

Groundwater Monitoring and Progress Report March 2005 Sampling Event

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

Prepared for:

Sierra Pacific Industries

April 27, 2005

Project No. 9329.000, Task 28

Geomatrix Consultants

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April 27, 2005 Project 9329.000, Task 28

Executive Officer California Regional Water Quality Control Board North Coast Region 5550 Skylane Boulevard, Suite A Santa Rosa, California 95403

Attention: Dean Prat

Subject: Groundwater Monitoring and Progress Report March 2005 Sampling Event Sierra Pacific Industries Arcata Division Sawmill Arcata, California

Dear Mr. Prat:

As requested by Sierra Pacific Industries, we have enclosed a copy of the subject report.

Sincerely yours, GEOMATRIX CONSULTANTS, INC.

Kon A. Steensu

Ross Steenson, PG, CHG Senior Hydrogeologist

Edward P. Conti, CEG, CHG Principal Geologist

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Enclosure

cc: Bob Ellery, Sierra Pacific Industries (with enclosure)
 Gordie Amos, Sierra Pacific Industries (with enclosure)
 Fred Evenson, Law Offices of Frederic Evenson (with enclosure)
 Jim Lamport, Ecological Rights Foundation (with enclosure)



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Prepared by:

Geomatrix Consultants, Inc. 2101 Webster Street, 12th Floor Oakland, California 94612 (510) 663-4100

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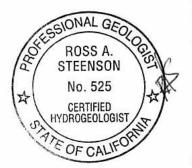
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PROFESSIONAL CERTIFICATION

GROUNDWATER MONITORING AND PROGRESS REPORT MARCH 2005 SAMPLING EVENT Sierra Pacific Industries Arcata Division Sawmill Arcata, California

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This report was prepared by Geomatrix Consultants, Inc., under the professional supervision of Ross A. Steenson. The findings, recommendations, specifications and/or professional opinions presented in this report were prepared in accordance with generally accepted professional hydrogeologic practice, and within the scope of the project. There is no other warranty, either express or implied.



Ross A. Steenson, PG, CHG Senior Hydrogeologist



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GROUNDWATER MONITORING AND PROGRESS REPORT MARCH 2005 SAMPLING EVENT

Sierra Pacific Industries Arcata Division Sawmill 2593 New Navy Base Road Arcata, California

1.0 INTRODUCTION

This report presents the methods and results of the March 2005 groundwater monitoring event and a progress report for remediation pilot study activities also performed during March 2005 at the Sierra Pacific Industries (SPI) Arcata Division Sawmill located in Arcata, California (the site, Figure 1). The groundwater monitoring event was performed in accordance with Monitoring and Reporting Program (MRP) No. R1-2003-0127, which was revised and reissued by the California Regional Water Quality Control Board, North Coast Region (RWQCB) on March 4, 2005. This revised MRP requires semi-annual or annual sampling of selected groundwater monitoring wells and semi-annual reporting.

The progress report for remediation pilot study activities was prepared in accordance with the *Pilot Study Work Plan for Implementation of Proposed Remedial Action* (Geomatrix, 2004b).

Geomatrix Consultants, Inc., (Geomatrix), has prepared this report on behalf of SPI to provide the status of groundwater monitoring performed under the MRP and remediation pilot study activities conducted at the site.

This report is organized as follows: Background, including a discussion of site history, subsurface lithology, and hydrogeology (Section 2.0); March 2005 Groundwater Monitoring Report methods and results (Section 3.0); Progress Report for remediation pilot study activities and results (Section 4.0); Wastewater Disposal (Section 5.0); Schedule for Future Activities (Section 6.0); and References (Section 7.0).

2.0 SITE BACKGROUND

This section provides background information regarding the site setting and history and discusses subsurface conditions at the site, including lithology and hydrogeology. Subsurface lithologic and hydrogeologic conditions at the site were previously investigated and described by EnviroNet (EnviroNet, 2002a).



2.1 HISTORY

The approximately 68-acre site is located on the Samoa Peninsula, along the northern shoreline of Humboldt Bay and approximately 4 miles west of the town of Arcata, California. The site is bounded to the east by the Mad River Slough, to the northwest by an old railroad grade, and to the south by New Navy Base Road and mud flats of Humboldt Bay (Figure 1).

The site is currently an active sawmill; features are shown on Figure 2. The sawmill has operated at the site since approximately 1950. Prior to construction of the mill facilities, the site consisted of undeveloped sand dunes and mud flats. During construction of mill facilities in the 1950s and 1960s, portions of the Mad River Slough on the eastern, northern, and southern sides of the site were filled. The current mill facility consists of an administrative building, a main sawmill building, numerous wood-processing buildings, log storage areas, milled lumber storage areas, and loading/unloading areas. A 140-foot-deep water supply well (Feature 48 on Figure 2) provides water for log sprinkling. An older, shallow water supply well is located adjacent to the 140-foot well, but has not been used since it began to produce sand.

Wood surface protection activities historically conducted at the site included the use of an antistain solution containing chlorinated phenols, including pentachlorophenol (PCP) and tetrachlorophenol, to control sap stain and mold on a small amount of milled lumber. The antistain solution was applied in an above ground dip tank located in the middle of the former green chain, which was located immediately south of the eastern end of the current sorter building (Feature 49 on Figure 2). Use of the solution containing chlorinated phenols in the former green chain area of the site reportedly commenced in the early to mid-1960s and was discontinued in 1985 (EnviroNet, 2002b). At the direction of the RWQCB, SPI stopped purchasing anti-stain solution containing chlorinated phenols in 1985 and commenced a process of relocating the remaining solution containing chlorinated phenols to a new dip tank facility for recycling (MFG, 2003). Due to the difficulty of disposing of the old solution containing chlorinated phenols, the remaining solution from the old dip tank was mixed with a new anti-stain solution that did not contain chlorinated phenols at the new dip tank facility (Feature 21 on Figure 2). Recycling of the solution containing chlorinated phenols in the new dip tank continued until 1987, at which time the drip basin adjacent to the old dip tank was cleaned out, filled with sand, and capped with 3 to 4 inches of concrete (MFG, 2003). The new dip tank has been cleaned three times since 1987.



The potential effects of wood surface protection activities on soil and groundwater have been investigated to depths of approximately 20 feet below ground surface (bgs). In 2002, investigation activities included the installation of 19 monitoring wells at the site: 15 monitoring wells (MW-1 through MW-12, MW-14, MW-17, and MW-18) were constructed to monitor shallow groundwater between depths of approximately 2 and 8 feet bgs, and four monitoring wells (MW-13D, MW-15D, MW-16D, and MW-19D) were constructed to monitor deeper groundwater between depths of approximately 15 and 20 feet bgs (EnviroNet, 2003). Two additional monitoring wells (MW-20 and MW-21) were installed in January and February 2004 to monitor shallow groundwater (Geomatrix, 2004a). Monitoring well locations are illustrated on Figure 3. Monitoring well construction details are included in Table 1.

2.2 LITHOLOGY

The site is located adjacent to the Mad River Slough near the northern shoreline of Humboldt Bay. The eastern, northern, and southern portions of the site were filled in the 1950s and 1960s.

Based on observations made during investigation activities at the site, subsurface lithology within the shallow zone (less than 8 feet bgs) is predominantly fine- to medium-grained sand of apparent sand dune origin. Wood and fill material was locally observed in this shallow zone during activities such as the installation of monitoring wells MW-13D and MW-15D. Soil beneath the fine- to medium-grained sand consisted of more sand and locally of fine-grained material, classified as "bay mud." The fine-grained material was encountered during the installation of monitoring wells MW-3, MW-10, MW-15D, MW-16D, and MW-17 at depths of approximately 6 to 8 feet bgs and during the installation of monitoring well MW-15 at a depth of approximately 15 feet bgs. Soil described during the installation of a water supply well at the site (Feature 48 on Figure 2) suggests that subsurface soil between the ground surface and 140 feet bgs is predominately composed of sand (EnviroNet, 2001).

2.3 HYDROGEOLOGY

The groundwater surface measured in 21 site monitoring wells has ranged between approximately 0.5 and 5 feet bgs in the 17 shallow wells (i.e., screened from 2 to 8 feet bgs) and between approximately 4 and 6 feet bgs in the four deeper wells (i.e., screened from 15 to 20 feet bgs). In the eastern portion of the site, groundwater flow generally is to the east, toward the Mad River Slough (MFG and Geomatrix, 2003). In the southwestern portion of the site, groundwater likely flows to the south-southeast, toward Humboldt Bay (MFG and Geomatrix, 2003).



Tidal fluctuations in the Mad River Slough and nearby Humboldt Bay influence groundwater levels at the site in the vicinity of the slough. A 2002 tidal influence study conducted at the site by EnviroNet suggested that tidal effects become negligible at distances greater than 100 feet from the slough shore (EnviroNet, 2003).

3.0 MARCH 2005 MONITORING REPORT

This section presents field and laboratory methods and results of groundwater monitoring activities conducted during this period, as required by the MRP.

3.1 FIELD METHODS

On March 9, 2005, depth to water was measured in all site monitoring wells (MW-1 through MW-21, Figure 3) and at a monitoring point in the Mad River Slough using an electronic sounder (Table 2). Water levels were measured in the wells on the first day of sampling, before conducting groundwater sampling activities. Monitoring wells were gauged in sequence from lowest expected concentrations of constituents of concern (first) to highest expected concentrations (last), based on laboratory analytical results from the previous sampling event. Field personnel cleaned the meter used to measure the groundwater surface before using it at each location. The equipment was washed in an Alconox® detergent solution and then rinsed with distilled water.

Twelve monitoring wells (MW-1, MW-2, MW-6 through MW-9, MW-13D, MW-14, MW-15D, MW-16D, MW-20, and MW-21) were purged and sampled on March 9, 10, and 11, 2005, in accordance with the site MRP. For wells MW-6, MW-8, MW-9, MW-13D, MW-15D, and MW-16D, field personnel used dedicated, disposable Teflon[®] bailers to remove standing water in the well casing. For monitoring wells MW-1, MW-2, MW-7, MW-14, MW-20, and MW-21, field personnel used a peristaltic pump and disposable tubing for low-flow purging/sampling techniques in conjunction with pilot study activities (Section 4.0). Field personnel measured and recorded readings of temperature, pH, specific conductance, and total dissolved solids (TDS) on field sampling records during groundwater bailer purging activities. For bailer-purged wells, the purging activities were ceased when a minimum of three well casing volumes of water had been removed and water quality parameters stabilized to within 10 percent of specific conductance, 0.05 pH units for pH, and 1 degree Celsius for temperature. For peristaltic-pump-purged wells, copies of the field records for groundwater monitoring and sampling activities are included in Appendix A.



After purging, groundwater samples were collected using the dedicated Teflon® bailers and, for monitoring wells included in the pilot study program, a peristaltic pump and dedicated tubing. A field sample of groundwater was monitored for temperature, pH, specific conductance, and TDS just prior to collecting the groundwater sample to record the water quality parameters of the groundwater being sampled. These field parameters are summarized in Table 3. Historical laboratory analytical results for TDS also are shown in this table.

Groundwater collected from each of the 12 monitoring wells was placed in two 125milliliter (ml) glass vials that were sealed with Teflon®-lined screw caps. After filling, the vials were labeled and placed in an ice-cooled, insulated chest for transport to the laboratory for analysis. Chain-of-custody records were completed for the samples and accompanied the samples until received by the laboratory. Copies of the chain-of-custody records for the groundwater samples are included in Appendix B.

An additional groundwater sample was collected from monitoring well MW-21 and submitted to the laboratory as a blind duplicate sample, labeled BD-01-200503. This sample was placed in two additional 125-ml glass vials sealed with Teflon®-lined screw caps and sent to the laboratory as described above.

3.2 LABORATORY METHODS

Groundwater samples collected from monitoring wells MW-1, MW-2, MW-6 through MW-9, MW-13D through MW-16D, MW-20, and MW-21 were analyzed at Alpha Analytical Laboratories, Inc. (Alpha), of Ukiah, California, a California Department of Health Services-certified analytical laboratory, as follows. The samples were analyzed for the chlorinated phenols (including PCP; 2,3,5,6-tetrachlorophenol; 2,3,4,6-tetrachlorophenol; 2,3,4,5-tetrachlorophenol; and, 2,4,6-trichlorophenol) in accordance with the Canadian Pulp method.

3.3 LABORATORY DATA QUALITY REVIEW

Geomatrix reviewed the quality of laboratory data generated for the groundwater sampling as discussed in Appendix C. Based on the procedures and data quality review, the analytical data quality is satisfactory and the sample results appear to be representative.

3.4 **RESULTS OF GROUNDWATER MONITORING**

Monitoring and sampling results from site wells include groundwater elevation measurements, field measurements of water quality parameters, and laboratory analysis of groundwater samples. Groundwater elevation data provide information on subsurface hydraulic conditions, discussed below as occurrence and movement of groundwater. Groundwater quality is



evaluated based on the laboratory analysis of chlorinated phenols. The results are presented below.

3.4.1 Occurrence and Movement of Groundwater

The groundwater surface measured in shallow monitoring wells at the site (i.e., screened from approximately 2 to 8 feet bgs) ranged from 0.85 to 5.22 feet below the measuring point, with associated groundwater elevations ranging from 4.39 to 9.49 feet above mean sea level (msl), relative to the North American Vertical Datum of 1988. Groundwater elevation data from these monitoring wells indicate that the direction of shallow groundwater flow is generally to the east (Figure 4). The magnitude of the lateral hydraulic gradient ranges from approximately 0.01 foot/foot in the former green chain vicinity to as much as approximately 0.03 foot/foot beneath the sawmill and maintenance buildings. Groundwater elevations within 100 feet of the Mad River Slough shoreline are subject to tidal fluctuations (EnviroNet, 2003) and as such, were not used to evaluate the flow direction or gradient of shallow groundwater.

The groundwater surface measured in deep monitoring wells at the site (i.e., screened from approximately 15 to 20 feet bgs) ranged from 4.22 to 5.48 feet below the measuring point, with associated groundwater elevations ranging from 5.61 to 6.60 feet above msl, relative to the North American Vertical Datum of 1988. Groundwater elevation data from these monitoring wells indicate that the direction of deep groundwater flow is generally to the east (Figure 5) at a lateral hydraulic gradient of approximately 0.01 foot/foot.

3.4.2 Groundwater Analytical Results

Twelve groundwater monitoring wells were sampled during this period (MW-1, MW-2, MW-6 through MW-9, MW-13D, MW-14, MW-15D, MW-16D, MW-20, and MW-21). Laboratory analytical reports and sample chain-of-custody records are included in Appendix B. The results for the chlorinated phenol analyses are presented in Table 4. PCP results also are illustrated on Figure 6 (shallow groundwater).

PCP and tetrachlorophenols were detected in groundwater samples from 3 of the 12 monitoring wells (MW-7, MW-20 and MW-21; Table 4; PCP is also shown on Figure 6), with 2,4,6-trichlorophenol detected in two of the wells (MW-20 and MW-21). The detected concentrations of PCP were 24,000 micrograms per liter (μ g/L) in the sample from MW-7; 4,700 μ g/L and 4,600 μ g/L in the samples from MW-21 (for primary and blind duplicate samples, respectively); and 71 μ g/L in the sample from MW-20. In the last two sampling events, the samples from MW-20 have been non-detect.



4.0 PILOT STUDY PROGRESS REPORT

This section presents a summary of activities performed in accordance with the *Pilot Study Work Plan for Implementation of Proposed Remedial Action* (Geomatrix, 2004b) during the subject period. The objectives of the Pilot Study are to:

- Demonstrate that in situ destruction of contaminants is occurring in the subsurface through natural attenuation processes.
- Demonstrate that discharges of wood surface protection chemicals to surface water have been abated.
- Implement risk management measures to protect current and future personnel working on-site from participating in activities that would results in exposure to unacceptable risk.

During the subject period, the second of three annual groundwater sampling events for the pilot study was conducted.

4.1 DEMONSTRATION OF NATURAL ATTENUATION – GROUNDWATER SAMPLING

Geomatrix collected groundwater samples from selected monitoring wells for the pilot study being conducted at the site. The groundwater sampling was performed to identify natural attenuation parameters, pentachlorophenol-breakdown products, and concentrations of dioxins and furans. This sampling effort was the second of three sampling events that will be conducted over a two-year period.

4.1.1 Field Methods

Eight monitoring wells (MW-1, MW-2, MW-3, MW-5, MW-7, MW-14, MW-20, and MW-21) were purged and sampled on March 9 through 11, 2005, in conjunction with the routine groundwater monitoring event for the MRP. Field personnel used a peristaltic pump and tubing dedicated to purge groundwater using low-flow techniques, at a rate of approximately 250 to 500 milliliters per minute. Measurements of temperature, pH, specific conductance, dissolved oxygen, and reduction-oxidation potential were collected during purging via a flow-through cell and recorded on field sampling records, included in Appendix A; field measurements are summarized in Table 5.

Field personnel collected groundwater samples after purging a minimum of three pore-tube volumes and stabilization of monitored water quality parameters including: measurements of



specific conductance to within 10 percent; measurements of pH to within 0.05 pH units; and measurements of temperature to within 1 degree Celsius. Groundwater was sampled from the peristaltic pump and tubing in laboratory-supplied containers, which were labeled and placed in an ice-cooled, insulated chest for transport to the laboratories for analysis. Chain-of-custody records were completed for the samples and accompanied the samples until received by the laboratories. Copies of the chain-of-custody records for the groundwater samples are included in Appendix B.

An additional groundwater sample was collected from monitoring well MW-21 and submitted to the laboratory as a blind duplicate sample, labeled BD-01-200503. This sample also was placed in laboratory-supplied containers and sent to the laboratory as described above.

4.1.2 Laboratory Methods

Groundwater samples collected from the monitoring wells were analyzed at the following laboratories: Alpha; Friedman & Bruya, Inc. (Friedman & Bruya), of Seattle, Washington; Frontier Analytical Laboratory (Frontier), of El Dorado, California; Severn Trent Laboratories, Inc. (STL), of Pleasanton, California; and K Prime, Inc. of Santa Rosa, California. These laboratories are all certified by the California Department of Health Services for laboratory chemical analysis. Groundwater samples were analyzed as follows:

- Natural attenuation parameters: total organic carbon (EPA Method 415.1); calcium and magnesium (EPA Method 200.7); alkalinity (Standard Method 2320B); chloride, nitrate, and sulfate (EPA Method 300.0); iron (II) and manganese (II) (EPA Method 6010B); and dissolved methane and carbon dioxide (RSK 175).
- Pentachlorophenol and breakdown products, including tetrachlorophenols, trichlorophenols, dichlorophenols, and chlorophenols (EPA Method 8270 Selective Ion Monitoring [SIM]).
- Phenol (EPA Method 8270 SIM).
- Dioxins and furans (EPA Method 1613).

4.1.3 Groundwater Analytical Results

Laboratory analytical reports and chain-of-custody records for pilot study groundwater samples are included in Appendix B. Table 5 summarizes results for field and geochemical parameters; Table 6 and Figure 6 summarize results for chlorinated phenols and phenol, with sampling results for PCP (by the Canadian Pulp Method); and Table 7 summarizes results for dioxins and furans.



PCP was detected in all eight wells (MW-1, MW-2, MW-3, MW-5, MW-7, MW-14, MW-20. and MW-21) sampled this period. Consistent with the routine groundwater monitoring and the first pilot study sampling event, the highest concentration was detected in the sample from well MW-7 (12,000 μ g/L). The samples from wells MW-20 and MW-21 had PCP detections of 100 μ g/L and 5,500 μ g/L; these detections generally are similar to previous events. In contrast, the samples from wells MW-1, MW-2, MW-3, MW-5 (upgradient), and MW-14 had detections of PCP at 2 μ g/L; samples from these wells have been non-detect since 2002. Because of these unexpected detections, all at the same concentration and with no chlorinated phenol breakdown products, we contacted the analytical laboratory. The laboratory confirmed the positive presence of PCP in these samples (Jim Bruya, personal communication, 2005) based on a review of instrument data and the preceding laboratory method blank data (non-detect). Then, we reviewed our field sampling and sample handling procedures, but have not identified a deficiency that may have led to these detections in wells MW-1, MW-2, MW-3, MW-5, and MW-14. At this time, we consider these PCP data for these five wells to be anomalous, and will re-evaluate the situation during the next appropriate sampling event.

Consistent with the first pilot study sampling event in March 2004, PCP degradation products (tetra-, tri-, di-, and chloro-phenols) were detected in groundwater samples from wells MW-7, MW-20, and MW-21. No PCP degradation products were detected in wells MW-1, MW-2, MW-3, MW-5, and MW-14. For MW-7, where PCP was detected at 12,000 µg/L, tetrachlorophenol concentrations ranged from 17 to 490 µg/L, trichlorophenol concentrations ranged from 1 to 290 μ g/L, dichlorophenol concentrations ranged from non-detect to 610 μ g/L, and chlorophenol ranged from non-detect to 890 µg/L. Phenol was detected in the groundwater sample from MW-7 at 3 µg/L. For MW-21 (downgradient of MW-7), where PCP was detected at 5,500 µg/L, the concentrations of PCP degradation products detected in the primary and duplicate groundwater samples were lower than in the samples from well MW-7. Tetrachlorophenol concentrations ranged from 4 to 110 μ g/L, trichlorophenol concentrations ranged from non-detect to 250 µg/L, dichlorophenol concentrations ranged from non-detect to $310 \,\mu\text{g/L}$, and concentrations of chlorophenols ranged from non-detect to 270 $\mu\text{g/L}$. No phenol was detected in the sample from well MW-21. For MW-20 (in the former interim remedial measure excavation backfill), where PCP was detected at 100 µg/L, the concentrations of PCP degradation products detected were the lowest of well samples MW-7, MW-20, and MW-21. Tetrachlorophenol concentrations ranged from 2 to 12 μ g/L, trichlorophenol concentrations ranged from non-detect to 5 µg/L, dichlorophenol concentrations ranged from non-detect to



15 μ g/L, and concentrations of chlorophenols ranged from non-detect to 9 μ g/L. No phenol was detected in the sample from well MW-20.

Concentrations of dioxins and furans, which refer to a complex mixture of various dioxin and furan congeners, are generally summarized in terms of their 2,3,7,8-tetrachlorodibenzo-pdioxin (2,3,7,8-TCDD) toxic equivalency (TEQ) based on toxic equivalency factors adopted by the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (Cal-EPA, 2003). TEQ results for groundwater samples analyzed for dioxins and furans ranged from 0.00188 to 176 picograms per liter (pg/L; parts per quadrillion), with only two samples showing detections greater than 1 pg/L: MW-20 at 71 pg/L and the primary sample from MW-21 at 176 pg/L (note that the duplicate sample from this well had a TEQ of 0.351 pg/L).

4.1.4 Laboratory Data Quality Review

Geomatrix reviewed the laboratory data generated for the pilot study groundwater sampling as discussed in Appendix C. Based on our review, the data generated during this period for the pilot study sampling event appear to be accurate and representative, with the exception of the detections of PCP in samples from wells MW-1, MW-2, MW-3, MW-5, and MW-14, as discussed in Section 4.1.3.

5.0 WASTEWATER DISPOSAL

The purge water and equipment wash water generated by the environmental activities conducted during March 2005 and discussed herein were placed in two steel, 55-gallon drums and labeled. The drums, which were not completely filled during these activities, are being temporarily stored at the site and, once completely filled with purge water, will be disposed of by SPI in accordance with applicable regulations.

6.0 FUTURE MONITORING AND SAMPLING SCHEDULE

For the MRP, the semi-annual groundwater monitoring event will be performed in August or September 2005. The next pilot study groundwater sampling event will be performed in February or March 2006 in conjunction with the routine groundwater monitoring event.



7.0 **REFERENCES**

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MONITORING WELL CONSTRUCTION DETAILS¹

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

Well No.	Date Installed	Total Boring Depth (ft bgs)	Total Well Depth (ft bgs)	Well Diameter (inches)	Latitude ²	Longitude ²	Ground Level Elevation ² (ft msl)	Top of Casing Elevation ² (ft msl)	Screened Interval (ft bgs)	Screen Slot Size (inches)	Filter Pack Interval (ft bgs)	Bentonite Seal Interval (ft bgs)	Surface Seal Interval ³ (ft bgs)
Shallow Wells	S												
MW-1	5-Mar-02	8	8	2	40.8661595	124.1521395	10.12	9.69	2.0 - 8.0	0.01	1.5 - 8.0	1.0 – 1.5	0 - 1.0
MW-2	5-Mar-02	9	8	2	40.8661024	124.1525276	10.41	9.61	2.0 - 8.0	0.01	1.5 - 9.0	1.0 - 1.5	0 - 1.0
MW-3	5-Mar-02	8.5	8	2	40.8662689	124.1530739	11.67	11.22	2.0 - 8.0	0.01	1.5 - 8.5	1.0 - 1.5	0 - 1.0
MW-4	5-Mar-02	8	8	2	40.8662303	124.1533599	11.17	10.74	2.0 - 8.0	0.01	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-5	7-Mar-02	8	8	2	40.8660945	124.1536734	11.26	10.74	2.0 - 8.0	0.01	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-6	7-Mar-02	8	8	2	40.8660710	124.1531061	10.13	9.83	2.0 - 8.0	0.01	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-7	7-Mar-02	8	8	2	40.8659980	124.1531187	10.09	9.74	2.0 - 8.0	0.01	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-8	8-Mar-02	8	8	2	40.8657492	124.1535343	10.55	10.33	2.0 - 8.0	0.01	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-9	8-Mar-02	8	8	2	40.8657520	124.1532218	10.36	9.91	2.0 - 8.0	0.01	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-10	11-Nov-02	9.5	8	2	40.8656910	124.1530670	10.08	9.85	2.0 - 8.0	0.01	1.5 - 9.5	1.0 - 1.5	0 - 1.0
MW-11	12-Nov-02	8.5	8	2	40.8655740	124.1533817	10.51	10.28	2.0 - 8.0	0.01	1.5 - 8.5	1.0 - 1.5	0-1.0
MW-12	12-Nov-02	9.5	8	2	40.8656625	124.1537231	11.01	10.76	2.0 - 8.0	0.01	1.5 - 9.5	1.0 - 1.5	0 - 1.0
MW-14	13-Nov-02	8	8	2	40.8657622	124.1523580	9.60	9.15	2.0 - 8.0	0.01	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-17	14-Nov-02	9	8	2	40.8656690	124.1526420	9.46	9.16	2.0 - 8.0	0.01	1.5 - 9.0	1.0 - 1.5	0 - 1.0
MW-18	13-Nov-02	9.5	8	4	40.8657448	124.1531649	10.12	9.92	2.0 - 8.0	0.01	1.5 - 9.5	1.0 - 1.5	0 - 1.0
MW-20 ⁴	23-Jan-04	8	7	4	40.8658416	124.1532563	10.92	11.87	3.2 - 6.8	0.01	2.0 - 7.0	1.0 - 2.0	0-1.0
MW-21	12-Feb-04	8.3	8.3	0.75	40.8660161	124.1530089	10.11	12.89	2.1 - 8.1	0.01	1.5 - 8.3	1.0 - 1.5	0-1.0
Deep Wells													
MW-13D	12-Nov-02	21	20	2	40.8660809	124.1525231	10.26	9.96	15.0 - 20.0	0.01	13.5 - 21.0	12.0 - 13.5	0-12.0
MW-15D	13-Nov-02	21	20	2	40.8662658	124.1528255	11.59	11.19	15.0 - 20.0	0.01	14.0 - 21.0	12.0 - 14.0	0-12.0
MW-16D	14-Nov-02	21.5	20	2	40.8655571	124.1530363	10.13	9.83	15.0 - 20.0	0.01	14.0 - 21.5	12.0 - 14.0	0-12.0
MW-19D	14-Nov-02	21.5	20	2	40.8662419	124.1532744	11.21	11.06	15.0 - 20.0	0.01	14.0 - 21.0	12.0 - 14.0	0-12.0

Notes:

 Construction details for wells MW-1 through MW-9 were obtained from Report on Recent Hydrogeologic Investigations at Sierra-Pacific Industries, Arcata Division Sawmill, dated April 19, 2002 prepared by Environet Consulting. Construction details for wells MW-10 through MW-19D were obtained from Results of the Remedial Investigation for Sierra Pacific Industries – Arcata Division Sawmills, Arcata, California, dated January 30, 2003, prepared by EnviroNet Consulting. Installation of wells MW-20 and MW-21 documented in this report.

Monitoring wells were resurveyed by Omsberg Suveyors and Company of Eureka California on February 13, 2004; latitude and longitude were surveyed relative to North American Datum (NAD) of 1983 and elevations were surveyed relative to National Geodetic Vertical Datum (NGVD) of 1929. Elevations shown have been adjusted by 3.35 feet and presented as North American Vertical Datum (NAVD) of 1988 elevations.

3. Surface seal interval consists of the concrete surface completion and a neat cement sanitary seal, if applicable.

4. Well installed on a raised concrete pad of the former green chain. Depth measurements (ft bgs) are relative to the local ground surface of the concrete pad, which is approximately 1 foot above the grade of the surrounding ground surface.

Abbreviations:

ft bgs = feet below ground surface

ft msl = feet mean sea level



SUMMARY OF WATER LEVEL MEASUREMENTS

Well No.	Measurement ¹ Date	MP Elevation ² (ft NAVD 88)	Depth to Water (ft bMP)	Water Level Elevation (ft NAVD 88)
Shallow Wells		()		(
MW-1	14-Mar-02	9.56	5.31	4.25
	18-Jul-02	9.56	4.52	5.04
	16-Sep-02	9.56	4.37	5.19
	02-Dec-02	9.56	4.18	5.38
	18-Mar-03	9.56	4.09	5.47
	31-Mar-03	9.56	4.48	5.08
	21-May-03	9.56	4.66	4.90
	27-Aug-03	9.56	4.55	5.01
	03-Nov-03	9.56	4.20	5.36
	23-Mar-04	9.69	4.47	5.22
	17-May-04	9.69	4.57	5.12
	30-Aug-04	9.69	4.55	5.14
	14-Dec-04	9.69	4.30	5.39
	09-Mar-05	9.69	4.13	5.56
MW-2	14-Mar-02	9.49	4.52	4.97
	18-Jul-02	9.49	5.43	4.06
	16-Sep-02	9.49	5.28	4.21
	02-Dec-02	9.49	5.17	4.32
	18-Mar-03	9.49	5.16	4.33
	31-Mar-03	9.49	5.43	4.06
	21-May-03	9.49	5.45	4.04
	27-Aug-03	9.49	5.09	4.40
	03-Nov-03	9.49	5.17	4.32
	23-Mar-04	9.61	5.31	4.30
	17-May-04	9.61	5.43	4.18
	30-Aug-04	9.61	5.07	4.54
	14-Dec-04	9.61	5.10	4.51
	09-Mar-05	9.61	5.22	4.39
MW-3	14-Mar-02	11.14	2.19	8.95
	18-Jul-02	11.14	2.79	8.35
	16-Sep-02	11.14	2.96	8.18
	02-Dec-02	11.14	2.75	8.39
	18-Mar-03	11.14	2.30	8.84
	31-Mar-03	11.14	1.96	9.18
	21-May-03	11.14	2.19	8.95
	27-Aug-03	11.14	2.08	9.06
	03-Nov-03	11.14	2.35	8.79
	23-Mar-04	11.22	2.24	8.98
	17-May-04	11.22	2.25	8.97
	30-Aug-04	11.22	2.42	8.80
	14-Dec-04	11.22	2.79	8.43
	09-Mar-05	11.22	2.77	8.45



SUMMARY OF WATER LEVEL MEASUREMENTS

Well No.	Measurement ¹ Date	MP Elevation ² (ft NAVD 88)	Depth to Water (ft bMP)	Water Level Elevation (ft NAVD 88)
MW-4	14-Mar-02	10.71	1.52	9.19
	18-Jul-02	10.71	1.84	8.87
	16-Sep-02	10.71	2.04	8.67
	02-Dec-02	10.71	1.80	8.91
	18-Mar-03	10.71	1.52	9.19
	31-Mar-03	10.71	0.93	9.78
	21-May-03	10.71	1.18	9.53
	27-Aug-03	10.71	1.36	9.35
	03-Nov-03	10.71	1.64	9.07
	23-Mar-04	10.74	1.17	9.57
	17-May-04	10.74	1.17	9.57
	30-Aug-04	10.74	1.37	9.37
	14-Dec-04	10.74	2.21	8.53
	09-Mar-05	10.74	1.95	8.79
MW-5	14-Mar-02	10.69	0.95	9.74
	18-Jul-02	10.69	1.26	9.43
	16-Sep-02	10.69	1.35	9.34
	02-Dec-02	10.69	1.23	9.46
	18-Mar-03	10.69	0.87	9.82
	31-Mar-03	10.69	0.63	10.06
	21-May-03	10.69	0.69	10.00
	27-Aug-03	10.69	0.84	9.85
	03-Nov-03	10.69	0.92	9.77
	23-Mar-04	10.74	0.62	10.12
	17-May-04	10.74	0.78	9.96
	30-Aug-04	10.74	0.71	10.03
	14-Dec-04	10.74	1.50	9.24
	09-Mar-05	10.74	1.40	9.34
MW-6	14-Mar-02	9.77	0.85	8.92
	18-Jul-02	9.77	1.27	8.50
	16-Sep-02	9.77	1.51	8.26
	02-Dec-02	9.77	1.30	8.47
	18-Mar-03	9.77	0.89	8.88
	31-Mar-03	9.77	0.37	9.40
	21-May-03	9.77	0.60	9.17
	27-Aug-03	9.77	0.70	9.07
	03-Nov-03	9.77	1.21	8.56
	23-Mar-04	9.83	0.69	9.14
	17-May-04	9.83	0.78	9.05
	30-Aug-04	9.83	0.99	8.84
	14-Dec-04	9.83	1.25	8.58
	09-Mar-05	9.83	1.17	8.66



SUMMARY OF WATER LEVEL MEASUREMENTS

Well No.	Measurement ¹ Date	MP Elevation ² (ft NAVD 88)	Depth to Water (ft bMP)	Water Level Elevation (ft NAVD 88)
MW-7	14-Mar-02	9.68	0.73	8.95
	18-Jul-02	9.68	1.15	8.53
	16-Sep-02	9.68	1.37	8.31
	02-Dec-02	9.68	1.19	8.49
	18-Mar-03	9.68	0.75	8.93
	31-Mar-03	9.68	0.26	9.42
	21-May-03	9.68	0.45	9.23
	27-Aug-03	9.68	0.61	9.07
	03-Nov-03	9.68	1.13	8.55
	23-Mar-04	9.74	0.44	9.30
	17-May-04	9.74	0.50	9.24
	30-Aug-04	9.74	0.84	8.90
	14-Dec-04	9.74	1.04	8.70
	09-Mar-05	9.74	0.96	8.78
MW-8	14-Mar-02	10.30	0.92	9.38
	18-Jul-02	10.30	1.24	9.06
	16-Sep-02	10.30	1.52	8.78
	02-Dec-02	10.30	1.34	8.96
	18-Mar-03	10.30	0.95	9.35
	31-Mar-03	10.30	0.29	10.01
	21-May-03	10.30	0.49	9.81
	27-Aug-03	10.30	0.91	9.39
	03-Nov-03	10.30	1.36	8.94
	23-Mar-04	10.33	0.57	9.76
	17-May-04	10.33	0.54	9.79
	30-Aug-04	10.33	0.94	9.39
	14-Dec-04	10.33	1.29	9.04
	09-Mar-05	10.33	1.07	9.26
MW-9	14-Mar-02	9.86	0.71	9.15
	18-Jul-02	9.86	1.13	8.73
	16-Sep-02	9.86	1.40	8.46
	02-Dec-02	9.86	1.18	8.68
	18-Mar-03	9.86	0.79	9.07
	31-Mar-03	9.86	0.11	9.75
	21-May-03	9.86	0.30	9.56
	27-Aug-03	9.86	0.81	9.05
	03-Nov-03	9.86	1.19	8.67
	23-Mar-04	9.91	0.40	9.51
	17-May-04	9.91	0.38	9.53
	30-Aug-04	9.91	0.89	9.02
	14-Dec-04	9.91	1.05	8.86
	09-Mar-05	9.91	0.85	9.06



SUMMARY OF WATER LEVEL MEASUREMENTS

Well No.	Measurement ¹ Date	MP Elevation ² (ft NAVD 88)	Depth to Water (ft bMP)	Water Level Elevation (ft NAVD 88)
MW-10	02-Dec-02	9.80	1.35	8.45
	18-Mar-03	9.80	0.95	8.85
	31-Mar-03	9.80	0.30	9.50
	21-May-03	9.80	0.52	9.28
	27-Aug-03	9.80	1.02	8.78
	03-Nov-03	9.80	1.43	8.37
	23-Mar-04	9.85	0.70	9.15
	17-May-04	9.85	0.61	9.24
	30-Aug-04	9.85	1.13	8.72
	14-Dec-04	9.85	1.24	8.61
	09-Mar-05	9.85	1.05	8.80
MW-11	02-Dec-02	10.26	1.55	8.71
	18-Mar-03	10.26	1.12	9.14
	31-Mar-03	10.26	0.40	9.86
	21-May-03	10.26	0.64	9.62
	27-Aug-03	10.26	1.19	9.07
	03-Nov-03	10.26	1.56	8.70
	23-Mar-04	10.28	0.75	9.53
	17-May-04	10.28	0.69	9.59
	30-Aug-04	10.28	1.20	9.08
	14-Dec-04	10.28	1.44	8.84
	09-Mar-05	10.28	1.14	9.14
MW-12	02-Dec-02	10.73	1.56	9.17
	18-Mar-03	10.73	1.15	9.58
	31-Mar-03	10.73	0.55	10.18
	21-May-03	10.73	0.70	10.03
	27-Aug-03	10.73	1.12	9.61
	03-Nov-03	10.73	1.68	9.05
	23-Mar-04	10.76	0.87	9.89
	17-May-04	10.76	0.76	10.00
	30-Aug-04	10.76	1.13	9.63
	14-Dec-04	10.76	1.55	9.21
	09-Mar-05	10.76	1.27	9.49
MW-14	02-Dec-02	9.02	2.40	6.62
	18-Mar-03	9.02	2.21	6.81
	31-Mar-03	9.02	1.77	7.25
	21-May-03	9.02	1.69	7.33
	27-Aug-03	9.02	2.27	6.75
	03-Nov-03	9.02	2.52	6.50
	23-Mar-04	9.15	2.08	7.07
	17-May-04	9.15	2.15	7.00
	30-Aug-04	9.15	2.48	6.67
	14-Dec-04	9.15	2.30	6.85
	09-Mar-05	9.15	2.10	7.05



SUMMARY OF WATER LEVEL MEASUREMENTS

Well No.	Measurement ¹ Date	MP Elevation ² (ft NAVD 88)	Depth to Water (ft bMP)	Water Level Elevation (ft NAVD 88)
MW-17	02-Dec-02	8.98	1.27	7.71
14144 17	18-Mar-03	8.98	0.94	8.04
	31-Mar-03	8.98	0.32	8.66
	21-May-03	8.98	0.58	8.40
	27-Aug-03	8.98	1.06	7.92
	03-Nov-03	8.98	1.30	7.68
	23-Mar-04	9.16	0.83	8.33
	17-May-04	9.16	0.74	8.42
	30-Aug-04	9.16	1.21	7.95
	14-Dec-04	9.16	1.17	7.99
	09-Mar-05	9.16	1.00	8.16
MW-18	02-Dec-02	9.53	0.94	8.59
	18-Mar-03	9.53	0.52	9.01
	31-Mar-03	9.53	3	NC
	21-May-03	9.53	0.05	9.48
	27-Aug-03	9.53	0.55	8.98
	03-Nov-03	9.53	0.95	8.58
	23-Mar-04	9.92	0.52	9.40
	17-May-04	9.92	0.47	9.45
	30-Aug-04	9.92	0.98	8.94
	14-Dec-04	9.92	1.13	8.79
	09-Mar-05	9.92	0.94	8.98
MW-20	23-Mar-04	11.87	2.36	9.51
	17-May-04	11.87	2.35	9.52
	30-Aug-04	11.87	2.70	9.17
	14-Dec-04	11.87	2.80	9.07
	09-Mar-05	11.87	2.72	9.15
MW-21	23-Mar-04	12.89	3.97	8.92
	17-May-04	12.89	3.99	8.90
	30-Aug-04	12.89	4.23	8.66
	14-Dec-04	12.89	4.36	8.53
	09-Mar-05	12.89	4.35	8.54
Deep Wells				
MW-13D	02-Dec-02	9.84	4.18	5.66
	18-Mar-03	9.84	4.21	5.63
	31-Mar-03	9.84	4.26	5.58
	21-May-03	9.84	4.52	5.32
	27-Aug-03	9.84	4.45	5.39
	03-Nov-03	9.84	4.30	5.54
	23-Mar-04	9.96	4.42	5.54
	17-May-04	9.96	4.54	5.42
	30-Aug-04	9.96	4.57	5.39
	14-Dec-04	9.96	4.56	5.40
	09-Mar-05	9.96	4.26	5.70



SUMMARY OF WATER LEVEL MEASUREMENTS

Well No.	Measurement ¹ Date	MP Elevation ² (ft NAVD 88)	Depth to Water (ft bMP)	Water Level Elevation (ft NAVD 88)
MW-15D	02-Dec-02	11.08	5.31	5.77
	18-Mar-03	11.08	5.44	5.64
	31-Mar-03	11.08	5.46	5.62
	21-May-03	11.08	5.74	5.34
	27-Aug-03	11.08	5.71	5.37
	03-Nov-03	11.08	5.51	5.57
	23-Mar-04	11.19	5.66	5.53
	17-May-04	11.19	5.77	5.42
	30-Aug-04	11.19	5.83	5.36
	14-Dec-04	11.19	5.75	5.44
	09-Mar-05	11.19	5.48	5.71
MW-16D	02-Dec-02	9.80	3.99	5.81
	18-Mar-03	9.80	4.17	5.63
	31-Mar-03	9.80	3.91	5.89
	21-May-03	9.80	4.11	5.69
	27-Aug-03	9.80	3.95	5.85
	03-Nov-03	9.80	4.26	5.54
	23-Mar-04	9.83	4.01	5.82
	17-May-04	9.83	4.13	5.70
	30-Aug-04	9.83	4.13	5.70
	14-Dec-04	9.83	4.38	5.45
	09-Mar-05	9.83	4.22	5.61
MW-19D	02-Dec-02	11.00	4.31	6.69
	18-Mar-03	11.00	4.23	6.77
	31-Mar-03	11.00	4.02	6.98
	21-May-03	11.00	4.22	6.78
	27-Aug-03	11.00	4.26	6.74
	03-Nov-03	11.00	4.61	6.39
	23-Mar-04	11.06	4.13	6.93
	17-May-04	11.06	4.63	6.43
	30-Aug-04	11.06	4.60	6.46
	14-Dec-04	11.06	4.82	6.24
	09-Mar-05	11.06	4.46	6.60



SUMMARY OF WATER LEVEL MEASUREMENTS

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

Well No.	Measurement ¹ Date	MP Elevation ² (ft NAVD 88)	Depth to Water (ft bMP)	Water Level Elevation (ft NAVD 88)
Mad River Slough ⁴	31-Mar-03	15.70	15.15	0.55
C	31-Mar-03	15.70	15.84	-0.14
	21-May-03	15.70	17.23	-1.53
	21-May-03	15.70	16.75	-1.05
	27-Aug-03	15.70	16.20	-0.50
	27-Aug-03	15.70	12.60	3.10
	03-Nov-03	15.70	9.63	6.07
	03-Nov-03	15.70	10.53	5.17
	23-Mar-04	15.70	15.00	0.70
	23-Mar-04	15.70	12.16	3.54
	17-May-04	15.70	14.48	1.22
	17-May-04	15.70	12.50	3.20
	30-Aug-04	15.70	15.17	0.53
	30-Aug-04	15.70	12.20	3.50
	14-Dec-04	15.70	12.05	3.65
	14-Dec-04	15.70	9.90	5.80
	09-Mar-05	15.70	9.31	6.39
	09-Mar-05	15.70	8.43	7.27

Notes:

- Data prior to March 18, 2003 were obtained from Results of the Remedial Investigation for Sierra Pacific Industries - Arcata Division Sawmill, Arcata, California, dated January 30, 2003, prepared by Environet Consulting.
- 2. Monitoring wells surveyed by Omsberg & Company of Eureka, California. Wells were resurveyed on February 13, 2004; elevations shown are relative to the Northern American Vertical Datum of 1988.
- 3. Water level was above the top of casing measuring point.
- 4. Mad River Slough measuring point on railroad bridge. Water level measurements are obtained before and after the water level measurements in the monitoring wells.

