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CUMMINGS RITER CONSULTANTS, INC.

January 25, 2001
Project No. 93111.60/06

Mr. Charles Tordella
Pennsylvania Department of Environmental Protection
Northwest Regional Office
230 Chestnut Street
Meadville, PA 16335

**RE: LETTER REPORT – INSTALLATION OF ADDITIONAL BEDROCK GROUNDWATER MONITORING WELLS – WESTINGHOUSE ELECTRIC (SHARON PLANT) SHARON, PENNSYLVANIA**

Dear Mr. Tordella:

Cummings/Riter Consultants, Inc. (Cummings/Riter), on behalf of Viacom Inc. (Viacom), is pleased to submit this letter report documenting site activities performed at Westinghouse Electric (Sharon Plant), Sharon, Pennsylvania. Specifically, this letter report addresses the installation of two bedrock groundwater monitoring wells, aquifer testing, and groundwater sampling and analysis. These tasks and the subsequent findings are summarized in the following paragraphs.

**SUMMARY OF FIELD ACTIVITIES**

***Drilling Activities:*** Two new bedrock-monitoring wells (MW-14C and OS-3C) have been installed adjacent to existing Wells MW-14B and OS-3B. Well MW-14C is located on the AK Steel property in the conduit storage area, while Well OS-3C is located west of the former Westinghouse facility on the Hickory Street right-of-way (Figure 1). The Pennsylvania Drilling Company of McKees Rocks, Pennsylvania installed the wells from November 15 to December 6, 2000. The two new wells are designed to monitor the upper portion of the Orangeville Shale formation.

The wells were drilled using hollow-stem augers (HSAs), wireline rock coring, and air rotary techniques with multiple cased intervals. Pilot holes for the installation of Wells MW-14C and OS-3C were initially advanced using 4¼-inch inside diameter (I.D.) HSAs. Two-inch outside diameter (O.D.) split-spoon samples were collected on five-foot centers. A description of each sample was recorded in the field according to characteristics such as color, grain size, density, and moisture content. All samples were contained in sample jars and were screened with a 10.2 eV HNu photoionization detector (PID) and an ultraviolet lamp for dense non-aqueous phase liquid (DNAPL) detection.

The 4¼-inch I.D., 9-inch O.D. HSAs were advanced until the alluvium/glacial drift contact was encountered. The 4¼-inch I.D. HSAs were removed and 12¼-inch I.D. HSAs were

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advanced approximately five feet below the contact. A ten-inch I.D. threaded-steel casing was grouted in place using the tremie method with a cement-bentonite grout mixture. The cement-bentonite grout was allowed to cure for a minimum of 18 hours before advancing the boring below the cased alluvium into the underlying glacial drift.

The borings for the two monitoring wells were advanced through the glacial drift using 4¼-inch I.D. and HSAs. The borings for Wells MW-14C and OS-3C were advanced approximately two feet below the glacial drift/bedrock contact. A six-inch I.D. threaded-steel casing was lowered to the bottom of the boring and pressure grouted in place with a cement-bentonite grout mixture. The grout was allowed to cure for a minimum of 18 hours before advancing the boring below the cased interval into the underlying bedrock.

The Orangeville Shale bedrock was cored using NQ wireline coring techniques. The core diameter measured 1.875 inches. The maximum core interval was ten feet. Upon encountering groundwater the borehole was reamed using a $5^{7}/_{8}$-inch diameter tri-cone roller bit with air rotary techniques. For MW-14C, the initial 20 feet were cored and reamed with no groundwater encountered. An additional ten feet were cored and reamed prior to encountering groundwater. Groundwater was encountered in the boring for Well OS-3C within the upper 25 feet of bedrock

Soil cuttings and waste water generated from the drilling activities were stored in properly labeled 55-gallon drums. Also, air monitoring was performed using the PID during drilling activities. Level D personal protective equipment was worn during the drilling procedures. Personal protective equipment included hard hats, safety glasses, steel-toed boots with metatarsals, and neoprene and nitrile gloves.

***Monitoring Well Installation and Development:*** Monitoring Wells MW-14C and OS-3C were constructed using two-inch I.D., threaded, flush joint, Schedule 40, polyvinyl chloride (PVC) casing and machine-cut screen (0.02-inch slots). A two-inch threaded plug and pressure cap were installed at the bottom and top of the wells, respectively. The screen length in either of the wells did not exceed 20 feet in length and stainless-steel centralizers were installed at both the top and bottom of the well screen. The annular space between the well screen and borehole was backfilled from the bottom of the boring to approximately five feet above the screened interval with clean, No. 1 sand. A five-foot thick bentonite pellet seal was placed directly above the sand pack to inhibit vertical migration of groundwater. The annular space above the bentonite seal was tremie grouted using a cement-bentonite mixture.

The wells were completed by installing a flush-mounted steel protective roadbox set in a concrete pad that extends to a depth of approximately two feet. Boring logs and well construction diagrams are included as Attachment A.

The drilling rig, augers, core barrel and associated equipment used during drilling and well installation were decontaminated by steam-cleaning at a decontamination pad before and after each casing and well installation. Well screen and casing were contained in plastic bags and kept in a clean, dry location.

The monitoring wells were developed using a clean PVC bailer. Field parameters, including pH, specific conductance, temperature, and turbidity were recorded for each well volume removed. Well development continued until the well went dry or until a minimum of five well volumes were removed and the discharge water from the well reached stable (plus or minus 10 percent) field parameters. Water generated from the well development was contained in properly labeled, 55-gallon drums. Well development forms are included as Attachment B.

***Surveying:*** Monitoring Wells MW-14C and OS-3C were surveyed using existing site controls by DEM Surveying and Consulting of Brookville, Pennsylvania, a licensed professional land surveyor. The horizontal position of each well was located with reference to the Pennsylvania State Plane Coordinate System. The vertical elevations of the top of protective casing and ground surface were also surveyed for each well to the nearest 0.01 foot.

***Aquifer Testing:*** A groundwater pumping test was performed at Well M-11B. The purpose of the test was to evaluate the interconnectivity between Well M-11B and the two new bedrock monitoring wells (MW-14C and OS-3C). The procedures utilized during testing are provided below.

***Set Up:*** On December 18, 2000 the dedicated sample pump in Monitoring Well MW-11B was removed and a Grunfos Redi-Flo2® submersible pump with a check valve and new one-inch O.D. black polyethylene tubing was installed. The pump was lowered to a depth of approximately 100 feet. An in-line valve was installed on the discharge tubing close to the wellhead as an additional safety measure to prevent water in the line from flowing back down the well once the pump was shutoff. An In-Situ® Model 261; small diameter (30 pounds per square inch ([psi])) pressure transducer connected to an In-Situ® Hermit 3000 datalogger was installed in Well M-11B. In-Situ Mini Troll® pressure transducers were also installed in Monitoring Wells MW-14C and OS-3C prior to testing to measure any response during groundwater withdrawal at Well M-11B.

Water generated from the connectivity test was discharged into a 550-gallon storage tank located on the Winner Steel property. The water collected in the tank was characterized for proper treatment at an off-site licensed facility.



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***Connectivity Test:*** Based on observations during previous sampling of Well MW-11B, it was estimated that the maximum sustainable flow rate would be less than or equal to 0.25 gallon per minute (gpm). The flow rate was monitored throughout the test using a graduated cylinder and was corrected accordingly. The connectivity test was started on December 18, 2000. Prior to starting the test, water levels were measured and recorded in the three wells. In addition to the water level measurements collected by the pressure transducers, water levels were measured manually every hour at each well. A groundwater sample was collected from Well M-11B at the start of pumping for analysis of polychlorinated biphenyls (PCBs) (U.S. Environmental Protection Agency [USEPA] Method 8082) and semivolatile organic compounds (SVOCs) (USEPA Method 8270) by Lancaster Laboratories of Lancaster, Pennsylvania. The laboratory analytical data is provided in Table 1. During pumping the water level in MW-11B dropped at a very fast rate. At approximately three hours into the connectivity test difficulties were encountered in keeping the pump discharging water at the appropriate rate. Periods of no flow or extremely low flow resulted. This caused fluctuations in the drawdown of the well (Figure 2). The test was terminated approximately four hours after the start of the test due to limited yield at Well M-11B.

Just after the conclusion of the pumping, a round of water levels was taken. The transducers monitored the wells during the recovery period. The recovery test was conducted for a period of approximately 16 hours after the completion of the connectivity test. No response was observed in either Well OS-3C or MW-14C during pumping at Well M-11B. Water level field forms and the transducer raw data for the aquifer testing period are included as Attachment C.

***Groundwater Sampling and Analysis:*** On December 29, 2000, two new dedicated QED low-flow bladder pumps attached to Teflon™-lined polyethylene tubing were installed in bedrock groundwater Monitoring Wells MW-14C and OS-3C. The pump inlets were installed within the screened interval, approximately five feet above the bottom of the well. The pump inlets were set at depths of 102 feet below ground surface (bgs) for MW-14C and 85 feet bgs for OS-3C, respectively.

Monitoring Wells MW-11B, MW-14C, and OS-3C were sampled using low-flow bladder techniques[1]. The water collected from MW-11B was analyzed for PCBs (USEPA Method 8082) and SVOCs (USEPA Method 8270). The water collected from MW-14C and OS-3C was analyzed for Target Compound List (TCL) and Target Analyte List (TAL) analyses. Field parameters of temperature, pH, specific conductance, redox potential, dissolved oxygen, and turbidity were monitored and recorded during well purging.

[1] Puls, Robert W. and Michael J. Barcelona, 1995, "Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures", U.S. Environmental Protection Agency Groundwater Issue, EPA/540/S-95/504, December.

Groundwater analytical results for samples collected during the connectivity test (December 18, 2000), and samples collected on December 29, 2000 are summarized with historical results for Well M-11B in Table 1. Water sample collection reports and well purging records are provided as Attachment D.

**RECOMMENDATIONS**

Based on the results of the connectivity testing and the results of groundwater sampling and analysis of the two recently installed bedrock monitoring wells (MW-14C and OS-3C), it is recommended that Well M-11B be abandoned. It is believed that the detected concentrations of compounds of concern (COCs) in Well M-11B are a result of migration along the borehole and do not represent the actual conditions within the bedrock aquifer at the site. This opinion is based on the historical PBC and SVOC sampling and analysis results for Well M-11B (Table 1). COCs were not detected in Well M-11B during sampling conducted in July 1992. Samples collected in July 1999 contained levels of PCBs and SVOCs. Sampling three months later reduced these detectable levels of COCs by one to two orders of magnitude. Concentrations of COCs increased slightly in the December 18, 2000 event (at the start of connectivity testing) after the well had not been purged for approximately 14 months. Levels of COCs decreased again for samples collected after completion of connectivity testing (December 29, 2000). These results are interpreted to reflect significant fluctuations in COC concentrations based on the length of time the well remains stagnant, and do not represent actual concentrations of COC in the bedrock aquifer. This opinion is further substantiated by the results for groundwater samples in Wells OS-3C and MW-14C, which did not contain COCs above the practical quantitation limit.

Bedrock Well M-11B was installed in 1986, and is located in an area where light non-aqueous phase liquids (LNAPL) and DNAPL are present in the alluvium. The abandonment of Well M-11B should proceed in accordance with the methods described in the Proposed Plan (Revision 2.0) – Installation of Additional Bedrock Groundwater Monitoring Wells/Abandonment of Well M-11B (Cummings/Riter, February 3, 2000) which has been reviewed and approved by representatives of the Pennsylvania Department of Environmental Protection (PADEP).

An additional bedrock well was also discovered at the site (on the west side of the former Powerhouse Building located in the southwest corner of the Middle Sector) which is believed to be a former water supply well (Figure 1). This well was evaluated on January 19, 2001 by Cummings/Riter personnel during which the following information was found:

- Casing = steel;
- Well diameter = six inches;
- Total depth = 232 feet below floor surface;
- Based on the well depth, the well appears to communicate with the Berea Sandstone;

- Date of installation – unknown;
- Depth to water = 32.20 feet below top of steel casing; and
- No detectable LNAPL or DNAPL were measured in the well using an oil/water interface probe.

It is also recommended that this well be abandoned in accordance with approved PADEP procedures[2]. We propose to abandon the well by tremie pumping a cement-bentonite grout mixture the entire depth of the well to the floor surface.

We are hereby requesting approval to abandon Monitoring Well M-11B and the former groundwater supply well located adjacent to the Powerhouse Building.

Final analytical data packages are expected to be delivered to our office on February 4, 2001. Validated analytical results will be forwarded to the Agencies in late February. If you have any questions regarding this letter report, please call me at (412) 373-5240.

Respectfully submitted,
***Cummings/Riter Consultants***

William A. Baughman, P.G.
Project Manager

WAB/MJV/dmw
Attachments

pc: Mr. Victor Janosik – U.S. Environmental Protection Agency
Mr. Gordon Taylor – Viacom Inc.
Mr. Tom Conway – U.S Army Corps of Engineers

[2] PADEP, 1996, "Groundwater Monitoring Guidance Manual," February 29.

