41-151
Chloroform	U	50.0	40.5	81	37.8	76	7	14	66-132
Chloromethane	U	50.0	30.5	61	27.4	55	11	22	35-149
Dibromochloromethane	U	50.0	41.8	84	38.4	77	8	12	67-134
1,1-Dichloroethane	U	50.0	42.1	84	38.6	77	9	15	59-132
1,2-Dichloroethane	U	50.0	42.0	84	39.6	79	6	15	59-153
1,1-Dichloroethene	U	50.0	44.2	88	38.8	78	13	17	41-144
cis-1,2-Dichloroethene	U	50.0	40.0	80	37.0	74	8	13	57-131
trans-1,2-Dichloroethene	U	50.0	41.2	82	36.8	74	11	15	55-131
1,2-Dichloropropane	U	50.0	41.3	83	39.1	78	5	12	67-125
cis-1,3-Dichloropropene	U	50.0	39.4	79	36.2	72	8	13	68-126
trans-1,3-Dichloropropene	U	50.0	40.8	81	37.8	76	7	13	68-134
Ethylbenzene	U	50.0	45.0	90	41.1	82	9	13	37-143
2-Hexanone	U	50.0	54.4	109	51.5	103	5	17	53-145
4-Methyl-2-pentanone(MIBK)	U	50.0	53.1	106	49.5	99	7	14	57-141
Methylene chloride	U	50.0	37.4	75	34.6	69	8	12	59-129
Styrene	U	50.0	44.3	89	41.3	83	7	13	60-135
1,1,2,2-Tetrachloroethane	U	50.0	46.5	93	43.3	87	7	13	62-126
Tetrachloroethene	U	50.0	44.5	89	40.0	80	11	15	48-145
Toluene	U	50.0	41.8	84	38.9	78	7	14	44-141
1,1,1-Trichloroethane	U	50.0	42.0	84	38.4	77	9	18	55-149
1,1,2-Trichloroethane	U	50.0	40.5	81	38.0	76	6	12	70-127
Trichloroethene	U	50.0	42.8	86	38.7	77	10	15	53-141
Vinyl chloride	U	50.0	33.2	66	29.1	58	13	20	34-151
Xylene (total)	U	150	135	90	124	83	8	13	36-144

Table 2.1 (cont) Results of MS/MSD Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Sample Number: 51642

Page 2 of 2

Analyte	Sample Result µg/L	MS/MSD Spike Added µg/L	MS Result µg/L	MS % Recovery	MSD Result µg/L	MSD % Recovery	RPD	QC Limits	
								RPD	% Recovery
Acetone	U	50.0	46.2	92	49.3	99	6	20	44-157
Benzene	U	50.0	44.6	89	42.7	85	4	13	38-139
Bromodichloromethane	U	50.0	49.2	98	46.2	92	6	13	70-135
Bromoform	U	50.0	41.0	82	40.5	81	1	13	53-139
Bromomethane	U	50.0	40.0	80	39.1	78	2	18	44-150
2-Butanone (MEK)	U	50.0	43.6	87	45.3	91	4	14	58-140
Carbon disulfide	U	50.0	32.3	65	29.8	59	9	21	34-136
Carbon tetrachloride	U	50.0	37.0	74	32.1	64	14	18	50-161
Chlorobenzene	U	50.0	44.6	89	44.2	88	1	12	65-128
Chloroethane	U	50.0	45.0	90	42.9	86	5	18	41-151
Chloroform	U	50.0	45.6	91	43.0	86	6	14	66-132
Chloromethane	U	50.0	47.2	94	46.3	93	2	22	35-149
Dibromochloromethane	U	50.0	43.6	87	42.2	84	3	12	67-134
1,1-Dichloroethane	U	50.0	45.7	91	43.2	86	6	15	59-132
1,2-Dichloroethane	U	50.0	49.8	100	46.2	92	7	15	59-153
1,1-Dichloroethene	U	50.0	32.5	65	29.8	59	9	17	41-144
cis-1,2-Dichloroethene	U	50.0	44.4	89	43.1	86	3	13	57-131
trans-1,2-Dichloroethene	U	50.0	40.8	81	37.8	78	7	15	55-131
1,2-Dichloropropane	U	50.0	50.8	102	49.5	99	3	12	67-125
cis-1,3-Dichloropropene	U	50.0	51.2	102	49.6	99	3	13	68-126
trans-1,3-Dichloropropene	U	50.0	51.0	102	49.4	99	3	13	68-134
Ethylbenzene	U	50.0	43.7	87	41.7	83	5	13	37-143
2-Hexanone	U	50.0	53.4	107	51.6	103	3	17	53-145
4-Methyl-2-pentanone(MIBK)	U	50.0	50.5	101	51.0	102	1	14	57-141
Methylene chloride	U	50.0	44.7	89	43.5	87	3	12	59-129
Styrene	U	50.0	45.0	90	44.4	89	1	13	60-135
1,1,2,2-Tetrachloroethane	U	50.0	49.1	98	48.4	97	1	13	62-126
Tetrachloroethene	U	50.0	40.3	81	37.6	75	7	15	48-145
Toluene	9.00	50.0	54.6	91	50.9	84	7	14	44-141
1,1,1-Trichloroethane	U	50.0	40.1	80	35.2	70	13	18	55-149
1,1,2-Trichloroethane	U	50.0	51.5	103	50.4	101	2	12	70-127
Trichloroethene	U	50.0	43.5	87	40.5	81	7	15	53-141
Vinyl chloride	U	50.0	39.4	79	37.5	75	5	20	34-151
m-&p-Xylene	U	100	88.7	88	83.0	83	3	13	36-144
o-Xylene	U	50.0	45.7	91	44.7	90	2	13	36-144

Table 2.2 Results of LCS Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Page 1 of 4

Date Analyzed 08/22/09

Analyte	LCS Spike Added µg/L	LCS Conc. µg/L	LCS % Recovery	QC Limits % Recovery
Acetone	50.0	49.7	99	51-151
Benzene	50.0	48.9	94	75-122
Bromodichloromethane	50.0	50.7	101	77-128
Bromoform	50.0	51.2	102	67-141
Bromomethane	50.0	39.5	79	53-152
2-Butanone (MEK)	50.0	53.0	106	64-130
Carbon disulfide	50.0	37.2	74	59-140
Carbon tetrachloride	50.0	50.5	101	75-148
Chlorobenzene	50.0	48.4	97	76-124
Chloroethane	50.0	34.8	70	54-147
Chloroform	50.0	47.8	96	77-124
Chloromethane	50.0	31.6	63	46-144
Dibromochloromethane	50.0	49.3	99	76-132
1,1-Dichloroethane	50.0	47.9	96	72-124
1,2-Dichloroethane	50.0	46.8	94	66-150
1,1-Dichloroethene	50.0	47.6	95	61-132
cis-1,2-Dichloroethene	50.0	47.7	95	71-119
trans-1,2-Dichloroethene	50.0	45.5	91	71-123
1,2-Dichloropropane	50.0	47.6	95	75-120
cis-1,3-Dichloropropene	50.0	48.0	96	77-124
trans-1,3-Dichloropropene	50.0	48.2	96	75-132
Ethylbenzene	50.0	51.2	102	77-124
2-Hexanone	50.0	61.4	123	58-136
4-Methyl-2-pentanone(MIBK)	50.0	57.0	114	63-135
Methylene chloride	50.0	41.0	82	69-122
Styrene	50.0	51.8	104	78-126
1,1,2,2-Tetrachloroethane	50.0	50.9	102	66-125
Tetrachloroethene	50.0	50.4	101	70-136
Toluene	50.0	48.1	96	76-126
1,1,1-Trichloroethane	50.0	48.2	96	77-136
1,1,2-Trichloroethane	50.0	45.7	91	75-123
Trichloroethene	50.0	49.5	99	79-126
Vinyl chloride	50.0	34.1	68	56-146
Xylene (total)	150	158	105	77-125

* Indicates out of the criteria

Table 2.2 (cont) Results of LCS Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Page 2 of 4

Date Analyzed 08/20/09

Analyte	LCS Spike Added µg/L	LCS Conc. µg/L	LCS % Recovery	QC Limits % Recovery
Dichlorodifluoromethane	50.0	42.6	85	53-105
Chloromethane	50.0	56.2	112	63-110
Vinyl Chloride	50.0	64.3	129	77-158
Bromomethane	50.0	43.5	87	74-125
Chloroethane	50.0	43.3	87	70-122
Trichlorofluoromethane	50.0	50.9	102	69-132
Acetone	50.0	71.0	142	86-253
1,1-Dichloroethene	50.0	47.0	94	54-144
Methylene Chloride	50.0	46.3	93	69-129
Carbon Disulfide	50.0	51.4	103	62-120
Methyl-t-butyl Ether	50.0	38.0	76	66-116
trans-1,2-Dichloroethene	50.0	54.0	108	85-124
1,1-Dichloroethane	50.0	48.8	98	82-123
2-Butanone	50.0	55.4	111	14-256
2,2-Dichloropropane	50.0	35.7	71	67-139
cis-1,2-Dichloroethene	50.0	45.3	91	79-117
Chloroform	50.0	45.4	91	87-118
1,1-Dichloropropene	50.0	44.5	89	79-124
1,2-Dichloroethane	50.0	50.5	101	86-119
1,1,1-Trichloroethane	50.0	47.7	95	88-114
Carbon Tetrachloride	50.0	53.6	107	85-118
Benzene	50.0	50.9	102	94-111
Trichloroethene	50.0	50.9	102	86-107
1,2-Dichloropropane	50.0	54.8	110	88-110
Bromodichloromethane	50.0	47.9	96	85-106
Dibromomethane	50.0	50.1	100	81-117
cis-1,3-Dichloropropene	50.0	47.6	95	72-116
trans-1,3-Dichloropropene	50.0	50.6	101	83-130
1,1,2-Trichloroethane	50.0	52.9	106	83-115
1,3-Dichloropropane	50.0	50.7	101	82-118
Dibromochloromethane	50.0	52.4	105	77-116
1,2-Dibromoethane	50.0	51.7	103	80-118
Bromoform	50.0	47.3	95	70-125
4-Methyl-2-Pentanone	50.0	59.3	119	48-151
Toluene	50.0	53.2	106	88-111
2-Hexanone	50.0	62.3	125	30-275
Tetrachloroethene	50.0	53.1	106	79-116
Chlorobenzene	50.0	53.5	107	88-110
1,1,1,2-Tetrachloroethane	50.0	53.7	107	88-107
Ethylbenzene	50.0	53.7	107	89-111
p&m-Xylene	100	109.0	109	91-111
o-Xylene	50.0	55.8	112	92-114
Styrene	50.0	52.4	105	85-111
Isopropylbenzene	50.0	58.3	117	90-124
1,1,2,2-Tetrachloroethane	50.0	52.7	105	77-123
1,2,3-Trichloropropane	50.0	53.4	107	76-120
n-Propylbenzene	50.0	56.0	112	86-116
Bromobenzene	50.0	52.6	105	91-112
1,3,5-Trimethylbenzene	50.0	56.5	113	87-115
2-Chlorotoluene	50.0	53.9	108	90-115
4-Chlorotoluene	50.0	57.4	115	91-111
tert-Butylbenzene	50.0	57.8	116	81-118
1,2,4-Trimethylbenzene	50.0	54.7	109	85-111
sec-Butylbenzene	50.0	57.0	114	76-121
p-Isopropyltoluene	50.0	57.1	114	77-119
1,3-Dichlorobenzene	50.0	56.8	114	85-114
1,4-Dichlorobenzene	50.0	57.2	114	87-114
n-Butylbenzene	50.0	56.1	112	76-120
1,2-Dichlorobenzene	50.0	56.8	114	87-114
1,2-Dibromo-3-chloropropane	50.0	48.7	97	53-132
1,2,4-Trichlorobenzene	50.0	50.9	102	51-134
Hexachlorobutadiene	50.0	44.0	88	47-121
Naphthalene	50.0	58.7	117	36-149
1,2,3-Trichlorobenzene	50.0	50.2	100	32-150

* Indicates out of the criteria

Table 2.2 (cont) Results of LCS Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Page 3 of 4

Date Analyzed 08/31/09 (LCS #1)

Analyte	LCS Spike Added µg/L	LCS Conc. µg/L	LCS % Recovery	QC Limits % Recovery
Acetone	50.0	44.8	90	51-151
Benzene	50.0	49.1	98	75-122
Bromodichloromethane	50.0	49.9	100	77-128
Bromoform	50.0	46.8	94	67-141
Bromomethane	50.0	39.2	78	53-152
2-Butanone (MEK)	50.0	41.0	82	64-130
Carbon disulfide	50.0	44.4	89	59-140
Carbon tetrachloride	50.0	45.6	91	75-148
Chlorobenzene	50.0	48.8	98	78-124
Chloroethane	50.0	45.9	92	54-147
Chloroform	50.0	46.6	93	77-124
Chloromethane	50.0	46.2	92	46-144
Dibromochloromethane	50.0	44.6	89	76-132
1,1-Dichloroethane	50.0	50.0	100	72-124
1,2-Dichloroethane	50.0	48.9	94	66-150
1,1-Dichloroethene	50.0	42.8	86	61-132
cis-1,2-Dichloroethene	50.0	48.9	98	71-119
trans-1,2-Dichloroethene	50.0	46.7	93	71-123
1,2-Dichloropropane	50.0	52.4	105	75-120
cis-1,3-Dichloropropene	50.0	52.4	105	77-124
trans-1,3-Dichloropropene	50.0	51.2	102	75-132
Ethylbenzene	50.0	48.3	97	77-124
2-Hexanone	50.0	49.2	98	58-136
4-Methyl-2-pentanone(MIBK)	50.0	46.0	92	63-135
Methylene chloride	50.0	46.0	92	69-122
Styrene	50.0	47.6	95	78-126
1,1,2,2-Tetrachloroethane	50.0	46.5	93	66-125
Tetrachloroethene	50.0	48.8	98	70-136
Toluene	50.0	51.4	103	78-126
1,1,1-Trichloroethane	50.0	47.5	95	77-136
1,1,2-Trichloroethane	50.0	51.1	102	75-123
Trichloroethene	50.0	50.1	100	79-126
Vinyl chloride	50.0	44.3	89	56-146
m-&p-Xylene	100	97.2	97	77-125
o-Xylene	50.0	51.5	103	77-125

* Indicates out of the criteria

Table 2.2 (cont) Results of LCS Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Page 4 of 4

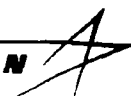
Date Analyzed 08/31/09 (LCS #2)

Analyte	LCS Spike Added µg/L	LCS Conc. µg/L	LCS % Recovery	QC Limits % Recovery
Acetone	50.0	52.3	105	51-151
Benzene	50.0	52.7	105	75-122
Bromodichloromethane	50.0	54.0	108	77-128
Bromoform	50.0	46.2	92	67-141
Bromomethane	50.0	44.0	88	53-152
2-Butanone (MEK)	50.0	48.0	92	64-130
Carbon disulfide	50.0	49.7	99	59-140
Carbon tetrachloride	50.0	48.0	96	75-148
Chlorobenzene	50.0	51.2	102	76-124
Chloroethane	50.0	52.6	105	54-147
Chloroform	50.0	51.9	104	77-124
Chloromethane	50.0	51.2 J	102	46-144
Dibromochloromethane	50.0	46.9	94	76-132
1,1-Dichloroethane	50.0	56.4	113	72-124
1,2-Dichloroethane	50.0	50.3	101	66-150
1,1-Dichloroethene	50.0	47.9	96	61-132
cis-1,2-Dichloroethene	50.0	54.4	109	71-119
trans-1,2-Dichloroethene	50.0	52.2	104	71-123
1,2-Dichloropropane	50.0	57.0	114	75-120
cis-1,3-Dichloropropene	50.0	53.0	106	77-124
trans-1,3-Dichloropropene	50.0	51.4	103	75-132
Ethylbenzene	50.0	51.1	102	77-124
2-Hexanone	50.0	52.4	105	58-136
4-Methyl-2-pentanone(MIBK)	50.0	49.7	99	63-135
Methylene chloride	50.0	51.4	103	69-122
Styrene	50.0	50.9	102	78-126
1,1,2,2-Tetrachloroethane	50.0	50.4	101	66-125
Tetrachloroethene	50.0	51.3	103	70-136
Toluene	50.0	54.4	109	76-126
1,1,1-Trichloroethane	50.0	51.7	103	77-136
1,1,2-Trichloroethane	50.0	53.8	108	75-123
Trichloroethene	50.0	53.3	107	79-126
Vinyl chloride	50.0	49.4	99	56-146
m-&p-Xylene	100	102	102	77-125
o-Xylene	50.0	53.9	107	77-125

* Indicates out of the criteria

Lockheed Martin
Response Engineering Analytical Contract
2890 Woodbridge Avenue Building 209 Annex
Edison, NJ 08837-3679
Telephone 732-321-4200 Facsimile 732-494-4021

LOCKHEED MARTIN



Accutest Labs
Fresh Ponds Corp Village, Bldg B
2235 Route 130
Dayton, NJ 08810

Attn: Tony Esposito

August 03, 2009

As per Lockheed Martin / REAC Credit Card 3432 issued to John M. Johnson, please analyze samples according to the following parameters for Project 0296:

Analysis/Method	Matrix	# of samples
VOC /SW-846-8260 (See attached and RL)	Water	20

The samples are expected to arrive at your laboratory between August 4-6, 2009. **All applicable QA/QC (eg: MS/MSD, LCS, Duplicates, and Blanks) analysis as per method, will be performed on our sample matrix. Preliminary sample and QC result tables plus a signed copy of our Chain of Custody must be emailed to REAC 10 business days after receipt of the samples.** The complete data package is due 15 business days after receipt of the samples. The complete data package must include all items on the deliverables checklist. **Please note the lower reporting limits requested.**

All sample and QC results must be summarized in a tab delimited file diskette deliverable.

Please submit all reports concerning this project to **John Johnson at (732) 321-4248 or john.m.johnson@lmco.com.**

Sincerely,

Vinod Kansal
Analytical Section Leader
Lockheed Martin / REAC Project

VK:jj Attachments

cc. R. Singhvi
Subcontracting File
0296\non\mem\0908sub\0296Con

V. Kansal
J. Soroka

K. Woodruff
G. Powell

Compound List Report

Page 1 of 1

Product: V8260TCL+ Volatile Organics, TCL + LS
Matrix: AQ Aqueous

Jul 24, 2009 03:07 pm

Method List:	VAIX8260 AQ	Method Ref:	SW846 8260B	LJ30480
Report List:	VTCL ALL	VOA TCL List		LJ25514
RL/MDL Factor:	1			

Compound	CAS No.	RL	MDL	Units
Acetone	67-64-1	10	2.9	ug/l
Benzene	71-43-2	1.0	0.23	ug/l
Bromodichloromethane	75-27-4	1.0	0.22	ug/l
Bromoform	75-25-2	4.0	0.23	ug/l
Bromomethane	74-83-9	2.0	0.30	ug/l
2-Butanone (MEK)	78-93-3	10	1.6	ug/l
Carbon disulfide	75-15-0	2.0	0.74	ug/l
Carbon tetrachloride	56-23-5	1.0	0.26	ug/l
Chlorobenzene	108-90-7	1.0	0.39	ug/l
Chloroethane	75-00-3	1.0	0.37	ug/l
Chloroform	67-66-3	1.0	0.23	ug/l
Chloromethane	74-87-3	1.0	0.29	ug/l
Dibromochloromethane	124-48-1	1.0	0.22	ug/l
1,1-Dichloroethane	75-34-3	1.0	0.29	ug/l
1,2-Dichloroethane	107-06-2	1.0	0.33	ug/l
1,1-Dichloroethene	75-35-4	1.0	0.40	ug/l
cis-1,2-Dichloroethene	156-59-2	1.0	0.22	ug/l
trans-1,2-Dichloroethene	156-60-5	1.0	0.25	ug/l
1,2-Dichloroethene (total)	540-59-0	1.0	0.22	ug/l
1,2-Dichloropropane	78-87-5	1.0	0.27	ug/l
cis-1,3-Dichloropropene	10061-01-5	1.0	0.25	ug/l
trans-1,3-Dichloropropene	10061-02-6	1.0	0.21	ug/l
Ethylbenzene	100-41-4	1.0	0.27	ug/l
2-Hexanone	591-78-6	5.0	1.4	ug/l
4-Methyl-2-pentanone(MIBK)	108-10-1	5.0	0.86	ug/l
Methylene chloride	75-09-2	2.0	0.30	ug/l
Styrene	100-42-5	5.0	0.58	ug/l
1,1,2,2-Tetrachloroethane	79-34-5	1.0	0.24	ug/l
Tetrachloroethene	127-18-4	1.0	0.27	ug/l
Toluene	108-88-3	1.0	0.30	ug/l
1,1,1-Trichloroethane	71-55-6	1.0	0.26	ug/l
1,1,2-Trichloroethane	79-00-5	1.0	0.23	ug/l
Trichloroethene	79-01-6	1.0	0.24	ug/l
Vinyl chloride	75-01-4	1.0	0.44	ug/l
Xylene (total)	1330-20-7	1.0	0.25	ug/l

35 compounds reported in list VTCL

11/23/21 1200
EPA Contract 68-9-225
EP-C-04-032

CHAIN OF CUSTODY RECORD
Project Name: Mills Road
Project Number: 0-286
LM Contact: K. Woodruff Phone: 609 865 9317

0396-0 09-56
No: 07131 (RW)
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

R108014

Sample Identification

Analyses Requested

REACT	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCA
0107	51663	ST66 BW 4	S	8/19/09	1	4oz glass / 4°C	X
0208	51658	2	S	↓	1	↓	X
03	51697	1	S	↓	1	↓	X
04	51657	3	S	↓	1	↓	X
05	51649	CHR-2	GW	↓	3	4oz metal / 4°C	X
<div>023</div>							

Matrix:

Special Instructions:

- A- Air
- AT- Animal Tissue
- DL- Drum Liquids
- DS- Drum Solids
- GW- Groundwater
- O- Oil
- PR- Product
- PT- Plant Tissue
- PW- Potable Water
- S- Soil
- SD- Sediment
- SL- Sludge
- SW- Surface Water
- TX- TCLP Extract
- W- Water
- X- Other

* Samples picked up at Fed - Ex on 8/22/09 by Calvin Lin and placed in Sample Cooler. JM 8/24/09

Received 4°C JM 8/24/09

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time
all analysis	K. Woodruff	8/19/09	Jerry Thomas	8/24/09	9:00	All Analysis	Jerry Thomas	8/24/09	J. Thomas	8-24-09	9:40
all storage	A. V. 2/2	9/9/09	Jerry Thomas	9/9/09	13:00						

Project Name: Mil Gap Road
Project Number: 0-296
LM Contact: K. Woodruff Phone: 604-865-9317

No: 07124
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

Analyses Requested

REACT	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOC's
15	51636	SG-12 Dup	S	8/10/09	1	4oz glass/4°C	✓
16	51631	SW-9	↓	↓	↓	↓ ↓	✓
TM 8/13/09							
TM 8/13/09							

Special Instructions:

Samples received on 8/13/09 with samples that appear on COC # 0296-081004-51. Task lead requested I put them on a COC and get them Analyzed. JM 8/13/09

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

Received 5°C Jm 8/13/09

[illegible]

No: 011.54 (KW)
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

Project Name: Mills C Road
Project Number: 0-296
LM Contact: K. Woodruff Phone: 609-865-9317

Project Name: Mills C Road
Project Number: 0-296
LM Contact: K. Woodruff Phone: 609-865-9317

No: 011.54 (KW)
Sheet **01** of **01** (Do not copy)
(for addnl. samples use new form)

Sample Identification

Analyses Requested

REACTOR	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCs
C00709	51623	SW-1 Dup	SD	8/10/09	1	4 oz glass / 4°C	X
C01	51624	SW-1			1		X
C03	51625	SW-2			2		X
C04	51626	SW-3			1		X
C05	51628	SW-4			1		X
C06	51627	SW-5			1		X
C07	51628	SW-6			1		X
C08	51629	SW-7			1		X
C09	51630	SW-8	Y		1		X
C10	51632	SG-7	S		1		X
C11	51633	SG-9	S		2		X
C12 ^{RQ5}	51634	SG-8	S		1		X
C13 ^{RQ5}	51635	SG-12	S		1		X
C14	51637	SG-13	S	↓	1	↓	X
			(RW)				

Matrix:

A- Air	PW- Potable Water
AT-Animal Tissue	S- Soil
DL- Drum Liquids	SD- Sediment
DS- Drum Solids	SL- Sludge
GW- Groundwater	SW- Surface Water
O- Oil	TX-TCLP Extract
PR-Product	W- Water
PT-Plant Tissue	X- Other

Special Instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

Received 5°C ~~7/11~~ 8/13/09

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time
all / analysis	A. Wiggall	8/12/09	Harry Pearson	8/13/09	10:30	All Analysis	Harry Pearson	8/14/09	J. Lewis	8-14-09	9:00
all / storage	A. Wiggall	9/9/09	Harry Pearson	9/9/09	13:00						

0206-PAR
R 908010

CHAIN OF CUSTODY RECORD
Project Name: Mills Road
Project Number: 0-396
LM Contact: R. Woodruff Phone: 609 865-9317

0246-41101-51
0286 40-16
No: 07129 NW
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

Sample Identification

Analyses Requested

REAC#	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Analyses Requested
000709	51662	CHR Dup	GW	8/17/09	3	40ml grab/4°C	VOCs X
000709	51661	CHR	GW	↓	3	↓	X
03	51664	TB	W	↓	3	↓	X
<div>026</div>							

- Matrix:**
- A- Air
 - AT- Animal Tissue
 - DL- Drum Liquids
 - DS- Drum Solids
 - GW- Groundwater
 - O- Oil
 - PR- Product
 - PT- Plant Tissue
 - PW- Potable Water
 - S- Soil
 - SD- Sediment
 - SL- Sludge
 - SW- Surface Water
 - TX- TCLP Extract
 - W- Water
 - X- Other

Special Instructions:

Regular analyzer - no date validation

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #:

Received 2°C TM 8/18/09

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time
all analysis	R. Woodruff	8/17/09	James H. Miller	8/18/09	11:00	All Analysis	James H. Miller	8/18/09	N. Hume	8/18/09	11:50
all storage	R. Woodruff	9/9/09	James H. Miller	9/9/09	13:00						

No: ~~01135~~ (Rev)
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

Analyses Requested

REA#	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCA
0709	51693	SW-1	SW	8/10/09	3	40 ml vial / cool 4°C	X
	51694	SW-1 Dup			3		X
	51695	SW-2			6*		X
	51696	SW-3			3		X
	51698	SW-4			3		X
	51617	SW-5			3		X
	51619	SW-6			3		X
	51620	SW-7			3		X
	51621	SW-8			3		X
	51622	SW-9			3		X
027							

Special Instructions:

A- Air	PW- Potable Water
AT-Animal Tissue	S- Soil
DL- Drum Liquids	SD- Sediment
DS- Drum Solids	SL- Sludge
GW- Groundwater	SW- Surface Water
O- Oil	TX-TCLP Extract
PR-Product	W- Water
PT-Plant Tissue	X- Other

英 ing - MSD

HCl as preservative

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time
10/11/09	10/11/09	10/11/09									

No: 07213 *ku*
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

Sample Identification

Analyses Requested

[illegible]

Matrix:

A- Air	PW- Potable Water
AT-Animal Tissue	S- Soil
DL- Drum Liquids	SD- Sediment
DS- Drum Solids	SL- Sludge
GW- Groundwater	SW- Surface Water
O- Oil	TX-TCLP Extract
PR-Product	W- Water
PT-Plant Tissue	X- Other

Special Instructions:

→ MS/MSD

HGL as preservative

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time

No: 07130
 Sheet **01** of **01** (Do not copy)
 (for addnl. samples use new form)

Contract 6 99-223
EP-C-04-032

Sample Identification

Analyses Requested

REACH#	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCs
0709	51648	TB	W	8/18/09	2	40 ml metal/HCl	X
	51647	2J-145	GW	8/18/09	2		X
	51650	FRT-8	GW	8/17/09	2		X
	51651	2J-165	GW	8/18/09	2		X
	51652	2J-165 dup	GW	8/18/09	2		X
029			(RW)				RW

Matrix:

A- Air	PW- Potable Water
AT-Animal Tissue	S- Soil
DL- Drum Liquids	SD- Sediment
DS- Drum Solids	SL- Sludge
GW- Groundwater	SW- Surface Water
O- Oil	TX-TCLP Extract
PR-Product	W- Water
PT-Plant Tissue	X- Other

Special Instructions:

1 to 2 ppb detection limit

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time
all analysis	K. Wierhoff	8/14/07									

APPENDIX B
STREAM SAMPLING ANALYTICAL RESULTS
MILLS GAP ROAD SITE
ASHEVILLE, NORTH CAROLINA

Lockheed Martin
Response Engineering Analytical Contract
2890 Woodbridge Avenue Building 209 Annex
Edison, NJ 08837-3679
Telephone 732-321-4200 Facsimile 732-494-4021

LOCKHEED MARTIN



DATE: October 7, 2009
TO: R. Singhvi, EPA/ERT Analytical Work Assignment Manager
FROM: V. Kansal, REAC Analytical Section Leader *Vinod Kansal*
SUBJECT: DOCUMENT TRANSMITTAL UNDER WORK ASSIGNMENT # 0-296

Attached please find the following document prepared under this work assignment:

Mills Gap Road - Analytical Report

K. Woodruff Work Assignment Manager (w/o attachment)
G. Powell Task Leader (w/o attachment)
J. Soroka Data Validation and Report Writing Group Leader (w/o attachment)
Central File WA # 0-296 (w/attachment)

ANALYTICAL REPORT


Prepared by
LOCKHEED MARTIN, Inc.