Abbreviations:

ft NAVD 88 = feet above North American Vertical Datum of 1988

ft bMP = feet below measuring point

-- = not measured or sample not collected for analysis

NC = not calcuated



			Field Measurements ¹					
Well No.	Date Sampled	Temperature (°C)	Specific Conductance (µmohs/cm)	pH (pH Units)	TDS (mg/L)	TDS (mg/L)		
Shallow Wells								
	20-Mar-03	14	2,600	6.5				
	22-May-03	14	2,700	6.7		1,400		
	27-Aug-03	18	2,500	6.7	1,800	1,400		
MW-1	04-Nov-03	17	2,400	6.6	1,800	1,300		
	17-May-04	15	2,600	6.3	1,900	1,400		
	15-Dec-04	15	3,800	6.6	2,500			
	11-Mar-05	14	2,100	6.5	1,400			
	20-Mar-03	13	2,100	6.2				
	22-May-03	14	1,700	6.4	1,100	860		
	27-Aug-03	18	1,500	6.6	1,100	760		
	03-Nov-03	16	1,590	6.3	1,100	760		
MW-2	24-Mar-04	13	1,390	6.3	970	740		
	17-May-04	15	1,400	6.2	980	730		
	30-Aug-04	19	1,200	3	850	680		
	15-Dec-04	14	1,100	6.4	740			
	11-Mar-05	13	1,200	6.2	790			
	20-Mar-03	13	1,100	6.4				
	22-May-03	15	1,000	6.4	630	510		
	27-Aug-03	20	1,000	6.5	720	470		
MW-3	03-Nov-03	16	980	6.6		410		
	17-May-04	16	1,100	6.2	750	510		
	15-Dec-04	13	700	6.4	460			
	10-Mar-05	13	600	6.4	390			
	20-Mar-03	14	830	6.5				
	22-May-03	16	730	6.4	440	420		
	27-Aug-03	21	730	6.5	500	340		
MW-4	03-Nov-03	18	760	6.6	520	310		
	17-May-04	18	880	6.2	590	360		
	15-Dec-04	14	640	6.4	410			
	20-Mar-03	14	670	6.6				
	22-May-03	14	690	6.6	410	360		
	27-Aug-03	18	670	6.7	450	360		
MW-5	03-Nov-03	17	660	6.6	450	380		
	17-May-04	15	660	6.3	440	360		
	15-Dec-04	15	470	6.4	310			
	10-Mar-05	14	570	6.3	390			



Well No. Date Sampled Temperative (°C) Specific (unobs/cm) pII (pII Units) TDS (mg/L) TDS (mg/L) 22-May-03 11 950 6.6 22-May-03 14 1000 6.3 620 430 72-Aug-03 17 890 6.4 620 410 04-Nov-03 13 920 6.6 630 430 17 May-0 6.5 640 410 430 30-Aug-04 11 920 6.5 640 420 30-Aug-04 11 970 6.4 460 15-bec-04 11 900 6.5 460 20-Mar-03 11 900 6.6 600 460 27-Aug-03 112 870 6.6 600 460 30-Aug-04 12 730 6.6 400 18-May-03 14 840 -2' 580 410				Field Measu	irements ¹		Laboratory Measurement ²
MW-6 22-May-03 14 1,000 6.3 620 430 MW-6 27-Aug-03 17 890 6.4 620 410 04-Nov-03 13 920 6.6 630 430 24-Mar-04 11 920 6.5 640 410 17-May-04 14 930 6.3 640 420 30-Aug-04 17 880 3 610 430 15-Dec-04 11 700 6.4 460 20-Mar-03 11 910 6.6 - 22-Mar-03 11 960 6.5 - 22-Mar-03 12 870 6.6 600 460 03-Nacg-04 14 840 -3 580 410 15-Dec-04 11 700 6.4 - 09-Mar-03 14 730 6.4 - - 21-May-03 21	Well No.	Date Sampled	-	Conductance	-		
MW-6 27-Aug-03 17 890 6.4 620 410 04-Nov-03 13 920 6.5 640 410 17-May-04 11 920 6.5 640 410 17-May-04 14 930 6.3 640 420 30-Aug-04 17 880 3 610 430 15-Dec-04 11 700 6.4 460 11-Mar-05 11 900 6.7 620 22-May-03 11 910 6.6 22-May-03 12 870 6.6 600 460 27-Aug-03 14 840 400 30 70 30-Aug-04 12 730 6.6 490 370 70 30-Aug-04 14 840 - - - 18-Mar-03 14 730 6.4 - -		20-Mar-03	11	950	6.6		
MW-6 04-Nov-03 13 920 6.6 630 430 24-Mar-04 11 920 6.5 640 410 17-May-04 14 930 6.3 640 420 30-Aug-04 17 880 3 610 430 15-Dec-04 11 700 6.4 460 11-Mar-05 11 900 6.7 620 20-Mar-03 11 910 6.6 22-May-03 14 840 6.6 580 400 03-Nov-03 12 870 6.6 600 460 24-Mar-04 11 960 6.4 440 18-May-04 12 730 6.6 490 370 30-Aug-04 14 840 ³ 580 18-Mar-03 14 730 6.4 - 21-May-03 16 740		22-May-03	14	1,000	6.3	620	430
MW-6 24-Mar-04 11 920 6.5 640 410 17-May-04 14 930 6.3 640 420 30-Aug-04 17 880 3 610 430 15-Dec-04 11 700 6.4 460 11-Mar-05 11 900 6.7 620 20-Mar-03 11 910 6.6 22-May-03 11 960 6.5 22-May-03 12 870 6.6 600 460 03-Nov-03 12 870 6.6 600 460 18-May-04 11 960 6.4 440 18-Mar-04 11 730 6.4 - 09-Mar-05 11 850 6.3 580 14 730 6.4 - - 21-May-03 16 740 6.3 </td <td></td> <td>27-Aug-03</td> <td>17</td> <td>890</td> <td>6.4</td> <td>620</td> <td>410</td>		27-Aug-03	17	890	6.4	620	410
Image: Markard		04-Nov-03	13	920	6.6	630	430
30-Aug-04 17 880 3 610 430 15-Dec-04 11 700 6.4 460 11-Mar-05 11 900 6.7 620 20-Mar-03 11 910 6.6 22-May-03 11 960 6.5 460 27-Aug-03 14 840 6.6 580 400 03-Nov-03 12 870 6.6 600 460 18-May-04 12 730 6.6 490 370 30-Aug-04 14 840 ³ 580 410 15-Dec-04 11 700 6.4 460 09-Mar-05 11 850 6.3 580 18-Mar-03 14 730 6.4 21-May-03 16 740 6.3 460 390 27-Aug-03 21 730 6.2	MW-6	24-Mar-04	11	920	6.5	640	410
Is-Dec-04 11 700 6.4 460 20-Mar-03 11 900 6.7 620 20-Mar-03 11 900 6.6 22-May-03 11 960 6.5 22-May-03 14 840 6.6 580 400 03-Nov-03 12 870 6.6 600 460 24-Mar-04 11 960 6.4 440 18-May-04 12 730 6.6 490 370 30-Aug-04 14 840 3 580 410 15-Dec-04 11 700 6.4 460 21-May-03 16 740 6.3 580 21-May-03 17 740 6.4 510 380 21-May-03 17 740 6.4 510 380 04-Nov-03 17 740 6.4 <td></td> <td>17-May-04</td> <td>14</td> <td>930</td> <td>6.3</td> <td>640</td> <td>420</td>		17-May-04	14	930	6.3	640	420
Is-Dec-04 11 700 6.4 460 20-Mar-03 11 900 6.7 620 20-Mar-03 11 900 6.6 22-May-03 11 960 6.5 22-May-03 14 840 6.6 580 400 03-Nov-03 12 870 6.6 600 460 24-Mar-04 11 960 6.4 440 18-May-04 12 730 6.6 490 370 30-Aug-04 14 840 3 580 410 15-Dec-04 11 700 6.4 460 21-May-03 16 740 6.3 580 21-May-03 17 740 6.4 510 380 21-May-03 17 740 6.4 510 380 04-Nov-03 17 740 6.4 <td></td> <td>30-Aug-04</td> <td>17</td> <td>880</td> <td> 3</td> <td>610</td> <td>430</td>		30-Aug-04	17	880	3	610	430
MW-9 20-Mar-03 11 910 6.6 122-May-03 11 960 6.5 460 27-Aug-03 14 840 6.6 580 400 03-Nov-03 12 870 6.6 600 460 18-May-04 12 730 6.6 490 370 30-Aug-04 12 730 6.6 490 370 30-Aug-04 12 730 6.6 490 370 30-Aug-04 12 730 6.4 09-Mar-05 11 850 6.3 580 18-Mar-03 14 730 6.4 21-May-03 16 740 6.3 460 390 27-Aug-03 21 730 6.2 500 370 04-Nov-03 17 740 6.4 510 380 17-May-04 18 800			11	700		460	
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$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$		20-Mar-03	11	910	6.6		
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$		22-May-03	11	960	6.5		460
MW-7 03-Nov-03 12 870 6.6 600 460 MW-7 24-Mar-04 11 960 6.4 440 18-May-04 12 730 6.6 490 370 30-Aug-04 12 730 6.4 460 09-Mar-05 11 850 6.3 580 09-Mar-05 11 850 6.3 580 21-May-03 16 740 6.3 460 390 27-Aug-03 16 740 6.4 510 380 21-May-03 16 740 6.4 510 380 04-Nov-03 17 740 6.4 510 380 17-May-04 18 800 6.1 530 390 17-May-04 18 800 6.5 550 11-Mar-05 13 800 6.5 550 12-May-03 16			14	840	6.6	580	400
MW-7 24-Mar-04 11 960 6.4 440 18-May-04 12 730 6.6 490 370 30-Aug-04 14 840 3 580 410 15-Dec-04 11 700 6.4 460 09-Mar-05 11 850 6.3 580 18-Mar-03 14 730 6.4 21-May-03 16 740 6.3 460 390 27-Aug-03 21 730 6.2 500 370 04-Nov-03 17 740 6.4 510 380 17-May-04 18 800 6.1 530 390 30-Aug-04 21 760 ³ 520 390 14-Dec-04 14 820 6.4 18-Mar-03 14 820 6.4 23-May-03 16 870			12	870	6.6	600	460
30-Aug-04 14 840 ³ 580 410 15-Dec-04 11 700 6.4 460 09-Mar-05 11 850 6.3 580 18-Mar-03 14 730 6.4 21-May-03 16 740 6.3 460 390 27-Aug-03 21 730 6.2 500 370 04-Nov-03 17 740 6.4 510 380 17-May-04 18 800 6.1 530 390 30-Aug-04 21 760 ³ 520 390 14-Dec-04 14 650 6.3 420 11-Mar-05 13 800 6.5 550 18-Mar-03 14 820 6.4 23-May-03 16 870 6.6 560 350 04-Nov-03 17 820 6.6	MW-7		11	960	6.4		440
30-Aug-04 14 840 ³ 580 410 15-Dec-04 11 700 6.4 460 09-Mar-05 11 850 6.3 580 18-Mar-03 14 730 6.4 21-May-03 16 740 6.3 460 390 27-Aug-03 21 730 6.2 500 370 04-Nov-03 17 740 6.4 510 380 17-May-04 18 800 6.1 530 390 30-Aug-04 21 760 ³ 520 390 14-Dec-04 14 650 6.3 420 11-Mar-05 13 800 6.5 550 18-Mar-03 14 820 6.4 23-May-03 16 870 6.6 550 400 27-Aug-03 20 830 6.1 <td></td> <td>18-May-04</td> <td>12</td> <td>730</td> <td>6.6</td> <td>490</td> <td>370</td>		18-May-04	12	730	6.6	490	370
15-Dec-04 11 700 6.4 460 09-Mar-05 11 850 6.3 580 18-Mar-03 14 730 6.4 21-May-03 16 740 6.3 460 390 27-Aug-03 21 730 6.2 500 370 04-Nov-03 17 740 6.4 510 380 21-May-04 14 780 6.2 530 400 17-May-04 18 800 6.1 530 390 30-Aug-04 21 760 3 520 390 14-Dec-04 14 650 6.3 420 11-Mar-05 13 800 6.4 23-May-03 16 870 6.6 550 400 27-Aug-03 20 830 6.2 570 350 04-Nov-03 17 820 6.6			14		3	580	
09-Mar-05 11 850 6.3 580 18-Mar-03 14 730 6.4 21-May-03 16 740 6.3 460 390 27-Aug-03 21 730 6.2 500 370 04-Nov-03 17 740 6.4 510 380 17-May-04 14 780 6.2 530 400 17-May-04 18 800 6.1 530 390 30-Aug-04 21 760 3 520 390 14-Dec-04 14 650 6.3 420 11-Mar-05 13 800 6.5 550 18-Mar-03 14 820 6.4 23-May-03 16 870 6.6 550 400 27-Aug-03 20 830 6.2 570 350 04-Nov-03 17 820 6.6							
MW-8 18-Mar-03 14 730 6.4 21-May-03 16 740 6.3 460 390 27-Aug-03 21 730 6.2 500 370 04-Nov-03 17 740 6.4 510 380 24-Mar-04 14 780 6.2 530 400 17-May-04 18 800 6.1 530 390 30-Aug-04 21 760 3 520 390 14-Dec-04 14 650 6.3 420 11-Mar-05 13 800 6.5 550 11-Mar-03 14 820 6.4 23-May-03 16 870 6.6 550 400 27-Aug-03 20 830 6.2 570 350 04-Nov-03 17 820 6.6 560 350 MW-9 24-Mar-04 14		09-Mar-05					
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MW-10 04-Nov-03 18 880 6.6 600 430							
	MW-10						
1 1/-Way-04 19 970 67 610 700		17-May-04	19	920	6.2	610	430
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			Laboratory Measurement			
Well No.	Date Sampled	Temperature (°C)	Specific Conductance (µmohs/cm)	pH (pH Units)	TDS (mg/L)	TDS (mg/L)
	20-Mar-03	14	870	6.4		
	21-May-03	17	890	6.4	560	460
	27-Aug-03	23	870	6.2	600	440
MW-11	04-Nov-03	19	880	6.6	600	450
	17-May-04	18	880	6.2	590	430
	14-Dec-04	15	740	6.4	480	
	18-Mar-03	15	830	6.3		
	21-May-03	18	840	6.1		460
NAV 10	27-Aug-03	23	870	6.2	600	480
MW-12	04-Nov-03	18	920	6.5	630	480
	17-May-04	20	900	6.0	600	490
	14-Dec-04	14	710	6.4	460	
	20-Mar-03	14	3,200	6.7		
	22-May-03	15	3,400	6.6		2,100
	27-Aug-03	20	3,600	6.6	2,300	1,900
MW-14	04-Nov-03	16	3,300	6.6	2,500	2,100
	17-May-04	17	2,800	6.4	2,000	1,800
	15-Dec-04	14	2,500	6.6	1,300	
	09-Mar-05	13	2,400	6.6	1,600	
	20-Mar-03	13	980	6.4		
	22-May-03	15	1,000	6.5		450
MW-17	27-Aug-03	19	860	7.0	600	420
10100 17	04-Nov-03	15	920	6.6	640	450
	17-May-04	15	940	6.5	620	440
	14-Dec-04	12	830	6.4	540	
	18-Mar-03	14	1,000	6.5		
	23-May-03	17	980	6.6	610	640
MW-18	27-Aug-03	23	1,100	6.3	780	520
	04-Nov-03	17	1,100	6.6	760	490
	17-May-04	19	1,000	6.3	670	430
	14-Dec-04	13	860	6.5	560	
	24-Mar-04	14	420	6.9	280	250
	18-May-04	18	470	6.7	310	280
MW-20	30-Aug-04	21	500	3	330	300
	15-Dec-04	12	370	6.5	240	
	09-Mar-05	13	320	6.6	220	
	24-Mar-04	12	990	6.3	680	460
1011.01	18-May-04	14	1,000	6.3	660	420
MW-21	30-Aug-04	16	960	3	660	450
	15-Dec-04	11	760	6.2	500	
	10-Mar-05	11	930	6.3	640	



Sierra Pacific Industries Arcata Division Sawmill Arcata, California

			Laboratory Measurement ²			
Well No.	Date Sampled	Temperature (°C)	Specific Conductance (µmohs/cm)	рН (pH Units)	TDS (mg/L)	TDS (mg/L)
Deep Wells	-					
	20-Mar-03	14	1,200	6.2		
-	22-May-03	14	1,100	6.2		
	27-Aug-03	15	1,100	6.1	750	690
MW-13D	04-Nov-03	15	1,000	6.1		580
-	17-May-04	14	1,000	5.8	700	610
-	15-Dec-04	14	620	6.1	400	
-	11-Mar-05	14	900	6.2	620	
	20-Mar-03	13	1,300	6.8		
-	22-May-03	13	1,300	6.8		800
	27-Aug-03	14	1,300	6.3	900	810
MW-15D	04-Nov-03	14	1,300	6.8		790
-	17-May-04	13	1,400	6.3	930	800
-	15-Dec-04	14	1,000	6.7	650	
-	11-Mar-05	13	1,300	6.8	880	
	18-Mar-03	14	5,200	7.7		
-	23-May-03	14	5,200	7.6		3,200
-	27-Aug-03	16	5,000	7.4	3,400	3,000
MW-16D	04-Nov-03	16	4,800	7.6	3,700	2,800
-	17-May-04	15	4,600	7.3	3,500	2,800
-	14-Dec-04	16	3,700	7.7	2,400	
-	11-Mar-05	15	4,400	7.8	3,400	
	20-Mar-03	16	810	6.7		
	22-May-03	16	860	6.6	520	480
MW-19D	27-Aug-03	17	810	6.5	560	410
MW-19D	03-Nov-03	17	760	6.7	520	370
	17-May-04	16	840	6.5	560	430
	15-Dec-04	17	490	6.5	320	

Notes:

1. Water quality parameters measured in the field using an Ultrameter instrument or a YSI Model 556 instrument; reported measurements recorded towards end of purge after parameters stabilized or from the last purge volume if a well was repeatedly purged dry.

2. Water quality parameter analyzed in the laboratory; EPA Method 160.1. Laboratory analysis of TDS was discontinued during the fourth quarter 2004.

3. pH meter inoperable.

Abbreviations:

°C = degrees Celsius

 μ mhos/cm = micromhos per centimeter at 25 °C

mg/L = milligrams per liter

-- = not measured or sample not collected for analysis

TDS = total dissolved solids

EPA = U.S. Environmental Protection Agency



LABORATORY ANALYTICAL RESULTS FOR CHLORINATED PHENOLS (CANADIAN PULP METHOD)

Sierra Pacific Industries

Arcata Division Sawmill

Arcata, California

Concentrations in micrograms per liter (μ g/L)

			2,4,6-	2,3,5,6-	2,3,4,6-	2,3,4,5-	_
Monitoring	Date	Penta-	trichloro-	tetrachloro-		tetrachloro-	Comments
Well Number	Sampled ¹	chlorophenol	phenol	phenol	phenol	phenol	
Shallow Wells		1			I		
	14-Mar-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	18-Jul-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	16-Sep-02	1.8	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Oct-02 ²	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	02-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-1	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
111111	22-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	04-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	11-Mar-05	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	low flow sample
	14-Mar-02	7.4	< 1.0	< 1.0	< 1.0	< 1.0	
	18-Jul-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	16-Sep-02	2.5	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	22-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-2	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	24-Mar-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	30-Aug-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	11-Mar-05	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	low flow sample
	14-Mar-02	1.2	< 1.0	< 1.0	< 1.0	< 1.0	
	18-Jul-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	16-Sep-02	5.0	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-3	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
IVI VV - 3	22-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	



LABORATORY ANALYTICAL RESULTS FOR CHLORINATED PHENOLS (CANADIAN PULP METHOD)

Sierra Pacific Industries

Arcata Division Sawmill

Arcata, California

Concentrations in micrograms per liter (μ g/L)

			2,4,6-	2,3,5,6-	2,3,4,6-	2,3,4,5-	
Monitoring	Date	Penta-	trichloro-	tetrachloro-	tetrachloro-	tetrachloro-	Comments
Well Number	Sampled ¹	chlorophenol	phenol	phenol	phenol	phenol	
	14-Mar-02	8.6	< 1.0	< 1.0	< 1.0	< 1.0	
	18-Jul-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	16-Sep-02	5.7	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-4	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
101 00 -4	22-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Mar-02	4.3	< 1.0	< 1.0	< 1.0	< 1.0	
	18-Jul-02	9.1	< 1.0	< 1.0	< 1.0	< 1.0	
	16-Sep-02	25	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-5	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	duplicate sample
	22-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Mar-02	4.5	< 1.0	< 1.0	< 1.0	< 1.0	
	18-Jul-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	16-Sep-02	6.3	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-6	22-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
IVI W -0	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	24-Mar-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	30-Aug-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	11-Mar-05	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	



LABORATORY ANALYTICAL RESULTS FOR CHLORINATED PHENOLS (CANADIAN PULP METHOD)

Sierra Pacific Industries Arcata Division Sawmill

Arcata, California

a				4.1.1	((T)
Concentrations	ın	micrograms	ner	lifer	$(\Pi \sigma / \Gamma)$
Concentrations		merograms	per	men	(μ_{B}, L)

			2,4,6-	2,3,5,6-	2,3,4,6-	2,3,4,5-	
Monitoring	Date	Penta-	trichloro-	tetrachloro-	tetrachloro-	tetrachloro-	Comments
Well Number	Sampled ¹	chlorophenol	phenol	phenol	phenol	phenol	
	14-Mar-02	31,000	< 1.0	41	650	24	
	18-Jul-02	33,000	< 1.0	< 1.0	990	56	
	16-Sep-02	44,000	< 1.0	< 1.0	920	64	
	03-Dec-02	46,000	< 1.3	76	1,300	52	
	14-Jan-03 ³	51,000	2.4	< 1.0	970	52	
	20-Mar-03	19,000	< 1.0	36	460	22	
	22-May-03	19,000	< 1.0	< 1.0	470	< 100	
	22-May-03	16,000	< 1.0	< 1.0	400	< 100	duplicate sample
	22-May-03	14,000	< 1.0	< 1.0	400	< 100	filtered
	27-Aug-03	31,000	< 1.5	41	710	39	
	27-Aug-03	18,000	< 1.0	28	450	26	duplicate sample
MW-7	3-Nov-03	28,000	< 5.0	36	580	35	bailer sample / unfiltered
	3-Nov-03	31,000	< 5.0	47	740	43	bailer sample / filtered
	3-Nov-03	20,000	< 5.0	28	450	24	low flow sample / unfiltered
	3-Nov-03	14,000	< 5.0	19	300	17	low flow sample / filtered
	24-Mar-04	19,000	< 1.5	19	450	19	
	24-Mar-04	7,400	< 1.0	8.7	150	9.9	duplicate sample
	18-May-04	25,000	< 2.5	86	480	41	
	30-Aug-04	13,000	< 1.0	54	200	17	
	15-Dec-04	22,000	1.7	57	310	42	
	09-Mar-05	24,000	< 1.0	39	420	32	low flow sample
	14-Mar-02	22	< 1.0	< 1.0	< 1.0	< 1.0	
	18-Jul-02	31	< 1.0	< 1.0	< 1.0	< 1.0	
	16-Sep-02	4.8	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	18-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	21-May-03	1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-8	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	24-Mar-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	30-Aug-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	11-Mar-05	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	



LABORATORY ANALYTICAL RESULTS FOR CHLORINATED PHENOLS (CANADIAN PULP METHOD)

Sierra Pacific Industries Arcata Division Sawmill

Arcata, California

Concentrations in micrograms per liter (μ g/L)

			2,4,6-	2,3,5,6-	2,3,4,6-	2,3,4,5-	
Monitoring	Date	Penta-	trichloro-	tetrachloro-	tetrachloro-	tetrachloro-	Comments
Well Number	Sampled ¹	chlorophenol	phenol	phenol	phenol	phenol	
	14-Mar-02	94	3.1	21	130	5.5	
	18-Jul-02	2.1	< 1.0	< 1.0	< 1.0	< 1.0	
	16-Sep-02	3.1	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	18-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	23-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-9	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	04-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	24-Mar-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	30-Aug-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	11-Mar-05	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	18-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	23-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-10	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	21-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-11	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	18-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	21-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-12	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	



LABORATORY ANALYTICAL RESULTS FOR CHLORINATED PHENOLS (CANADIAN PULP METHOD)

Sierra Pacific Industries

Arcata Division Sawmill

Arcata, California

Concentrations in micrograms per liter (μ g/L)

			2,4,6-	2,3,5,6-	2,3,4,6-	2,3,4,5-	
Monitoring	Date	Penta-	trichloro-	tetrachloro-	tetrachloro-	tetrachloro-	Comments
Well Number	Sampled ¹	chlorophenol	phenol	phenol	phenol	phenol	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	22-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-14	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
101 00 - 1 -	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	09-Mar-05	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	low flow sample
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	22-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-17	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	18-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	23-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-18	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	24-Mar-04	35	< 1.0	< 1.0	5.1	3.8	
	18-May-04	3.6	< 1.0	< 1.0	1.1	< 1.0	
MW-20	30-Aug-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	09-Mar-05	71	3.4	27	< 1.0	4.6	low flow sample
	24-Mar-04	800	< 1.0	6.3	17	12	
	18-May-04	1,900	< 1.0	11	36	11	
	18-May-04	670	< 1.0	3.5	16	4.4	duplicate sample
	30-Aug-04	2,700	< 1.0	6.4	66	5.4	
MW-21	30-Aug-04	2,800	< 1.0	6.9	68	5.5	duplicate sample
1 VI VV - 21	15-Dec-04	3,200	< 1.0	34	50	5.5	
	15-Dec-04	8,100	2.1	64	120	8.3	duplicate sample
	10-Mar-05	4,700	< 1.0	8.1	31	< 1.5	low flow sample
	10-Mar-05	4,600	2.7	26	86	6.5	low flow sample / duplicate



LABORATORY ANALYTICAL RESULTS FOR CHLORINATED PHENOLS (CANADIAN PULP METHOD)

Sierra Pacific Industries

Arcata Division Sawmill

Arcata, California

Concentrations in micrograms per liter (μ g/L)

			2,4,6-	2,3,5,6-	2,3,4,6-	2,3,4,5-	
Monitoring	Date	Penta-	trichloro-	tetrachloro-	tetrachloro-	tetrachloro-	Comments
Well Number	Sampled ¹	chlorophenol	phenol	phenol	phenol	phenol	
Deep Wells							
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	22-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-13D	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
101 00 - 13D	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	11-Mar-05	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	22-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-15D	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
IVI VV-13D	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	11-Mar-05	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	1.3	< 1.0	< 1.0	< 1.0	< 1.0	
	18-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	23-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-16D	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
IVI VV-10D	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	11-Mar-05	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	22-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-19D	27-Aug-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	4-Nov-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	

Notes:

1. Data prior to March 18, 2003 were obtained from Results of the Remedial Investigation for Sierra Pacific Industries, Arcata Division Sawmill, Arcata, California, dated January 30, 2003, prepared by EnviroNet Consulting.

2. Confirmation sample collected due to detection of pentachlorophenol on September 16, 2002.

3. Sample also contained 280 mg/L of 2,3,4-trichlorophenol and 190 mg/L of 2,4,5-trichlorophenol. Abbreviation:

< = target analyte was not detected at or above the laboratory reporting limit shown.

-- = not measured or sample not collected for analysis.

TABLE 5

FIELD MEASUREMENTS AND LABORATORY ANALYTICAL RESULTS FOR NATURAL ATTENUATION PARAMETERS

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

				Field Measuremen	ts ¹							Laboratory An	alysis ²				
Monitoring Well Number	Sample Date	Eh ³	DO	Specific Conductance	Temperature	рН	Nitrate (N)	Manganese	Iron	Sulfate (SO ₄)	Carbon Dioxide	Methane	тос	Chloride	Total Alkalinity as CaCO ₃	Calcium	Magnesium
		(mV)	(mg/L)	(µS/cm)	(°C)	(pH Units)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Shallow Wells					T	1								I			
	11/04/03	222	0.2	2,400	17	6.4											
MW-1	03/24/04	173	0.1	2,400	15	6.5	0.42	1.8	42	0.71	255	6.9	36.6	320	830	41	63
	03/11/05	138	0.1	2,100	14	6.5	< 0.20	1.6	50	< 0.50	258	8.0	14.1	260	860	36	57
	11/03/03	226	0.4	1,600	16	6.2	2.8	6	30	< 0.50	314	3.8	33.9	240	520	66	40
MW-2	03/24/04	219	0.2	1,400	13	6.2	< 0.20	4	61	< 0.50	232	4.5	35.7	160	550	65	39
	03/11/05	182	0.1	1,200	13	6.2	< 0.20	4.6	53	< 0.50	289	5.3	15.8	100	520	62	37
	11/03/03	201	0.3	920	17	6.3	4.6	3.9	9.1	< 0.50	174	5.4	18	37	460	55	36
MW-3	03/24/04	183	0.1	1,000	13	6.4	< 0.20	5.3	66	< 0.50	179	9.1	36.3	35	450	62	46
	03/10/05	169	0.1	600	13	6.4	< 0.20	2.5	33	< 0.50	116	5.7	16.5	33	280	31	28
MW-4	11/03/03	207	0.1	670	18	6.3											
	11/03/03	255	0.3	660	17	6.3	<1.0	0.42	0.97	< 0.50	125	9.2	9.36	25	350	28	45
MW-5	03/24/04	293	0.2	650	14	6.3	< 0.20	0.48	4	< 0.50	122	6.3	11.4	21	310	29	50
	03/10/05	232	0.1	570	14	6.3	< 0.20	0.67	4.7	< 0.50	136	6.4	7.34	18	320	29	48
MW-6	11/04/03	236	0.2	890	13	6.3											
	11/03/03	197	0.1	860	13	6.4	<1.0	13	2.3	< 0.50	152	8.8	28.1	45	420	26	42
MW-7	03/24/04	189	0.2	880	11	6.4	< 0.20	3	55	< 0.50	147	10.6	20.8	46	410	31	47
	03/09/05	130	0.1	850	11	6.3	< 0.20	3.5	56	< 0.50	157	10.5	18.2	60	400	35	52
MW-8	11/04/03	237	0.3	740	17	6.2											
MW-9	11/04/03	211	0.2	810	17	6.4											
MW-10	11/04/03	215	0.1	880	18	6.4											
MW-11	11/04/03	196	0.2	870	19	6.4											
MW-12	11/04/03	251	0.4	810	18	6.2											
	11/04/03	234	0.2	2,700	16	6.3											
MW-14	03/24/04	212	0.1	2,400	14	6.4	< 0.20	1.5	41	< 0.50	290	5.2	106	460	1,100	23	50
	03/09/05	109	0.1	2,400	13	6.6	< 0.20	0.73	18	< 0.50	270	0.16	60.9	390	1,100	25	55
MW-17	11/04/03	240	0.2	970	15	6.4											
MW-18	11/04/03	198	0.2	950	17	6.4											
NUL 20	03/24/04	252	0.1	440	13	6.8	< 0.20	1	0.2	1.6	30.5	< 0.00158	9.48	21	210	32	32
MW-20	03/09/05	182	0.2	320	13	6.6	< 0.20	1.5	2.2	1.2	41.4	0.015	7.25	17	180	23	23
	03/24/04	162	0.3	990	11	6.4	< 0.20	2.7	67	< 0.50	135	0.0043	21.4	54	380	30	50
MW-21	03/10/05	146	0.1	930		6.3	< 0.20	2.7	69	< 0.50	179	7.4	18.6	62	430	29	50
	03/10/05 4	140	0.1	930	11	0.3	< 0.20	2.7	69	< 0.50	165	7.8	16.4	62	420	29	49
Deep Wells				-													
MW-13D	11/04/03	253	0.1	670	16	5.9											
MW-15D	11/04/03	255	0.3	1,200	14	6.5											
MW-16D	11/04/03	246	0.1	4,600	16	7.5											
MW-19D	11/03/03	197	0.3	730	18	6.5											

Notes:

1. Water quality parameters measured in the field with a YSI model 556 in a flow-through cell.

2. Samples collected by Geomatrix and analyzed by EPA Method 415.1 (total organic carbon), EPA Method 200.7 (calcium and magnesium),

EPA Method 300 (chloride, nitrate and sulfate), EPA Method 6010B (Iron (II) and Manganese (II)), Standard Methods 2320B (total alkalinity), RSK 175 (carbon dioxide and methane).

3. Reduction-oxidation potential standardized to hydrogen electrode for silver/silver-chloride electrode (199 millivolts was added to the field measurement).

3. Duplicate sample.

Abbreviations:

Eh = reduction-oxidation potential DO = dissolved oxygen TOC = total organic carbon

 $CaCO_3 = calcium carbonate$ mV = millivoltsmg/L = milligrams per liter

 μ S/cm = microSiemens per centimeter °C = degrees Celsius < = target analyte was not detected at or above the laboratory reporting limit shown.

-- = not measured or sample not collected for analysis

TABLE 6 LABORATORY ANALYTICAL RESULTS FOR CHLORINATED PHENOLS AND PHENOL (8270 SIM METHOD)

Sierra Pacific Industries Arcata Division Sawmill

Arcata, California

Monitoring Well	Date Sampled	РСР	3,4,5- TCP	2,3,5,6- TeCP	2,3,4,5- TeCP	2,3,4,6- TeCP	3,4- DCP	2,3,6- TCP	3,5- DCP	2,3,4- TCP	2,4,5- TCP	2,4,6- TCP	2,3,5- TCP	2,5- DCP	$3-CP + 4-CP^2$	2,6- DCP	2,3- DCP	2,4- DCP	2- CP	Phenol
MW-1	24-Mar-04	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	<1	<1	<1	<1	<1
IVI VV - I	11-Mar-05	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1
MW-2	24-Mar-04	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1
101 00 -2	11-Mar-05	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1
MW-3	24-Mar-04	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1
IVI VV - 3	10-Mar-05	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1
MW-5	24-Mar-04	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1
IVI VV - 3	10-Mar-05	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1
MW-7	24-Mar-04	15,000	92	320	17	23	390	<1	18	1	56	<1	2	<1	460	<1	<1	4	<1	2
101 00 - /	09-Mar-05	12,000	290	490	37	17	610	1	28	2	75	1	2	<1	890	<1	1	5	<1	3
MW-14	24-Mar-04	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1
101 00 - 14	09-Mar-05	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1
MW-20	24-Mar-04	9	2	2	2	<1	8	<1	<1	<1	1	<1	<1	<1	2	<1	<1	<1	<1	<1
IVI VV -20	09-Mar-05	100	4	2	4	12	15	<1	9	<1	<1	4	5	<1	9	<1	<1	1	<1	<1
	24-Mar-04	520	52 ve	16	16	7	130	<1	9	<1	3	<1	<1	<1	200	<1	<1	<1	<1	<1
MW-21	24-Mar-04 ³	570	50 ve	17	14	6	120	<1	9	<1	3	<1	<1	<1	200	<1	<1	<1	<1	<1
141 44 -2.1	10-Mar-05	5,500	250	109	4	27	310	<1	19	<1	5	<1	<1	<1	270	<1	<1	2	<1	<1
	10-Mar-05 ³	5,500	250	110	4	27	310	<1	20	<1	5	<1	<1	<1	270	<1	<1	2	<1	<1

Concentrations in micrograms per liter (μ g/L)

Notes:

1. EPA Method 8270 SIM analysis of groundwater samples.

2. Results shown are for both 3-CP and 4-CP (the sum of) since these compounds could not be separated for individual analysis in the laboratory.

3. Duplicate sample.

Abbreviations:

- PCP = pentachlorophenol
- TeCP = tetrachlorophenol
- TCP = trichlorophenol
- DCP = dichlorophenol
- CP = chlorophenol

EPA = U.S. Environmental Protection Agency

SIM = select ion monitoring

-- = not measured or sample not collected for analysis

< = target analyte was not detected at or above the laboratory reporting limit shown.

ve = value exceeded the calibration range established for the instrument and is therefore considered an estimate; result upon dilution and re-analysis was not detected at or above a laboratory reporting limit of 50.

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TABLE 7

LABORATORY ANALYTICAL RESULTS FOR DIOXINS AND FURANS

PILOT STUDY

Sierra Pacific Industries

Arcata Division Sawmill

Arcata, California

Concentrations in picograms per liter (pg/L).

											1	Braine per i	JU /										
Monitoring Well Number	Date Sampled	2, 3, 7, 8- TCDD	1, 2, 3, 7, 8- PeCDD	1, 2, 3, 4, 7, 8- HxCDD	1, 2, 3, 6, 7, 8- HxCDD	1, 2, 3, 7, 8, 9- HxCDD	1, 2, 3, 4, 6, 7, 8- HpCDD	OCDD	Total Dioxins	2, 3, 7, 8- TCDF	1, 2, 3, 7, 8- PeCDF	2, 3, 4, 7, 8- PeCDF	1, 2, 3, 4, 7, 8- HxCDF	1, 2, 3, 6, 7, 8- HxCDF	2, 3, 4, 6, 7, 8- HxCDF	1, 2, 3, 7, 8, 9- HxCDF	1, 2, 3, 4, 6, 7, 8- HpCDF	1, 2, 3, 4, 7, 8, 9- HpCDF	OCDF	Total Furans	TOTAL TEQ ^{2, 3}	PERCENT 2,3,7,8- TCDD ⁴	Comments
Shallow Wells																							
MW-1	24-Mar-04	<1.69	<2.85	<5.19	< 6.00	<5.29	<4.87	87.0	13.5	<1.10	<3.21	<2.84	<1.20	<1.61	<1.47	<1.91	<2.21	<2.57	<7.41	<8.79	0.00870	0	
IVI VV - 1	11-Mar-05	<1.77	<2.88	<3.27	<4.25	<3.70	6.39 J	136	21.3 J	<1.33	<3.57	<3.70	<1.42	<1.26	<1.13	<1.73	<1.74	<2.36	<4.44	<9.18	0.0775	0	
MW-2	24-Mar-04	<1.63	<2.60	<4.86	<5.67	<4.89	<7.48	61.1	<21.16	<1.37	<3.65	<3.00	<1.30	<1.79	<1.73	<2.42	<3.01	<3.67	<7.05	9.62	0.00611	0	
M w -2	11-Mar-05	<1.61	<2.85	<2.75	<3.59	<3.03	<4.61	18.8 J	<12.66	<1.39	<3.37	<3.02	<1.46	<1.30	<1.29	<1.88	<1.71	<2.32	<3.16	<8.96	0.00188	0	
MW-3	24-Mar-04	<1.90	<2.46	<4.74	<6.23	<4.81	74.6	976	219.14 J	<1.46	<3.76	<2.88	<1.15	<1.53	<1.44	<1.99	21.6 J	<2.22	33.9 J	109.03 J	1.06	0	
MW-3	10-Mar-05	<1.85	<4.50	<4.51	<5.56	<4.59	<5.31	31.6 J	<17.22	<1.72	<2.91	<2.77	<1.65	<1.51	<1.52	<1.92	<1.88	<2.40	<6.19	<8.95	0.00316	0	
MW-5	24-Mar-04	<1.45	<2.24	<3.67	<4.31	<3.72	19.5 J	121	36.9	<1.29	<3.17	<2.80	< 0.747	<1.02	<1.05	<1.38	7.60 J	<2.45	20.2 J	28.76	0.286	0	
MW-5	10-Mar-05	<1.65	<4.20	<3.50	<4.31	<3.47	<6.54	59.7	<16.7	<1.48	<3.04	<3.01	<1.92	<1.80	<1.74	<2.36	<2.26	<2.60	<6.19	8.02 J	0.00597	0	
	16-Sep-02	<3.12	<3.45	<5.82	< 6.31	<5.32	32.4	144	50.0	<3.36	<4.21	<4.59	<2.38	<2.81	<2.86	<2.99	6.59	<6.67	22.2	81.43 J	0.407	0	
	22-May-03	<1.62	<4.05	22.6 J	<3.83	<3.10	30.2	449	101.50	<1.26	<2.04	<2.02	<1.02	<1.17	<1.19	<1.15	4.97 J	< 0.807	20.7 J	48.44	2.66	0	
10117	22-May-03	<1.27	<2.00	7.89 J	<2.47	<1.97	16.3	231	50.0	<1.01	<1.66	<1.64	<1.09	<1.28	<1.4	<1.67	2.09 J	<1.19	7.05 J	32.63	0.997	0	filtered
MW-7	03-Nov-03	<2.22	<4.82	<9.48	<10.4	<9.25	<9.54	41.1 J	<26.98	<2.29	<7.96	<5.93	<2.11	<2.51	<2.63	<3.12	<3.03	<4.42	<10.6	<23.04	0.00411	0	filtered
	24-Mar-04	<1.76	46.5	56.4	<5.29	<4.61	71.4	1370	289.3 M	<1.41	<3.57	<2.67	<1.13	<1.57	<1.28	<1.95	8.00 J	<3.17	31.3 J	157.3 J	53.0	0	
	09-Mar-05	<3.21	<4.66	<11.7	<9.57	<7.78	42.4	1,600	88.6	<4.83	<4.92	<4.87	<5.41	<4.70	< 5.00	<4.88	<5.91	<6.93	32.1 J	81.5	0.587	0	
MW-14	24-Mar-04	<1.74	<3.36	<5.32	<5.84	<5.15	10.2 J	70.4	19.9 J	<1.31	<3.96	<3.01	<1.13	<1.64	<1.33	<1.97	<2.42	<2.97	<8.53	<10.21	0.109	0	
MW-14	09-Mar-05	<2.18	<4.31	<4.54	<5.51	<4.31	<7.26	46.2 J	<19.26	<2.05	<2.89	<2.59	<2.29	<2.12	<2.09	<2.78	<2.57	<3.13	<8.18	<10.85	0.00462	0	
1011 20	24-Mar-04	4.05 J	22.7 J	60.2	2,060	466	93,600	1,240,000	210,367.2	6.50 F	19.5 J	15.3 J	52.6	226 D,M	57.6	11.4 J	3,220 D,M	251	13,600	26,240 D,M	1430	0.00283	
MW-20	09-Mar-05	<2.05	<4.69	<8.75	111	17.8 J	3,850	50,500	9,227	<4.81	<7.00	<6.29	14.8 J	22.2 J	16.5 J	4.42	832	57.9	3,000	6,192 D,M	71.0	0	
	24-Mar-04	<1.82	<2.92	8.76 J	56.1	9.46 J	1,050	12,800	2,542.8	<1.39	<7.15	<3.28	6.89 J	20.9 J	10.3 J	<2.55	605	32.6	1,960	3,477.1 D,M	29.6	0	
MW-21	10-Mar-05	<3.78	<14.7	64.6	<9.98	<9.90	79.4	223	274.5 M	<6.15 F	<6.27	<7.06	1,640	<9.63	<8.08	26.0 J	<8.57	177	<24.7	2,687.4	176	0	
F	10-Mar-05	<1.19	<4.39	<4.13	<5.51	<4.29	20.4 J	522	38.0	<1.15	<2.10	<2.20	<1.40	<1.27	<1.25	<1.58	9.20 J	<1.72	23.4 J	35.01	0.351	0	duplicate
	TEF ⁵ :	1	1	0.1	0.1	0.1	0.01	0.0001		0.1	0.05	0.5	0.1	0.1	0.1	0.1	0.01	0.01	0.0001				

Notes:

1. EPA Method 1613 analysis of groundwater samples.

2. Calculated as the sum of congener concentrations after each has been multiplied by its TEF.

3. Concentrations not detected above the laboratory reporting limit were assigned a concentration of 0 pg/g to calculate TEQ.