# TABLE

TABLE 1
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
*ADDITIONAL BEDROCK GROUNDWATER STUDY*
WESTINGHOUSE ELECTRIC (SHARON PLANT)
*SHARON, PENNSYLVANIA*

| Sample I.D.: | M-11B | | | | | MW-14C | OS-3C |
|---|---|---|---|---|---|---|---|
| Date Collected: | 7/92 | 7/13/99 | 10/14/99 | 12/18/00 | 12/29/00 | 12/29/00 | 12/29/00 |
| **PARAMETER** | | | | | | | |
| ***Volatile Organics (ug/l)*** [a] | | | | | | | |
| 1,1,1-Trichloroethane | ND [b] | <10 [c] | --- [d] | --- | --- | <5 / <5 [e] | <5 |
| 1,1,2,2-Tetrachloroethane | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| 1,1,2-Trichloroethane | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| 1,1-Dichloroethane | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| 1,1-Dichloroethene | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| 1,2-Dichloroethane | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| 1,2-Dichloropropane | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| 2-Butanone (MEK) | ND | <10 | --- | --- | --- | <10 / <10 | <10 |
| 2-Hexanone | ND | <10 | --- | --- | --- | <10 / <10 | <10 |
| 4-Methyl-2-pentanone (MIBK) | ND | <10 | --- | --- | --- | <10 / <10 | <10 |
| Acetone | ND | 7 B [f] | --- | --- | --- | 24 / 23 | <20 |
| Benzene | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Bromodichloromethane | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Bromoform | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Bromomethane | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Carbon disulfide | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Carbon Tetrachloride | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Chlorobenzene | ND | 9 J [f] | --- | --- | --- | <5 / <5 | <5 |
| Chloroethane | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Chloroform | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Chloromethane | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| *cis*-1,2-Dichloroethene | ND | <10 [b] | --- | --- | --- | <5 / <5 | <5 |
| *cis*-1,3-Dichloropropene | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Dibromochloromethane | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Ethylbenzene | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Methylene Chloride | ND | 5 BJ | --- | --- | --- | <5 / <5 | <5 |
| Styrene | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Tetrachloroethene | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Toluene | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Xylenes (total) | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| *trans*-1,2-Dichloroethene | ND | <10 [b] | --- | --- | --- | <5 / <5 | <5 |
| *trans*-1,3-Dichloropropene | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Trichloroethene | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| Vinyl Chloride | ND | <10 | --- | --- | --- | <5 / <5 | <5 |
| ***Semivolatile Organics (ug/l)*** | | | | | | | |
| Acenaphthene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Acenaphthylene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Anthracene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Benzo(a)anthracene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Benzo(b)fluoranthene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Benzo(k)fluoranthene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Benzo(g,h,i)perylene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Benzo(a)pyrene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Bis(2-chloroethoxy)methane | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Bis(2-chloroethyl)ether | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Bis(2-ethylhexyl)phthalate | <10 | 2 B | <10 | <9 | <10 | <10 / <9 | <10 |
| 4-Bromophenyl phenyl ether | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Butyl benzyl phthalate | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 4-Chloroaniline | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 4-Chloro-3-methylphenol | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 2-Chloronaphthalene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 2-Chlorophenol | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 4-Chlorophenyl phenyl ether | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 2,2'-oxybis (1-Chloropropane) | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |



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TABLE 1
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
ADDITIONAL BEDROCK GROUNDWATER STUDY
WESTINGHOUSE ELECTRIC (SHARON PLANT)
SHARON, PENNSYLVANIA

| Sample I.D.: | M-11B | | | | | MW-14C | OS-3C |
|---|---|---|---|---|---|---|---|
| Date Collected: | 7/92 | 7/13/99 | 10/14/99 | 12/18/00 | 12/29/00 | 12/29/00 | 12/29/00 |
| PARAMETER | | | | | | | |
| *Semivolatile Organics (cont.)* | | | | | | | |
| Chrysene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Dibenzo(a,h)anthracene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Dibenzofuran | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Di-n-butyl phthalate | <10 | 6 J | <10 | <9 | <10 | <10 / <9 | <10 |
| 1,2-Dichlorobenzene | <10 | 14 | <10 | <9 | <10 | <10 / <9 | <10 |
| 1,3-Dichlorobenzene | <10 | 40 | <10 | <9 | <10 | <10 / <9 | <10 |
| 1,4-Dichlorobenzene | <10 | 29 | <10 | <9 | <10 | <10 / <9 | <10 |
| 3,3'-Dichlorobenzidine | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 2,4-Dichlorophenol | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Diethyl phthalate | <10 | 5 J | <10 | <9 | <10 | <10 / <9 | <10 |
| 2,4-Dimethylphenol | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Dimethyl phthalate | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 4,6-Dinitro-2-methylphenol | ND | <25 | <24 | <24 | <25 | <25 / <24 | <25 |
| 2,4-Dinitrophenol | ND | <25 | <57 | <57 | <61 | <61 / <57 | <60 |
| 2,4-Dinitrotoluene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 2,6-Dinitrotoluene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Di-n-octyl phthalate | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Fluoranthene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Fluorene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Hexachlorobenzene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Hexachlorobutadiene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Hexachlorocyclopentadiene | ND | <10 | <24 | <24 | <25 | <25 / <24 | <25 |
| Hexachloroethane | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Indeno(1,2,3-cd)pyrene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Isophorone | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 2-Methylnaphthalene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 2-Methylphenol (o-Cresol) | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 4-Methylphenol (p-Cresol) | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Naphthalene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 2-Nitroaniline | ND | <25 | <10 | <9 | <10 | <10 / <9 | <10 |
| 3-Nitroaniline | ND | <25 | <10 | <9 | <10 | <10 / <9 | <10 |
| 4-Nitroaniline | ND | <25 | <10 | <9 | <10 | <10 / <9 | <10 |
| Nitrobenzene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 2-Nitrophenol | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 4-Nitrophenol | ND | <25 | <48 | <47 | <51 | <51 / <47 | <50 |
| N-nitrosodiphenylamine | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| N-Nitroso-di-n-propylamine | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Pentachlorophenol | ND | <25 | <24 | <24 | <25 | <25 / <24 | <25 |
| Phenanthrene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Phenol | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Pyrene | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| 1,2,4-Trichlorobenzene | <10 | 540 D [1] | 18 | 11 | 40 | <10 / <9 | <10 |
| 2,4,5-Trichlorophenol | ND | <25 | <10 | <9 | <10 | <10 / <9 | <10 |
| 2,4,6-Trichlorophenol | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| Carbazole | ND | <10 | <10 | <9 | <10 | <10 / <9 | <10 |
| ***Pesticides/PCBs (ug/l)*** | | | | | | | |
| alpha-BHC | ND | --- | --- | --- | --- | <0.0096 / <0.094 | <0.0095 |
| beta-BHC | ND | --- | --- | --- | --- | <0.0096 / <0.094 | <0.0095 |
| delta-BHC | ND | --- | --- | --- | --- | <0.0096 / <0.094 | <0.0095 |
| gamma-BHC [Lindane] | ND | --- | --- | --- | --- | <0.0096 / <0.094 | <0.0095 |
| Heptachlor | ND | --- | --- | --- | --- | <0.0096 / <0.094 | <0.0095 |
| Aldrin | ND | --- | --- | --- | --- | <0.0096 / <0.094 | <0.0095 |
| Heptachlor Epoxide | ND | --- | --- | --- | --- | <0.0096 / <0.094 | <0.0095 |
| Endosulfan I | ND | --- | --- | --- | --- | <0.0096 / <0.094 | <0.0095 |
| Dieldrin | ND | --- | --- | --- | --- | <0.019 / 0.019 | <0.019 |



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**TABLE 1**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**ADDITIONAL BEDROCK GROUNDWATER STUDY**
**WESTINGHOUSE ELECTRIC (SHARON PLANT)**
**SHARON, PENNSYLVANIA**

| Sample I.D.: | M-11B | | | | | MW-14C | OS-3C |
|---|---|---|---|---|---|---|---|
| Date Collected: | 7/92 | 7/13/99 | 10/14/99 | 12/18/00 | 12/29/00 | 12/29/00 | 12/29/00 |
| **PARAMETER** | | | | | | | |
| ***Pesticides/PCBs (cont.)*** | | | | | | | |
| DDE | ND | --- | --- | --- | --- | <0.019 / 0.019 | <0.019 |
| Endrin | ND | --- | --- | --- | --- | <0.019 / 0.019 | <0.019 |
| Endosulfan II | ND | --- | --- | --- | --- | <0.019 / 0.019 | <0.019 |
| DDD | ND | --- | --- | --- | --- | <0.019 / 0.019 | <0.019 |
| Endosulfan Sulfate | ND | --- | --- | --- | --- | <0.019 / 0.019 | <0.019 |
| DDT | ND | --- | --- | --- | --- | <0.019 / 0.019 | <0.019 |
| Endrin Ketone | ND | --- | --- | --- | --- | <0.019 / 0.019 | <0.019 |
| Methoxychlor | ND | --- | --- | --- | --- | <0.096 / <0.094 | <0.095 |
| Alpha Chlordane | ND | --- | --- | --- | --- | <0.0096 / <0.0094 | <0.0095 |
| Gamma Chlordane | ND | --- | --- | --- | --- | <0.0096 / <0.0094 | <0.0095 |
| Toxaphene | ND | --- | --- | --- | --- | <1.0 / <0.94 | <0.95 |
| Endrin Aldehyde | ND | --- | --- | --- | --- | <0.019 / <0.019 | <0.019 |
| Aroclor-1016 | --- | 230 | 5.92 | <9.3 | <2.7 | <0.48 / <0.47 | <0.47 |
| Aroclor-1221 | --- | <200 | <0.47 | <9.3 | <2.7 | <0.48 / <0.47 | <0.47 |
| Aroclor-1232 | --- | <100 | <0.47 | <9.3 | <2.7 | <0.48 / <0.47 | <0.47 |
| Aroclor-1242 | <10 | <100 | <0.47 | <9.3 | 18.6 | <0.48 / <0.47 | <0.47 |
| Aroclor-1248 | <10 | <100 | <0.47 | 105 | <2.7 | <0.48 / <0.47 | <0.47 |
| Aroclor-1254 | <10 | <100 | <0.47 | <9.3 | <2.7 | <0.48 / <0.47 | <0.47 |
| Aroclor-1260 | <10 | 290 | 2.47 | 103 | 24.1 | <0.48 / <0.47 | <0.47 |
| ***Inorganics (ug/l)*** | | | | | | | |
| Aluminum | ND | 561 J | --- | --- | --- | 3.45 / 3.86 | 0.365 |
| Antimony | ND | <2.5 | --- | --- | --- | <0.02 / 0.2 | <0.02 |
| Arsenic | ND | <2.8 | --- | --- | --- | <0.01 / <0.01 | <0.01 |
| Barium | ND | 174 B | --- | --- | --- | 0.129 / 0.131 | <0.1 |
| Beryllium | ND | <0.41 | --- | --- | --- | <0.01 / <0.01 | <0.01 |
| Cadmium | ND | <0.33 | --- | --- | --- | <0.01 / <0.01 | <0.01 |
| Calcium | ND | 6,310 | --- | --- | --- | 17.3 / 16.8 | 12.4 |
| Chromium | ND | <3.5 | --- | --- | --- | <0.03 / <0.03 | <0.03 |
| Cobalt | ND | <2.8 | --- | --- | --- | <0.05 / <0.05 | <0.05 |
| Copper | ND | 4.9 B | --- | --- | --- | <0.025 / <0.025 | <0.025 |
| Cyanide | ND | --- | --- | --- | --- | 0.0176 / <0.005 | <0.005 |
| Iron | ND | 1,130 | --- | --- | --- | 8.16 / 8.89 | 0.594 |
| Lead | ND | <2.2 | --- | --- | --- | <0.02 / <0.02 | <0.02 |
| Magnesium | ND | 1,880 B | --- | --- | --- | 4.57 / 4.74 | 2.87 |
| Manganese | ND | 23 | --- | --- | --- | 0.101 / 0.109 | 0.0118 |
| Mercury | ND | 0.10 B | --- | --- | --- | <0.0002 / <0.0002 | <0.00002 |
| Nickel | ND | <4.8 | --- | --- | --- | <0.05 / <0.05 | <0.05 |
| Potassium | ND | 8,430 | --- | --- | --- | 5.96 / 6.16 | 2.74 |
| Selenium | ND | <4.0 | --- | --- | --- | <0.01 / <0.01 | <0.01 |
| Silver | ND | 2.4 B | --- | --- | --- | <0.02 / <0.02 | <0.02 |
| Sodium | ND | 174,000 | --- | --- | --- | 246 / 244 | 90.1 |
| Thallium | ND | <1.7 | --- | --- | --- | <0.02 / <0.02 | <0.02 |
| Vanadium | ND | <4.1 | --- | --- | --- | <0.02 / <0.02 | <0.02 |
| Zinc | ND | 21.8 | --- | --- | --- | 0.342 / 0.348 | <0.025 |

**TABLE 1**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
***ADDITIONAL BEDROCK GROUNDWATER STUDY***
**WESTINGHOUSE ELECTRIC (SHARON PLANT)**
**SHARON, PENNSYLVANIA**

**NOTES:**

a. Results are reported in micrograms per liter (ug/l) or milligrams per liter (mg/l), as noted.

b. "ND" indicates the parameter was not detected above method detection limits which are currently unavailable.

c.

d. "---" indicates this parameter was not analyzed.

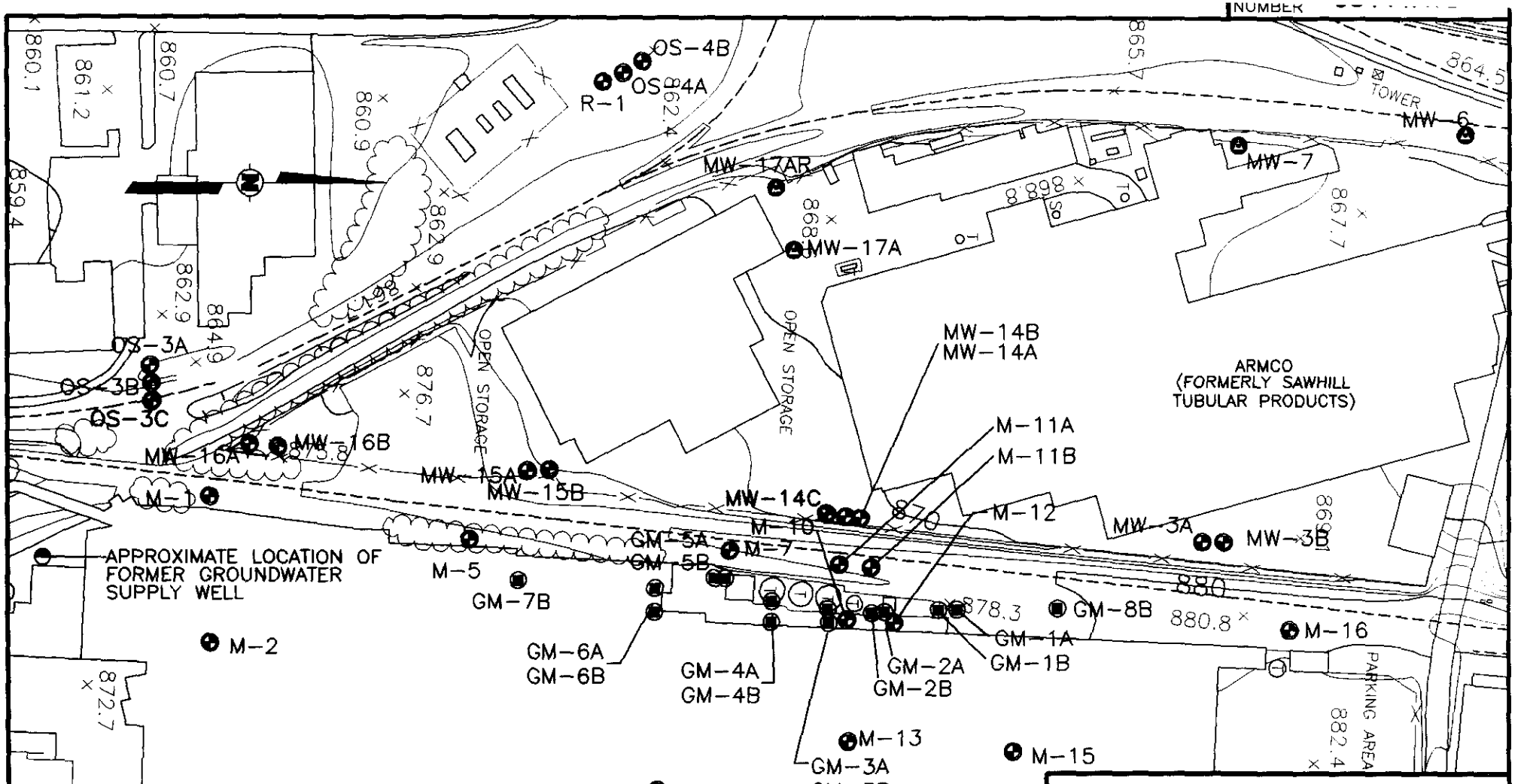
e. xx / xx indicates a duplicate sample was collected at this location.

f. Data qualifiers include: B - indicates that the parameter was also detected in an associated blank sample.
J - indicates the reported value is estimated.
D - indicates the reported value is a result of a sample dilution.

g. The sample result reported is for total 1,2-Dichloroethene.