Mills Gap Road
Asheville, North Carolina


October 2009

EPA Work Assignment No. 0-296
LOCKHEED MARTIN Work Order EAC0296
EPA Contract No. EP-C-04-032

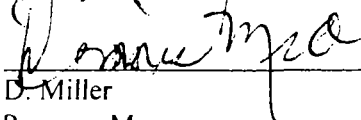
Submitted to
G. Powell
EPA-ERT

 10/7/09
V. Kansal
Analytical Section Leader
Date

Analysis by:
REAC
Accutest

 10/2/09
D. Killeen
Quality Assurance Officer
Date

Prepared by:
Y. Mehra

 10/7/09
D. Miller
Program Manager
Date

Reviewed by:
J. Soroka

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Case Narrative
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Section III

Correspondence
Chains of Custody

Appendix

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The appendices will be furnished on request

Introduction

REAC, in response to WA# 0-296, provided analytical support for environmental samples collected from the Mills Gap Road Site located in Asheville, North Carolina, as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at REAC were treated with the procedures consistent with those specified in REAC SOP# 1008.

COC #	Number of Samples	Sampling Start Date	Date Received	Matrix	Analysis/ Method	Laboratory	Data Package
0296-081009-50	10	08/10/09	08/13/09	Water	VOC/ SW846 8260B	Accutest ¹	U 313
0296-081909-56	1	08/19/09	08/24/09		VOC/REAC SOP 1806	REAC ²	U 315
	4			Soil	VOC/REAC SOP 1807		
07124	2 ³	08/10/09	08/13/09				
0296-081009-51	14 ⁴	08/10/09	08/13/09				
0296-080709-54	3 ⁴						
0296-081809-55	1	08/17/09	08/22/09	Water	VOC/SW846 8260B	Accutest ¹	U 328
	4	08/18/09					
0296-082009-57	4	08/20/09	08/21/09				
	2	08/21/09					

¹ Accutest is NELAC certified for VOC analysis in water

² REAC is NELAC certified for VOC analysis in water and soil

³ As per the WAM's request, only sample 51631 was validated and included in this report.

⁴ As per the WAM's request, these samples were not validated and are not included in this report.

Case Narrative

The laboratory reported the data to two or three significant figures. Any other representation of the data is the responsibility of the user. All data validation flags have been inserted into the results tables. The laboratory did not report results less than the RL.

VOC in Water Package U 313

The data package was examined and found to be acceptable.

VOC in Water and Soil Package U 315

The sample used for the 10x dilution of sample 51649 was taken from the original vial which was used for the non-diluted analysis and had headspace above the water. The trichloroethene result from the 10x dilution for sample 51649 is qualified estimated (J).

The 5 ppb calibration standard for dichlorodifluoromethane, trichlorofluoromethane, cis- and trans-1,3-dichloropropene, bromoform, 4-methyl-2-pentanone, 2-hexanone, isopropylbenzene, 1,2-dibromo-3-chloropropane, 1,2,4-trichlorobenzene and naphthalene were not used to generate the initial calibration curve for soil of 08/18/09. The RLs for these compounds are raised to the next calibration standard (20 ppb) for samples 51631, 51663, 51658, SMB-C-081809 and SMB-C-082509.

Dichlorofluoromethane, acetone and 1,2-dibromo-3-chloropropane did not meet the %D criterion for the continuing calibration of 08/25/09. The acetone result in sample 51663 is qualified estimated (J).

Samples 51697 and 51657 were initially analyzed and did not meet the QC criteria for two internal standards. The samples were reanalyzed one day past holding time and the internal standard responses were acceptable. In the professional judgment of the validator, the results for these samples were reported from the reanalysis and are qualified estimated non-detect (UJ).

VOC in Water Package U 328

The data package was examined and found to be acceptable.

Summary of Abbreviations

BFB	Bromofluorobenzene
C	Centigrade
CLP	Contract Laboratory Program
COC	Chain of Custody
conc	concentration
cont	continued
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
D	(Surrogate Table) value is from a diluted sample and was not calculated
Dioxin	Polychlorinated dibenzo-p-dioxins (PCDD) and Polychlorinated dibenzofurans (PCDF)
DFTPP	Decafluorotriphenylphosphine
EMPC	Estimated maximum possible concentration
GC/MS	Gas Chromatography/ Mass Spectrometry
IS	Internal Standard
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MDA	Minimum Detectable Activity
MS (BS)	Matrix Spike (Blank Spike)
MSD (BSD)	Matrix Spike Duplicate (Blank Spike Duplicate)
MW	Molecular Weight
NA	Not Applicable or Not Available
NAD	Normalized Absolute Difference
NC	Not Calculated
NR	Not Requested/Not Reported
NS	Not Spiked
% D	Percent Difference
% REC	Percent Recovery
SOP	Standard Operating Procedure
ppbv	parts per billion by volume
ppm	parts per million
pptv	parts per trillion by volume
PQL	Practical Quantitation Limit
PAL	Performance Acceptance Limit
QA/QC	Quality Assurance/Quality Control
QL	Quantitation Limit
REAC	Response Engineering and Analytical Contract
RL	Reporting Limit
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
SIM	Selected Ion Monitoring
Sur	Surrogate
TIC	Tentatively Identified Compound
TCLP	Toxicity Characteristic Leaching Procedure
VOC	Volatile Organic Compound
*	Value exceeds the acceptable QC limits

m ³	cubic meter	g	gram	kg	kilogram	L	liter
μg	microgram	μL	microliter	mg	milligram	mL	milliliter
ng	nanogram	pg	picogram	pCi	picocurie	s	sigma

Data Validation Flags

J	Value is estimated	R	Value is unusable
J+	Value is estimated high (metals only)	U	Not detected
J-	Value is estimated low (metals only)	UJ	Not detected and RL is estimated
N	Presumptively present (Aroclors only)		

Rev. 1/14/09

Table 1.1 Results of the Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Method SW846 8260B

Page 1 of 7

Sample Number Sample Location	8/22/2009 Method Blank		51695 SW-2		51693 SW-1		51694 SW-1 DUP		51696 SW-3	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Acetone	U	10	U	10	U	10	U	10	U	10
Benzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromodichloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromoform	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0
Bromomethane	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
2-Butanone (MEK)	U	10	U	10	U	10	U	10	U	10
Carbon disulfide	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Carbon tetrachloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chlorobenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroform	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Dibromochloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloropropane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Ethylbenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
2-Hexanone	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
Methylene chloride	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Styrene	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Tetrachloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Toluene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,1-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,2-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Trichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Vinyl chloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene (total)	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Method SW846 8260B

Page 2 of 7

Sample Number	51618		51617		51619		51620		51621	
Sample Location	SW-4		SW-5		SW-6		SW-7		SW-8	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Acetone	U	10	U	10	U	10	U	10	U	10
Benzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromodichloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromoform	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0
Bromomethane	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
2-Butanone (MEK)	U	10	U	10	U	10	U	10	U	10
Carbon disulfide	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Carbon tetrachloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chlorobenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroform	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Dibromochloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloropropane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Ethylbenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
2-Hexanone	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
Methylene chloride	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Styrene	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Tetrachloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Toluene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,1-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,2-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Trichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Vinyl chloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene (total)	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Method SW846 8260B

Page 3 of 7

Sample Number 51622
Sample Location SW-9

Analyte	Result µg/L	RL µg/L
Acetone	U	10
Benzene	U	1.0
Bromodichloromethane	U	1.0
Bromoform	U	4.0
Bromomethane	U	2.0
2-Butanone (MEK)	U	10
Carbon disulfide	U	2.0
Carbon tetrachloride	U	1.0
Chlorobenzene	U	1.0
Chloroethane	U	1.0
Chloroform	U	1.0
Chloromethane	U	1.0
Dibromochloromethane	U	1.0
1,1-Dichloroethane	U	1.0
1,2-Dichloroethane	U	1.0
1,1-Dichloroethene	U	1.0
cis-1,2-Dichloroethene	U	1.0
trans-1,2-Dichloroethene	U	1.0
1,2-Dichloropropane	U	1.0
cis-1,3-Dichloropropene	U	1.0
trans-1,3-Dichloropropene	U	1.0
Ethylbenzene	U	1.0
2-Hexanone	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0
Methylene chloride	U	2.0
Styrene	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0
Tetrachloroethene	U	1.0
Toluene	U	1.0
1,1,1-Trichloroethane	U	1.0
1,1,2-Trichloroethane	U	1.0
Trichloroethene	U	1.0
Vinyl chloride	U	1.0
Xylene (total)	U	1.0

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Method REAC SOP 1806

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Sample Number Water Blank C082509-1 51649
Sample Location CHR-2

Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Dichlorodifluoromethane	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00
Acetone	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	1.54 J	5.00
Methylene Chloride	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00
Methyl tert-Butyl Ether	U	5.00	U	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00
1,1-Dichloroethane	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	67.8	5.00
Chloroform	U	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00
Benzene	U	5.00	U	5.00
Trichloroethene	U	5.00	599 J	50.0
1,2-Dichloropropane	U	5.00	U	5.00
Bromodichloromethane	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00
Dibromochloromethane	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00
4-Methyl-2-Pentanone	U	5.00	U	5.00
Toluene	U	5.00	U	5.00
2-Hexanone	U	5.00	U	5.00
Tetrachloroethene	U	5.00	U	5.00
Chlorobenzene	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00
Styrene	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00
1,2-Dibromo-3-Chloropropane	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA # 0-296 Mills Gap Road

Method : SW846 8260B

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Sample Number Sample Location	Method Blank 8/31/2009; 0843		51648 TB		51644 TB		51642 ERT-7,80		51641 ERT-7,40	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Acetone	U	10	U	10	U	10	U	10	U	10
Benzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromodichloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromoform	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0
Bromomethane	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
2-Butanone (MEK)	U	10	U	10	U	10	U	10	U	10
Carbon disulfide	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Carbon tetrachloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chlorobenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroform	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Dibromochloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloropropane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Ethylbenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
2-Hexanone	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
Methylene chloride	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Styrene	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Tetrachloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Toluene	U	1.0	U	1.0	U	1.0	9.0	1.0	11	1.0
1,1,1-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,2-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Trichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	0.85	1.0
Vinyl chloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene, m-&p-	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene, o-	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA # 0-296 Mills Gap Road

Method : SW846 8260B

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Sample Number	51640		51650		51647		51651		51652	
Sample Location	2J-115		ERT-8		2J-145		2J-165		2J-165 DUP	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Acetone	U	10	U	10	U	10	U	10	U	10
Benzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromodichloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromoform	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0
Bromomethane	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
2-Butanone (MEK)	U	10	U	10	U	10	U	10	U	10
Carbon disulfide	U	2.0	0.53 J	2.0	U	2.0	U	2.0	U	2.0
Carbon tetrachloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chlorobenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroform	0.56 J	1.0	U	1.0	0.51 J	1.0	0.49 J	1.0	0.52 J	1.0
Chloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Dibromochloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,2-Dichloroethene	14	1.0	U	1.0	15	1.0	15	1.0	14	1.0
trans-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloropropane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Ethylbenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
2-Hexanone	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
Methylene chloride	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Styrene	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Tetrachloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Toluene	22	1.0	3.3	1.0	13	1.0	6.3	1.0	6.1	1.0
1,1,1-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,2-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Trichloroethene	42	1.0	U	1.0	46	1.0	44	1.0	43	1.0
Vinyl chloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene, m-&p-	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene, o-	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA # 0-296 Mills Gap Road

Method : SW846 8260B

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Sample Number Sample Location	Method Blank 8/31/2009; 2106		51643 ERT-6		51645 ERT-7, 150	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Acetone	U	10	U	10	U	10
Benzene	U	1.0	U	1.0	U	1.0
Bromodichloromethane	U	1.0	U	1.0	U	1.0
Bromoform	U	4.0	U	4.0	U	4.0
Bromomethane	U	2.0	U	2.0	U	2.0
2-Butanone (MEK)	U	10	U	10	U	10
Carbon disulfide	U	2.0	U	2.0	U	2.0
Carbon tetrachloride	U	1.0	U	1.0	U	1.0
Chlorobenzene	U	1.0	U	1.0	U	1.0
Chloroethane	U	1.0	U	1.0	U	1.0
Chloroform	U	1.0	U	1.0	U	1.0
Chloromethane	U	1.0	U	1.0	U	1.0
Dibromochloromethane	U	1.0	U	1.0	U	1.0
1,1-Dichloroethane	U	1.0	U	1.0	U	1.0
1,2-Dichloroethane	U	1.0	U	1.0	U	1.0
1,1-Dichloroethene	U	1.0	U	1.0	U	1.0
cis-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0
trans-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0
1,2-Dichloropropane	U	1.0	U	1.0	U	1.0
cis-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0
trans-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0
Ethylbenzene	U	1.0	U	1.0	U	1.0
2-Hexanone	U	5.0	U	5.0	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0	U	5.0	U	5.0
Methylene chloride	U	2.0	U	2.0	U	2.0
Styrene	U	5.0	U	5.0	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0	U	1.0	U	1.0
Tetrachloroethene	U	1.0	U	1.0	U	1.0
Toluene	U	1.0	4.3	1.0	12	1.0
1,1,1-Trichloroethane	U	1.0	U	1.0	U	1.0
1,1,2-Trichloroethane	U	1.0	U	1.0	U	1.0
Trichloroethene	U	1.0	U	1.0	0.40 J	1.0
Vinyl chloride	U	1.0	U	1.0	U	1.0
Xylene, m-&p-	U	1.0	U	1.0	U	1.0
Xylene, o-	U	1.0	U	1.0	U	1.0

Table 1.2 Results of the TICs for VOC in Water
WA# 0-296 Mills Gap Road

Page 1 of 1

Sample Number	Analyte	Concentration*, µg/L
Water Blank 08/22/09	No TICs Detected	
51693	No TICs Detected	
51694	No TICs Detected	
51695	No TICs Detected	
51696	No TICs Detected	
51618	No TICs Detected	
51671	No TICs Detected	
51619	No TICs Detected	
51620	No TICs Detected	
51621	No TICs Detected	
51622	No TICs Detected	
Water Blank C082509-1	No TICs Detected	
51649	No TICs Detected	
Method Blank 08/31/09 0843	No TICs Detected	
51648	No TICs Detected	
51644	No TICs Detected	
51642	No TICs Detected	
51641	No TICs Detected	
51640	No TICs Detected	
51650	No TICs Detected	
51647	No TICs Detected	
51651	No TICs Detected	
51652	No TICs Detected	
Method Blank 08/31/09 021.03	No TICs Detected	
51643	No TICs Detected	
51645	No TICs Detected	

* Estimated Concentration (Response Factor = 1)

Table 1.3 Results of the Analysis for VOC in Soil
WA# 0-296 Mills Gap Road
Based on Dry Weight

Method REAC SOP 1807

Page 1 of 2

Sample Number	Soil Blank C 081809		51631		Soil Blank C082509		51663		51658	
Sample Location			SW-9				4		2	
Percent Solids	100		62		100		80		95	
Analyte	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg
Dichlorodifluoromethane	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Chloromethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Vinyl Chloride	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Bromomethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Chloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Trichlorofluoromethane	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Acetone	U	20.0	U	32.3	U	20.0	58.2 J	25.0	U	21.1
1,1-Dichloroethene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Methylene Chloride	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Carbon Disulfide	U	5.00	U	8.06	U	5.00	3.93 J	6.25	U	5.26
Methyl tert-Butyl Ether	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
trans-1,2-Dichloroethene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,1 Dichloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
2-Butanone	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
2,2-Dichloropropane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
cis-1,2-Dichloroethene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Chloroform	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,1-Dichloropropene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2-Dichloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,1,1-Trichloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Carbon Tetrachloride	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Benzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Trichloroethene	U	5.00	2.23 J	8.06	U	5.00	U	6.25	U	5.26
1,2-Dichloropropane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Bromodichloromethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Dibromomethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
cis-1,3-Dichloropropene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
trans-1,3-Dichloropropene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
1,1,2-Trichloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,3-Dichloropropane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Dibromochloromethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2-Dibromoethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Bromoform	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
4-Methyl-2-Pentanone	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Toluene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
2-Hexanone	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Tetrachloroethene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Chlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,1,1,2-Tetrachloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Ethylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
p&m-Xylene	U	10.0	U	16.1	U	10.0	U	12.5	U	10.5
o-Xylene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Styrene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Isopropylbenzene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
1,1,2,2-Tetrachloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2,3-Trichloropropane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
n-Propylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Bromobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,3,5-Trimethylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
2-Chlorotoluene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
4-Chlorotoluene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
tert-Butylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2,4-Trimethylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
sec-Butylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
p-Isopropyltoluene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,3-Dichlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,4-Dichlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
n-Butylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2-Dichlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2-Dibromo-3-Chloropropane	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
1,2,4-Trichlorobenzene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Hexachlorobutadiene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Naphthalene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
1,2,3-Trichlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26

Table 1.3 Results of the Analysis for VOC in Soil
WA# 0-296 Mills Gap Road
Based on Dry Weight

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Method REAC SOP 1807

Sample Number	Soil Blank C 090309		51697		51657	
Sample Location			1		3	
Percent Solids	100		82		82	
Analyte	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg
Dichlorodifluoromethane	U	5.00	U J	6.10	U J	6.10
Chloromethane	U	5.00	U J	6.10	U J	6.10
Vinyl Chloride	U	5.00	U J	6.10	U J	6.10
Bromomethane	U	5.00	U J	6.10	U J	6.10
Chloroethane	U	5.00	U J	6.10	U J	6.10
Trichlorofluoromethane	U	5.00	U J	6.10	U J	6.10
Acetone	U	20.0	U J	24.4	U J	24.4
1,1-Dichloroethene	U	5.00	U J	6.10	U J	6.10
Methylene Chloride	U	5.00	U J	6.10	U J	6.10
Carbon Disulfide	U	5.00	U J	6.10	U J	6.10
Methyl tert-Butyl Ether	U	5.00	U J	6.10	U J	6.10
trans-1,2-Dichloroethene	U	5.00	U J	6.10	U J	6.10
1,1 Dichloroethane	U	5.00	U J	6.10	U J	6.10
2-Butanone	U	5.00	U J	6.10	U J	6.10
2,2-Dichloropropane	U	5.00	U J	6.10	U J	6.10
cis-1,2-Dichloroethene	U	5.00	U J	6.10	U J	6.10
Chloroform	U	5.00	U J	6.10	U J	6.10
1,1-Dichloropropene	U	5.00	U J	6.10	U J	6.10
1,2-Dichloroethane	U	5.00	U J	6.10	U J	6.10
1,1,1-Trichloroethane	U	5.00	U J	6.10	U J	6.10
Carbon Tetrachloride	U	5.00	U J	6.10	U J	6.10
Benzene	U	5.00	U J	6.10	U J	6.10
Trichloroethene	U	5.00	U J	6.10	U J	6.10
1,2-Dichloropropane	U	5.00	U J	6.10	U J	6.10
Bromodichloromethane	U	5.00	U J	6.10	U J	6.10
Dibromomethane	U	5.00	U J	6.10	U J	6.10
cis-1,3-Dichloropropene	U	5.00	U J	6.10	U J	6.10
trans-1,3-Dichloropropene	U	5.00	U J	6.10	U J	6.10
1,1,2-Trichloroethane	U	5.00	U J	6.10	U J	6.10
1,3-Dichloropropane	U	5.00	U J	6.10	U J	6.10
Dibromochloromethane	U	5.00	U J	6.10	U J	6.10
1,2-Dibromoethane	U	5.00	U J	6.10	U J	6.10
Bromoform	U	5.00	U J	6.10	U J	6.10
4-Methyl-2-Pentanone	U	5.00	U J	6.10	U J	6.10
Toluene	U	5.00	U J	6.10	U J	6.10
2-Hexanone	U	5.00	U J	6.10	U J	6.10
Tetrachloroethene	U	5.00	U J	6.10	U J	6.10
Chlorobenzene	U	5.00	U J	6.10	U J	6.10
1,1,1,2-Tetrachloroethane	U	5.00	U J	6.10	U J	6.10
Ethylbenzene	U	5.00	U J	6.10	U J	6.10
p&m-Xylene	U	10.0	U J	12.2	U J	12.2
o-Xylene	U	5.00	U J	6.10	U J	6.10
Styrene	U	5.00	U J	6.10	U J	6.10
Isopropylbenzene	U	5.00	U J	6.10	U J	6.10
1,1,2,2-Tetrachloroethane	U	5.00	U J	6.10	U J	6.10
1,2,3-Trichloropropane	U	5.00	U J	6.10	U J	6.10
n-Propylbenzene	U	5.00	U J	6.10	U J	6.10
Bromobenzene	U	5.00	U J	6.10	U J	6.10
1,3,5-Trimethylbenzene	U	5.00	U J	6.10	U J	6.10
2-Chlorotoluene	U	5.00	U J	6.10	U J	6.10
4-Chlorotoluene	U	5.00	U J	6.10	U J	6.10
tert-Butylbenzene	U	5.00	U J	6.10	U J	6.10
1,2,4-Trimethylbenzene	U	5.00	U J	6.10	U J	6.10
sec-Butylbenzene	U	5.00	U J	6.10	U J	6.10
p-Isopropyltoluene	U	5.00	U J	6.10	U J	6.10
1,3-Dichlorobenzene	U	5.00	U J	6.10	U J	6.10
1,4-Dichlorobenzene	U	5.00	U J	6.10	U J	6.10
n-Butylbenzene	U	5.00	U J	6.10	U J	6.10
1,2-Dichlorobenzene	U	5.00	U J	6.10	U J	6.10
1,2-Dibromo-3-Chloropropane	U	5.00	U J	6.10	U J	6.10
1,2,4-Trichlorobenzene	U	5.00	U J	6.10	U J	6.10
Hexachlorobutadiene	U	5.00	U J	6.10	U J	6.10
Naphthalene	U	5.00	U J	6.10	U J	6.10
1,2,3-Trichlorobenzene	U	5.00	U J	6.10	U J	6.10

Table 1.4 Results of the TICs for VOC in Soil
WA# 0-296 Mills Gap Road

Page 1 of 1

Sample Number	Analyte	Concentration*, µg/Kg
Soil Blank C 081809 51631	No TICs Detected No TICs Detected	
Soil Blank C082509 51663 51658 51697 51657	No TICs Detected No TICs Detected No TICs Detected No TICs Detected No TICs Detected	

* Estimated Concentration (Response Factor = 1)

Table 2.1 Results of MS/MSD Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Sample Number: 51695

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Analyte	Sample Result µg/L	MS/MSD Spike Added µg/L	MS Result µg/L	MS % Recovery	MSD Result µg/L	MSD % Recovery	RPD	QC Limits	
								RPD	% Recovery
Acetone	U	50.0	49.8	99	48.4	97	2	20	44-157
Benzene	U	50.0	41.4	83	38.0	76	9	13	38-139
Bromodichloromethane	U	50.0	41.8	84	39.1	78	7	13	70-135
Bromoform	U	50.0	41.1	82	38.2	76	7	13	53-139
Bromomethane	U	50.0	35.7	71	32.8	66	8	18	44-150
2-Butanone (MEK)	U	50.0	47.8	96	44.9	90	6	14	58-140
Carbon disulfide	U	50.0	36.4	73	31.2	62	15	21	34-136
Carbon tetrachloride	U	50.0	44.7	89	40.1	80	11	18	50-161
Chlorobenzene	U	50.0	41.2	82	37.7	75	9	12	65-128
Chloroethane	U	50.0	33.4	67	30.8	62	8	18	41-151
Chloroform	U	50.0	40.5	81	37.8	76	7	14	66-132
Chloromethane	U	50.0	30.5	61	27.4	55	11	22	35-149
Dibromochloromethane	U	50.0	41.8	84	38.4	77	8	12	67-134
1,1-Dichloroethane	U	50.0	42.1	84	38.6	77	9	15	59-132
1,2-Dichloroethane	U	50.0	42.0	84	39.6	79	6	15	59-153
1,1-Dichloroethene	U	50.0	44.2	88	38.8	78	13	17	41-144
cis-1,2-Dichloroethene	U	50.0	40.0	80	37.0	74	8	13	57-131
trans-1,2-Dichloroethene	U	50.0	41.2	82	36.8	74	11	15	55-131
1,2-Dichloropropane	U	50.0	41.3	83	39.1	78	5	12	67-125
cis-1,3-Dichloropropene	U	50.0	39.4	79	36.2	72	8	13	68-126
trans-1,3-Dichloropropene	U	50.0	40.6	81	37.8	76	7	13	68-134
Ethylbenzene	U	50.0	45.0	90	41.1	82	9	13	37-143
2-Hexanone	U	50.0	54.4	109	51.5	103	5	17	53-145
4-Methyl-2-pentanone(MIBK)	U	50.0	53.1	106	49.5	99	7	14	57-141
Methylene chloride	U	50.0	37.4	75	34.6	69	8	12	59-129
Styrene	U	50.0	44.3	89	41.3	83	7	13	60-135
1,1,2,2-Tetrachloroethane	U	50.0	46.5	93	43.3	87	7	13	62-126
Tetrachloroethene	U	50.0	44.5	89	40.0	80	11	15	48-145
Toluene	U	50.0	41.8	84	38.9	78	7	14	44-141
1,1,1-Trichloroethane	U	50.0	42.0	84	38.4	77	9	18	55-149
1,1,2-Trichloroethane	U	50.0	40.5	81	38.0	76	6	12	70-127
Trichloroethene	U	50.0	42.8	86	38.7	77	10	15	53-141
Vinyl chloride	U	50.0	33.2	66	29.1	58	13	20	34-151
Xylene (total)	U	150	135	90	124	83	8	13	36-144

