



Groundwater Monitoring and Progress Report Third Quarter 2004

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

Prepared for:

Sierra Pacific Industries

October 15, 2004

Project No. 9329, Task 22

Geomatrix Consultants

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October 15, 2004
Project 9329, Task 22

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
Third Quarter 2004
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.

A handwritten signature in cursive script, appearing to read 'Ross Steenson'.

Ross Steenson, C.H.G.
Senior Hydrogeologist

A handwritten signature in cursive script, appearing to read 'Edward P. Conti'.

Edward P. Conti, C.E.G., C.H.G.
Principal Geologist

RAS/EPC/abr
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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:

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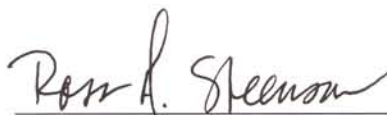
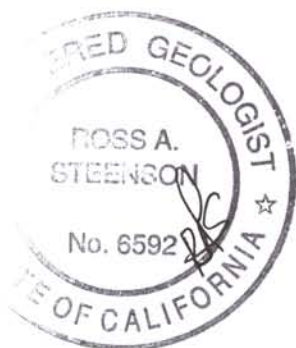
PROFESSIONAL CERTIFICATION

GROUNDWATER MONITORING AND PROGRESS REPORT THIRD QUARTER 2004

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

October 15, 2004
Project No. 9329.000, Task 22

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, C.H.G.
Senior Hydrogeologist

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GROUNDWATER MONITORING AND PROGRESS REPORT
THIRD QUARTER 2004
Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

1.0 INTRODUCTION

This report presents the methods and results of groundwater monitoring and pilot study activities performed at the Sierra Pacific Industries (SPI) Arcata Division Sawmill, located in Arcata, California (the site, Figure 1) during the third calendar quarter 2004. The quarterly groundwater monitoring activities were performed in accordance with Monitoring and Reporting Program (MRP) No. R1-2003-0127, issued by the California Regional Water Quality Control Board, North Coast Region (RWQCB) on November 13, 2003. The pilot study activities were performed in accordance with the *Pilot Study Work Plan for Implementation of Proposed Remedial Action* (Geomatrix, 2004b). The pilot study work plan was approved by RWQCB staff in a letter dated June 1, 2004.

Geomatrix Consultants, Inc. (Geomatrix) has prepared this report on behalf of SPI. This report is organized as follows:

- Background, including a discussion of site history, subsurface lithology, and hydrogeology, is presented in Section 2.0.
- Third Quarter 2004 Groundwater Monitoring Report methods and results are presented in Section 3.0.
- Progress Report on Pilot Study Activities is presented in Section 4.0.
- Schedule of the planned monitoring and pilot study activities is presented in Section 5.0.
- References used in preparation of this report are listed in Section 6.0.

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, inland from the northern shoreline of Humboldt Bay and approximately 4 miles west of the town of Arcata, California. The site is bounded to the north and 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 anti-stain solution containing chlorinated phenols, including pentachlorophenol (PCP) and tetrachlorophenol, to control sap stain and mold on a small amount of milled lumber. The anti-stain solution was applied in an aboveground 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, 2003b). 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 5.5 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 deep 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, 2003b).

3.0 GROUNDWATER MONITORING REPORT

This section presents field and laboratory methods and results of groundwater monitoring activities conducted during this calendar quarter.

3.1 METHODS

3.1.1 Field Methods

Depth to water was measured on August 30, 2004, in all site monitoring wells (MW-1 through MW-21; Figure 3) and at a monitoring point in the Mad River Slough using an Envirotech Ltd. Waterline Model 150 meter (Table 2). Water levels were measured in these wells on the same day as sampling, before conducting groundwater sampling activities. Monitoring wells were gauged in sequence, generally 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 a Liquinox[®] detergent solution and then rinsed three consecutive times with distilled water.

Seven monitoring wells (MW-2, MW-6 through MW-9, MW-20, and MW-21) were purged and sampled on August 30, 2004, in accordance with the site MRP. Field personnel used dedicated, disposable Teflon[®] bailers to purge groundwater and remove standing water in the well casing, except for monitoring well MW-21, where a peristaltic pump and disposable tubing were used due to the small diameter of this well casing. Field personnel measured and

recorded readings of temperature and specific conductance on field sampling records during groundwater purging activities. Purging activities stopped when a minimum of three well casing volumes of water had been removed, or three pore-tube volumes at monitoring well MW-21, and water quality parameters stabilized to within approximately 10 percent of specific conductance and 1 degree Celsius for temperature. Groundwater quality was not monitored for pH this quarter because the pH meter was inoperable. Copies of the field records for groundwater monitoring and sampling activities are included in Appendix A.

After purging, groundwater within each well was allowed to recover to more than 80 percent of the height of the initial water column measured prior to purging. Groundwater was sampled after it recovered. Groundwater samples were collected upon recharge, if applicable, using the dedicated Teflon[®] bailers and, for monitoring well MW-21, the peristaltic pump and new tubing. A field sample of groundwater was monitored for temperature, specific conductance, and total dissolved solids (TDS) just prior to collecting the groundwater sample to record water quality parameters of the groundwater being sampled. These field parameter measurements are summarized in Table 3; laboratory analytical results for TDS also are shown in this table.

Groundwater collected from each of the seven monitoring wells was placed in two 125-milliliter glass vials that were sealed with Teflon[®]-lined screw caps and a 1-quart plastic bottle that was sealed with a plastic screw cap. After filling, the vials and bottles 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 MW-A. This sample was placed in two additional 125-milliliter glass vials sealed with Teflon[®]-lined screw caps and sent to the laboratory as described above.