FIGURES

# FIGURES




LEGEND:

| | |
|---|---|
| MW-14C | NEW BEDROCK MONITORING WELL |
| M-9 | EXISTING RI/FS MONITORING WELL |
| MW-1 | SAWHILL MONITORING WELL |
| PW-1 | SAWHILL PUMPING WELL |
| GM-7B | INTERIM MEASURE WELLS |

SCALE
0 160 320

REFERENCE:
BASE MAP WAS GENERATED BY EASTERN MAPPING, INC., 1991.

| REVISION | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |

# FIGURE 1
## BEDROCK MONITORING WELL LOCATIONS

FORMER TRANSFORMER FACILITY
SHARON, PENNSYLVANIA

PREPARED FOR
**CBS CORPORATION**
**PITTSBURGH, PENNSYLVANIA**

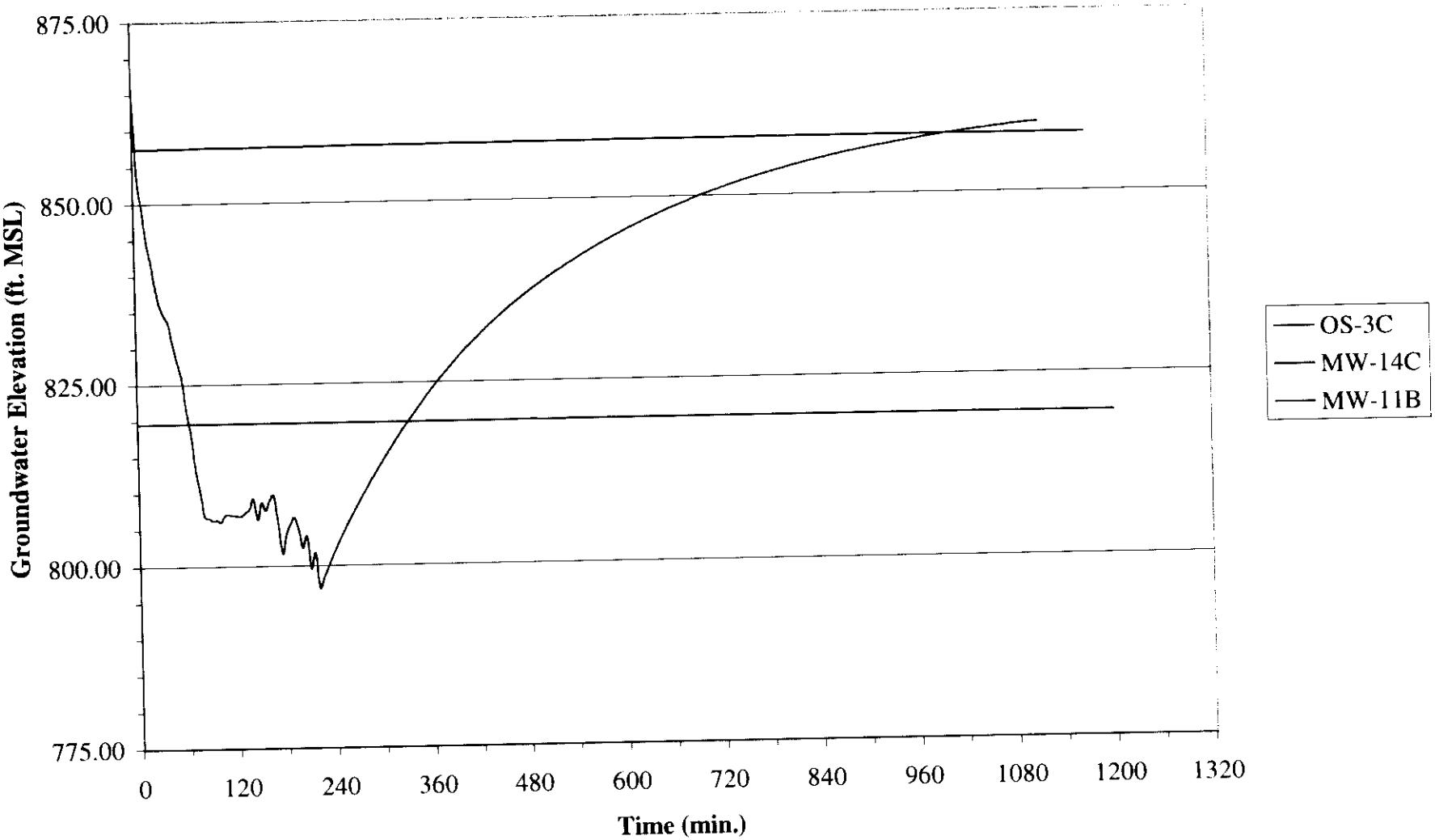
CUMMINGS RITER CONSULTANTS, INC.

DRAWING NUMBER
93111A18

DRAWN BY: T.E. McKee DATE: 01-23-01
CHECKED BY M.J. Valentine DATE: 1-25-01
APPROVED BY: W.A. Baughman DATE: 1-25-01

AR302336

# FIGURE 2
# CONNECTIVITY TEST






All\users\cln\Sharon\Connectivity Test.xls

# ATTACHMENT A

# LOG OF BORING NO. OS-3C

CUMMINGS RITER CONSULTANTS, INC.

Client: VIACOM
Site Name: VIACOM-SHARON
Location: SHARON, PA
Drilling Co. PENN DRILLING
Driller [redacted]
Field Geologist: CLN
Checked By: JDC
Drilling Method: 4.25" I.D. HSA WITH SPLIT SPOON SAMPLERS, 12.25" I.D. HSAs, 6.25" I.D. HSAs, WIRELINE CORING, AIR ROTARY

Project No. 93111.60/06
Date Started: 11/19/00
Date Completed: 12/5/00
Depth to GW: 19.78' (TOR)
Date/Time: 12/6/00 15:23

Coordinates N 403,182.52 E 1,242,138.47
Surface Elev. 863.94

| DEPTH (FEET) | SAMPLE NO. AND TYPE | SAMPLE RECOVERY (IN.) | SPT BLOWS (6") OR RQD | PROFILE | DESCRIPTION | PENETROMETER (TONS/SQ.FT.) | BOREHOLE PID READING (PPM) | ELEVATION (FT. MSL) |
|---|---|---|---|---|---|---|---|---|
| 0 | S-1 | 14.75 | 3 4 4 3 | | LOOSE TO DENSE, BROWN TO BLACK, SILTY SAND CINDERS, RUSTY NAILS AND SCREWS, AND GLASS FRAGMENTS, DRY TO MOIST (FILL) | | 0 | 863.94 |
| | | | | | | | 0 | 863.63 |
| 5 | S-2 | 22.0 | 3 3 4 3 | | *LITTLE TO NO RETURN DURING AUGREING 6.0' | | 0 | |
| | | | | | LOOSE TO DENSE, GRAY TO BLACK, FINE TO MEDIUM GRAINED SAND, SILT, SOME SMALL ANGULAR GRAVEL, TRACE CLAY, MOIST TO WET.(ALLUVIUM) | | | 860.00 |
| 10 | S-3 | 11.5 | 8 6 7 13 | | IRON STAINING (10'-12') | | 0 | |
| | | | | | | | 0 | 850.00 |
| 15 | S-4 | 3.5 | 2 8 8 10 | | | | 0 | |
| | | | | | | | 0 | |
| | | | | | | | 0 | |
| 20 | S-5 | 24.0 | 9 8 8 11 | | TRACE SHALE FRAGMENTS (20'-24') | | 0 | |
| | | | | | 24.0' | | | 840.00 |
| 25 | S-6 | 10.0 | 10 14 13 12 | | DENSE TO VERY DENSE, GRAY, FINE TO MEDIUM GRAINED SAND, SILT, AND GRAVEL, SOME ROCK FRAGMENTS, DRY TO SLIGHTLY MOIST (TILL) | | 0.6 | |
| | | | | | | | 0 | |
| 30 | S-7 | 14.5 | 6 36 82 — | | AUGER DOWN TO 30' SET 10" STEEL CASING AND GROUTED IN PLACE | | 0.1 | |
| | | | | | | | | 830.00 |
| 35 | S-8 | 9.0 | 45 50/3 — — | | | | 0 | |
| | | | | | | | 0 | |
| 40 | | | | | | | | |

WELL INSTALLATION DETAIL

- 2'X2'X2' STEEL ROAD BOX
- 2" DIA. LOCKING PRESSURE CAP
- CONCRETE PAD
- 12 1/4" DIA. BOREHOLE (0 - 30.0')
- 2" I.D. SCH. 40 PVC RISER PIPE (0 - 70.0')
- 10" I.D. STEEL CASING (0 - 30.0')
- CEMENT-BENTONITE GROUT (0' - 30.0')
- CEMENT-BENTONITE GROUT (0' - 61.0')
- 6" I.D. STEEL CASING (0' - 61.0')
- CEMENT-BENTONITE GROUT (0' - 57.0')
- 9 7/8" DIA. BOREHOLE (30.0' - 61.0')

AR302840

CUMMINGS RITER CONSULTANTS, INC.

# LOG OF BORING NO. OS-3C

Client: VIACOM
Site Name: VIACOM-SHARON
Location: SHARON, PA
Drilling Co.: PENN DRILLING
Driller: [redacted]
Field Geologist: CLN
Checked By: JDC
Drilling Method: 4.25" I.D. HSA WITH SPLIT SPOON SAMPLERS, 12.25" I.D. HSAs, 6.25" I.D. HSAs, WIRELINE CORING, AIR ROTARY

Project No.: 93111.60/06
Date Started: 11/19/00
Date Completed: 12/5/00
Depth to GW: 19.78' (TOR)
Date/Time: 12/6/00 15:23

Coordinates N 403,182.52 E 1,242,138.47
Surface Elev. 863.94

| (FEET) | SAMPLE NO. AND TYPE | SAMPLE RECOVERY (IN.) | SPT BLOWS (6") OR RQD | PROFILE | DESCRIPTION | PENETROMETER (TONS/SQ.FT.) | BOREHOLE PID READING (PPM) | WELL INSTALLATION DETAIL | ELEVATION (FT. MSL) |
|---|---|---|---|---|---|---|---|---|---|
| 40 | S-9 | 20.5 | 18 50/3" 43 | | DENSE TO VERY DENSE, GRAY, FINE TO MEDIUM GRAINED SAND, SILT, AND GRAVEL, SOME ROCK FRAGMENTS, DRY TO SLIGHTLY MOIST (TILL) | | 0 | CEMENT-BENTONITE GROUT (0' - 61.0') | 820.00 |
| 45 | S-10 | 5.0 | 96/5 | | | | 0 | 6" I.D. STEEL CASING (0' - 61.0') | |
| 50 | S-11 | 2.0 | 74/2 | | | | 0 | CEMENT-BENTONITE GROUT (0' - 57.0') | 810.00 |
| 55 | S-12 | 2.0 | 50/2 | | | | 0 | 9 7/8" DIA. BOREHOLE (30.0' - 61.0') | |
| | | | | | 59.5' | | 0 | BENTONITE (57.0' - 63.0') | |
| 60 | S-13 | 0.0 | 100/0 | | LIGHT GRAY, SANDY SILTSTONE, SOME DARK GRAY SHALE INTERBEDDED , TRACE CLAY IN PARTINGS | | | | |
| | R-1 | 25.10 | 0.31 | | AUGERED DOWN TO 61' AND SET 6' CASING, AND GROUTED IN PLACE | | | | 800.00 |
| 65 | R-2 | 47.75 | 0.17 | | | | | 5 7/8" DIA. BOREHOLE (61.0' - 90.5') | |
| | | | | | | | | 2" I.D. SCH. 40 PVC RISER PIPE (0 - 70.0') | |
| | | | | | | | | SAND (63.0' - 90.5') | |
| 70 | R-3 | 59.80 | 0.41 | | | | | STAINLESS STEEL CENTRALIZER (70.0') | |
| | | | | | | | | 2" I.D. SCH. 40 PVC SCREEN (20 SLOT) (70.0'-90.0') | 790.00 |
| 75 | R-4 | 54.10 | 0.16 | | BROKEN ZONE FROM 75' TO 80' | | | | |
| 80 | | | | | | | | | |

AR302841

CUMMINGS RITER CONSULTANTS, INC.