Table 2.1 (cont) Results of MS/MSD Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Sample Number: 51642

Page 2 of 2

Analyte	Sample Result µg/L	MS/MSD Spike Added µg/L	MS Result µg/L	MS % Recovery	MSD Result µg/L	MSD % Recovery	RPD	QC Limits	
								RPD	% Recovery
Acetone	U	50.0	46.2	92	49.3	99	6	20	44-157
Benzene	U	50.0	44.6	89	42.7	85	4	13	38-139
Bromodichloromethane	U	50.0	49.2	98	46.2	92	6	13	70-135
Bromoform	U	50.0	41.0	82	40.5	81	1	13	53-139
Bromomethane	U	50.0	40.0	80	39.1	78	2	18	44-150
2-Butanone (MEK)	U	50.0	43.6	87	45.3	91	4	14	58-140
Carbon disulfide	U	50.0	32.3	65	29.6	59	9	21	34-136
Carbon tetrachloride	U	50.0	37.0	74	32.1	64	14	18	50-161
Chlorobenzene	U	50.0	44.6	89	44.2	88	1	12	65-128
Chloroethane	U	50.0	45.0	90	42.9	86	5	18	41-151
Chloroform	U	50.0	45.6	91	43.0	86	6	14	66-132
Chloromethane	U	50.0	47.2	94	46.3	93	2	22	35-149
Dibromochloromethane	U	50.0	43.6	87	42.2	84	3	12	67-134
1,1-Dichloroethane	U	50.0	45.7	91	43.2	86	6	15	59-132
1,2-Dichloroethane	U	50.0	49.8	100	46.2	92	7	15	59-153
1,1-Dichloroethene	U	50.0	32.5	65	29.6	59	9	17	41-144
cis-1,2-Dichloroethene	U	50.0	44.4	89	43.1	86	3	13	57-131
trans-1,2-Dichloroethene	U	50.0	40.6	81	37.8	76	7	15	55-131
1,2-Dichloropropane	U	50.0	50.8	102	49.5	99	3	12	67-125
cis-1,3-Dichloropropene	U	50.0	51.2	102	49.6	99	3	13	68-126
trans-1,3-Dichloropropene	U	50.0	51.0	102	49.4	99	3	13	68-134
Ethylbenzene	U	50.0	43.7	87	41.7	83	5	13	37-143
2-Hexanone	U	50.0	53.4	107	51.6	103	3	17	53-145
4-Methyl-2-pentanone(MIBK)	U	50.0	50.5	101	51.0	102	1	14	57-141
Methylene chloride	U	50.0	44.7	89	43.5	87	3	12	59-129
Styrene	U	50.0	45.0	90	44.4	89	1	13	60-135
1,1,2,2-Tetrachloroethane	U	50.0	49.1	98	48.4	97	1	13	62-126
Tetrachloroethene	U	50.0	40.3	81	37.6	75	7	15	48-145
Toluene	9.00	50.0	54.6	91	50.9	84	7	14	44-141
1,1,1-Trichloroethane	U	50.0	40.1	80	35.2	70	13	18	55-149
1,1,2-Trichloroethane	U	50.0	51.5	103	50.4	101	2	12	70-127
Trichloroethene	U	50.0	43.5	87	40.5	81	7	15	53-141
Vinyl chloride	U	50.0	39.4	79	37.5	75	5	20	34-151
m-&p-Xylene	U	100	86.7	86	83.0	83	3	13	36-144
o-Xylene	U	50.0	45.7	91	44.7	90	2	13	38-144

Table 2.2 Results of LCS Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Page 1 of 4

Date Analyzed 08/22/09

Analyte	LCS Spike Added µg/L	LCS Conc. µg/L	LCS % Recovery	QC Limits % Recovery
Acetone	50.0	49.7	99	51-151
Benzene	50.0	46.9	94	75-122
Bromodichloromethane	50.0	50.7	101	77-128
Bromoform	50.0	51.2	102	67-141
Bromomethane	50.0	39.5	79	53-152
2-Butanone (MEK)	50.0	53.0	106	64-130
Carbon disulfide	50.0	37.2	74	59-140
Carbon tetrachloride	50.0	50.5	101	75-148
Chlorobenzene	50.0	48.4	97	76-124
Chloroethane	50.0	34.8	70	54-147
Chloroform	50.0	47.8	96	77-124
Chloromethane	50.0	31.6	63	46-144
Dibromochloromethane	50.0	49.3	99	76-132
1,1-Dichloroethane	50.0	47.9	96	72-124
1,2-Dichloroethane	50.0	46.8	94	66-150
1,1-Dichloroethene	50.0	47.6	95	61-132
cis-1,2-Dichloroethene	50.0	47.7	95	71-119
trans-1,2-Dichloroethene	50.0	45.5	91	71-123
1,2-Dichloropropane	50.0	47.6	95	75-120
cis-1,3-Dichloropropene	50.0	48.0	96	77-124
trans-1,3-Dichloropropene	50.0	48.2	96	75-132
Ethylbenzene	50.0	51.2	102	77-124
2-Hexanone	50.0	61.4	123	58-136
4-Methyl-2-pentanone(MIBK)	50.0	57.0	114	63-135
Methylene chloride	50.0	41.0	82	69-122
Styrene	50.0	51.8	104	78-128
1,1,2,2-Tetrachloroethane	50.0	50.9	102	68-125
Tetrachloroethane	50.0	50.4	101	70-136
Toluene	50.0	48.1	96	76-126
1,1,1-Trichloroethane	50.0	48.2	96	77-136
1,1,2-Trichloroethane	50.0	45.7	91	75-123
Trichloroethene	50.0	49.5	99	79-128
Vinyl chloride	50.0	34.1	68	56-146
Xylene (total)	150	158	105	77-125

* Indicates out of the criteria

Table 2.2 (cont) Results of LCS Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Page 2 of 4

Date Analyzed 08/20/09

Analyte	LCS Spike Added µg/L	LCS Conc. µg/L	LCS % Recovery	QC Limits % Recovery
Dichlorodifluoromethane	50.0	42.6	85	53-105
Chloromethane	50.0	56.2	112	63-110
Vinyl Chloride	50.0	64.3	129	77-156
Bromomethane	50.0	43.5	87	74-125
Chloroethane	50.0	43.3	87	70-122
Trichlorofluoromethane	50.0	50.9	102	69-132
Acetone	50.0	71.0	142	86-253
1,1-Dichloroethene	50.0	47.0	94	54-144
Methylene Chloride	50.0	46.3	93	69-129
Carbon Disulfide	50.0	51.4	103	62-120
Methyl-1-butyl Ether	50.0	38.0	76	66-116
trans-1,2-Dichloroethene	50.0	54.0	108	85-124
1,1-Dichloroethane	50.0	48.8	98	82-123
2-Butanone	50.0	55.4	111	14-256
2,2-Dichloropropane	50.0	35.7	71	67-139
cis-1,2-Dichloroethene	50.0	45.3	91	79-117
Chloroform	50.0	45.4	91	87-118
1,1-Dichloropropene	50.0	44.5	89	79-124
1,2-Dichloroethane	50.0	50.5	101	86-119
1,1,1-Trichloroethane	50.0	47.7	95	88-114
Carbon Tetrachloride	50.0	53.6	107	85-118
Benzene	50.0	50.9	102	94-111
Trichloroethene	50.0	50.9	102	86-107
1,2-Dichloropropane	50.0	54.8	110	88-110
Bromodichloromethane	50.0	47.9	96	85-106
Dibromomethane	50.0	50.1	100	81-117
cis-1,3-Dichloropropene	50.0	47.6	95	72-116
trans-1,3-Dichloropropene	50.0	50.6	101	83-130
1,1,2-Trichloroethane	50.0	52.9	106	83-115
1,3-Dichloropropane	50.0	50.7	101	82-116
Dibromochloromethane	50.0	52.4	105	77-116
1,2-Dibromoethane	50.0	51.7	103	80-118
Bromoform	50.0	47.3	95	70-125
4-Methyl-2-Pentanone	50.0	59.3	119	46-151
Toluene	50.0	53.2	106	88-111
2-Hexanone	50.0	62.3	125	30-275
Tetrachloroethene	50.0	53.1	106	79-116
Chlorobenzene	50.0	53.5	107	88-110
1,1,1,2-Tetrachloroethane	50.0	53.7	107	88-107
Ethylbenzene	50.0	53.7	107	89-111
p&m-Xylene	100	109.0	109	91-111
o-Xylene	50.0	55.8	112	92-114
Styrene	50.0	52.4	105	85-111
Isopropylbenzene	50.0	58.3	117	90-124
1,1,2,2-Tetrachloroethane	50.0	52.7	105	77-123
1,2,3-Trichloropropane	50.0	53.4	107	76-120
n-Propylbenzene	50.0	56.0	112	86-116
Bromobenzene	50.0	52.6	105	91-112
1,3,5-Trimethylbenzene	50.0	56.5	113	87-115
2-Chlorotoluene	50.0	53.9	108	90-115
4-Chlorotoluene	50.0	57.4	115	91-111
tert-Butylbenzene	50.0	57.8	116	81-118
1,2,4-Trimethylbenzene	50.0	54.7	109	85-111
sec-Butylbenzene	50.0	57.0	114	76-121
p-Isopropyltoluene	50.0	57.1	114	77-119
1,3-Dichlorobenzene	50.0	56.8	114	85-114
1,4-Dichlorobenzene	50.0	57.2	114	87-114
n-Butylbenzene	50.0	56.1	112	76-120
1,2-Dichlorobenzene	50.0	56.8	114	87-114
1,2-Dibromo-3-chloropropane	50.0	48.7	97	53-132
1,2,4-Trichlorobenzene	50.0	50.9	102	51-134
Hexachlorobutadiene	50.0	44.0	88	47-121
Naphthalene	50.0	58.7	117	36-149
1,2,3-Trichlorobenzene	50.0	50.2	100	32-150

* Indicates out of the criteria

Table 2.2 (cont) Results of LCS Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Page 3 of 4

Date Analyzed 08/31/09 (LCS #1)

Analyte	LCS Spike Added µg/L	LCS Conc. µg/L	LCS % Recovery	QC Limits % Recovery
Acetone	50.0	44.8	90	51-151
Benzene	50.0	49.1	98	75-122
Bromodichloromethane	50.0	49.9	100	77-128
Bromoform	50.0	46.8	94	67-141
Bromomethane	50.0	39.2	78	53-152
2-Butanone (MEK)	50.0	41.0	82	64-130
Carbon disulfide	50.0	44.4	89	59-140
Carbon tetrachloride	50.0	45.6	91	75-148
Chlorobenzene	50.0	48.8	98	76-124
Chloroethane	50.0	45.9	92	54-147
Chloroform	50.0	46.6	93	77-124
Chloromethane	50.0	46.2	92	46-144
Dibromochloromethane	50.0	44.8	89	76-132
1,1-Dichloroethane	50.0	50.0	100	72-124
1,2-Dichloroethane	50.0	46.9	94	66-150
1,1-Dichloroethene	50.0	42.8	86	61-132
cis-1,2-Dichloroethene	50.0	48.9	98	71-119
trans-1,2-Dichloroethene	50.0	48.7	93	71-123
1,2-Dichloropropane	50.0	52.4	105	75-120
cis-1,3-Dichloropropene	50.0	52.4	105	77-124
trans-1,3-Dichloropropene	50.0	51.2	102	75-132
Ethylbenzene	50.0	48.3	97	77-124
2-Hexanone	50.0	49.2	98	58-138
4-Methyl-2-pentanone(MIBK)	50.0	46.0	92	63-135
Methylene chloride	50.0	46.0	92	69-122
Styrene	50.0	47.6	95	78-126
1,1,2,2-Tetrachloroethane	50.0	48.5	93	66-125
Tetrachloroethene	50.0	48.8	98	70-136
Toluene	50.0	51.4	103	78-126
1,1,1-Trichloroethane	50.0	47.5	95	77-136
1,1,2-Trichloroethane	50.0	51.1	102	75-123
Trichloroethene	50.0	50.1	100	79-128
Vinyl chloride	50.0	44.3	89	56-148
m-&p-Xylene	100	97.2	97	77-125
o-Xylene	50.0	51.5	103	77-125

* Indicates out of the criteria

Table 2.2 (cont) Results of LCS Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Page 4 of 4

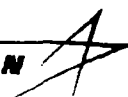
Date Analyzed 08/31/09 (LCS #2)

Analyte	LCS Spike Added µg/L	LCS Conc. µg/L	LCS % Recovery	QC Limits % Recovery
Acetone	50.0	52.3	105	51-151
Benzene	50.0	52.7	105	75-122
Bromodichloromethane	50.0	54.0	108	77-128
Bromoform	50.0	46.2	92	67-141
Bromomethane	50.0	44.0	88	53-152
2-Butanone (MEK)	50.0	46.0	92	64-130
Carbon disulfide	50.0	49.7	99	59-140
Carbon tetrachloride	50.0	48.0	96	75-148
Chlorobenzene	50.0	51.2	102	76-124
Chloroethane	50.0	52.6	105	54-147
Chloroform	50.0	51.9	104	77-124
Chloromethane	50.0	51.2 J	102	46-144
Dibromochloromethane	50.0	46.9	94	76-132
1,1-Dichloroethane	50.0	56.4	113	72-124
1,2-Dichloroethane	50.0	50.3	101	66-150
1,1-Dichloroethene	50.0	47.9	96	61-132
cis-1,2-Dichloroethene	50.0	54.4	109	71-119
trans-1,2-Dichloroethene	50.0	52.2	104	71-123
1,2-Dichloropropane	50.0	57.0	114	75-120
cis-1,3-Dichloropropene	50.0	53.0	106	77-124
trans-1,3-Dichloropropene	50.0	51.4	103	75-132
Ethylbenzene	50.0	51.1	102	77-124
2-Hexanone	50.0	52.4	105	58-136
4-Methyl-2-pentanone(MIBK)	50.0	49.7	99	63-135
Methylene chloride	50.0	51.4	103	69-122
Styrene	50.0	50.9	102	78-126
1,1,2,2-Tetrachloroethane	50.0	50.4	101	68-125
Tetrachloroethene	50.0	51.3	103	70-136
Toluene	50.0	54.4	109	76-126
1,1,1-Trichloroethane	50.0	51.7	103	77-136
1,1,2-Trichloroethane	50.0	53.8	108	75-123
Trichloroethene	50.0	53.3	107	79-126
Vinyl chloride	50.0	49.4	99	56-146
m-&p-Xylene	100	102	102	77-125
o-Xylene	50.0	53.9	107	77-125

* Indicates out of the criteria

Lockheed Martin
Response Engineering Analytical Contract
2890 Woodbridge Avenue Building 209 Annex
Edison, NJ 08837-3679
Telephone 732-321-4200 Facsimile 732-494-4021

LOCKHEED MARTIN



Accutest Labs
Fresh Ponds Corp Village, Bldg B
2235 Route 130
Dayton, NJ 08810

Attn: Tony Esposito

August 03, 2009

As per Lockheed Martin / REAC Credit Card 3432 issued to John M. Johnson, please analyze samples according to the following parameters for Project 0296:

Analysis/Method	Matrix	# of samples
VOC /SW-846-8260 (See attached and RL)	Water	20

The samples are expected to arrive at your laboratory between August 4-6, 2009. All applicable QA/QC(eg. MS/MSD, LCS, Duplicates, and Blanks) analysis as per method, will be performed on our sample matrix. Preliminary sample and QC result tables plus a signed copy of our Chain of Custody must be emailed to REAC 10 business days after receipt of the samples. The complete data package is due 15 business days after receipt of the samples. The complete data package must include all items on the deliverables checklist. Please note the lower reporting limits requested.

All sample and QC results must be summarized in a tab delimited file diskette deliverable.

Please submit all reports concerning this project to John Johnson at (732) 321-4248 or john.m.johnson@lmco.com.

Sincerely,

Vinod Kansal
Analytical Section Leader
Lockheed Martin / REAC Project

VK:jj Attachments

cc. R. Singhvi
Subcontracting File
0296\Inon\mem\0908sub\0296Con

V. Kansal
J. Soroka

K. Woodruff
G. Powell

Compound List Report

Page 1 of 1

Product: V8260TCL + Volatile Organics, TCL + LS
Matrix: AQ Aqueous

Jul 24, 2009 03:07 pm

Method List: VAIX8260 AQ	Method Ref: SW846 8260B	LJ30480
Report List: VTCL ALL	VOA TCL List	LJ25514
RL/MDL Factor: 1		

Compound	CAS No.	RL	MDL	Units
Acetone	67-64-1	10	2.9	ug/l
Benzene	71-43-2	1.0	0.23	ug/l
Bromodichloromethane	75-27-4	1.0	0.22	ug/l
Bromoform	75-25-2	4.0	0.23	ug/l
Bromomethane	74-83-9	2.0	0.30	ug/l
2-Butanone (MEK)	78-93-3	10	1.6	ug/l
Carbon disulfide	75-15-0	2.0	0.74	ug/l
Carbon tetrachloride	56-23-5	1.0	0.26	ug/l
Chlorobenzene	108-90-7	1.0	0.39	ug/l
Chloroethane	75-00-3	1.0	0.37	ug/l
Chloroform	67-66-3	1.0	0.23	ug/l
Chloromethane	74-87-3	1.0	0.29	ug/l
Dibromochloromethane	124-48-1	1.0	0.22	ug/l
1,1-Dichloroethane	75-34-3	1.0	0.29	ug/l
1,2-Dichloroethane	107-06-2	1.0	0.33	ug/l
1,1-Dichloroethene	75-35-4	1.0	0.40	ug/l
cis-1,2-Dichloroethene	156-59-2	1.0	0.22	ug/l
trans-1,2-Dichloroethene	156-60-5	1.0	0.25	ug/l
1,2-Dichloroethene (total)	540-59-0	1.0	0.22	ug/l
1,2-Dichloropropane	78-87-5	1.0	0.27	ug/l
cis-1,3-Dichloropropene	10061-01-5	1.0	0.25	ug/l
trans-1,3-Dichloropropene	10061-02-6	1.0	0.21	ug/l
Ethylbenzene	100-41-4	1.0	0.27	ug/l
2-Hexanone	591-78-6	5.0	1.4	ug/l
4-Methyl-2-pentanone(MIBK)	108-10-1	5.0	0.86	ug/l
Methylene chloride	75-09-2	2.0	0.30	ug/l
Styrene	100-42-5	5.0	0.58	ug/l
1,1,2,2-Tetrachloroethane	79-34-5	1.0	0.24	ug/l
Tetrachloroethene	127-18-4	1.0	0.27	ug/l
Toluene	108-88-3	1.0	0.30	ug/l
1,1,1-Trichloroethane	71-55-6	1.0	0.26	ug/l
1,1,2-Trichloroethane	79-00-5	1.0	0.23	ug/l
Trichloroethene	79-01-6	1.0	0.24	ug/l
Vinyl chloride	75-01-4	1.0	0.44	ug/l
Xylene (total)	1330-20-7	1.0	0.25	ug/l

35 compounds reported in list VTCL

1321-321-4200
EPA Contract 68-7-223

Project Name: Mills Road
Project Number: 0-286
LM Contact: K. WOODRUFF Phone: 609 865-9317

No: 07131
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

EP-C-04-032

R908014

Sample Identification

Analyses Requested

REAC	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCA
01	51663	5166 BW 4	S	8/19/09	1	4oz glass / 4°C	X
02	51658	2	S		1		X
03	51697	1	S		1		X
04	51657	3	S		1		X
05	51649	CHR-2	GW		3	40ml vial / 4°C	X

Matrix:

Special Instructions:

- A- Air
- AT- Animal Tissue
- DL- Drum Liquids
- DS- Drum Solids
- GW- Groundwater
- O- Oil
- PR- Product
- PT- Plant Tissue
- PW- Potable Water
- S- Soil
- SD- Sediment
- SL- Sludge
- SW- Surface Water
- TX- TCLP Extract
- W- Water
- X- Other

* Samples picked up at Fed-Ex on 8/22/09 by Calvin Lin and placed in Sample Cooler. JM 8/24/09

Received 4°C JM 8/24/09

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #:

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time
all analysis	K. Woodruff	8/19/09	J. L. Linn	8/24/09	9:00	All Analysis	J. L. Linn	8/24/09	J. L. Linn	8-24-09	9:40
all storage	A. V. L. J.	9/9/09	J. L. Linn	9/9/09	13:00						

EPA Contract ~~68-99-223~~ *74*

EP-L-04-032

CHAIN OF CUSTODY RECORD

Project Name: Mill Gap Road
Project Number: 0-246
LM Contact: K. Woodruff Phone: 604-865-9317

No: 07124
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

Sample Identification

Analyses Requested

REAC#	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOC's
15	51636	SG-12 Dup	S	8/10/09	1	4oz glass/4°C	✓
16	51631	SW-9	↓	↓	↓	↓ ↓	✓
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> JM 8/13/09 </div>							

Matrix:

A- Air	PW- Potable Water
AT-Animal Tissue	S- Soil
DL- Drum Liquids	SD- Sediment
DS- Drum Solids	SL- Sludge
GW- Groundwater	SW- Surface Water
O- Oil	TX-TCLP Extract
PR-Product	W- Water
PT-Plant Tissue	X- Other

Special Instructions:

Samples received on 8/13/09 with samples that appear on COC # 0296-081004-51. Task lead requested I put them on a COC and get them Analyzed. JM 8/13/09

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #:

Received 5°C Jm 8/13/09

[illegible]

Project Name: Mills C RoadProject Number: 0-296LM Contact: R. Woodruff Phone: 609-865-9317No: 07-34 (RW)Sheet **01** of **01** (Do not copy)
(for addnl. samples use new form)

Sample Identification

Analyses Requested

REACT	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOC
C0709	51623	SW-1 Dup	SD	8/10/09	1	4 oz glass / 4°C	X
C08	51624	SW-1			1		X
C03	51625	SW-2			2		X
C04	51626	SW-3			1		X
C05	51627	SW-4			1		X
C06	51627	SW-5			1		X
C07	51628	SW-6			1		X
C08	51629	SW-7			1		X
C09	51630	SW-8	Y		1		X
C10	51632	SG-7	S		1		X
C11	51633	SG-9	S		2		X
C12	51634	SG-8	S		1		X
C13	51635	SG-12	S		1		X
C14	51637	SG-13	S		1		X

Matrix:

Special Instructions:

A- Air
 AT- Animal Tissue
 DL- Drum Liquids
 DS- Drum Solids
 GW- Groundwater
 O- Oil
 PR- Product
 PT- Plant Tissue

PW- Potable Water
 S- Soil
 SD- Sediment
 SL- Sludge
 SW- Surface Water
 TX- TCLP Extract
 W- Water
 X- Other

**SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:**

Received 5°C 8/13/09

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time
all samples	A. V. Hoff	8/12/09	Tracy Hoffman	8/13/09	10:30	All Analysis	Tracy Hoffman	8/14/09	J. Venn	8-14-09	9:00
all storage	A. V. Hoff	9/9/09	Tracy Hoffman	9/19/09	13:00						

Project Name: Mills p Road
Project Number: 0-296
LM Contact: R. Woodruff Phone: 609 865-9317

No: ~~07129 N~~
 Sheet 01 of 01 (Do not copy)
 (for addnl. samples use new form)

Analyses Requested

REACTION	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCs
007	51662	CHR Dup	GW	8/17/09	3	40ml vial/4°C	X
028	51661	CHR	GW	↓	3	↓	X
03	51664	TB	W	↓	3	↓	X

026

Special instructions:

Regular analyser - no date validation

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

Received 20C 7m 8/18/09

[illegible]

No: ~~11-152~~ (1)
 Sheet 01 of 01 (Do not copy)
 (for addnl. samples use new form)

Sample Identification

Analyses Requested

[illegible]

Matrix:

A- Air	PW- Potable Water
AT-Animal Tissue	S- Soil
DL- Drum Liquids	SD- Sediment
DS- Drum Solids	SL- Sludge
GW- Groundwater	SW- Surface Water
O- Oil	TX-TCLP Extract
PR-Product	W- Water
PT-Plant Tissue	X- Other

Special Instructions:

* ing - msd

HCl as preservative

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time
10/11/07	10/11/07	10/11/07									

Analyses Requested

Special Instructions:

PW- Potable Water
S- Soil
SD- Sediment
SL- Sludge
SW- Surface Water
TX-TCLP Extract
W- Water
X- Other

HCl as preservative

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

[illegible]