4. Calculated by dividing the concentration of 2,3,7,8-TCDD by the Total TEQ (multiplied by 100). When the concentration of 2,3,7,8-TCDD was not detected, it was assigned a concentration of 0 pg/g for this calculation.

5. Toxicity equivalency factor (unitless) from the World Health Organization, 1997 (WHO-97), adopted from F.X.R. van Leeuwen, 1997.

Abbreviations: TCDD = tetrachlorodibenzo-p-dioxin

PeCDD = pentachlorodibenzo-p-dioxin HxCDD = hexachlorodibenzo-p-dioxin

HpCDD = heptachlorodibenzo-p-dioxin

OCDD = octachlorodibenzo-p-dioxin

TCDF = tetrachlorodibenzofuran

PeCDF = pentachlorodibenzofuran

HxCDF = hexachlorodibenzofuran

HpCDF = heptachlorodibenzofuran

OCDF = octachlorodibenzofuran

TEQ = toxicity equivalence

TEF = toxicity equivalency factor (unitless)

EPA = U.S. Environmental Protection Agency

-- = not measured or sample not collected for analysis

<= target analyte was not detected at or above the laboratory reporting limit shown (in gray color).

J = concentration detected was below the calibration range, as flagged by the laboratory

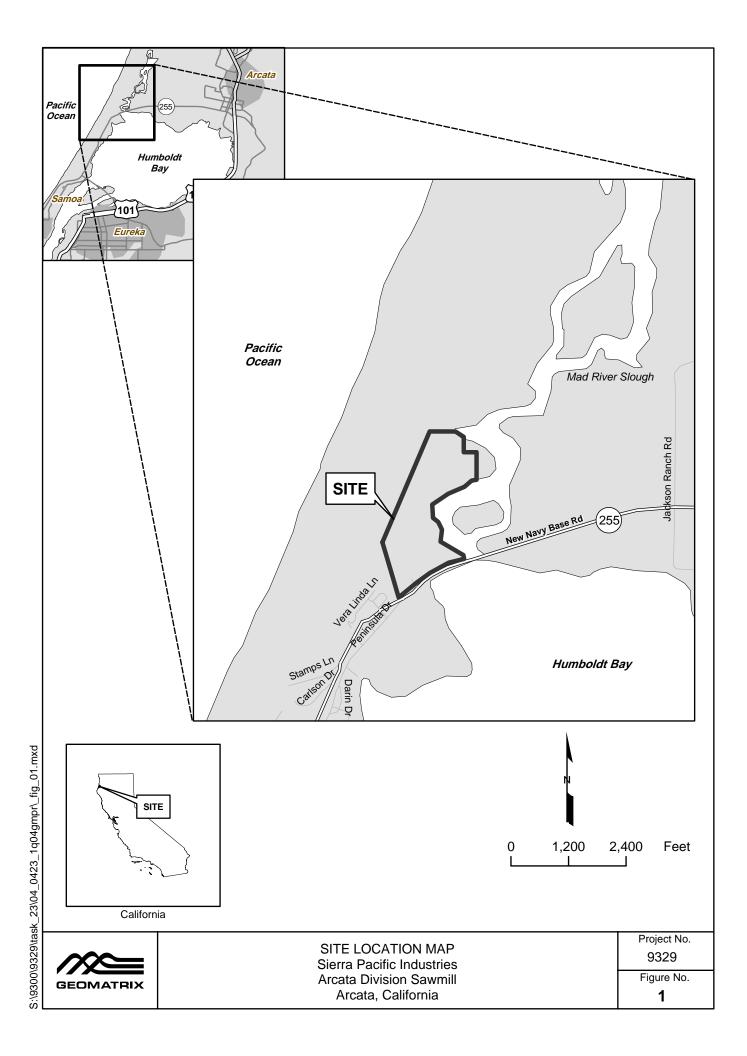
M = maximum possible concentration, as flagged by the laboratory

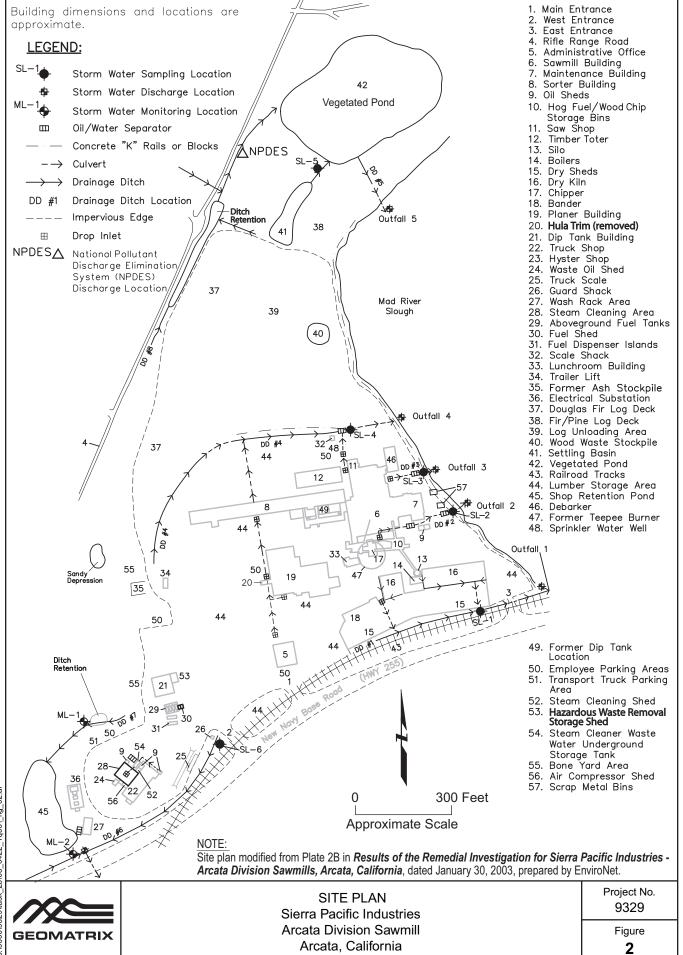
F = analyte confirmation on secondary column, as flagged by laboratory

D = presence of diphenyl ethers detected, as flagged by laboratory



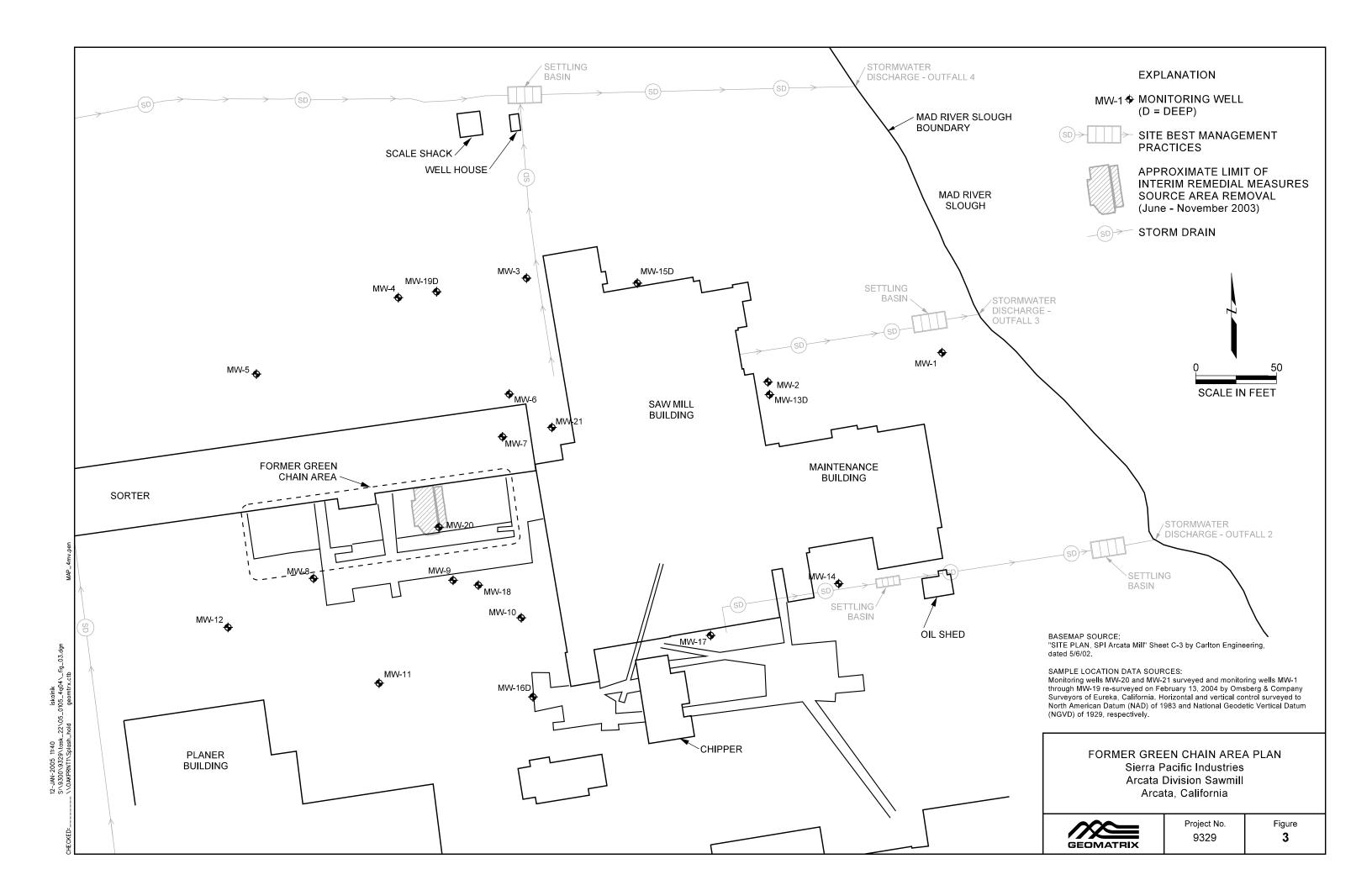
FIGURES

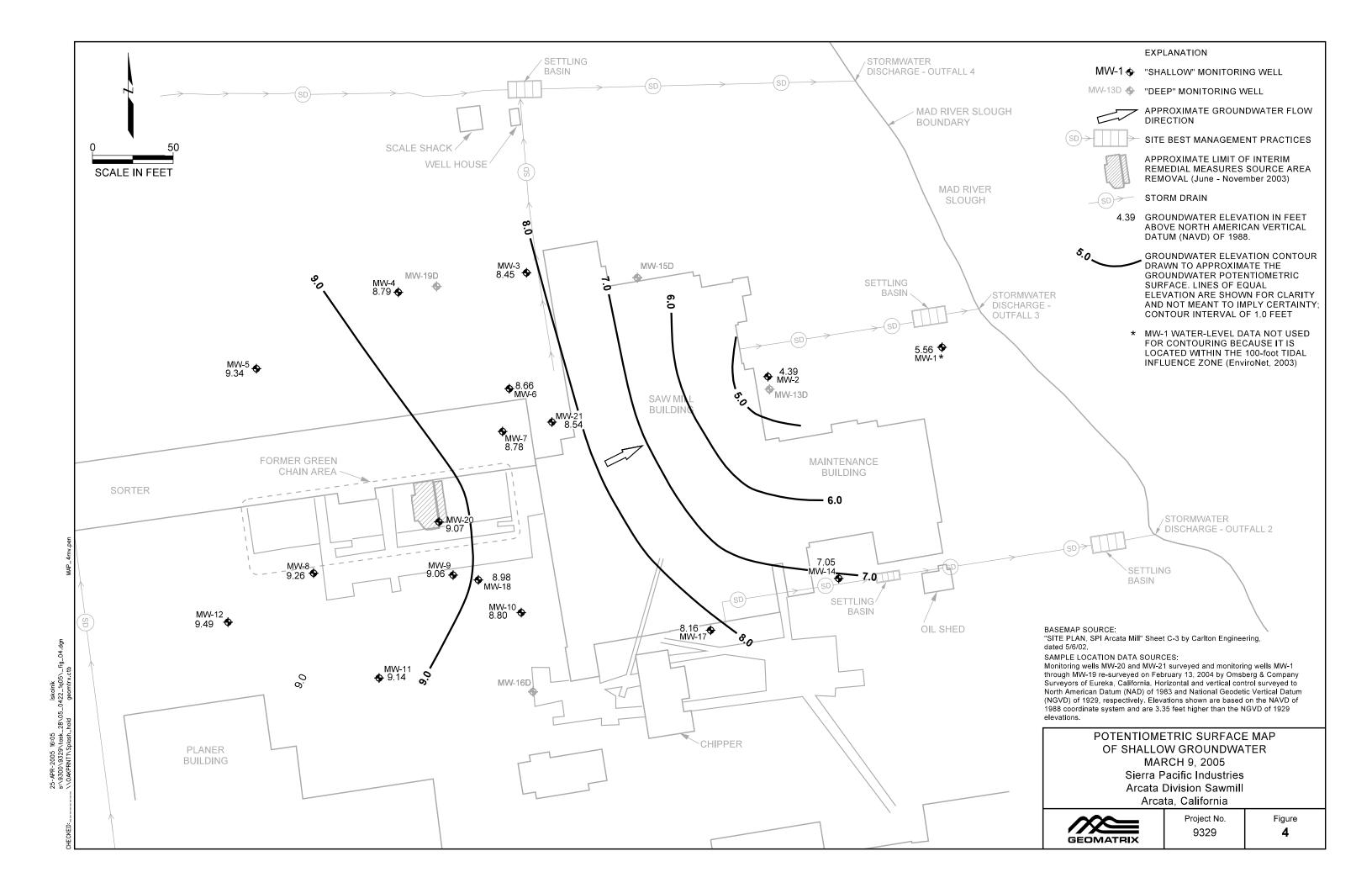


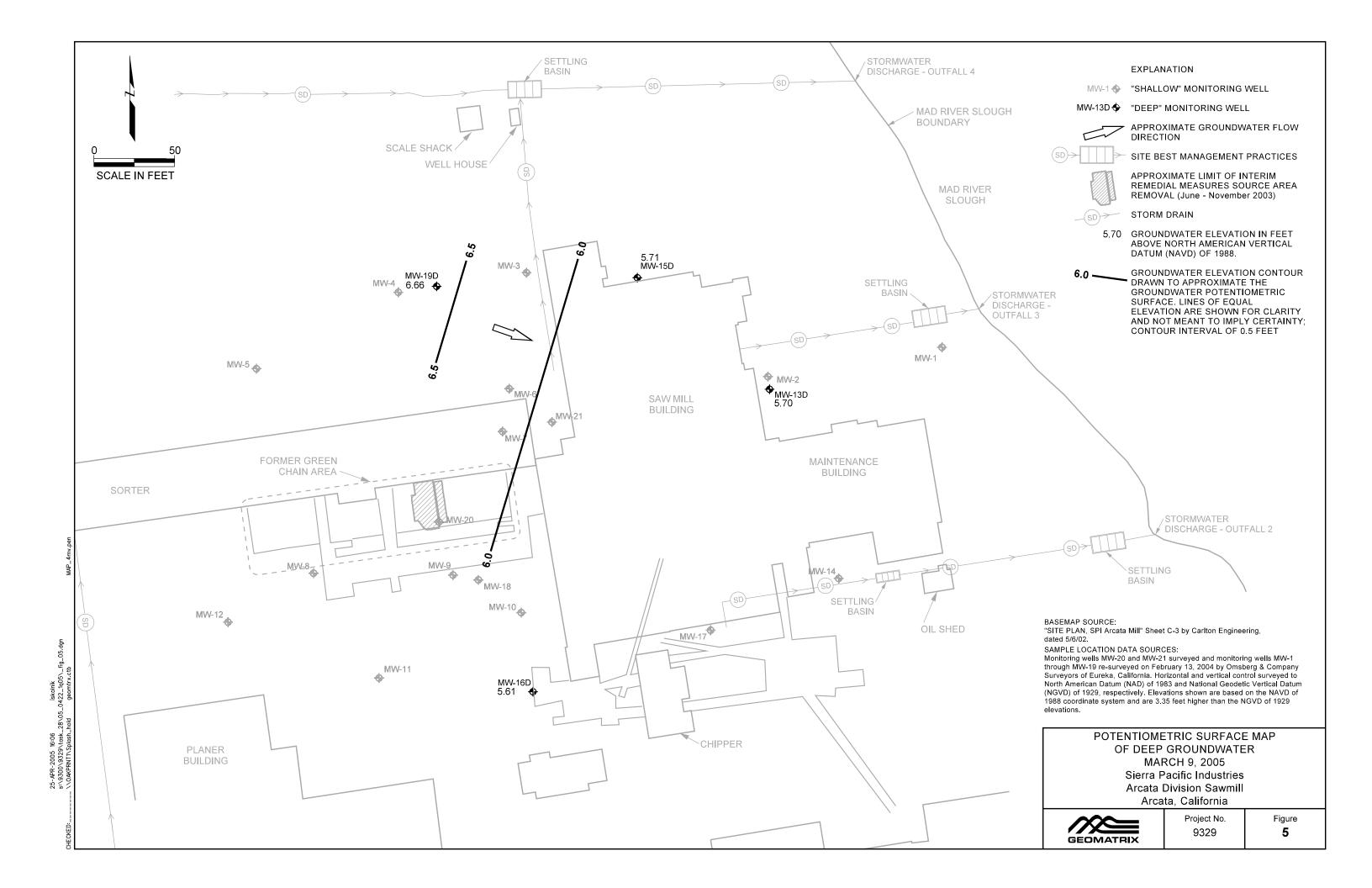


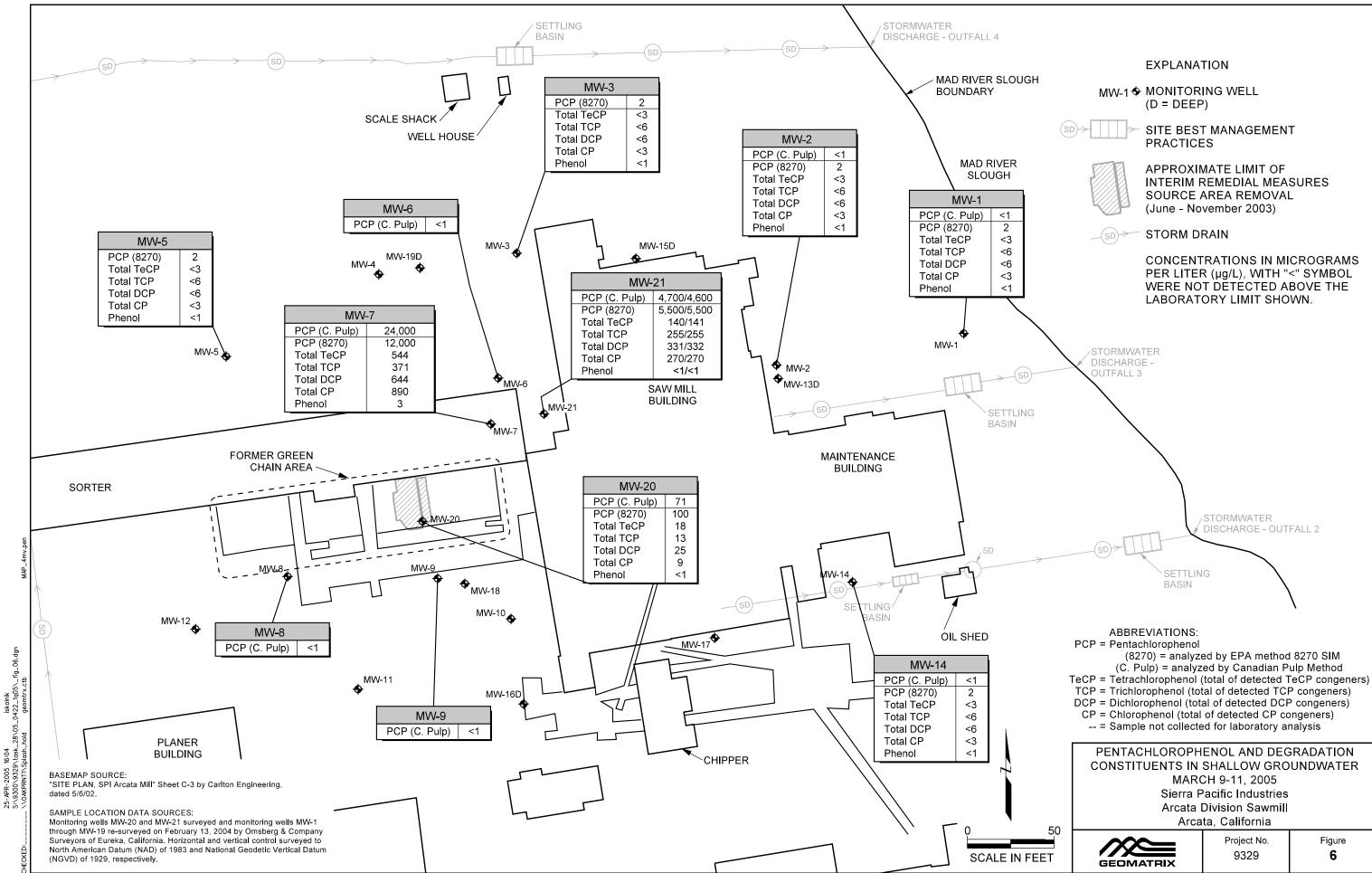
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APPENDIX A Field Documentation

Quarterly Groundwater Monitoring and Sampling Records Pilot Study Groundwater Sampling Records

DAILY FIELD RECO	ORE)
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Project and Task Number: 9329.000.0 28/23 3/9/05 Date: Field Activity: Project Name: SPI Arcata **GW** Monitoring for Location: Weather: Arcata Time Time PERSONNEL: Name Company Out In 8:45 1700 Matt Hillyard Geomatrix 8:45 **Ross Steenson** Geomatrix 1700 PERSONAL SAFETY CHECKLIST Steel-toed Boots Х X Hard Hat Tyvek Coveralis Х Safety Goggles Х Rubber Gloves 1/2-Face Respirator DRUM I.D. DESCRIPTION OF CONTENTS AND QUANTITY LOCATION TIME DESCRIPTION OF WORK PERFORMED 8:45 Arv: ve Site Chock 6 in 8:50 Segin 40 Ogeall MUS 9:50 Ø Slough esin MEasurements 10:50 slong Finish WL a 4 11:00 4 ٦C m, Ll (1:45 Back bes 5+41 Samp 14 1.2e 6 YS1 556 MPS a Flow Through Unit Calibrated ed from EQUIPED WAS pro a Had Pilot Plastic ALA bottles IXIL NO2 SOU CI Alkalin IX IPT Plastic Eficial filter, HNOZ × 1pt plastic Fe2+ total Mo 0.45-nicron 3 × 40MI VOAS nethane, Co Z×40ml Amber Vil Tor 2×12 Amber monter DIDXINS FAB 4×12 Amber Penta + chl phends

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DAILY	FIELD RECORD (continued)	GEOMATRIX
Project and Tas	sk Number: 9329.000.0 28 Date:3/9/05	
TIME	DESCRIPTION OF WORK PERFORMED	
	General sampling procedure for pilot study well Use YSI-rented from through cell and perfor iow-flow purging and manipulation of paramete Until they stabilize. Directly fill the sample bottles. For the Fe2t and Mn sample bot the sample is first passed through a 0.4 appropriate filter into the sample bottles See previous page for listing of bottles Note: equipment calibration form for YSI through cell meters is included on separate page.	tle, 5-m, cran filled.
1700	Issue with bottles and preservative notes metals Fe 2+ and Mn and also methome & Coz. W!II have to re and sample these wells an 3. Offsite to office.	

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D	AILY	FIELD REC	ORD					GEO	De 1 of
Project	t and Tas	k Number: 9329.	000.0 28	}	Date:	3/10/05			<u></u>
	t Name:				Field Activity:		toring		
Locatio	on:	Arcata			Weather:	mostly c	lean		
PERSO	ONNEL:	Name			Compan	and the second second second	Approximite Contraction Contraction Contraction	Time In	Time Out
Matt H	lillyard			Geomatri	x		0	700	1445
Charli	e Rome	ROSS STEENSO,	N	Geomatri	x		07	100	1445
							· · · · ·	-	
	19. mars 20.					nan da anticipation de la calendaria		anter and the state of the second	
PERSO	ONAL SA	AFETY CHECKLIST	•						
Х	Steel-to	ed Boots	X	Hard Hat			Tyvek C	overalis	
X	Rubber	Gloves	X	Safety G	oggles		1/2-Face	e Respira	ator
DRU	JM I.D.	DESCRIPT	ION OF	CONTENTS	SAND QUANTI	ТҮ	L		ON
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	IME				ION OF WORK				
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		colle ite				total M	n plu	, othe	<i>ر</i>
	2011	paramet		(Pilot St	1. A			1	
100	10	Courses from	Alph	na ansit	te to jick	vp sam	ples t	hat a	re
	1.0	Rady	. ·	(ANIV-2	.1				
10	<u>10</u> 45	Continue San	1		ry, Leave	the sit	the second	alitai	
17	-15	Finish Samp	olme 7		7	in make		abtain	
		to ship	Samo	los to	· · · · ·	ia Falle	10	pers	
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I:\Project\9000s\9329\Task 28\1 qtr 2005\field prep\DailyFieldRecordPage1 3-05.doc

					Pa	ige 1 of
Project and	Task Number: 9329.00	00 /23 ¥ 28 Date:				
Project Nam	e: SPI Arcata	Field	Activity:	Blot study	+ GW San	upting
and the second se	Arcata, CA	Weath	ier:			
PERSONNE	L: Name	C	ompany		Time In	Time Out
MATTI	HILYARD (MAH)	GEOMATR.	x (6M	x)	0100	1145
	TEENSON (RAS)	GMX			0700	1145
			- '			- 4 ja
· · ·	· · · · ·					1
5 7						
		. Li		an a		
	SAFETY CHECKLIST			T		-7- -
	toed Boots	Hard Hat			vek Coveralis	
1	er Gloves	CONTENTS AND QL		1/2	-Face Respira	and the second
DRUM I.D.	DESCRIPTION OF	CONTENTS AND QU	JANTIT		LOCATIO	N .
TIME		DESCRIPTION OF V	VORK PER	FORMED		
0100	On-site . Contrile	- pilot shedy.	samplin	e (MW-	-02) the	r
	On-site . Cartinule will finin	L' GU Monita	ng	0	, ,	
			<u> </u>			
0840	Culibrated the		ing U	ttrame te	1	
	рН 4	7,10	1	<u> </u>		
	Conduc	tuily 447 an 300 and 150	a 207	o no/cm		
AQ7	1			4	7 1 -	
0930	Finished up pilo to rov Finish up samplin Offsite	T Study samp	ling an	id SWI	re over	
ille	101 CT	The Stornawal	er wel	sampl	The second	1
145	FINISH UP Samplin	J. PUT TEMAN	ng pr	ge an	in mag	Y Mas.
	Ujsile					

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Project Na	ne: <u>SPI Arc</u>	ata		Projec	t and Task N	umber: 9329	.000.0 28	
Date: 3/9	/05	Measured I	oy:MAH/RA	AS	Instrumen	t Used: Slop	e Indicator	#10
			lowing abbre					
P = Pum		I = Inacce			ated Pump			
1	Tape E			MP = Measu		WL = Water	Level	
Well No.	Time	MP Elevation (feet)	, a second and a second se	Water Level Elevation (feet)		÷	Remarks	nterriterserienserien openg
RR	0952	15.70	9.31			Here	34.9772-10779-67799-75799-6216-7649-669-669-669-6	
MW-12	1001	10.76)	1.27			50000		
MW-8	1004	10.33	1.07					
MW-11	1007	10.28	1.14					
MW-9	1009	9.91	0,85		F			
MW-18	1010	9.92	0,94					Ą
MW-10	1012	9.85	1.05					
MW-16D	1015	9.83	4.22					
MW-17	1017	9.16	1.00					
MW-14	1019	<u></u> 9.15	2,10					
MW-1	1023	9.69	4.13					
MW-2	1025	9.61	5.22					
MW-13D	1026	. 9.96	4.26				************************************	
MW-15D	1028	11.19	5,48					
MW-3	1030	11.22	2,77				· · · · · · · · · · · · · · · · · · ·	•
MW-19D	1032	11.06	4.46					
MW-4	1033	10.74	1.95					
MW-5	4035	10.74	1.40					¥'
MW-6	1038	9.83	1.17	-				
MW-20	1043	11.87	2.72					
MW-21	1041	12.89	4,35					
MW-7	1042	9.74	0.96		5			
RR	1051	15.70	8,43					<u></u>
x					· · · ·			
<u>`</u>		5. 10.						<u></u>
	7							

 $\label{eq:linear} I:\ensuremath{\mathsf{Project}}\xspace{\ensuremath{\mathsf{9000s}}\xspace{\ensuremath{\mathsf{9329}}\xspace{\ensuremath{\mathsf{Task}}\xspace{\ensuremath{\mathsf{28}}\xspace{\ensuremath{\mathsf{1}}\xspace{\ensuremath{\mathsf{91}}\xspace{\ensuremath{\mathbb{91}}\xspace{\ensuremath{\mathbb{91}}\xspace{\ensuremath{\mathbb{91}}\xspace{\ensuremath{\mathbb{91}}\xspace{\ensuremath{\mathbb{91}}\xspace{\ensuremath{\mathbb{91}}\xspace{\ensuremath{\mathbb{91}}\xspace{\ensuremath{\mathbb{91}}\xspace{\ensuremath{\mathbb91}}\xspace{\ensuremath{\mathbb91}}\xspace{\ensuremath{\mathbb$

Page <u>1</u> of <u>1</u>

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G	EOM	ATRI	×		AN		ELL SA EVELO		RECORD
	MV						Depth to Wa	ter:	
Sample	D: <u>MW-C</u>	1-20050	Buplicate II	D:		Depth	to Water afte	er Sampling	
Sample	Depth: <u>Mil</u>	D SCREE	EN.			Total [epth to Wel	l:	
Project a	nd Task I	No: <u>9329</u>	.000.0 23			Well D	iameter:	2"	
Project 1	lame: <u>SP</u>	I Arcata				Total	e Removed:		7
Date:	3/ 11 /05	- 1		warehoused for such		Volum	e Removed:		
Sampled	Ву:М	AH/RAS							
	of Purging								
Method	of Samplii	ng: <u>Low</u>	Flow						
Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductan (µS/cm)		Redox Potential (mV; SSCE)	Remarks (color, turbidity, and sediment)
0878			(L)	13.20	6,4	7 2086	4.04	173.5	light-yellow, clear
0831			1	13.35	6.41	The second s		27.4	
1834			2	13.46		7164	0.32	-10.6	81 11 11
0837			3	13.48		215	9 0.18	- 34.6	11 11 4
1840			4	13.51		42145	0.14	and the second	11 11 11
0843			5	13.52	6.4	6 2140	0.11	-53.7	11 12 14
0846			6	13.54	6.46	2141	0.08		21 -1 11
0848			7	13.54	6.46	2141	0.07	-60.9	es le le
0850			AMPLE						,
				TOS	=	1392m	sk		
		-14-14-14-14-14-14-14-14-14-14-14-14-14-							·
								L	
C. P. P.		pH	CALIBRAT	ION (cho	ose two	1 Stanson	的影響和如此	Model or	Unit No.:
Buffer So	olution		p⊦	4.0	pH 7.0	pH 10.0		_	
Field Ter	nperature	°C						_	
Instrume	nt Reading)					1		
A Carden	SPECIF	IC ELEC	TRICAL CO	NDUCTA	NCE - C	ALIBRATIO	N	Model or	Unit No.:
KCL Solu	tion (µS/cr	n=µmhos	s/cm)	1413 at 1	25°C 1	2880 at 25°C			
Field Ten	nperature °	C							
Instrumer	t Reading								
	EDOX CA	LIBRAT	ION	DISSO	DLVED (XYGEN CA	LIBRATION	Notes:	
	Solution		68 mV	Salinity					
	nperature			Altitude					
·	nt Reading			+	nent Rea				
Model or	Unit No.:			Model	or Unit N	o.:			
A	Electrode			1				1	

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G	EOM				AN	D/OR D	EVELO	PMENT	REC	ORD	
Well ID:		1W-02					Depth to Wa	ter:			
Sample	1D:MN-02	-200503	Duplicate I	D:	an a	Depth f	to Water aft	er Sampling	:	constanting and the backsing	
Sample	Depth: MII	D SCREE	N			Total D	epth to Wel	l:Z'/			
			.000.0 23				ameter:	2.7			nier im earne a realient earne annar ann
	Name: SP	Arcata				Total	Barrovad	60	L		
Date:				akarken yeking bilakarya karken nari			a Kemovau.		an a		
	By:N										
	of Purging					·					
Method	of Samplir	ng: <u>Low</u> I	Flow								
Time	intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. · (°C)	pH (units)	Specific Electrical Conductanc (µS/cm)	e Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	(color, tu	Remar urbidity, a	ks nd sediment
0715			(1)	12.64	6.18	1194	1.6	157	lisht y	ellow.	dem
0720			1	12.64		1226	0.38	23	11	~	11
0723			2	12.66	6,20	1227	0.23	6.23	11	11	K
0726			3	12.61	619	1226	0.16	-0.5	11	r	//
0729			4	12.68	6.19	1224	0,13	-6.1	a	"	1
0732			5	12.68	6.19		0,12	-11.1	11	11	11
0734			4	12.68	6.19	1220	0,11	-13.3	16	"	4
0736			7	12.68	6.19		0.11	-15.2	11	"	~
0738			8	12.68	6.19	1219	0.11	-16.8	11	"	<i>C e</i>
					TOS	\$7921	ng/L				
0740		<	SAMPLE	-			1				
dent	and water	pH	CALIBRA	FION (cho	ose two)		Column	Model or	Unit No.	.:	
Buffer So	olution		pl	+ 4.0	pH 7.0	pH 10.0		7			
Field Ter	nperature	°C						-			
Instrume	nt Reading	1						1			
Rich	SPECIF	IC ELEC	TRICAL CO	ONDUCT	ANCE - C	ALIBRATIO	N	Model or	Unit No.	:	
KCL Solu	tion (µS/cn	n=µmhos	/cm)	1413 at	25°C 1	2880 at 25°C					
Field Tem	perature °	С						1			
Instrumer	t Reading							1			
Galant F	REDOX CA	LIBRAT	ON	DISS	OLVED C	XYGEN CAL	IBRATION	Notes:			
Standard	Solution	4	68 mV	Salinit	y %						
Field Ter	nperature ^c	°C		Altitud	e						
Instrume	nt Reading			Instrur	nent Read	ling					
Model or	Unit No.:			Model	or Unit N	D.:					
Ag/AgCI Electrode (SSCE)											

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G		ATRI	ĸ		A	NC	WE D/OR DE		MPLIN PMENT		RD	
Well ID:	N	₩-3					_ Initial D	epth to Wat	er:			
Sample I	D: MW- 03	- 200503	Duplicate I	D:			Depth to	Water afte	r Sampling	ı:		
Sample I	Depth: MI	D SCREE	N	Were and the second	una tara mandri mana mana mana mana mana mana mana man		Total De	pth to Well	:			
Project a	nd Task I	lo: <u>9329</u>	000.0 23				_ Well Dia	meter:	24			
Project N	ame: SP	I Arcata					Total		p	L		
Date:	3/ 10 105						Volume	Removed:	V	L		
Method	By: <u>N</u> of Purging of Samplin	: Low F	low	• •	n maar may na 'n a yn de ble die ble de be		-		•			
Time	intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp (°C)	. pH (unit		Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	(color, tur	Remarks bidity, and	sediment
15350			L	13.61	6.0	58	775	0.64	84.1	clear		
1354			21	13.20	69	3	677	0.19	15.6		, light	vella
1356			\$2	13.1	7 6.4	50	628	0,12		11	11	11
1358			143	13.0			620	0.13	**************************************	. 11	''	11
1403			5	12.98			598	0,10			4	11
1405			6	12.9			602	0.09	- 29.9		11	11
1407		SAN	NPLE	1- 1				•				
I							TDS = 393	ng/L				
	·											
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1												
												,
1.5 2.8 2	6. 1. 1. 1.	pH	CALIBRA	TION (ch	loose tv	vo)			Model or	Unit No.:		
Buffer Sc	lution		pl	14.0	pH 7.	0	pH 10.0		1			
Field Ten	nperature	°C						H	1			
Instrume	nt Reading								1 1			
2125255	SPECIF	IC ELECT	RICAL CO	ONDUCT	ANCE -	- CA	LIBRATION		Model or	Unit No.:		
KCL Solu	tion (μS/cr	n=µmhos/	cm)	1413 a	at 25°C	128	80 at 25°C					
	perature °								1			
Instrumen						1-			1			
Contraction in the	EDOX CA	LIBRATI	ON	DIS	SOLVED	oox	YGEN CALI	BRATION	Notes:			
Standard		T	8 mV	CONTRACTOR	ity %							
Field Ten	nperature	°C		Altitu								
Instrume	nt Reading	1		Instru	ument R	eadir	ng					
Model or		L			el or Unit		<u> </u>			•.		