# LOG OF BORING NO. OS-3C

Client: VIACOM
Site Name: VIACOM-SHARON
Location: SHARON, PA
Drilling Co. PENN DRILLING
Driller: [redacted]
Drilling Method: 4.25" I.D. HSA WITH SPLIT SPOON SAMPLERS, 12.25" I.D. HSAs, 6.25" I.D. HSAs, WIRELINE CORING, AIR ROTARY

Project No. 93111.60/06
Date Started: 11/19/00
Date Completed: 12/5/00
Depth to GW: 19.78' (TOR)
Date/Time: 12/6/00 15:23
Field Geologist: CLN
Checked By: JDC

Coordinates N 403,182.52 E 1,242,138.47
Surface Elev. 863.94

| DEPTH (FEET) | SAMPLE NO. AND TYPE | SAMPLE RECOVERY (IN.) | SPT BLOWS (6") OR RQS | PROFILE | DESCRIPTION | PENETROMETER (TONS/SQ.FT.) | BOREHOLE PID READING (PPM) | WELL INSTALLATION DETAIL | ELEVATION (FT. MSL) |
|---|---|---|---|---|---|---|---|---|---|
| 80 | R-5 | 58.75 | 0.54 | | LIGHT GRAY, SANDY SILTSTONE, SOME DARK GRAY SHALE INTERBEDDED . TRACE CLAY IN PARTINGS FISSILE FROM 80' TO 85' | | | 5 7/8" DIA. BOREHOLE (61.0' - 90.5') | 780.00 |
| 85 | | | | | | | | SAND (63.0' - 90.5') | |
| 90 | | | | | | | | 2" I.D. SCH. 40 PVC SCREEN (20 SLOT) (70.0'-90.0') | |
| | | | | | | | | STAINLESS STEEL CENTRALIZER (90.0') | 773.13 |
| | | | | | *BOTTOM OF BORING AT 90.5'* MONITORING WELL OS-3C INSTALLED WITH SCREEN SET FROM 70.0' TO 90.0' BGS | | | | |
| 95 | | | | | | | | | |
| 100 | | | | | | | | | |
| 105 | | | | | | | | | |
| 110 | | | | | | | | | |
| 115 | | | | | | | | | |
| 120 | | | | | | | | | |

AR302842

# LOG OF BORING NO. MW-14C

CUMMINGS RITER CONSULTANTS, INC.

Client: VIACOM
Site Name: VIACOM-SHARON
Location: SHARON, PA
Drilling Co. PENN DRILLING
Driller: [redacted]
Drilling Method: 4.25" ID HSA WITH SPLIT SPOON SAMPLERS, 12.25" I.D. HSAs, 6.25" I.D. HSAs, WIRELINE CORING, AIR ROTARY

Project No. 93111.60/06
Date Started: 11/15/00
Date Completed: 11/21/00
Field Geologist: CLN
Depth to GW: 15.31' (TOR)
Checked By: JDC
Date/Time: 12/5/00 15:20

Coordinates N 403,859.39 E 1,242,251.69
Surface Elev. 872.84

| DEPTH (FEET) | SAMPLE NO. AND TYPE | SAMPLE RECOVERY (IN.) | SPT BLOWS (6") OR RQD | PROFILE | DESCRIPTION | PENETROMETER (TONS/SQ.FT.) | BOREHOLE PID READING (PPM) | ELEVATION (FT. MSL) |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | LOOSE, BLACK TO BROWN, SAND, CINDERS, AND GRAVEL, DRY TO MOIST (ALLUVIUM) | | 0 | 872.84 |
| 5 | S-1 | 12.25 | 5 6 6 6 | | *VERY LITTLE RETURN DURING AUGERING | | 3 | |
| | | | | | 10.0' | | 0 | |
| 10 | S-2 | 8.50 | 4 3 3 3 | | LOOSE TO DENSE, BLACK TO BROWN SILTY CLAY WITH TRACE GRAVEL, MOIST TO WET (ALLUVIUM) | | 1 | |
| | | | | | | | 0 | 860.00 |
| 15 | S-3 | 24.0 | 3 4 4 4 | | | | 0 | |
| | | | | | 21.0' | | | |
| 20 | S-4 | 19.5 | 7 9 8 8 | | LOOSE TO DENSE, GRAY TO BROWN, FINE TO MEDIUM GRAINED SILTY SAND, WET, TRACE IRON STAINING, (ALLUVIUM) | | 0 | |
| | | | | | | | | 850.00 |
| 25 | S-5 | 23.0 | 20 22 25 23 | | | | 0.4 | |
| | | | | | | | 0 | |
| 30 | S-6 | 1.0 | 4 6 8 13 | | | | 0 | |
| | | | | | | | | 840.00 |
| 35 | S-7 | 10.0 | 8 5 19 23 | | | | 0.1 | |
| | S-8 | 15.5 | 24 22 32 48 | | 38.0' | | 0 | |
| 40 | | | | | DENSE TO VERY DENSE, GRAY, FINE TO MEDIUM GRAINED SAND, SILT, AND GRAVEL, TRACE SHALE FRAGMENTS, DRY TO SLIGHTLY MOIST (TILL) | | | |

WELL INSTALLATION DETAIL

- 2'X2'X2' STEEL ROAD BOX
- 2" DIA. LOCKING PRESSURE CAP — 872.84
- 872.47
- CONCRETE PAD — 870.00
- 12 1/4" DIA. BOREHOLE (0 - 43.0')
- 2" I.D. SCH. 40 PVC RISER PIPE (0 - 87.0')
- 10" I.D. STEEL CASING (0 - 43.0') — 860.00
- CEMENT-BENTONITE GROUT (0' - 43.0')
- 850.00
- CEMENT-BENTONITE GROUT (0' - 73.5')
- 6" I.D. STEEL CASING (0' - 73.5')
- 840.00
- CEMENT-BENTONITE GROUT (0' - 75.0')

AR302843

CUMMINGS RITER CONSULTANTS, INC.

# LOG OF BORING NO. MW-14C

Client: VIACOM
Site Name: VIACOM-SHARON
Location: SHARON, PA
Drilling Co. PENN DRILLING
Field Geologist: CLN
Driller [redacted]
Checked By: JDC
Drilling Method: 4.25" I.D. HSA WITH SPLIT SPOON SAMPLERS, 12.25" I.D. HSAs, 6.25" I.D. HSAs, WIRELINE CORING, AIR ROTARY

Project No. 93111.60/06
Date Started: 11/15/00
Date Completed: 11/21/00
Depth to GW: 15.31' (TOR)
Date/Time: 12/5/00 15:20

Coordinates N 403,859.39 E 1,242,251.69
Surface Elev. 872.84

| DEPTH (FEET) | SAMPLE NO. AND TYPE | SAMPLE RECOVERY (IN.) | SPT BLOWS (6") OR RQD | PROFILE | DESCRIPTION | PENETROMETER (TONS/SQ.FT.) | BOREHOLE PID READING (PPM) | ELEVATION (FT. MSL) |
|---|---|---|---|---|---|---|---|---|
| 40 | | | | | DENSE TO VERY DENSE, GRAY, FINE TO MEDIUM GRAINED SAND, SILT, AND GRAVEL, TRACE SHALE FRAGMENTS, DRY TO SLIGHTLY MOIST (TILL) AUGERED DOWN TO 43.0' AND SET 10" CASING AND GROUTED | | | 830.00 |
| 45 | S-9 | 5.0 | 100 | | | | 0 | |
| | | | | | | | 0 | |
| 50 | S-10 | | 45 50/3 | | *VERY LITTLE RETURN DURING AUGERING | | 0 | 820.00 |
| 55 | S-11 | | 50 50/2 | | | | 0 | |
| | | | | | | | 0 | |
| 60 | S-12 | | 27 50/3 | | | | 0 | 810.00 |
| | | | | | | | 0 | |
| 65 | S-13 | | 100/3 | | | | 0 | |
| | | | | | | | 0 | |
| 70 | S-14 | | 100/2 | | *AUGER BOUNCING ON ROCK AT 71.5' BGS | | 0 | |
| | | | | | 71.5' | | | |
| | S-15 | | 250/.1 | | LIGHT GRAY, SANDY SILTSTONE, THINLY LAMINATED, SOME DARK GRAY SHALE INTERBEDDED (ORANGEVILLE SHALE) | | 0 | 800.00 |
| 75 | R-1 | 12.5 | 0.15 | | AUGERED DOWN TO 73.5' BGS AND SET 6" CASING AND GROUTED IN PLACE | | 0 | |
| 80 | R-2 | 6.0 | 0 | | | | | |

AR302844

WELL INSTALLATION DETAIL
- CEMENT-BENTONITE GROUT (0' - 43.0')
- 12 1/4" DIA. BOREHOLE (0 - 43.0')
- 10" I.D. STEEL CASING (0 - 43.0')
- 2" I.D. SCH. 40 PVC RISER PIPE (0 - 87.0')
- 9 7/8" DIA. BOREHOLE (43.0' - 73.5')
- CEMENT-BENTONITE GROUT (0' - 73.5')
- 6" I.D. STEEL CASING (0' - 73.5')
- CEMENT-BENTONITE GROUT (0' - 75.0')
- BENTONITE SEAL (75.0' - 81.5')
- 5 7/8" DIA. BOREHOLE (73.5' - 110.0')

CUMMINGS RITER CONSULTANTS, INC.

# LOG OF BORING NO. MW-14C

Client: VIACOM
Site Name: VIACOM-SHARON
Location: SHARON, PA
Drilling Co: PENN DRILLING
Driller: [redacted]
Drilling Method: 4.25" I.D. HSA WITH SPLIT SPOON SAMPLERS, 12.25" I.D. HSAs, 6.25" I.D. HSAs, WIRELINE CORING, AIR ROTARY

Project No. 93111.60/06
Date Started: 11/15/00
Date Completed: 11/21/00
Field Geologist: CLN
Depth to GW: 15.31' (TOR)
Checked By: JDC
Date/Time: 12/5/00 15:20

Coordinates N 403,859.39 E 1,242,251.69
Surface Elev. 872.84

| DEPTH (FEET) | SAMPLE NO. AND TYPE | SAMPLE RECOVERY (IN.) | SPT BLOWS (6") OR ROD | PROFILE | DESCRIPTION | PENETROMETER (TONS/SQ.FT.) | BOREHOLE PID READING (PPM) | WELL INSTALLATION DETAIL | ELEVATION (FT. MSL) |
|---|---|---|---|---|---|---|---|---|---|
| 80 | R-2 | 6.0 | 0.0 | | TRACE MUSCOVITE IN SHALE LAMINATIONS 80' TO 85' | | 0 | BENTONITE SEAL (75.0' - 81.5') | 790.00 |
| | | | | | | | | 5 7/8" DIA. BOREHOLE (73.5' - 110.0') | |
| 85 | R-3 | 6.5 | 0.0 | | | | 0 | 2" I.D. SCH. 40 PVC RISER PIPE (0 - 87.0') | |
| | | | | | | | | STAINLESS STEEL CENTRALIZER (87.0') | |
| 90 | R-4 | 8.0 | 0.08 | | | | 0 | 2" I.D. SCH. 40 PVC SCREEN (20 SLOT) (87.0'-107.0') | 780.00 |
| 95 | | | | | | | | SAND (81.5' - 107.5') | |
| 100 | R-5 | 32.5 | 0.0 | | SILTSTONE IS MORE FISSILE, ALSO CONTAINS GRAY CLAY FILLING IN PARTINGS 100' TO 110' | | 0 | | 770.00 |
| 105 | R-6 | 48.0 | 0.0 | | | | 0 | STAINLESS STEEL CENTRALIZER (107.0') | |
| | | | | | | | | DRILL CUTTINGS (BOREHOLE COLLAPSE) | 762.47 |
| 110 | | | | | *BOTTOM OF BORING AT 110.0'* MONITORING WELL MW-14C INSTALLED WITH SCREEN SET FROM 87.0' TO 107.0' BGS | | | | |
| 115 | | | | | | | | | |
| 120 | | | | | | | | | |

AR302845

# ATTACHMENT B

CUMMINGS RITER CONSULTANTS, INC.

**WELL DEVELOPMENT FORM**
**WELL NO.** MW-14C

PROJECT NAME Viacom - Sharon
PROJECT NO. 93111.60/06
FIELD ENG./GEO CLN
DATE 12/5/00

INITIAL WATER LEVEL 15.31' TOR
WATER LEVEL AFTER DEVELOPMENT 106.96' TOR
WATER LEVEL AFTER RECOVERY 47.98' TOR
TIME DEVELOPMENT STARTED 15:20
TIME DEVELOPMENT CEASED 16:15
LENGTH OF RECOVERY PERIOD

WATER DEVELOPMENT TECHNIQUE(S) USED PVC bailer

| Date | Time | Cumulative Volume (gal) | pH | Specific Conductance | Temp (C) | Remarks Turbidity (NTU) |
|---|---|---|---|---|---|---|
| 12/5/00 | 15:20 | 2.5 gal | 8.03 | 1260 | 12.1 | 1000 |
| 12/5/00 | 15:23 | 5.0 | 8.39 | 1245 | 12.2 | Out of Range (OOR) |
| 12/5/00 | 15:26 | 7.5 | 8.24 | 1230 | 12.2 | OOR |
| 12/5/00 | 15:30 | 10.0 | 8.45 | 1230 | 11.7 | 1000 |
| 12/5/00 | 15:33 | 12.5 | 8.55 | 1239 | 11.7 | OOR |
| 12/5/00 | 15:36 | 15.0 | 8.32 | 1242 | 11.7 | OOR |
| 12/5/00 | 15:44 | 17.5 | 8.50 | 1081 | 11.6 | OOR |
| 12/5/00 | 15:47 | 20.0 | 8.46 | 1174 | 11.9 | OOR |
| 12/5/00 | 15:51 | 22.5 | 8.43 | 1153 | 12.1 | OOR |
| 12/5/00 | 15:55 | 25.0 | 8.44 | 1176 | 12.1 | OOR |
| 12/5/00 | 16:00 | 27.5 | 8.40 | 1190 | 12.3 | OOR |
| 12/5/00 | 16:15 | 30.0 | 8.41 | 1215 | 11.9 | OOR |

well is dry

Was water injected into well during development? Yes ☐ No ☒
If yes give approximate volume

Visual description of water: Prior to Development Turbid, medium gray
After Development Turbid, medium gray

Was recovery test run following development? Yes ☐ No ☒
If yes give approximate volume

Additional Remarks: Sandy sediment in bottom of bucket

AR302848

CUMMINGS RITER CONSULTANTS, INC.