APPENDIX C
GEOPHYSICAL LOGS
MILLS GAP ROAD SITE
ASHEVILLE, NORTH CAROLINA

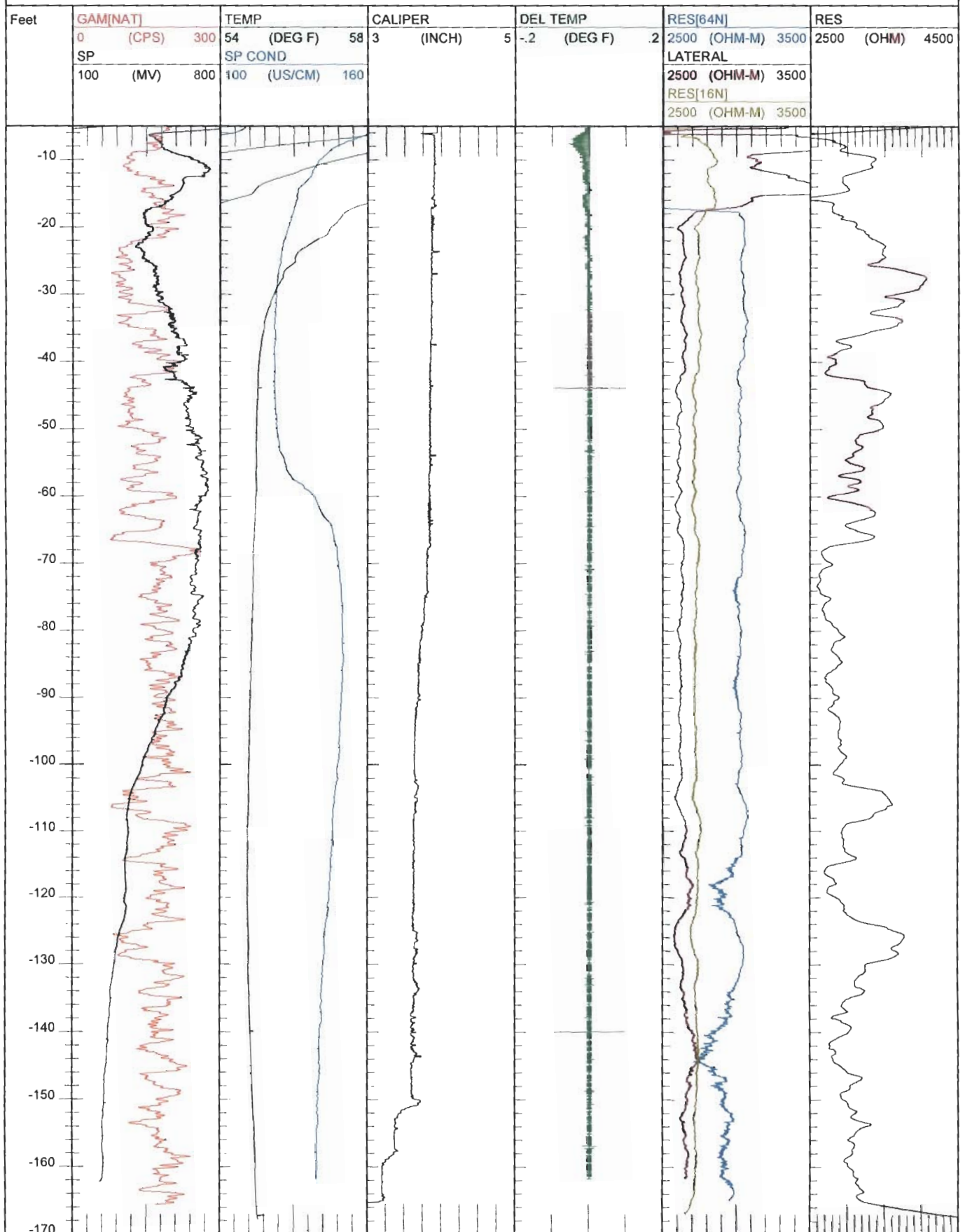
0296-DTR-101509

Well Name: ERT-6

File Name: I:\GEO\296-Mills Gap Rd\Geophysical Logs 2\ERT-6.HDR

Location: Mills Gap Road - Oaks

Reference: Ground Surface



WELL- ERT-6 08/20/09 09:40:

TOOL 9721SH SERIAL NUMBER 398

STATION	DEPTH	RATE LIT/MIN	RATE GPM/MIN
1	125.01	-0.184	-0.048
2	74.99	-0.168	-0.044
3	45.01	-0.165	-0.043



**GEOLOGICAL
LOGGING
SYSTEMS**

P.O. Box 848, 534 Industrial Park Road, Bluefield VA 24605 276-322-5467
ERT-6 Gamma-Temperature Log

Company : EPA/ERT
Well : ERT-6
Location/Field : MILLS GAP ROAD
County : BUNCOMBE
State : NORTH CAROLINA
Section : -

Other Services:
9041
-
-

Township : -

Range : -

Date : 8/19/2009
Depth Driller : 178
Log Bottom : 167.780
Log Top : 0.000

Permanent Datum : GL
Elev. Perm. Datum : -
Log Measured From : GL
Drl Measured From : GL

Elevations
KB : -
DF : -
GL : -

Casing Diameter : 4
Casing Bottom : 7
Casing Type : PVC

Logging Unit : 15
Field Office : LEXINGTON
Recorded By : JAY RAMSEY

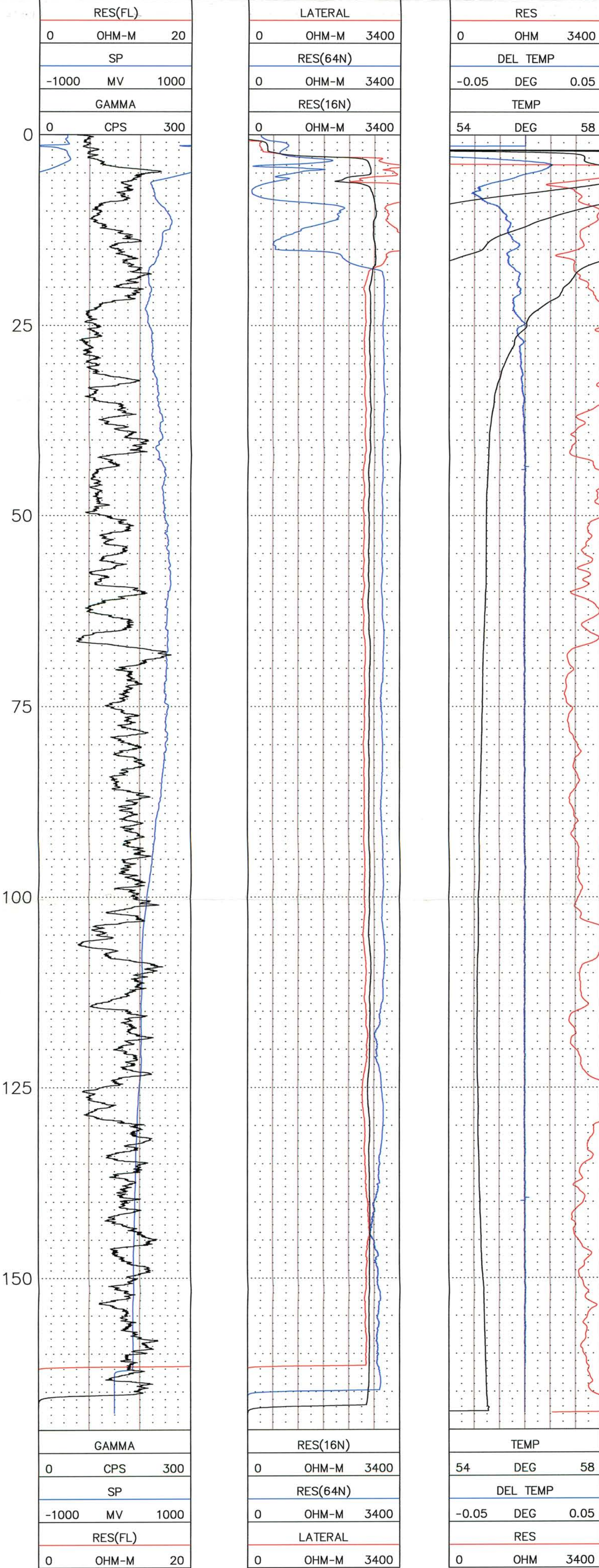
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Longitude -

Bit Size : 4
Magnetic Decl. : -6.2
Matrix Density : 2.71
Fluid Density : -
Neutron Matrix : LIMESTONE
Remarks : -

Borehole Fluid : -
RM : -
RM Temperature : -
Matrix Delta T : 49
Fluid Delta T : -

File : PROCESSED
Type : 9041C
Log : 1"= 10'
Plot : -
Thresh : 30000

Electric Log Interpretation Is Empirical In Nature. Extreme Hole Conditions Will Make Completely Accurate Interpretations Difficult.
All Services Provided Subject To Standard Terms And Conditions.



**GEOLOGICAL
LOGGING
SYSTEMS**

P.O. Box 848, 534 Industrial Park Road, Bluefield VA 24605 276-322-5467
ERT-6 CALIPER Log

Company : EPA/ERT
Well : ERT-6
Location/Field : MILLS GAP ROAD
County : BUNCOMBE
State : NORTH CAROLINA
Section : -

Other Services:
9064
-
-

Township : -

Range : -

Date : 8/19/2009
Depth Driller : 178
Log Bottom : 167.720
Log Top : 0.000

Permanent Datum : GL
Elev. Perm. Datum : -
Log Measured From : GL
Drl Measured From : GL

Elevations
KB : -
DF : -
GL : -

Casing Diameter : 4
Casing Bottom : 7
Casing Type : PVC

Logging Unit : 15
Field Office : LEXINGTON
Recorded By : JAY RAMSEY

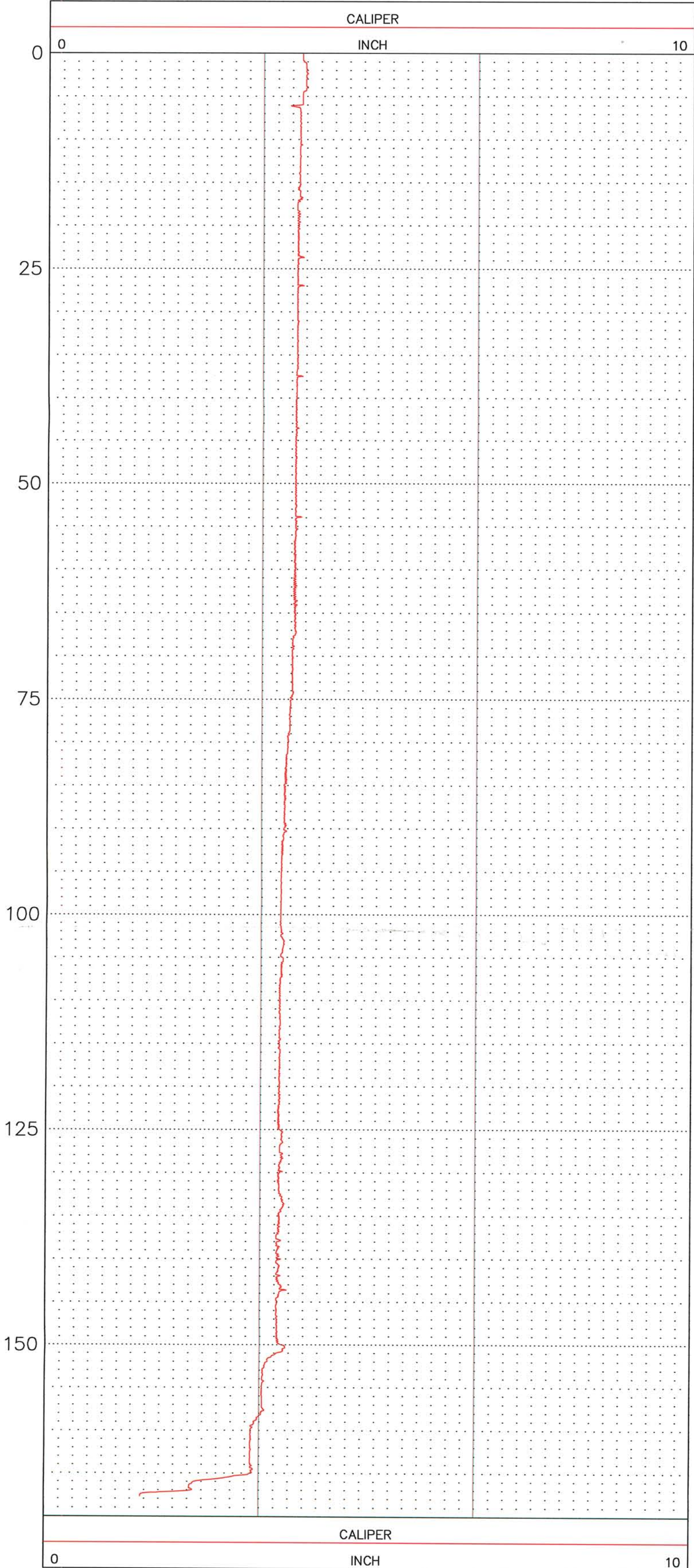
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Longitude -

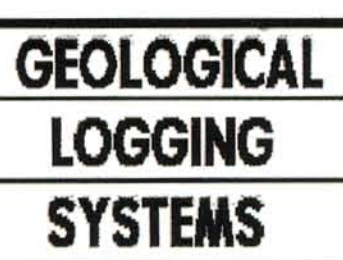
Bit Size : 4
Magnetic Decl. : -6.2
Matrix Density : 2.71
Fluid Density : -
Neutron Matrix : LIMESTONE
Remarks : -

Borehole Fluid : -
RM : -
RM Temperature : -
Matrix Delta T : 49
Fluid Delta T : -

File : PROCESSED
Type : 9064A
Log : 1"= 10'
Plot : -
Thresh : 30000

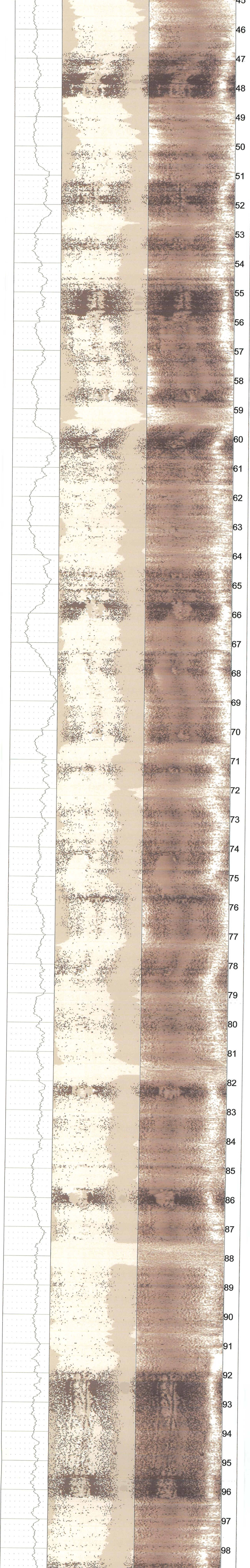
Electric Log Interpretation Is Empirical In Nature. Extreme Hole Conditions Will Make Completely Accurate Interpretations Difficult.
All Services Provided Subject To Standard Terms And Conditions.

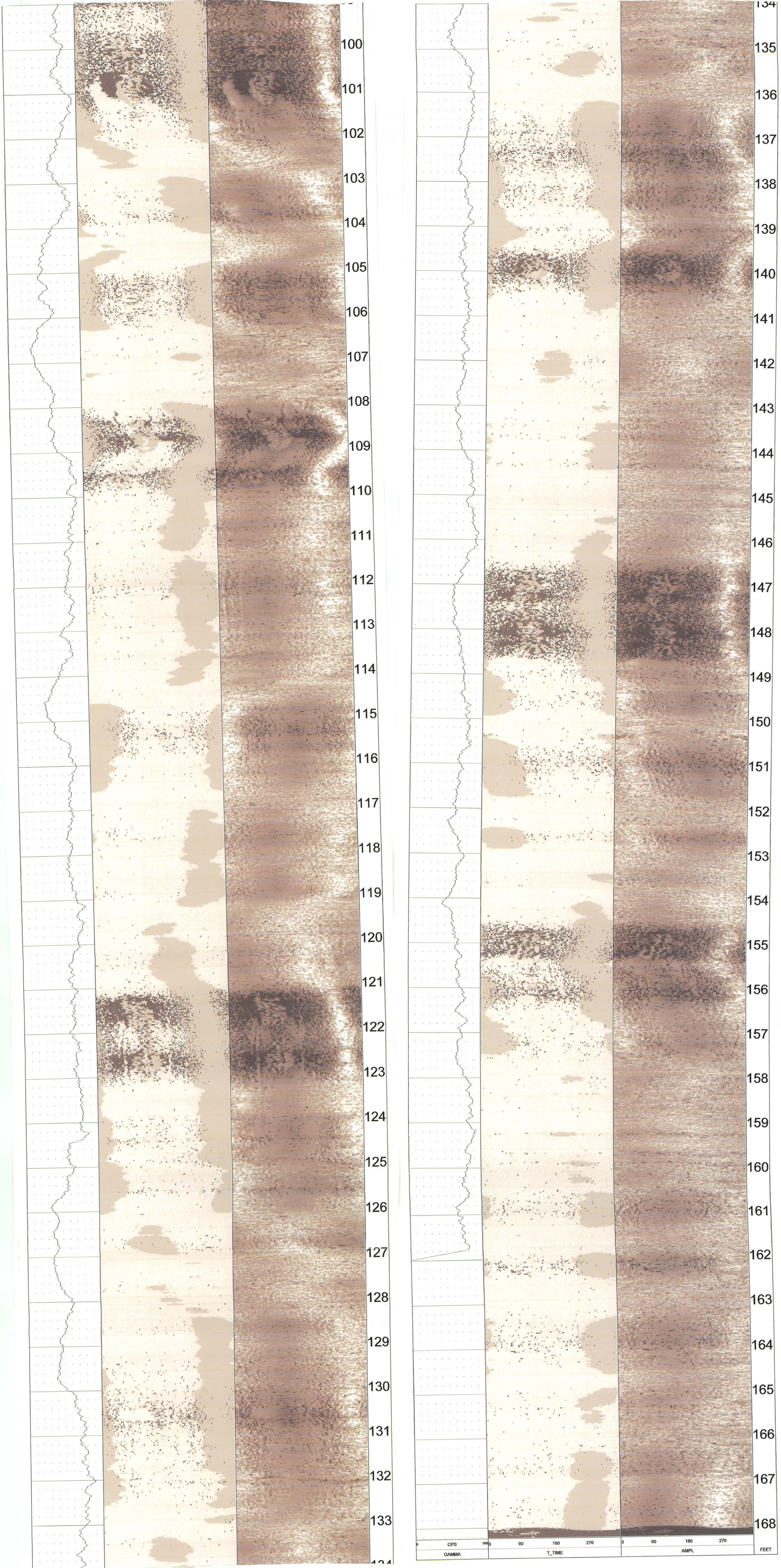




OTHER SERVICES:
9804

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS



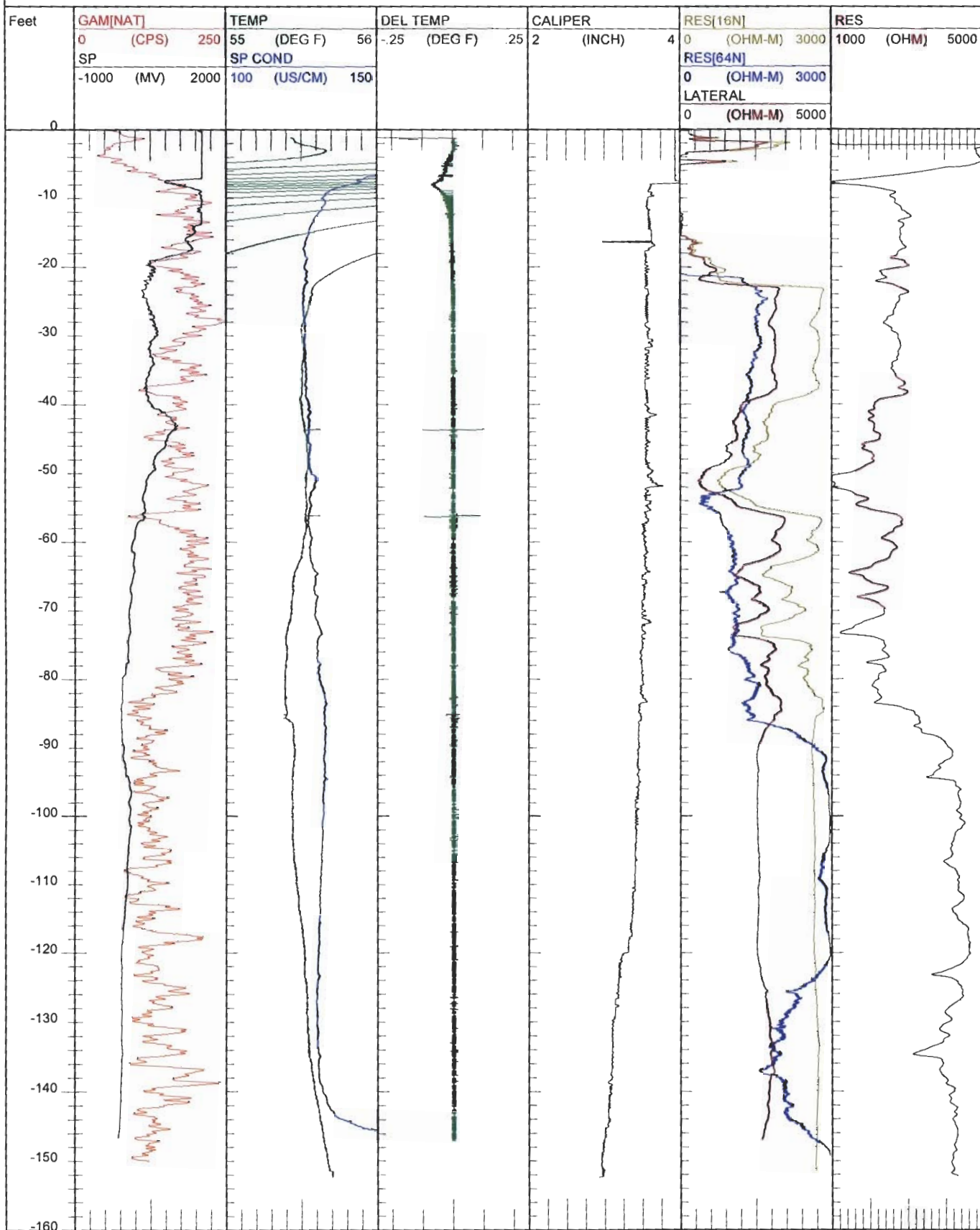


Well Name: ERT-7

File Name: I:\GEO\296-Mills Gap Rd\Geophysical Logs 2\ERT-7.HDR

Location: MILLS GAP ROAD-Oaks

Reference: Ground Surface



WELL- ERT-7 08/18/09 17:32:

TOOL 9721SL SERIAL NUMBER 398

STATION	DEPTH	RATE LIT/MIN	RATE GPM/MIN
1	138.72	-0.269	-0.070
2	120.02	-0.349	-0.091
3	100.00	-0.415	-0.109
4	73.99	-0.415	-0.109
5	51.02	-0.437	-0.114
6	20.00	-0.559	-0.146
7	19.87	-0.329	-0.086



**GEOLOGICAL
LOGGING
SYSTEMS**

P.O. Box 848, 534 Industrial Park Road, Bluefield VA 24605 276-322-5467

ERT-7 Caliper Log

Company : EPA/ERT
Well : ERT-7
Location/Field : MILLS GAP ROAD
County : BUNCOMBE
State : NORTH CAROLINA
Section : -

Other Services:
9064

Township : -

Range : -

Date : 8/18/2009
Depth Driller : 151
Log Bottom : 152.400
Log Top : 0.000

Permanent Datum : GL
Elev. Perm. Datum : -
Log Measured From : GL
Dri Measured From : GL

Elevations
KB : -
DF : -
GL : -

Casing Diameter : 4
Casing Bottom : 7.5
Casing Type : PVC

Logging Unit : 15
Field Office : LEXINGTON
Recorded By : JAY RAMSEY

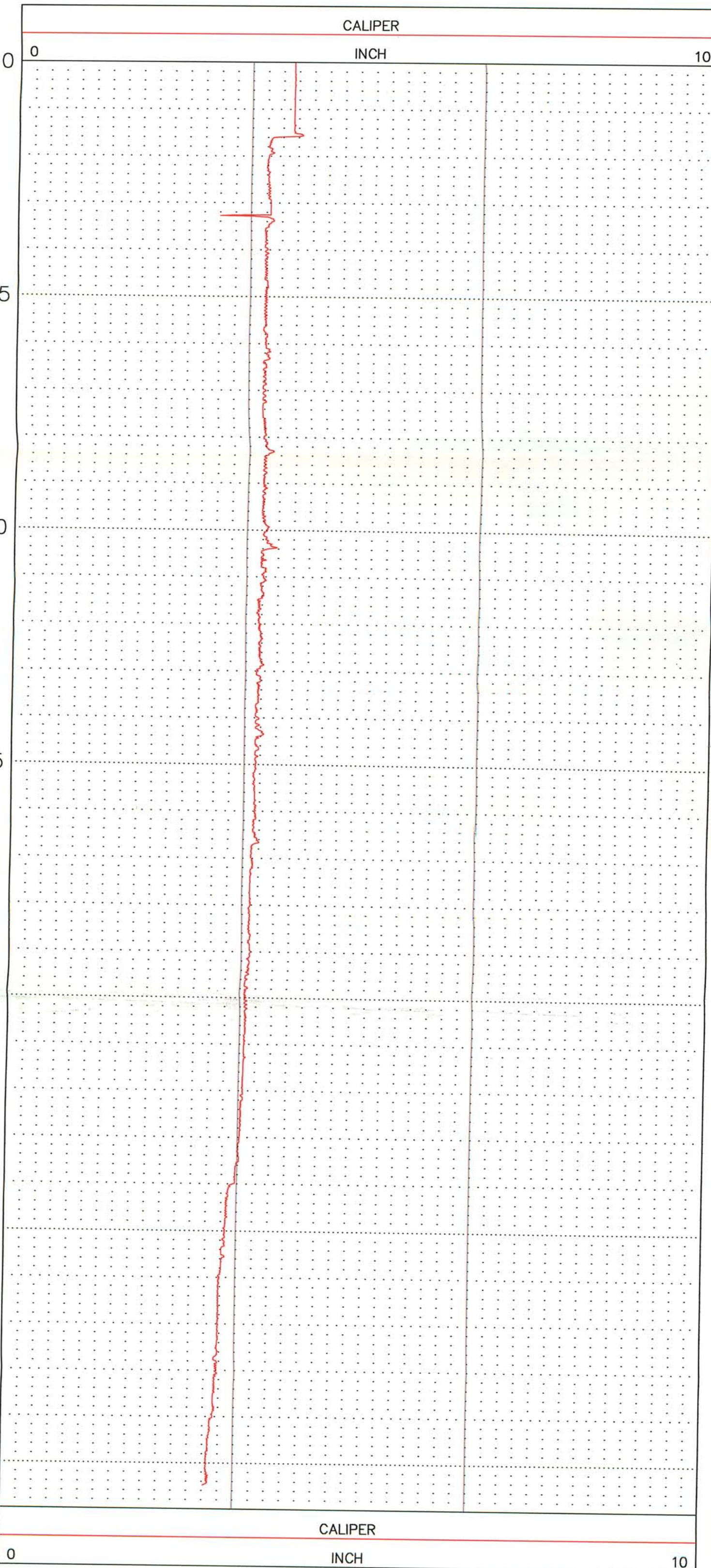
Latitude -
Longitude -

Bit Size : 4
Magnetic Decl. : -6.2
Matrix Density : 2.71
Fluid Density : -
Neutron Matrix : LIMESTONE
Remarks : -

Borehole Fluid : -
RM : -
RM Temperature : -
Matrix Delta T : 49
Fluid Delta T : -

File : PROCESSED
Type : 9064A
Log : 1"= 10'
Plot : -
Thresh : 30000

Electric Log Interpretation Is Empirical In Nature. Extreme Hole Conditions Will Make Completely Accurate Interpretations Difficult.
All Services Provided Subject To Standard Terms And Conditions.