G	JX BEOM	ATRI	×		A	ND/O			MPLIN	RECORD	
Well ID:	M١	N-0.5				1	nitial De	pth to Wat	er:		
Sample	ID: <u>MW-05</u>	-200507	Duplicate	D:		[er Sampling:		
Sample	Depth: <u>Mil</u>	D SCREE	N			1	Total De	pth to Well	:		
Project a	and Task I	No: <u>9329</u>	.000.0 23	in a second s		· \	Well Dia	meter:	Z''		
Project I	Name: <u>SP</u>	I Arcata	and the last of the state of the second state of the	Nexturing the plantity of the second		_					
Date:	3/10 /05		11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1		****	<u> </u>	Volume I	Removed:	5		
Method	d By: <u>N</u> of Purging of Samplir	: Low F	low								
Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. {°C)	pH (unit	Ele S) Cond	pecific ectrical ductance .S/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (color, turbidity, and sedimen	
1300			(4)	14.67	6.6		81	1.89	158	clear	
1304			14	14,00			574	0.13	47.8	11	
1307			3	13.79		6	570	0.14	36.0	tr	
1309			5		103		570	0.11	33,2	11	
1310		SA	MPLE		1000	<u> </u>					
						TDS	= 3 90	-16	-		
		рH	CALIBRA	FION (ch	oose tw	(0)	in the		Model or	Unit No.:	
Buffer So	olution		p	+ 4.0	pH 7.0) pH	1 10.0		1		
Field Ter	nperature ^c	°C									
Instrume	nt Reading								1 .		
and the	SPECIF	IC ELEC	TRICAL C	ONDUCT	ANCE -	CALIBR	RATION	ALC OF ALL	Model or	Unit No.:	
KCL Solu	tion (µS/cn	n=µmhos/	(cm)	1413 at	25°C	12880 at	t 25°C		1.		
Field Terr	nperature °	С							-		
Instrumer	nt Reading								1		
I	REDOX CA	LIBRATI	ON	DISS	OLVED	OXYGE	GEN CALIBRATION		Notes:	****	
Standard	Solution	46	68 mV	Salinity %							
Field Temperature °C				Altitud	е					,	
Instrume	Instrument Reading				nent Re	ading					
Model or Unit No.: Ag/AgCl Electrode (SSCE)			Model or Unit No.:								

G		TRIX			AND/		SAMPLING LOPMENT RECORD
Well ID: _ Sample I	<u>MW-6</u> D: <u>MW-06-2</u>	<u>00503</u> Du	uplicate I	D:		-	o Water: (.17′ er after Sampling:
Sample [Depth:	TOC	a fail the second strateg			Total Depth to	o Well: _7.80'
-	nd Task No					Well Diameter	r: <u>2"</u>
	lame: <u>SPI</u>	ARCATA				1 Casing/Bore (Gircte one)	ehole Volume: 1.1.9
Date: _03				yp			ehole Volumes: 3.3 9
	By: <u>MAH/</u>					(Circle one)	
	of Purging:					Total Casing/	Borehole 3.5 g
Method d	of Sampling	: DISPOS	ABLE IE	FLON BAI		T	noved:
Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
012				\$1.4	6,68	858	590 mg/L TDS; clean
1013				10.9	6.74	905	624 " . 14. yellow sl. clou
1014			2	10.8	6.74	917	635 11 11 11
1015			3	10,7	6.74	919	635 " " "
1016			3.5	10,6	6.73	900	621 11 11
1020			AMAE				· · · · · · · · · · · · · · · · · · ·
			No.				
							·
							· · · · · · · · · · · · · · · · · · ·
	pH C	ALIBRATI	ON (choo	ose two)	1	Model or I	Unit No.:
Buffer So	olution	pH 4.0	pH 7	.0 pH 10	0.0		
Tempera	ture C						
Instrume	nt Reading						
SPECI		RICAL CON	DUCTAI	NCE - CAL	IBRATION	Model or I	Unit No.:
KCL Solu	ution (µS/cm	=µmhos/cm)				
Tempera	ture C						
Instrume	nt Reading						
Notes:							-
			6				

$\frac{1}{ $	G	EOM	ATRD	<		AN			MPLIN PMENT	RECORD		
Sample ID-UW -7-200502 Duplicate ID: Depth to Water after Sampling: Sample Depth: MID SCREEN 5' Total Depth to Well:	Well ID:	M	W-7		*****		Initial De	oth to Wa	ter:	N,		
Sample Depth: MID SCREEN 5' Project and Task No: 9229.000.0 23 Project Name: SPI Arcata Total Depth to Well: 2" Project Name: SPI Arcata Total Personal Network 9 L Sampled By: MAH/RAS Yolume Removed: 9 L Method of Purging: Low Flow Statistics Dissolved Removed: 9 L Time Intake Rate Depth (gpn) Cum. (gal.) Yol. (Yol. (units) Dissolved Removed: Potential (my? SSCE) (color, turbidity, and sediment (us0cm) I/Loo 1 MI/m.in CL> (1.42 (6.4/9) 8/6 (6.2.20 - 4/9.1) Urql+ yclaw, Claw, cla	-		200503 0	olicate	D:							
Project and Task No: 9329.000.0 23 Well Diameter: 2" Project Name: <u>9P1 Arcata</u> Total Date: <u>3</u> 9 0.05 Total Sampled By: <u>MAH/RAS</u> Well Diameter: 9 L Method of Sampling: Low Flow Specific Method of Sampling: Low Flow Specific Time Intake Rate (gan) Cum, vol. remp. vol. (L.42 Specific Volume Removed: 9 L Method of Sampling: Low Flow Specific Oilssolved group Method of Sampling: Low Flow Specific Specific Oilssolved group Method of Sampling: Low Flow (units) Specific Oilssolved group Remarks Method of Sampling: Low Flow (units) Specific Oilssolved group Redox Remarks Model of Sampling: Low Flow (units) (usidem) Oilssolved group Redox Remarks Model of Sampling: Low Flow (usidem) (usidem) Notes: Notes: Notes: Model or Unit No.: Method Sample for group PH CALBRATION (choose two) Model or Unit No.: Model or Unit No.: Buffer Solution pH 4.0 pH 7.0 pH 10.0 PH 10.0										 Melenverselendersternensenen eine State ander state der Stellen state 	0.05/58/06/2016/2016/2016	
Project Name: SPI Arcata Total Yolume Removed: 9 L Sampled By:	-											
Volume Removed:	•							_ Total				
Method of Purging: Low Flow Method of Sampling: Low Flow Time Intake Rate Cum. (gal.) Temp. (°C) pH (°C) Specific Electical (units) Dissolved Oxygen Redox Potential (color, turbidity, and eediment (usXcm) $l_{0}O5$ ml/min (L) (I.42 $\delta.49$ 933 I.23 0 I.ght yet(lecu) $\ell_{bace.x}$ $l_{0}O9$ 2 (I.34 $\delta.40$ $\delta.55$ 0.15 -43.1 I.ght yet(lecu) $\ell_{bace.x}$ $l_{0}O9$ 7 (I/O $\delta.32$ $\delta.55$ 0.15 -43.4 \cdot </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Volume</td> <td>Removed:</td> <td><u> </u></td> <td>L</td> <td></td>							Volume	Removed:	<u> </u>	L		
Method of Sampling: Low Flow Time Intake Depth Rate (gpm) Cum. Vol. (gail) Temp. (C) pH (units) Specific Electrical Conductance (u3/cm) Dissolved Potential (m07) Remarks (color, turbidity, and sediment (u3/cm) l_605 ml/m.in (L) (I.422 6.49 933 1.23 0 I.ght yetlow Class frace , (u10) l_607 2 ii.34 6.40 86.6 0.20 -49.1 Iright yetlow Class frace , (u11) l_617 4 11.05 6.32 85.5 0.15 -6.3.4 1 4 l_617 4 11.05 6.32 85.5 0.09 -6.7.4 1 4 l_612 9 11.0 6.34 852 0.08 $-6.8.9$ a a l_623 StmPL6 1 10.5 5.284 7.4 a </td <td>Sampled</td> <td>By: N</td> <td>AH/RAS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Sampled	By: N	AH/RAS									
Time Intake Depth Rate (gpm) Cum. Vol. (gal.) Temp. ("C) pH (units) Specific Conductance (us/cm) Dissolved Oxygen (mg/l) Redax Potential (mV; SSCE) Remarks (color, turbidity, and sediment (mg/l) 1/6.05 ml/m,in (L) (1.42 6.4/9 933 1.23 0 1.ght yet(tou) Cau 1/6.09 2 in.34 6.4/0 8/6 0.20 -4/9,1 1.ght yet(tou) Cau (6/13) 4 11.05 6/36 8/5 0.15 -6/3,4	-	-		,								
Inne Intake Depth Rate (gpm) Unit, (gal.) Temp. (°C) PH (units) Electrical colusione (us/cm) Dissolved (mgn) Remarks potential (w/s.sscE) Remarks (color, turbidity, and sediment (w/s.sscE) 1605 MI/m.in (L) (L+2 6.4/1 933 1.23 0 1.gkt yetlew, with yetlew, ture Clean (with yetlew, ture		-										
Ido5 ml/min (L) (1.42 6.49 933 1.23 0 1.ght yetlow, two yet	Time			Vol.			Electrical Conductance	Oxygen	Potential	lealar turbidity an		
ILGO9 2 II.34 G.40 866 0.20 -49.1 Instruction of the second of	1605		ml/min	(1)	11.42	6.49	and the state of t	1.23	0	Light yellow!	clean .	
Idi 9 7 I(10 6.32 850 0.09 -67.4 4 4 4 Idi21 9 II.0 6.32 852 0.08 -68.9 4 4 V623 SAMPLE TD5 = 584 3/2 -				2						light yeller	2000	
1619 7 110 6.32 850 0.09 -67.4 4 4 4 1621 9 11.0 6.32 852 0.08 -68.9 4 4 V623 SAMPLE TD5 = 584 3/2 - </td <td></td> <td></td> <td></td> <td>4</td> <td></td> <td></td> <td></td> <td>0.15</td> <td>-63.4</td> <td></td> <td>1</td>				4				0.15	-63.4		1	
Id21 q II.0 6.34 852 0.08 -6.8.9 u u u V623 SAMPLE TD5 = 584 74 1												
V623 SAMPLE TDS = 584 3/2 3/10/05 Sample for Fe 2+ and tabel Mm, after 0850 Predicters Freed Rifered 0850 PH 4.0 pH 7.0 pH 10.0 Field Temperature °C Instrument Reading Model or Unit No.:											4	
TpS = 584 3/2 3/10/05 Sample for Fe 2+ and table Min, after 0850 Model of Fe 2+ and table Min, after pH CALIBRATION (choose two) Model or Unit No.: Buffer Solution pH 4.0 pH 7.0 pH 10.0 Field Temperature °C Image: Specific Electrical Conductions (Model or Unit No.: Model or Unit No.: SPECIFIC ELECTRICAL CONDUCTANCE - CALIBRATION Model or Unit No.: Model or Unit No.: Field Temperature °C Instrument Reading Model or Unit No.: Field Temperature °C Issock 25°C Model or Unit No.: Field Temperature °C Issock 25°C Instrument Reading REDOX CALIBRATION DISSOLVED OXYGEN CALIBRATION Notes: Standard Solution 468 mV Salinity % Field Temperature °C Altitude Instrument Reading Instrument Reading Instrument Reading Model or Unit No.:			\leq	MAPLE			010	0,00	<i>Q 0</i> , <i>1</i>			
3/10/05 Sarwslo for Fe 2+ and total Min , after 0850 pmantatus Sarwslo for Fe 2+ and total Min , after 0850 pmantatus Field Filtend ph CALIBRATION (choose two) Model or Unit No.: Buffer Solution pH 4.0 pH 7.0 Field Temperature °C Image: Comparison of the structure	000		N	1/1///0			TDS = 584	-2/,				
pH CALIBRATION (choose two) Model or Unit No.: Buffer Solution pH 4.0 pH 7.0 pH 10.0 Field Temperature °C Image: Comparison of the structure of the structu				310/05	Sam	1 Po for			alter			
pH CALIBRATION (choose two) Model or Unit No.: Buffer Solution pH 4.0 pH 7.0 pH 10.0 Field Temperature °C Image: Construct or Cons				DRSO	para	heters si	avelized.	Field f	itered			
Buffer Solution pH 4.0 pH 7.0 pH 10.0 Field Temperature °C Image: Specific Electrical conductance - Calibration Model or Unit No.: SPECIFIC Electrical conductance - Calibration Model or Unit No.: Model or Unit No.: KCL Solution (µS/cm=µmhos/cm) 1413 at 25°C 12880 at 25°C Image: Specific Electrical conductance - Calibration Field Temperature °C Image: Specific Electrical conductance - Calibration Notes: Standard Solution 468 mV Salinity % Image: Specific Electrical conductance - Calibration Standard Solution 468 mV Salinity % Image: Specific Electrical conductance - Calibration Field Temperature °C Altitude Image: Specific Electrical conductance - Calibration Notes: Standard Solution 468 mV Salinity % Image: Specific Electrical conductance - Calibration Notes: Field Temperature °C Altitude Image: Specific Electrical conductance - Calibration Notes: Standard Solution 468 mV Salinity % Image: Specific Electrical conductance - Calibration Notes: Instrument Reading Image: Specific Electrical conductance - Calibration Model or Unit No.: Image: Specific Electricale conductance - Calibration												
Buffer Solution pH 4.0 pH 7.0 pH 10.0 Field Temperature °C Instrument Reading SPECIFIC ELECTRICAL CONDUCTANCE - CALIBRATION Model or Unit No.: KCL Solution (µS/cm=µmhos/cm) 1413 at 25°C 12880 at 25°C Field Temperature °C 1413 at 25°C 12880 at 25°C Instrument Reading DISSOLVED OXYGEN CALIBRATION Notes: Standard Solution 468 mV Salinity % Field Temperature °C Altitude Instrument Reading Instrument Reading Model or Unit No.: Model or Unit No.:												
Buffer Solution pH 4.0 pH 7.0 pH 10.0 Field Temperature °C Instrument Reading SPECIFIC ELECTRICAL CONDUCTANCE - CALIBRATION Model or Unit No.: KCL Solution (µS/cm=µmhos/cm) 1413 at 25°C 12880 at 25°C Field Temperature °C 1413 at 25°C 12880 at 25°C Instrument Reading DISSOLVED OXYGEN CALIBRATION Notes: Standard Solution 468 mV Salinity % Field Temperature °C Altitude Instrument Reading Instrument Reading Model or Unit No.: Model or Unit No.:												
Field Temperature °C Image: Construct of the second s			pH	CALIBRA	TION (cl	noose two)			Model or	Unit No.:		
Instrument Reading SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION KCL Solution (μS/cm=μmhos/cm) 1413 at 25°C 12880 at 25°C Field Temperature °C Instrument Reading REDOX CALIBRATION DISSOLVED OXYGEN CALIBRATION Notes: Standard Solution 468 mV Salinity % Field Temperature °C Altitude Instrument Reading Model or Unit No.: Model or Unit No.:	Buffer Sc	olution		pl	14.0	pH 7.0	pH 10.0		1			
SPECIFIC ELECTRICAL CONDUCTANCE - CALIBRATION Model or Unit No.: KCL Solution (μS/cm=μmhos/cm) 1413 at 25°C 12880 at 25°C Field Temperature °C Image: Control of the second	Field Ter	nperature	°C					i in a lentenario	-			
KCL Solution (μS/cm=μmhos/cm) 1413 at 25°C 12880 at 25°C Field Temperature °C Image: Comparison of the second secon	Instrume	nt Reading	g						-			
Field Temperature °C Instrument Reading REDOX CALIBRATION DISSOLVED OXYGEN CALIBRATION Standard Solution 468 mV Salinity % Instrument Reading Field Temperature °C Altitude Instrument Reading Instrument Reading Model or Unit No.: Model or Unit No.:		SPECI	IC ELECT	RICAL CO	ONDUCT	TANCE - C	ALIBRATION	to avera	Model or	Unit No.:	·	
Field Temperature °C Instrument Reading REDOX CALIBRATION DISSOLVED OXYGEN CALIBRATION Standard Solution 468 mV Salinity % Instrument Reading Field Temperature °C Altitude Instrument Reading Instrument Reading Model or Unit No.: Model or Unit No.:	KCL Solu	tion (µS/ci	m=µmhos/	cm)	1413 a	at 25°C 12	2880 at 25°C		-			
Instrument Reading REDOX CALIBRATION DISSOLVED OXYGEN CALIBRATION Notes: Standard Solution 468 mV Salinity % Instrument Reading Field Temperature °C Altitude Instrument Reading Instrument Reading Instrument Reading Instrument Reading Model or Unit No.: Model or Unit No.: Instrument Reading				· · · · · · · · · · · · · · · · · · ·								
REDOX CALIBRATION DISSOLVED OXYGEN CALIBRATION Notes: Standard Solution 468 mV Salinity %									-			
Standard Solution 468 mV Salinity % Field Temperature °C Altitude Instrument Reading Instrument Reading Model or Unit No.: Model or Unit No.:	CON 1.3.7	and dealers	A PARA SA	ON	DIS	SOLVED O	XYGEN CALL	BRATION	Notes:			
Field Temperature °C Altitude Instrument Reading Instrument Reading Model or Unit No.: Model or Unit No.:				7					1	Aperta adamati - a a a a a a a a a a a a a a a a a a		
Model or Unit No.: Model or Unit No.:											à	
Model or Unit No.: Model or Unit No.:	Instrume	nt Reading	g		Instru	ument Read	ing					
			(SSCE)									

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Mar 11 115.	54147 0						0 Water: 1.07
Well ID:	D: <u>MW-08-</u>	200502	Junlicato I	D:	a Mahada kana ana kata kata kata kata kata kata	Initial Depth to	o mater:
	Depth:			U:			er after Sampling: o Well: _7.80'
	and Task N					Well Diameter	
-	Name: SP						ehole Volume: <u>l·lg</u>
	3/1 1045					(oncia ona)	1999
	By: MAH				C	A Casing/Bore (Circle one)	ehole Volumes: <u>3.3 9</u>
Method	of Purging:	DISPOS	ABLE TER	LON BAIL	ER		Borehole
Method	of Samplin	g: <u>DISPO</u>	SABLE TE	FLON BA	LER	Volumes Rem	Borehole 3,59
Time	intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (μS/cm)	Remarks (color, turbidity, and sediment)
1050			-	14,4	6.52	783	533 ngil TDS: light yellow ce
1052			/	13,7	6.48	794	540 " " " "
1054			2	13.5	6.48	798	545 "
056			3	13.5	6,50	800	545 " " " " "
1057			3,5	13.4	6.47	800	546 " " " "
1100			SAMPL	Б			
							· · · · · · · · · · · · · · · · · · ·
							÷
	D H a	CALIBRAT	ION (choo	se two)	1	Model or l	Unit No.:
Buffer S		pH 4			0.0		
Tempera	ture C						
Instrume	ent Reading	9					
SPECI	FIC ELECT	RICAL CO	NDUCTA	NCE - CAL	IBRATION	Model or l	Unit No.:
KCL Sol	ution (µS/cr	n=µmhos/c	m)				
Tempera	ture C						
Instrume	ent Reading	9					
Notes:				877 9 1990 A 1891 - 1 4 7 7 7 7 1 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1			
Notes:			×	07 030 A 20			

G		TRIX			AND/	WELL OR DEVE			CORD	
Well ID:	MW-9					Initial Depth to	o Water:	0.85'		
Sample I	D: <u>MW-09-</u>		Ouplicate I			Depth to Wate	er after Sar	npling:	2011-10-10-10-10-10-10-10-10-10-10-10-10-	
Sample I	Depth:	TOC				Total Depth to	Well: <u>7.8</u>	30'		
Project a	nd Task N	o.: <u>9329.00</u>	00.0 28			Well Diameter				
Project N	lame: <u>SP</u>	I ARCATA	<u> </u>			1 Casing/Bore	hole Volu	me:	29	
Date: _0	3/ 11/04					(on and one)			9	
Sampled	By: <u>MAH</u>	/RAS			0	Casing Bore (Circle one)	ahole Volu	mes:	<u> </u>	
Method	of Purging:	DISPOS	ABLE TEF	LON BAIL	ER	Total Casing/I	Borehole	11 a		
Method	of Samplin	g: DISPO	SABLE TE	FLON BA	LER	Volumes Rem	oved:	49		
Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (μS/cm)	(cc		narks y, and sedimen	it)
1103				14.5	6.74	850	580 no	IL TOS :	YEllow boom	, st. ch
105			1	13,3	6,71	895	620	11 11		1.
1106			2	13,2	6,73	900	620	61 <i>I</i>	11	~
1107			3	13.2	6,73	900	620	11 11	1-	11
1108			4	13.2	6.74	900	620	10-14		*
1110			SAMI	2E						
					-					
			ION (choo			Model or I	Unit No.:			
Buffer S		pH 4	.0 pH 7	.0 pH 1	0.0					
Tempera										
	ent Reading								L	
	FIC ELECT		1	NCE - CAI	IBRATION	Model or I	Unit No.:			
	ution (µS/cr	n=µmhos/c	m)							
Tempera										
	ent Reading	3								
Notes:										

N9 58 13.5 6.24 897 b15 11 <th11< th=""> 11 11</th11<>	G	EOMA	TRIX					LOPMENT RECORD
Total Depth to Well: <u>19.10*</u> Total Depth to Well: <u>19.10*</u> Well Diameter: <u>2"</u> Classing/Borehole Volumes: <u>7.3 gal//cuss</u> Classing/Borehole Volumes: <u>7.3 gal//cuss</u> Classing/Borehole Volumes: <u>7.3 gal//cuss</u> Time Intake Rate Depth (gpm) Classing/Borehole Volumes: <u>7.9</u> Time Intake Rate Casing/Borehole Volumes: <u>7.9</u> Time Intake Rate Rate Vol. Depth (gal.) Classing/Borehole Volumes: <u>7.9</u> Office Intake Rate Vol. Office Intake Rate Vol.	-				and the design for the owner		Initial Depth t	o Water: 4,26'
Project and Task No.: <u>9329.000.0 28</u> Well Diameter: <u>2"</u> Project Name: <u>SPI ARCATA</u> d Casing/Borehole Volume: <u>7.3 gal/ass</u> Date: <u>03///05</u> Casing/Borehole Volumes: <u>7.3 gal/ass</u> Sampled By: <u>MAH/RAS</u> Casing/Borehole Volumes: <u>7.3 gal/ass</u> Method of Sampling: <u>DISPOSABLE TEFLON BALLER</u> Temp. <u>pH</u> Time Intake Rate Cum, Vol. (gal.) Temp. <u>vol. (gal.)</u> 09145 S7/PZ-T 12.8 G./2 6SO 09147 2 17.9 G./4 67.7 459 " '' '' Hyettox, cloudy, cloud	Sample I	D: <u>MW-13D</u>	-200503	Duplicate	ID:		Depth to Wate	er after Sampling: 7.90
Project Name: SPI ARCATA d Casing/Borehole Volume: 2.4 9 cl //413 Date: 03/l / 100							Total Depth to	o Well: <u>19.10'</u>
Date: 03/// 108 (Life one) Sampled By: MAH/RAS % Casing/Borehole Volumes: 7.3 gal/ans Method of Purging: DISPOSABLE TEFLON BAILER % Casing/Borehole Volumes: 7.5 g Method of Sampling: DISPOSABLE TEFLON BAILER Total Casing/Borehole Volumes: 7.5 g Time Intake (gpm) Rate (Vol. (gal), (c)) Temp, (c) (units) Specific Electrical (color, turbidity, and sediment) 0142 S77 & 7 12.8 (g./2 & 680 462 Mg/L TDS g/memin/horam, c) 0749 2 17.9 (g./4 (Gr77 457 " '' ''''''''''''''''''''''''''''''''							Well Diameter	r: <u>2"</u>
Date: Usr/1709 Sampled By: MAH/RAS Method of Purging: DISPOSABLE TEFLON BAILER Method of Sampling: DISPOSABLE TEFLON BAILER Time Intake Depth Rate Vol. Temp. Vol. Vol. Vol. Temp. Vol. Specific Listerni Conductance (J0747 Z Vol. Vol. Vol. Temp. Vol. Vol.			ARCATA				(Circle one)	ehole Volume: <u>2,7991/ars</u>
Method of Purging: DISPOSABLE TEFLON BAILER Total Casing/Borehole 159 Method of Sampling: DISPOSABLE TEFLON BAILER Total Casing/Borehole 159 Time Intake Depth Rate (gpm) Cum. Vol. (gal.) Temp. (°C) pH Specific Electrical Conductance Remarks (color, turbidity, and sediment) 0945 S7727 /2.8 6./2 080 462 Mg/L TDS getendthatmann, c/l 0947 2 17.9 6./12 080 462 Mg/L TDS getendthatmann, c/l 0951 4 13.5 6./15 7066 522 " " " " 0955 6 13.5 6.20 828 566 "								ehole Volumes: 7.3 gallags
Method of Sampling: DISPOSABLE TEFLON BALLER Volumes Removed: 1.5 g Time Intake Rate Cum. Temp. pH Specific Remarks 0945 S7727 /2.8 6./2 680 462 Mg/L TDS getendulment) 0945 S7727 /2.8 6./2 680 462 Mg/L TDS getendulment) 0945 S7727 /2.12.9 6.1/4 6.77 459 '' '' Hyellow, cleady 0951 4 13.5 6.15 766 522 '' ''	•	-					(Circle one)	
Time Intake Depth Rate (gpm) Cum. Vol. (gal.) Temp. (%C) pH (units) Specific Electrical Conductance (µS/cm) Remarks (color, turbidity, and sediment) 0145 STAPET /2.8 6./2 680 462. Mg/L TJS Generation generating Color, turbidity, and sediment) 0145 STAPET /2.8 6./2 680 462. Mg/L TJS Generating Color, turbidity, and sediment) Color, turbidity, and sediment) 0749 2 /7.9 6./4 6.77 459 " '' Hyelliow, cloudy 0951 4 13.5 6.15 7466 522 " '' '' '' 0955 4 13.5 6.20 828 566 " '' '' '' '' 0958 7.5 13.5 6.20 828 566 " ''								Borehole 7.54
Time Intake Depth Rate (gpm) Cum. (gal.) Temp. ("C) pH (units) Electrical Conductance (µS/cm) Remarks (color, turbidity, and sediment) 0145 577/27 /2.8 6.1/2 680 462 Mg/L TJS getendt historian, CI 0749 2 /7.9 6.1/2 680 462 Mg/L TJS getendt historian, CI 0751 4 13.9 6.12 690 469 " " " 0755 6 13.5 6.15 7/66 522 " " " " 0758 9.5 13.5 6.20 828 566 " <td>Method</td> <td>or Sampling</td> <td>: <u>DISPU:</u></td> <td>DABLE (E</td> <td>FLON BAI</td> <td></td> <td></td> <td>noved:</td>	Method	or Sampling	: <u>DISPU:</u>	DABLE (E	FLON BAI			noved:
0949 2 17.9 61/4 677 459 "	Time			Vol.			Electrical Conductance	(color, turbidity, and sediment)
0951 4 13.4 6.12 690 469 """"""""""""""""""""""""""""""""""""	0945		STA	RT	12.8	6.12	680	462 Mg/L TDS greenich brown cl
0751 4 15.9 6.12 640 467 4 4 4 0955 6 13.5 6.15 766 522 4 4 4 4 0955 7 7 13.5 6.20 828 566 4 4 4 4 0955 7.5 13.5 6.20 828 566 4	0949			2	12.9	6114		459 " " Hyellow douly
M57 7 13.5 6.20 828 566 11	0951			4	13.4	6.12	690	467 "
1958 9.5 13.5 6.24 897 105 11	0955			6		6.15	766	
1938 13.3 17.4 17.7 015 1000 SAMPLE 1000 1000 1000 SAMPLE 1000 SAMPLE 1000 1000 pH CALIBRATION (choose two) Model or Unit No.: 1000 1000 Buffer Solution pH 4.0 pH 7.0 pH 10.0 1000 Temperature C 1000 1000 1000 1000 SPECIFIC ELECTRICAL CONDUCTANCE - CALIBRATION Model or Unit No.: 1000 KCL Solution (µS/cm=µmhos/cm) 1000 1000 1000 Temperature C 1000 1000 1000 1000 Instrument Reading 1000 1000 1000 1000 Instrument Reading 1000 1000 1000 1000 Instrument Reading 1000 1000 1000 1000	M57			7		1		
pH CALIBRATION (choose two) Model or Unit No.: Buffer Solution pH 4.0 pH 7.0 pH 10.0 Temperature C Instrument Reading Instrument Reading Model or Unit No.: SPECIFIC ELECTRICAL CONDUCTANCE - CALIBRATION Model or Unit No.: Model or Unit No.: KCL Solution (µS/cm=µmhos/cm) Instrument Reading Model or Unit No.: Temperature C Instrument Reading Setme	0958				13.5	6.24	897	615 " " "
Buffer Solution pH 4.0 pH 7.0 pH 10.0 Ultrameter, Calibrated Temperature C Instrument Reading Instrument Reading Instrument Reading Instrument Reading SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION Model or Unit No.: Same KCL Solution (µS/cm=µmhos/cm) Same Same Instrument Reading Instrument Reading Same	1000		SA	MPLE		-		
Buffer Solution pH 4.0 pH 7.0 pH 10.0 Ultrameter, Calibrated Temperature C Instrument Reading Instrument Reading Instrument Reading Instrument Reading SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION Model or Unit No.: Same KCL Solution (µS/cm=µmhos/cm) Same Same Instrument Reading Instrument Reading Same								
Buffer Solution pH 4.0 pH 7.0 pH 10.0 Ultrameter, Calibrated Temperature C Instrument Reading Instrument Reading Instrument Reading Instrument Reading SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION Model or Unit No.: Same KCL Solution (µS/cm=µmhos/cm) Same Same Instrument Reading Instrument Reading Same								
Buffer Solution pH 4.0 pH 7.0 pH 10.0 Ultrameter, Calibrated Temperature C Instrument Reading Instrument Reading Instrument Reading Instrument Reading SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION Model or Unit No.: Same KCL Solution (µS/cm=µmhos/cm) Same Same Instrument Reading Instrument Reading Same								
Buffer Solution pH 4.0 pH 7.0 pH 10.0 Ultrameter, Calibrated Temperature C Instrument Reading Instrument Reading Instrument Reading Instrument Reading SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION Model or Unit No.: Same KCL Solution (µS/cm=µmhos/cm) Same Same Instrument Reading Instrument Reading Same								
Buffer Solution pH 4.0 pH 7.0 pH 10.0 Ultrameter, Calibrated Temperature C Instrument Reading Instrument Reading Instrument Reading Instrument Reading SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION Model or Unit No.: Same KCL Solution (µS/cm=µmhos/cm) Same Same Instrument Reading Instrument Reading Same		nH C		ION (choo	ee two)		Model or I	
Temperature C Image: Constraint of the second se	Buffer So				<u>·</u>	0.0		
Instrument Reading SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION Model or Unit No.: KCL Solution (µS/cm=µmhos/cm) Same Same Same							- 0171	ameter, Calibrale
KCL Solution (μS/cm=μmhos/cm) Same Temperature C Instrument Reading								
Temperature C Same	SPECI	FIC ELECT	RICAL CO	NDUCTAN	ICE - CAL	IBRATION	Model or l	Unit No.:
Temperature C Instrument Reading	KCL Solu	ution (µS/cm	i=µmhos/ci	m)				
	Tempera	ture C					- Sdr	ne
Notes:	Instrume	nt Reading						
	Notes:							

Woll ID:	М	141-14	I			Initi	al Do	oth to Mat	er.		
_			Duplicate I	<u>.</u>		-			0	- -	
	Depth: MI			J		Der Tot	al Do	water alte	er Sampling ::2"		
•			.000.0 23			100	a De	meter:	2"		
-	Name: SP					Tat	-1				
•	3/ 9 /05		1440	2		Vol	ume	Removed:	7	Liters	
	By: 1										
•	of Purging										
	of Sampli			a November 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 20							
		Charles Sta		Constant And		Speci	fic	as ta an			
Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units	Electri	ical tance	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (color, turbidity, and sedim	nent)
423				14.67	6.94	1 249	4	0.48	-18	Yellow, clear	/
1427			32	14.18	6.81	230	6	0.22	-80.1	4, LI	
1429			41	13:77	6.51	1 22	17	0,17	- 84.6	1(11	
1433			5L	13.54	6.4	8 223	56	0.10	-87.1	le H	
1436			61	13,47	6.4	9 230	08	0.09	-86.7	11 11	
1438			72	13,48	6.5	6 23-	76	0.08	-90.0	tt i,	
1440		SA	MPLE								
			Note we	11 pursed	dry, b	Metty	TDS	= 1,648 -	2		
			3/10/05	Sample	for F	pot and	total	Mn, aft	ci panamei	erc Steld Lized, Field	fil
			Note: 4	ad dif	Ficult	4 in ge	Hin	40 60	bbles in	the	
			3	ample briebla	botte	S (VOAs) for	TOC an	alysis.	Mall	
				helliane	Jane	ugh 2 00	Hies	have no	obstates.		
She fit	the last	pH	CALIBRAT	ION (cho	ose two)	14		Model or	Unit No.:	
Buffer So	olution		b⊩	14.0	pH 7.0	pH 10	0.0				
Field Ter	mperature	°C									
Instrume	nt Reading	9									
反出的	SPECIF	IC ELEC	TRICAL CO	NDUCTA	NCE -	CALIBRAT	TION		Model or	Unit No.:	
KCL Solu	ition (µS/ci	m=µmhos	/cm)	1413 at	25°C	12880 at 25	°C]		
Field Ten	nperature '	°C							_		
Instrumer	nt Reading										
F	REDOX CA	LIBRATI	ON	DISSO	OLVED	OXYGEN	CALI	BRATION	Notes:		
Standard Solution 468 mV Salinity %							-				
Field Temperature °C Altitude											
	nt Reading				nent Re						
Model or	Unit No.:			Model	or Unit I	No.:					
Ag/AgCl	Electrode	(SSCE)									
	SWELL SAM										

31 2

	EOMA	IHIX				¥-	o Water: 5,48
	MW-15D					Initial Depth t	
	D: <u>MW-15D-</u>		Duplicate	ID:			er after Sampling:
	Depth:						o Well: <u>19.90'</u>
-	Ind Task No					Well Diameter	r: <u>2"</u> ehole Volume: <u>2.4 gallans</u>
	lame: <u>SPI</u> 3/11/0 5	ARCATA				(Circle one)	
	By: <u>MAH/</u>	RAS	ann a staat a s		(3	A Casing Bor	ehole Volumes: 7.1 gollars
Method	of Purging: _ of Sampling	DISPOS				(Circle one) Total Casing/ Volumes Rem	Borehole 7.5 9
Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (μS/cm)	Remarks (color, turbidity, and sediment)
1027				12.5	6.71	764	52/mg/L TOS; dear
1031			29	13.1	6.76	1080	DUT II II · habt wallen ?
1034			4	13.3	6.85	1215	747 " "; light yeller c
10037			6	13.2	6.87	1250	870 " " " "
1039			7.5	13.4	6.85	1257	875 " " "
040		SA	MILE				
			·····				
Duffer C			ON (choo	·		Model or	Unit No.:
Buffer Se Tempera		pH 4.	0 pH 7	.0 pH 1	0.0		
	nt Reading						
	FIC ELECTR		NDUCTA		IBRATION	Model or I	Unit No.:
	ution (µS/cm						
Tempera		-					
-	nt Reading						
matiume			I	l	I		

Service and

G		TRIX			AND/		SAMPLING LOPMENT RECORD
Well ID:	MW-16D				2 - 1 - 10-	Initial Depth t	o Water: 4.22
	D: <u>MW-16D</u>		Duplicate	ID:	·····	Depth to Wate	er after Sampling:
	Depth:						o Well: _19.65'
	nd Task No					Well Diameter	r: <u>2"</u>
	lame: <u>SPI</u>				(1 Casing/Bore (Circle one)	ehole Volume: 2.5 g
	3/11/05			A			ehole Volumes: 7.59
	By: MAH/					(Circle one)	
	of Purging: of Sampling					Total Casing/ Volumes Rem	
Time	intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1118			13.1	, thit	7.84	4058	3110 mg/L TDS; tea brown, clea
1121			2	13,7	7.83	4104	3140 11 " " " "
1124			4	14.6	7.74	4614	3574 " " " "
1126			6	14.7	7,77	4487	3464 11 " " " " "
1128			8	14,7	7,78	4390	3381 " " " " "
1130		S	MPLE				
		ALIBRATI				Model or I	
Buffer S	· · · · · · · · · · · · · · · · · · ·	pH 4.0		í	0		Shit No
Tempera			- P				
	nt Reading						
	FIC ELECTR		NDUCTAN	ICE - CAL	IBRATION	Model or t	Jnit No.:
KCL Sol	ution (µS/cm	=µmhos/cm	n)				
Tempera	ture C						
Instrume	nt Reading						
Notes:				· ·		L	

G					AN			MPLIN PMENT	G RECOR	D		
Well ID:	MW	-20	I			Initial D	epth to Wa	tor.				
			Duplica <u>te</u> I	D:			•	er Sampling	1.	119-119-10-10-10-10-10-10-10-10-10-10-10-10-10-		pitentin p
•		D SCREE	· IGN)	*****		epth to Wel		,	****		
			.000.0 23	********			ameter:	511	,			
-		PI Arcata	000.0 10			Total		**************************************				NOUNSKNO
	3/ 9 /0:		123	\$9		Volume	Removed:		liters			
		/ MAH/RAS										
•		g: <u>Low F</u>										
						· · · · ·						
Method	or Sampir	ng: <u>Low F</u>	·IOW					14.3	1		0.0400	
Time	Intake Depth	Rate	Cum. Vol. (gal.) L	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	(color turbidit	marks ty, and s	edim	ent
1215	5'	100	-(L)	13.25	6.74	320	0.18	-62.8	clear			
1223		250	4	13.09	6.73	323	0.20	-54.8	dear, sh	ghty	elloc	4
1225		1	5	12.91	6.70	324	0.20	-45.0	u	u	11	
1227			6	12.86	6.68	322	0.20	-37.2	ξĹ.	()	le	
1229		P P	7	12.75	6.66	322	0.18	-28.1	11	11	4	
1231			8	12.65	6.64	323	0.18	-24.5	11	**	11	
1233			9	12.59	6.62		0,18	-20.3	εt	11	11	
1230			10	12.61	6.62	-	0.20	-16.8	£ 6.	1=	¢e	,
1238			11	12.67	1		0.19	-17.2	11	t.	4 1	(
1239		S	AMPLE			TDS = 22						
	-	1. 1			- [.	Fp 2+ -	8 1. 1	1.0	<u></u>			
	9	10/05	paran	aters	Stapil	Red. Fe	ad Filer	tal, ap	te.			
11468	S. S. Cal	pH	CALIBRAT	the second second	A COLUMN THE REAL	and the second second second	11111	Model or	Unit No.:	/		
Buffer So	olution			+ 4.0	pH 7.0	pH 10.0			YSI 556			
	nperature	°C				† .		-/ med	l Flow Th. L. Calibra	rough	$\langle \rangle$	ł
	nt Readin				K. 28 (1			-11 Cel	1. Calibra	ited	m,	/
	CONTRACTOR	A COLUMN COLUMN	RICAL CO	ONDUCTA	NCE - C	ALIBRATION			Unit No.:		\neq	
KCL Solu	THE ADDRESS OF ADDRESS	m=µmhos/		1413 at		2880 at 25°C						
	nperature		,	+				-				
	nt Reading			+				-				
		ALIBRATI	ON	DISS		XYGEN CAL	BRATION	Notes:				
	Solution		58 mV	Salinit		ATOLI OAL	and the first state of the stat	110183.				
	nperature			Altitude								
	nt Reading				nent Read	ting						
	Unit No.:				or Unit No				anna an tarainn an tarain			
	Electrode			wodel		J						
		. ,										-

G		ATRIX	ĸ		WELL SAMPLING AND/OR DEVELOPMENT RECORD								
Well ID:	MW	-21				Initial D	epth to Wat	ter:					
Sample I	D: MW-2	1-200503	uplicate	ID: 44-	22-200	Depth to	Water afte	er Sampling	j:				
Sample I	Depth: <u>MI</u>	D SCREE	N	BI	0-01-0	- <i>C\-2COSC</i> Total Depth to Well: Well Diameter:3/4 ″							
Project a	ind Task I	No: <u>9329.</u>	000.0 2	3		Well Dia	meter:	3/4	- <i>//</i>				
			lite Mathiada a fear ann an Annaich			Total	De merce de	18	L				
Date:				-		voiume	Removeu:						
		AH/RAS											
		g: Low F			5.5460 10 FM + 1000								
Method o	of Sampli	ng: <u>Low F</u>	low		1		100000000000000000000000000000000000000		La contra de				
Time	intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (color, turbidity, and sediment)				
0912		m U/min	(L)	11.38	6.51	854	3.89	76.1	light yellow st. cloudy				
0918			2	11.09			2.36	-32.0	6 11 11 14 14				
0924			4	11.18	6.41	914	2.29	-512	a la la la				
0928			6	11.21	6.3	7 911	1.99	-49.7	nete: buttles in them				
933			8	11.25	6.30	9 917	1.75	-53.8					
2937			10	11.29	6.34	923	0.62	- 52.4	1 cleant is hard all and				
7940			12	11.31	6.34	1 924	0,28	-50,2	ii. 11 11'				
942			14	11.32			0,19	-53.7					
1945			16	11.36	6.3	3 428	0.15	-55.7	11 60 11				
0947			18	11.39	6.34	929	0,13	-52.9	11 11 12				
0950			SAMP	16									
All Carlos and	1963 S. S. M.				1.12.2 2 20.2	TDS = 6.38	1-2/2]					
D. //	039143	pH		TION (cho	St. Builden and St.		CONTRACTOR OF	Model or	· Unit No.:				
Buffer So				oH 4.0	pH 7.0	pH 10.0		-					
	nperature							-					
instrumer	nt Reading	(Aradig seaso	DICAL	ONDUCT	NOT	CALIDDATION	20301383	Model	Unit No.:				
	2.40449000	Contract of the second	100 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	COLUMN TWO IS NOT THE	And in the local days of the	CALIBRATION	Set of the set	wodel of	Unit NO.:				
		m=µmhos/	cm)	1413 at	25.0	12880 at 25°C		-					
	perature												
100 and 100 and 100	t Reading	LIBRATIO	ON	DISS		OXYGEN CALI	BRATION	Notes:					
Standard			S8 mV	Salinit		OATOLN CALL	DIVITION	Notas:					
Field Temperature °C				Altitud									
Instrument Reading					nent Rea	ading							
Model or					or Unit N								
	Electrode	(SSCE)											



YSI 556MPS RENTAL CALIBRATION CERTIFICATE

SERVICE TECHNICIAN:

DATE: 3/4/05

INSTRUMENT INFORMATION

RENTAL I.D. NUMBER: YSI-556. 24 SERIAL#: 62.00 577 March CUSTOMER.