3.1.2 Laboratory Methods

Groundwater samples collected from monitoring wells MW-2 through MW-21 were analyzed at Alpha Analytical Laboratories, Inc. (Alpha), of Ukiah, California, an analytical laboratory certified by the California Department of Health Services. Analyses included the following:

- Total dissolved solids (TDS) [Environmental Protection Agency (EPA) Method 160.1]
- Chlorinated phenols (consisting of PCP, three tetrachlorophenols, and one trichlorophenol) [Canadian Pulp Method]

Results of laboratory analyses for these constituents are included in Appendix B and discussed in the following section.

3.2 LABORATORY DATA QUALITY REVIEW

Geomatrix reviewed the quality of laboratory data generated for the quarterly 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.

3.3 RESULTS OF GROUNDWATER MONITORING

Monitoring and sampling results from site wells include data obtained from 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 laboratory analysis and field measurements of TDS and on laboratory analysis of chlorinated phenols. The results are presented below.

3.3.1 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 0.71 to 5.07 feet below the measuring point, with associated groundwater elevations ranging from 4.54 to 10.03 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 0.007 foot/foot in the former green chain vicinity as much as approximately 0.04 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, 2003b) 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 4.13 to 5.83 feet below the measuring point with

associated groundwater elevations ranging from 5.36 to 6.46 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 from approximately 0.008 to 0.009 foot/foot.

3.3.2 Groundwater Analytical Results

Seven groundwater monitoring wells were sampled during this period (MW-2, MW-6 through MW-9, MW-20, and MW-21). Laboratory analytical reports and chain-of-custody records are included in Appendix B. Both field-measured and laboratory-analysis TDS results are presented in Table 3. The results for the chlorinated phenol analyses (consisting of PCP, three tetrachlorophenols [2,3,5,6-tetrachlorophenol, 2,3,4,6-tetrachlorophenol, and 2,3,4,5-tetrachlorophenol] and one trichlorophenol [2,4,6-trichlorophenol]) are presented in Table 4. PCP results also are illustrated on Figure 6 (shallow groundwater).

The TDS results for the laboratory analyses ranged from 300 to 680 milligrams per liter (mg/L). The TDS results for the field measurements ranged from 334 to 850 mg/L. The field-measured TDS results are higher than laboratory measurements by 34 to 210 mg/L per sample.

Trichlorophenol was not detected in any groundwater samples. PCP and tetrachlorophenols were detected in groundwater samples from two of the seven monitoring wells (MW-7 and MW-21; Table 4; PCP is also shown on Figure 6). The detected concentrations of PCP were 13,000 micrograms per liter ($\mu\text{g/L}$) at MW-7 and 2,700 and 2,800 $\mu\text{g/L}$ at MW-21 (for primary and blind duplicate samples, respectively).

3.4 WASTEWATER DISPOSAL

Wastewater was generated from purging groundwater during sampling activities and from cleaning water-level measurement equipment while monitoring groundwater elevations. The purge water and equipment wash water were placed in three steel, 55-gallon drums and labeled. As the drums are filled, SPI arranges for the drums to be disposed by Asbury Environmental Services (Asbury) in accordance with applicable regulations.

During this calendar quarter, Asbury Environmental Services disposed of two drums of purge water. These drums were disposed at the Demenno/Kerdoon facility in Compton, California. A copy of the manifest for these two drums is included in Appendix D.

4.0 PROGRESS REPORT ON PILOT STUDY ACTIVITIES

This section presents a summary of activities performed during the calendar quarter in accordance with the *Pilot Study Work Plan for Implementation of Proposed Remedial Action* (Geomatrix, 2004b). The objectives of the Pilot Study are to: (1) demonstrate that in situ destruction of contaminants is occurring in the subsurface through natural attenuation processes; (2) demonstrate that discharges of wood surface protection chemicals to surface water have been abated; and (3) implement risk management measures to protect current and future personnel working on site from participating in activities that would result in exposure to unacceptable risk.

On August 19, 2004, tracer dilution testing was performed at three wells (MW-2, MW-7, and MW-8) to assess groundwater flow velocity. The estimated rates of groundwater flow velocity for this date are 0.4 to 0.7 foot/day (MW-2), 0.1 to 0.2 foot/day (MW-7), and 2 to 3 feet/day (MW-8). The approach, data collection, and evaluation for the tracer dilution testing are presented in Appendix E.

5.0 SCHEDULE

The next groundwater monitoring and sampling event for the MRP is scheduled to be performed in November 2004. The next planned activities for the pilot study include preparation of the site management plan and groundwater sampling during the first calendar quarter of 2005.