**GEOLOGICAL
LOGGING
SYSTEMS**

P.O. Box 848, 534 Industrial Park Road, Bluefield VA 24605 276-322-5467

ERT-7 Gamma-Temperature Log

Company : EPA/ERT
Well : ERT-7
Location/Field : MILLS GAP ROAD
County : BUNCOMBE
State : NORTH CAROLINA
Section : -

Other Services:
9041

Township : -

Range : -

Date : 8/18/2009
Depth Driller : 151
Log Bottom : 152.220
Log Top : 0.000

Permanent Datum : GL
Elev. Perm. Datum : -
Log Measured From : GL
Dri Measured From : GL

Elevations
KB : -
DF : -
GL : -

Casing Diameter : 4
Casing Bottom : 7.5
Casing Type : PVC

Logging Unit : 15
Field Office : LEXINGTON
Recorded By : JAY RAMSEY

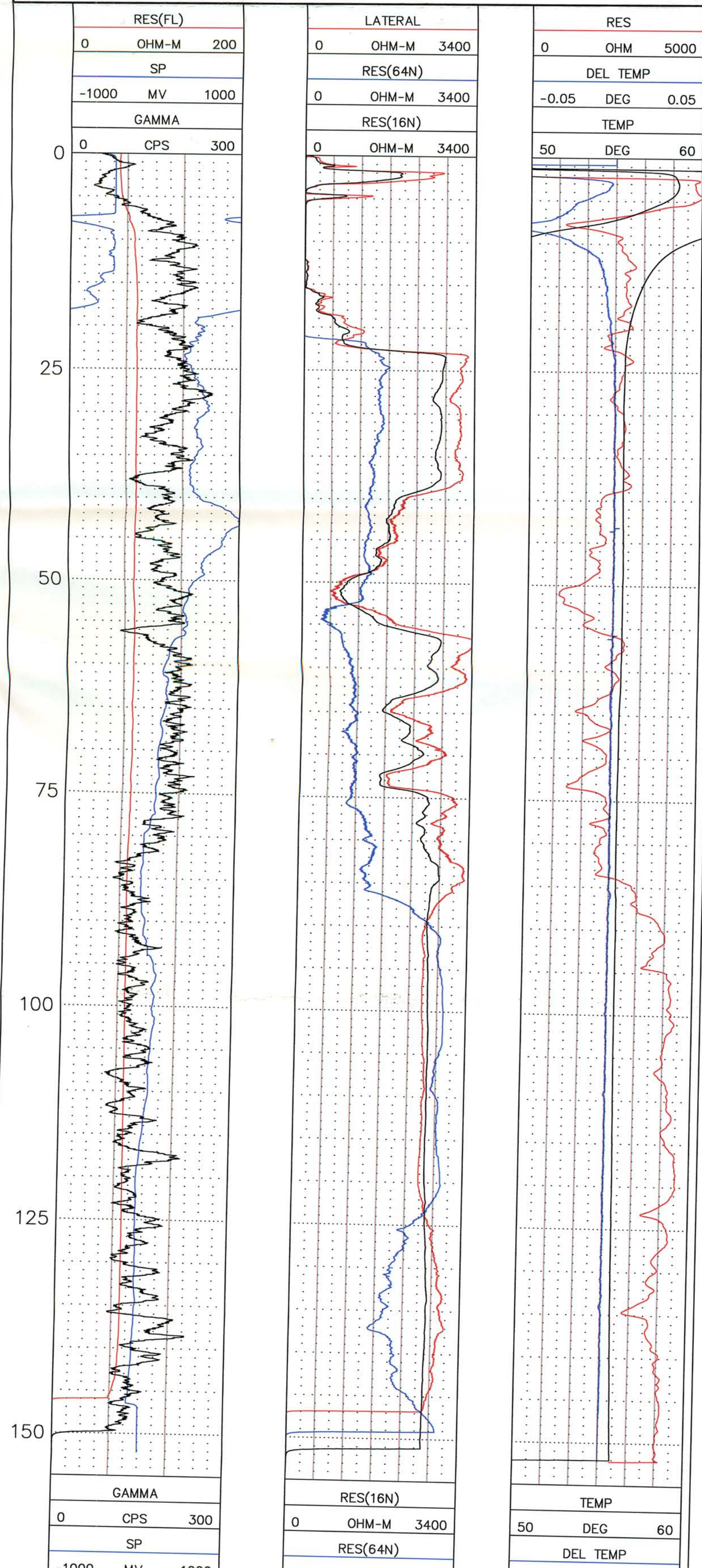
Latitude -
Longitude -

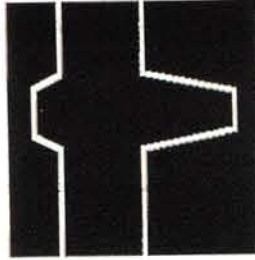
Bit Size : 4
Magnetic Decl. : -6.2
Matrix Density : 2.71
Fluid Density : -
Neutron Matrix : LIMESTONE
Remarks : -

Borehole Fluid : -
RM : -
RM Temperature : -
Matrix Delta T : 49
Fluid Delta T : -

File : PROCESSED
Type : 9041C
Log : 1"= 10'
Plot : -
Thresh : 30000

Electric Log Interpretation Is Empirical In Nature. Extreme Hole Conditions Will Make Completely Accurate Interpretations Difficult.
All Services Provided Subject To Standard Terms And Conditions.





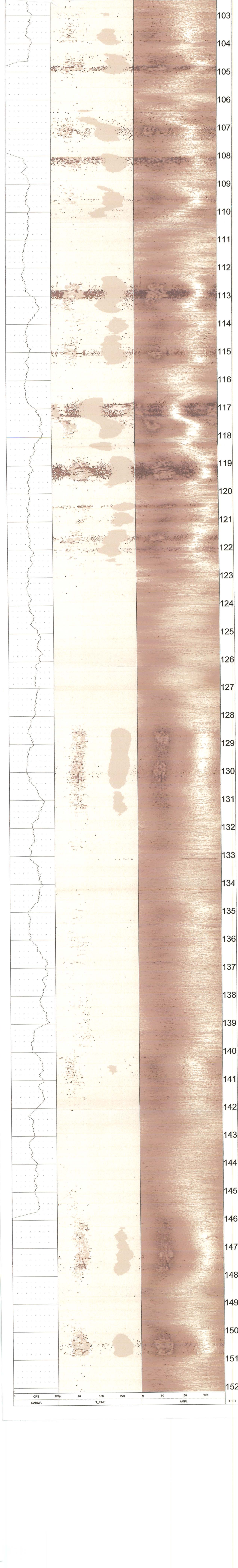
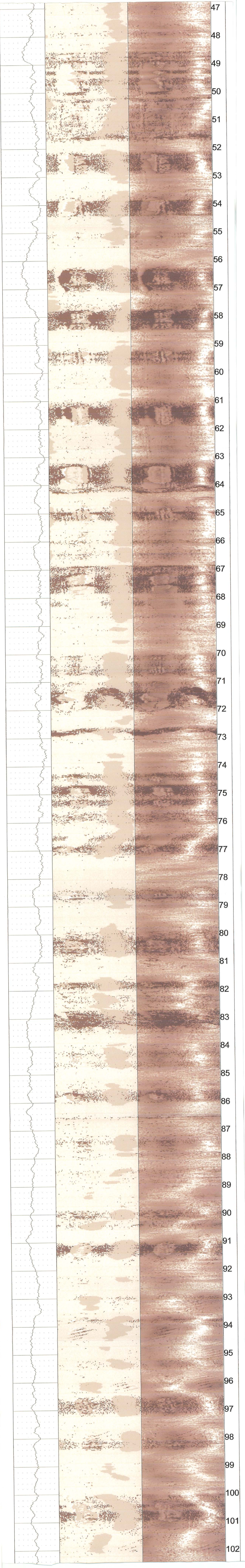
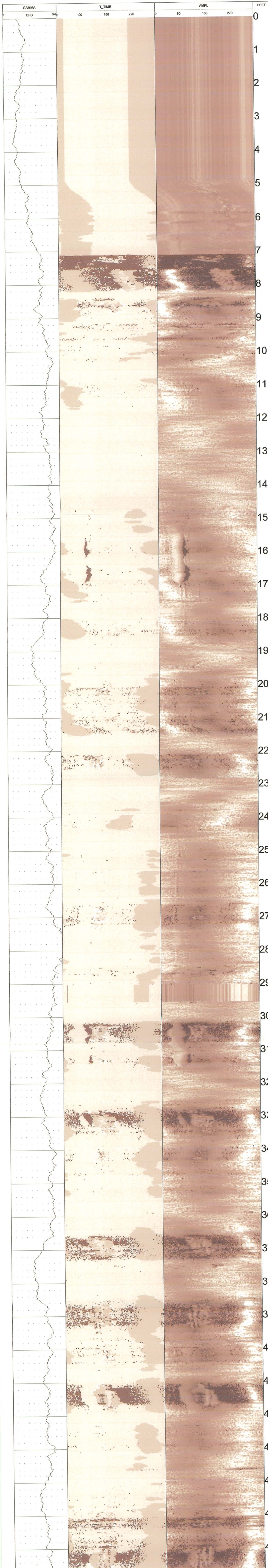
GEOLOGICAL
LOGGING
SYSTEMS

Acoustic Televiewer Log

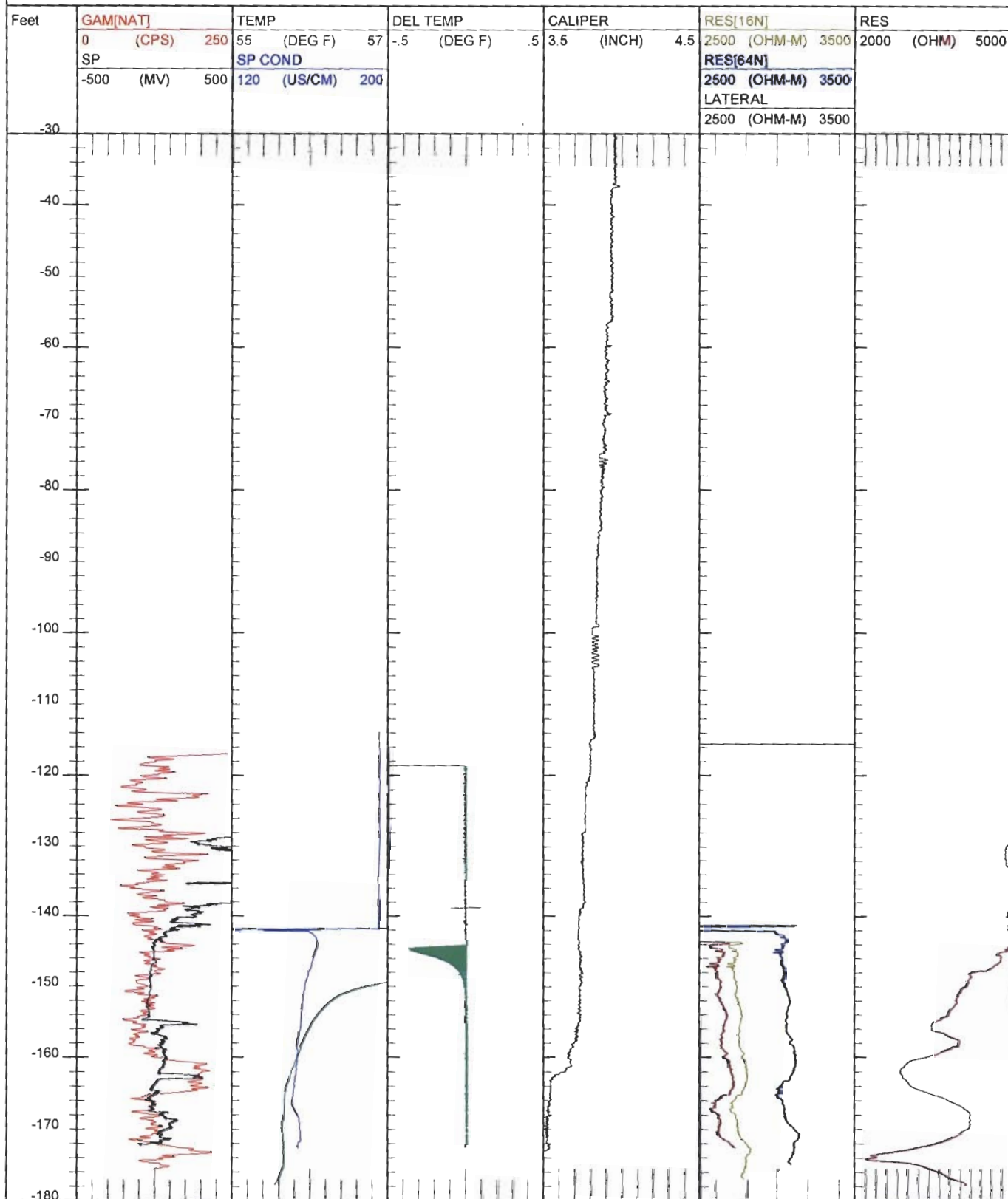
COMPANY : EPA/ERT	OTHER SERVICES: 9804	
WELL : ERT-7		
LOCATION/FIELD : MILLS GAP/ROA		
COUNTY : BUNCOMBE		
LOCATION : NORTH CAROLIN	TOWNSHIP : RANGE :	
SECTION :		
DATE : 08/18/09	PERMANENT DATUM : GL	KB :
DEPTH DRILLER : 151	LOG MEASURED FROM: GL	DF :
LOG BOTTOM : 152.16	DRL MEASURED FROM: GL	GL :
LOG TOP : -1.44		
CASING DIAMETER : 6	LOGGING UNIT : 15	
CASING TYPE : PVC	FIELD OFFICE : GLS-LEX	
CASING THICKNESS:	RECORDED BY : JAY RAMSE	
BIT SIZE : 4	BOREHOLE FLUID :	FILE : PROCESSE
MAGNETIC DECL. : -8.2	RM :	TYPE : 9804C
MATRIX DENSITY : 2.71	RM TEMPERATURE :	LGDATE: 08/18/09
NEUTRON MATRIX : LIMESTON	MATRIX DELTA T : 49	THRESH: 30000

1520PM

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS.



Well Name: ERT-8
 File Name: I:\GEO\296-Mills Gap Rd\Geophysical Logs 2\ERT-8.HDR
 Location: MILLS GAP ROAD - Oaks
 Reference: Ground Surface





**GEOLOGICAL
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P.O. Box 848, 534 Industrial Park Road, Bluefield VA 24605 276-322-5467

ERT-8 Caliper Log

Company : EPA/ERT
Well : ERT-8
Location/Field : MILLS GAP ROAD
County : BUNCOMBE
State : NORTH CAROLINA
Section : -

Other Services:
9064

Township : -

Range : -

Date : 8/19/2009
Depth Driller : 178
Log Bottom : 177.440
Log Top : 0.360

Permanent Datum : GL
Elev. Perm. Datum : -
Log Measured From : GL
Drl Measured From : GL

Elevations
KB : -
DF : -
GL : -

Casing Diameter : 4
Casing Bottom : 7
Casing Type : PVC

Logging Unit : 15
Field Office : LEXINGTON
Recorded By : JAY RAMSEY

Latitude -
Longitude -

Bit Size : 4
Magnetic Decl. : -6.2
Matrix Density : 2.71
Fluid Density : -
Neutron Matrix : LIMESTONE
Remarks : -

Borehole Fluid : -
RM : -
RM Temperature : -
Matrix Delta T : 49
Fluid Delta T : -

File : PROCESSED
Type : 9064A
Log : 1"= 10'
Plot : -
Thresh : 30000

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P.O. Box 848, 534 Industrial Park Road, Bluefield VA 24605 276-322-5467

ERT-8 Gamma-Temperature Log

Company : EPA/ERT
Well : ERT-8
Location/Field : MILLS GAP ROAD
County : BUNCOMBE
State : NORTH CAROLINA
Section : -

Other Services:
9041

Township : -

Range : -

Date : 8/19/2009
Depth Driller : 178
Log Bottom : 177.710
Log Top : 112.910

Permanent Datum : GL
Elev. Perm. Datum : -
Log Measured From : GL
Drl Measured From : GL

Elevations
KB : -
DF : -
GL : -

Casing Diameter : 4
Casing Bottom : 7
Casing Type : PVC

Logging Unit : 15
Field Office : LEXINGTON
Recorded By : JAY RAMSEY

Latitude -
Longitude -

Bit Size : 4
Magnetic Decl. : -6.2
Matrix Density : 2.71
Fluid Density : -
Neutron Matrix : LIMESTONE
Remarks : -

Borehole Fluid : -
RM : -
RM Temperature : -
Matrix Delta T : 49
Fluid Delta T : -

File : PROCESSED
Type : 9041C
Log : 1"= 10'
Plot : -
Thresh : 30000

Electric Log Interpretation Is Empirical In Nature. Extreme Hole Conditions Will Make Completely Accurate Interpretations Difficult.
All Services Provided Subject To Standard Terms And Conditions.

RES(FL)
0 OHM-M 20

SP
-300 MV 300

GAMMA
0 CPS 300

LATERAL
0 OHM-M 3400

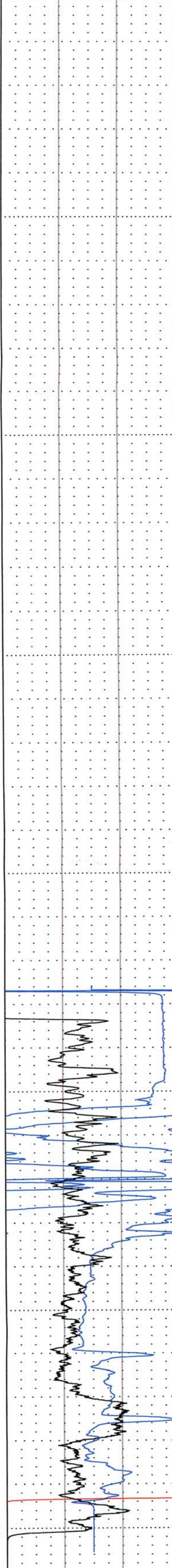
RES(64N)
0 OHM-M 3400

RES(16N)
0 OHM-M 3400

RES
0 OHM 3400

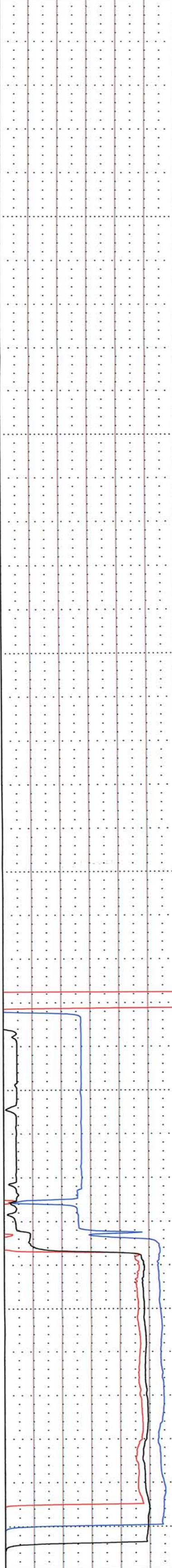
DEL TEMP
-0.05 DEG 0.05

TEMP
55 DEG 65



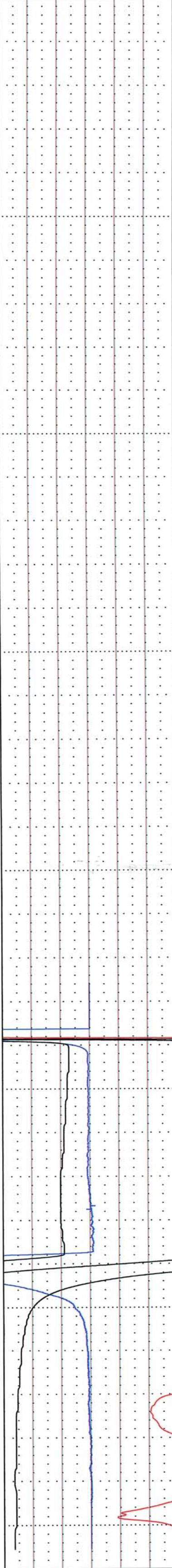
GAMMA
0 CPS 300

SP
-300 MV 300



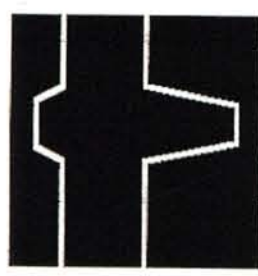
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RES(64N)
0 OHM-M 3400



TEMP
55 DEG 65

DEL TEMP
-0.05 DEG 0.05



GEOLOGICAL LOGGING SYSTEMS

Acoustic Televiewer Log

COMPANY : EPA/ERT
WELL : ERT-8
LOCATION/FIELD : MILLS GAP ROA
COUNTY : BUNCOMBE
LOCATION : NORTH CAROLIN
SECTION :

OTHER SERVICES:
9804

TOWNSHIP : RANGE :

DATE : 08/19/09
DEPTH DRILLER : 178
LOG BOTTOM : 177.07
LOG TOP : 140.00

PERMANENT DATUM : GL

LOG MEASURED FROM: GL
DRL MEASURED FROM: GL

KB :
DF :
GL :

CASING DIAMETER : 6
CASING TYPE : PVC
CASING THICKNESS:

LOGGING UNIT : 15
FIELD OFFICE : GLS-LEX
RECORDED BY : JAY RAMSE

BIT SIZE : 4
MAGNETIC DECL. : -6.2
MATRIX DENSITY : 2.71
NEUTRON MATRIX : LIMESTON

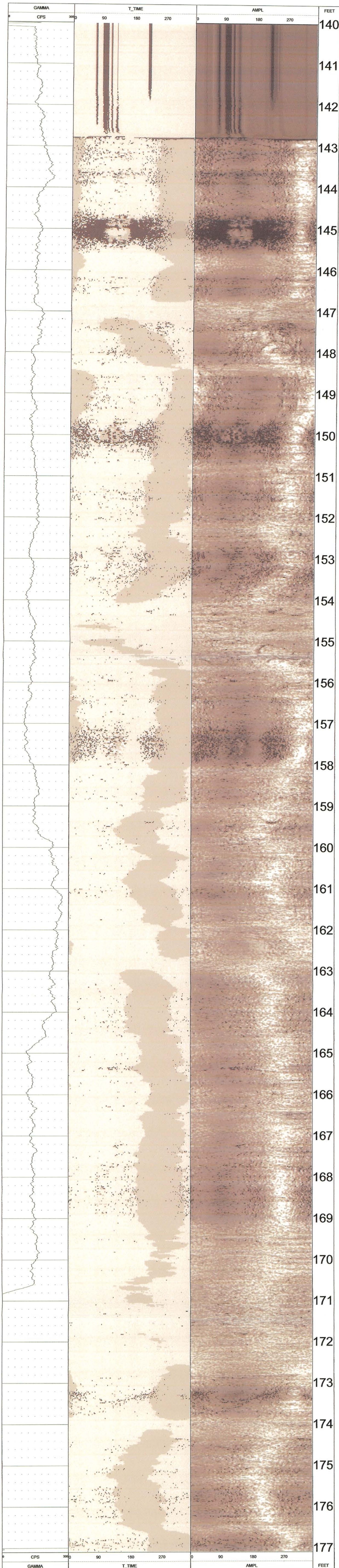
BOREHOLE FLUID :
RM :
RM TEMPERATURE :
MATRIX DELTA T : 49

FILE : PROCESSE
TYPE : 9804C
LGDATE: 08/19/09

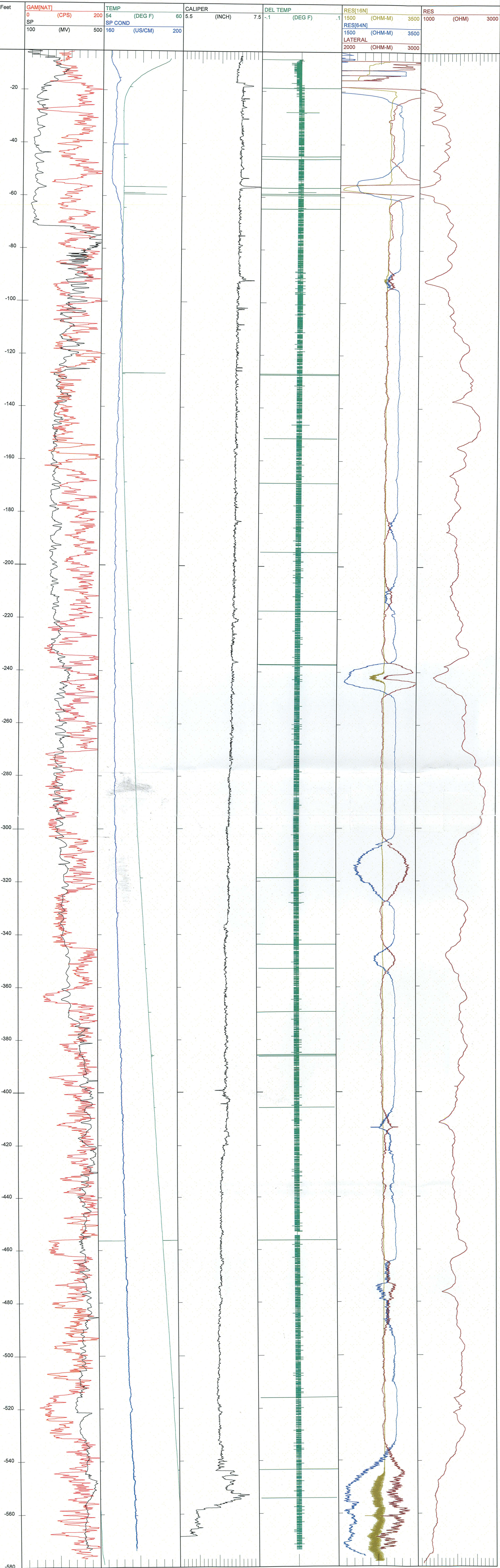
THRESH: 30000

1545PM

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS



Well Name: AW-7
File Name: I:\GEO\296-Mills Gap Rd\Geophysical Logs 2\ERT-9.HDR
Location: MILLS GAP ROAD - Oaks
Reference: Ground Surface



WELL- ~~AW-7~~ 08/19/09 12:34:

TOOL 9721SH SERIAL NUMBER 398

STATION	DEPTH	RATE LIT/MIN	RATE GPM/MIN
1	561.04	-0.362	-0.095
2	539.99	-0.313	-0.082
3	469.99	-0.395	-0.103
4	450.01	0.227	0.059
5	449.90	-0.398	-0.104
6	399.99	-0.361	-0.095
7	249.99	-0.268	-0.070
8	224.02	-0.328	-0.086
9	70.03	-0.195	-0.051
10	49.99	-0.216	-0.056



**GEOLOGICAL
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SYSTEMS**

P.O. Box 848, 534 Industrial Park Road, Bluefield VA 24605 278-322-5467

AW-7 Gamma-Density Log

Company	: EPA/ERT	Other Services:	
Well	: AW-7		
Location/Field	: MILLS GAP ROAD		
County	: BUNCOMBE		
State	: NORTH CAROLINA		
Section	: -	Township	: -
		Range	: -
Date	: 8/19/2009	Permanent Datum	: GL
Depth Driller	: 580	Elev. Perm. Datum	: KB
Log Bottom	: 578.940	Log Measured From	: GL
Log Top	: 6.760	Del Measured From	: GL
		Elevations	: KB
		DF	: -
		GL	: -
Casing Diameter	: 7	Logging Unit	: 15
Casing Bottom	: ?	Field Office	: LEXINGTON
Casing Type	: STEEL	Recorded By	: JAY RAMSEY
		Latitude	: -
		Longitude	: -
Bit Size	: 7	Borehole Fluid	: -
Magnetic Decl.	: -6.2	RM	: -
Matrix Density	: 2.71	RM Temperature	: -
Fluid Density	: -	Matrix Delta T	: 49
Neutron Matrix	: LIMESTONE	Fluid Delta T	: -
Remarks	: -	File	: PROCESSED
		Type	: 9064A
		Log	: 1"= 10'
		Plot	: -
		Thresh	: 30000

Electric Log Interpretation Is Empirical In Nature. Extreme Hole Conditions Will Make Completely Accurate Interpretations Difficult.
All Services Provided Subject To Standard Terms And Conditions.