CALIBRATION INFORMATION

PARAMETERS:	STANDARDS:	PASS ()	LOT#
1. CONDUCTIVITY	ر محک µMhos		4615
2. pH ZERO	pH 7	<u> </u>	4200
3. pH SLOPE	pH 4		4240
pH SLOPE	pH 10	<u> </u>	4095
4. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	<u> </u>	N/A
5. REDOX (ORP)	Q3 ≀ mV (YSI Zobell solution)		114404

2100 Meridian Park Boulevard, Concord, CA. 94520

Phone (925) 609-1088 Fax (925) 609-1080

APPENDIX B

Laboratory Reports and Chain-of-Custody Records for Groundwater Samples

Laboratory reports in order of appearance:

Alpha Analytical Work Order: A503423 Alpha Analytical Work Order: A503384 Friedman & Bruya Project: 503149 Alpha Analytical Work Order: A503386 STL Submission: 2005-03-0458 Alpha Analytical Work Order: A503419 Frontier Analytical Project ID: 3151 Frontier Analytical Project ID: 3154



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208 Mason St. Ukiah, California 95482

07 April 2005

Geomatrix Consultants Attn: Ross Steenson 2101 Webster Street, 12th Floor Oakland, CA 94612 RE: SPI - (GeoMatrix) Work Order: A503423

Raisza

TASK 28 GW MONITORING MW-01,02,06,08,09, 130, 150, 160, -21

Enclosed are the results of analyses for samples received by the laboratory on 03/11/05 16:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nena M. Burgess For Sheri L. Speaks Project Manager

This represents an amended copy of the original report



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CHEMICAL EXAMINATION REPORT

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Receipt Date/Time

03/11/2005 16:10

Order Number

A503423

Report Date: 04/07/05 15:46 Project No: 9329/28 Project ID: SPI - (GeoMatrix)

Client PO/Reference

ANALYTICAL REPORT FOR SAMPLES

Client Code

GEOMAT

Sample ID		Laboratory ID	Matrix	Date Sampled	Date Received
MW-21-200503		A503423-01	Water	03/10/05 09:50	03/11/05 16:10
BD-01-200503 BLIND DUPLICATE D	F MW-21	A503423-02	Water	03/10/05 09:50	03/11/05 16:10
MW-02-200503		A503423-03	Water	03/11/05 07:40	03/11/05 16:10
MW-01-200503		A503423-04	Water	03/11/05 08:50	03/11/05 16:10
MW-13D-200503		A503423-05	Water	03/11/05 10:00	03/11/05 16:10
MW-06-200503		A503423-06	Water	03/11/05 10:20	03/11/05 16:10
MW-15D-200503		A503423-07	Water	03/11/05 10:40	03/11/05 16:10
MW-08-200503		A503423-08	Water	03/11/05 11:00	03/11/05 16:10
MW-09-200503		A503423-09	Water	03/11/05 11:10	03/11/05 16:10
MW-16D-200503		A503423-10	Water	03/11/05 11:30	03/11/05 16:10

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Nena M. Burgess For Sheri L. Speaks Project Manager

4/7/2005

Page 1 of 7



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	C	HEMICA	AL EXAN	MINATIO	N REPORT				Page 2 of
Geomatrix Con					Derest Dates	04/07/05 16			
	Street, 12th Floor		Report Date: 04/07/05 15:46						
Oakland, CA 9		Project No: 9329/28 Project ID: SPI - (GeoMatrix)							
Attn: Ross Stee	nson				Project ID:	SPI - (Geon	(latrix)		
Order Number	Order Number Receipt Date/Time			ent Code		Client PO/Reference			
A503423	03/11/2005 16:10		GI	EOMAT					
		Alpha A	nalytical	Laborato	ries, Inc.				
	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT		PQL	NOTE
MW-21-200503 (A503423-01)			Sample Ty	pe: Water	Samp	led: 03/10/05 0	9:50		
Chlorinated Phenols by Canadian	Pulp Method								
2,4,6-Trichlorophenol	EnvCan	AC51804	03/15/05	03/18/05	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol		*			"	8.1 "		1.0	
2,3,4,6-Tetrachlorophenol		*	н		10	31 "		10	
2,3,4,5-Tetrachlorophenol	**				1	ND "		1.5	R-01
Pentachlorophenoi	"		*	"	1000	4700 "		1000	
Surrogate: Tribromophenol	H	"	"	"		74.0 %	70-124		
BD-01-200503 (A503423-02)		Sample Type: Water			Sampled: 03/10/05 09:50				
Chlorinated Phenols by Canadian	Pulp Method			-	-				
2,4,6-Trichlorophenol	EnvCan	AC51804	03/15/05	03/18/05	1	2.7 ug/l		1.0	
2,3,5,6-Tetrachlorophenol				н	10	26 "		10	
2,3,4,6-Tetrachlorophenol	н		*1		"	86 "		10	
2,3,4,5-Tetrachlorophenol		**			1	6.5 "		1.0	
Pentachlorophenol		*	н		1000	4600 "		1000	
Surrogate: Tribromophenol	"	"	"	"		105 %	70-124		
MW-02-200503 (A503423-03)		Sample Type: Water			Sampled: 03/11/05 07:40				
Chlorinated Phenols by Canadian	Pulp Method								
2,4,6-Trichlorophenol	EnvCan	AC51804	03/15/05	03/18/05	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol	"	"	и			ND "		1.0	
2,3,4,6-Tetrachlorophenol		*1	и			ND "		1.0	
2,3,4,5-Tetrachlorophenol		"			"	ND "		1.0	
Pentachlorophenol	м	**			н	ND "		1.0	
Surrogate: Tribromophenol	"	"	"	"		86.4 %	70-124		
MW-01-200503 (A503423-04)		Sample Type: Water			Sampled: 03/11/05 08:50				
Chlorinated Phenols by Canadian	Pulp Method								
2,4,6-Trichlorophenol	EnvCan	AC51804	03/15/05	03/18/05	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol	н	"	n	n	н	ND "		1.0	
2.2.4.6 Tetrachlorenhanel		"	"		*	ND "		1.0	
2,3,4,6-Tetrachlorophenol									

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Nena M. Burgess For Sheri L. Speaks Project Manager

4/7/2005



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Geomatrix Co		HEMICA	AL EXAN	MINATIO	N REPORT				Page 3 of
	Street, 12th Floor 94612				Report Date: Project No: Project ID:				
Order Number	Receipt Date/Time		Cli	ent Code		Client PC)/Reference		
A503423	03/11/2005 16:10		GI	EOMAT					
,		Alpha A	nalytical	Laborato	ries, Inc.				
	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT		PQL	NOTE
AW-01-200503 (A503423-04)		1	Sample Ty	pe: Water	Samp	oled: 03/11/05 ()8:50		2977, 197 800, 200, 200, 200, 200, 200, 200, 200,
Chlorinated Phenols by Canadia	an Pulp Method (cont'd))							
Pentachlorophenol	EnvCan		н	03/18/05	"	ND "		1.0	
Surrogate: Tribromophenol	"	"	n	"		91.2 %	70-124		
AW-13D-200503 (A503423-0	5)		Sample Ty	pe: Water	Sam	oled: 03/11/05	10:00		
Chlorinated Phenols by Canadia									
2,4,6-Trichlorophenol	EnvCan	AC51804	03/15/05	03/18/05	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol			"	"		ND "		1.0	
2,3,4,6-Tetrachlorophenol	"		ч	"		ND "		1.0	
2,3,4,5-Tetrachlorophenol			"	"	11	ND "		1.0	
Pentachlorophenol			"	"	**	ND "		1.0	
Surrogate: Tribromophenol	"	n	"	"		115 %	70-124		
AW-06-200503 (A503423-06)	1		Sample Ty	ne: Water	Sami	oled: 03/11/05	10:20		
Chlorinated Phenols by Canadia									
2,4,6-Trichlorophenol	EnvCan	AC51804	03/15/05	03/18/05	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol	"	"	11	"		ND "		1.0	
2,3,4,6-Tetrachlorophenol		"	n			ND "		1.0	
2,3,4,5-Tetrachlorophenol			"			ND "		1.0	
Pentacniorophenoi		"	"	"	н	ND "		1.0	
Surrogate: Tribromophenol	"	"	"	"		82.4 %	70-124		
MW-15D-200503 (A503423-0	7)		Sample Ty	ne: Water	Sami	oled: 03/11/05	10:40		
Chlorinated Phenols by Canadia	,				5411				
2,4,6-Trichlorophenol	EnvCan	AC51804	03/15/05	03/18/05	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol		"	"	"		ND "		1.0	
2,3,4,6-Tetrachlorophenol			"			ND "		1.0	
2,3,4,5-Tetrachlorophenol	u	*	"		. et	ND "		1.0	
Pentachlorophenol		17	н		*	ND "		1.0	
Surrogate: Tribromophenol	"	"	"	"		%	70-124		S-03
MW-08-200503 (A503423-08)			Sample Ty	pe: Water	Sam	oled: 03/11/05	11:00		

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4/7/2005



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	C	HEMIC	AL EXAI	MINATIO	N REPORT				Page 4 of
Geomatrix Cor 2101 Webster Oakland, CA 9 Attn: Ross Stee	Street, 12th Floor 4612				Report Date: Project No: Project ID:				
Order Number	Receipt Date/Time		Cli	ent Code		Client PC	/Reference		
A503423	03/11/2005 16:10		GI	EOMAT					
		Alpha A	nalytical	Laborato	ries, Inc.				
	METHOD			ANALYZED	,	RESULT		PQL	NOTE
4W-08-200503 (A503423-08)			Sample Ty	pe: Water	Sam	oled: 03/11/05 1	1:00		
Chlorinated Phenols by Canadian	n Pulp Method								
2,4,6-Trichlorophenol	EnvCan	AC51804	03/15/05	03/19/05	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol	н	8	"	"		ND "		1.0	
2,3,4,6-Tetrachlorophenol						ND "		1.0	
2,3,4,5-Tetrachlorophenol	"	Ħ	"			ND "		1.0	
Pentachlorophenol	"	"	"		"	ND "		1.0	
Surrogate: Tribromophenol	"	"	"	"		74.8 %	70-124		
4W-09-200503 (A503423-09)			Sample Ty	pe: Water	Sami	oled: 03/11/05 1	1:10		
Chlorinated Phenols by Canadian	n Pulp Method								
2.4.6-Trichlorophenol	EnvCan	AC51804	03/15/05	03/19/05	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol		11				ND "		1.0	
2,3,4,6-Tetrachlorophenol		10	"			ND "		1.0	
2,3,4,5-Tetrachlorophenol	"	н	"	**		ND "		1.0	
Pentachlorophenol	н	19			и	ND "		1.0	
Surrogate: Tribromophenol	"	"	"	"		76.4%	70-124		
AW-16D-200503 (A503423-10)		Sample Ty	pe: Water	Sam	oled: 03/11/05 1	1:30		
Chlorinated Phenols by Canadia	n Pulp Method								
2,4,6-Trichlorophenol	EnvCan	AC51804	03/15/05	03/19/05	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol		"	"		"	ND "		1.0	
2,3,4,6-Tetrachlorophenol	n	н	n	"	11	ND "		1.0	
2,3,4,5-Tetrachlorophenol	"	н				ND "		1.0	
Pentachlorophenol	"	н				ND "		1.0	
Surrogate: Tribromophenol	"	"	"	"		74.4%	70-124		

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4/7/2005



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CHEMICAL EXAMINATION REPORT

Page 5 of 7

2101 Web Oakland,	x Consultants oster Street, 12th Floor CA 94612 s Steenson		Project No:	04/07/05 15:46 9329/28 SPI - (GeoMatrix)
Order Number A503423	Receipt Date/Time 03/11/2005 16:10	Client Code GEOMAT		Client PO/Reference

Chlorinated Phenols by Canadian Pulp Method - Quality Control

Analyte(s)	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AC51804 - Solvent Extraction										
Blank (AC51804-BLK1)				Prepared:	03/15/05	Analyzed	: 03/18/05			
2,4,6-Trichlorophenol	ND	1.0	ug/l	and the first of the second sectors of the						
2,3,5,6-Tetrachlorophenol	ND	1.0	"							
2,3,4,6-Tetrachlorophenol	ND	1.0	"							
2,3,4,5-Tetrachlorophenol	ND	1.0	"							
Pentachlorophenol	ND	1.0	"							
Surrogate: Tribromophenol	22.3		"	25.0		89.2	70-124			
LCS (AC51804-BS1)				Prepared	03/15/05	Analyzed	: 03/18/05			
2,4,6-Trichlorophenol	4.98	1.0	ug/l	5.00		99.6	81-120			
2,3,5,6-Tetrachlorophenol	5.00	1.0		5.00		100	78-108			
2,3,4,6-Tetrachlorophenol	4.84	1.0	u	5.00		96.8	76-108			
2,3,4,5-Tetrachlorophenol	4.64	1.0	"	5.00		92.8	80-116			
Pentachlorophenol	4.46	1.0	"	5.00		89.2	86-109			
Surrogate: Tribromophenol	24.4		"	25.0		97.6	70-124			
Matrix Spike (AC51804-MS1)	Sou	rce: A503	423-05	Prepared	03/15/05	Analyzed	: 03/18/05			
2,4,6-Trichlorophenol	5.41	1.0	ug/l	5.00	ND	108	75-125			
2,3,5,6-Tetrachlorophenol	5.77	1.0		5.00	ND	115	69-115			
2,3,4,6-Tetrachlorophenol	5.06	1.0	"	5.00	ND	101	66-117			
2,3,4,5-Tetrachlorophenol	4.79	1.0	"	5.00	ND	95.8	70-115			
Pentachlorophenol	4.66	1.0	"	5.00	ND	93.2	55-124			
Surrogate: Tribromophenol	27.3		-	25.0		109	70-124			
Matrix Spike Dup (AC51804-MSD1)		rce: A503					: 03/18/05	_		
2,4,6-Trichlorophenol	5.57	1.0	ug/1	5.00	ND	111	75-125	2.91	20	
2,3,5,6-Tetrachlorophenol	5.65	1.0		5.00	ND	113	69-115	2.10	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Nena M. Burgess For Sheri L. Speaks Project Manager 4/7/2005



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CHEMICAL EXAMINATION REPORT

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Report Date: 04/07/05 15:46 Project No: 9329/28 Project ID: SPI - (GeoMatrix)

%REC Limits

Receipt Date/Time 03/11/2005 16:10

Result

%REC

Client PO/Reference

RPD

RPD

Limit

GEOMAT Chlorinated Phenols by Canadian Pulp Method - Quality Control

Units

PQL

Spike

Level

Source Result

Client Code

Batch	AC5180.	1 - Solvent	Extraction

Order Number

Analyte(s)

A503423

Matrix Spike Dup (AC51804-MSD1)	Sour	ce: A5034	23-05	Prepared:	03/15/05	Analyzed	d: 03/18/05		
2,3,4,6-Tetrachlorophenol	4.92	1.0		5.00	ND	98.4	66-117	2.81	20
2,3,4,5-Tetrachlorophenol	5.59	1.0		5.00	ND	112	70-115	15.4	20
Pentachlorophenol	4.96	1.0	"	5.00	ND	99.2	55-124	6.24	20
Surrogate: Tribromophenol	28.3	-		25.0		113	70-124		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Nena M. Burgess For Sheri L. Speaks Project Manager

4/7/2005

Page 6 of 7

Flag



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CHEMICAL EXAMINATION REPORT

Page 7 of 7

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Report Date: 04/07/05 15:46 Project No: 9329/28 Project ID: SPI - (GeoMatrix) Client PO/Reference

Order Number Receipt Date/Time Client Code A503423 03/11/2005 16:10 GEOMAT

Notes and Definitions

S-03 Surrogate was not added to this sample.

R-01 The Reporting Limit for this analyte has been raised to account for matrix interference.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

PQL Practical Quantitation Limit

LOOL Page / of /	1	Additional Comments	ຊາອບເຊັງແດ	belooO	X 2 1	X 2 2	X 2 3		X 4 Please perform MS/MS 1 and	X 2 U	X 2 7	X 2 &	X 2 9	X 2 10			/	22	Method of Shipment:	-	A5uaya3	Τ	S: Geomatrix Consultants	2101 Wahelar Street 1310 Filmer - Dakland CA 94612
Date: MADOL	LIAN I		Water (W)), or Other (o)	Soli (S). Vapor (V Filtered		M	W	R	W	M	M	M	M	M		/		Total No. of Containers	nature): Date:	Time:		Date	* Time:	
Record	ANALYSES		trod 8270 trod 8260 Cs only) Cs only)	(Full Sca (Full Sca (Per No- EPA Mo- EPA Mo- EPA Mo- EPA Mo- EPA Mo- Sin (PA- Mo- thod i Mo- thod i Mo- Mo- Mo- Mo- Mo- Mo- Mo- Mo- Mo- Mo-		×		X				X		X				Turnaround Time: Results to: STANDARD ROSS STEENSON Total No. of	Hindbare District Date: Relinquished by (Signature)	Ad Name: AAVIOD	Company OM 160 Company:	Received by Bate: Received by:	Printed Name Jur G.C.S. Time: Printed Name:	Company
Chain-of Custody F		V.	1 - 1 - 1	Sample Number	MW-21-2005 03	BD-01-200503	805002-20-MW	205002-10-MW	M.W-BB1-200503	MW-06-200503	MW-15 D-200503	MW-08-200503	MW-09-200503	MW-16D-200503				aboratory: ALPHA AWALY TIČAL LABORATORIES	adature): Date: Rel	Time: Prin		Date: Rec	Mylon Time: Prin	
Chain.	0: 937	1 0	A KU	Time	0450	0450	OFTU	0850	1000	1020	1040	1100	1110	1130				NY: ANALYTIČ	Relinquished by ASignature):	Her yo	int ()	"When he	5	-
	Project No.:	Samplers	2 Ma	Date	3/10/05	->	3/11/05							7				Laboratory: ALPHA A	Relinquis	Phinted Name	Company:	KANN.		Company

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25 March 2005

<u>GW MONITORING</u> MW-07, 14,20

Geomatrix Consultants Attn: Ross Steenson 2101 Webster Street, 12th Floor Oakland, CA 94612 RE: SPI - (GeoMatrix) Work Order: A503384

Enclosed are the results of analyses for samples received by the laboratory on 03/10/05 14:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lisa Jansen

Lisa E. Jansen For Sheri L. Speaks Project Manager



Alpha Analytical Laboratories Inc. e-mail: clientservices@alpha-labs.com

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CHEMICAL EXAMINATION REPORT

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Report Date: 03/25/05 07:39 Project No: 9329/28 Project ID: SPI - (GeoMatrix)

Order Number A503384 Receipt Date/Time 03/10/2005 14:00 <u>Client Code</u> GEOMAT

Client PO/Reference

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-20-200503	A503384-01	Water	03/09/05 12:39	03/10/05 14:00
MW-14-200503	A503384-02	Water	03/09/05 14:40	03/10/05 14:00
MW-07-200503	A503384-03	Water	03/09/05 16:23	03/10/05 14:00

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Jansen

Lisa E. Jansen For Sheri L. Speaks Project Manager

3/25/05

Page 1 of 5



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CHEMICAL EXAMINATION REPORT

Client Code

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Order Number

Receipt Date/Time

Report Date: 03/25/05 07:39 Project No: 9329/28 Project ID: SPI - (GeoMatrix) <u>Client PO/Reference</u>

A503384	03/10/2005 14:00			EOMAT		<u>Chener 10/Ke</u>	Actenete	
an na far-fallingarig fan die die daard as gewoor - oor die biedelekse progenieuw on die bed		Alpha A	nalytical	Laborator	ries, Inc.	·		And the second second
	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	PQL	NOTE
MW-20-200503 (A503384-01)	e entre or the Management and the second second		Sample Ty	pe: Water		Sampled: 03/09/05 12:3	9	
Chlorinated Phenols by Canadia	n Pulp Method							
2,4,6-Trichlorophenol	EnvCan	AC51804	03/15/05	03/18/05	1	3.4 ug/l	1.0	
2,3,5,6-Tetrachlorophenol	"		"	*	10	27 "	10	
2,3,4,6-Tetrachlorophenol	"	"	н		1	ND "	1.0	
2,3,4,5-Tetrachlorophenol	"				н	4.6 "	1.0	
Pentachlorophenol	"	"	"		10	71 "	10	
Surrogate: Tribromophenol	"	"	"	"		108 %	79-119	
MW-14-200503 (A503384-02)			Sample Ty	pe: Water		Sampled: 03/09/05 14:4	0	
Chlorinated Phenols by Canadia	n Pulp Method			-		-		
2,4,6-Trichlorophenol	EnvCan	AC51804	03/15/05	03/18/05	1	ND ug/l	1.0	
2,3,5,6-Tetrachlorophenol		*	**	**		ND "	1.0	
2,3,4,6-Tetrachlorophenol			"	н	**	ND "	1.0	
2,3,4,5-Tetrachlorophenol			"	"		ND "	1.0	
Pentachlorophenol	"	"	"			ND "	1.0	
Surrogate: Tribromophenol	"	17	#	"		84.4 %	79-119	
MW-07-200503 (A503384-03)			Sample Ty	pe: Water		Sampled: 03/09/05 16:2	3	
Chlorinated Phenols by Canadia	n Pulp Method							
2,4,6-Trichlorophenol	EnvCan	AC51804	03/15/05	03/18/05	1	ND ug/l	1.0	
2,3,5,6-Tetrachlorophenol		"	н		10	39 "	10	
2,3,4,6-Tetrachlorophenol		"	н	н	50	420 "	50	
2,3,4,5-Tetrachlorophenol		17	"	"	10	32 "	10	
Pentachlorophenol		н		"	2000	24000 "	2000	
Surrogate: Tribromophenol	"	"	"	"		94.4 %	79-119	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Risa Jansen

Lisa E. Jansen For Sheri L. Speaks Project Manager

3/25/05

Page 2 of 5



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208 Mason St. Ukiah, California 95482

CHEMICAL EXAMINATION REPORT

Client Code

GEOMAT

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Order Number A503384

Receipt Date/Time

03/10/2005 14:00

Report Date: 03/25/05 07:39 Project No: 9329/28 Project ID: SPI - (GeoMatrix)

Client PO/Reference

Chlorinated Phenols by Canadian Pulp Method - Quality Control

Analyte(s)	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AC51804 - Solvent Extraction										
Blank (AC51804-BLK1)				Prepared	03/15/05	Analyzed	: 03/18/05			
2,4,6-Trichlorophenol	ND	1.0	ug/l							
2,3,5,6-Tetrachlorophenol	ND	1.0	"							
2,3,4,6-Tetrachlorophenol	ND	1.0								
2,3,4,5-Tetrachlorophenol	ND	1.0	"							
Pentachlorophenol	ND	1.0								
Surrogate: Tribromophenol	22.3		IJ	25.0		89.2	79-119			
LCS (AC51804-BS1)				Prepared	03/15/05	Analyzed	: 03/18/05			
2,4,6-Trichlorophenol	4.98	1.0	ug/l	5.00		99.6	81-120			
2,3,5,6-Tetrachlorophenol	5.00	1.0	17	5.00		100	78-108			
2,3,4,6-Tetrachlorophenol	4.84	1.0	н	5.00		96.8	76-108			
2,3,4,5-Tetrachlorophenol	4.64	1.0		5.00		92.8	80-116			
Pentachlorophenol	4.46	1.0		5.00		89.2	86-109			
Surrogate: Tribromophenol	24.4		"	25.0		97.6	79-119			
Matrix Spike (AC51804-MS1)	Sou	rce: A503	423-05	Prepared	03/15/05	Analyzed	: 03/18/05			
2,4,6-Trichlorophenol	5.41	1.0	ug/l	5.00	ND	108	75-125			
2,3,5,6-Tetrachlorophenol	5.77	1.0	"	5.00	ND	115	69-115			
2,3,4,6-Tetrachlorophenol	5.06	1.0		5.00	ND	101	66-117			
2,3,4,5-Tetrachlorophenol	4.79	1.0	н	5.00	ND	95.8	70-115			
Pentachlorophenol	4.66	1.0	"	5.00	ND	93.2	55-124			
Surrogate: Tribromophenol	27,3			25.0		109	79-119			1417-14
Matrix Spike Dup (AC51804-MSD1)	Sou	rce: A503	423-05	Prepared	03/15/05	Analyzed	: 03/18/05			
2,4,6-Trichlorophenol	5.57	1.0	ug/l	5.00	ND	111	75-125	2.91	20	
2,3,5,6-Tetrachlorophenol	5.65	1.0		5.00	ND	113	69-115	2.10	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Jonsen

Lisa E. Jansen For Sheri L. Speaks Project Manager

3/25/05

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Alpha Analytical Laboratories Inc.

Result

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CHEMICAL EXAMINATION REPORT

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Report Date: 03/25/05 07:39 Project No: 9329/28 Project ID: SPI - (GeoMatrix)

> %REC Limits

RPD

Limit

RPD

Order NumberReceipt Date/TimeClient CodeA50338403/10/200514:00GEOMAT

Client PO/Reference

%REC

Source Result

Chlorinated Phenols by Canadian Pulp Method - Quality Control

Units

PQL

Spike

Level

Batch	AC51804 -	 Solvent 	Extraction

Analyte(s)

Matrix Spike Dup (AC51804-MSD1)	Sour	ce: A50342	23-05	Prepared:	03/15/05	Analyzed	: 03/18/05			
2,3,4,6-Tetrachlorophenol	4.92	1.0	н	5.00	ND	98.4	66-117	2.81	20	
2,3,4,5-Tetrachlorophenol	5.59	1.0	н	5.00	ND	112	70-115	15.4	20	
Pentachlorophenol	4.96	1.0	"	5.00	ND	99.2	55-124	6.24	20	
Surrogate: Tribromophenol	28.3		N	25.0		113	79-119			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Piesa Jansen

Lisa E. Jansen For Sheri L. Speaks Project Manager

3/25/05

Page 4 of 5

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CHEMICAL EXAMINATION REPORT

Page 5 of 5

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Report Date: 03/25/05 07:39 Project No: 9329/28 Project ID: SPI - (GeoMatrix)

 Order Number
 Receipt Date/Time
 Client Code

 A503384
 03/10/2005 14:00
 GEOMAT

Client PO/Reference

Notes and Definitions

DET	Analyte DETE	CTED
-----	--------------	------

- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- PQL Practical Quantitation Limit

CH 9, 2005 Page 1 of 1	1	Additional lo. of Comtainers	t:	E Z X	X 2 3												7	2	e: Method of Spipments	e: Laboratory Comments and Log No.:	agaan in saadh	1	e: Reomatrix Consultants	
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lan		Sample Number	MW-20-200503	MW-14-200503	MW-07-20503			/	5									LAK ON ATORIES						
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	Pro	Da	20	\rightarrow	\rightarrow													abo	Part of	2 ad	E	PE	57	

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Charlene Morrow, M.S. Yelena Aravkina, M.S. Bradley T. Benson, B.S. Kurt Johnson, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 TEL: (206) 285-8282 FAX: (206) 283-5044 e-mail: fbi@isomedia.com

March 25, 2005



Ross Steenson, Project Manager Geomatrix Consultants, Inc. 2101 Webster Street, 12th Floor Oakland, CA 94612 <u>Pilot Study</u> GW Samples MW-01, 02, 03, 05, 07, 14, 20, 21

Dear Mr. Steenson:

Included are the results from the testing of material submitted on March 14, 2005 from the 9329/23, F&BI 503149 project. There are 19 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Charlene Morrow

Charlene Morrow Chemist

Enclosures GMC0325R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 14, 2005 by Friedman & Bruya, Inc. from the Geomatrix Consultants, Inc. 9329/23, F&BI 503149 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Geomatrix Consultants, Inc.
503149-01	MW-20-200503
503149-02	MW-14-200503
503149-03	MW-07-200503
503149-04	MW-21-200503
503149-05	BD-01-200503 → BLIND DUPLICATE OF MW-21
503149-06	MW-05-200503
503149-07	MW-03-200503
503149-08	MW-02-200503
503149-09	MW-01-200503

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method $8270\mathrm{C}\:\mathrm{SIM}$

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	MW-20-2008 03/14/05 03/15/05 03/18/05 Water ug/L (ppb)	503	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-01 031731.D GCMS3 YA
Surrogates: 2-Fluorophenol Phenol-d6 2,4,6-Tribromophen	ol	% Recovery 56 37 105	Lower Limit 23 12 33	Upper Limit 74 51 134
Compounds:		Concentration ug/L (ppb)		
Phenol 2-Chlorophenol 2,4-Dichlorophenol 2,3-Dichlorophenol 3-Chlorophenol 3-Chlorophenol 2,5-Dichlorophenol 2,3,5-Trichlorophenol 2,4,6-Trichlorophenol 2,3,4-Trichlorophenol 2,3,6-Trichlorophenol 2,3,4-Chlorophenol 2,3,4-Chetrachlorop 2,3,4,5-Tetrachlorop 2,3,4,5-Tetrachlorop 3,4,5-Trichlorophenol 2,3,5,6-Tetrachlorop 2,3,5,6-Tetrachlorop 2,3,5,6-Tetrachlorophenol 2,3,5,6-Tetrachlorophenol	ol ol ol ol henol henol henol	<1 <1 1 <1 9 <1 5 4 <1 <1 9 <1 15 12 4 2 4 89 ve		

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration is an estimate.

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ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270C SIM

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	MW-20-2008 03/14/05 03/15/05 03/18/05 Water ug/L (ppb)	503	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-01 1/5 031804.D GCMS3 YA
Surrogates:		% Recovery	Lower Limit	Upper Limit
2-Fluorophenol		57	13	89
Phenol-d6		35	12	85
2,4,6-Tribromopher	nol	101	40	129
Compounds:		Concentration ug/L (ppb)		
Phenol		<5		
2-Chlorophenol		<5		
2,4-Dichlorophenol		<5		
2,3-Dichlorophenol		<5		
2,6-Dichlorophenol		<5		
3-Chlorophenol+4-0	Chlorophenol	<10		
2,5-Dichlorophenol		<5		
2,3,5-Trichloropher	ol	<5		
2,4,6-Trichloropher	ol	<5		
2,4,5-Trichloropher		<5		
2,3,4-Trichloropher	ol	<5		
3,5-Dichlorophenol		9		
2,3,6-Trichloropher	ol	<5		
3,4-Dichlorophenol		15		
2,3,4,6-Tetrachloro		12		
2,3,4,5-Tetrachloro	phenol	<5		
2,3,5,6-Tetrachloro	phenol	<5		
3,4,5-Trichloropher	ol	<5		
Pentachlorophenol		100		

Note: The sample was diluted due to the presence of high levels of material. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

ENVIRONMENTAL CHEMISTS

Client Sample ID:MW-14-Date Received:03/14/05Date Extracted:03/15/05Date Analyzed:03/18/05Matrix:WaterUnits:ug/L (pp)		Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-02 031724.D GCMS3 YA
Surrogates: 2-Fluorophenol Phenol-d6 2,4,6-Tribromophenol	% Recovery 54 38 96	Lower Limit 13 12 40	Upper Limit 89 85 129
Compounds:	Concentration ug/L (ppb)		
Phenol 2-Chlorophenol 2,4-Dichlorophenol 2,3-Dichlorophenol 3-Chlorophenol+4-Chlorophe 2,5-Dichlorophenol 2,3,5-Trichlorophenol 2,4,6-Trichlorophenol 2,3,4-Trichlorophenol 3,5-Dichlorophenol 2,3,6-Trichlorophenol 2,3,4-Dichlorophenol 2,3,4,5-Tetrachlorophenol 2,3,4,5-Tetrachlorophenol 2,3,4,5-Tetrachlorophenol 3,4,5-Trichlorophenol	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <		
Pentachlorophenol	2		

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270C SIM

Date Received:03.Date Extracted:03.Date Analyzed:03.Matrix:Watarix:	W-07-200503 /14/05 /15/05 /18/05 ater /L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-03 031807.D GCMS3 YA
Surrogates: 2-Fluorophenol Phenol-d6 2,4,6-Tribromophenol	% Recovery 51 36 121	Lower Limit 13 12 40	Upper Limit 89 85 129
Compounds:	Concentration ug/L (ppb)		
Phenol 2-Chlorophenol 2,4-Dichlorophenol 2,3-Dichlorophenol 2,6-Dichlorophenol 3-Chlorophenol+4-Chlo 2,5-Dichlorophenol 2,3,5-Trichlorophenol 2,4,6-Trichlorophenol 2,3,4-Trichlorophenol 3,5-Dichlorophenol 2,3,6-Trichlorophenol 2,3,4,6-Tetrachlorophen 2,3,5,6-Tetrachlorophenol 2,3,5,6-Tetrachlorophenol 2,4,5-Trichlorophenol 2,3,5,6-Tetrachlorophenol 2,4,5-Trichlorophenol 2,4,5-Trichlorophenol 2,4,5-Trichlorophenol 2,4,5-Trichlorophenol 2,4,5-Trichlorophenol 2,4,5-Trichlorophenol 2,4,5-Trichlorophenol 2,5,6-Tetrachlorophenol 2,5,6-Tetrachlorophenol	<1 2 1 83 ve 2 28 1 480 ve nol 17 nol 37		

 ${\bf J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration is an estimate.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270C SIM

Date Date		MW-07-2008 03/14/05 03/15/05 03/18/05 Water ug/L (ppb)	503	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-03 1/50 031732.D GCMS3 YA
Sum	ogates:		% Recovery	Lower Limit	Upper Limit
	lorophenol		56	13	89
	nol-d6		30	13	85
	-Tribromophen	ol	155 vo	40	129
2,4,0	- IIIbiolilophen		100 00	40	120
			Concentration		
Com	pounds:		ug/L (ppb)		
Phen	nol		<50		
2-Ch	lorophenol		<50		
2,4-E	Dichlorophenol		<50		
2,3-E	Dichlorophenol		<50		
2,6-D	Dichlorophenol		<50		
3-Ch	lorophenol+4-0	Chlorophenol	890		
2,5-E	Dichlorophenol		<50		
2, 3, 5	 Trichlorophen 	ol	$<\!50$		
	-Trichlorophen		$<\!50$		
2, 4, 5	-Trichlorophen	ol	75		
	-Trichlorophen	ol	<50		
3,5 - D	Dichlorophenol		<50		
	-Trichlorophen	ol	$<\!50$		
,	Dichlorophenol		610		
	,6-Tetrachlorop		<50		
	,5-Tetrachlorop		<50		
, .	,6-Tetrachlorop		490		
	-Trichlorophen	ol	290		
Penta	achlorophenol		18,000 ve		

Note: The sample was diluted due to the presence of high levels of material. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270C SIM

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	MW-07-2003 03/14/05 03/15/05 03/18/05 Water ug/L (ppb)	503	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-03 1/1000 031727.D GCMS3 YA
			Lower	Upper
Surrogates:		% Recovery	Limit	Limit
2-Fluorophenol		0 vo	13	89
Phenol-d6		0 vo	12	85
2,4,6-Tribromophen	ol	0 vo	40	129
Compounds:		Concentration ug/L (ppb)		
Phenol		<1,000		
2-Chlorophenol		<1,000		
2,4-Dichlorophenol		<1,000		
2,3-Dichlorophenol		<1,000		
2,6-Dichlorophenol		<1,000		
3-Chlorophenol+4-C	Chlorophenol	<2,000		
2,5-Dichlorophenol	-	<1,000		
2,3,5-Trichlorophen	ol	<1,000		
2,4,6-Trichlorophen	ol	<1,000		
2,4,5-Trichlorophen	ol	<1,000		
2,3,4-Trichlorophen	ol	<1,000		
3,5-Dichlorophenol		<1,000		
2,3,6-Trichlorophen	ol	<1,000		
3,4-Dichlorophenol		<1,000		
2,3,4,6-Tetrachlorop		<1,000		
2,3,4,5-Tetrachlorop	henol	<1,000		
2,3,5,6-Tetrachlorop		<1,000		
3,4,5-Trichlorophen	ol	<1,000		
Pentachlorophenol		12,000		

Note: The sample was diluted due to the presence of high levels of material. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

vo - The value reported fell outside the control limits established for this analyte.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270C SIM

Date Received: 0 Date Extracted: 0 Date Analyzed: 0 Matrix: V	4W-21-200503 3/14/05 3/15/05 3/18/05 Vater g/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-04 031733.D GCMS3 YA
Surrogates: 2-Fluorophenol Phenol-d6 2,4,6-Tribromophenol	% Recovery 53 35 113	Lower Limit 13 12 40	Upper Limit 89 85 129
Compounds:	Concentration ug/L·(ppb)		
Phenol 2-Chlorophenol 2,4-Dichlorophenol 2,3-Dichlorophenol 3-Chlorophenol+4-Ch 2,5-Dichlorophenol 2,3,5-Trichlorophenol 2,4,6-Trichlorophenol 2,3,4-Trichlorophenol 3,5-Dichlorophenol 2,3,6-Trichlorophenol 2,3,4,5-Tetrachloroph 2,3,4,5-Tetrachloroph 2,3,4,5-Tetrachloroph 2,3,4,5-Tetrachloroph	$\begin{array}{c} <1 \\ <1 \\ <1 \\ 5 \\ <1 \\ 19 \\ <1 \\ 250 \text{ ve} \\ \text{enol} & 27 \\ \text{enol} & 4 \end{array}$		
3,4,5-Trichlorophenol Pentachlorophenol	230 ve 3,100 ve		

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration is an estimate.

8

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270C SIM

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	MW-21-2005 03/14/05 03/15/05 03/18/05 Water ug/L (ppb)	03	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-04 1/50 031729.D GCMS3 YA
Surrogates: 2-Fluorophenol Phenol-d6 2,4,6-Tribromopher	ol	% Recovery 53 26 118	Lower Limit 13 12 40	Upper Limit 89 85 129
Compounds:		Concentration ug/L (ppb)		
Phenol 2-Chlorophenol 2,4-Dichlorophenol 2,3-Dichlorophenol 3-Chlorophenol+4-C 2,5-Dichlorophenol 2,3,5-Trichlorophenol 2,3,5-Trichlorophen 2,4,6-Trichlorophen 2,3,4-Trichlorophenol 2,3,6-Trichlorophenol 2,3,4,6-Tetrachlorop 2,3,4,5-Tetrachlorop 2,3,4,5-Tetrachlorop 2,3,4,5-Trichlorophenol 2,3,4,5-Trichlorophenol 2,3,4,5-Trichlorophenol	ol ol ol ol ol ohenol ohenol ohenol	<50 <50 <50 <50 270 <50 <50 <50 <50 <50 <50 310 <50 <50 <50 109 250 5.500 ve		

Note: The sample was diluted due to the presence of high levels of material. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration is an estimate.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method $8270\mathrm{C}\ \mathrm{SIM}$

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	MW-21-2005 03/14/05 03/15/05 03/18/05 Water ug/L (ppb)	503	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-04 1/250 031805.D GCMS3 YA
			Lower	Upper
Surrogates:		% Recovery	Limit	Limit
2-Fluorophenol		0 vo	13	89
Phenol-d6		0 vo	12	85
2,4,6-Tribromopher	ol	0 vo	40	129
		Concentration		
Compounds:		ug/L (ppb)		
Phenol		<250		
2-Chlorophenol		<250		
2,4-Dichlorophenol		<250		
2,3-Dichlorophenol		<250		
2,6-Dichlorophenol		<250		
3-Chlorophenol+4-0	Chlorophenol	<500		
2,5-Dichlorophenol		<250		
2,3,5-Trichlorophen	ol	<250		
2,4,6-Trichlorophen	ol	<250		
2,4,5-Trichlorophen	ol	<250		
2,3,4-Trichlorophen	ol	<250		
3,5-Dichlorophenol		<250		
2,3,6-Trichlorophen	ol	<250		
3,4-Dichlorophenol		260		
2,3,4,6-Tetrachlorog		<250		
2,3,4,5-Tetrachlorop		<250		
2,3,5,6-Tetrachlorop	ohenol	<250		
3,4,5-Trichlorophen	ol	<250		
Pentachlorophenol		5,500		

Note: The sample was diluted due to the presence of high levels of material. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

vo - The value reported fell outside the control limits established for this analyte.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270C SIM

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	BD-01-2005 03/14/05 03/15/05 03/18/05 Water ug/L (ppb)	03	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-05 031734.D GCMS3 YA
Surrogates:		% Recovery	Lower Limit	Upper Limit
2-Fluorophenol		50 50	13	89
Phenol-d6		35	13	85
2,4,6-Tribromopher	ol	111	40	129
_ , , , o 1 11010110pilo1			10	120
0		Concentration		
Compounds:		ug/L (ppb)		
Phenol		<1		
2-Chlorophenol		<1		
2,4-Dichlorophenol		2		
2,3-Dichlorophenol		<1		
2,6-Dichlorophenol		<1		
3-Chlorophenol+4-0	Chlorophenol	250 ve		
2,5-Dichlorophenol		<1		
2,3,5-Trichlorophen		<1		
2,4,6-Trichlorophen		<1		
2,4,5-Trichlorophen		5		
2,3,4-Trichlorophen	ol	<1		
3,5-Dichlorophenol	-	20		
2,3,6-Trichlorophen	ol	<1		
3,4-Dichlorophenol		260 ve		
2,3,4,6-Tetrachlorop		27		
2,3,4,5-Tetrachlorop		4		
2,3,5,6-Tetrachlorop		130 ve		
3,4,5-Trichlorophen	01	230 ve		
Pentachlorophenol		3,100 ve		

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration is an estimate.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270C SIM

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	BD-01-20050 03/14/05 03/15/05 03/18/05 Water ug/L (ppb))3	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-05 1/50 031730.D GCMS3 YA
Surrogates: 2-Fluorophenol Phenol-d6 2,4,6-Tribromophen	ol	% Recovery 50 28 133 vo	Lower Limit 13 12 40	Upper Limit 89 85 129
Compounds:		Concentration ug/L (ppb)		
Phenol 2-Chlorophenol 2,4-Dichlorophenol 2,3-Dichlorophenol 3-Chlorophenol+4-C 2,5-Dichlorophenol 2,3,5-Trichlorophenol 2,3,5-Trichlorophen 2,4,6-Trichlorophenol 2,3,4-Trichlorophenol 2,3,6-Trichlorophenol 2,3,4-Trichlorophenol 2,3,4,6-Tetrachlorop 2,3,4,5-Tetrachlorop 3,4,5-Trichlorophenol 3,4,5-Trichlorophenol	ol ol ol ol ol henol henol henol	<50 <50 <50 <50 270 <50 <50 <50 <50 <50 <50 310 <50 <50 110 250 5,700 ve		

Note: The sample was diluted due to the presence of high levels of material. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270C SIM

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	BD-01-20050 03/14/05 03/15/05 03/18/05 Water ug/L (ppb)	03	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-05 1/250 031806.D GCMS3 YA
			Lower	Upper
Surrogates:		% Recovery	Limit	Limit
2-Fluorophenol		0 vo	13	89
Phenol-d6		0 vo	12	85
2,4,6-Tribromopher	nol	0 vo	40	129
Compounds:		Concentration ug/L (ppb)		
Phenol		<250		
2-Chlorophenol		<250		
2,4-Dichlorophenol		<250		
2,3-Dichlorophenol		<250		
2,6-Dichlorophenol		<250		
3-Chlorophenol+4-	Chlorophenol	<500		
2,5-Dichlorophenol		<250		
2,3,5-Trichloropher	lol	<250		
2,4,6-Trichloropher	nol	<250		
2,4,5-Trichloropher	nol	<250		
2,3,4-Trichloropher	nol	<250		
3,5-Dichlorophenol		<250		
2,3,6-Trichloropher	nol	<250		
3,4-Dichlorophenol		252		
2,3,4,6-Tetrachloro	phenol	<250		
2,3,4,5-Tetrachloro	phenol	<250		
2,3,5,6-Tetrachloro	phenol	<250		
3,4,5-Trichloropher	nol	<250		
Pentachlorophenol		5,500		

Note: The sample was diluted due to the presence of high levels of material. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

vo - The value reported fell outside the control limits established for this analyte.

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	MW-05-2005 03/14/05 03/15/05 03/18/05 Water ug/L (ppb)	603	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-06 031723.D GCMS3 YA
Surrogates: 2-Fluorophenol Phenol-d6 2,4,6-Tribromophen	ol	% Recovery 50 34 112	Lower Limit 13 12 40	Upper Limit 89 85 129
Compounds:		Concentration ug/L (ppb)		
Phenol 2-Chlorophenol 2,4-Dichlorophenol 2,3-Dichlorophenol 3-Chlorophenol+4-C 2,5-Dichlorophenol 2,3,5-Trichlorophenol 2,3,5-Trichlorophen 2,4,6-Trichlorophen 3,4-Trichlorophenol 2,3,6-Trichlorophenol 2,3,4,6-Tetrachlorop 2,3,4,5-Tetrachlorop 2,3,5,6-Tetrachlorop 9,4,5-Trichlorophenol	ol ol ol ol henol henol henol	$ \begin{array}{c} <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <2 \\ <1 \\ <1 \\$		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	MW-03-2005 03/14/05 03/15/05 03/18/05 Water ug/L (ppb)	03	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-07 031722.D GCMS3 YA
Surrogates: 2-Fluorophenol Phenol-d6 2,4,6-Tribromophen	ol	% Recovery 57 38 111	Lower Limit 13 12 40	Upper Limit 89 85 129
Compounds:		Concentration ug/L (ppb)		
Phenol 2-Chlorophenol 2,4-Dichlorophenol 2,3-Dichlorophenol 3-Chlorophenol+4-C 2,5-Dichlorophenol 2,3,5-Trichlorophen 2,4,6-Trichlorophen 2,3,4-Trichlorophen 2,3,6-Trichlorophen 3,5-Dichlorophenol 2,3,6-Trichlorophenol 2,3,4,6-Tetrachlorop 2,3,4,5-Tetrachlorop 3,4,5-Trichlorophenol 3,4,5-Trichlorophenol	ol ol ol ol henol henol henol	$ \begin{array}{c} <1 \\ <1 \\ <1 \\ <1 \\ <2 \\ <1 \\ <1 \\ <1 \\$		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	MW-02-2008 03/14/05 03/15/05 03/18/05 Water ug/L (ppb)		Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 503149-08 031721.D GCMS3 YA
Comparter		0/ Decourse	Lower	Upper
Surrogates:		% Recovery	Limit	Limit
2-Fluorophenol Phenol-d6		55 39	$\frac{13}{12}$	89 85
2,4,6-Tribromopher		105	40	129
2,4,6-1101000000	101	105	40	129
		Concentration		
Compounds:		ug/L (ppb)		
Phenol		<1		
2-Chlorophenol		<1		
2,4-Dichlorophenol		<1		
2,3-Dichlorophenol		<1		
2,6-Dichlorophenol		<1		
3-Chlorophenol+4-(Chlorophenol	<2		
2,5-Dichlorophenol		<1		
2,3,5-Trichlorophen		<1		
2,4,6-Trichlorophen	ol	<1		
2, 4, 5-Trichlorophen		<1		
2,3,4-Trichlorophen	ol	<1		
3,5-Dichlorophenol		<1		
2,3,6-Trichlorophen	ol	<1		
3,4-Dichlorophenol		<1		
2,3,4,6-Tetrachlorop		<1		
2,3,4,5-Tetrachlorop		<1		
2,3,5,6-Tetrachlorop		<1		
3,4,5-Trichlorophen	ol	<1		
Pentachlorophenol		2		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	MW-01-200503 03/14/05 03/15/05 03/18/05 Water ug/L (ppb)	Client: Project: Lab ID: Data File Instrume Operator	ent: GCMS3	
Surrogates: 2-Fluorophenol Phenol-d6 2,4,6-Tribromophen	6 4	covery Lin 3 1 3 1	wer Upper mit Limit 13 89 12 85 40 129	
Compounds:		tration (ppb)		
Phenol 2-Chlorophenol 2,4-Dichlorophenol 2,3-Dichlorophenol 2,6-Dichlorophenol 3-Chlorophenol+4-C 2,5-Dichlorophenol 2,3,5-Trichlorophen 2,4,6-Trichlorophen 2,3,4-Trichlorophenol 2,3,6-Trichlorophenol 2,3,6-Trichlorophenol 2,3,4,6-Tetrachlorop 2,3,4,5-Tetrachlorop 2,3,5,6-Tetrachlorop 3,4,5-Trichlorophenol	<1 ol <1			

ENVIRONMENTAL CHEMISTS

Client Sample ID: Method Blank Date Received: Not Applicable Date Extracted: 03/15/05 Date Analyzed: 03/17/05 Matrix: Water Units: ug/L (ppb) Surrogates: % Recovery 2-Fluorophenol 59 Phenol-d6 35 2,4,6-Tribromophenol 85	r EPA Method	4 8270C SIM
2-Fluorophenol 59 Phenol-d6 35	Client: Project: Lab ID: Data File: Instrument: Operator:	Geomatrix Consultants, Inc. 9329/23, F&BI 503149 05-261mb 031719.D GCMS3 YA
	Lower Limit 13 12 40	Upper Limit 89 85 129
Concentration Compounds: ug/L (ppb)		
Phenol<12-Chlorophenol<1		

ENVIRONMENTAL CHEMISTS

Date of Report: 03/25/05 Date Received: 03/14/05 Project: 9329/23, F&BI 503149

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270C SIM

Laboratory Code: Laboratory Control Sample

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Phenol	μg/L (ppb)	10	30	30	15-52	0
2-Chlorophenol	μg/L (ppb)	20	77	77	63-101	0
2,3-Dichlorophenol	μg/L (ppb)	10	89	89	70-130	0
2,6-Dichlorophenol	μg/L (ppb)	10	82	80	70-130	2
3-+-4-Chlorophenol	μg/L (ppb)	20	71	72	70-130	2
2,5-Dichlorophenol	μg/L (ppb)	10	. 80	83	70-130	4
2,3,5-Trichlorophenol	μg/L (ppb)	10	90	91	70-130	2
2,4,5-Trichlorophenol	μg/L (ppb)	10	83	85	75 - 113	2
2,3,4-Trichlorophenol	μg/L (ppb)	10	82	83	70-130	1
3,5-Dichlorophenol	μg/L (ppb)	10	84	87	70-130	4
2,3,6-Trichlorophenol	μg/L (ppb)	10	83	85	70-130	2
3,4-Dichlorophenol	μg/L (ppb)	10	84	87	70-130	4
2,3,4,6-Tetrachlorophenol	μg/L (ppb)	10	81	83	70-130	3
2,3,4,5-Tetrachlorophenol	μg/L (ppb)	10	86	79	70-130	9
2,3,5,6-Tetrachlorophenol	μg/L (ppb)	10	87	91	70-130	4
3,4,5-Trichlorophenol	μg/L (ppb)	10	94	96	70-130	2
Pentachlorophenol	μg/L (ppb)	10	69	71	69-111	3

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Alpha Analytical Laboratories Inc.