**WELL DEVELOPMENT FORM**
**WELL NO.** OS-3C

PROJECT NAME Viacom - Sharon
PROJECT NO. 93111.60/06
FIELD ENG./GEO CLN
DATE 12/6/00

INITIAL WATER LEVEL 19.78
WATER LEVEL AFTER DEVELOPMENT 89.23
WATER LEVEL AFTER RECOVERY
TIME DEVELOPMENT STARTED 15:23
TIME DEVELOPMENT CEASED 17:04
LENGTH OF RECOVERY PERIOD

WATER DEVELOPMENT TECHNIQUE(S) USED PVC bailer

| Date | Time | Cumulative ~~Volume~~ gal | pH | Specific Conductance | Temp (°C) | Remarks |
|---|---|---|---|---|---|---|
| 12/6/00 | 15:26 | 2.5 gal | 8.44 | 639 | 11.2 | 1000 |
| 12/6/00 | 15:29 | 5.0 | 8.36 | 502 | 11.0 | 1000 |
| 12/6/00 | 15:32 | 7.5 | 8.61 | 543 | 9.8 | Out of Range (OOR) |
| 12/6/00 | 15:35 | 10.0 | 8.51 | 537 | 10.9 | OOR |
| 12/6/00 | 15:37 | 12.5 | 8.70 | 585 | 9.5 | OOR |
| 12/6/00 | 15:42 | 17.5 | 8.75 | 545 | 9.7 | OOR |
| 12/6/00 | 15:45 | 20.0 | 8.51 | 614 | 10.9 | OOR |
| 12/6/00 | 15:55 | 25.0 | 8.40 | 577 | 10.2 | OOR |
| 12/6/00 | 16:02 | 30.0 | 8.22 | 635 | 10.1 | OOR |
| 12/6/00 | 16:10 | 35.0 | 8.19 | 698 | 9.6 | OOR |
| 12/6/00 | 16:20 | 40.0 | 8.47 | 650 | 9.9 | OOR |
| 12/6/00 | 16:25 | 45.0 | 8.39 | 660 | 10.9 | OOR |

Was water injected into well during development? Yes ☐ No ☒
If yes give approximate volume

Visual description of water: Prior to Development Slightly cloudy, light gray
After Development Turbid, medium gray

Was recovery test run following development? Yes ☐ No ☒
If yes give approximate volume

Additional Remarks: Well was almost dry at end of development. Five well volumes is approx. 80 gallons

AR302849

CUMMINGS RITER CONSULTANTS, INC.

**WELL DEVELOPMENT FORM**
**WELL NO.** OS-3C

PROJECT NAME Viacom - Sharon
PROJECT NO. 93111.60/06
FIELD ENG./GEO CLN
DATE 12/6/00

INITIAL WATER LEVEL 19.78
WATER LEVEL AFTER DEVELOPMENT 89.23
WATER LEVEL AFTER RECOVERY
TIME DEVELOPMENT STARTED 15:23
TIME DEVELOPMENT CEASED 17:04
LENGTH OF RECOVERY PERIOD

WATER DEVELOPMENT TECHNIQUE(S) USED PVC bailer

| Date | Time | Cumulative Volume (gal) | pH | Specific Conductance | Temp (C) | Remarks Turbidity (NTU) |
|---|---|---|---|---|---|---|
| 12/6/00 | 16:30 | 50.0 gal | 8.30 | 844 | 10.4 | Out of Range |
| 12/6/00 | 16:36 | 55.0 | 8.40 | 832 | 10.6 | OOR |
| 12/6/00 | 16:42 | 60.0 | 8.43 | 842 | 9.3 | OOR |
| 12/6/00 | 16:53 | 65.0 | 8.42 | 838 | 10.2 | OOR |
| 12/6/00 | 16:58 | 70.0 | 8.45 | 846 | 10.0 | OOR |
| 12/6/00 | 17:04 | 75.0 | 8.41 | 850 | 10.2 | OOR |
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Was water injected into well during development? Yes ☐ No ☒
If yes give approximate volume

Visual description of water: Prior to Development Slightly cloudy, light gray
After Development Turbid, medium gray

Was recovery test run following development? Yes ☐ No ☒
If yes give approximate volume

Additional Remarks: Well was almost dry at end of development. Five well volumes is approx. 65 gallons

AR302850

ATTACHMENT C

# ATTACHMENT C

In-Situ Inc. Hermit 3000

Report generated: 12/19/00 14:25:43
Report from file: C:\WIN-SITU\Data\SN45192 2000-12-18 145824 MW11.bin
DataMgr Version 3.11

Serial number: 45192
Firmware Version 7.1
Unit name: HERMIT 3000

Test name: MW11

Test defined on: 12/18/00 14:53:59
Test started on: 12/18/00 14:58:24
Test stopped on: 12/19/00 9:34:34
Test extracted on: 12/19/00 15:24:20

Data gathered using Linear testing
Time between data points: 5.0000 Minutes.
Number of data samples: 224

TOTAL DATA SAMPLES 224

Channel number [1]
Measurement type: Pressure
Channel name:
Linearity: 0.302
Scale: 100.094
Offset: -0.319
Warmup: 50
Specific gravity: 1

Channel number [0]
Measurement type: Barometric Pressure
Channel name: Barometric
Linearity: 0
Scale: 0
Offset: 0
Warmup: 50

| Date | Time | ET (min) | Chan[1] Feet H2O | Chan[0] Inches Hg |
|---|---|---|---|---|
| 12/18/00 | 14:58 | 0 | 85.857 | 29.127 |
| 12/18/00 | 15:03 | 5 | 72.9 | 29.121 |
| 12/18/00 | 15:08 | 10 | 68.838 | 29.123 |
| 12/18/00 | 15:13 | 15 | 63.865 | 29.123 |
| 12/18/00 | 15:18 | 20 | 61.249 | 29.119 |
| 12/18/00 | 15:23 | 25 | 57.563 | 29.121 |
| 12/18/00 | 15:28 | 30 | 55.208 | 29.121 |
| 12/18/00 | 15:33 | 35 | 53.763 | 29.119 |
| 12/18/00 | 15:38 | 40 | 52.722 | 29.121 |
| 12/18/00 | 15:43 | 45 | 49.659 | 29.119 |
| 12/18/00 | 15:48 | 50 | 47.434 | 29.125 |
| 12/18/00 | 15:53 | 55 | 45.035 | 29.127 |
| 12/18/00 | 15:58 | 60 | 40.774 | 29.172 |
| 12/18/00 | 16:03 | 65 | 37.509 | 29.131 |
| 12/18/00 | 16:08 | 70 | 32.743 | 29.131 |
| 12/18/00 | 16:13 | 75 | 29.551 | 29.133 |
| 12/18/00 | 16:18 | 80 | 26.215 | 29.178 |
| 12/18/00 | 16:23 | 85 | 25.998 | 29.127 |
| 12/18/00 | 16:28 | 90 | 25.623 | 29.174 |
| 12/18/00 | 16:33 | 95 | 25.724 | 29.115 |
| 12/18/00 | 16:38 | 100 | 25.45 | 29.115 |
| 12/18/00 | 16:43 | 105 | 26.403 | 29.111 |
| 12/18/00 | 16:48 | 110 | 26.46 | 29.107 |
| 12/18/00 | 16:53 | 115 | 26.345 | 29.107 |
| 12/18/00 | 16:58 | 120 | 26.302 | 29.109 |
| 12/18/00 | 17:03 | 125 | 26.215 | 29.111 |
| 12/18/00 | 17:08 | 130 | 26.735 | 29.113 |
| 12/18/00 | 17:13 | 135 | 27.211 | 29.115 |
| 12/18/00 | 17:18 | 140 | 28.67 | 29.117 |
| 12/18/00 | 17:23 | 145 | 25.738 | 29.117 |
| 12/18/00 | 17:28 | 150 | 28.136 | 29.121 |
| 12/18/00 | 17:33 | 155 | 26.995 | 29.121 |
| 12/18/00 | 17:38 | 160 | 28.41 | 29.127 |
| 12/18/00 | 17:43 | 165 | 29.016 | 29.125 |
| 12/18/00 | 17:48 | 170 | 25.32 | 29.127 |
| 12/18/00 | 17:53 | 175 | 21.017 | 29.119 |
| 12/18/00 | 17:58 | 180 | 23.645 | 29.119 |
| 12/18/00 | 18:03 | 185 | 25.089 | 29.113 |
| 12/18/00 | 18:08 | 190 | 25.998 | 29.105 |
| 12/18/00 | 18:13 | 195 | 24.309 | 29.113 |
| 12/18/00 | 18:18 | 200 | 21.854 | 29.113 |

| | | | |
|---|---|---|---|
| 12/18/00 18:23 | 205 | 23.428 | 29.111 |
| 12/18/00 18:28 | 210 | 18.967 | 29.107 |
| 12/18/00 18:33 | 215 | 21.118 | 29.115 |
| 12/18/00 18:38 | 220 | 16.339 | 29.109 |
| 12/18/00 18:43 | 225 | 17.71 | 29.105 |
| 12/18/00 18:48 | 230 | 19.053 | 29.109 |
| 12/18/00 18:53 | 235 | 20.251 | 29.117 |
| 12/18/00 18:58 | 240 | 21.58 | 29.113 |
| 12/18/00 19:03 | 245 | 22.764 | 29.113 |
| 12/18/00 19:08 | 250 | 23.876 | 29.109 |
| 12/18/00 19:13 | 255 | 24.93 | 29.111 |
| 12/18/00 19:18 | 260 | 25.984 | 29.107 |
| 12/18/00 19:23 | 265 | 26.995 | 29.113 |
| 12/18/00 19:28 | 270 | 28.006 | 29.107 |
| 12/18/00 19:33 | 275 | 28.988 | 29.113 |
| 12/18/00 19:38 | 280 | 29.955 | 29.113 |
| 12/18/00 19:43 | 285 | 30.908 | 29.103 |
| 12/18/00 19:48 | 290 | 31.833 | 29.092 |
| 12/18/00 19:53 | 295 | 32.757 | 29.08 |
| 12/18/00 19:58 | 300 | 33.638 | 29.08 |
| 12/18/00 20:03 | 305 | 34.533 | 29.072 |
| 12/18/00 20:08 | 310 | 35.386 | 29.066 |
| 12/18/00 20:13 | 315 | 36.238 | 29.056 |
| 12/18/00 20:18 | 320 | 37.061 | 29.033 |
| 12/18/00 20:23 | 325 | 37.87 | 29.007 |
| 12/18/00 20:28 | 330 | 38.665 | 29.015 |
| 12/18/00 20:33 | 335 | 39.416 | 29.007 |
| 12/18/00 20:38 | 340 | 40.167 | 29.007 |
| 12/18/00 20:43 | 345 | 40.918 | 29.011 |
| 12/18/00 20:48 | 350 | 41.64 | 29.023 |
| 12/18/00 20:53 | 355 | 42.377 | 29.019 |
| 12/18/00 20:58 | 360 | 43.085 | 29.007 |
| 12/18/00 21:03 | 365 | 43.778 | 29.007 |
| 12/18/00 21:08 | 370 | 44.472 | 28.995 |
| 12/18/00 21:13 | 375 | 45.151 | 28.982 |
| 12/18/00 21:18 | 380 | 45.801 | 29.003 |
| 12/18/00 21:23 | 385 | 46.451 | 29.013 |
| 12/18/00 21:28 | 390 | 47.058 | 29.011 |
| 12/18/00 21:33 | 395 | 47.679 | 29.009 |
| 12/18/00 21:38 | 400 | 48.286 | 28.999 |
| 12/18/00 21:43 | 405 | 48.879 | 28.995 |
| 12/18/00 21:48 | 410 | 49.428 | 29.001 |
| 12/18/00 21:53 | 415 | 49.991 | 28.991 |
| 12/18/00 21:58 | 420 | 50.526 | 28.984 |
| 12/18/00 22:03 | 425 | 51.046 | 28.982 |

| | | | |
|---|---|---|---|
| 12/18/00 22:08 | 430 | 51.566 | 28.989 |
| 12/18/00 22:13 | 435 | 52.072 | 28.984 |
| 12/18/00 22:18 | 440 | 52.563 | 28.989 |
| 12/18/00 22:23 | 445 | 53.04 | 28.993 |
| 12/18/00 22:28 | 450 | 53.531 | 28.991 |
| 12/18/00 22:33 | 455 | 53.994 | 28.976 |
| 12/18/00 22:38 | 460 | 54.471 | 28.991 |
| 12/18/00 22:43 | 465 | 54.919 | 28.98 |
| 12/18/00 22:48 | 470 | 55.367 | 28.989 |
| 12/18/00 22:53 | 475 | 55.786 | 28.987 |
| 12/18/00 22:58 | 480 | 56.219 | 28.982 |
| 12/18/00 23:03 | 485 | 56.638 | 28.982 |
| 12/18/00 23:08 | 490 | 57.043 | 28.976 |
| 12/18/00 23:13 | 495 | 57.433 | 28.964 |
| 12/18/00 23:18 | 500 | 57.838 | 28.954 |
| 12/18/00 23:23 | 505 | 58.228 | 28.952 |
| 12/18/00 23:28 | 510 | 58.618 | 28.95 |
| 12/18/00 23:33 | 515 | 58.994 | 28.95 |
| 12/18/00 23:38 | 520 | 59.356 | 28.958 |
| 12/18/00 23:43 | 525 | 59.717 | 28.954 |
| 12/18/00 23:48 | 530 | 60.078 | 28.95 |
| 12/18/00 23:53 | 535 | 60.425 | 28.94 |
| 12/18/00 23:58 | 540 | 60.786 | 28.938 |
| 12/19/00 0:03 | 545 | 61.119 | 28.938 |
| 12/19/00 0:08 | 550 | 61.466 | 28.938 |
| 12/19/00 0:13 | 555 | 61.798 | 28.93 |
| 12/19/00 0:18 | 560 | 62.131 | 28.921 |
| 12/19/00 0:23 | 565 | 62.449 | 28.919 |
| 12/19/00 0:28 | 570 | 62.767 | 28.919 |
| 12/19/00 0:33 | 575 | 63.085 | 28.917 |
| 12/19/00 0:38 | 580 | 63.374 | 28.911 |
| 12/19/00 0:43 | 585 | 63.663 | 28.903 |
| 12/19/00 0:48 | 590 | 63.966 | 28.905 |
| 12/19/00 0:53 | 595 | 64.255 | 28.897 |
| 12/19/00 0:58 | 600 | 64.544 | 28.899 |
| 12/19/00 1:03 | 605 | 64.834 | 28.899 |
| 12/19/00 1:08 | 610 | 65.108 | 28.909 |
| 12/19/00 1:13 | 615 | 65.383 | 28.913 |
| 12/19/00 1:18 | 620 | 65.672 | 28.913 |
| 12/19/00 1:23 | 625 | 65.932 | 28.909 |
| 12/19/00 1:28 | 630 | 66.207 | 28.909 |
| 12/19/00 1:33 | 635 | 66.453 | 28.907 |
| 12/19/00 1:38 | 640 | 66.698 | 28.905 |
| 12/19/00 1:43 | 645 | 66.958 | 28.903 |
| 12/19/00 1:48 | 650 | 67.19 | 28.907 |