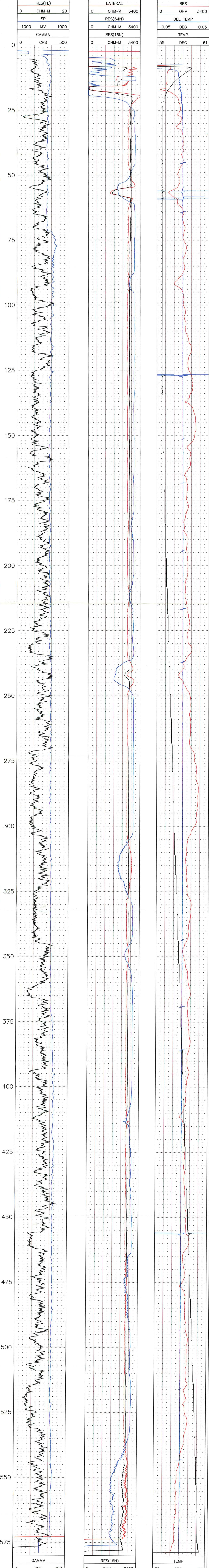
**GEOLOGICAL
LOGGING
SYSTEMS**

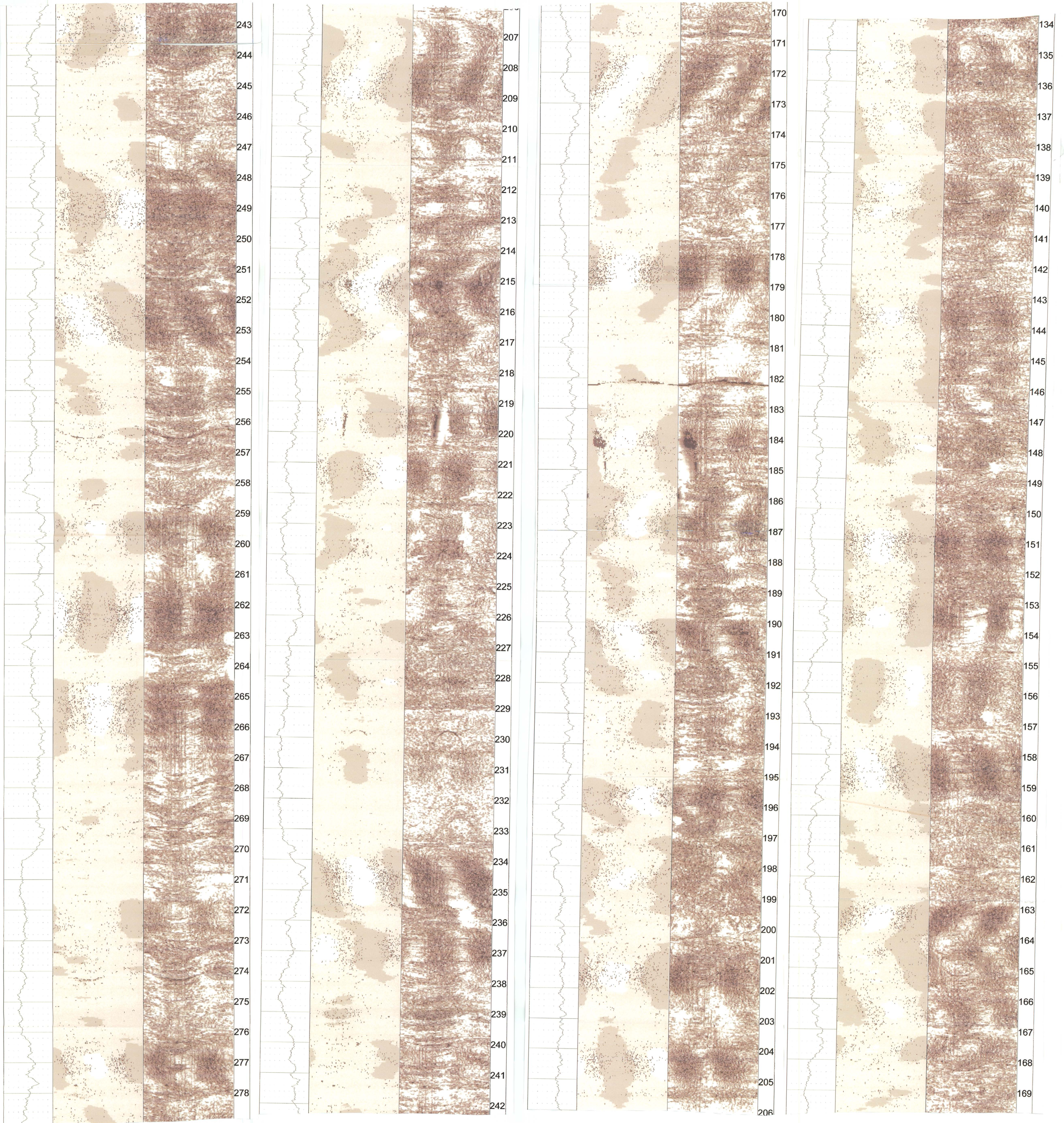
P.O. Box 848, 534 Industrial Park Road, Bluefield VA 24605 278-322-5467

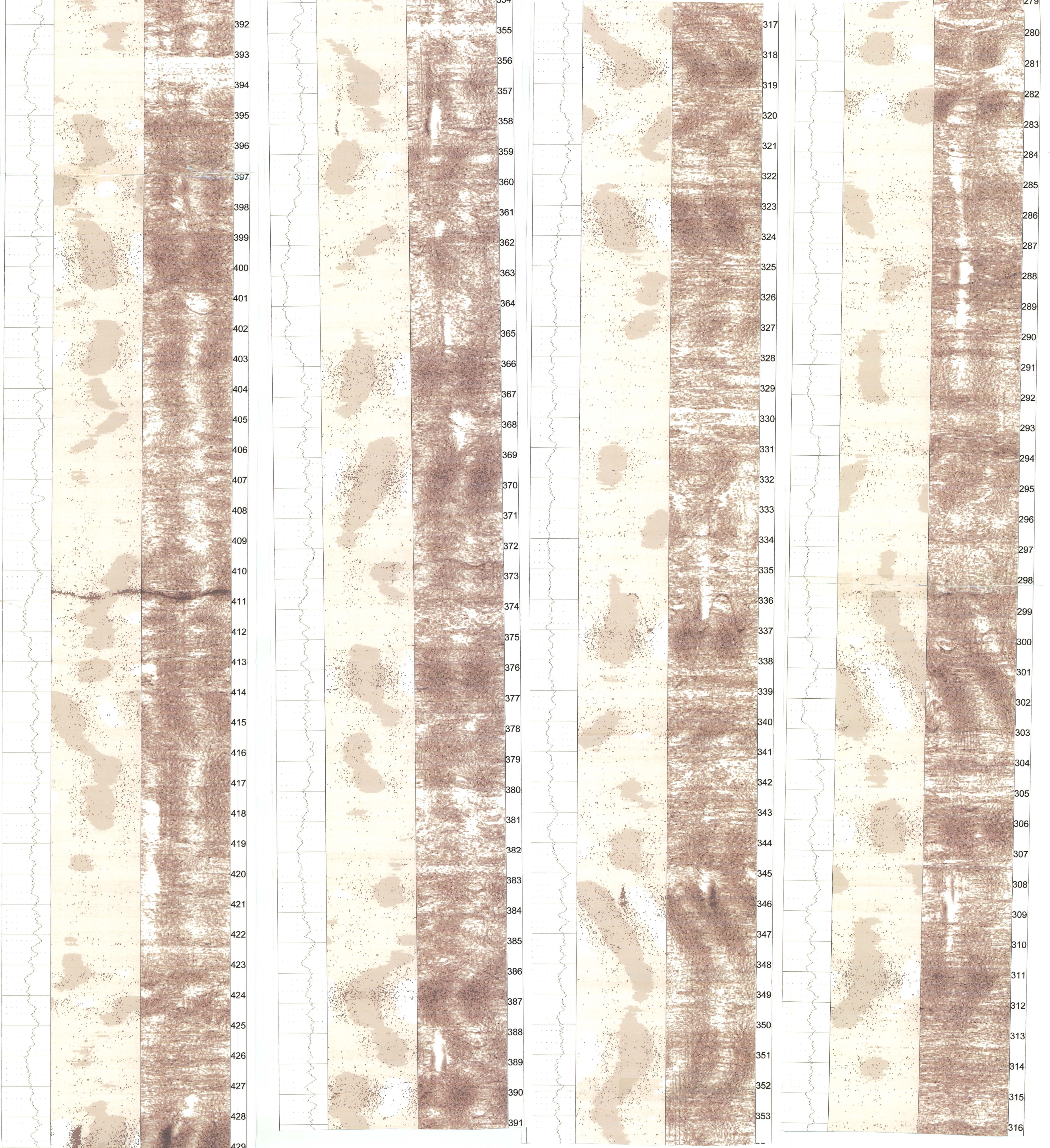
AW-7 Gamma-Temperature Log

Company	: EPA/ERT	Other Services:	
Well	: AW-7		
Location/Field	: MILLS GAP ROAD		
County	: BUNCOMBE		
State	: NORTH CAROLINA		
Section	: -	Township	: -
		Range	: -
Date	: 8/19/2009	Permanent Datum	: GL
Depth Driller	: 580	Elev. Perm. Datum	: KB
Log Bottom	: 578.810	Log Measured From	: GL
Log Top	: 1.550	Del Measured From	: GL
		Elevations	: KB
		DF	: -
		GL	: -
Casing Diameter	: 7	Logging Unit	: 15
Casing Bottom	: ?	Field Office	: LEXINGTON
Casing Type	: STEEL	Recorded By	: JAY RAMSEY
		Latitude	: -
		Longitude	: -
Bit Size	: 7	Borehole Fluid	: -
Magnetic Decl.	: -6.2	RM	: -
Matrix Density	: 2.71	RM Temperature	: -
Fluid Density	: -	Matrix Delta T	: 49
Neutron Matrix	: LIMESTONE	Fluid Delta T	: -
Remarks	: -	File	: PROCESSED
		Type	: 9041C
		Log	: 1"= 10'
		Plot	: -
		Thresh	: 30000

Electric Log Interpretation Is Empirical In Nature. Extreme Hole Conditions Will Make Completely Accurate Interpretations Difficult.
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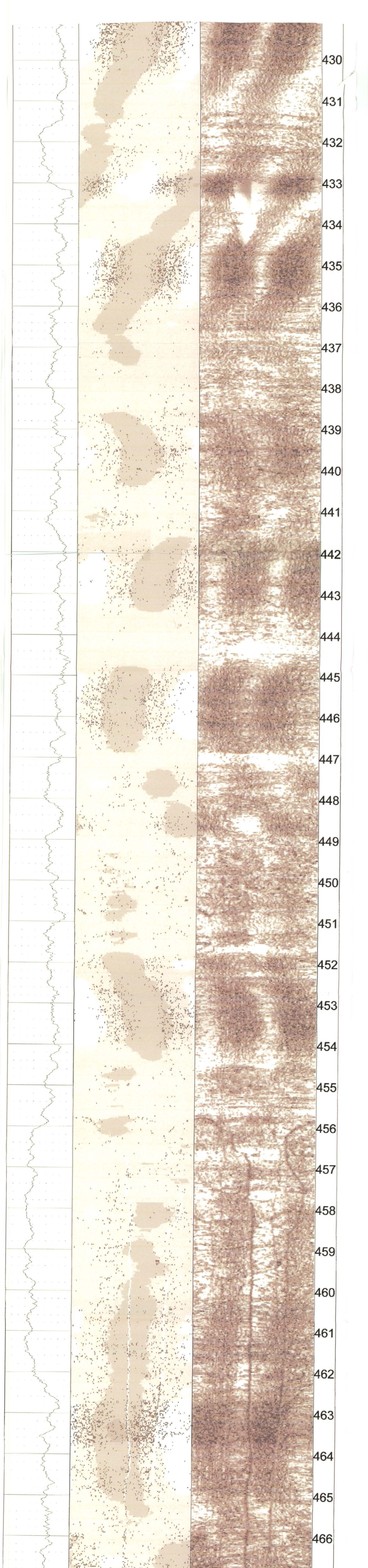
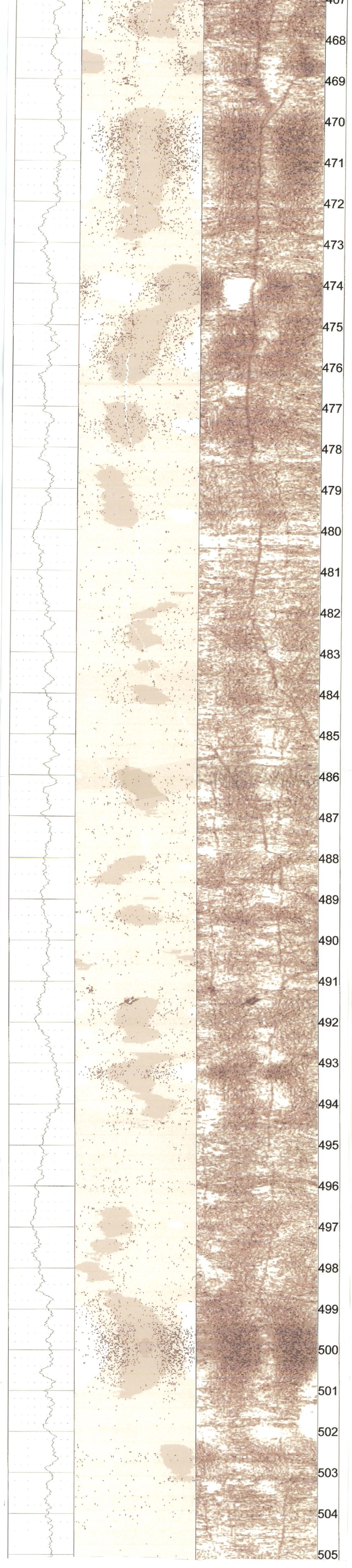
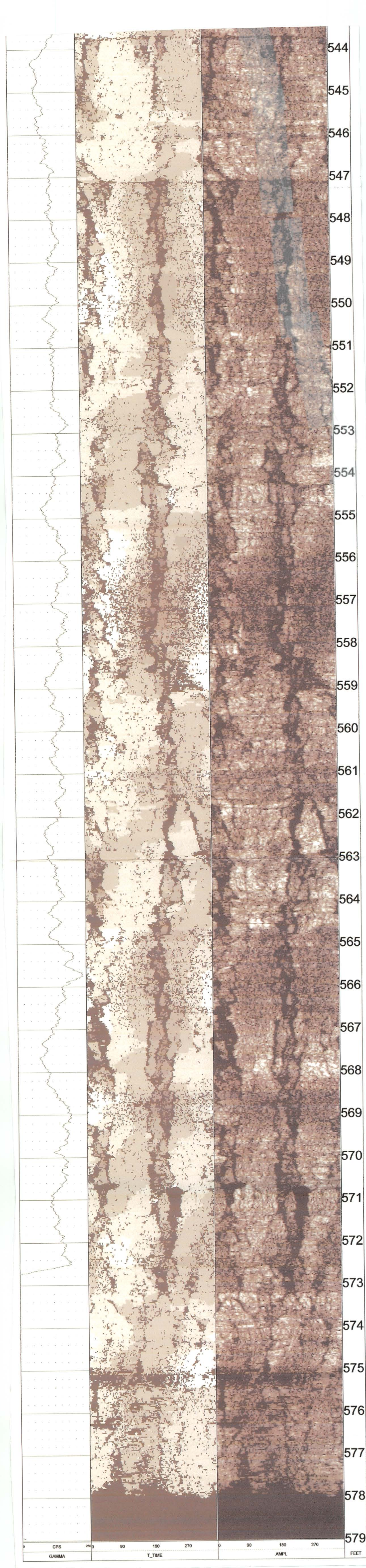
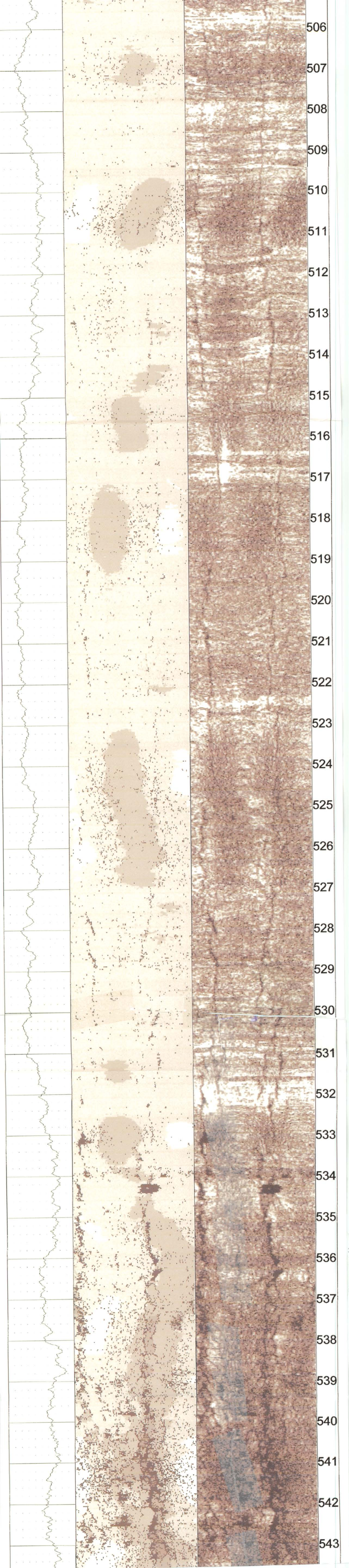
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APPENDIX D
GROUNDWATER SAMPLING ANALYTICAL RESULTS
MILLS GAP ROAD SITE
ASHEVILLE, NORTH CAROLINA

Date: 08/19/09

To: Work Assignment Manager G. Powell, EPA/ERTC

From: Yi-Hua Lin, Organic Group Leader, Analytical Section, REAC

Thru: Vinod Kansal, Analytical Section Leader, REAC

Subject: Preliminary Results of Project Mills Gap Road WA# 0-296

Attached please find the preliminary results of the above referenced project for the following samples:

Chain(s) of Custody No.: 0296-81709-54

Analysis: VOC

No. of Samples: Three

Matrix: Water

cc Raj Singhvi
Ken Woodruff
Central File
Analyst: Y. Nerush

Table 1.1 Result of the Analysis for VOC in Water
WA # 0-286 Mills Gap Road

Method: REAC SOP

Sample Number	Water blank		51684		51661		51662	
Sample Location:			TB		CHR		CHR Dup	
Dilution Factor	1		1		1		1	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Dichlorodifluoromethane	U	5.00	U	5.00	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00	U	5.00	U	5.00
Acetone	U	20.0	U	20.0	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	U	5.00	1.45 J	5.00	1.42 J	5.00
Methylene Chloride	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00	U	5.00	U	5.00
Methyl tert-Butyl Ether	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00	U	5.00	U	5.00
1,1 Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,2-Dichloroethane	U	5.00	U	5.00	65.8	5.00	60.3	5.00
Chloroform	U	5.00	U	5.00	U	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00	U	5.00	U	5.00
Benzene	U	5.00	U	5.00	U	5.00	U	5.00
Trichloroethene	U	5.00	U	5.00	842 E	5.00	793 E	5.00
1,2-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00
Bromodichloromethane	U	5.00	U	5.00	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00	U	5.00	U	5.00
Dibromochloromethane	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00	U	5.00	U	5.00
4-Methyl-2-Pentanone	U	5.00	U	5.00	U	5.00	U	5.00
Toluene	U	5.00	U	5.00	U	5.00	U	5.00
2-Hexanone	U	5.00	U	5.00	U	5.00	U	5.00
Tetrachloroethene	U	5.00	U	5.00	U	5.00	U	5.00
Chlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00	U	5.00	U	5.00
Styrene	U	5.00	U	5.00	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00
1,2-Dibromo-3-Chloropropane	U	5.00	U	5.00	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00	U	5.00	U	5.00

Date: 08/21/09
To: Work Assignment Manager G. Powell, EPA/ERTC
From: Yi-Hua Lin, Organic Group Leader, Analytical Section, REAC *YH Lin*
Thru: Vinod Kansal, Analytical Section Leader, REAC *Vinod Kansal*
Subject: Preliminary Results of Project Mills Gap Road WA# 0-296

Attached please find the preliminary results of the above referenced project for the following samples:

Chain(s) of Custody No.: 0296-81709-54

Analysis: VOC

No. of Samples: Three

Matrix: Water

cc Raj Singhvi
Ken Woodruff
Central File
Analyst: Y. Nerush

Table 1 1 Result of the Analysis for VOC in Water
WA # 0-296 Mills Gap Rd,

Method: REAC SOP

Sample Number	Water Blank C082009-1		51664		51661		51662	
Sample Location:			TB		CHR		CHR Dup	
Dilution Factor	1		1		10		10	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Dichlorodifluoromethane	U	5.00	U	5.00	U	50.0	U	50.0
Chloromethane	U	5.00	U	5.00	U	50.0	U	50.0
Vinyl Chloride	U	5.00	U	5.00	U	50.0	U	50.0
Bromomethane	U	5.00	U	5.00	U	50.0	U	50.0
Chloroethane	U	5.00	U	5.00	U	50.0	U	50.0
Trichlorofluoromethane	U	5.00	U	5.00	U	50.0	U	50.0
Acetone	U	20.0	U	20.0	U	200	U	200
1,1-Dichloroethene	U	5.00	U	5.00	U	50.0	U	50.0
Methylene Chloride	U	5.00	U	5.00	U	50.0	U	50.0
Carbon Disulfide	U	5.00	U	5.00	U	50.0	U	50.0
Methyl tert-Butyl Ether	U	5.00	U	5.00	U	50.0	U	50.0
trans-1,2-Dichloroethene	U	5.00	U	5.00	U	50.0	U	50.0
1,1-Dichloroethane	U	5.00	U	5.00	U	50.0	U	50.0
2-Butanone	U	5.00	U	5.00	U	50.0	U	50.0
2,2-Dichloropropane	U	5.00	U	5.00	U	50.0	U	50.0
cis-1,2-Dichloroethene	U	5.00	U	5.00	77.6	50.0	78.6	50.0
Chloroform	U	5.00	U	5.00	U	50.0	U	50.0
1,1-Dichloropropene	U	5.00	U	5.00	U	50.0	U	50.0
1,2-Dichloroethane	U	5.00	U	5.00	U	50.0	U	50.0
1,1,1-Trichloroethane	U	5.00	U	5.00	U	50.0	U	50.0
Carbon Tetrachloride	U	5.00	U	5.00	U	50.0	U	50.0
Benzene	U	5.00	U	5.00	U	50.0	U	50.0
Trichloroethene	U	5.00	U	5.00	1290	50.0	1400	50.0
1,2-Dichloropropane	U	5.00	U	5.00	U	50.0	U	50.0
Bromodichloromethane	U	5.00	U	5.00	U	50.0	U	50.0
Dibromomethane	U	5.00	U	5.00	U	50.0	U	50.0
cis-1,3-Dichloropropene	U	5.00	U	5.00	U	50.0	U	50.0
trans-1,3-Dichloropropene	U	5.00	U	5.00	U	50.0	U	50.0
1,1,2-Trichloroethane	U	5.00	U	5.00	U	50.0	U	50.0
1,3-Dichloropropane	U	5.00	U	5.00	U	50.0	U	50.0
Dibromochloromethane	U	5.00	U	5.00	U	50.0	U	50.0
1,2-Dibromoethane	U	5.00	U	5.00	U	50.0	U	50.0
Bromoform	U	5.00	U	5.00	U	50.0	U	50.0
4-Methyl-2-Pentanone	U	5.00	U	5.00	U	50.0	U	50.0
Toluene	U	5.00	U	5.00	U	50.0	U	50.0
2-Hexanone	U	5.00	U	5.00	U	50.0	U	50.0
Tetrachloroethene	U	5.00	U	5.00	U	50.0	U	50.0
Chlorobenzene	U	5.00	U	5.00	U	50.0	U	50.0
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00	U	50.0	U	50.0
Ethylbenzene	U	5.00	U	5.00	U	50.0	U	50.0
p&m-Xylene	U	10.0	U	10.0	U	100	U	100
o-Xylene	U	5.00	U	5.00	U	50.0	U	50.0
Styrene	U	5.00	U	5.00	U	50.0	U	50.0
Isopropylbenzene	U	5.00	U	5.00	U	50.0	U	50.0
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00	U	50.0	U	50.0
1,2,3-Trichloropropane	U	5.00	U	5.00	U	50.0	U	50.0
n-Propylbenzene	U	5.00	U	5.00	U	50.0	U	50.0
Bromobenzene	U	5.00	U	5.00	U	50.0	U	50.0
1,3,5-Trimethylbenzene	U	5.00	U	5.00	U	50.0	U	50.0
2-Chlorotoluene	U	5.00	U	5.00	U	50.0	U	50.0
4-Chlorotoluene	U	5.00	U	5.00	U	50.0	U	50.0
tert-Butylbenzene	U	5.00	U	5.00	U	50.0	U	50.0
1,2,4-Trimethylbenzene	U	5.00	U	5.00	U	50.0	U	50.0
sec-Butylbenzene	U	5.00	U	5.00	U	50.0	U	50.0
p-Isopropyltoluene	U	5.00	U	5.00	U	50.0	U	50.0
1,3-Dichlorobenzene	U	5.00	U	5.00	U	50.0	U	50.0
1,4-Dichlorobenzene	U	5.00	U	5.00	U	50.0	U	50.0
n-Butylbenzene	U	5.00	U	5.00	U	50.0	U	50.0
1,2-Dichlorobenzene	U	5.00	U	5.00	U	50.0	U	50.0
1,2-Dibromo-3-Chloropropane	U	5.00	U	5.00	U	50.0	U	50.0
1,2,4-Trichlorobenzene	U	5.00	U	5.00	U	50.0	U	50.0
Hexachlorobutadiene	U	5.00	U	5.00	U	50.0	U	50.0
Naphthalene	U	5.00	U	5.00	U	50.0	U	50.0
1,2,3-Trichlorobenzene	U	5.00	U	5.00	U	50.0	U	50.0

EPA Contract 68-C-99-223

CHAIN OF CUSTODY RECORD

Project Name: Mills Gap Road

Project Number: 0-896

LM Contact: R. Woodruff Phone: 609 865-9317

No:

Sheet 01 of 01(Do not copy)
(for addnl. samples use new form)

R 908010

Sample Identification

Analyses Requested

REACH#	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCs
01	51662	CHR Dup	GW	8/17/09	3	40ml grab/4°C	X
02	51661	CHR	GW	↓	3	↓	X
03	51664	TB	W	↓	3	↓	X
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; text-align: center;"> (W) </div> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; text-align: center;"> (W) </div> </div>							

Matrix:

A- Air
AT-Animal Tissue
DL- Drum Liquids
DS- Drum Solids
GW- Groundwater
O- Oil
PR-Product
PT-Plant Tissue

PW- Potable Water
S- Soil
SD- Sediment
SL- Sludge
SW- Surface Water
TX-TCLP Extract
W- Water
X- Other

Special Instructions:

Regular analyser - no date validation

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

Received 20c 7m 8113109

[illegible]

ANALYTICAL REPORT


Prepared by
LOCKHEED MARTIN, Inc.