208 Mason St. Ukiah, California 95482 e-mail: clientservices@alpha-labs.com • Phone: (707) 468-0401 • Fax: (707) 468-5267

25 March 2005

Geomatrix Consultants Attn: Ross Steenson 2101 Webster Street, 12th Floor Oakland, CA 94612 RE: SPI - (GeoMatrix) Work Order: A503386

Radiosid

TASK 23 PILOT STUDY NW-07, 14, 20

Enclosed are the results of analyses for samples received by the laboratory on 03/10/05 14:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nena M. Burgess For Sheri L. Speaks Project Manager



a^{nt}

Order Number

A503386

Alpha Analytical Laboratories Inc.

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CHEMICAL EXAMINATION REPORT

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Receipt Date/Time

03/10/2005 14:00

Report Date: 03/25/05 16:21 Project No: 9329/23 Project ID: SPI - (GeoMatrix)

Client PO/Reference

Page 1 of 7

ANALYTICAL REPORT FOR SAMPLES

Client Code

GEOMAT

Sample ID	 Laboratory ID	Matrix	Date Sampled	Date Received
MW-20-200503	A503386-01	Water	03/09/05 12:39	03/10/05 14:00
MW-14-200503	A503386-02	Water	03/09/05 14:40	03/10/05 14:00
MW-07-200503	A503386-03	Water	03/09/05 16:23	03/10/05 14:00

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Nena M. Burgess For Sheri L. Speaks Project Manager

3/25/2005



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		HEMIC	AL EXA	MINATIO	N REPORT			Page 2 of 7
Geomatrix Cons 2101 Webster S Oakland, CA 94 Attn: Ross Stee	treet, 12th Floor 612				Report Date: Project No: Project ID:			
Order Number A503386	Receipt Date/Time 03/10/2005 14:00			ent Code EOMAT		Client PO/Reference		
		Alpha A	alytical	Laborato	ries, Inc.			
	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	PQL	NOTE
MW-20-200503 (A503386-01) Metals by EPA 200 Series Methods	\$		Sample Ty	pe: Water	Samp	oled: 03/09/05 12:39		
Calcium Magnesium	EPA 200.7	AC51404 "	03/14/05	03/21/05	1	23 mg/ł 23 ''	1.0 1.0	
Conventional Chemistry Paramete	ers by APHA/EPA Me	ethods						
Total Alkalinity as CaCO3	SM2320B	AC51022	03/10/05	03/10/05	1	180 mg/l	5.0	
Carbonate Alkalinity as CaCO3			"		п	ND "	5.0	
Total Organic Carbon	EPA 415.1	AC51616	03/16/05	03/17/05	*	7.25 "	1.00	
Bicarbonate Alkalinity as CaCC	3 SM2320B	AC51022	03/10/05	03/10/05	н	180 "	5.0	
Hydroxide Alkalinity as CaCO3		"		"	"	ND "	5.0	
Anions by EPA Method 300.0								
Chloride	EPA 300.0	AC51011	03/10/05	03/10/05	5	17 mg/l	2.5	
Nitrate as N	"	н		03/10/05	1	ND "	0.20	
Sulfate as SO4		U	"	н	н	1.2 "	0.50	
MW-14-200503 (A503386-02) Metals by EPA 200 Series Method	s		Sample Ty	pe: Water	Samp	oled: 03/09/05 14:40		
Calcium	EPA 200.7	AC51404	03/14/05	03/25/05	1	25 mg/l	1.0	
Magnesium		"	"	"	u	55 "	1.0	
Conventional Chemistry Paramete	ers by APHA/EPA M	ethods						
Total Alkalinity as CaCO3	SM2320B	AC51022	03/10/05	03/10/05	1	1100 mg/l	5.0	
Carbonate Alkalinity as CaCO3	н					ND "	5.0	
Total Organic Carbon	EPA 415.1	AC51616	03/16/05	03/18/05	5	60.9 "	5.00	
Bicarbonate Alkalinity as CaCO	03 SM2320B	AC51022	03/10/05	03/10/05	1	1100 "	5.0	
Hydroxide Alkalinity as CaCO3	н	"		и	и	ND "	5.0	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Nena M. Burgess For Sheri L. Speaks Project Manager

3/25/2005



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CHEMICAL EXAMINATION REPORT						Page 3 of 7		
Geomatrix Cons 2101 Webster S Oakland, CA 94 Attn: Ross Steer	treet, 12th Floor 612				Project No:	03/25/05 16:21 9329/23 SPI - (GeoMatrix)		
Order Number A503386	Receipt Date/Time 03/10/2005 14:00			ent Code EOMAT		Client PO/Reference		
		Alpha A	nalvtical	Laborato	ries. Inc.			
	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	PQL	NOTE
MW-14-200503 (A503386-02)			Sample Ty	pe: Water	Sam	pled: 03/09/05 14:40		
Anions by EPA Method 300.0								
Chloride	EPA 300.0	AC51011	03/10/05	03/10/05	50	390 mg/t	25	
Nitrate as N	"		п	03/10/05	1	ND "	0.20	
Sulfate as SO4				u ,		ND "	0.50	
MW-07-200503 (A503386-03)			Sample Ty	pe: Water	Sam	pled: 03/09/05 16:23		
Metals by EPA 200 Series Methods	i							
Calcium	EPA 200.7	AC51404	03/14/05	03/25/05	1	35 mg/l	1.0	
Magnesium		"	"		n	52 "	1.0	
Conventional Chemistry Paramete	rs by APHA/EPA M	ethods						
Total Alkalinity as CaCO3	SM2320B	AC51022	03/10/05	03/10/05	1	400 mg/l	5.0	
Carbonate Alkalinity as CaCO3	"	u				ND "	5.0	
Total Organic Carbon	EPA 415.1	AC51616	03/16/05	03/18/05	2	18.2 "	2.00	
Bicarbonate Alkalinity as CaCO	3 SM2320B	AC51022	03/10/05	03/10/05	1	400 "	5.0	
Hydroxide Alkalinity as CaCO3	w		н	"	n	ND "	5.0	
Anions by EPA Method 300.0								
Chloride	EPA 300.0	AC51011	03/10/05	03/10/05	10	60 mg/l	5.0	
Nitrate as N		"	"	03/10/05	1	ND "	0.20	
Sulfate as SO4	"	u	"	"		ND "	0.50	

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3/25/2005



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CHEMICAL EXAMINATION REPORT

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Report Date: 03/25/05 16:21 Project No: 9329/23 Project ID: SPI - (GeoMatrix) Client PO/Reference

Order Number A503386 Receipt Date/Time 03/10/2005 14:00

Client Code GEOMAT

Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AC51404 - EPA 3005A										
Blank (AC51404-BLK1)				Prepared:	03/14/05	Analyzed	1: 03/21/05			
Calcium	ND	1.0	mgA							
Magnesium	ND	1.0	"							
LCS (AC51404-BS1)				Prepared:	03/14/05	Analyzed	: 03/21/05			
Calcium	10.0	1.0	mg/l	10.0		100	85-115			
Magnesium	9.77	1.0	"	10.0		9 7.7	85-115			
LCS Dup (AC51404-BSD1)				Prepared:	03/14/05	Anailyzec	I: 03/21/05			
Calcium	9.97	1.0	mg/1	10.0		99.7	85-115	0.300	20	
Magnesium	9.90	1.0	"	10.0		99.0	85-115	1.32	20	
Duplicate (AC51404-DUP1)	Sou	rce: A503	255-01	Piepared:	03/14/05	Analyzed	I: 03/21/05			
Calcium	52.5	1.0	mg/l		53			0.948	20	
Magnesium	30.5	1.0			32			4.80	20	
Matrix Spike (AC51404-MS1)	Sou	rce: A503	255-01	Prepared:	03/14/05	Analyzed	1: 03/21/05			
Calcium	64.1	1.0	mg/l	10.0	53	111	70-130			
Magnesium	41.5	1.0		10.0	32	95.0	70-130			
Matrix Spike Dup (AC51404-MSD1)	Sou	rcs: A5032	255-01	Prepared.	03/14/05	Analyzed	: 03/21/05			
Calcium	61.0	1.0	mg/1	ຳບີ.ບີ	53	30.08	70-130	4.96	20	
Magnesium	39.9	1.0		10.0	32	79.0	70-130	3.93	20	

The results in this report apply to the samples and yeed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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3/25/2005

Page 4 of 7



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CHEMICAL EXAMINATION REPORT

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Order Number A503386

Report Date: 03/25/05 16:21 Project No: 9329/23 Project ID: SPI - (GeoMatrix)

Receipt Date/Time Client Code 03/10/2005 14:00

Client PO/Reference

GEOMAT Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AC51616 - General Prep										
Blank (AC51616-BLK1)				Prepared	03/16/05	Analyzed	1: 03/17/05			
Total Organic Carbon	ND	1.00	mg/l							
LCS (AC51616-BS1)				Prepared	03/16/05	Analyzed	1: 03/17/05			
Total Organic Carbon	18.1	2.00	mg/l	20.0		90.5	85-115			
LCS Dup (AC51616-BSD1)				Prepared	03/16/05	Analyzed	1: 03/17/05			
Total Organic Carbon	18.2	2.00	mg/i	20.0		91.0	85-115	0.551	20	
Duplicate (AC51616-DUP1)	Sou	rce: A503	456-01	Prepared	03/16/05	Analyzed	d: 03/17/05			
Total Organic Carbon	ND	1.00	mg/l		ND			~	20	
Matrix Spike (AC51616-MS1)	Sou	rce: A503	456-01	Prepared	03/16/05	Analyzed	1: 03/17/05			
Total Organic Carbon	18.6	2.00	mg/l	20.0	ND	90.2	70-130			
Matrix Spike Dup (AC51616-MSD1)	Sou	rce: A503	456-01	Prepared	03/16/05	Analyzed	t: 03/17/05			
Total Organic Carbon	18.6	2.00	mg/l	20.0	ND	90.2	70-130	0.00	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Nena M. Burgess For Sheri L. Speaks Project Manager

3/25/2005

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CHEMICAL EXAMINATION REPORT

Page 6 of 7

Flag

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Report Date: 03/25/05 16:21 Project No: 9329/23 Project ID: SPI - (GeoMatrix) Client PO/Reference

%REC

%REC Limits

RPD

RPD

Limit

Order Number A503386

Analyte(s)

Receipt Date/Time 03/10/2005 14:00

Result

Client Code GEOMAT

Spike

Level

Source Result

Anions by EPA Method 300.0 - Quality Control

Units

PQL

Batch	AC51011	- General	Preparation

Blank (AC51011-BLK1)				Prepared a	& Analyze	ed: 03/10/	05			
Sulfate as SO4	ND	0.50	mg/l							
Nitrate as N	ND	0.20	"							
Chloride	ND	0.50	"							
LCS (AC51011-BS1)				Prepared	& Analyz	ed: 03/10/	05			
Chloride	3.06	0.50	mg/l	3.00		102	90-110			100011-000-07-04
Nitrate as N	1.0	0.20	"	1.00		100	90-110			
Sulfate as SO4	8.10	0.50	"	8.00		101	90-110			
LCS Dup (AC51011-BSD1)				Prepared	& Analyze	ed: 03/10/	05			
Sulfate as SO4	8.15	0.50	mg/l	8.00		102	90-110	0.615	10	
Chloride	3.06	0.50	"	3.00		102	90-110	0.00	20	
Nitrate as N	1.0	0.20	"	1.00		100	90-110	0.00	20	
Duplicate (AC51011-DUP1)	Sou	rce: A503	362-02	Prepared	& Analyze	ed: 03/10/	05			
Nitrate as N	0.61	0.40	mg/l		0.61			0.00	20	
Sulfate as SO4	16.9	1.0	0		17			0.590	20	
Chloride	5.98	1.0			5.8			3.06	20	
Matrix Spike (AC51011-MS1)	Sou	rce: A503	362-02	Prepared	& Analyze	ed: 03/10/	05			
Chloride	10.7	1.0	mg/l	5.00	5.8	98.0	80-120			
Nitrate as N	5.3	0.40	"	5.00	0.61	93.8	80-120			
Sulfate as SO4	36.1	1.0	"	20.0	17	95.5	80-120			
Matrix Spike Dup (AC51011-MSD1)	Sou	rce: A503	362-02	Prepared	& Analyz	ed: 03/10/	05			
Sulfate as SO4	36.3	1.0	mg/l	20.0	17	96.5	80-120	0.552	10	fra 1. fra 1. fra 1. fra
Chloride	10.7	1.0	"	5.00	5.8	98.0	80-120	0.00	20	
	5.4	0.40		5.00		95.8	80-120		20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Nena M. Burgess For Sheri L. Speaks Project Manager

3/25/2005



Alpha Analytical Laboratories Inc.

208 Mason St. Ukiah, California 95482 e-mail: clientservices@alpha-labs.com • Phone: (707) 468-0401 • Fax: (707) 468-5267

CHEMICAL EXAMINATION REPORT

Page 7 of 7

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Report Date: 03/25/05 16:21 Project No: 9329/23 Project ID: SPI - (GeoMatrix)

Client Code GEOMAT

Client PO/Reference

Notes and Definitions

Order Number A503386

DET	Analyte DETECTED
-----	------------------

ND Analyte NOT DETECTED at or above the reporting limit

Receipt Date/Time

03/10/2005 14:00

- NR Not Reported
- Sample results reported on a dry weight basis dry
- RPD Relative Percent Difference
- PQL Practical Quantitation Limit

K PRIME, Inc.

e.

CONSULTIN	G ANALYTICAL CHEMISTS		Santa Rosa Phone: 70	wind Blvd. CA 95403 7 527 7574 7 527 7879
	TRANSMI	ITAL		1 32/ 70/3
DATE:	04/12/05			
TO:	MS, SHERI L. SPEAKS ALPHA ANALYTICAL LABORATORIES, I 208 MASON STREET UKIAH, CA 95482	NC.	ACCT: PROJ:	9984 ^503386
	Phone: 707-468-0401 Fax: 707-468-5267			
FROM:	Richard A. Kagel. Ph.D. Laboratory Director	Andos		
SUBJECT:	LABORATORY RESULTS FOR YOUR PROJ			
Enclosed pl	case find K Prime's laboratory rep	ports for the following samples:		
		DATE		

SAMPLE ID	TYPE	DATE	KPI LAB #
MW-20-200503	WATER	03/09/05	50040
MW•14-200503	WATER	03/09/05	50041
MW-07-280503	WATT R	03/09/05	50042

The above listed sample group was received on 03/15/05 and tested as requested on the chain of custody document.

Please call me if you have any questions or need further information. Thank you for this opportunity to be of service.

K PRIME, INC. LABORATORY REPORT		SAMPLE ID: LAB NO; BATCH ID;	MW-20-200503 50040 032305W01
K PRIME PROJEC 9984 CLIENT PROJECT A503386	D	SAMPLE TYPE; ATE SAMPLED:	WATER 03/09/05
METHOD: DISSOLVED GASES REFFERENCE: BSK175	DA	IME SAMPLED: TE RECEIVED: TE ANALYZED: UNITS:	12:39 03/15/05 03/23/05 μα/∟
COMPOUND NAME	CAS NO.		SAMPLE
MÉTHANE	74-82-8	1.58	14.8

APPROVED BY: ______

K PRIME, INC. LABORATORY REPORT	SAMPLE ID: LAB NO:	MW-14-200503 50041
K PRIME PROJEC 9984 CLIENT PROJECT: A503386	BATCH ID; SAMPLE TYPE: DATE SAMPLED;	032305W01 WATER 03/09/05
METHOD: DISSOLVED GASES	TIME SAMPLED: DATE RECEIVED; DATE ANALYZED; UNITS:	14:40 03/15/05 03/23/05 μg/L
COMPOUND NAME	CAS NO. REPORTING	SAMPLE
METHANE	74-82-8 1.58	162

APPROVED BY: _______

t e

K PRIME, INC			SAMPLE ID:	MW-07-200503
LABORATORY R	EPORT		LAB NO:	50042
K PRIME PROJE	C 0084		BATCH ID: SAMPLE TYPE:	032305W01 WATER
CLIENT PROJEC			ATE SAMPLED:	03/09/05
			ME SAMPLED:	16:23
		DA	TE RECEIVED:	03/15/05
METHOD:	DISSOLVED GASES	DA	TE ANALYZED:	03/23/05
REFFERENCE:	RSK175		UNITS:	µg/L
COMPOUND NAM	ΛE	CAS NO.		SAMPLE
METHANE		74-82-8	1.58	10540

APPROVED BY: M DATE: HIIZIOS

L UC

K PRIME, INC. LABORATORY QC REPORT

> METHOD: DISSOLVED GASSES REFFERENCE: RSK175

SAMPLE ID:	L032305W01
DUPLICATE ID:	D032305W01
BLANK ID;	B032305W01
BATCH ID:	032305W01
ANALYZED DATE:	3/23/05
SAMPLE TYPE:	WATER
UNITS:	µg/L

ACCURACY (MATRIX SPIKE)

PARAMETER	SPIKE ADDED	SAMPLE RESULT	SPIKE RESULT	RECOVERY (%)	LIMITS (%)
METHANE	72.9	ND	55.0	75	60-140
ETHENE	128	ND	115	90	60-140
ETHANE	136	ND	103	75	60-140

PRECISION (SPIKE DUPLICATE)

COMPOUND NAME	REPORTING	SPIKE	DUPLICATE	RPD	LIMITS
	LIMIT	RESULT	RESULT	(%)	(%)
METHANE	1.58	55.0	46.0	17.9	±30
ETHENE	2.38	114.7	84.8	29.9	±30
ETHANE	1.63	102.6	86.6	16.9	±30

METHOD BLANK

COMPOUND NAME	CAS NO.	REPORTING	SAMPLE
		LIMIT	CONC
METHANE	74-82-8	7.89	ND
ETHENE	74-85-1	2.38	ND
ETHANE	74-84-0	1.63	ND

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT

NA - NOT APPLICABLE OR AVAILABLE

MRL - METHOD REPORTING LIMIT

MDL - STATISTICAL METHOD DETECTION LIMIT

"J" - INDICATES REPORTED VALUE AS AN ESTIMATED CONCENTRATION ABOVE THE MDL AND BELOW THE METHOD REPORTING LIMIT.

"B" - INDICATES COMPOUND COMMONLY FOUND IN METHOD BLANK ABOVE THE MDL BUT BELOW THE METHOD REPORTING LIMIT.

, C, - 4

K PRIME, INC.		SAMPLE ID:	MW-20-200503
LABORATORY REPORT		LAB NO:	50040
	:	SAMPLE TYPE:	WATER
K PRIME PROJECT: 9984	D/	ATE SAMPLED:	03/09/05
CLIENT PROJECT; A503386	т	ME SAMPLED:	12:39
		BATCH ID:	032305W01
METHOD: DISSOLVED GASES	DA	TE ANALYZED;	3/23/05
REFERENCE: RSK 175		UNITS:	µg/L
COMPOUND NAME	CAS NO.	REPORTING LIMIT	SAMPLE
CARBON DIOXIDE	124-38-9	165	41411

NOTES: ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT, NA - NOT APPLICABLE OR AVAILABLE.

APPROVED BY: UN DATE: 4/12/05

. ć . . .

K PRIME, INC.		SAMPLE ID:	MW-14-200503
LABORATORY REPORT		LAB NO:	50041
	;	SAMPLE TYPE:	WATER
K PRIME PROJECT; 9984	D	ATE SAMPLED:	03/09/05
CLIENT PROJECT: A503386	т	IME SAMPLED:	14:40
		BATCH ID:	032305W01
METHOD: DISSOLVED GASES REFERENCE: RSK 175	DA	TE ANALYZED; UNITS:	3/23/05 μg/L
	CAS NO.	REPORTING	SAMPLE
CARBON DIOXIDE	124-38-9	165	270281

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT, NA - NOT APPLICABLE OR AVAILABLE.

r. Uð

6

K PRIME, INC.		SAMPLE ID;	MW-07-200503
LABORATORY REPORT		LAB NO:	50042
	5	SAMPLE TYPE:	WATER
K PRIME PROJECT: 9984	DA	TE SAMPLED:	03/09/05
CLIENT PROJECT: A503386	TI	ME SAMPLED:	16:23
		BATCH ID:	032305W01
METHOD: DISSOLVED GASES REFERENCE: RSK 175	DA	TE ANALYZED: UNITS:	3/23/05 µg/L
COMPOUND NAME	CAS NO.		SAMPLE
CARBON DIOXIDE	124-38-9	165	157432

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT, NA - NOT APPLICABLE OR AVAILABLE.

APPROVED BY: _______

CH P 4

K PRIME, INC.	SAMPLE ID:	D032305W01
LABORATORY QC REPORT	DUPLICATE ID:	L032305W01
	BLANK ID:	B032305W01
METHOD: DISSOLVED GASSES	BATCH ID:	032305W01
REFFERENCE: RSK175	ANALYZED DATE:	3/23/05
	SAMPLE TYPE:	WATER
	UNITS:	µg/L

ACCURACY (MATRIX SPIKE)

PARAMETER	SPIKE	SAMPLE	SPIKE	RECOVERY	LIMITS
	ADDED	RESULT	RESULT	(%)	(%)
CARBON DIOXIDE	2000	ND	1330	66	50-150

PRECISION (SPIKE DUPLICATE)

COMPOUND NAME	REPORTING	SPIKE	DUPLICATE	RPD	LIMITS
	LIMIT	RESULT	RESULT	(%)	(%)
CARBON DIOXIDE	165	1330	1137	15.6	±40

METHOD BLANK

COMPOUND NAME	CAS NO.	REPORTING	SAMPLE
		LIMIT	CONC
CARBON DIOXIDE	124-38-9	165	ND

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT

NA - NOT APPLICABLE OR AVAILABLE

MRL - METHOD REPORTING LIMIT

MDL - STATISTICAL METHOD DETECTION LIMIT

- "J" INDICATES REPORTED VALUE AS AN ESTIMATED CONCENTRATION ABOVE THE MDL AND BELOW THE METHOD REPORTING LIMIT.
- "B" INDICATES COMPOUND COMMONLY FOUND IN METHOD BLANK ABOVE THE MDL BUT BELOW THE METHOD REPORTING LIMIT.

60

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1 9.2005 Page 1 of 1	1		Containers Containers		\times 7 U= No ₃ , So ₄ , Cl, and l	K 7 alkalinity container 2	X 6 Unpreserved 3	2= Ca, Mg	(container unpreserved)	3)=TOC (HNOS preservative)	3 = methane and CO2	(Dupreserved)						/	20	Method of Shipment: Lab Cervier	Laboratory Comments and Log No.:	A503386		1000000000	2101 Webster Street, 12th Floor + Oakland, CA 94612 Phone: 510-663-4100 Fax: 510-663-4141
RC F		$\left \right $		Preser	11/2	2	X	\forall									71			Date:	Time:		Date:	Time:	
Date: MARC H		F	p	Filtered	_				$\overline{)}$										ners			Γ			
Date		Ţ), Water (W) (V), or Other (o)	Soll (S	M	Ń	3	-								4			ontaii	ure):					
015140	-			(Full Sc M Aga Mathod Method Method			XXXX												e: Results to: Ross Steewson Total No. of Containers	Signar de Signature)	Time: Printed Name:	Company:	Date: Received by:		H.W Company:
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00			an) sthod 8021 Cs only)	EPA Me		-					-	+	1	-	 				Sura	A A A	Printed Name	Company	Received by		Dan
Chain-of Custody Record	0270 / 72	\neg	Parmeiore (Signature:)	Date Time Sample Number Mais	39/05 1239 MW-20-200503	1440 MW-14-200503	MW-67-200		/	/									Laboratory: TI ALPHA ANALYTICAL LABORATORIES	re): Date:	Time:	× > 1000	Hell Date:	4	Mar Par



Submission: 2005-03-0458

Dissolved Metals

Alpha Analytical, Inc. - Ukiah Attn.: Sheri L. Speaks

208 Mason Street Ukiah, CA 95482 Phone: (707) 468-0401 Fax: (707) 468-5267 Project:

RECEIVED PILOT STURY

Received: 03/11/2005 10:35

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
A503379-01 MW-20-200503	03/10/2005 08:00	Water	1
A503379-02 MW-14-200503	03/10/2005 08:15	Water	2
A503379-03 MW-07-200503	03/10/2005 08:50	Water	3
A503379-04 MW-21-200503	03/10/2005 09:50	Water	4
A503379-05 BD-01-022503 BLIND DUPLICAE	03/10/2005 09:50	Water	5

OF MW-21

A part of Severn Trent Pic

Severn Trent Laboratories, Inc. STL San Francisco * 1220 Quarry Lane, Pleasanton, CA 94566 Tel 925 484 1919 Fax 925 484 1096 * www.stl-inc.com * CA DHS ELAP# 2496 03/18/2005 09:38

Page 1 of 8

Submission: 2005-03-0458



4

Dissolved Metals

Alpha Analytical, Inc. - Ukiah Attn.: Sheri L. Speaks

208 Mason Street Ukiah, CA 95482 Phone: (707) 468-0401 Fax: (707) 468-5267 Project:

Received: 03/11/2005 10:35

Prep(s): Sample ID:	3005A A503379-01 MW-20-20	0503		Test(s) Lab ID		3 03-0458 - 1	
Sampled: Matrix:	03/10/2005 08:00 Water			Extrac QC Ba	ted: 3/16/2 htch#: 2005/	2005 14:52 03/16-03.15	
Compound		Conc.	RL	Unit	Dilution	Analyzed	Flag
Iron Manganese		2.2 1.5	0.20 0.0050	mg/L mg/L		03/17/2005 08:41 03/17/2005 08:41	

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Page 2 of 8



Dissolved Metals

Alpha Analytical, Inc. - Ukiah Attn.: Sheri L. Speaks

208 Mason Street Ukiah, CA 95482 Phone: (707) 468-0401 Fax: (707) 468-5267 Project:

Received: 03/11/2005 10:35

Prep(s):	3005A			Test(s)	: 6010	3	
Sample ID:	A503379-02 MW-14-2	00503		Lab ID:	2005-	03-0458 - 2	
Sampled:	03/10/2005 08:15			Extract	57	2005 14:52	
Matrix:	Water			QC Ba	tch#: 2005/	03/16-03.15	
Compound		Conc.	RL	Unit	Dilution	Analyzed	Flag
Iron		18	0.20	mg/L	1.00	03/17/2005 08:44	
Manganese		0.73	0.0050	mg/L	1.00	03/17/2005 08:44	

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Page 3 of 8

Submission: 2005-03-0458



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Dissolved Metals

Alpha Analytical, Inc. - Ukiah Attn.: Sheri L. Speaks

208 Mason Street Ukiah, CA 95482 Phone: (707) 468-0401 Fax: (707) 468-5267 Project:

Received: 03/11/2005 10:35

Prep(s): Sample ID:	3005A A503379-03 MW-07-2	00503		Test(s) Lab ID		3 03-0458 - 3	
Sampled: Matrix:	03/10/2005 08:50 Water			Extrac QC Ba		2005 14:52 03/16-03.15	
Compound		Conc.	RL	Unit	Dilution	Analyzed	Flag
Iron		56	0.20	mg/L	1.00	03/17/2005 08:47	
Manganese		3.5	0.0050	mg/L	1.00	03/17/2005 08:47	

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Submission: 2005-03-0458



Dissolved Metals

Alpha Analytical, Inc. - Ukiah Attn.: Sheri L. Speaks

208 Mason Street Ukiah, CA 95482 Phone: (707) 468-0401 Fax: (707) 468-5267 Project:

Received: 03/11/2005 10:35

Sampled: Matrix:	03/10/2005 09:50 Water		Extract QC Bat	ed: 3/16/2 ch#: 2005/	2005 14:52 03/16-03 15	
Sample ID:	A503379-04 MW-21-	200503	Lab ID:	- 11 - 12 전전(1) - 12 - 12 - 12 - 12 - 12 - 12 - 12 - 12	03-0458 - 4	
Prep(s):	3005A		Test(s)	6010	: 2019 - 100 - 1	

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Page 5 of 8



Dissolved Metals

Alpha Analytical, Inc. - Ukiah Attn.: Sheri L. Speaks

208 Mason Street Ukiah, CA 95482 Phone: (707) 468-0401 Fax: (707) 468-5267 Project:

Received: 03/11/2005 10:35

Prep(s):	3005A			Test(s):	6010	3	
Sample ID:	A503379-05 BD-01-0	22503		Lab ID:	2005-	03-0458 - 5	
Sampled:	03/10/2005 09:50			Extracte	ed: 3/16/2	2005 14:52	
Matrix:	Water			QC Bate	ch#: 2005/	03/16-03.15	
Compound		Conc.	RL	Unit	Dilution	Analyzed	Flag
Iron		69	0.20	mg/L	1.00	03/17/2005 09:00	
Manganese		2.7	0.0050	mg/L	1.00	03/17/2005 09:00	

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Page 6 of 8

Submission: 2005-03-0458



Dissolved Metals

Alpha Analytical, Inc. - Ukiah Attn.: Sheri L. Speaks

208 Mason Street Ukiah, CA 95482 Phone: (707) 468-0401 Fax: (707) 468-5267 Project:

Received: 03/11/2005 10:35

	Batch QC Report	
Prep(si): 3005A		Test(s): 601CB
Method Blank	Water	QC Batch # 2005/03/16-03.15
MB: 2005/03/16-03.15-018		Date Extracted: 03/16/2005 14:52

Compound	Conc.	RL	Unit	Analyzed	Flag
Iron	ND	0.20	mg/L	03/17/2005 08:05	
Manganese	ND	0.0050	mg/L	03/17/2005 08:05	

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Page 7 of 8

Submission: 2005-03-0458



Dissolved Metals

Alpha Analytical, Inc. - Ukiah Attn.: Sheri L. Speaks

208 Mason Street Ukiah, CA 95482 Phone: (707) 468-0401 Fax: (707) 468-5267 Project:

Received: 03/11/2005 10:35

	1991 1991	in creation		Batch QC Re	eport						
Prep(s):	3005A									Test(s):	6010B
Laborat	ory Control Sp	ike		Wate	.		Q	C Batch	n # 20(5:/03/10	6-03.15
LCS LCSD	2005/03/16-0 2005/03/16-0			Extracted: (0.6.1		Analyze Analyze			
Compound		Conc.	mg/L	Exp.Conc.	Reco	very %	RPD	Ctrl.Lin	nits %	Fl	ags
		LCS	LCSD		LCS	LCSD	%	Rec.	RPD	LCS	LCSD
iron Manganes	e	5.21 0.518	5.33 0.528	5.00 0.500	104.2 103.6	106.6 105.6	2.3 1.9	80-120 80-120	20 20		

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Severn Trent Laboratories, Inc. STL San Francisco * 1220 Quarry Lane, Pleasanton, CA 94566 Tel 925 484 1919 Fax 925 484 1096 * www.stl-inc.com * CA DHS ELAP# 2496 03/18/2005 09:38

Page 8 of 8

18820	10	REMARKS	ور میکر از این	Cooled	5	- · · × ·	× '	- X X								/	2	ite: Method of Shipment: Lab Confer		L OSOCH	Date:	Time: Konsultants	2101 Webster Street, 12h Plaon - Oakland, CA 94512 Phone: 510-663-4100 Tax: 510-663-4141
	Date: MARCH		a property and a state of the s	Filtered Preser	× ×	××		× ›	$\hat{\langle}$	\rightarrow	\square	 			\square		ners	Date	, i		Da		
Contrace San Ibus	dy Record	ANALYSES	1004 8250 1004 8250	EPA Mis (Pail VO BETX of EPA Mis (Pail VO Method Method Method Method Method Method Method Method		X	X										Turnaround Time: Results to: STAW 24 Containers	Reinersteine By (Signature): Date: Relinquished by (Signature):	Printed Name: Printed Name:	ALC: No	Received by: D.O.C. V. 3000		Company: - DDMA
10 ANDie Pinte Cuti	Chain-of Custody	/23	0	Sample Number	MW-20-200503	MW-14-200503	MW-07-200503		BD-01-200503								ANNYTICA. LARIEATORIES	Dale:	TTINU.	10001	Date:	Time:	102
10 94	Chain	Project No.: 7329/23	Samplers (Signature:) Mart Hilly. Vorn G	Date Time	3/10/05 0800	1 08/5	0820		× 0950	/	/						Laboratory:		Printed Name:	Company	Received by	*	19



Alpha Analytical Laboratories Inc. 208 Mason St. Ukiah, California 95482 e-mail: clientservices@alpha-labs.com • Phone: (707) 468-0401 • Fax: (707) 468-5267

28 March 2005

Geomatrix Consultants Attn: Ross Steenson 2101 Webster Street, 12th Floor Oakland, CA 94612 RE: SPI - (GeoMatrix) Work Order: A503419

RECEIVED

TASK 23 - PILOT STUDY MW-01, 02, 03, 05, 21

Enclosed are the results of analyses for samples received by the laboratory on 03/11/05 16:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nena M. Burgess For Sheri L. Speaks Project Manager



Alpha Analytical Laboratories Inc.

208 Mason St. Ukiah, California 95482

e-mail: clientservices@alpha-labs.com • Phone: (707) 468-0401 • Fax: (707) 468-5267

Page 1 of 9

CHEMICAL EXAMINATION REPORT

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Order Number

A503419

Report Date: 03/28/05 08:03 Project No: 9329/23 Project ID: SPI - (GeoMatrix) Client PO/Reference

Receipt Date/Time 03/11/2005 16:10 Client Code GEOMAT

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-21-200503	A503419-01	Water	03/10/05 09:50	03/11/05 16:10
BD-01-200503 (BLIND DUPLICATE OF MW-ZI)	A503419-02	Water	03/10/05 09:50	03/11/05 16:10
MW-05-200503	A503419-03	Water	03/10/05 13:10	03/11/05 16:10
MW-03-200503	A503419-04	Water	03/10/05 14:07	03/11/05 16:10
MW-02-200503	A503419-05	Water	03/11/05 07:40	03/11/05 16:10
MW-01-200503	A503419-06	Water	03/11/05 08:50	03/11/05 16:10

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Nena M. Burgess For Sheri L. Speaks Project Manager



Alpha Analytical Laboratories Inc. 208 Mason St. Ukiah, California 95482 e-mail: clientservices@alpha-labs.com • Phone: (707) 468-0401 • Fax: (707) 468-5267

CHEMICAL EXAMINATION REPORT

Page 2 of 9

Geomatrix Cons 2101 Webster S Oakland, CA 94 Attn: Ross Steer	treet, 12th Floor 612				Project No:	03/28/05 08:03 9329/23 SPI - (GeoMatrix)		
Order Number A503419	Receipt Date/Time 03/11/2005 16:10			ent Code EOMAT		Client PO/Reference		
		Alnha A		Laborato	rice Inc		an a	
	METHOD			ANALYZED	,	RESULT	PQL	NOTE
MW-21-200503 (A503419-01) Metals by EPA 200 Series Methods			Sample Ty	pe: Water	Samp	led: 03/10/05 09:50		
Calcium	EPA 200.7	AC51602	03/16/05	03/25/05	- 1	29 mg/l	1.0	
Magnesium	н	"		"		50 "	1.0	
Conventional Chemistry Paramete	rs by APHA/EPA Me	thods						
Total Alkalinity as CaCO3	SM2320B	AC51106	03/11/05	03/11/05	1	430 mg/l	5.0	
Carbonate Alkalinity as CaCO3	"	"	"	н		ND "	5.0	
Total Organic Carbon	EPA 415.1	AC51616	03/16/05	03/18/05	"	18.6 "	1.00	
Bicarbonate Alkalinity as CaCO	3 SM2320B	AC51106	03/11/05	03/11/05	u	430 "	5.0	
Hydroxide Alkalinity as CaCO3			58	"	"	ND "	5.0	
Anions by EPA Method 300.0								
Chloride	EPA 300.0	AC51115	03/11/05	03/11/05	10	62 mg/l	5.0	
Nitrate as N			"	03/11/05	1	ND "	0.20	
Sulfate as SO4			в		и	ND "	0.50	
BD-01-200503 (A503419-02) Metals by EPA 200 Series Methods	2		Sample Ty	pe: Water	Samp	led: 03/10/05 09:50		
Calcium	EPA 200.7	AC51602	03/16/05	03/25/05	1	29 mg/l	1.0	
Magnesium	"	"	"	"		49 "	1.0	
Conventional Chemistry Paramete	rs by APHA/EPA Me	thods						
Total Alkalinity as CaCO3	SM2320B	AC51106	03/11/05	03/11/05	1	420 mg/l	5.0	
Carbonate Alkalinity as CaCO3	"	"	н			ND "	5.0	
Total Organic Carbon	EPA 415.1	AC51616	03/16/05	03/18/05		16.4 "	1.00	
Bicarbonate Alkalinity as CaCC	3 SM2320B	AC51106	03/11/05	03/11/05	"	420 "	5.0	
Hydroxide Alkalinity as CaCO3	**	н		"	u	ND "	5.0	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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A503419

Bicarbonate Alkalinity as CaCO3

Hydroxide Alkalinity as CaCO3 Anions by EPA Method 300.0

MW-03-200503 (A503419-04)

Metals by EPA 200 Series Methods

Chloride

Calcium

Magnesium

Nitrate as N

Sulfate as SO4

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CHEMICAL EXAMINATION REPORT Page 3 of 9 Geomatrix Consultants Report Date: 03/28/05 08:03 2101 Webster Street, 12th Floor Oakland, CA 94612 Project No: 9329/23 Attn: Ross Steenson Project ID: SPI - (GeoMatrix) Client Code Order Number Receipt Date/Time Client PO/Reference GEOMAT 03/11/2005 16:10 Alpha Analytical Laboratories, Inc. BATCH PREPARED ANALYZED DILUTION RESULT PQL NOTE METHOD BD-01-200503 (A503419-02) Sample Type: Water Sampled: 03/10/05 09:50 Anions by EPA Method 300.0 Chloride EPA 300.0 AC51115 03/11/05 03/11/05 10 62 mg/l 5.0 ND " 0.20 Nitrate as N 03/11/05 1 ND " 0.50 Sulfate as SO4 Ħ a, MW-05-200503 (A503419-03) Sample Type: Water Sampled: 03/10/05 13:10 Metals by EPA 200 Series Methods 29 mg/l 1.0 Calcium EPA 200.7 AC51602 03/16/05 03/25/05 1 48 " 1.0 ... н " Magnesium Conventional Chemistry Parameters by APHA/EPA Methods 320 mg/l 5.0 Total Alkalinity as CaCO3 SM2320B AC51106 03/11/05 03/11/05 1 ND " Carbonate Alkalinity as CaCO3 50 7.34 " AC51616 03/16/05 03/18/05 1.00 **Total Organic Carbon** EPA 415.1

03/11/05

03/11/05

03/11/05

03/25/05

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SM2320B

EPA 300.0

...

....

EPA 200.7

AC51106

..

03/11/05

...

...