6.0 REFERENCES

- Cal-EPA, 2003, *Adoption of the Revised Toxic Equivalency Factors (TEFWHO-97) for PCDDs, PCDFs, and Dioxin-like PCBs* (memorandum), Office of Environmental Health Hazard Assessment, August 29.
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TABLES



**TABLE 1
MONITORING WELL CONSTRUCTION DETAILS ¹**

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													
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-03	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-03	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, 2003; 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.
- Surface seal interval consists of the concrete surface completion and a neat cement sanitary seal, if applicable.
- 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

TABLE 2



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)
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	
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	
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	

TABLE 2**SUMMARY OF WATER LEVEL MEASUREMENTS**

Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Well No.	Measurement¹ Date	MP Elevation² (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	
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	
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	

TABLE 2



SUMMARY OF WATER LEVEL MEASUREMENTS

Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Well No.	Measurement¹ Date	MP Elevation² (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
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
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
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	

TABLE 2



SUMMARY OF WATER LEVEL MEASUREMENTS

Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Well No.	Measurement¹ Date	MP Elevation² (ft NAVD 88)	Depth to Water (ft bMP)	Water Level Elevation (ft NAVD 88)
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
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
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
MW-17	02-Dec-02	8.98	1.27	7.71
	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
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

TABLE 2



SUMMARY OF WATER LEVEL MEASUREMENTS

Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Well No.	Measurement¹ Date	MP Elevation² (ft NAVD 88)	Depth to Water (ft bMP)	Water Level Elevation (ft NAVD 88)
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
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
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
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
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
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	

TABLE 2



SUMMARY OF WATER LEVEL MEASUREMENTS

Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Well No.	Measurement¹ Date	MP Elevation² (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
	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

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. 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 calculated

TABLE 3
SUMMARY OF WATER QUALITY PARAMETERS

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

Well No.	Date Sampled	Field Measurements ¹				Laboratory Measurement ²
		Temperature (°C)	Specific Conductance (µmohs/cm)	pH (pH Units)	TDS (mg/L)	TDS (mg/L)
Shallow Wells						
MW-1	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
	04-Nov-03	16.9	2,440	6.6	1,800	1,300
	24-Mar-04	--	--	--	--	--
	17-May-04	15	2635	6.3	1899	1,400
MW-2	20-Mar-03	13	2,100	6.2	--	--
	22-May-03	14	1,700	6.4	1100	860
	27-Aug-03	18	1,500	6.6	1,100	760
	03-Nov-03	16.3	1,590	6.3	1,125	760
	24-Mar-04	13.4	1,390	6.3	973	740
	17-May-04	14.8	1,437	6.2	982	730
	30-Aug-04	19.1	1,215	-- ³	850	680
MW-3	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
	03-Nov-03	16.3	986	6.6	--	410
	24-Mar-04	--	--	--	--	--
	17-May-04	15.7	1108	6.2	750	510
MW-4	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
	03-Nov-03	17.8	758	6.6	516	310
	24-Mar-04	--	--	--	--	--
	17-May-04	17.7	884	6.2	590	360
MW-5	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
	03-Nov-03	17.2	661	6.6	450	380
	24-Mar-04	--	--	--	--	--
	17-May-04	15.2	662	6.3	438	360
MW-6	20-Mar-03	11	950	6.6	--	--
	22-May-03	14	1,000	6.3	620	430
	27-Aug-03	17	890	6.4	620	410
	04-Nov-03	12.8	918	6.6	634	430
	24-Mar-04	11	925	6.5	640	410
	17-May-04	13.6	933	6.3	645	420
	30-Aug-04	17.2	883	-- ³	610	430

TABLE 3
SUMMARY OF WATER QUALITY PARAMETERS

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

Well No.	Date Sampled	Field Measurements ¹				Laboratory Measurement ²
		Temperature (°C)	Specific Conductance (µmohs/cm)	pH (pH Units)	TDS (mg/L)	TDS (mg/L)
MW-7	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	12.4	869	6.6	597	460
	24-Mar-04	10.7	955	6.4	--	440
	18-May-04	11.9	733	6.6	486	370
	30-Aug-04	14.3	842	-- ³	580	410
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	17.2	745	6.4	507	380
	24-Mar-04	14.2	777	6.2	530	400
	17-May-04	17.6	795	6.1	528	390
	30-Aug-04	21	756	-- ³	517	390
MW-9	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	16.7	821	6.6	563	350
	24-Mar-04	13.9	878	6.4	604	380
	17-May-04	16.1	927	6.1	621	380
	30-Aug-04	19.8	857	-- ³	550	440
MW-10	18-Mar-03	14	920	6.4	--	--
	23-May-03	17	970	6.7	--	460
	27-Aug-03	22	860	6.3	600	400
	04-Nov-03	17.9	878	6.6	604	430
	24-Mar-04	--	--	--	--	--
	17-May-04	18.7	920	6.2	613	420
MW-11	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
	04-Nov-03	18.6	877	6.6	600	450
	24-Mar-04	--	--	--	--	--
	17-May-04	18.1	878	6.2	586	430
MW-12	18-Mar-03	15	830	6.3	--	--
	21-May-03	18	840	6.1	--	460
	27-Aug-03	23	870	6.2	600	480
	04-Nov-03	18.1	916	6.5	631	480
	24-Mar-04	--	--	--	--	--
	17-May-04	19.7	905	6.0	605	490