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|---|---|---|---|
| 12/19/00 1:53 | 655 | 67.436 | 28.911 |
| 12/19/00 1:58 | 660 | 67.681 | 28.911 |
| 12/19/00 2:03 | 665 | 67.898 | 28.905 |
| 12/19/00 2:08 | 670 | 68.129 | 28.907 |
| 12/19/00 2:13 | 675 | 68.361 | 28.901 |
| 12/19/00 2:18 | 680 | 68.578 | 28.901 |
| 12/19/00 2:23 | 685 | 68.794 | 28.905 |
| 12/19/00 2:28 | 690 | 69.026 | 28.901 |
| 12/19/00 2:33 | 695 | 69.228 | 28.895 |
| 12/19/00 2:38 | 700 | 69.445 | 28.895 |
| 12/19/00 2:43 | 705 | 69.633 | 28.899 |
| 12/19/00 2:48 | 710 | 69.835 | 28.893 |
| 12/19/00 2:53 | 715 | 70.038 | 28.887 |
| 12/19/00 2:58 | 720 | 70.226 | 28.887 |
| 12/19/00 3:03 | 725 | 70.428 | 28.873 |
| 12/19/00 3:08 | 730 | 70.602 | 28.879 |
| 12/19/00 3:13 | 735 | 70.789 | 28.879 |
| 12/19/00 3:18 | 740 | 70.963 | 28.877 |
| 12/19/00 3:23 | 745 | 71.151 | 28.881 |
| 12/19/00 3:28 | 750 | 71.324 | 28.887 |
| 12/19/00 3:33 | 755 | 71.498 | 28.883 |
| 12/19/00 3:38 | 760 | 71.657 | 28.879 |
| 12/19/00 3:43 | 765 | 71.83 | 28.883 |
| 12/19/00 3:48 | 770 | 71.989 | 28.887 |
| 12/19/00 3:53 | 775 | 72.163 | 28.889 |
| 12/19/00 3:58 | 780 | 72.307 | 28.887 |
| 12/19/00 4:03 | 785 | 72.481 | 28.885 |
| 12/19/00 4:08 | 790 | 72.626 | 28.883 |
| 12/19/00 4:13 | 795 | 72.785 | 28.877 |
| 12/19/00 4:18 | 800 | 72.929 | 28.883 |
| 12/19/00 4:23 | 805 | 73.074 | 28.883 |
| 12/19/00 4:28 | 810 | 73.233 | 28.877 |
| 12/19/00 4:33 | 815 | 73.377 | 28.879 |
| 12/19/00 4:38 | 820 | 73.507 | 28.875 |
| 12/19/00 4:43 | 825 | 73.652 | 28.877 |
| 12/19/00 4:48 | 830 | 73.811 | 28.875 |
| 12/19/00 4:53 | 835 | 73.927 | 28.87 |
| 12/19/00 4:58 | 840 | 74.057 | 28.873 |
| 12/19/00 5:03 | 845 | 74.187 | 28.873 |
| 12/19/00 5:08 | 850 | 74.317 | 28.875 |
| 12/19/00 5:13 | 855 | 74.433 | 28.875 |
| 12/19/00 5:18 | 860 | 74.563 | 28.877 |
| 12/19/00 5:23 | 865 | 74.679 | 28.879 |
| 12/19/00 5:28 | 870 | 74.794 | 28.873 |
| 12/19/00 5:33 | 875 | 74.924 | 28.87 |

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|---|---|---|---|
| 12/19/00 5:38 | 880 | 75.04 | 28.873 |
| 12/19/00 5:43 | 885 | 75.141 | 28.868 |
| 12/19/00 5:48 | 890 | 75.271 | 28.873 |
| 12/19/00 5:53 | 895 | 75.373 | 28.87 |
| 12/19/00 5:58 | 900 | 75.474 | 28.873 |
| 12/19/00 6:03 | 905 | 75.59 | 28.879 |
| 12/19/00 6:08 | 910 | 75.691 | 28.883 |
| 12/19/00 6:13 | 915 | 75.792 | 28.885 |
| 12/19/00 6:18 | 920 | 75.893 | 28.881 |
| 12/19/00 6:23 | 925 | 75.994 | 28.881 |
| 12/19/00 6:28 | 930 | 76.081 | 28.879 |
| 12/19/00 6:33 | 935 | 76.197 | 28.885 |
| 12/19/00 6:38 | 940 | 76.284 | 28.883 |
| 12/19/00 6:43 | 945 | 76.385 | 28.883 |
| 12/19/00 6:48 | 950 | 76.472 | 28.883 |
| 12/19/00 6:53 | 955 | 76.573 | 28.883 |
| 12/19/00 6:58 | 960 | 76.66 | 28.881 |
| 12/19/00 7:03 | 965 | 76.746 | 28.881 |
| 12/19/00 7:08 | 970 | 76.833 | 28.879 |
| 12/19/00 7:13 | 975 | 76.92 | 28.881 |
| 12/19/00 7:18 | 980 | 77.007 | 28.885 |
| 12/19/00 7:23 | 985 | 77.079 | 28.885 |
| 12/19/00 7:28 | 990 | 77.166 | 28.881 |
| 12/19/00 7:33 | 995 | 77.267 | 28.883 |
| 12/19/00 7:38 | 1000 | 77.339 | 28.883 |
| 12/19/00 7:43 | 1005 | 77.411 | 28.879 |
| 12/19/00 7:48 | 1010 | 77.484 | 28.877 |
| 12/19/00 7:53 | 1015 | 77.585 | 28.877 |
| 12/19/00 7:58 | 1020 | 77.643 | 28.877 |
| 12/19/00 8:03 | 1025 | 77.715 | 28.881 |
| 12/19/00 8:08 | 1030 | 77.787 | 28.879 |
| 12/19/00 8:13 | 1035 | 77.845 | 28.873 |
| 12/19/00 8:18 | 1040 | 77.946 | 28.868 |
| 12/19/00 8:23 | 1045 | 78.019 | 28.866 |
| 12/19/00 8:28 | 1050 | 78.077 | 28.873 |
| 12/19/00 8:33 | 1055 | 78.134 | 28.873 |
| 12/19/00 8:38 | 1060 | 78.207 | 28.875 |
| 12/19/00 8:43 | 1065 | 78.279 | 28.873 |
| 12/19/00 8:48 | 1070 | 78.337 | 28.877 |
| 12/19/00 8:53 | 1075 | 78.409 | 28.877 |
| 12/19/00 8:58 | 1080 | 78.467 | 28.885 |
| 12/19/00 9:03 | 1085 | 78.525 | 28.885 |
| 12/19/00 9:08 | 1090 | 78.583 | 28.887 |
| 12/19/00 9:13 | 1095 | 78.641 | 28.885 |
| 12/19/00 9:18 | 1100 | 78.698 | 28.885 |

| | | | |
|---|---|---|---|
| 12/19/00 9:23 | 1105 | 78.771 | 28.881 |
| 12/19/00 9:28 | 1110 | 78.828 | 28.885 |
| 12/19/00 9:33 | 1115 | 78.828 | 28.942 |

In-Situ Inc. MiniTroll Std P

Report generated: 12/19/00 15:50:29
Report from file: C:\WIN-SITU\Data\SN01452 2000-12-18 140000 Test #1.bin
DataMgr Version 3.11

Serial number: 1452
Firmware Version 1.04
Unit name: miniTROLL

Test name: MW-14C

Test defined on: 7/20/99 20:34:32
Test scheduled for: 12/18/00 14:00:00
Test started on: 12/18/00 14:00:00
Test stopped on: 12/19/00 9:40:00
Test extracted on: N/A

Data gathered using Linear testing
Time between data points: 15.0000 Minutes.
Number of data samples: 79

TOTAL DATA SAMPLES 79

Channel number [1]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSI.
Density: 1.000 g/cm3
Latitude: 45 degrees
Elevation: 0.000 meters (0.000 feet)

| Date Time | ET (min) | Chan[1] Feet H2O |
|---|---|---|
| 12/18/00 14:00 | 0 | 10.019 |
| 12/18/00 14:15 | 15 | 10.026 |
| 12/18/00 14:30 | 30 | 10.033 |
| 12/18/00 14:45 | 45 | 10.05 |
| 12/18/00 15:00 | 60 | 10.065 |
| 12/18/00 15:15 | 75 | 10.079 |
| 12/18/00 15:30 | 90 | 10.116 |
| 12/18/00 15:45 | 105 | 10.113 |

| | | |
|---|---|---|
| 12/18/00 16:00 | 120 | 10.13 |
| 12/18/00 16:15 | 135 | 10.142 |
| 12/18/00 16:30 | 150 | 10.149 |
| 12/18/00 16:45 | 165 | 10.166 |
| 12/18/00 17:00 | 180 | 10.169 |
| 12/18/00 17:15 | 195 | 10.183 |
| 12/18/00 17:30 | 210 | 10.193 |
| 12/18/00 17:45 | 225 | 10.241 |
| 12/18/00 18:00 | 240 | 10.254 |
| 12/18/00 18:15 | 255 | 10.261 |
| 12/18/00 18:30 | 270 | 10.271 |
| 12/18/00 18:45 | 285 | 10.275 |
| 12/18/00 19:00 | 300 | 10.285 |
| 12/18/00 19:15 | 315 | 10.295 |
| 12/18/00 19:30 | 330 | 10.312 |
| 12/18/00 19:45 | 345 | 10.314 |
| 12/18/00 20:00 | 360 | 10.316 |
| 12/18/00 20:15 | 375 | 10.326 |
| 12/18/00 20:30 | 390 | 10.333 |
| 12/18/00 20:45 | 405 | 10.341 |
| 12/18/00 21:00 | 420 | 10.346 |
| 12/18/00 21:15 | 435 | 10.355 |
| 12/18/00 21:30 | 450 | 10.358 |
| 12/18/00 21:45 | 465 | 10.36 |
| 12/18/00 22:00 | 480 | 10.372 |
| 12/18/00 22:15 | 495 | 10.378 |
| 12/18/00 22:30 | 510 | 10.384 |
| 12/18/00 22:45 | 525 | 10.397 |
| 12/18/00 23:00 | 540 | 10.399 |
| 12/18/00 23:15 | 555 | 10.404 |
| 12/18/00 23:30 | 570 | 10.416 |
| 12/18/00 23:45 | 585 | 10.421 |
| 12/19/00 0:00 | 600 | 10.428 |
| 12/19/00 0:15 | 615 | 10.438 |
| 12/19/00 0:30 | 630 | 10.44 |
| 12/19/00 0:45 | 645 | 10.443 |
| 12/19/00 1:00 | 660 | 10.445 |
| 12/19/00 1:15 | 675 | 10.453 |
| 12/19/00 1:30 | 690 | 10.457 |
| 12/19/00 1:45 | 705 | 10.465 |
| 12/19/00 2:00 | 720 | 10.474 |
| 12/19/00 2:15 | 735 | 10.469 |
| 12/19/00 2:30 | 750 | 10.472 |
| 12/19/00 2:45 | 765 | 10.474 |
| 12/19/00 3:00 | 780 | 10.479 |

| | | |
|---|---|---|
| 12/19/00 3:15 | 795 | 10.477 |
| 12/19/00 3:30 | 810 | 10.482 |
| 12/19/00 3:45 | 825 | 10.486 |
| 12/19/00 4:00 | 840 | 10.489 |
| 12/19/00 4:15 | 855 | 10.491 |
| 12/19/00 4:30 | 870 | 10.494 |
| 12/19/00 4:45 | 885 | 10.489 |
| 12/19/00 5:00 | 900 | 10.499 |
| 12/19/00 5:15 | 915 | 10.501 |
| 12/19/00 5:30 | 930 | 10.496 |
| 12/19/00 5:45 | 945 | 10.503 |
| 12/19/00 6:00 | 960 | 10.499 |
| 12/19/00 6:15 | 975 | 10.503 |
| 12/19/00 6:30 | 990 | 10.499 |
| 12/19/00 6:45 | 1005 | 10.503 |
| 12/19/00 7:00 | 1020 | 10.501 |
| 12/19/00 7:15 | 1035 | 10.499 |
| 12/19/00 7:30 | 1050 | 10.501 |
| 12/19/00 7:45 | 1065 | 10.503 |
| 12/19/00 8:00 | 1080 | 10.496 |
| 12/19/00 8:15 | 1095 | 10.504 |
| 12/19/00 8:30 | 1110 | 10.504 |
| 12/19/00 8:45 | 1125 | 10.501 |
| 12/19/00 9:00 | 1140 | 10.496 |
| 12/19/00 9:15 | 1155 | 10.497 |
| 12/19/00 9:30 | 1170 | 10.504 |

In-Situ Inc. MiniTroll Std P

Report generated: 12/19/00 15:44:02
Report from file: øŒû¿öök
DataMgr Version 3.11

Serial number: 1486
Firmware Version 1.04
Unit name: miniTROLL

Test name: OS-3C

Test defined on: 12/18/00 13:32:12
Test scheduled for: 12/18/00 14:00:00
Test started on: 12/18/00 14:00:00
Test stopped on: 12/19/00 10:12:02
Test extracted on: N/A

Data gathered using Linear testing
Time between data points: 15.0000 Minutes.
Number of data samples: 81