"

Sample Type: Water

AC51115 03/11/05

AC51602 03/16/05

Nena M. Burgess For Sheri L. Speaks Project Manager

320 "

ND "

18 mg/l

31 mg/l

28 "

ND "

ND "

Sampled: 03/10/05 14:07

5.0

5.0

2.5

0.20

0.50

1.0

1.0



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CHEMICAL EXAMINATION REPORT

Client Code

GEOMAT

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Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Order Number

A503419

Receipt Date/Time

03/11/2005 16:10

Report Date: 03/28/05 08:03 Project No: 9329/23 Project ID: SPI - (GeoMatrix) Client PO/Reference

		Alpha A	nalytical	Laborato	ries, Inc.			
	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	PQL	NOTE
MW-03-200503 (A503419-04)			Sample Ty	pe: Water		Sampled: 03/10/05 14:07		
Conventional Chemistry Parameters by	у АР̀НА/ЕРА М	lethods						
Total Alkalinity as CaCO3	SM2320B	AC51106	03/11/05	03/11/05	1	280 mg/l	5.0	
Carbonate Alkalinity as CaCO3		н			"	ND "	5.0	
Total Organic Carbon	EPA 415.1	AC51616	03/16/05	03/18/05	11	16.5 "	1.00	
Bicarbonate Alkalinity as CaCO3	SM2320B	AC51106	03/11/05	03/11/05	м	280 "	5.0	
Hydroxide Alkalinity as CaCO3	"		н		"	ND "	5.0	
Anions by EPA Method 300.0								
Chloride	EPA 300.0	AC51115	03/11/05	03/11/05	5	33 mg/l	2.5	
Nitrate as N				03/11/05	1	ND "	0.20	
Sulfate as SO4	Π		н		н	ND "	0.50	
MW-02-200503 (A503419-05)			Sample Ty	pe: Water		Sampled: 03/11/05 07:40		
Metals by EPA 200 Series Methods								
Calcium	EPA 200.7	AC51602	03/16/05	03/25/05	1	62 mg/l	1.0	
Magnesium	"	м	"	0	"	37 "	1.0	
Conventional Chemistry Parameters b	y APHA/EPA N	lethods						
Total Alkalinity as CaCO3	SM2320B	AC51106	03/11/05	03/11/05	1	520 mg/l	5.0	
Carbonate Alkalinity as CaCO3	н	"				ND "	5.0	
Total Organic Carbon	EPA 415.1	AC51616	03/16/05	03/18/05	2	15.8 "	2.00	
Bicarbonate Alkalinity as CaCO3	SM2320B	AC51106	03/11/05	03/11/05	1	520 "	5.0	
Hydroxide Alkalinity as CaCO3	н		"	"	"	ND "	5.0	

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Nena M. Burgess For Sheri L. Speaks Project Manager



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CHEMICAL EXAMINATION REPORT

Page 5 of 9

Geomatrix Consultants 2101 Webster Street, 12th Floor Report Date: 03/28/05 08:03 Oakland, CA 94612 Project No: 9329/23 Attn: Ross Steenson Project ID: SPI - (GeoMatrix) Order Number Receipt Date/Time Client Code Client PO/Reference A503419 GEOMAT 03/11/2005 16:10 Alpha Analytical Laboratories, Inc. METHOD BATCH PREPARED ANALYZED DILUTION NOTE RESULT POL MW-02-200503 (A503419-05) Sampled: 03/11/05 07:40 Sample Type: Water Anions by EPA Method 300.0 Chloride EPA 300.0 AC51115 03/11/05 03/11/05 10 100 mg/l 5.0 Nitrate as N 03/11/05 ND " 0.20 1 Sulfate as SO4 11 ND " 0.50 MW-01-200503 (A503419-06) Sample Type: Water Sampled: 03/11/05 08:50 Metals by EPA 200 Series Methods Calcium EPA 200.7 AC51602 03/16/05 03/25/05 36 mg/l 1.0 1 Magnesium н 57 " 1.0 н н " Conventional Chemistry Parameters by APHA/EPA Methods Total Alkalinity as CaCO3 SM2320B AC51106 03/11/05 03/11/05 860 mg/l 5.0 1 Carbonate Alkalinity as CaCO3 ND " 5.0 Total Organic Carbon EPA 415.1 AC51616 03/16/05 03/18/05 2 14.1 " 2.00 Bicarbonate Alkalinity as CaCO3 SM2320B AC51106 03/11/05 03/11/05 1 860 " 5.0 Hydroxide Alkalinity as CaCO3 u, ... н ND " 5.0 Anions by EPA Method 300.0 Chloride AC51115 03/11/05 03/11/05 EPA 300.0 20 260 mg/l 10 Nitrate as N н ND " " 03/11/05 1 0.20 "

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Sulfate as SO4

ND "

Nena M. Burgess For Sheri L. Speaks Project Manager

3/28/2005

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CHEMICAL EXAMINATION REPORT

Page 6 of 9

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson		F	roject No:	03/28/05 08:03 9329/23 SPI - (GeoMatrix)	
Order Number A503419	Receipt Date/Time 03/11/2005 16:10	Client Code GEOMAT		Client PO/Reference	

Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AC51602 - EPA 3005A										
Blank (AC51602-BLK1)				Prepared:	03/16/05	Analyzed	: 03/21/05			
Calcium	ND	1.0	mg/l							
Magnesium	ND	1.0	н							
LCS (AC51602-BS1)				Prepared:	03/16/05	Analyzed	1: 03/21/05			
Calcium	10.1	1.0	mg/l	10.0		101	85-1 5			
Magnesium	10.3	1.0		10.0		103	85-115			
LCS Dup (AC51602-BSD1)				Prepared:	03/16/05	Analyzed	1: 03/21/05			
Calcium	9.79	1.0	mg/l	10.0		97.9	85-115	3.12	20	
Magnesium	10.0	1.0		10.0		100	85-115	2.96	20	
Duplicate (AC51602-DUP1)	Sou	rce: A503	271-01	Prepared:	03/16/05	Analyzed	1: 03/21/05			
Calcium	39.6	0.1	mg/l		38		1	4.12	20	and all the second second
Magnesium	8.18	1.0			7.9			3.48	20	
Matrix Spike (AC51602-MS1)	Sou	rce: A503	271-01	Prepared:	03/16/05	Analyzed	: 03/21/05			
Calcium	49.4	1.0	mg/l	10.0	38	114	70-130			
Magnesium	18.5	1.0	"	10.0	7.9	106	70-130			
Matrix Spike Dup (AC51602-MSD1)	Sou	ce: A503	271-01	Prepared	03/16/05	Analyzed	: 03/21/05			
Calcium	52.5	1.0	mg/l	10.0	38	145	70-130	6.08	20	QM-01
Magnesium	19.3	1.0	"	10.0	7.9	114	70-130	4.23	20	

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Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Order Number A503419

Receipt Date/Time

03/11/2005 16:10

Report Date: 03/28/05 08:03 Project No: 9329/23 Project ID: SPI - (GeoMatrix) Client PO/Reference

GEOMAT

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Client Code

CHEMICAL EXAMINATION REPORT

Analyte(s)	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AC51616 - General Prep										
Blank (AC51616-BLK1)				Prepared:	03/16/05	Analyzed	: 03/17/05			
Total Organic Carbon	ND	1.00	mg/l							
LCS (AC51616-BS1)				Prepared:	03/16/05	Analyzed	: 03/17/05			
Total Organic Carbon	18.1	2.00	mg/l	20.0		90.5	85-115			
LCS Dup (AC51616-BSD1)				Prepared:	03/16/05	Analyzed	1: 03/17/05			
Total Organic Carbon	18.2	2.00	mg/i	20.0		91.0	85-115	0.551	20	
Duplicate (AC51616-DUP1)	Sou	rce: A5034	456-01	Prepared:	03/16/05	Analyzed	: 03/17/05			
Total Organic Carbon	ND	1.00	mg/l		ND				20	
Matrix Spike (AC51616-MS1)	Sou	rce: A5034	456-01	Prepared:	03/16/05	Analyzed	: 03/17/05			
Total Organic Carbon	18.6	2.00	mg/l	20.0	ND	90.2	70-130			
Matrix Spike Dup (AC51616-MSD1)	Sou	rce: A503	456-01	Prepared	03/16/05	Analyzed	l: 03/17/05			
Total Organic Carbon	18.6	2.00	mg/1	20.0	ND	90.2	70-130	0.00	20	

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		CHE	EMICAL E	XAMI	NATION	REPO	RT				Page 8 of 9
Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson		Report Date: 03/28/05 08:03 Project No: 9329/23 Project ID: SPI - (GeoMatrix))		
Order Number	Receipt Date/7	Гime		Client	Code			Client P	O/Refere	nce	
A503419	03/11/2005 1	6:10		GEO	MAT		Walter and state of the Co				
	Аг	nions t	oy EPA Me	thod 3	00.0 - Qu	ality Co	ntrol				
Analyte(s)	F	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AC51115 - Ger	neral Preparation										
Blank (AC51115-BLK	1)				Prepared	& Analyzo	:d: 03/11/	05			
Nitrate as N		ND	0.20	mg/l							
Sulfate as SO4		ND	0.50	17							
Chloride		ND	0.50	"							
LCS (AC51115-BS1)					Prepared	& Analyze	ed: 03/11/	05			
Chloride		3.04	0.50	mg/l	3.00		101	90-110			
Nitrate as N		1.0	0.20		1.00		100	90-110			
Sulfate as SO4		8.12	0.50	*	8.00		102	90-110			
LCS Dup (AC51115-B	SD1)				Prepared	& Analyze	ed: 03/11/	05			
Chloride		3.03	0.50	mg/l	3.00		101	90-110	0.329	20	
Nitrate as N		1.0	0.20		1.00		100	90-110	0.00	20	
Sulfate as \$O4		8.08	0.50	"	8.00		101	90-110	0.494	10	
Duplicate (AC51115-D	UP1)	Sc	ource: A503	417-02	Prepared	& Analyze	ed: 03/11/	05			
Sulfate as SO4		3.46	1.0	mg/l		3.5			1.15	20	
Nitrate as N		1.1	0.40			1.1			0.00	20	
Chloride		6.66	1.0	. 11		6.6			0.905	20	
Matrix Spike (AC511)	(5-MS1)	Sc	ource: A503	417-02	Prepared	& Analyze	ed: 03/11/	05			
Chloride		11.4	1.0	mg/l	5.00	6.6	96.0	80-120			
Nitrate as N		5.9	0.40		5.00	1.1	96.0	80-120			
Sulfate as SO4		23.9	1.0		20.0	3.5	102	80-120			
Matrix Spike Dup (AC	(51115-M8D1)	50	ource: A503	417-02	Prepared	& Analyze	d: 03/11/0	05			
Sulfate as SO4		24.0	1.0	mg/l	20.0	3.5	102	80-120	0.418	10	
Chloride		11.4	1.0		5.00	6.6	96.0	80-120	0.00	20	
Nitrate as N		5.9	0.40		5.00	1.1	96.0	80-120	0.00	20	

The results in this report apply to the samples an alyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Nena M. Burgess For Sheri L. Speaks Project Manager 3/28/2005



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CHEMICAL EXAMINATION REPORT

Page 9 of 9

Geomatrix Consultants 2101 Webster Street, 12th Floor Oakland, CA 94612 Attn: Ross Steenson

Report Date: 03/28/05 08:03 Project No: 9329/23 Project ID: SPI - (GeoMatrix) Client PO/Reference

Client Code GEOMAT

Notes and Definitions

Order Number

A503419

QM-01 The spike recovery for this QC sample is outside of established control limits possibly due to a sample matrix interference.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

Receipt Date/Time

03/11/2005 16:10

- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- PQL Practical Quantitation Limit

MW-05-200503

MH-03-200503

MW-01-200503

on the chain of custody document.

W-02-200503

The above listed sample group was received on

Thank you for this opportunity to be of service.

Please call me if you have any questions or need further information.

WATER

WATER

HATER

WA FER

K PRIME, Inc.

,

CONSULTIN	G ANALYTICAL CLIEN	AISTS		3621 West Santa Rosa	
				Phone: 70	
		TRANCLARTAL		FAX: 70	7 527 7879
		TRANSMITTAL			
DATE:	04/12/05				
TO:	MS. SHERIL. SPEA	<5		ACCT:	9984
	ALPHA ANALYTICAL I	LABORATORIES, INC.		PROJ:	A503419
	208 MASON STREET				
	UKTAH, CA 95482				
	Phona: 707-4	468-0401			
	Fax: 707-/	168-5267			
FROM:	Richard A: Kagel,	Ph.D. REFMULINES			
	Laboratory Directo	or KK. Mar Hr.			
SUBJECT:	LABORATORY RESULTS	S FOR YOUR PROJECT	A503419		
Enclosed pl	ease find K Prime's	laboratory reports for	the following samples:		
	SAMPLE ID	ТҮРЕ	DATE	KPI LAB #	
	MW-21-200503	WATER	03/10/05	50034	
	BD-01-200503	WATER	03/10/05	50035	
	11 05 000500	a second de la contrata de la contra	0.0 /0.0 / 0.F		

03/10/05

03/10/05

03/11/05

03/11/05

03/15/05 and tested as requested

50036

50037

5003n

50039

K PRIME, INC) .		SAMPLE ID:	MW-21-200503
LABORATORY R	EPORT		50034	
			BATCH ID:	032305W01
K PRIME PROJE	C'9984		SAMPLE TYPE;	WATER
CLIENT PROJEC	T A503419	D	ATE SAMPLED:	03/10/05
		Т	IME SAMPLED:	9:50
		D	ATE RECEIVED;	03/15/05
METHOD:	DISSOLVED GASES	DA	TE ANALYZED:	03/23/05
REFFERENCE:	RSK175		UNITS:	µg/L
COMPOUND NA	ME	CAS NO.	REPORTING LIMIT	SAMPLE
METHANE		74-82-8	1.58	7387

APPROVED BY:

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K PRIME, INC. SAMPLE ID: BD-01-200503 LABORATORY REPORT LAB NO: 50035 BATCH ID: 032305W01 SAMPLE TYPE: WATER K PRIME PROJEC 9984 CLIENT PROJECT: A503419 DATE SAMPLED: 03/10/05 TIME SAMPLED: 9:50 DATE RECEIVED: 03/15/05 METHOD: DISSOLVED GASES REFFERENCE: RSK175 DATE ANALYZED: 03/23/05 UNITS: μg/L CAS NO. REPORTING SAMPLE COMPOUND NAME LIMIT CONC

			CONO
METHANE	74-82-8	1.58	7762
Contraction of the second s			And the second sec

r, uj

de APPROVED BY: 4/12/05 DATE:

K PRIME, INC			SAMPLE ID: LAB NO:	MW-05-200503 50036
			BATCH ID:	032305W01
K PRIME PROJEC	•		SAMPLE TYPE: ATE SAMPLED:	WATER 03/10/05
		•	ME SAMPLED:	13:10 03/15/05
METHOD;	DISSOLVED GASES		TE ANALYZED:	03/23/05
REFFERENCE:	R\$K175		UNITS:	µg/L
COMPOUND NAM	IE	CAS NO.	REPORTING LIMIT	
METHANE		74-82-8	1.58	6433

APPROVED BY: ______

e.

K PRIME, INC. LABORATORY REPORT		SAMPLE ID: LAB NO:	MW-03-200503 50037
K PRIME PROJEC 9984 CLIENT PROJECT A503419	D.	BATCH ID: SAMPLE TYPE: ATE SAMPLED; IME SAMPLED;	032305W01 WATER 03/10/05 14:07
METHOD: DISSOLVED GASES REFFERENCE: RSK175	DATE RECEIVED; DATE ANALYZED; UNITS;		03/15/05 03/23/05 µg/L
	CAS NO.	REPORTING LIMIT	SAMPLE CONC
METHANE	74-82-8	1.58	5677

APPROVED BY:

*

K PRIME, INC			SAMPLE ID: LAB NO: BATCH ID:	MW-02-200503 50038 032305W01
K PRIME PROJEC		D.	SAMPLE TYPE: ATE SAMPLED: IME SAMPLED:	WATER 03/11/05 7:40
METHOD: REFFERENCE;	DISSOLVED GASES RSK175	DA	TE RECEIVED: TE ANALYZED: UNITS:	03/15/05 03/23/05 µg/L
COMPOUND NAM	1E	CAS NO.		SAMPLE
METHANE		74-82-8	1.58	5269

APPROVED BY: ______

APK-12-2005 IUE UD:27 MI & PKIME INC PHA NO. 101 027 1010 1. 01

e.

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K PRIME, INC			SAMPLE ID: LAB NO: BATCH ID:	MW-01-200503 50039 032305W01
K PRIME PROJEC		D	SAMPLE TYPE: ATE SAMPLED: IME SAMPLED:	WATER 03/11/05 8:50
METHOD: REFFERENCE:	DISSOLVED GASES RSK175		ATE RECEIVED: TE ANALYZED: UNITS:	03/15/05 03/23/05 µg/L
COMPOUND NAM	١E	CAS NO.	REPORTING LIMIT	SAMPLE CONC
METHANE	An	74-82-8	1.58	8034

K PRIME, INC.	SAMPLE ID:	L032305W01
LABORATORY QC REPORT	DUPLICATE ID:	D032305W01
	BLANK ID:	B032305W01
METHOD: DISSOLVED GASSES	BATCH ID:	032305W01
REFFERENCE: RSK175	ANALYZED DATE:	3/23/05
	SAMPLE TYPE:	WATER
	UNITS:	µg/L

ACCURACY (MATRIX SPIKE)

PARAMETER	SPIKE	SAMPLE	SPIKE	RECOVERY	LIMITS
	ADDED	RESULT	RESULT	(%)	(%)
METHANE	72.9	ND	55.0	75	60-140
ETHENE	128	ND	114659.0	89577	60-140
ETHANE	136	ND	102.6	75	60-140

PRECISION (SPIKE DUPLICATE)

COMPOUND NAME	REPORTING	SPIKE	DUPLICATE	RPD	LIMITS
	LIMIT	RESULT	RESULT	(%)	(%)
METHANE	1.58	55.0	46.0	17.9	±20
ETHENE	2.38	114659.0	84.8	199.7	±20
ETHANE	1.63	102.6	86.6	16.9	±20

METHOD BLANK

COMPOUND NAME	CAS NO.	REPORTING	SAMPLE
		LIMIT	CONC
METHANE	74-82-8	7.89	ND
ETHENE	74-85-1	2.38	ND
ETHANE	74-84-0	1.63	ND

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT

NA - NOT APPLICABLE OR AVAILABLE

MIL - METHOD REPORTING LIMIT

MDL - STATISTICAL METHOD DETECTION LIMIT

"J" - INDICATES REPORTED VALUE AS AN ESTIMATED CONCENTRATION ABOVE THE MDL AND BELOW THE METHOD REPORTING LIMIT.

"B" - INDICATES COMPOUND COMMONLY FOUND IN METHOD BLANK ABOVE THE MDL BUT BELOW THE METHOD REPORTING LIMIT.

HFK-12-2005 IUE 00:27 FTLK FRITE INC

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K PRIME, INC.		SAMPLE ID:	MW-21-200503
LABORATORY REPORT		LAB NO:	50034
	:	SAMPLE TYPE:	WATER
K PRIME PROJECT: 9984	D	ATE SAMPLED:	03/10/05
CLIENT PROJECT: A503419	Т	IME SAMPLED:	9:50
		BATCH ID:	032305W01
METHOD: DISSOLVED GASES REFERENCE: RSK 175	DA	TE ANALYZED: UNITS:	3/23/05 µg/L
COMPOUND NAME	CAS NO.	REPORTING LIMIT	CONC
CARBON DIOXIDE	124-38-9	165	179097

NOTES:

APPROVED BY: ___ 12/05 DATE: ____

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** **

K PRIME, INC.		SAMPLE ID:	BD-01-200503
LABORATORY REPORT		LAB NO:	50035
	5	SAMPLE TYPE:	WATER
K PRIME PROJECT: 9984	DA	TE SAMPLED:	03/10/05
CLIENT PROJECT: A503419	TI	ME SAMPLED:	9:50
		BATCH ID:	032305W01
METHOD: DISSOLVED GASES REFERENCE: RSK 175	DAT	TE ANALYZED: UNITS:	3/23/05 µg/L
COMPOUND NAME	CAS NO.	REPORTING LIMIT	CONC
CARBON DIOXIDE	124-38-9	165	164916

NOTES:

APPROVED BY: ___ DATE: 4/12/05

K PRIME, INC. SAMPLE ID: MW-05-200503 LABORATORY REPORT LAB NO: 50036 SAMPLE TYPE: WATER K PRIME PROJECT: 9984 DATE SAMPLED: 03/10/05 CLIENT PROJECT: A503419 TIME SAMPLED: 13:10 BATCH ID: 032305W01 METHOD: DISSOLVED GASES DATE ANALYZED; 3/23/05 **REFERENCE: RSK 175** UNITS: µg/L COMPOUND NAME CAS NO. REPORTING SAMPLE CONC LIMIT CAHBON DIOXIDE 124-38-9 165 136320

NOTES:

M APPROVED BY: 4112/05 DATE: _

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K PRIME, INC.		SAMPLE ID:	MW-03-200503
LABORATORY REPORT		LAB NO:	50037
	5	SAMPLE TYPE:	WATER
K PRIME PROJECT: 9984	D	ATE SAMPLED:	03/10/05
CLIENT PROJECT: A503419	Т	ME SAMPLED:	14:07
		BATCH ID:	032305W01
METHOD: DISSOLVED GASES REFERENCE: RSK 175	DATE ANALYZED: UNITS:		3/23/05 µg/L
COMPOUND NAME	CAS NO.		SAMPLE
CARBON DIOXIDE	124-38-9	165	115727

NOTES:

APPROVED BY: 4/12/05 DATE:

HERTIZIZOUD IUE UDIZO TH A FRIHE HNU

K PRIME, INC. SAMPLE ID; MW-02-200503 LABORATORY REPORT 50038 LAB NO: SAMPLE TYPE: WATER DATE SAMPLED: K PRIME PROJECT: 9984 03/11/05 CLIENT PROJECT: A503419 TIME SAMPLED; 7:40 BATCH ID: 032305W01 METHOD: DISSOLVED GASES DATE ANALYZED: 3/23/05 REFERENCE: RSK 175 UNITS: µg/L REPORTING COMPOUND NAME SAMPLE CAS NO. CONC LIMIT CARBON DIOXIDE 124-38-9 165 289106

NOTES:

APPROVED BY: DATE: 112/05

 K PRIME, INC.
 SAMPLE ID:
 D032305W01

 LABORATORY QC REPORT
 DUPLICATE ID:
 L032305W01

 METHOD: DISSOLVED GASSES
 BATCH ID:
 032305W01

 REFFERENCE: RSK175
 ANALYZED DATE:
 3/23/05

 SAMPLE TYPE:
 WATER

 UNITS:
 µg/L

ACCURACY (MATRIX SPIKE)

PARAMETER	SPIKE	SAMPLE	SPIKE	RECOVERY	LIMITS
	ADDED	RESULT	RESULT	(%)	(%)
CARBON DIOXIDE	2000	ND	1330	66	50-150

PRECISION (SPIKE DUPLICATE)

COMPOUND NAME	REPORTING	SPIKE	DUPLICATE	RPD	LIMITS
	LIMIT	RESULT	RESULT	(%)	(%)
CARBON DIOXIDE	165	1330	1137	15.6	±40

METHOD BLANK

COMPOUND NAME	CAS NO.	REPORTING	SAMPLE
		LIMIT	CONC
CARBON DIOXIDE	124-38-9	165	ND

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT

NA - NOT APPLICABLE OR AVAILABLE

MRL - METHOD REPORTING LIMIT

MDL - STATISTICAL METHOD DETECTION LIMIT

- "J" INDICATES REPORTED VALUE AS AN ESTIMATED CONCENTRATION ABOVE THE MDL AND BELOW THE METHOD REPORTING LIMIT.
- "B" INDICATES COMPOUND COMMONLY FOUND IN METHOD BLANK ABOVE THE MDL BUT BELOW THE METHOD REPORTING LIMIT,



Dissolved Metals

Alpha Analytical, Inc. - Ukiah Attn.: Sheri L. Speaks

208 Mason Street Ukiah, CA 95482 Phone: (707) 468-0401 Fax: (707) 468-5267 Project: A503419

Received: 03/15/2005 10:55

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
A503419-03 MW-05-200503	03/10/2005 13:10	Water	1
A503419-04 MW-03-200503	03/10/2005 14:07	Water	2
A503419-05 MW-02-200503	03/11/2005 07:40	Water	3
A503419-06 MW-01-200503	03/11/2005 08:50	Water	4

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Dissolved Metals

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208 Mason Street Ukiah, CA 95482 Phone: (707) 468-0401 Fax: (707) 468-5267 Project: A503419

Received: 03/15/2005 10:55

Prep(s):	3005A			Test(s):	6010	3	
Sample ID:	A503419-03 MW-05-	200503		Lab ID:	2005-	03-0514 - 1	
Sampled:	03/10/2005 13:10			Extracted	d: 3/21/2	2005 13:24	
Matrix:	Water			QC Batc	h#: 2005/	03/21-04.15	
Compound		Conc.	RL	Unit	Dilution	Analyzed	Flag
Iron		4.7	0.20	mg/L	1.00	03/22/2005 10:28	
Manganese		0.67	0.0050	mg/L	1.00	03/22/2005 10:28	

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Received: 03/15/2005 10:55

Prep(s):	3005A			Test(s)		-	
Sample ID: Sampled: Matrix:	A503419-04 MW-03-20 03/10/2005 14:07 Water	0503		Lab ID Extract QC Ba	ed: 3/21/2	-03-0514 - 2 2005 13:24 /03/21-04.15	
Compound		Conc.	RL	Unit	Dilution	Analyzed	Flag
Iron Manganese		33 2.5	0.20 0.0050	mg/L mg/L		03/22/2005 10:31 03/22/2005 10:31	

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Received: 03/15/2005 10:55

Prep(s):	3005A			Test(s)	6010	3	
Sample ID:	A503419-05 MW-02-2	00503		Lab ID:	2005-	03-0514 - 3	
Sampled: Matrix:	03/11/2005 07:40 Water			Extract	11. N.	2005 13:24 03/21-04.15	
Compound		Conc.	RL	Unit	Dilution	Analyzed	Flag
Iron Manganese		53 4.6	0.20 0.0050	mg/L mg/L		03/22/2005 10:35 03/22/2005 10:35	

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208 Mason Street Ukiah, CA 95482 Phone: (707) 468-0401 Fax: (707) 468-5267 Project: A503419

Received: 03/15/2005 10:55

Prep(s): Sample ID:	3005A A503419-06 MW-01-2	00503	1996 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997	Test(s) Lab ID:		3 03-0514 - 4	
Sampled: Matrix:	03/11/2005 08:50 Water			Extract QC Bat		2005 13:24 03/21-04.15	
Compound		Conc.	RL	Unit	Dilution	Analyzed	Flag
Iron		50	0.20	mg/L	1.00	03/22/2005 10:39	
Manganese		1.6	0.0050	mg/L	1.00	03/22/2005 10:39	

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6.5

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Received: 03/15/2005 10:55

	Bato	h QC Report								
Prep(s): 3005A Method Blank MB: 2005/03/21-04.15-001		Water	Da	Test(s): 6010 QC Batch # 2005/03/21-04.1 Date Extracted: 03/21/2005 †3:2						
Compound	Conc.	RL	Unit	Analyzed	Flag					
Iron Manganese	ND ND	0.20 0.0050	mg/L mg/L	03/22/2005 10:18 03/22/2005 10:18						

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Received: 03/15/2005 10:55

		E	Batch QC Re	eport						
Prep(s): 3005A		에 가슴이 가슴 같은 것은 것은 것은 것을 수 있다. 같은 것은 것은 것은 것을							Test(s):	6010B
Laboratory Contr	ol Spike		Wate	r - 1		Q	C Batch	n # 20	05/03/21	-04.15
- 영양 영상 등 등 문화 전화 관계 관계	/21-04.15-002 /21-04.15-003		Extracted: (975 - Sect.		이는 이 관계를		22/200 22/200	
Compound	Conc.	mg/L	Exp.Conc.	Reco	very %	RPD	Ctrl.Lin	nits %	Fla	ags
	LCS	LCSD		LCS LCSD		%	Rec.	RPD	LCS	LCSD
Iron Manganese	4.98 0.496	4.99 0.497	5.00 0.500	99.6 99.2	99.8 99.4	0.2 0.2	80-120 80-120	20 20		

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10,2	REMARKS	Additional Comments	Cooled 140. 01 (XI OH to KUN	XI FE2+ mU OUT	X 2 OF HOLD.	X3 3-11-05 855	- ×	XI US Centaurur	٤	X 2 cm Sample 54 1443	X 3 NB.	/ ×	- ×	× /	X 2	X 3	- ×	24	: Method of Shipment:	rainon en	Laboratory Comments and Log No.:			àsiana anna anna anna anna anna anna anna	2101 Webster Street, 12th Floor - Oakland, CA 94612 Phone: 510-663-4100 Fax: 510-663-4141
Date: MARCH			Preserv			×		×			×		×			×		X	s	Date:		Time:		Date:	Time:	
Date:		Water (W) . V), or Other (o)	Vapor () Vapor ()	3	3	3	3	× ×	X	M	X	M	× ∢	M	Ň	Ň	Ś	<u>X</u>	ıtainer	e):						
Ţ	ANALYSES	то 4820 HG onlyy Bo15m (Gasoline) bo15m (Motor Oli) bo15m (Motor Oli) ei Cleanup ei Cleanup M G	Her Marken M Marken Marken M Marken Marken M Marken Marken Marke Marken Marken Ma	3419-01	×	×	×	×	×		×		× ×	3	X	×	×		Turnaround Time: Results to: Prov/A44. Poss STEENCON Total No. of Containers	Providence -	Ille Ving Control Name	ame: They are Time: Trime Name.	Company:	Date: Received by:	Name (Muchas & Time: Printed Name:	U V Company:
Record		thod 8021 (hod 8021 (hod 8021	em A93																Turnar	Teling			- Maduo	Received		Company:
Chain-of Custody I	9/23	4 May	Sample Number	MW-21-200503	<u>†</u>			7	BD-01-200503	1				MW-05-200503				>	aboratory: D. A. Aslandrice (an source EC	Relinquished by (Sighature): [Date:]			1200	Date: F	Time:	
Jhair	932	(Signature:)	Time	0950				>	0950	_			┝	1310				>	ry: Analy	hed by	24K	<u></u>	trk	AR	The second	and a
U	Project No.: 9329	Samplers (Signature:) Me.A.R. P.H. D.	Date	3/10/05														\rightarrow	Laboratory: A.o., A	Telinquist	11/00	Matt H	Vine Party	Backfee	-ymes	Company

Date: MARCH 10, 2005 Page 2 01 2	REMARKS	Pitered Cooled No. of Containers Comments		× .	X X Z V Z	< × × ×		X I	X X Z	X 3	X X X /	X	×	X X Z	X 3		iners 24	Date: Method of Shipment:	Time: Laboratory Comments and Log No.:		Date:	Time: Reomatrix Consultants	2101 Webster Street, 121h Floor - Oaktand, CA 94612 Phone: 510-663-4100 Fax: 510-663-4141
Record	ANALYSES	арь (л), от Отье (о) Soli (S), Water (W) Soli (S), Water (W) Method 8021 Method 8015m (Diesel) Method 8021 Method 80		×		×	X	M X	X		×		X		×	X	Turnaround Time: Results to: CTANDARD Decomposition Total No. of Containers	hinder of by Signature) Date: Relinquished by (Signature):	And Name Address	Company China Ibb Company:	Beceived by Bate: Received by:	Printed Name	Company: Company:
Chain-of Custody R	Project No.: 9329/23	Sample Number	3/10/05 1407 MW-03-200503				3/11/05 0740 MW-02-200503					0850 MW-01-200503					Laboratory: ALDHA ANANYTICAN / MANDATINGIEC	Relinguished by Agig/ature): [Date: Ra		(x) 1 1 200	And Date:	dy by Time:	AMIC



March 25, 2005

FAL Project ID: 3151

Mr. Ross Steenson Geomatrix Consultants, Inc. 2101 Webster Street, 12th Floor Oakland, CA 94612



PILOT STUDY

GW Samples MW-03,05,07,14,20,21

Dear Mr. Steenson,

Enclosed are the results for Frontier Analytical Laboratory project **3151**. This corresponds to your project number 9329/23. The seven aqueous samples received on 3/11/05 were extracted and analyzed by EPA Method 1613 for tetra through octa chlorinated dibenzo dioxins and furans. Geomatrix Consultants, Inc. requested a turnaround time of ten business days for project **3151**.

The following report consists of an Analytical Data section and a Sample Receipt section. The Analytical Data section contains the project-sample tracking log, qualifier reference guide, ML/MDL form and the analytical results. The Sample Receipt section contains the chain of custody, sample login form and sample photo. The Electronic Data Deliverable (EDD) for this project will be e-mailed to you within the next couple days.

If you have any questions regarding project **3151**, please feel free to contact me at (916) 934-0900. Thank you for choosing Frontier Analytical Laboratory for your analytical testing needs.

Sincerely,

all.

Bradley B. Silverbush Director of Operations

000001 of 000017



Frontier Analytical Laboratory

Sample Tracking Log

FAL Project ID: 3151

Received on: 03/11/2005

Project Due: 03/28/2005 Storage: R1

FAL Sample ID	Dup	Client Project ID	Client Sample ID	Requested Method	Matrix	Sampling Date	Sampling Time	Hold Time Due Date
3151-001-SA	1	9329.23	MW-20-200503	EPA 1613 D/F	Aqueous	03/09/2005	12:39 pm	03/09/2006
3151-002-SA	1	9329.23	MW-14-200503	EPA 1613 D/F	Aqueous	03/09/2005	02:40 pm	03/09/2006
3151-003-SA	1	9329.23	MW-07-200503	EPA 1613 D/F	Aqueous	03/09/2005	04:23 pm	03/09/2006
3151-004-SA	1	9329.23	MW-21-200503	EPA 1613 D/F	Aqueous	03/10/2005	09:50 am	03/10/2006
3151-005-SA	1	9329.23	BD-01-200503	EPA 1613 D/F	Aqueous	03/10/2005	09:50 am	03/10/2006
3151-006-SA	1	9329.23	MW-05-200503	EPA 1613 D/F	Aqueous	03/10/2005	01:10 pm	03/10/2006
3151-007-SA	1	9329.23	MW-03-200503	EPA 1613 D/F	Aqueous	03/10/2005	02:07 pm	03/10/2006

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Qualifier Reference Guide

- A Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
- B Analyte is present in Method Blank
- C Chemical Interference
- D Presence of Diphenyl Ethers
- E Analyte concentration is above calibration range
- F Analyte confirmation on secondary column
- J[‡] Analyte concentration is below calibration range
- M Maximum possible concentration
- NP Not Provided
- S Sample acceptance criteria not met
- X Matrix interferences
- Result taken from dilution or reinjection
- Analyte Not Detected
- + Spike levels were inappropriate versus the levels in the sample

[‡] "J" values are equivalent to DNQ (detected but not quantified) for California Toxics Rule (CTR)/National Pollutant Discharge Elimination System (NPDES) samples

000003 of 000017

EPA Method 1613/8290 Aqueous MDL (SPE Extraction)



Analyte	ML	MDL
2,3,7,8-TCDD	5.00	0.543
1,2,3,7,8-PeCDD	25.0	0.771
1,2,3,4,7,8-HxCDD	25.0	0.845
1,2,3,6,7,8-HxCDD	25.0	1.05
1,2,3,7,8,9-HxCDD	25.0	0.910
1,2,3,4,6,7,8-HpCDD	25.0	1.18
OCDD	50.0	2.26
2,3,7,8-TCDF	5.00	0.449
1,2,3,7,8-PeCDF	25.0	1.05
2,3,4,7,8-PeCDF	25.0	1.08
1,2,3,4,7,8-HxCDF	25.0	0.545
1,2,3,6,7,8-HxCDF	25.0	0.355
1,2,3,7,8,9-HxCDF	25.0	0.370
2,3,4,6,7,8-HxCDF	25.0	0.476
1,2,3,4,6,7,8-HpCDF	25.0	0.516
1,2,3,4,7,8,9-HpCDF	25.0	0.654
OCDF	50.0	1.22

Project 3015, extracted 1/6/05; analyzed1/12/05. Based on a 1.0 Liter sample, pg/L.

000004 of 000017



FAL ID: 3151-001-MB Client ID: Method Blank Matrix: Aqueous Batch No: X0515	Date Extr Date Rec Amount:		05		CDDFAL1-12-14-04 Jmn: DB5 g/L	Acquired WHO TE			
Compound	Conc	DL	Qual	WHO Tox	Compound	Conc	DL	Qual	#Hom
2,3,7,8-TCDD		1.71		-					
1,2,3,7,8-PeCDD	· -	3.48		-					
1,2,3,4,7,8-HxCDD	-	4.50		-					
1,2,3,6,7,8-HxCDD	-	6.02		-	Total Tetra-Dioxins	-	1.71		0
1,2,3,7,8,9-HxCDD	-	5.07		-	Total Penta-Dioxins	-	3.48		0
1,2,3,4,6,7,8-HpCDD	-	4.03		-	Total Hexa-Dioxins	-	6.02		0
OCDD	-	5.46		-	Total Hepta-Dioxins	-	4.03		0
2,3,7,8-TCDF		1.38							
1,2,3,7,8-PeCDF	-	3.54		-					
2,3,4,7,8-PeCDF	-	3.47		-					
1,2,3,4,7,8-HxCDF	-	2.30		-					
1,2,3,6,7,8-HxCDF	-	2.11		-					
2,3,4,6,7,8-HxCDF	-	2.09		-					
1,2,3,7,8,9-HxCDF	-	2.71		-	Total Tetra-Furans	-	1.38		0
1,2,3,4,6,7,8-HpCDF	-	2.70		-	Total Penta-Furans	-	3.54		0
1,2,3,4,7,8,9-HpCDF	-	3.33			Total Hexa-Furans	-	2.71		0
OCDF	-	5.26		-	Total Hepta-Furans	-	3.33		0
Internal Standards	% Rec	QC Limits	Qual						

13C-2,3,7,8-TCDD	77.9	25.0 - 164
13C-1,2,3,7,8-PeCDD	73.1	25.0 - 181
13C-1,2,3,4,7,8-HxCDD	81.1	32.0 - 141
13C-1,2,3,6,7,8-HxCDD	78.4	28.0 - 130
13C-1,2,3,4,6,7,8-HpCDD	85.7	23.0 - 140
13C-0CDD	83.8	17.0 - 157
13C-2,3,7,8-TCDF	83.6	24.0 - 169
13C-1,2,3,7,8-PeCDF	83.4	24.0 - 185
13C-2,3,4,7,8-PeCDF	84.0	21.0 - 178
13C-1,2,3,4,7,8-HxCDF	75.5	26.0 - 152
13C-1,2,3,6,7,8-HxCDF	74.5	26.0 - 123
13C-1,2,3,7,8,9-HxCDF	75.7	28.0 - 136
13C-1,2,3,4,6,7,8-HxCDF	76.4	29.0 - 147
13C-1,2,3,4,6,7,8-HpCDF	76.5	28.0 - 143
13C-1,2,3,4,7,8,9-HpCDF	77.0	26.0 - 138
13C-0CDF	76.9	17.0 - 157

84.9 35.0 - 197

Cleanup Surrogate

37CI-2,3,7,8-TCDD

Analyst 3/16/05 Date

Reviewed B Date:

000005 of 000017

.



FAL ID: 3151-001-OPR Client ID: OPR Matrix: Aqueous Batch No: X0515

Compound	Conc	QC Limits
2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD 0,CDD	8.72 51.6 49.9 54.9 52.2 50.0 102	6.70 - 15.8 35.0 - 71.0 35.0 - 82.0 38.0 - 67.0 32.0 - 81.0 35.0 - 70.0 78.0 - 144
2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 0,CDF	9.63 49.1 48.7 51.2 51.5 51.3 52.1 52.7 52.9 103	7.50 - 15.8 40.0 - 67.0 34.0 - 80.0 36.0 - 67.0 42.0 - 65.0 35.0 - 78.0 39.0 - 65.0 41.0 - 61.0 39.0 - 69.0 63.0 - 170
Internal Standards	% Rec	QC Limits
13C-2,3,7,8-TCDD 13C-1,2,3,7,8-PeCDD 13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HpCDD 13C-0CDD	85.6 78.7 90.8 76.8 88.4 86.3	20.0 - 175 21.0 - 227 21.0 - 193 25.0 - 163 26.0 - 166 13.0 - 198
13C-2,3,7,8-TCDF 13C-1,2,3,7,8-PeCDF 13C-2,3,4,7,8-PeCDF 13C-1,2,3,4,7,8-HxCDF 13C-1,2,3,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HpCDF 13C-1,2,3,4,6,7,8-HpCDF 13C-1,2,3,4,7,8,9-HpCDF 13C-0,2,5,4,7,8,9-HpCDF 13C-1,2,3,4,7,8,9-HpCDF	85.5 86.6 87.9 77.1 77.0 76.7 79.3 78.0 80.0 80.9	22.0 - 152 21.0 - 192 13.0 - 328 19.0 - 202 21.0 - 159 22.0 - 176 17.0 - 205 21.0 - 158 20.0 - 186 13.0 - 198
Cleanup Surrogate		

37CI-2,3,7,8-TCDD

97.2 31.0 - 191

Analyst: 3/11/05 Date:

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5172 Hillsdale Circle • El Dorado Hills, CA 95762 • Tel (916) 934-0900 • Fax (916) 934-0999 • www.frontieranalytical.com

Date Extracted: 03-14-2005 Date Received: NA Amount: 1.000 L

ICal: PCDDFAL1-12-14-04 GC Column: DB5 Units: ng/ml

Acquired: 03-15-2005 WHO TEQ: NA



FAL ID: 3151-001-SA Client ID: MW-20-200503 Matrix: Aqueous Batch No: X0515		acted: 03-14-20 eived: 03-11-20 0.967 L			CDDFAL1-12-14-04 umn: DB5 g/L	Acquired: 03-15-2005 WHO TEQ: 71.0				
Compound	Conc	DL	Qual	WHO Tox	Compound	Conc	DL	Qual	#Hom	
2.3.7.8-TCDD		2.05								
1,2,3,7,8-PeCDD	-	4.69								
1,2,3,4,7,8-HxCDD	-	8.75								
1,2,3,6,7,8-HxCDD	111	0.75		11.1	Total Tetra-Dioxins	86.0	-		4	
1,2,3,7,8,9-HxCDD	17.8	-	J	1.78	Total Penta-Dioxiris	323	-		2	
1,2,3,4,6,7,8-HpCDD	3850		Ũ	38.5	Total Hexa-Dioxins	928	-		5	
OCDD	50500			5.05	Total Hepta-Dioxins	7890	-		2 5 2	
				0.00					-	
2,3,7,8-TCDF	-	4.81		-						
1,2,3,7,8-PeCDF	-	7.00		-						
2,3,4,7,8-PeCDF	-	6.29		-						
1,2,3,4,7,8-HxCDF	14.8	-	J	1.48						
1,2,3,6,7,8-HxCDF	22.2	-	J	2.22						
2,3,4,6,7,8-HxCDF	16.5	-	J	1.65						
1,2,3,7,8,9-HxCDF	-	4.42		-	Total Tetra-Furans	245	-	D,M	9	
1,2,3,4,6,7,8-HpCDF	832	-		8.32	Total Penta-Furans	337	-	D,M	5	
1,2,3,4,7,8,9-HpCDF	57. 9	-		0.579	Total Hexa-Furans	1680	-	D,M	7	
OCDF	3000	-		0.300	Total Hepta-Furans	3930	-		4	
internal Standards	% Rec	QC Limits	Qual			,				
	45.0	25.0 - 164								
13C-2,3,7,8-TCDD	45.6 39.2	25.0 - 164 25.0 - 181								
13C-1,2,3,7,8-PeCDD	39.2 42.1	32.0 - 141								
13C-1,2,3,4,7,8-HxCDD	42.1	28.0 - 130								
13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HpCDD	41.7	23.0 - 140								
13C-1,2,3,4,6,7,8-HPCDD 13C-OCDD	43.0	17.0 - 157								
130-0000	44.1	17.0 - 157								

Cleanup Surrogate 37CI-2,3,7,8-TCDD

 50.5
 24.0
 - 169

 42.2
 24.0
 - 185

 48.8
 21.0
 - 178

 38.8
 26.0
 - 152

 38.1
 26.0
 - 123

 43.1
 28.0
 - 136

 40.2
 29.0
 - 147

 37.4
 28.0
 - 138

 38.5
 17.0
 - 152

95.6 35.0 - 197

17.0 - 157

38.5

Analyst: 3/16/05 Date:

13C-2,3,7,8-TCDF 13C-1,2,3,7,8-PeCDF 13C-1,2,3,4,7,8-PeCDF 13C-1,2,3,4,7,8-HxCDF 13C-2,3,4,6,7,8-HxCDF 13C-1,2,3,7,8,9-HxCDF 13C-1,2,3,4,6,7,8-HpCDF 13C-1,2,3,4,7,8,9-HpCDF 13C-1,2,3,4,7,8,9-HpCDF 13C-0CDF

Reviewed By: 2/16/0 Date:

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Acquired: 03-15-2005 Date Extracted: 03-14-2005 ICal: PCDDFAL1-12-14-04 FAL ID: 3151-002-SA Date Received: 03-11-2005 GC Column: DB5 WHO TEQ: 0.00462 Client ID: MW-14-200503 Amount: 0.919 L Units: pg/L Matrix: Aqueous Batch No: X0515 Compound Conc DL Qual WHO Tox Compound Conc DL Qual #Hom 2,3,7,8-TCDD 2.18 1,2,3,7,8-PeCDD 4.31 1,2,3,4,7,8-HxCDD 4.54 --2.18 Total Tetra-Dioxins 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD -5.51 --4.31 **Total Penta-Dioxins** 4.31 ---1,2,3,4,6,7,8-HpCDD 7.26 Total Hexa-Dioxins -5.51 ÓCDD 46.2 J 0.00462 Total Hepta-Dioxins 7.26 -2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2.05 2.89 -2.59 2.29 2.12 2,3,4,7,8-PeCDF --1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF ----2.09 -2.78 2.57 Total Tetra-Furans Total Penta-Furans 2.05 2.89 1,2,3,7,8,9-HxCDF _ --1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF ---Total Hexa-Furans 2.78 3.13 ---OCDF 8.18 Total Hepta-Furans 3.13 Internal Standards % Rec QC Limits Qual 13C-2,3,7,8-TCDD 13C-1,2,3,7,8-PeCDD 13C-1,2,3,4,7,8-HxCDD 48.6 25.0 - 164 45.7 42.2 25.0 - 181 32.0 - 141 13C-1,2,3,6,7,8-HxCDD 37.0 28.0 - 130 23.0 - 140 13C-1,2,3,4,6,7,8-HpCDD 46.2 13C-OCDD 41.3 13C-2,3,7,8-TCDF 58.8 24.0 - 169 13C-1,2,3,7,8-PeCDF 13C-2,3,4,7,8-PeCDF 13C-1,2,3,4,7,8-HxCDF 54.2 60.9 24.0 - 185 21.0 - 178 40.1 26.0 - 152 13C-1,2,3,6,7,8-HxCDF 38.2 26.0 - 123 13C-2,3,4,6,7,8-HxCDF 13C-1,2,3,7,8,9-HxCDF 13C-1,2,3,4,6,7,8-HpCDF 41.6 38.7 28.0 - 136 29.0 - 147 40.3 28.0 - 143 13C-1,2,3,4,7,8,9-HpCDF 41.3 26.0 - 138 17.0 - 157 13C-OCDF 37.5 Cleanup Surrogate 37CI-2,3,7,8-TCDD 100 35.0 - 197