TABLE 3
SUMMARY OF WATER QUALITY PARAMETERS
 Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Well No.	Date Sampled	Field Measurements ¹				Laboratory Measurement ²
		Temperature (°C)	Specific Conductance (µmohs/cm)	pH (pH Units)	TDS (mg/L)	TDS (mg/L)
MW-14	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
	04-Nov-03	15.9	3,330	6.6	2,520	2,100
	24-Mar-04	--	--	--	--	--
	17-May-04	16.9	2824	6.4	2046	1,800
MW-17	20-Mar-03	13	980	6.4	--	--
	22-May-03	15	1,000	6.5	--	450
	27-Aug-03	19	860	7.0	600	420
	04-Nov-03	14.9	920	6.6	635	450
	24-Mar-04	--	--	--	--	--
	17-May-04	15.3	944	6.5	620	440
MW-18	18-Mar-03	14	1,000	6.5	--	--
	23-May-03	17	980	6.6	610	640
	27-Aug-03	23	1,100	6.3	780	520
	04-Nov-03	16.7	1,092	6.6	760	490
	24-Mar-04	--	--	--	--	--
	17-May-04	19.4	995	6.3	670	430
MW-20	24-Mar-04	13.6	425	6.9	284	250
	18-May-04	18.3	469	6.7	306	280
	30-Aug-04	20.8	496	-- ³	334	300
MW-21	24-Mar-04	11.7	987	6.3	683	460
	18-May-04	13.5	1003	6.3	663	420
	30-Aug-04	16.1	957	-- ³	660	450
Deep Wells						
MW-13D	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
	04-Nov-03	14.8	1,020	6.1	--	580
	24-Mar-04	--	--	--	--	--
	17-May-04	13.8	1035	5.8	698	610
MW-15D	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
	04-Nov-03	14	1,290	6.8	--	790
	24-Mar-04	--	--	--	--	--
	17-May-04	13.4	1,360	6.3	928	800

TABLE 3
SUMMARY OF WATER QUALITY PARAMETERS
 Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Well No.	Date Sampled	Field Measurements ¹				Laboratory Measurement ²
		Temperature (°C)	Specific Conductance (µmhos/cm)	pH (pH Units)	TDS (mg/L)	TDS (mg/L)
MW-16D	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
	04-Nov-03	15.5	4,770	7.6	3,700	2,800
	24-Mar-04	--	--	--	--	--
	17-May-04	14.9	4,562	7.3	3,457	2,800
MW-19D	20-Mar-03	16	810	6.7	--	--
	22-May-03	16	860	6.6	520	480
	27-Aug-03	17	810	6.5	560	410
	03-Nov-03	16.9	759	6.7	517	370
	24-Mar-04	--	--	--	--	--
	17-May-04	15.9	843	6.5	562	430

Notes:

1. Water quality parameters measured in the field using an Ultrameter instrument or a flow through cell and 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.
3. pH meter inoperable.

Abbreviations:

°C = degrees Celsius

µmhos/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

TABLE 4
LABORATORY ANALYTICAL RESULTS FOR CHLORINATED PHENOLS
 Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Concentrations in micrograms per liter (µg/L)

Monitoring Well Number	Date Sampled ¹	Penta-chlorophenol	2,4,6-trichloro-phenol	2,3,5,6-tetrachloro-phenol	2,3,4,6-tetrachloro-phenol	2,3,4,5-tetrachloro-phenol	Comments
Shallow Wells							
MW-1	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	
	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	
	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	--	--	--	--	--	
17-May-04	<1.0	<1.0	<1.0	<1.0	<1.0		
MW-2	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	
	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		
MW-3	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	
	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	
	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	--	--	--	--	--	
17-May-04	<1.0	<1.0	<1.0	<1.0	<1.0		

TABLE 4
LABORATORY ANALYTICAL RESULTS FOR CHLORINATED PHENOLS

Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Concentrations in micrograms per liter (µg/L)

Monitoring Well Number	Date Sampled ¹	Penta-chlorophenol	2,4,6-trichloro-phenol	2,3,5,6-tetrachloro-phenol	2,3,4,6-tetrachloro-phenol	2,3,4,5-tetrachloro-phenol	Comments
MW-4	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	
	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	
	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	--	--	--	--	--	
17-May-04	<1.0	<1.0	<1.0	<1.0	<1.0		
MW-5	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	
	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	
24-Mar-04	--	--	--	--	--		
17-May-04	<1.0	<1.0	<1.0	<1.0	<1.0		
MW-6	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	
	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	
	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		

TABLE 4
LABORATORY ANALYTICAL RESULTS FOR CHLORINATED PHENOLS

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

Concentrations in micrograms per liter (µg/L)

Monitoring Well Number	Date Sampled ¹	Penta-chlorophenol	2,4,6-trichloro-phenol	2,3,5,6-tetrachloro-phenol	2,3,4,6-tetrachloro-phenol	2,3,4,5-tetrachloro-phenol	Comments
MW-7	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
	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		
MW-8	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	
	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		

TABLE 4
LABORATORY ANALYTICAL RESULTS FOR CHLORINATED PHENOLS

Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Concentrations in micrograms per liter (µg/L)

Monitoring Well Number	Date Sampled ¹	Penta-chlorophenol	2,4,6-trichloro-phenol	2,3,5,6-tetrachloro-phenol	2,3,4,6-tetrachloro-phenol	2,3,4,5-tetrachloro-phenol	Comments
MW-9	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	
	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		
MW-10	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	
	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	--	--	--	--	--	
17-May-04	<1.0	<1.0	<1.0	<1.0	<1.0		
MW-11	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	
	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	--	--	--	--	--	
17-May-04	<1.0	<1.0	<1.0	<1.0	<1.0		
MW-12	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	
	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	--	--	--	--	--	
	17-May-04	<1.0	<1.0	<1.0	<1.0	<1.0	

TABLE 4
LABORATORY ANALYTICAL RESULTS FOR CHLORINATED PHENOLS

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

Concentrations in micrograms per liter (µg/L)