TOTAL DATA SAMPLES 81

Channel number [1]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSI.
Density: 1.000 g/cm3
Latitude: 45 degrees
Elevation: 0.000 meters (0.000 feet)

| Date Time | ET (min) | Chan[1] Feet H2O |
|---|---|---|
| 12/18/00 14:00 | 0 | 7.948 |
| 12/18/00 14:15 | 15 | 7.942 |
| 12/18/00 14:30 | 30 | 7.949 |
| 12/18/00 14:45 | 45 | 7.947 |
| 12/18/00 15:00 | 60 | 7.962 |
| 12/18/00 15:15 | 75 | 7.946 |
| 12/18/00 15:30 | 90 | 7.949 |
| 12/18/00 15:45 | 105 | 7.951 |

| | | |
|---|---|---|
| 12/18/00 16:00 | 120 | 7.951 |
| 12/18/00 16:15 | 135 | 7.946 |
| 12/18/00 16:30 | 150 | 7.949 |
| 12/18/00 16:45 | 165 | 7.949 |
| 12/18/00 17:00 | 180 | 7.944 |
| 12/18/00 17:15 | 195 | 7.949 |
| 12/18/00 17:30 | 210 | 7.951 |
| 12/18/00 17:45 | 225 | 7.949 |
| 12/18/00 18:00 | 240 | 7.944 |
| 12/18/00 18:15 | 255 | 7.949 |
| 12/18/00 18:30 | 270 | 7.954 |
| 12/18/00 18:45 | 285 | 7.944 |
| 12/18/00 19:00 | 300 | 7.951 |
| 12/18/00 19:15 | 315 | 7.946 |
| 12/18/00 19:30 | 330 | 7.954 |
| 12/18/00 19:45 | 345 | 7.954 |
| 12/18/00 20:00 | 360 | 7.959 |
| 12/18/00 20:15 | 375 | 7.957 |
| 12/18/00 20:30 | 390 | 7.957 |
| 12/18/00 20:45 | 405 | 7.962 |
| 12/18/00 21:00 | 420 | 7.959 |
| 12/18/00 21:15 | 435 | 7.967 |
| 12/18/00 21:30 | 450 | 7.962 |
| 12/18/00 21:45 | 465 | 7.967 |
| 12/18/00 22:00 | 480 | 7.979 |
| 12/18/00 22:15 | 495 | 7.967 |
| 12/18/00 22:30 | 510 | 7.971 |
| 12/18/00 22:45 | 525 | 7.971 |
| 12/18/00 23:00 | 540 | 7.976 |
| 12/18/00 23:15 | 555 | 7.984 |
| 12/18/00 23:30 | 570 | 7.984 |
| 12/18/00 23:45 | 585 | 7.984 |
| 12/19/00 0:00 | 600 | 7.986 |
| 12/19/00 0:15 | 615 | 7.987 |
| 12/19/00 0:30 | 630 | 7.986 |
| 12/19/00 0:45 | 645 | 7.991 |
| 12/19/00 1:00 | 660 | 7.989 |
| 12/19/00 1:15 | 675 | 7.992 |
| 12/19/00 1:30 | 690 | 7.997 |
| 12/19/00 1:45 | 705 | 7.999 |
| 12/19/00 2:00 | 720 | 7.999 |
| 12/19/00 2:15 | 735 | 7.999 |
| 12/19/00 2:30 | 750 | 7.997 |
| 12/19/00 2:45 | 765 | 7.999 |
| 12/19/00 3:00 | 780 | 7.999 |

| | | |
|---|---|---|
| 12/19/00 3:15 | 795 | 8.004 |
| 12/19/00 3:30 | 810 | 8.004 |
| 12/19/00 3:45 | 825 | 8.002 |
| 12/19/00 4:00 | 840 | 8.012 |
| 12/19/00 4:15 | 855 | 8.007 |
| 12/19/00 4:30 | 870 | 8.004 |
| 12/19/00 4:45 | 885 | 8.004 |
| 12/19/00 5:00 | 900 | 7.999 |
| 12/19/00 5:15 | 915 | 8.009 |
| 12/19/00 5:30 | 930 | 8.007 |
| 12/19/00 5:45 | 945 | 8.002 |
| 12/19/00 6:00 | 960 | 8.002 |
| 12/19/00 6:15 | 975 | 7.997 |
| 12/19/00 6:30 | 990 | 7.999 |
| 12/19/00 6:45 | 1005 | 7.999 |
| 12/19/00 7:00 | 1020 | 8.007 |
| 12/19/00 7:15 | 1035 | 8.009 |
| 12/19/00 7:30 | 1050 | 7.999 |
| 12/19/00 7:45 | 1065 | 8.002 |
| 12/19/00 8:00 | 1080 | 8.007 |
| 12/19/00 8:15 | 1095 | 7.999 |
| 12/19/00 8:30 | 1110 | 7.999 |
| 12/19/00 8:45 | 1125 | 8.007 |
| 12/19/00 9:00 | 1140 | 7.999 |
| 12/19/00 9:15 | 1155 | 7.999 |
| 12/19/00 9:30 | 1170 | 8.002 |
| 12/19/00 9:45 | 1185 | 7.997 |
| 12/19/00 10:00 | 1200 | 8.002 |

CUMMINGS RITER CONSULTANTS, INC.

# WATER LEVELS

PROJECT NAME: Viacom - Sharon
GEOLOGIST/ENGINEER: CLN / MAL
WELL NO.: OS-3C
TEST WELL: MW-11B

PROJECT NO.: 93111.60/06
TEST DATE: 12/18/00 - 12/19/00
TEST START TIME: 14:00 on 12/18
PAGE 1 OF 1

| TIME | WATER LEVEL (TOR) | DRAWDOWN (FEET) | TIME | WATER LEVEL (TOR) | DRAWDOWN (FEET) |
|---|---|---|---|---|---|
| 14:00 | 17.35 | - | | | |
| 15:05 | 17.44 | | | | |
| 15:59 | 17.43 | | | | |
| 16:58 | 17.44 | | | | |
| 10:05 | 17.45 | | | | |

AR302866

f23/corp

CUMMINGS RITER CONSULTANTS, INC.

# WATER LEVELS

**PROJECT NAME:** Viacom - Sharon
**GEOLOGIST/ENGINEER:** CLN / MAL
**WELL NO.:** MW-14C
**TEST WELL:** MW-11B

**PROJECT NO.:** 93111.60/06
**TEST DATE:** 12/18/00 - 12/19/00
**TEST START TIME:** 14:00 on 12/18
**PAGE** 1 OF 1

| TIME | WATER LEVEL (TOR) | DRAWDOWN (FEET) | TIME | WATER LEVEL (TOR) | DRAWDOWN (FEET) |
|---|---|---|---|---|---|
| 14:00 | 15.44 | - | | | |
| 15:00 | 15.33 | | | | |
| 16:04 | 15.29 | | | | |
| 17:01 | 15.25 | | | | |
| 18:10 | 15.21 | | | | |
| 10:55 | 15.09 | | | | |

AR302867

f23/corp

CUMMINGS RITER CONSULTANTS, INC.

# WATER LEVELS

**PROJECT NAME:** Viacom - Sharon
**GEOLOGIST/ENGINEER:** CLN / MAL
**WELL NO.:** MW-11B
**TEST WELL:** MW-11B

**PROJECT NO.:** 93111.60/06
**TEST DATE:** 12/18/00 - 12/19/00
**TEST START TIME:** 14:00 on 12/18
**PAGE** 1 OF 1

| TIME | WATER LEVEL (TOR) | DRAWDOWN (FEET) | TIME | WATER LEVEL (TOR) | DRAWDOWN (FEET) |
|---|---|---|---|---|---|
| 14:00 | 14.84 | — | | | |
| 14:54 | 55.15 | | | | |
| 15:55 | 74.92 | | | | |
| 16:53 | 79.02 | | | | |
| 18:02 | 79.98 | | | | |
| 10:45 | 26.29 | | | | |

AR302868

f23/corp

CUMMINGS RITER CONSULTANTS, INC.

# WATER SAMPLE COLLECTION REPORT

PROJECT: Viacom - Sharon
SAMPLE ID: MW-11B
PROJECT NO.: 95111.60/06
WELL NO.: MW-11B
SAMPLE DATE: 12/18/00
SAMPLED BY: CLN/MAL
SAMPLE TIME (START/END): 14/30
SAMPLE SEQUENCE NO.:
SAMPLE COLLECTION EQUIPMENT: New Polyethelene Tubing, Grunfos Redi-flo2 pump
DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT): 14.84' /
RECHARGE TIME:
MEASURED FROM ☐ TOC ☒ TOR ☐ GS

| FIELD MEASUREMENTS | | |
|---|---|---|
| pH | Standard Units | 8.29 |
| Specific Conductance | umho/cm | 875.7 |
| Water Temperature | °C | 7.1 |
| Dissolved Oxygen | ppm | — |
| Redox | mV | — |
| Turbidity | NTU | — |

METER CALIBRATION PERFORMED? N ☐ Y ☒ DATE 12/11/00
WATER APPEARANCE, IMMISCIBLE PHASES OR ODORS: Turbid, gray
SAMPLING FLOW RATE: <.25 gallon/minute

## SAMPLE TYPES COLLECTED

| PARAMETER | VOLUME | # CONTAINERS | FIELD FILTERED? | PRESERVED? |
|---|---|---|---|---|
| PCB | 250ml | 2 | Y ☐ N ☒ | Y ☒ $Na_2SO_3$ N ☐ |
| SVOC | 250ml | 2 | Y ☐ N ☒ | Y ☒ $Na_2SO_3$ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |

NUMBER OF CONTAINERS: 4
FILTRATION METHOD: No Filtration
LABORATORY: Lancaster
DELIVERED VIA: Fedex
DATE: 12/19/00
WEATHER CONDITIONS: Sunny, 32°F
COMMENTS: Hard time keeping flow rate the same

AR302869

f21/corp

# ATTACHMENT D

CUMMINGS RITER CONSULTANTS, INC.

# WELL PURGING RECORD
# LOW-FLOW SAMPLING METHOD

| | | | |
|---|---|---|---|
| **SITE:** | Viacom-Sharon | **TUBING DIAMETER:** | 3/8" inches |
| **PROJECT NO.:** | 93111.60/06 | **DEPTH TO WATER:** | 16.45 ft TOR |
| **SAMPLING DEVICE:** | Low flow bladder pump | **DEPTH TO PUMP:** | 105' ft TOR |
| **DATE:** | 12/29/00 | **FEET OF WATER IN LINE:** | feet |
| **WELL I.D.:** | MW-11B | **VOLUME OF WATER IN LINE:** | gallons |

**(0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for ¼" tubing)**

| ELAPSED TIME (min) | DEPTH TO WATER (ft TOR) | pH (s.u.) | SPECIFIC CONDUCTANCE (ms/cm) | TEMPERATURE ~~(°F)~~ °C | DISSOLVED OXYGEN (ppm) | TURBIDITY (NTU) | REDOX (mV) |
|---|---|---|---|---|---|---|---|
| 0 | 18.77 | 7.79 | 65.2 | 10.21 | 3.19 | over limit | 141 |
| 5 | 21.41 | 8.51 | 64.5 | 11.00 | 1.23 | " | 102 |
| 10 | 23.06 | 8.57 | 62.7 | 11.56 | 0.93 | " | 81 |
| 15 | 25.01 | 8.54 | 61.8 | 11.29 | 0.81 | " | 58 |
| 20 | 26.68 | 8.59 | 61.2 | 11.25 | 0.71 | " | 32 |
| 25 | 27.99 | 8.60 | 61.6 | 11.28 | 0.72 | 734 | 19 |
| 30 | 29.36 | 8.59 | 60.4 | 11.57 | 0.71 | 652 | 6 |
| 35 | 30.73 | 8.64 | 60.0 | 11.76 | 0.64 | 700 | -11 |
| 40 | 32.35 | 8.63 | 59.8 | 11.71 | 0.62 | 702 | -24 |
| 45 | 33.09 | 8.71 | 59.6 | 11.27 | 0.57 | 815 | -38 |
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**PURGE START TIME:** 10:15 **PURGE END TIME:** 11:00 **TOTAL VOLUME PURGED:** ~ 3.0 gal

**APPROXIMATE PURGE RATE:** 250 ml/min **PURGED/SAMPLED BY:** MAL/CLN

**WEATHER CONDITIONS:** Cold / overcast

**COMMENTS:**

AR302872

f52/corp

CUMMINGS RITER CONSULTANTS, INC.

# WATER SAMPLE COLLECTION REPORT

ROJECT Viacom - Sharon
ROJECT NO. 93111.60 / 06
AMPLE DATE 12 / 29 / 00
AMPLE TIME (START/END) 11:05 /
AMPLE COLLECTION EQUIPMENT QED Low Flow bladder pump
)EPTH TO WATER PRIOR TO PURGING/SAMPLING (FT) 16.45' / 33.09
ECHARGE TIME 5 min

SAMPLE ID MW-11B
WELL NO. MW-11B
SAMPLED BY MAL / CLN
SAMPLE SEQUENCE NO. 11 F
MEASURED FROM ☐ TOC ☒ TOR ☐ GS

| FIELD MEASUREMENTS | | |
|---|---|---|
| pH | Standard Units | 8.71 |
| Specific Conductance | umho/cm | 59.6 |
| Water Temperature | °C | 11.27 |
| Dissolved Oxygen | ppm | 0.57 |
| Redox | mV | -38 |
| Turbidity | NTU | 815 |

METER CALIBRATION PERFORMED? N ☐ Y ☑ DATE 12/29/00
WATER APPEARANCE, IMMISCIBLE PHASES OR ODORS: Cloudy / Turbid
SAMPLING FLOW RATE: 150 ml/min

## SAMPLE TYPES COLLECTED

| PARAMETER | VOLUME | # CONTAINERS | FIELD FILTERED? | PRESERVED? |
|---|---|---|---|---|
| PCB's | 1000mL | 2 | Y ☐ N ☑ | Y ☑ HNO3 N ☐ |
| SVOC's (8270) | 1000mL | 2 | Y ☐ N ☑ | Y ☑ HNO3 N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |

NUMBER OF CONTAINERS 4 FILTRATION METHOD —
LABORATORY Lancaster Fil DELIVERED VIA Fed Ex DATE 12/29/00
WEATHER CONDITIONS Cold / overcast
COMMENTS

AR302873

f21/corp

CUMMINGS RITER CONSULTANTS, INC.