Analyst 16/05 2 Date

Reviewed By Date:

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FAL ID: 3151-003-SA Client ID: MW-07-200503 Matrix: Aqueous Batch No: X0515		acted: 03-14-20 eived: 03-11-20 0.950 L			CDDFAL1-12-14-04 umn: DB5 g/L	Acquired WHO TE			
Compound	Conc	DL	Qual	WHO Tox	Compound	Conc	DL	Qual	#Hom
2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD	-	3.21 4.66 11.7 9.57		-	Total Tetra-Dioxins		3.21		0
1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD 0CDD	- 42.4 1600	9.57 7.78 -		0.424 0.160	Total Penta-Dioxins Total Penta-Dioxins Total Hexa-Dioxins Total Hepta-Dioxins	- - 88.6	8.63 12.5		002
2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF	-	4.83 4.92 4.87		-					
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	-	5.41 4.70 5.00 4.88		-	Total Tetra-Furans	50.6	-		5
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	- 32.1	5.91 6.93	J	- - 0.00321	Total Penta-Furans Total Hexa-Furans Total Hepta-Furans	30.9	9.73 7.79 -		5 0 1
Internal Standards	% Rec	QC Limits	Qual						
13C-2,3,7,8-TCDD 13C-1,2,3,7,8-PeCDD 13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HpCDD 13C-0CDD	60.8 57.7 61.7 60.8 49.0 45.2	25.0 - 164 25.0 - 181 32.0 - 141 28.0 - 130 23.0 - 140 17.0 - 157							

Reviewed By:

Analyst: Б 3/18/05 Date:

13C-2,3,7,8-TCDF 13C-1,2,3,7,8-PeCDF 13C-2,3,4,7,8-PeCDF 13C-1,2,3,4,7,8-HxCDF 13C-1,2,3,4,7,8-HxCDF 13C-2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HpCDF 13C-1,2,3,4,7,8,9-HpCDF 13C-1,2,3,4,7,8,9-HpCDF 13C-0,20F

> Cleanup Surrogate 37Cl-2,3,7,8-TCDD

 62.2
 24.0 - 169

 49.8
 24.0 - 185

 51.0
 21.0 - 178

 58.4
 26.0 - 152

 57.3
 26.0 - 123

 60.0
 28.0 - 136

 60.7
 29.0 - 147

 48.3
 28.0 - 138

 45.3
 26.0 - 138

 48.2
 17.0 - 157

91.3 35.0 - 197

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FAL ID: 3151-004-SA Client ID: MW-21-200503 Matrix: Aqueous Batch No: X0515		acted: 03-14-20 eived: 03-11-20 0.914 L			CDDFAL1-12-14-04 umn: DB5 g/L	Acquired: WHO TEO	-		
Compound	Conc	DL	Qual	WHO Tox	Compound	Conc	DL	Qual	#Hom
2,3,7,8-TCDD	-	3.78		-					
1,2,3,7,8-PeCDD	-	14.7		-					
1,2,3,4,7,8-HxCDD	64.6			6.46					
1,2,3,6,7,8-HxCDD	-	9.98		-	Total Tetra-Dioxins	29.5	-	м	1
1,2,3,7,8,9-HxCDD	-	9.90		-	Total Penta-Dioxins	29.0	-		1
1,2,3,4,6,7,8-HpCDD	79.4	-		0.794	Total Hexa-Dioxins	109	-		2
ÓCDD	223	-		0.0223	Total Hepta-Dioxins	107	-		2
2,3,7,8-TCDF	-	6.15	F	-					
1,2,3,7,8-PeCDF	-	6.27		-					
2,3,4,7,8-PeCDF		7.06		-					
1,2,3,4,7,8-HxCDF	1640	-		164					
1,2,3,6,7,8-HxCDF	-	9.63		-					
2,3,4,6,7,8-HxCDF		8.08		-					
1,2,3,7,8,9-HxCDF	26.0	-	J	2.60	Total Tetra-Furans	610	-		8
1,2,3,4,6,7,8-HpCDF	-	8.57		-	Total Penta-Furans	91.4	-		1
1,2,3,4,7,8,9-HpCDF	177	-		1.77	Total Hexa-Furans	1780	-		3
OCDF	-	24.7		-	Total Hepta-Furans	206	-		2
Internal Standards	% Rec	QC Limits	Qual						
	07.0	05.0 404							

13C-2,3,7,8-TCDD 13C-1,2,3,7,8-PeCDD 13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HpCDD 13C-0,2,3,4,6,7,8-HpCDD 13C-0CDD	67.3 69.3 59.2 56.3 49.5 37.6	25.0 - 164 25.0 - 181 32.0 - 141 28.0 - 130 23.0 - 140 17.0 - 157
13C-2,3,7,8-TCDF 13C-1,2,3,7,8-PeCDF 13C-2,3,4,7,8-PeCDF 13C-1,2,3,6,7,8-HxCDF 13C-1,2,3,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HpCDF 13C-1,2,3,4,6,7,8-HpCDF 13C-1,2,3,4,7,8,9-HpCDF 13C-1,2,3,4,7,8,9-HpCDF	75.9 78.8 70.8 67.4 47.0 67.5 65.3 46.3 30.5 36.2	24.0 - 169 24.0 - 185 21.0 - 178 26.0 - 152 26.0 - 123 28.0 - 136 29.0 - 147 28.0 - 143 26.0 - 138 17.0 - 157
Cleanup Surrogate		

37CI-2,3,7,8-TCDD 98.8 35.0 - 197

Analyst: 3/18/2 Date:

Reviewed By: J

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FAL ID: 3151-005-SA Client ID: BD-01-200503 Matrix: Aqueous Batch No: X0515		acted: 03-14-20 eived: 03-11-20).916 L			CDDFAL1-12-14-04 umn: DB5 g/L	Acquired WHO TE			
Compound	Conc	DL	Qual	WHO Tox	Compound	Conc	DL	Qual	#Hom
2,3,7,8-TCDD	-	1.19		-					
1,2,3,7,8-PeCDD	-	4.39		-					
1,2,3,4,7,8-HxCDD	-	4.13		-			0.04		•
1,2,3,6,7,8-HxCDD	-	5.51		-	Total Tetra-Dioxins Total Penta-Dioxins	-	2.24 4.39		0 0
1,2,3,7,8,9-HxCDD	20.4	4.29	J	0.204	Total Hexa-Dioxins	-	4.39 5.51		0
1,2,3,4,6,7,8-HpCDD OCDD	20.4 522	-	J	0.0522	Total Hepta-Dioxins	38.0	5.51		2
0000	022			0.00LL		00.0			-
2,3,7,8-TCDF	-	1.15		-					
1,2,3,7,8-PeCDF	-	2.10		-					
2,3,4,7,8-PeCDF	-	2.20		-					
1,2,3,4,7,8-HxCDF	-	1.40		-					
1,2,3,6,7,8-HxCDF	-	1.27 1.25		-					
2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	-,	1.58			Total Tetra-Furans	-	1.98		0
1,2,3,4,6,7,8-HpCDF	9.20	-	J	0.0920	Total Penta-Furans	-	2.22		ŏ
1,2,3,4,7,8,9-HpCDF	-	1.72		-	Total Hexa-Furans	5.91	-	J	1
ÓCDF	23.4		J	0.00234	Total Hepta-Furans	29.1	-		2
Internal Standards	% Rec	QC Limits	Qual						
13C-2,3,7,8-TCDD	67.4	25.0 - 164							
13C-1,2,3,7,8-PeCDD	62.2	25.0 - 181							
13C-1,2,3,4,7,8-HxCDD	66.6	32.0 - 141							
13C-1,2,3,6,7,8-HxCDD	57.8	28.0 - 130							
13C-1,2,3,4,6,7,8-HpCDD	63.3	23.0 - 140							
13C-OCDD	58.7	17.0 - 157							
13C-2,3,7,8-TCDF	71.2	24.0 - 169							
13C-1,2,3,7,8-PeCDF	69.5	24.0 - 185							
13C-2,3,4,7,8-PeCDF	70.6	21.0 - 178							
13C-1,2,3,4,7,8-HxCDF	58.8	26.0 - 152							
13C-1,2,3,6,7,8-HxCDF	55.9	26.0 - 123							
13C-2,3,4,6,7,8-HxCDF 13C-1,2,3,7,8,9-HxCDF	60.2 61.5	28.0 - 136 29.0 - 147							
13C-1,2,3,4,6,7,8-HpCDF	54.3	28.0 - 147							
13C-1,2,3,4,7,8,9-HpCDF	57.9	26.0 - 138							
13C-OCDF	53.2	17.0 - 157							
Cleanup Surrogate									
37CI-2,3,7,8-TCDD	84.1	35.0 - 197							
Applyet: 0						ad By: T	-		

Analyst: 3/16/01 Date:

Reviewed By:_ 3/16/05 Date:

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Acquired: 03-16-2005 WHO TEQ: 0.00597 ICal: PCDDFAL1-12-14-04 FAL ID: 3151-006-SA Date Extracted: 03-14-2005 Client ID: MW-05-200503 Date Received: 03-11-2005 Amount: 0.920 L GC Column: DB5 Matrix: Aqueous Units: pg/L Batch No: X0515 Conc DL Qual WHO Tox Compound Conc DL Qual #Hom Compound 2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1.65 -4.20 3.50 -----4.31 -Total Tetra-Dioxins 1.65 0 -1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD Total Penta-Dioxins Total Hexa-Dioxins 4.20 4.31 0 -3.47 ---6.54 59.7 0.00597 Total Hepta-Dioxins 6.54 õ 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1.48 3.04 ---3.01 --1,2,3,4,7,8-HxCDF -1.92 -1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF -1.80 1.74 _ --2.36 Total Tetra-Furans 1.48 0 ---1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF -2.26 Total Penta-Furans -3.12 0 2.60 6.19 Õ -**Total Hexa-Furans** 2.36 _ Total Hepta-Furans 8.02 J -1 Internal Standards % Rec QC Limits Qual

13C-2,3,7,8-TCDD	52.7	25.0 - 164
13C-1,2,3,7,8-PeCDD	48.1	25.0 - 181
13C-1,2,3,4,7,8-HxCDD	48.4	32.0 - 141
13C-1,2,3,6,7,8-HxCDD	45.9	28.0 - 130
13C-1,2,3,4,6,7,8-HpCDD	48.7	23.0 - 140
13C-OCDD	42.4	17.0 - 157
13C-2,3,7,8-TCDF	56.4	24.0 - 169
13C-1,2,3,7,8-PeCDF	54.7	24.0 - 185
13C-2,3,4,7,8-PeCDF	58.4	21.0 - 178
13C-1,2,3,4,7,8-HxCDF	45.4	26.0 - 152
13C-1,2,3,6,7,8-HxCDF	43.7	26.0 - 123
13C-2,3,4,6,7,8-HxCDF	47.3	28.0 - 136
13C-1,2,3,7,8,9-HxCDF	46.9	29.0 - 147
13C-1,2,3,4,6,7,8-HpCDF	42.5	28.0 - 143
13C-1,2,3,4,7,8,9-HpCDF	44.6	26.0 - 138
13C-OCDF	38.3	17.0 - 157

86.8 35.0 - 197

Cleanup Surrogate

37CI-2,3,7,8-TCDD

Analyst 3/14/05 Date:

Reviewed By: Date:

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ICal: PCDDFAL1-12-14-04 Acquired: 03-16-2005 Date Extracted: 03-14-2005 FAL ID: 3151-007-SA Date Received: 03-11-2005 GC Column: DB5 WHO TEQ: 0.00316 Client ID: MW-03-200503 Matrix: Aqueous Amount: 0.903 L Units: pg/L Batch No: X0515 Compound Conc DL Qual WHO Tox Compound Conc DL Qual #Hom 2,3,7,8-TCDD 1.85 1,2,3,7,8-PeCDD -4.50 1,2,3,4,7,8-HxCDD -4.51 -Total Tetra-Dioxins 1.85 0 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD -5 56 --4.50 õ 4.59 Total Penta-Dioxins ---1,2,3,4,6,7,8-HpCDD **Total Hexa-Dioxins** -5.56 0 5.31 0.00316 ÓCDD 31.6 J Total Hepta-Dioxins -5.31 0 -2,3,7,8-TCDF 1,2,3,7,8-PeCDF 1.72 2.91 2,3,4,7,8-PeCDF . 2.77 -1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF -1.65 -1.51 --1.52 1.72 2.91 1,2,3,7,8,9-HxCDF . 1.92 -Total Tetra-Furans -0 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total Penta-Furans -1.88 --Total Hexa-Furans 1.92 ō -2.40 --OCDF 6.19 Total Hepta-Furans 2.40 0 Internal Standards % Rec QC Limits Qual 13C-2,3,7,8-TCDD 13C-1,2,3,7,8-PeCDD 13C-1,2,3,4,7,8-HxCDD 54.3 25.0 - 164 25.0 - 181 32.0 - 141 47.3 53.6 28.0 - 130 23.0 - 140 13C-1,2,3,6,7,8-HxCDD 51.6 13C-1,2,3,4,6,7,8-HpCDD 52.7 17.0 - 157 13C-OCDD 47.0 13C-2,3,7,8-TCDF 56.9 24.0 - 169 13C-1,2,3,7,8-PeCDF 13C-2,3,4,7,8-PeCDF 13C-1,2,3,4,7,8-HxCDF 51.9 55.2 24.0 - 185 21.0 - 178 49.0 26.0 - 152 13C-1,2,3,6,7,8-HxCDF 47.9 26.0 - 123

28.0 - 136

29.0 - 147

28.0 - 143

26.0 - 138

17.0 - 157

71.8 35.0 - 197

50.1

49.9 47.1

47.7

42.4

37CI-2,3,7,8-TCDD

Cleanup Surrogate

13C-OCDF

Analyst 3/16/05 Date:

13C-2,3,4,6,7,8-HxCDF

13C-1,2,3,7,8,9-HxCDF 13C-1,2,3,4,6,7,8-HpCDF

13C-1,2,3,4,7,8,9-HpCDF

Reviewed By: Date:

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	MARCH 9, 2005 Page 1 of 1	REMARKS	Additional Comments	Preserved Cooled No. of Conta	X 7	X 2 X 2	X 2		X 2	X 2				-		Ź	It4	Date: Method of Shipment:	Time: Laboratory Comments and Log No.:		Date; Stilf05	Time: Reomatrix Consultants	0,30 2101 Webster Street, 1211 Floor • Oakland, CA 94612 Phone: \$10-663-4100 Fax: 510-663-4141
25%	Date:	ANALYSES	سالا) بند (Gasoline) سر (Motor Ott) شر (Motor Ott) شر (Motor Ott) سر (Motor Ott)	Method BOTS Method BOTS Method BOTS Method BOTS Soli (S), Wat DT AT DT A	X		M	M X	X	M							Results to: Ross STEENSON Total No. of Containers	ture): Date: Relinquished by (Signature):	Time:	Company:	Date: Beceived by:	Time: Printed Name P	FRONKER ARIUNICA
	Chain-of Custody Record	123	0250 9250 1209 1209 1209	Time Sample Number Sample Number Sample Samp		MW-14-20	0950 MW-21-200503		1310 MW-05-200503	1								by Signature): Date: Relin	Werk .	6.00	y: Date: Received by:	me: Time: Printed Name:	Company:
	ប់	Project No.: 9329	Samplers (Signaturp:)	Date Tim	3/9/05 12		3/10/05 0		1/2	1/2	1	4					Laboratory:	Religinging by	Printed Nam	Company: HVIY	Heceived by:	Printed Name:	000 Company:



Frontier Analytical Laboratory

Sample Login Form

FAL Project ID: 3151

Client:	Geomatrix Consultants, Inc.
Client Project ID:	9329.23
Date Received:	03/11/2005
Time Received:	10:20 am
Received By:	KZ
Logged In By:	KZ
# of Samples Received:	7
Duplicates:	7
Storage Location:	R1

lethod of Delivery:	Fed-Ex
racking Number:	849738220404
hipping Container Received Intact	Yes
Custody seals(s) present?	No
Sustody seals(s) intact?	No
ample Arrival Temperature (C)	0
Cooling Method	lce
chain Of Custody Present?	Yes
Return Shipping Container To Client	Yes
est for residual Chlorine	Yes
hiosulfate Added	No
arliest Sample Hold Time Expiration	03/09/2006
dequate Sample Volume	Yes
nomalies or additional comments:	

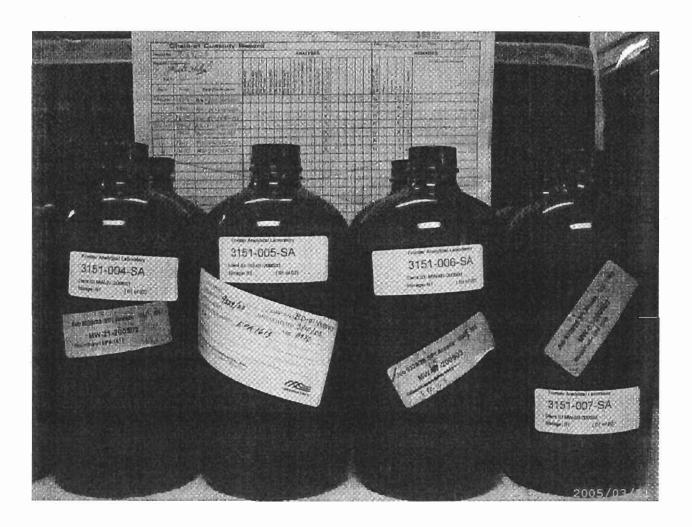
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March 30, 2005



Alpha Analytical Laboratories, Inc.



TASK 23 PILOT STUDY

MW-01, 02

Dear Ms. Speaks,

Ms. Sheri Speaks

208 Mason Street Ukiah, CA 95482

Enclosed are the results for Frontier Analytical Laboratory project **3154**. This corresponds to your subcontract order # A503426. The two aqueous samples received on 3/15/05 were extracted and analyzed by EPA Method 1613 for tetra through octa chlorinated dibenzo dioxins and furans. Alpha Analytical Laboratories, Inc. requested a turnaround time of ten business days for project **3154**.

The following report consists of an Analytical Data section and a Sample Receipt section. The Analytical Data section contains the project-sample tracking log, a qualifier reference guide, a ML/MDL form and the analytical results. The Sample Receipt section contains your original chain of custody, our sample login form and a sample photo. The EDD you requested has been sent to you via email.

If you have any questions regarding project **3154**, please feel free to contact me at (916) 934-0900. Thank you for choosing Frontier Analytical Laboratory for your analytical testing needs.

Sincerely,

all

Bradley B. Silverbush Director of Operations

FRONTIER ANALYTICAL LABORATORY 5172 Hillsdale Circle • El Dorado Hills, CA 95762 Tel (916) 934-0900 • Fax (916) 934-0999 dioxin@frontieranalytical.com

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Frontier Analytical Laboratory

Sample Tracking Log

FAL Project ID: 3154

Received on: 03/15/2005

Project Due: 03/30/2005 Storage: R1

FAL Sample ID	Dup	Client Project ID	Client Sample ID	Requested Method	Matrix	Sampling Date	Sampling Time	Hold Time Due Date
3154-001-SA	1	A503426	A503426-01	EPA 1613 D/F	Aqueous	03/11/2005	07:40 am	03/13/2006
3154-002-SA	1	A503426	A503426-02	EPA 1613 D/F	Aqueous	03/11/2005	08:50 am	03/13/2006

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Qualifier Reference Guide

- A Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
- B Analyte is present in Method Blank
- C Chemical Interference
- D Presence of Diphenyl Ethers
- E Analyte concentration is above calibration range
- F Analyte confirmation on secondary column
- J[‡] Analyte concentration is below calibration range
- M Maximum possible concentration
- NP Not Provided
- S Sample acceptance criteria not met
- X Matrix interferences
- * Result taken from dilution or reinjection
- Analyte Not Detected
- + Spike levels were inappropriate versus the levels in the sample

[‡] "J" values are equivalent to DNQ (detected but not quantified) for California Toxics Rule (CTR)/National Pollutant Discharge Elimination System (NPDES) samples

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EPA Method 1613/8290 Aqueous MDL (SPE Extraction)



Analyte	ML	MDL
2,3,7,8-TCDD	5.00	0.543
1,2,3,7,8-PeCDD	25.0	0.771
1,2,3,4,7,8-HxCDD	25.0	0.845
1,2,3,6,7,8-HxCDD	25.0	1.05
1,2,3,7,8,9-HxCDD	25.0	0.910
1,2,3,4,6,7,8-HpCDD	25.0	1.18
OCDD	50.0	2.26
2,3,7,8-TCDF	5.00	0.449
1,2,3,7,8-PeCDF	25.0	1.05
2,3,4,7,8-PeCDF	25.0	1.08
1,2,3,4,7,8-HxCDF	25.0	0.545
1,2,3,6,7,8-HxCDF	25.0	0.355
1,2,3,7,8,9-HxCDF	25.0	0.370
2,3,4,6,7,8-HxCDF	25.0	0.476
1,2,3,4,6,7,8-HpCDF	25.0	0.516
1,2,3,4,7,8,9-HpCDF	25.0	0.654
OCDF	50.0	1.22

Project 3015, extracted 1/6/05; analyzed1/12/05. Based on a 1.0 Liter sample, pg/L.

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ICal: pcddfal1-12-14-04 GC Column: DB5 FAL ID: 3154-001-MB Client ID: Method Blank Acquired: 03-23-2005 Date Extracted: 03-22-2005 Date Received: NA WHO TEQ: 0.00 Matrix: Aqueous Amount: 1.000 L Units: pg/L Batch No: X0523 DL Qual WHO Tox Compound Conc DL Qual #Hom Compound Conc 2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1.02 -2.50 1,2,3,4,7,8-HxCDD -3.32 _ 1.02 Total Tetra-Dioxins 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 4.18 3.55 0 0 0 0 ---Total Penta-Dioxins 2.50 ---1,2,3,4,6,7,8-HpCDD 4.07 Total Hexa-Dioxins -4.18 • ÓCDD -6.46 **Total Hepta-Dioxins** 4.07 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 0.905 --1.15 1.14 ---1.21 1.08 ---1.19 Total Tetra-Furans Total Penta-Furans 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 0.905 -1.68 . -0 0 -1.44 --2.59 2.06 Total Hexa-Furans 1.68 õ --ÓCDF 4.43 Total Hepta-Furans 2.06 0

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD 13C-1,2,3,7,8-PeCDD 13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HpCDD 13C-0CDD		25.0 - 164 25.0 - 181 32.0 - 141 28.0 - 130 23.0 - 140 17.0 - 157	
13C-2,3,7,8-TCDF 13C-1,2,3,7,8-PeCDF 13C-2,3,4,7,8-PeCDF 13C-1,2,3,4,7,8-HxCDF 13C-2,3,4,6,7,8-HxCDF 13C-2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HpCDF 13C-1,2,3,4,7,8,9-HpCDF 13C-1,2,3,4,7,8,9-HpCDF 13C-0,2,5,4,7,8,9-HpCDF	110 111 111	24.0 - 169 24.0 - 185 21.0 - 178 26.0 - 152 26.0 - 123 28.0 - 136 29.0 - 147 28.0 - 147 28.0 - 143 26.0 - 138 17.0 - 157	

98.2 35.0 - 197

Cleanup Surrogate 37Cl-2,3,7,8-TCDD

Analyst 30/05 Date:

Reviewed By:_ 3/30/05 Date:

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FAL ID: 3154-001-OPR Client ID: OPR Matrix: Aqueous Batch No: X0523

Compound	Conc	QC Limits
2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD 0,2,3,4,6,7,8-HpCDD	9.14 47.9 53.5 51.6 52.3 50.3 103	6.70 - 15.8 35.0 - 71.0 35.0 - 82.0 38.0 - 67.0 32.0 - 81.0 35.0 - 70.0 78.0 - 144
2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 0,CDF	9.42 51.0 50.3 52.2 52.1 52.5 53.1 52.9 51.5 104	7.50 - 15.8 40.0 - 67.0 34.0 - 80.0 36.0 - 67.0 42.0 - 65.0 35.0 - 78.0 39.0 - 65.0 41.0 - 61.0 39.0 - 69.0 63.0 - 170
Internal Standards	% Rec	QC Limits
13С-2,3,7,8-ТСDD 13С-1,2,3,7,8-РеСDD 13С-1,2,3,4,7,8-НхСDD 13С-1,2,3,6,7,8-НхСDD 13С-1,2,3,4,6,7,8-НрСDD 13С-0CDD	93.7 108 89.5 98.7 82.7 78.4	20.0 - 175 21.0 - 227 21.0 - 193 25.0 - 163 26.0 - 166 13.0 - 198
13C-2.3,7,8-TCDF 13C-1,2,3,7,8-PeCDF 13C-2,3,4,7,8-PeCDF 13C-1,2,3,4,7,8-HxCDF 13C-1,2,3,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HpCDF 13C-1,2,3,4,7,8,9-HpCDF 13C-1,2,3,4,7,8,9-HpCDF 13C-0,2,5,4,7,8,9-HpCDF 13C-1,2,3,4,7,8,9-HpCDF	95.7 94.1 96.9 105 111 106 96.1 97.8 89.7 89.1	22.0 - 152 21.0 - 192 13.0 - 328 19.0 - 202 21.0 - 159 22.0 - 176 17.0 - 205 21.0 - 158 20.0 - 186 13.0 - 198
Cleanup Surrogate		

37CI-2,3,7,8-TCDD

104 31.0 - 191

Analyst: <u>3/30/01</u> Date:

Reviewed By: 3/30/05 Date:

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5172 Hillsdale Circle • El Dorado Hills, CA 95762 • Tel (916) 934-0900 • Fax (916) 934-0999 • www.frontieranalytical.com

Date Extracted: 03-22-2005 Date Received: NA Amount: 1.000 L ICal: pcddfal1-12-14-04 GC Column: DB5 Units: ng/ml Acquired: 03-23-2005 WHO TEQ: NA



FAL ID: 3154-001-SA Client ID: A503426-01 Matrix: Aqueous Batch No: X0523	Date Re	tracted: 03-22 eceived: 03-15 : 0.904 L			olumn: [-12-14-04 DB5	Acquire WHO T		
Compound	Conc	DL	Qual	WHO Tox		Compound	Conc	DL	Qual #Hom
2,3,7,8-TCDD	-	1.61		· -					
1,2,3,7,8-PeCDD	-	2.85		-					
1,2,3,4,7,8-HxCDD	-	2.75		-					
1,2,3,6,7,8-HxCDD	-	3.59		-		l Tetra-Dioxins	-	1.61	0
1,2,3,7,8,9-HxCDD	-	3.03		-		Penta-Dioxins	-	2.85	0
1,2,3,4,6,7,8-HpCDD	-	4.61		-		Hexa-Dioxins	-	3.59	0
OCDD	18.8	-	J	0.00188	Total	Hepta-Dioxins	-	4.61	0
2,3,7,8-TCDF	-	1.39							
1,2,3,7,8-PeCDF	-	3.37		-					
2,3,4,7,8-PeCDF	-	3.02		-					
1,2,3,4,7,8-HxCDF	-	1.46		-					
1,2,3,6,7,8-HxCDF	-	1.30		•					
2,3,4,6,7,8-HxCDF	-	1.29		-					
1,2,3,7,8,9-HxCDF	-	1.88				I Tetra-Furans	-	1.39	0
1,2,3,4,6,7,8-HpCDF	-	1.71		-		Penta-Furans	-	3.37	0
1,2,3,4,7,8,9-HpCDF	-	2.32		-		I Hexa-Furans	-	1.88	0
OCDF	-	3.16			lotal	Hepta-Furans	-	2.32	0
Internal Standards	% Rec	QC Limits	Qual						
13C-2,3,7,8-TCDD	78.3	25.0 - 164							
13C-1,2,3,7,8-PeCDD	86.2	25.0 - 181							
13C-1,2,3,4,7,8-HxCDD	79.8	32.0 - 141							
13C-1,2,3,6,7,8-HxCDD	79.5	28.0 - 130							
13C-1,2,3,4,6,7,8-HpCDD	65.8	23.0 - 140							
13C-OCDD	63.9	17.0 - 157							
13C-2,3,7,8-TCDF	81.0	24.0 - 169							
13C-1,2,3,7,8-PeCDF		24.0 - 185							
13C-2,3,4,7,8-PeCDF		21.0 - 178							
13C-1,2,3,4,7,8-HxCDF		26.0 - 152							
13C-1,2,3,6,7,8-HxCDF		26.0 - 123							
13C-2,3,4,6,7,8-HxCDF		28.0 - 136							
13C-1,2,3,7,8,9-HxCDF		29.0 - 147							
13C-1,2,3,4,6,7,8-HpCDF		28.0 - 143							
13C-1,2,3,4,7,8,9-HpCDF	69.8	26.0 - 138							
13C-OCDF	67.9	17.0 - 157							
Cleanup Surrogate									
37CI-2,3,7,8-TCDD	106	35.0 - 197							
Analyst:						Review	ed By:		
201-								4	,
Date: 3/30/05						Date:	31	30/05	

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FAL ID: 3154-002-SA Client ID: A503426-02 Matrix: Aqueous Batch No: X0523		ed: 03-22-2005 ed: 03-15-2005 14 L		ddfal1-12-14-04 .mm: DB5 g/L	Acquired: WHO TEO			
Compound	Conc	DL Qual	WHO Tox	Compound	Conc	DL	Qual #	#Hom
2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD 0,00D	6.39 136	1.77 2.88 3.27 4.25 3.70 - J	- - 0.0639 0.0136	Total Tetra-Dioxins Total Penta-Dioxins Total Hexa-Dioxins Total Hepta-Dioxins	- - 21.3	1.77 2.88 5.79	J	0 0 2
2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 0,20F	-	1.33 3.57 3.70 1.42 1.26 1.13 1.73 1.74 2.36 4.44		Total Tetra-Furans Total Penta-Furans Total Hexa-Furans Total Hepta-Furans	-	1.33 3.76 1.73 2.36		0 0 0 0
Internal Standards	% Rec Q	C Limits Qual						
13C-2,3,7,8-TCDD 13C-1,2,3,7,8-PeCDD 13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HyCDD 13C-0CDD	75.2 25 63.8 32 64.8 28 58.9 23	5.0 - 164 5.0 - 181 2.0 - 141 3.0 - 130 3.0 - 140 7.0 - 157						
13C-2,3,7,8-TCDF 13C-1,2,3,7,8-PeCDF 13C-2,3,4,7,8-PeCDF 13C-1,2,3,4,7,8-HxCDF 13C-1,2,3,6,7,8-HxCDF 13C-2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HpCDF 13C-1,2,3,4,6,7,8-HpCDF 13C-1,2,3,4,6,7,8-HpCDF 13C-0,2,5,4,6,7,8-HpCDF	69.8 24 70.8 21 71.4 26 70.6 26 81.6 28 71.2 29 67.8 28 62.4 26	0.0 - 169 0.0 - 185 0.0 - 178 0.0 - 152 0.0 - 136 0.0 - 136 0.0 - 147 0.0 - 143 0.0 - 138 0.0 - 157						
Cleanup Surrogate								
37CI-2,3,7,8-TCDD	113 35	.0 - 197						
Analyst:				Reviewe	d By:	\rightarrow		

Date: 3/30/05

3/30/05 Date:

000008 of 000011

SUBCONTRACT ORDER

Alpha Analytical Laboratories	, Inc
A503426	

SENDING LABORATORY:RECEIVING LABORATORY:Alpha Analytical Laboratories, Inc.Frontier Analytical Laboratory208 Mason St.5172 Hillsdale CircleUkiah, CA 95482El Dorado, CA 95762Phone: (707)468-0401Phone :916-934-0900Fax: (707)468-5267Fax: 916-934-0999Project Manager:Sheri L. SpeaksTerms: Net 30

Analysis	Due	Expires	Comments
A503426-01 MW-02-200	503 [Water] Sam	pled 03/11/05 07:40 Pa	cific
Dioxins Full List	03/25/05 12:00	03/11/06 07:40	
Containers Supplied:			
1L Amber- Unpres. (A)	1L Amber- Unpre	s. (B)	
A503426-02 MW-01-200	503 [Water] Sam	pled 03/11/05 08:50 Pa	cific
Dioxins Full List	03/25/05 12:00	03/11/06 08:50	
Containers Supplied:			
1L Amber- Unpres. (A)	1L Amber- Unpre	s. (B)	
Report to State			
System Name		E E E E E E E E E E E E E E E E E E E	
User ID:		Sampler:	
System Number:			

3/15/04 Date 07:50 .1505 Released By Date Received Date Released By Received By Date 000009 of 000011

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Frontier Analytical Laboratory

Sample Login Form

FAL Project ID: 3154

Client:	Alpha Analytical Laboratories, Inc.
Client Project ID:	A503426
Date Received:	03/15/2005
Time Received:	07:50 am
Received By:	BS
Logged In By:	KZ
# of Samples Received:	2
Duplicates:	2
Storage Location:	R1

Method of Delivery:	California Overnight
Tracking Number:	C100219700001242
Shipping Container Received Intact	Yes
Custody seals(s) present?	No
Custody seals(s) intact?	No
Sample Arrival Temperature (C)	1
Cooling Method	Blue Ice
Chain Of Custody Present?	Yes
Return Shipping Container To Client	Yes
Test for residual Chlorine	Yes
Thiosulfate Added	No
Earliest Sample Hold Time Expiration	03/13/2006
Adequate Sample Volume	Yes
Anomalies or additional comments:	

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000011 of 000011

Date: MARCH 11, 2005 Page 1 01 1		אני (S), Water (W) וופרפל ססופל סי סו לסחוצותפרs בפפריפל סי סו לסחוצותפרs בפפריפל סי סו לסחוצותפרs בפפריפל		×							io. of Containers \mathcal{H}	(Signature): Date: Method of Shippedk	Time: Laboratory Comments and Log	A503426	Date:	Time: Consultants	
	ANALI JEJ	iii Scan) iii Scan) A Method 8021 A Method 8021 A Method 8020 Method 8270 Method 8270 Method 8270 Method 8270 Method 8275 Method 8015m (Motor Oll) Method 8015m (M									TURNATIONA TIME: Results to: STAN 2.44 D. A. Ross STEENSON Total No. of	Hand A (Sighable): Date: Relinquished by (Signature):	Time: Printed Name: Printed Name:		Received by:	rinted Name I Printed Name:	
Shain-of Custody	FIDED NO.: 7327	Samplers (Signature.) Mach K.U. Man Manual Sample Number America 6021	MW-02-70060	0850 MW-01-2005	 /						Laboratory: Mil HA MMAYTICAL LABOMATORIES	Religouisted by Signature): Date: Rel		1 1 1200	WHAN Date:	Princed Anny / Tay and Time: Prin	

K PRIME, INC.	SAMPLE ID:	MW-01-200503
LABORATORY REPORT	LAB NO:	50039
	SAMPLE TYPE:	WATER
K PRIME PROJECT: 9984	DATE SAMPLED:	03/11/05
CLIENT PROJECT: A503419	TIME SAMPLED:	8:50
	BATCH ID:	032305W01
METHOD: DISSOLVED GASES REFERENCE: RSK 175	DATE ANALYZED; UNITS:	3/23/05 µg/L
COMPOUND NAME	CAS NO. REPORTING	SAMPLE
CARBON DIOXIDE	124-38-9 165	257924

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT, NA - NOT APPLICABLE OR AVAILABLE.

APPROVED BY: ___ 4/12/03 DATE:



APPENDIX C Laboratory Data Quality Review



APPENDIX C

LABORATORY DATA QUALITY REVIEW

Geomatrix reviewed quality assurance and quality control (QA/QC) procedures to assess quality of the analytical results by evaluating the precision, accuracy, and completeness of the data. Data quality was reviewed using U.S. Environmental Protection Agency *National Functional Guidelines for Organic Data Review* (U.S. EPA, 1999), *for Chlorinated Dioxin/Furan Data Review* (U.S. EPA, 2002), and *for Inorganic Data Review* (U.S. EPA, 2004).

PRECISION

Data precision is evaluated by comparing analytical results for the following:

- primary and (blind) duplicate field samples
- matrix spike (MS) and matrix spike duplicate (MSD) concentrations
- laboratory control sample (LCS) and laboratory control sample duplicate (LCSD)

Concentrations detected in the primary or spiked samples are compared with respective concentrations in duplicate or duplicate spiked samples. Relative percent differences (RPDs) are used to calculate results, using the following equation:

$$RPD = \frac{[S-D]}{(S+D)/2} \times 100$$

Where,

S = Sample concentration

D = Duplicate sample concentration

RPDs for primary and duplicate field samples are calculated in Table C-1. RPDs are only calculated when primary and duplicate sample concentrations are greater than or equal to two times the laboratory reporting limits. In cases where the detection in either the primary or duplicate sample, or both, are less than two times the reporting limit, the absolute difference between the primary and duplicate sample concentration is calculated. RPDs for MS/MSD and LCS/LCSD analyses are reported in laboratory analytical reports, included in Appendix B.



The RPDs between the primary (MW-21) and the duplicate (BD-01) field samples were extremely variable for selected constituents (tetrachlorophenols, hepta-chlorinated dioxin congeners, octa-chlorinated dioxin congeners, and total TEQ [as a consequence of the highest concentration congeners being variable], but were consistent for the primary chemical of concern (PCP) and other constituents (see Table C-1). This extreme variability has been observed previously with field duplicates collected at this and other locations.

ACCURACY

Data accuracy is assessed by evaluating holding times required by analytical methods, sample preservation, laboratory method blank results, recovery of laboratory surrogates, MS/MSD results, and LCS/LCSD results. We evaluated these criteria for samples collected for the groundwater monitoring program. Results of the review are summarized below.

- **Hold times.** Samples were analyzed within the holding time for each analytical method, except for the dissolved gases. Because these results are similar to the previous event, these data are considered satisfactory.
- **Preservation.** Samples were collected in laboratory-supplied containers with preservatives, if applicable. Samples were stored and transported to analytical laboratories in chilled coolers.
- **Method blanks.** No detections were observed in any of the method blanks analyzed by the laboratory.
- **Surrogate recoveries.** Laboratory surrogates were recovered at concentrations within acceptable ranges.
- MS/MSD analysis. RPDs were acceptable.
- LCS/LCSD analysis. RPDs were acceptable.

COMPLETENESS

Based on our laboratory data quality review, data contained in this report are considered complete and representative.



TABLE C-1RELATIVE PERCENT DIFFERENCESBETWEEN DUPLICATE SAMPLES

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

Samples collected on March 10, 2005						
	Reporting	Sample Concentration	Duplicate Sample Concentration	Relative Percent		
Constituent	Limit ¹	MW-21	BD-01	Difference ²		
Chlorinated Phenols by Canadi		reported in microgra	ms per liter $[\mu g/L]$) ³			
PCP	1000	4,700	4,600	2.2%		
2,3,4,5-TeCP	1.5/1.0	ND	6.5			
2,3,4,6-TeCP	10	31	86	94.0%		
2,3,5,6-TeCP	1.0/10	8.1	26	105.0%		
2,4,6-TCP	1.0	ND	2.7			
Chlorinated Phenols by EPA M	ethod 8270 SIM (reported in $\mu g/L$) ⁴				
PCP	1	5,500	5,500	0.0%		
2,3,4,5-TeCP	1	4	4	0.0%		
2,3,4,6-TeCP	1	27	27	0.0%		
2,3,5,6-TeCP	1	109	110	0.9%		
3,4,5-TCP	1	250	250	0.0%		
3,4-DCP	1	310	310	0.0%		
3,5-DCP	1	19	20	5.1%		
2,4,5-TCP	1	5	5	0.0%		
3 + 4-Chlorophenol	2	270	270	0.0%		
2,4-DCP	1	2	2	0.0%		
Dioxins & Furans by EPA Meth	od 1613 (reported	in picograms per lite	er [pg/L]) ⁵			
1,2,3,4,7,8-HxCDD	4.13	64.6	ND			
1,2,3,4,6,7,8-HpCDD		79.4	20.4	118.2%		
OCDD		223	522	80.3%		
1,2,3,4,7,8-HxCDF	1.40	1,640	ND			
1,2,3,7,8,9-HxCDF	1.58	26.0	ND			
1,2,3,4,6,7,8-HxCDF	8.57	ND	9.20			
1,2,3,4,7,8,9-HpCDF	1.72	177	ND			
TEQ		176	0.351	199.2%		
Metals by EPA Method 200.7 (r	eported in milligra	ms per liter [mg/L])	3			
Calcium	1.0	29	29	0.0%		
Magnesium	1.0	50	49	2.0%		
Alkalinity by SM 2320B (reported	ed in mg/L) ³					
Total Alkalinity as CaCO ₃	5.0	430	420	2.4%		
Total Organic Carbon by EPA	Method 415.1 (rep	ported in mg/L) ³				
Total Organic Carbon	1.00	18.6	16.4	12.6%		
Anions by EPA Method 300.0 (1	reported in mg/L) 3					
Chloride	5.0	62	62	0.0%		



TABLE C-1RELATIVE PERCENT DIFFERENCESBETWEEN DUPLICATE SAMPLES

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

Samples collected on March 10, 2005						
Constituent	Reporting Limit ¹	Sample Concentration MW-21	Duplicate Sample Concentration BD-01	Relative Percent Difference ²		
Dissolved Gases by Method RSK175 (reported in mg/L) ⁶						
Methane	0.00158	7.387	7.762	5.0%		
Carbon Dioxide	0.165	179.097	164.916	8.2%		
Dissolved Metals by EPA Method 6010B (reported in mg/L) ⁷						
Manganese	0.0050	2.7	2.7	0.0%		
Iron	0.20	69.0	69.0	0.0%		

Notes:

1. The reporting limit is presented as the reporting limit for MW-21/BD-01 for the listed constituent when the laboratory chose to use different dilutions with which to analyze the respective samples.

2. RPD calculated as ([2(S-D)]/[S+D]) x 100 where S is the sample concentration and D is the blind duplicate sample concentration. For sample concentrations less than two times the reporting limit, the absolute difference between the sample concentration and the blind duplicate sample is calculated.

3. Analyzed by Alpha Analytical Laboratory, of Ukiah, California.

4. Analyzed by Friedman & Bruya, Inc. Environmental Chemists, of Seattle, Washington.

5. Analyzed by Frontier Analytical Laboratory, of El Dorado Hills, California.

6. Analyzed by K-Prime Inc., of Santa Rosa, California.

7. Analyzed by Severn Trent Laboratories, Inc., of Pleasanton, California.

Abbreviations:

PCP = pentachlorophenol

TeCP = tetrachlorophenol

TCP = trichlorophenol

TEQ = toxicity equivalence