Monitoring Well Number	Date Sampled ¹	Penta-chlorophenol	2,4,6-trichloro-phenol	2,3,5,6-tetrachloro-phenol	2,3,4,6-tetrachloro-phenol	2,3,4,5-tetrachloro-phenol	Comments	
MW-14	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		
	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	--	--	--	--	--		
	17-May-04	<1.0	<1.0	<1.0	<1.0	<1.0		
MW-17	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		
	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	--	--	--	--	--		
MW-18	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		
	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		
	4-Nov-03	--	--	--	--	--		
MW-20	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		
	30-Aug-04	<1.0	<1.0	<1.0	<1.0	<1.0		
	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	
MW-21	30-Aug-04	2,700	<1.0	6.4	66	5.4		
	30-Aug-04	2,800	<1.0	6.9	68	5.5	duplicate sample	
	Deep Wells							
	MW-13D	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		
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		--	--	--	--	--		
17-May-04		<1.0	<1.0	<1.0	<1.0	<1.0		

TABLE 4
LABORATORY ANALYTICAL RESULTS FOR CHLORINATED PHENOLS

Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Concentrations in micrograms per liter (µg/L)

Monitoring Well Number	Date Sampled ¹	Penta-chlorophenol	2,4,6-trichloro-phenol	2,3,5,6-tetrachloro-phenol	2,3,4,6-tetrachloro-phenol	2,3,4,5-tetrachloro-phenol	Comments
MW-15D	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	
	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	--	--	--	--	--	
	17-May-04	<1.0	<1.0	<1.0	<1.0	<1.0	
MW-16D	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	
	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	--	--	--	--	--	
	17-May-04	<1.0	<1.0	<1.0	<1.0	<1.0	
MW-19D	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	
	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	--	--	--	--	--	
	17-May-04	<1.0	<1.0	<1.0	<1.0	<1.0	

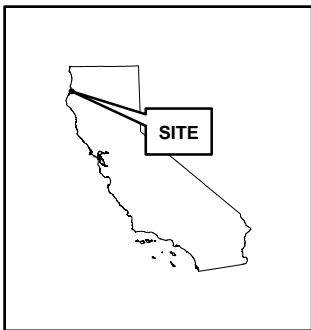
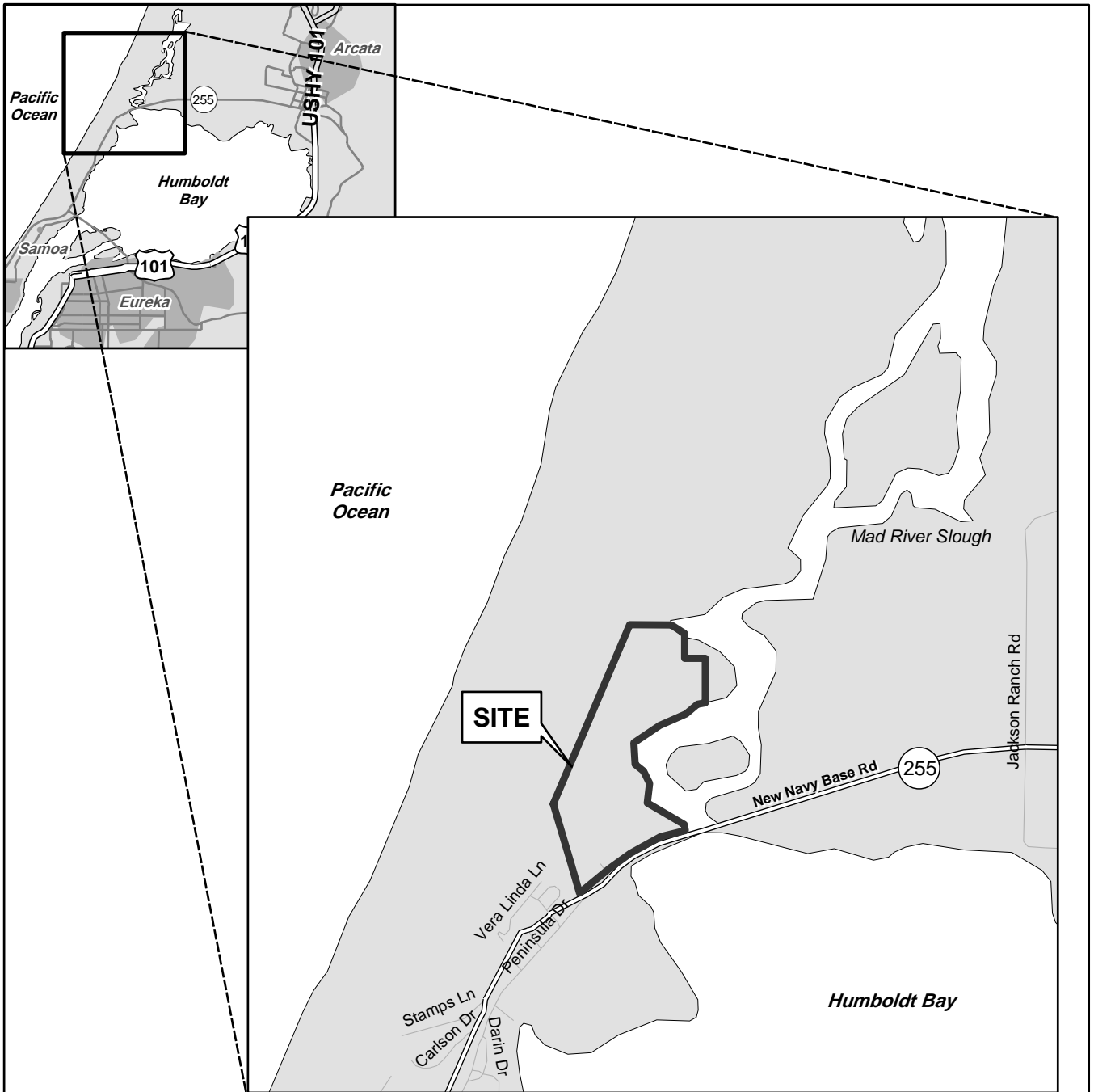
Notes:

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.