Mills Gap Road
Asheville, North Carolina

October 2009

EPA Work Assignment No. 0-296
LOCKHEED MARTIN Work Order EAC0296
EPA Contract No. EP-C-04-032

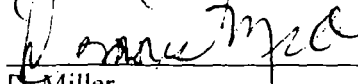
Submitted to
G. Powell
EPA-ERT


V. Kansal
Analytical Section Leader
10/7/09
Date

Analysis by:
REAC
Accutest


D. Killeen
Quality Assurance Officer
10/2/09
Date

Prepared by:
Y. Mehra


D. Miller
Program Manager
10/7/09
Date

Reviewed by:
J. Soroka

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The appendices will be furnished on request

Introduction

REAC, in response to WA# 0-296, provided analytical support for environmental samples collected from the Mills Gap Road Site located in Asheville, North Carolina, as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at REAC were treated with the procedures consistent with those specified in REAC SOP# 1008.

COC #	Number of Samples	Sampling Start Date	Date Received	Matrix	Analysis/ Method	Laboratory	Data Package				
0296-081009-50	10	08/10/09	08/13/09	Water	VOC/ SW846 8260B	Accutest ¹	U 313				
0296-081909-56	1	08/19/09	08/24/09		VOC/REAC SOP 1806	REAC ²	U 315				
	4			Soil	VOC/REAC SOP 1807						
07124	2 ³	08/10/09	08/13/09								
0296-081009-51	14 ⁴	08/10/09	08/13/09								
0296-080709-54	3 ⁴										
0296-081809-55	1	08/17/09	08/22/09	Water	VOC/SW846 8260B	Accutest ¹	U 328				
	4	08/18/09									
0296-082009-57	4	08/20/09	08/21/09								
	2	08/21/09									

¹ Accutest is NELAC certified for VOC analysis in water

² REAC is NELAC certified for VOC analysis in water and soil

³ As per the WAM's request, only sample 51631 was validated and included in this report.

⁴ As per the WAM's request, these samples were not validated and are not included in this report.

Case Narrative

The laboratory reported the data to two or three significant figures. Any other representation of the data is the responsibility of the user. All data validation flags have been inserted into the results tables. The laboratory did not report results less than the RL.

VOC in Water Package U 313

The data package was examined and found to be acceptable.

VOC in Water and Soil Package U 315

The sample used for the 10x dilution of sample 51649 was taken from the original vial which was used for the non-diluted analysis and had headspace above the water. The trichloroethene result from the 10x dilution for sample 51649 is qualified estimated (J).

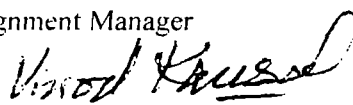
The 5 ppb calibration standard for dichlorodifluoromethane, trichlorofluoromethane, cis- and trans-1,3-dichloropropene, bromoform, 4-methyl-2-pentanone, 2-hexanone, isopropylbenzene, 1,2-dibromo-3-chloropropane, 1,2,4-trichlorobenzene and naphthalene were not used to generate the initial calibration curve for soil of 08/18/09. The RLs for these compounds are raised to the next calibration standard (20 ppb) for samples 51631, 51663, 51658, SMB-C-081809 and SMB-C-082509.

Dichlorofluoromethane, acetone and 1,2-dibromo-3-chloropropane did not meet the %D criterion for the continuing calibration of 08/25/09. The acetone result in sample 51663 is qualified estimated (J).

Samples 51697 and 51657 were initially analyzed and did not meet the QC criteria for two internal standards. The samples were reanalyzed one day past holding time and the internal standard responses were acceptable. In the professional judgment of the validator, the results for these samples were reported from the reanalysis and are qualified estimated non-detect (UJ).

VOC in Water Package U 328

The data package was examined and found to be acceptable.

DATE: October 7, 2009
TO: R. Singhvi, EPA/ERT Analytical Work Assignment Manager
FROM: V. Kansal, REAC Analytical Section Leader 
SUBJECT: DOCUMENT TRANSMITTAL UNDER WORK ASSIGNMENT # 0-296

Attached please find the following document prepared under this work assignment:

Mills Gap Road - Analytical Report

K. Woodruff	Work Assignment Manager (w/o attachment)
G. Powell	Task Leader (w/o attachment)
J. Soroka	Data Validation and Report Writing Group Leader (w/o attachment)
Central File	WA # 0-296 (w/attachment)

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Method REAC SOP 1806

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Sample Number	Water Blank C082509-1		51649	
Sample Location			CHR-2	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Dichlorodifluoromethane	U	5.00	U	5.00
Chloromethane	U	5.00	U	5.00
Vinyl Chloride	U	5.00	U	5.00
Bromomethane	U	5.00	U	5.00
Chloroethane	U	5.00	U	5.00
Trichlorofluoromethane	U	5.00	U	5.00
Acetone	U	20.0	U	20.0
1,1-Dichloroethene	U	5.00	1.54 J	5.00
Methylene Chloride	U	5.00	U	5.00
Carbon Disulfide	U	5.00	U	5.00
Methyl tert-Butyl Ether	U	5.00	U	5.00
trans-1,2-Dichloroethene	U	5.00	U	5.00
1,1 Dichloroethane	U	5.00	U	5.00
2-Butanone	U	5.00	U	5.00
2,2-Dichloropropane	U	5.00	U	5.00
cis-1,2-Dichloroethene	U	5.00	67.8	5.00
Chloroform	U	5.00	U	5.00
1,1-Dichloropropene	U	5.00	U	5.00
1,2-Dichloroethane	U	5.00	U	5.00
1,1,1-Trichloroethane	U	5.00	U	5.00
Carbon Tetrachloride	U	5.00	U	5.00
Benzene	U	5.00	U	5.00
Trichloroethene	U	5.00	599 J	50.0
1,2-Dichloropropane	U	5.00	U	5.00
Bromodichloromethane	U	5.00	U	5.00
Dibromomethane	U	5.00	U	5.00
cis-1,3-Dichloropropene	U	5.00	U	5.00
trans-1,3-Dichloropropene	U	5.00	U	5.00
1,1,2-Trichloroethane	U	5.00	U	5.00
1,3-Dichloropropane	U	5.00	U	5.00
Dibromochloromethane	U	5.00	U	5.00
1,2-Dibromoethane	U	5.00	U	5.00
Bromoform	U	5.00	U	5.00
4-Methyl-2-Pentanone	U	5.00	U	5.00
Toluene	U	5.00	U	5.00
2-Hexanone	U	5.00	U	5.00
Tetrachloroethene	U	5.00	U	5.00
Chlorobenzene	U	5.00	U	5.00
1,1,1,2-Tetrachloroethane	U	5.00	U	5.00
Ethylbenzene	U	5.00	U	5.00
p&m-Xylene	U	10.0	U	10.0
o-Xylene	U	5.00	U	5.00
Styrene	U	5.00	U	5.00
Isopropylbenzene	U	5.00	U	5.00
1,1,2,2-Tetrachloroethane	U	5.00	U	5.00
1,2,3-Trichloropropane	U	5.00	U	5.00
n-Propylbenzene	U	5.00	U	5.00
Bromobenzene	U	5.00	U	5.00
1,3,5-Trimethylbenzene	U	5.00	U	5.00
2-Chlorotoluene	U	5.00	U	5.00
4-Chlorotoluene	U	5.00	U	5.00
tert-Butylbenzene	U	5.00	U	5.00
1,2,4-Trimethylbenzene	U	5.00	U	5.00
sec-Butylbenzene	U	5.00	U	5.00
p-Isopropyltoluene	U	5.00	U	5.00
1,3-Dichlorobenzene	U	5.00	U	5.00
1,4-Dichlorobenzene	U	5.00	U	5.00
n-Butylbenzene	U	5.00	U	5.00
1,2-Dichlorobenzene	U	5.00	U	5.00
1,2-Dibromo-3-Chloropropane	U	5.00	U	5.00
1,2,4-Trichlorobenzene	U	5.00	U	5.00
Hexachlorobutadiene	U	5.00	U	5.00
Naphthalene	U	5.00	U	5.00
1,2,3-Trichlorobenzene	U	5.00	U	5.00

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA # 0-296 Mills Gap Road

Method : SW846 8260B

Page 5 of 7

Sample Number Sample Location	Method Blank 8/31/2009; 0843		51648 TB		51644 TB		51642 ERT-7,80		51641 ERT-7,40	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Acetone	U	10	U	10	U	10	U	10	U	10
Benzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromodichloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromoform	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0
Bromomethane	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
2-Butanone (MEK)	U	10	U	10	U	10	U	10	U	10
Carbon disulfide	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Carbon tetrachloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chlorobenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroform	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Dibromochloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloropropane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Ethylbenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
2-Hexanone	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
Methylene chloride	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Styrene	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Tetrachloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Toluene	U	1.0	U	1.0	U	1.0	9.0	1.0	11	1.0
1,1,1-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,2-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Trichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	0.85	1.0
Vinyl chloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene, m-&p-	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene, o-	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA # 0-296 Mills Gap Road

Method : SW846 8260B

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Sample Number	51640		51650		51647		51651		51652	
Sample Location	2J-115		ERT-8		2J-145		2J-165		2J-165 DUP	
	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Analyte	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Acetone	U	10	U	10	U	10	U	10	U	10
Benzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromodichloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Bromoform	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0
Bromomethane	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
2-Butanone (MEK)	U	10	U	10	U	10	U	10	U	10
Carbon disulfide	U	2.0	0.53 J	2.0	U	2.0	U	2.0	U	2.0
Carbon tetrachloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chlorobenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Chloroform	0.56 J	1.0	U	1.0	0.51 J	1.0	0.49 J	1.0	0.52 J	1.0
Chloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Dibromochloromethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,2-Dichloroethene	14	1.0	U	1.0	15	1.0	15	1.0	14	1.0
trans-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,2-Dichloropropane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
cis-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
trans-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Ethylbenzene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
2-Hexanone	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
Methylene chloride	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0
Styrene	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Tetrachloroethene	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Toluene	22	1.0	3.3	1.0	13	1.0	6.3	1.0	6.1	1.0
1,1,1-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
1,1,2-Trichloroethane	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Trichloroethene	42	1.0	U	1.0	46	1.0	44	1.0	43	1.0
Vinyl chloride	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene, m-&p-	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0
Xylene, o-	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0

Table 1.1 (cont) Results of the Analysis for VOC in Water
WA # 0-296 Mills Gap Road

Method : SW846 8260B

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Sample Number	Method Blank		51643		51645	
Sample Location	8/31/2009; 2106		ERT-6		ERT-7, 150	
Analyte	Result µg/L	RL µg/L	Result µg/L	RL µg/L	Result µg/L	RL µg/L
Acetone	U	10	U	10	U	10
Benzene	U	1.0	U	1.0	U	1.0
Bromodichloromethane	U	1.0	U	1.0	U	1.0
Bromoform	U	4.0	U	4.0	U	4.0
Bromomethane	U	2.0	U	2.0	U	2.0
2-Butanone (MEK)	U	10	U	10	U	10
Carbon disulfide	U	2.0	U	2.0	U	2.0
Carbon tetrachloride	U	1.0	U	1.0	U	1.0
Chlorobenzene	U	1.0	U	1.0	U	1.0
Chloroethane	U	1.0	U	1.0	U	1.0
Chloroform	U	1.0	U	1.0	U	1.0
Chloromethane	U	1.0	U	1.0	U	1.0
Dibromochloromethane	U	1.0	U	1.0	U	1.0
1,1-Dichloroethane	U	1.0	U	1.0	U	1.0
1,2-Dichloroethane	U	1.0	U	1.0	U	1.0
1,1-Dichloroethene	U	1.0	U	1.0	U	1.0
cis-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0
trans-1,2-Dichloroethene	U	1.0	U	1.0	U	1.0
1,2-Dichloropropane	U	1.0	U	1.0	U	1.0
cis-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0
trans-1,3-Dichloropropene	U	1.0	U	1.0	U	1.0
Ethylbenzene	U	1.0	U	1.0	U	1.0
2-Hexanone	U	5.0	U	5.0	U	5.0
4-Methyl-2-pentanone(MIBK)	U	5.0	U	5.0	U	5.0
Methylene chloride	U	2.0	U	2.0	U	2.0
Styrene	U	5.0	U	5.0	U	5.0
1,1,2,2-Tetrachloroethane	U	1.0	U	1.0	U	1.0
Tetrachloroethene	U	1.0	U	1.0	U	1.0
Toluene	U	1.0	4.3	1.0	12	1.0
1,1,1-Trichloroethane	U	1.0	U	1.0	U	1.0
1,1,2-Trichloroethane	U	1.0	U	1.0	U	1.0
Trichloroethene	U	1.0	U	1.0	0.40 J	1.0
Vinyl chloride	U	1.0	U	1.0	U	1.0
Xylene, m-&p-	U	1.0	U	1.0	U	1.0
Xylene, o-	U	1.0	U	1.0	U	1.0

Table 1.2 Results of the TICs for VOC in Water
WA# 0-296 Mills Gap Road

Page 1 of 1

Sample Number	Analyte	Concentration*, µg/L
Water Blank 08/22/09	No TICs Detected	
51693	No TICs Detected	
51694	No TICs Detected	
51695	No TICs Detected	
51696	No TICs Detected	
51618	No TICs Detected	
51671	No TICs Detected	
51619	No TICs Detected	
51620	No TICs Detected	
51621	No TICs Detected	
51622	No TICs Detected	
Water Blank C082509-1	No TICs Detected	
51649	No TICs Detected	
Method Blank 08/31/09 0843	No TICs Detected	
51648	No TICs Detected	
51644	No TICs Detected	
51642	No TICs Detected	
51641	No TICs Detected	
51640	No TICs Detected	
51650	No TICs Detected	
51647	No TICs Detected	
51651	No TICs Detected	
51652	No TICs Detected	
Method Blank 08/31/09 021.03	No TICs Detected	
51643	No TICs Detected	
51645	No TICs Detected	

* Estimated Concentration (Response Factor = 1)

Table 1.3 Results of the Analysis for VDC in Soil
WA# 0-296 Mills Gap Road
Based on Dry Weight

Method REAC SOP 1807

Page 1 of 2

Sample Number	Soil Blank C 081809		51631		Soil Blank C082509		51663		51658	
Sample Location			SV-9				4		2	
Percent Solids	100		62		100		80		95	
Analyte	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg
Dichlorodifluoromethane	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Chloromethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Vinyl Chloride	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Bromomethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Chloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Trichlorofluoromethane	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Acetone	U	20.0	U	32.3	U	20.0	58.2 J	25.0	U	21.1
1,1-Dichloroethene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Methylene Chloride	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Carbon Disulfide	U	5.00	U	8.06	U	5.00	3.93 J	6.25	U	5.26
Methyl tert-Butyl Ether	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
trans-1,2-Dichloroethene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,1 Dichloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
2-Butanone	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
2,2-Dichloropropane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
cis-1,2-Dichloroethene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Chloroform	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,1-Dichloropropene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2-Dichloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,1,1-Trichloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Carbon Tetrachloride	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Benzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Trichloroethene	U	5.00	2.23 J	8.06	U	5.00	U	6.25	U	5.26
1,2-Dichloropropane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Bromodichloromethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Dibromomethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
cis-1,3-Dichloropropene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
trans-1,3-Dichloropropene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
1,1,2-Trichloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,3-Dichloropropane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Dibromochloromethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2-Dibromoethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Bromoform	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
4-Methyl-2-Pentanone	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Toluene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
2-Hexanone	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Tetrachloroethene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Chlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,1,1,2-Tetrachloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Ethylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
p&m-Xylene	U	10.0	U	16.1	U	10.0	U	12.5	U	10.5
o-Xylene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Styrene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Isopropylbenzene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
1,1,2,2-Tetrachloroethane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2,3-Trichloropropane	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
n-Propylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Bromobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,3,5-Trimethylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
2-Chlorotoluene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
4-Chlorotoluene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
tert-Butylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2,4-Trimethylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
sec-Butylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
p-Isopropyltoluene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,3-Dichlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,4-Dichlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
n-Butylbenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2-Dichlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
1,2-Dibromo-3-Chloropropane	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
1,2,4-Trichlorobenzene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
Hexachlorobutadiene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26
Naphthalene	U	20.0	U	32.3	U	20.0	U	25.0	U	21.1
1,2,3-Trichlorobenzene	U	5.00	U	8.06	U	5.00	U	6.25	U	5.26

Table 1.3 Results of the Analysis for VOC in Soil
WA# 0-296 Mills Gap Road
Based on Dry Weight

Method REAC SOP 1807

Page 2 of 2

Sample Number	Soil Blank C 090309	51697	51657
Sample Location		1	3
Percent Solids	100	82	82

Analyte	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg	Result µg/Kg	RL µg/Kg
Dichlorodifluoromethane	U	5.00	U J 6.10		U J 6.10	
Chloromethane	U	5.00	U J 6.10		U J 6.10	
Vinyl Chloride	U	5.00	U J 6.10		U J 6.10	
Bromomethane	U	5.00	U J 6.10		U J 6.10	
Chloroethane	U	5.00	U J 6.10		U J 6.10	
Trichlorofluoromethane	U	5.00	U J 6.10		U J 6.10	
Acetone	U	20.0	U J 24.4		U J 24.4	
1,1-Dichloroethene	U	5.00	U J 6.10		U J 6.10	
Methylene Chloride	U	5.00	U J 6.10		U J 6.10	
Carbon Disulfide	U	5.00	U J 6.10		U J 6.10	
Methyl tert-Butyl Ether	U	5.00	U J 6.10		U J 6.10	
trans-1,2-Dichloroethene	U	5.00	U J 6.10		U J 6.10	
1,1 Dichloroethane	U	5.00	U J 6.10		U J 6.10	
2-Butanone	U	5.00	U J 6.10		U J 6.10	
2,2-Dichloropropane	U	5.00	U J 6.10		U J 6.10	
cis-1,2-Dichloroethene	U	5.00	U J 6.10		U J 6.10	
Chloroform	U	5.00	U J 6.10		U J 6.10	
1,1-Dichloropropene	U	5.00	U J 6.10		U J 6.10	
1,2-Dichloroethane	U	5.00	U J 6.10		U J 6.10	
1,1,1-Trichloroethane	U	5.00	U J 6.10		U J 6.10	
Carbon Tetrachloride	U	5.00	U J 6.10		U J 6.10	
Benzene	U	5.00	U J 6.10		U J 6.10	
Trichloroethene	U	5.00	U J 6.10		U J 6.10	
1,2-Dichloropropane	U	5.00	U J 6.10		U J 6.10	
Bromodichloromethane	U	5.00	U J 6.10		U J 6.10	
Dibromomethane	U	5.00	U J 6.10		U J 6.10	
cis-1,3-Dichloropropene	U	5.00	U J 6.10		U J 6.10	
trans-1,3-Dichloropropene	U	5.00	U J 6.10		U J 6.10	
1,1,2-Trichloroethane	U	5.00	U J 6.10		U J 6.10	
1,3-Dichloropropane	U	5.00	U J 6.10		U J 6.10	
Dibromochloromethane	U	5.00	U J 6.10		U J 6.10	
1,2-Dibromoethane	U	5.00	U J 6.10		U J 6.10	
Bromoform	U	5.00	U J 6.10		U J 6.10	
4-Methyl-2-Pentanone	U	5.00	U J 6.10		U J 6.10	
Toluene	U	5.00	U J 6.10		U J 6.10	
2-Hexanone	U	5.00	U J 6.10		U J 6.10	
Tetrachloroethene	U	5.00	U J 6.10		U J 6.10	
Chlorobenzene	U	5.00	U J 6.10		U J 6.10	
1,1,1,2-Tetrachloroethane	U	5.00	U J 6.10		U J 6.10	
Ethylbenzene	U	5.00	U J 6.10		U J 6.10	
p&m-Xylene	U	10.0	U J 12.2		U J 12.2	
o-Xylene	U	5.00	U J 6.10		U J 6.10	
Styrene	U	5.00	U J 6.10		U J 6.10	
Isopropylbenzene	U	5.00	U J 6.10		U J 6.10	
1,1,2,2-Tetrachloroethane	U	5.00	U J 6.10		U J 6.10	
1,2,3-Trichloropropane	U	5.00	U J 6.10		U J 6.10	
n-Propylbenzene	U	5.00	U J 6.10		U J 6.10	
Bromobenzene	U	5.00	U J 6.10		U J 6.10	
1,3,5-Trimethylbenzene	U	5.00	U J 6.10		U J 6.10	
2-Chlorotoluene	U	5.00	U J 6.10		U J 6.10	
4-Chlorotoluene	U	5.00	U J 6.10		U J 6.10	
tert-Butylbenzene	U	5.00	U J 6.10		U J 6.10	
1,2,4-Trimethylbenzene	U	5.00	U J 6.10		U J 6.10	
sec-Butylbenzene	U	5.00	U J 6.10		U J 6.10	
p-Isopropyltoluene	U	5.00	U J 6.10		U J 6.10	
1,3-Dichlorobenzene	U	5.00	U J 6.10		U J 6.10	
1,4-Dichlorobenzene	U	5.00	U J 6.10		U J 6.10	
n-Butylbenzene	U	5.00	U J 6.10		U J 6.10	
1,2-Dichlorobenzene	U	5.00	U J 6.10		U J 6.10	
1,2-Dibromo-3-Chloropropane	U	5.00	U J 6.10		U J 6.10	
1,2,4-Trichlorobenzene	U	5.00	U J 6.10		U J 6.10	
Hexachlorobutadiene	U	5.00	U J 6.10		U J 6.10	
Naphthalene	U	5.00	U J 6.10		U J 6.10	
1,2,3-Trichlorobenzene	U	5.00	U J 6.10		U J 6.10	

Table 1.4 Results of the TICs for VOC in Soil
WA# 0-296 Mills Gap Road

Page 1 of 1

Sample Number	Analyte	Concentration*, µg/Kg
Soil Blank C 081809 51631	No TICs Detected No TICs Detected	
Soil Blank C082509 51663 51658 51697 51657	No TICs Detected No TICs Detected No TICs Detected No TICs Detected No TICs Detected	

* Estimated Concentration (Response Factor = 1)

Table 2.1 Results of MS/MSD Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Sample Number: 51695

Page 1 of 2

Analyte	Sample Result µg/L	MS/MSD Spike Added µg/L	MS Result µg/L	MS % Recovery	MSD Result µg/L	MSD % Recovery	RPD	QC Limits	
								RPD	% Recovery
Acetone	U	50.0	49.6	99	48.4	97	2	20	44-157
Benzene	U	50.0	41.4	83	38.0	76	9	13	38-139
Bromodichloromethane	U	50.0	41.8	84	39.1	78	7	13	70-135
Bromoform	U	50.0	41.1	82	38.2	76	7	13	53-139
Bromomethane	U	50.0	35.7	71	32.8	66	8	18	44-150
2-Butanone (MEK)	U	50.0	47.8	96	44.9	90	6	14	58-140
Carbon disulfide	U	50.0	36.4	73	31.2	62	15	21	34-136
Carbon tetrachloride	U	50.0	44.7	89	40.1	80	11	18	50-181
Chlorobenzene	U	50.0	41.2	82	37.7	75	9	12	65-128
Chloroethane	U	50.0	33.4	67	30.8	62	8	18	41-151
Chloroform	U	50.0	40.5	81	37.8	76	7	14	66-132
Chloromethane	U	50.0	30.5	61	27.4	55	11	22	35-149
Dibromochloromethane	U	50.0	41.8	84	38.4	77	8	12	67-134
1,1-Dichloroethane	U	50.0	42.1	84	38.6	77	9	15	59-132
1,2-Dichloroethane	U	50.0	42.0	84	39.6	79	6	15	59-153
1,1-Dichloroethene	U	50.0	44.2	88	38.8	78	13	17	41-144
cis-1,2-Dichloroethene	U	50.0	40.0	80	37.0	74	8	13	57-131
trans-1,2-Dichloroethene	U	50.0	41.2	82	36.8	74	11	15	55-131
1,2-Dichloropropane	U	50.0	41.3	83	39.1	78	5	12	67-125
cis-1,3-Dichloropropene	U	50.0	39.4	79	36.2	72	8	13	68-126
trans-1,3-Dichloropropene	U	50.0	40.8	81	37.8	76	7	13	68-134
Ethylbenzene	U	50.0	45.0	90	41.1	82	9	13	37-143
2-Hexanone	U	50.0	54.4	109	51.5	103	5	17	53-145
4-Methyl-2-pentanone(MIBK)	U	50.0	53.1	106	49.5	99	7	14	57-141
Methylene chloride	U	50.0	37.4	75	34.6	69	8	12	59-129
Styrene	U	50.0	44.3	89	41.3	83	7	13	60-135
1,1,2,2-Tetrachloroethane	U	50.0	46.5	93	43.3	87	7	13	62-126
Tetrachloroethene	U	50.0	44.5	89	40.0	80	11	15	48-145
Toluene	U	50.0	41.8	84	38.9	78	7	14	44-141
1,1,1-Trichloroethane	U	50.0	42.0	84	38.4	77	9	18	55-149
1,1,2-Trichloroethane	U	50.0	40.5	81	38.0	76	6	12	70-127
Trichloroethene	U	50.0	42.8	86	38.7	77	10	15	53-141
Vinyl chloride	U	50.0	33.2	66	29.1	58	13	20	34-151
Xylene (total)	U	150	135	90	124	83	8	13	36-144

Summary of Abbreviations

BFB	Bromofluorobenzene
C	Centigrade
CLP	Contract Laboratory Program
COC	Chain of Custody
conc	concentration
cont	continued
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
D	(Surrogate Table) value is from a diluted sample and was not calculated
Dioxin	Polychlorinated dibenzo-p-dioxins (PCDD) and Polychlorinated dibenzofurans (PCDF)
DFTPP	Decafluorotriphenylphosphine
EMPC	Estimated maximum possible concentration
GC/MS	Gas Chromatography/ Mass Spectrometry
IS	Internal Standard
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MDA	Minimum Detectable Activity
MS (BS)	Matrix Spike (Blank Spike)
MSD (BSD)	Matrix Spike Duplicate (Blank Spike Duplicate)
MW	Molecular Weight
NA	Not Applicable or Not Available
NAD	Normalized Absolute Difference
NC	Not Calculated
NR	Not Requested/Not Reported
NS	Not Spiked
% D	Percent Difference
% REC	Percent Recovery
SOP	Standard Operating Procedure
ppbv	parts per billion by volume
ppm	parts per million
pptv	parts per trillion by volume
PQL	Practical Quantitation Limit
PAL	Performance Acceptance Limit
QA/QC	Quality Assurance/Quality Control
QL	Quantitation Limit
REAC	Response Engineering and Analytical Contract
RL	Reporting Limit
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
SIM	Selected Ion Monitoring
Sur	Surrogate
TIC	Tentatively Identified Compound
TCLP	Toxicity Characteristic Leaching Procedure
VOC	Volatile Organic Compound
*	Value exceeds the acceptable QC limits

m ³	cubic meter	g	gram	kg	kilogram	L	liter
μg	microgram	μL	microliter	mg	milligram	mL	milliliter
ng	nanogram	pg	picogram	pCi	picocurie	s	sigma