# WELL PURGING RECORD
# LOW-FLOW SAMPLING METHOD

| | | | |
|---|---|---|---|
| SITE: | Vinson / Shamrock | TUBING DIAMETER: | 3/8 inches |
| PROJECT NO.: | 93111.60 / 06 | DEPTH TO WATER: | 12.59 ft TOR |
| SAMPLING DEVICE: | Geo Screen Pump | DEPTH TO PUMP: | 102.00 ft TOR |
| DATE: | 12/29/00 | FEET OF WATER IN LINE: | feet |
| WELL I.D.: | MW-14C | VOLUME OF WATER IN LINE: | gallons |

(0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for ¼" tubing)

| ELAPSED TIME (min) | DEPTH TO WATER (ft TOR) | pH (s.u.) | SPECIFIC CONDUCTANCE ( / ) | TEMPERATURE (°F) C | DISSOLVED OXYGEN (ppm) | TURBIDITY (NTU) | REDOX (mV) |
|---|---|---|---|---|---|---|---|
| 0 | 14.17 | 8.20 | 94.9 | 11.31 | 7.10 | over limit | 53 |
| 5 | 16.44 | 8.12 | 97.6 | 12.92 | 2.18 | 11 | 40 |
| 10 | 18.57 | 8.13 | 95.6 | 12.57 | 1.28 | 11 | 33 |
| 15 | 21.19 | 8.15 | 95.2 | 13.03 | 0.98 | 11 | 26 |
| 20 | 23.25 | 8.15 | 94.3 | 13.06 | 0.66 | 11 | 20 |
| 25 | 25.31 | 8.18 | 92.5 | 12.89 | 0.68 | 11 | 14 |
| 30 | 27.25 | 8.18 | 88.6 | 12.68 | 0.79 | 11 | 7 |
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PURGE START TIME: 11:35 PURGE END TIME: 12:05 TOTAL VOLUME PURGED: ~ 3.0 gal

APPROXIMATE PURGE RATE: 300 ml/min PURGED/SAMPLED BY: MAL / CLN

WEATHER CONDITIONS: COLD / OVERCAST

COMMENTS:

f52/corp

AR302874

CUMMINGS RITER CONSULTANTS, INC.

# WATER SAMPLE COLLECTION REPORT

| | | | |
|---|---|---|---|
| PROJECT | SHARON | SAMPLE ID | MW-14-C / DUP 1 |
| PROJECT NO. | 93111 | WELL NO. | MW-14-C |
| SAMPLE DATE | 12 / 29 / 00 | SAMPLED BY | MAC / ECN |
| SAMPLE TIME (START/END) | 12:10 / 12:25 | SAMPLE SEQUENCE NO. | 2 |
| SAMPLE COLLECTION EQUIPMENT | DEDICATED BLADDER PUMP | | |
| DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT) | 12.59 | / | 27.25 |
| RECHARGE TIME | | MEASURED FROM | ☐ TOC ☑ TOR ☐ GS |

| FIELD MEASUREMENTS | | |
|---|---|---|
| pH | Standard Units | 8.18 |
| Specific Conductance | umho/cm | 88.6 |
| Water Temperature | °C | 12.68 |
| Dissolved Oxygen | ppm | 0.79 |
| Redox | mV | 7 |
| Turbidity | NTU | OVER LIMIT |

METER CALIBRATION PERFORMED? N ☐ Y ☑ DATE 12/29/00

WATER APPEARANCE, IMMISCIBLE PHASES OR ODORS: TURBID / GRAY COLOR

SAMPLING FLOW RATE: 150 ml/min

## SAMPLE TYPES COLLECTED

| PARAMETER | VOLUME | # CONTAINERS | FIELD FILTERED? | PRESERVED? |
|---|---|---|---|---|
| VOCs (8260) | 40 ml | 6 | Y ☐ N ☑ | Y ☑ HCl N ☐ |
| SVOCs (8270) | 1000 L | 4 | Y ☐ N ☑ | Y ☐ NaOH N ☐ |
| PESTICIDES/PCBs | 1000 L | 4 | Y ☐ N ☑ | Y ☐ NaOH N ☐ |
| TOTAL METALS | 500 ml | 2 | Y ☐ N ☑ | Y ☑ HNO3 N ☐ |
| CYANIDE | 500 ml | 2 | Y ☐ N ☑ | Y ☑ ASCORBIC ACID / NAOH N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ____ N ☐ |

NUMBER OF CONTAINERS 18 FILTRATION METHOD —

LABORATORY LANCASTER DELIVERED VIA FED-EX DATE 12/29/00

WEATHER CONDITIONS COLD / OVERCAST

COMMENTS DUPLICATE 1ST COLLECTED ON THIS SAMPLE

CUMMINGS RITER CONSULTANTS, INC.

# WELL PURGING RECORD
# LOW-FLOW SAMPLING METHOD

| | | | |
|---|---|---|---|
| **SITE:** | SWANSON | **TUBING DIAMETER:** | 3/8 inches |
| **PROJECT NO.:** | 93111 | **DEPTH TO WATER:** | 17.43 ft TOR |
| **SAMPLING DEVICE:** | QED BLADDER PUMP | **DEPTH TO PUMP:** | 85.00 ft TOR |
| **DATE:** | 12/29/00 | **FEET OF WATER IN LINE:** | feet |
| **WELL I.D.:** | 05-3C | **VOLUME OF WATER IN LINE:** | gallons |

**(0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for ¼" tubing)**

| ELAPSED TIME (min) | DEPTH TO WATER (ft TOR) | pH (s.u.) | SPECIFIC CONDUCTANCE ( / ) | TEMPERATURE ~~(°F)~~ °C | DISSOLVED OXYGEN (ppm) | TURBIDITY (NTU) | REDOX (mV) |
|---|---|---|---|---|---|---|---|
| 0 | 18.37 | 8.37 | 35.9 | 10.42 | 7.94 | 60.5 | 54 |
| 5 | 18.98 | 8.24 | 35.3 | 11.24 | 2.40 | 127 | 58 |
| 10 | 19.82 | 8.30 | 34.6 | 11.23 | 1.53 | 137 | 30 |
| 15 | 20.27 | 8.27 | 34.1 | 11.13 | 0.97 | 212 | 5 |
| 20 | 20.45 | 8.29 | 34.1 | 11.19 | 0.91 | 211 | -5 |
| 25 | 20.78 | 8.34 | 33.9 | 11.33 | 0.81 | 217 | -12 |
| 30 | 21.02 | 8.34 | 34.0 | 10.82 | 0.80 | 319 | -25 |
| 35 | 21.13 | 8.30 | 33.7 | 11.37 | 0.75 | 323 | -30 |
| 40 | 21.20 | 8.34 | 33.3 | 11.13 | 0.72 | 342 | -32 |
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**PURGE START TIME:** 13:05 **PURGE END TIME:** 13:45 **TOTAL VOLUME PURGED:** ~3.0 gal

**APPROXIMATE PURGE RATE:** 350 ml/min **PURGED/SAMPLED BY:** MAL

**WEATHER CONDITIONS:** COLD / OVERCAST

**COMMENTS:**

CUMMINGS RITER CONSULTANTS, INC.

# WATER SAMPLE COLLECTION REPORT

PROJECT: Sharon | SAMPLE ID: 05-3C / MS-1/MSD
PROJECT NO.: 93111 | WELL NO.: 05-3C
SAMPLE DATE: 12/29/00 | SAMPLED BY: MAL
SAMPLE TIME (START/END): 13:50 | SAMPLE SEQUENCE NO.: 3
SAMPLE COLLECTION EQUIPMENT: Dedicated Bladder Pump
DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT): 17.43 / 21.20
RECHARGE TIME: 5 min | MEASURED FROM ☐ TOC ☑ TOR ☐ GS

| FIELD MEASUREMENTS | | |
|---|---|---|
| pH | Standard Units | 8.34 |
| Specific Conductance | umho/cm | 33.3 |
| Water Temperature | °C | 11.13 |
| Dissolved Oxygen | ppm | 0.72 |
| Redox | mV | -32 |
| Turbidity | NTU | 342 |

METER CALIBRATION PERFORMED? N ☐ Y ☑ DATE: 12/29/00
WATER APPEARANCE, IMMISCIBLE PHASES OR ODORS: Clear
SAMPLING FLOW RATE: 100 mL/min

## SAMPLE TYPES COLLECTED

| PARAMETER | VOLUME | # CONTAINERS | FIELD FILTERED? | PRESERVED? |
|---|---|---|---|---|
| VOC's | 40mL | 9 | Y ☐ N ☑ | Y ☑ HCl N ☐ |
| SVOC's | 1000mL | 6 | Y ☐ N ☑ | Y ☑ $NaS_2O_4$ N ☐ |
| PCB's/PESTICIDES | 1000 mL | 6 | Y ☐ N ☑ | Y ☑ $NaS_2O_4$ N ☐ |
| TOTAL METALS | 500mL | 3 | Y ☐ N ☑ | Y ☑ $HNO_3$ N ☐ |
| CYANIDE | 500mL | 3 | Y ☐ N ☑ | Y ☑ NaOH → Ascorbic Acid N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ___ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ___ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ___ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ___ N ☐ |
| | | | Y ☐ N ☐ | Y ☐ ___ N ☐ |

NUMBER OF CONTAINERS: 27 | FILTRATION METHOD: —
LABORATORY: Lancaster | DELIVERED VIA: Fed-Ex | DATE: 12/29/00
WEATHER CONDITIONS: Cold / overcast
COMMENTS: MS/MSD collected on this sample

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CUMMINGS RITER CONSULTANTS, INC.

**WELL INSTALLATION FORM**
**WELL NO.** MW-14C

PROJECT NAME Viacom - Sharon
PROJECT NO. 93111.60.106 FIELD ENG./GEO CLN DATE 11/21/00
BORING NO. MW-14C CHECKED BY DATE
DATE OF INSTALLATION 11/21/00 DATE OF DEVELOPMENT

***BOREHOLE DRILLING***

| | |
|---|---|
| DRILLING METHOD HSA, Air-rotary | TYPE OF BIT Auger Bit, Tri-cone roller bit |
| DRILLING FLUID(S) USED | CASING SIZE(S) USED: |
| FLUID ____ FROM ____ TO ____ | SIZE 10.0" Steel FROM 0 TO 43.0' |
| FLUID ____ FROM ____ TO ____ | SIZE 6.0" Steel FROM 0 TO 73.5' |

***WELL DESCRIPTION***

| | |
|---|---|
| Type Groundwater Monitoring | Riser Pipe Material Schedule 40 PVC |
| Diameter of Screened Section 2.0" ID | Riser Pipe Diameters: |
| Perforation Type: | O.D. ____ I.D. 2.0" |
| Slots ☒ Screen ☐ | Length of Pipe Sections 10.0' |
| Average Size of Openings 0.02" (No. 20) | Joining Method Flush threaded w/ rubber O-ring |
| Screen Manufacturer Not marked | |

***PROTECTION SYSTEM***

| | |
|---|---|
| Riser Protective Pipe Length 2'x2'x2' steel road box | Other Protection Concrete pad |
| Protective Pipe O.D. | |

| ITEM | DISTANCE ABOVE/BELOW GROUND SURFACE (FT) | |
|---|---|---|
| Top of Protective Pipe | | |
| Top of Riser Pipe | 0.0' | |
| Bottom of Protective Pipe | 2.0' | |
| Borehole Fill Materials: #1 Sand, bentonite pellets, cement-bentonite grout | | |
| Grout/Slurry - cement-bentonite | Top 0 | Bottom 75.0' |
| Bentonite - pellets | Top 75.0' | Bottom 81.5' |
| Fine Sand | Top | Bottom |
| Coarse Sand #1 | Top 81.5' | Bottom 107.5 |
| Screened Section | Top 87.0' | Bottom 107.0' |
| Piezometer/Well Tip | 107.5' to 107.0' | |
| Bottom of Borehole | 110.0' collapsed to 107.5' | |
| GWL After Installation | | |

Was the piezometer/well developed after installation? Yes ☒ No ☐
Was a sensitivity test performed? Yes ☒ No ☐

Remarks: Two stainless steel centralizers were installed at the top and bottom of the screen: 107.0' and 87.0'

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CUMMINGS RITER CONSULTANTS, INC.

**WELL INSTALLATION FORM**
**WELL NO.** OS-3C

PROJECT NAME Viacom-Sharon
PROJECT NO. 93111.60/06 FIELD ENG./GEO CLN DATE 12/5/00
BORING NO. OS-3C CHECKED BY DATE
DATE OF INSTALLATION 12/5/00 DATE OF DEVELOPMENT 12/6/00

***BOREHOLE DRILLING***

| | |
|---|---|
| DRILLING METHOD HSA, Air-rotary | TYPE OF BIT Auger Bit, Tri-cone roller bit |
| DRILLING FLUID(S) USED | CASING SIZE(S) USED: |
| FLUID ____ FROM ____ TO ____ | SIZE 10.0" Steel FROM 0 TO 30.0' |
| FLUID ____ FROM ____ TO ____ | SIZE 6.0" Steel FROM 0 TO 61.0' |

***WELL DESCRIPTION***

| | |
|---|---|
| Type Groundwater Monitoring | Riser Pipe Material Schedule 40 PVC |
| Diameter of Screened Section 2.0" I.D. | Riser Pipe Diameters: |
| Perforation Type: | O.D. ____ I.D. 2.0" |
| Slots ☒ Screen ☐ | Length of Pipe Sections 10.0' |
| Average Size of Openings 0.02" (No. 20) | Joining Method Flush threaded w/ rubber O-ring |
| Screen Manufacturer Not Marked | |

***PROTECTION SYSTEM***

| | |
|---|---|
| Riser Protective Pipe Length 2'x2'x2' steel | Other Protection Concrete pad |
| Protective Pipe O.D. road box | |

| ITEM | DISTANCE ABOVE/BELOW GROUND SURFACE (FT) | |
|---|---|---|
| Top of Protective Pipe | 0.0' | |
| Top of Riser Pipe | 0.2' | |
| Bottom of Protective Pipe | 2.0' | |
| Borehole Fill Materials: #1 Sand, bentonite pellets, cement-bentonite grout | | |
| Grout/Slurry: cement-bentonite | Top 0 | Bottom 57.0 |
| Bentonite | Top 57.0 | Bottom 63 |
| Fine Sand | Top | Bottom |
| Coarse Sand | Top 63.0 | Bottom 90.5 |
| Screened Section | Top 70.0 | Bottom 90.0 |
| Piezometer/Well Tip | 90.0 to 90.5 | |
| Bottom of Borehole | 90.5 | |
| GWL After Installation | | |

Was the piezometer/well developed after installation? Yes ☒ No ☐

Was a sensitivity test performed? Yes ☒ No ☐

Remarks: Two stainless steel centralizers were installed at the top and bottom of the screen: 90.0' and 70.0'

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