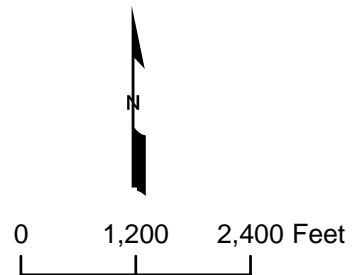
Abbreviation:

- < = target analyte was not detected at or above the laboratory reporting limit shown.
- = not measured or sample not collected for analysis.

FIGURES



California



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SITE LOCATION MAP
Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

Project No.
9329

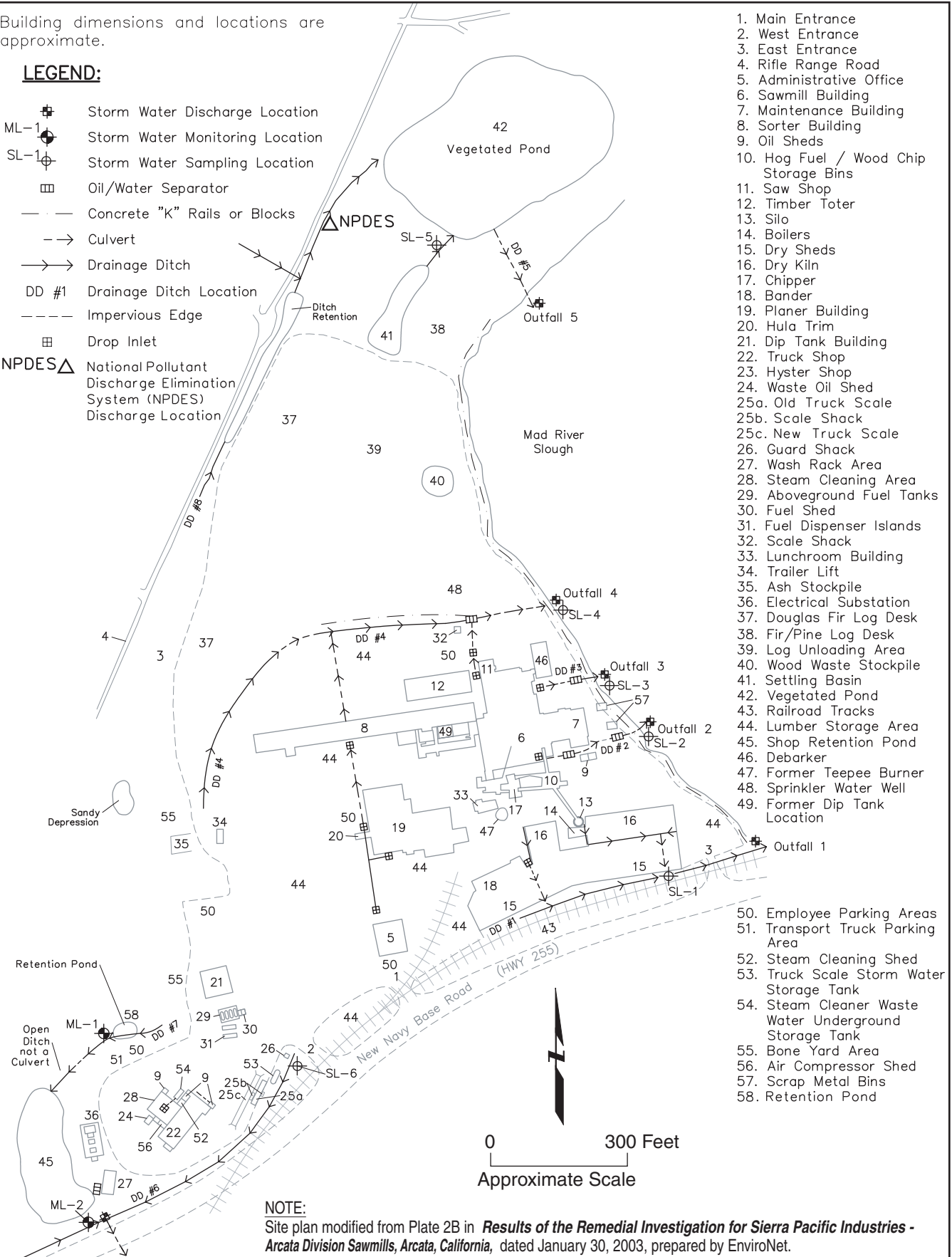
Figure No.
1

Building dimensions and locations are approximate.