Data Validation Flags

J	Value is estimated	R	Value is unusable
J+	Value is estimated high (metals only)	U	Not detected
J-	Value is estimated low (metals only)	UJ	Not detected and RL is estimated
N	Presumptively present (Aroclors only)		

Rev. 1/14/09

Table 2.1 (cont) Results of MS/MSD Analysis for VOC in Water
WA# D-296 Mills Gap Road

Sample Number: 51642

Page 2 of 2

Analyte	Sample Result µg/L	MS/MSD Spike Added µg/L	MS Result µg/L	MS % Recovery	MSD Result µg/L	MSD % Recovery	RPD	QC Limits	
								RPD	% Recovery
Acetone	U	50.0	46.2	92	49.3	99	6	20	44-157
Benzene	U	50.0	44.6	89	42.7	85	4	13	38-139
Bromodichloromethane	U	50.0	49.2	98	46.2	92	6	13	70-135
Bromoform	U	50.0	41.0	82	40.5	81	1	13	53-139
Bromomethane	U	50.0	40.0	80	39.1	78	2	18	44-150
2-Butanone (MEK)	U	50.0	43.6	87	45.3	91	4	14	58-140
Carbon disulfide	U	50.0	32.3	65	29.6	59	9	21	34-136
Carbon tetrachloride	U	50.0	37.0	74	32.1	64	14	18	50-161
Chlorobenzene	U	50.0	44.6	89	44.2	88	1	12	65-128
Chloroethane	U	50.0	45.0	90	42.9	86	5	18	41-151
Chloroform	U	50.0	45.6	91	43.0	86	6	14	66-132
Chloromethane	U	50.0	47.2	94	46.3	93	2	22	35-149
Dibromochloromethane	U	50.0	43.6	87	42.2	84	3	12	67-134
1,1-Dichloroethane	U	50.0	45.7	91	43.2	86	6	15	59-132
1,2-Dichloroethane	U	50.0	49.8	100	48.2	92	7	15	59-153
1,1-Dichloroethene	U	50.0	32.5	85	29.6	59	9	17	41-144
cis-1,2-Dichloroethene	U	50.0	44.4	89	43.1	86	3	13	57-131
trans-1,2-Dichloroethene	U	50.0	40.6	81	37.8	76	7	15	55-131
1,2-Dichloropropane	U	50.0	50.8	102	49.5	99	3	12	67-125
cis-1,3-Dichloropropene	U	50.0	51.2	102	49.6	99	3	13	68-126
trans-1,3-Dichloropropene	U	50.0	51.0	102	49.4	99	3	13	68-134
Ethylbenzene	U	50.0	43.7	87	41.7	83	5	13	37-143
2-Hexanone	U	50.0	53.4	107	51.6	103	3	17	53-145
4-Methyl-2-pentanone(MIBK)	U	50.0	50.5	101	51.0	102	1	14	57-141
Methylene chloride	U	50.0	44.7	89	43.5	87	3	12	59-129
Styrene	U	50.0	45.0	90	44.4	89	1	13	60-135
1,1,2,2-Tetrachloroethane	U	50.0	49.1	98	48.4	97	1	13	62-126
Tetrachloroethene	U	50.0	40.3	81	37.6	75	7	15	48-145
Toluene	9.00	50.0	54.6	91	50.9	84	7	14	44-141
1,1,1-Trichloroethane	U	50.0	40.1	80	35.2	70	13	18	55-149
1,1,2-Trichloroethane	U	50.0	51.5	103	50.4	101	2	12	70-127
Trichloroethene	U	50.0	43.5	87	40.5	81	7	15	53-141
Vinyl chloride	U	50.0	39.4	79	37.5	75	5	20	34-151
m-&p-Xylene	U	100	86.7	88	83.0	83	3	13	38-144
o-Xylene	U	50.0	45.7	91	44.7	90	2	13	38-144

Table 2.2 Results of LCS Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Page 1 of 4

Date Analyzed 08/22/09

Analyte	LCS Spike Added µg/L	LCS Conc. µg/L	LCS % Recovery	QC Limits % Recovery
Acetone	50.0	49.7	99	51-151
Benzene	50.0	46.9	94	75-122
Bromodichloromethane	50.0	50.7	101	77-128
Bromoform	50.0	51.2	102	67-141
Bromomethane	50.0	39.5	79	53-152
2-Butanone (MEK)	50.0	53.0	106	64-130
Carbon disulfide	50.0	37.2	74	59-140
Carbon tetrachloride	50.0	50.5	101	75-148
Chlorobenzene	50.0	48.4	97	76-124
Chloroethane	50.0	34.8	70	54-147
Chloroform	50.0	47.8	96	77-124
Chloromethane	50.0	31.6	63	46-144
Dibromochloromethane	50.0	49.3	99	76-132
1,1-Dichloroethane	50.0	47.9	96	72-124
1,2-Dichloroethane	50.0	46.8	94	66-150
1,1-Dichloroethene	50.0	47.6	95	61-132
cis-1,2-Dichloroethene	50.0	47.7	95	71-119
trans-1,2-Dichloroethene	50.0	45.5	91	71-123
1,2-Dichloropropane	50.0	47.6	95	75-120
cis-1,3-Dichloropropene	50.0	48.0	96	77-124
trans-1,3-Dichloropropene	50.0	48.2	96	75-132
Ethylbenzene	50.0	51.2	102	77-124
2-Hexanone	50.0	61.4	123	58-136
4-Methyl-2-pentanone(MIBK)	50.0	57.0	114	63-135
Methylene chloride	50.0	41.0	82	69-122
Styrene	50.0	51.8	104	78-126
1,1,2,2-Tetrachloroethane	50.0	50.9	102	68-125
Tetrachloroethene	50.0	50.4	101	70-136
Toluene	50.0	48.1	96	76-126
1,1,1-Trichloroethane	50.0	48.2	96	77-136
1,1,2-Trichloroethane	50.0	45.7	91	75-123
Trichloroethene	50.0	49.5	99	79-126
Vinyl chloride	50.0	34.1	68	56-146
Xylene (total)	150	158	105	77-125

* Indicates out of the criteria

Table 2.2 (cont) Results of LCS Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Page 2 of 4

Date Analyzed 08/20/09

Analyte	LCS Spike Added µg/L	LCS Conc. µg/L	LCS % Recovery	QC Limits % Recovery
Dichlorodifluoromethane	50.0	42.6	85	53-105
Chloromethane	50.0	56.2	112	63-110
Vinyl Chloride	50.0	64.3	129	77-156
Bromomethane	50.0	43.5	87	74-125
Chloroethane	50.0	43.3	87	70-122
Trichlorofluoromethane	50.0	50.9	102	69-132
Acetone	50.0	71.0	142	86-253
1,1-Dichloroethene	50.0	47.0	94	54-144
Methylene Chloride	50.0	46.3	93	69-129
Carbon Disulfide	50.0	51.4	103	62-120
Methyl-t-butyl Ether	50.0	38.0	76	66-116
trans-1,2-Dichloroethene	50.0	54.0	108	85-124
1,1-Dichloroethane	50.0	48.8	98	82-123
2-Butanone	50.0	55.4	111	14-256
2,2-Dichloropropane	50.0	35.7	71	67-139
cis-1,2-Dichloroethene	50.0	45.3	91	79-117
Chloroform	50.0	45.4	91	87-118
1,1-Dichloropropene	50.0	44.5	89	79-124
1,2-Dichloroethane	50.0	50.5	101	86-119
1,1,1-Trichloroethane	50.0	47.7	95	88-114
Carbon Tetrachloride	50.0	53.6	107	85-118
Benzene	50.0	50.9	102	94-111
Trichloroethene	50.0	50.9	102	86-107
1,2-Dichloropropane	50.0	54.8	110	88-110
Bromodichloromethane	50.0	47.9	96	85-106
Dibromomethane	50.0	50.1	100	81-117
cis-1,3-Dichloropropene	50.0	47.6	95	72-116
trans-1,3-Dichloropropene	50.0	50.6	101	83-130
1,1,2-Trichloroethane	50.0	52.9	106	83-115
1,3-Dichloropropene	50.0	50.7	101	82-116
Dibromochloromethane	50.0	52.4	105	77-118
1,2-Dibromoethane	50.0	51.7	103	80-118
Bromoform	50.0	47.3	95	70-125
4-Methyl-2-Pentanone	50.0	59.3	119	46-151
Toluene	50.0	53.2	106	88-111
2-Hexanone	50.0	62.3	125	30-275
Tetrachloroethene	50.0	53.1	106	79-116
Chlorobenzene	50.0	53.5	107	88-110
1,1,1,2-Tetrachloroethane	50.0	53.7	107	88-107
Ethylbenzene	50.0	53.7	107	89-111
p&m-Xylene	100	109.0	109	91-111
o-Xylene	50.0	55.8	112	92-114
Styrene	50.0	52.4	105	85-111
Isopropylbenzene	50.0	58.3	117	90-124
1,1,2,2-Tetrachloroethane	50.0	52.7	105	77-123
1,2,3-Trichloropropane	50.0	53.4	107	76-120
n-Propylbenzene	50.0	56.0	112	86-116
Bromobenzene	50.0	52.6	105	91-112
1,3,5-Trimethylbenzene	50.0	56.5	113	87-115
2-Chlorotoluene	50.0	53.9	108	90-115
4-Chlorotoluene	50.0	57.4	115	91-111
tert-Butylbenzene	50.0	57.8	116	81-118
1,2,4-Trimethylbenzene	50.0	54.7	109	85-111
sec-Butylbenzene	50.0	57.0	114	76-121
p-Isopropyltoluene	50.0	57.1	114	77-119
1,3-Dichlorobenzene	50.0	56.8	114	85-114
1,4-Dichlorobenzene	50.0	57.2	114	87-114
n-Butylbenzene	50.0	58.1	112	76-120
1,2-Dichlorobenzene	50.0	56.8	114	87-114
1,2-Dibromo-3-chloropropane	50.0	48.7	97	53-132
1,2,4-Trichlorobenzene	50.0	50.9	102	51-134
Hexachlorobutadiene	50.0	44.0	88	47-121
Naphthalene	50.0	58.7	117	36-149
1,2,3-Trichlorobenzene	50.0	50.2	100	32-150

* Indicates out of the criteria

Table 2.2 (cont) Results of LCS Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Page 3 of 4

Date Analyzed 08/31/09 (LCS #1)

Analyte	LCS Spike Added µg/L	LCS Conc. µg/L	LCS % Recovery	QC Limits % Recovery
Acetone	50.0	44.8	90	51-151
Benzene	50.0	49.1	98	75-122
Bromodichloromethane	50.0	49.9	100	77-128
Bromoform	50.0	46.8	94	67-141
Bromomethane	50.0	39.2	78	53-152
2-Butanone (MEK)	50.0	41.0	82	64-130
Carbon disulfide	50.0	44.4	89	59-140
Carbon tetrachloride	50.0	45.6	91	75-148
Chlorobenzene	50.0	48.8	98	76-124
Chloroethane	50.0	45.9	92	54-147
Chloroform	50.0	46.6	93	77-124
Chloromethane	50.0	46.2	92	46-144
Dibromochloromethane	50.0	44.6	89	76-132
1,1-Dichloroethane	50.0	50.0	100	72-124
1,2-Dichloroethane	50.0	46.9	94	66-150
1,1-Dichloroethene	50.0	42.8	86	61-132
cis-1,2-Dichloroethene	50.0	48.9	98	71-119
trans-1,2-Dichloroethene	50.0	46.7	93	71-123
1,2-Dichloropropane	50.0	52.4	105	75-120
cis-1,3-Dichloropropene	50.0	52.4	105	77-124
trans-1,3-Dichloropropene	50.0	51.2	102	75-132
Ethylbenzene	50.0	48.3	97	77-124
2-Hexanone	50.0	49.2	98	58-136
4-Methyl-2-pentanone(MIBK)	50.0	46.0	92	63-135
Methylene chloride	50.0	46.0	92	69-122
Styrene	50.0	47.6	95	78-126
1,1,2,2-Tetrachloroethane	50.0	46.5	93	66-125
Tetrachloroethene	50.0	48.8	98	70-136
Toluene	50.0	51.4	103	76-126
1,1,1-Trichloroethane	50.0	47.5	95	77-136
1,1,2-Trichloroethane	50.0	51.1	102	75-123
Trichloroethene	50.0	50.1	100	79-126
Vinyl chloride	50.0	44.3	89	56-146
m-&p-Xylene	100	97.2	97	77-125
o-Xylene	50.0	51.5	103	77-125

* Indicates out of the criteria

Table 2.2 (cont) Results of LCS Analysis for VOC in Water
WA# 0-296 Mills Gap Road

Page 4 of 4

Date Analyzed 08/31/09 (LCS #2)

Analyte	LCS Spike Added µg/L	LCS Conc. µg/L	LCS % Recovery	QC Limits % Recovery
Acetone	50.0	52.3	105	51-151
Benzene	50.0	52.7	105	75-122
Bromodichloromethane	50.0	54.0	108	77-128
Bromoform	50.0	46.2	92	67-141
Bromomethane	50.0	44.0	88	53-152
2-Butanone (MEK)	50.0	46.0	92	64-130
Carbon disulfide	50.0	49.7	99	59-140
Carbon tetrachloride	50.0	48.0	96	75-148
Chlorobenzene	50.0	51.2	102	76-124
Chloroethane	50.0	52.6	105	54-147
Chloroform	50.0	51.9	104	77-124
Chloromethane	50.0	51.2 J	102	46-144
Dibromochloromethane	50.0	46.9	94	76-132
1,1-Dichloroethane	50.0	56.4	113	72-124
1,2-Dichloroethane	50.0	50.3	101	66-150
1,1-Dichloroethene	50.0	47.9	96	61-132
cis-1,2-Dichloroethene	50.0	54.4	109	71-119
trans-1,2-Dichloroethene	50.0	52.2	104	71-123
1,2-Dichloropropane	50.0	57.0	114	75-120
cis-1,3-Dichloropropene	50.0	53.0	106	77-124
trans-1,3-Dichloropropene	50.0	51.4	103	75-132
Ethylbenzene	50.0	51.1	102	77-124
2-Hexanone	50.0	52.4	105	58-136
4-Methyl-2-pentanone(MIBK)	50.0	49.7	99	63-135
Methylene chloride	50.0	51.4	103	69-122
Styrene	50.0	50.9	102	78-126
1,1,2,2-Tetrachloroethane	50.0	50.4	101	66-125
Tetrachloroethene	50.0	51.3	103	70-136
Toluene	50.0	54.4	109	78-126
1,1,1-Trichloroethane	50.0	51.7	103	77-138
1,1,2-Trichloroethane	50.0	53.8	108	75-123
Trichloroethene	50.0	53.3	107	79-126
Vinyl chloride	50.0	49.4	99	56-146
m-&p-Xylene	100	102	102	77-125
o-Xylene	50.0	53.9	107	77-125

* Indicates out of the criteria

Lockheed Martin
Response Engineering Analytical Contract
2890 Woodbridge Avenue Building 209 Annex
Edison, NJ 08837-3679
Telephone 732-321-4200 Facsimile 732-494-4021

LOCKHEED MARTIN



Accutest Labs
Fresh Ponds Corp Village, Bldg B
2235 Route 130
Dayton, NJ 08810

Attn: Tony Esposito

August 03, 2009

As per Lockheed Martin / REAC Credit Card 3432 issued to John M. Johnson, please analyze samples according to the following parameters for Project 0296:

Analysis/Method	Matrix	# of samples
VOC /SW-846-8260 (See attached and RL)	Water	20

The samples are expected to arrive at your laboratory between August 4-6, 2009. **All applicable QA/QC(eg: MS/MSD, LCS, Duplicates, and Blanks) analysis as per method, will be performed on our sample matrix. Preliminary sample and QC result tables plus a signed copy of our Chain of Custody must be emailed to REAC 10 business days after receipt of the samples.** The complete data package is due 15 business days after receipt of the samples. The complete data package must include all items on the deliverables checklist. **Please note the lower reporting limits requested.**

All sample and QC results must be summarized in a tab delimited file diskette deliverable.

Please submit all reports concerning this project to **John Johnson at (732) 321-4248 or john.m.johnson@lmco.com.**

Sincerely,

Vinod Kansal
Analytical Section Leader
Lockheed Martin / REAC Project

VK:jj Attachments

cc. R. Singhvi
Subcontracting File
0296\lon\mem\0908sub\0296Con

V. Kansal
J. Soroka

K. Woodruff
G. Powell

Compound List Report

Product: V8260TCL+ Volatile Organics, TCL + LS
Matrix: AQ Aqueous

Page 1 of 1

Jul 21, 2009 03:07 pm

Method List: VAI8260 AQ	Method Ref: SW846 8260B	LJ30480
Report List: VTCL ALL	VOA TCL List	LJ25514
RL/MDL Factor: 1		

Compound	CAS No.	RL	MDL	Units
Acetone	67-64-1	10	2.9	ug/l
Benzene	71-43-2	1.0	0.23	ug/l
Bromodichloromethane	75-27-4	1.0	0.22	ug/l
Bromoform	75-25-2	4.0	0.23	ug/l
Bromomethane	74-83-9	2.0	0.30	ug/l
2-Butanone (MEK)	78-93-3	10	1.6	ug/l
Carbon disulfide	75-15-0	2.0	0.74	ug/l
Carbon tetrachloride	56-23-5	1.0	0.26	ug/l
Chlorobenzene	108-90-7	1.0	0.39	ug/l
Chloroethane	75-00-3	1.0	0.37	ug/l
Chloroform	67-66-3	1.0	0.23	ug/l
Chloromethane	74-87-3	1.0	0.29	ug/l
Dibromochloromethane	124-48-1	1.0	0.22	ug/l
1,1-Dichloroethane	75-34-3	1.0	0.29	ug/l
1,2-Dichloroethane	107-06-2	1.0	0.33	ug/l
1,1-Dichloroethene	75-35-4	1.0	0.40	ug/l
cis-1,2-Dichloroethene	156-59-2	1.0	0.22	ug/l
trans-1,2-Dichloroethene	156-60-5	1.0	0.25	ug/l
1,2-Dichloroethene (total)	540-59-0	1.0	0.22	ug/l
1,2-Dichloropropane	78-87-5	1.0	0.27	ug/l
cis-1,3-Dichloropropene	10061-01-5	1.0	0.25	ug/l
trans-1,3-Dichloropropene	10061-02-6	1.0	0.21	ug/l
Ethylbenzene	100-41-4	1.0	0.27	ug/l
2-Hexanone	591-78-6	5.0	1.4	ug/l
4-Methyl-2-pentanone(MIBK)	108-10-1	5.0	0.86	ug/l
Methylene chloride	75-09-2	2.0	0.30	ug/l
Styrene	100-42-5	5.0	0.58	ug/l
1,1,2,2-Tetrachloroethane	79-34-5	1.0	0.24	ug/l
Tetrachloroethene	127-18-4	1.0	0.27	ug/l
Toluene	108-88-3	1.0	0.30	ug/l
1,1,1-Trichloroethane	71-55-6	1.0	0.26	ug/l
1,1,2-Trichloroethane	79-00-5	1.0	0.23	ug/l
Trichloroethene	79-01-6	1.0	0.24	ug/l
Vinyl chloride	75-01-4	1.0	0.44	ug/l
Xylene (total)	1330-20-7	1.0	0.25	ug/l

35 compounds reported in list VTCL

EP-C-04-032

CHAIN OF CUSTODY RECORD

Project Name: Mill Gap Road
Project Number: 0-296
LM Contact: K. Woodruff Phone: 604-865-9317

No: 07124
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

Sample Identification

Analyses Requested

Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOC's
51636	SE-12 Dup	S	8/10/09	7	4oz glass/4% ↓ ↓	✓
51631	SW-9	↓	↓	↓	↓ ↓	✓

7/11/09

7/11/09

string;

Special Instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

- Air	PW- Potable Water
- Animal Tissue	S- Soil
- Drum Liquids	SD- Sediment
- Drum Solids	SL- Sludge
- Groundwater	SW- Surface Water
- Oil	TX-TCLP Extract
- Product	W- Water
- Plant Tissue	X- Other

Samples received on 8/13/09 with samples that appear on COC # 0296-081004-51. Task lead requested I put them on a COC and get them Analyzed. JM 8/13/09

Received 5°C Jm 8/13/09

[illegible]

EP-C-04-032

Project Name: Mills Road
Project Number: 0-286
LM Contact: K. Woodruff Phone: 609 865 9317

No: 07131
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

0296-DAR-400709
023
0108014

Sample Identification

Analyses Requested

Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Analyses Requested
01	51663	SW 4	8/19/09	1	4oz glass / 4°C	VOCs X
02	51658	2		1		X
03	51697	1		1		X
04	51657	3		1		X
05	51649	CHR-2		3	40 ml vial / 4°C	X

Matrix:

Special Instructions:

- A- Air
- AT-Animal Tissue
- DL- Drum Liquids
- DS- Drum Solids
- GW- Groundwater
- O- Oil
- PR-Product
- PT-Plant Tissue
- PW- Potable Water
- S- Soil
- SD- Sediment
- SL- Sludge
- SW- Surface Water
- TX-TCLP Extract
- W- Water
- X- Other

* Samples picked up at Fed-Ex on 8/22/09 by Calvin Lin and placed in Sample Cooler. 7M 8/24/09

Received 4°C 7M 8/24/09

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time
All Analysis	K. Woodruff	8/19/09	Calvin Lin	8/24/09	9:00	All Analysis	Calvin Lin	8/24/09	Y. Lin	8-24-09	9:40
All Storage	A. + V. 27	9/9/09	Calvin Lin	9/9/09	13:00						

(152) 321-4200

EPA Contract 68-09-223

EPC-04-032

CHAIN OF CUSTODY RECORD

Project Name: Mills C RoadProject Number: 0-296LM Contact: K. Woodruff Phone: 609-865-9317

0296-081-51

No:

Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

Sample Identification

Analyses Requested

REACT	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCs
C007	51623	SW-1 Dup	SD	8/10/09	1	4 oz glass / 4°C	X
C008	51624	SW-1			1		X
C03	51625	SW-2			2		X
C04	51626	SW-3			1		X
C05	51627	SW-4			1		X
C06	51628	SW-5			1		X
C07	51629	SW-6			1		X
C08	51630	SW-7			1		X
C09	51631	SW-8	Y		1		X
C10	51632	SG-7	S		1		X
C11	51633	SG-9	S		2		X
C12	51634	SG-8	S		1		X
C13	51635	SG-12	S		1		X
C14	51637	SG-13	S		1		X

Matrix:

A- Air
AT- Animal Tissue
DL- Drum Liquids
DS- Drum Solids
GW- Groundwater
O- Oil
PR- Product
PT- Plant Tissue

PW- Potable Water
S- Soil
SD- Sediment
SL- Sludge
SW- Surface Water
TX- TCLP Extract
W- Water
X- Other

Special Instructions:

**SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:**

Received 5°C 8/13/09

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time
all analysis	A. Woodruff	8/10/09	Tracy Thomas	8/13/09	10:30	All Analysis	Tracy Thomas	8/14/09	J. Venn	8-14-09	8:00
all storage	A. Woodruff	9/9/09	Tracy Thomas	9/10/09	13:00						

99-223

RECORD

Project Name: Mills, W Road
Project Number: 0-896
LM Contact: R. Woodruff Phone: 609 865-9317

No: ~~07129~~
 Sheet 01 of 01 (Do not copy)
 (for addnl. samples use new form)

Sample Identification

Analyses Requested

REACT	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCs
0207	51662	CHR Dup	GW	8/17/09	3	40ml grab/4°C	X
0208	51661	CHR	GW	↓	3	↓	X
03	51664	TB	W	↓	3	↓	X

026

Matrix:

Special Instructions:

A- Air	PW- Potable Water
AT-Animal Tissue	S- Soil
DL- Drum Liquids	SD- Sediment
DS- Drum Solids	SL- Sludge
GW- Groundwater	SW- Surface Water
O- Oil	TX-TCLP Extract
PR-Product	W- Water
PT-Plant Tissue	X- Other

Regular analyser - no data validation

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

Received 20c 7m 8118109

[illegible]

EPA Contract # 0222
EP-C-04-032

Project Name: MS
Project Number: 0-210
LM Contact: John Johnson Phone: 609-732-321-4248

No: 07-15
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

Sample Identification

Analyses Requested

RECEIVED	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCs				
0709	51693	SW-1	SW	8/10/09	3	40 ml vial / cool 4°C	X				
	51694	SW-1 Dup			3		X				
	51695	SW-2			6*		X				
	51696	SW-3			3		X				
	51698	SW-4			3		X				
	51617	SW-5			3		X				
	51619	SW-6			3		X				
	51620	SW-7			3		X				
	51621	SW-8			3		X				
	51622	SW-9			3		X				
027											

Matrix:

Special Instructions:

- A- Air
- AT- Animal Tissue
- DL- Drum Liquids
- DS- Drum Solids
- GW- Groundwater
- O- Oil
- PR- Product
- PT- Plant Tissue
- PW- Potable Water
- S- Soil
- SD- Sediment
- SL- Sludge
- SW- Surface Water
- TX- TCLP Extract
- W- Water
- X- Other

* msd

HCl as preservative

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

Item/Reason	Relinquished by	Date	Received by	Date	Time	Item/Reason	Relinquished by	Date	Received by	Date	Time
		10/11/09									

PA Contract 68-C99-223

PPC-04-032

Project Name: Wills G. Road

Project Number: 0-296

LM Contact: John Voh

LM Contact: John Johnson Phone: 732-321-4242

0296-00009-57

No: ~~07213~~ *Kw*

Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

Analyses Requested

[illegible]

Special Instructions:

PW- Potable Water
S- Soil
SD- Sediment
SL- Sludge
SW- Surface Water
TX-TCLP Extract
W- Water
X- Other

→ ms/msd

HGL as preservative

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

[illegible]

Analyses Requested

REACTION	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCs			
10709	51648	TB	W	8/18/09	2	40 ml vial/4°C, HCl	X			
	51647	2J-145	GW	8/18/09	2		X			
	51650	ERT-8	GW	8/17/09	2		X			
	51651	2J-165	GW	8/18/09	2		X			
	51652	2J-165 dup	GW	8/18/09	2		X			
029	(REV)									
	RW									

Special Instructions:

1 to 2 ppb detection limit

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #:

[illegible]