LEGEND:

- ⊕ Storm Water Discharge Location
- ML-1 ⊕ Storm Water Monitoring Location
- SL-1 ⊕ Storm Water Sampling Location
- ▣ Oil/Water Separator
- Concrete "K" Rails or Blocks
- - -> Culvert
- Drainage Ditch
- DD #1 Drainage Ditch Location
- - - Impervious Edge
- ⊕ Drop Inlet
- NPDES Δ National Pollutant Discharge Elimination System (NPDES) Discharge Location

1. Main Entrance
2. West Entrance
3. East Entrance
4. Rifle Range Road
5. Administrative Office
6. Sawmill Building
7. Maintenance Building
8. Sorter Building
9. Oil Sheds
10. Hog Fuel / Wood Chip Storage Bins
11. Saw Shop
12. Timber Toter
13. Silo
14. Boilers
15. Dry Sheds
16. Dry Kiln
17. Chipper
18. Bander
19. Planer Building
20. Hula Trim
21. Dip Tank Building
22. Truck Shop
23. Hyster Shop
24. Waste Oil Shed
- 25a. Old Truck Scale
- 25b. Scale Shack
- 25c. New Truck Scale
26. Guard Shack
27. Wash Rack Area
28. Steam Cleaning Area
29. Aboveground Fuel Tanks
30. Fuel Shed
31. Fuel Dispenser Islands
32. Scale Shack
33. Lunchroom Building
34. Trailer Lift
35. Ash Stockpile
36. Electrical Substation
37. Douglas Fir Log Desk
38. Fir/Pine Log Desk
39. Log Unloading Area
40. Wood Waste Stockpile
41. Settling Basin
42. Vegetated Pond
43. Railroad Tracks
44. Lumber Storage Area
45. Shop Retention Pond
46. Debarker
47. Former Teepee Burner
48. Sprinkler Water Well
49. Former Dip Tank Location
50. Employee Parking Areas
51. Transport Truck Parking Area
52. Steam Cleaning Shed
53. Truck Scale Storm Water Storage Tank
54. Steam Cleaner Waste Water Underground Storage Tank
55. Bone Yard Area
56. Air Compressor Shed
57. Scrap Metal Bins
58. Retention Pond



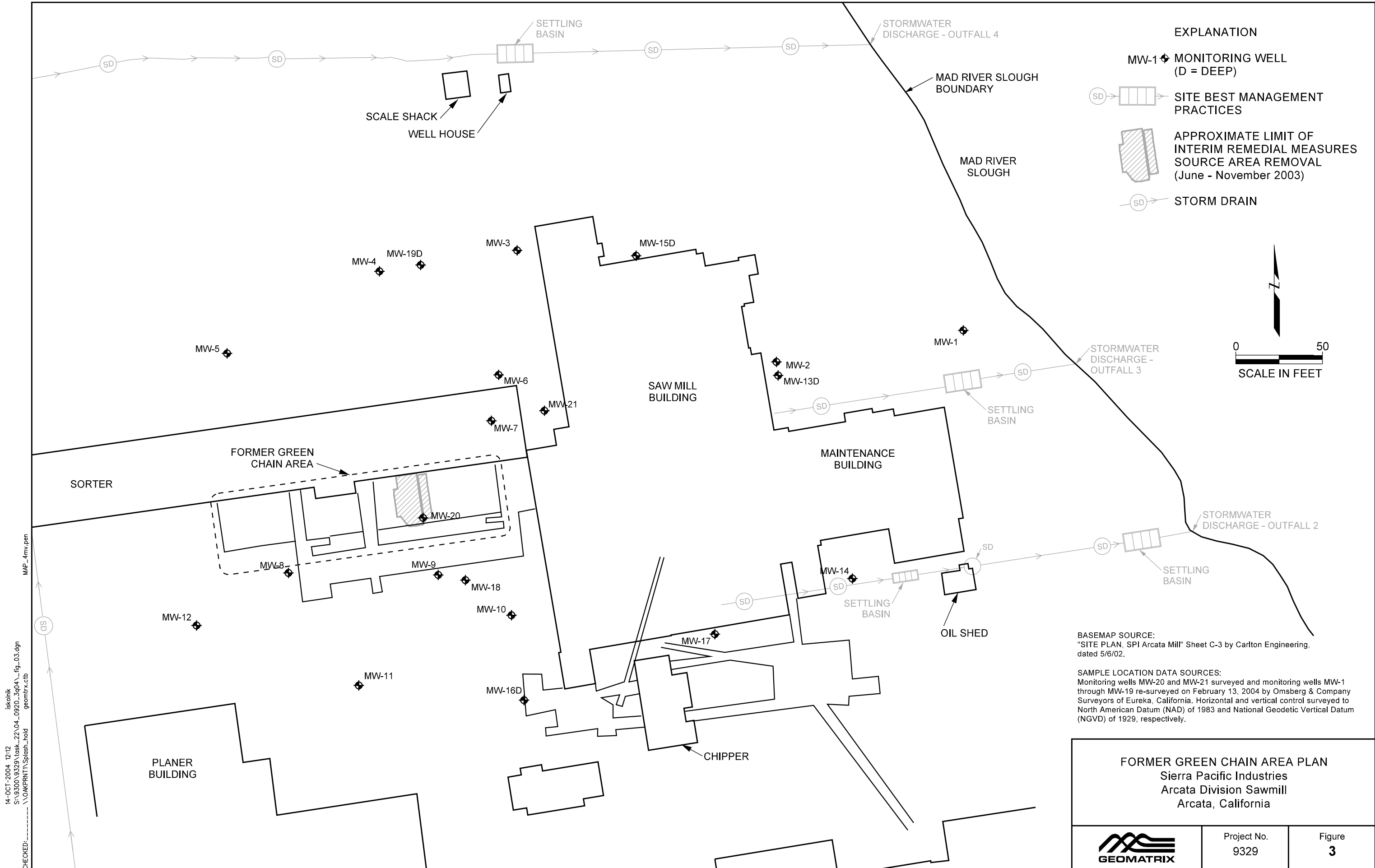
NOTE:
 Site plan modified from Plate 2B in *Results of the Remedial Investigation for Sierra Pacific Industries - Arcata Division Sawmills, Arcata, California*, dated January 30, 2003, prepared by EnviroNet.

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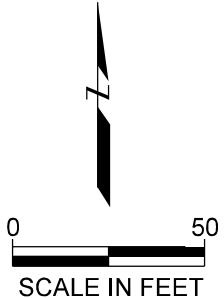
SITE PLAN
 Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Project No. 9329
Figure 2



EXPLANATION

- MW-1 ◆ MONITORING WELL (D = DEEP)
- SD [Symbol] SITE BEST MANAGEMENT PRACTICES
- [Hatched Area Symbol] APPROXIMATE LIMIT OF INTERIM REMEDIAL MEASURES SOURCE AREA REMOVAL (June - November 2003)
- SD [Symbol] STORM DRAIN

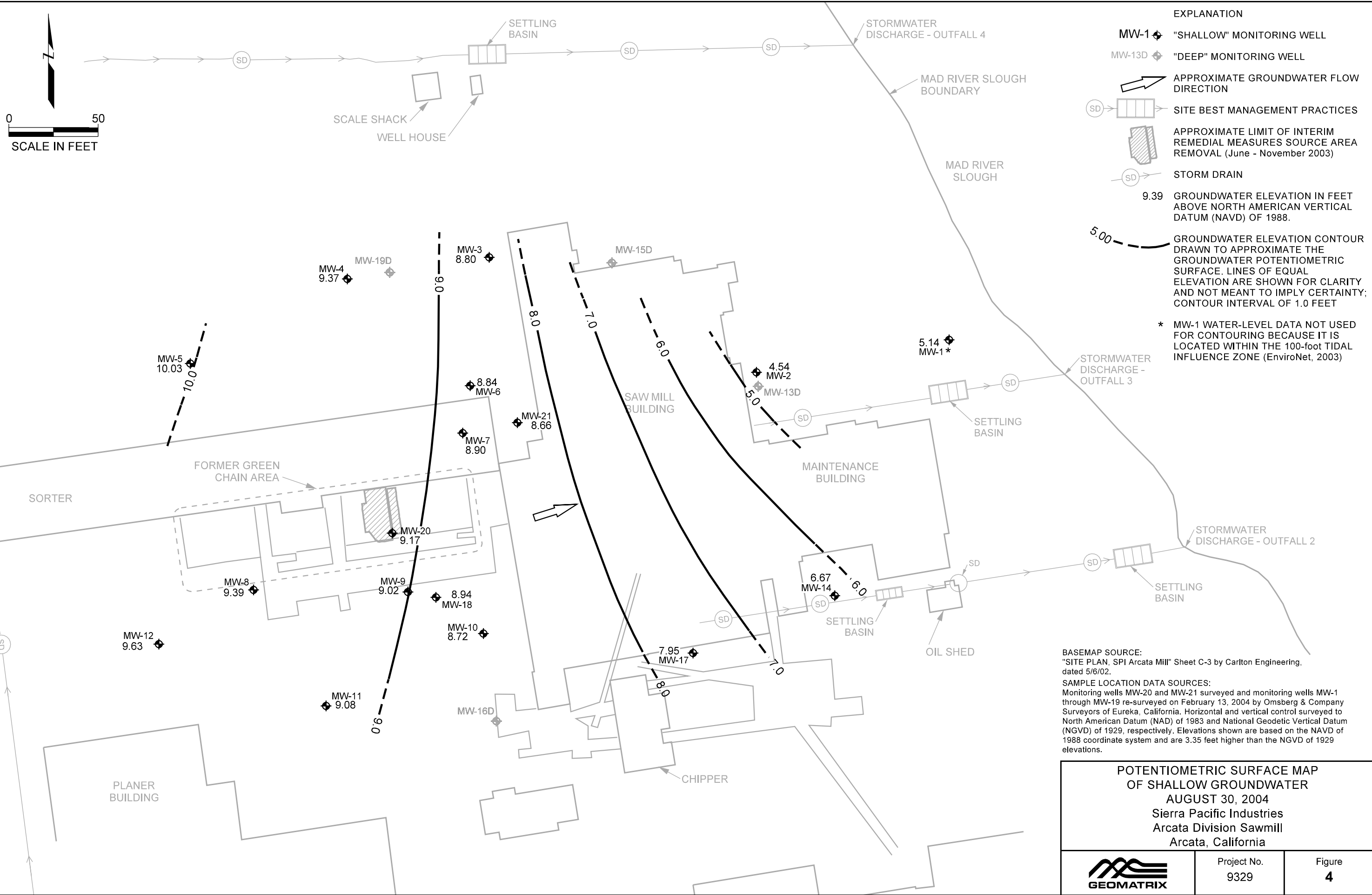


BASEMAP SOURCE:
"SITE PLAN, SPI Arcata Mill" Sheet C-3 by Carlton Engineering, dated 5/6/02.

SAMPLE LOCATION DATA SOURCES:
Monitoring wells MW-20 and MW-21 surveyed and monitoring wells MW-1 through MW-19 re-surveyed on February 13, 2004 by Omsberg & Company Surveyors of Eureka, California. Horizontal and vertical control surveyed to North American Datum (NAD) of 1983 and National Geodetic Vertical Datum (NGVD) of 1929, respectively.

FORMER GREEN CHAIN AREA PLAN Sierra Pacific Industries Arcata Division Sawmill Arcata, California		
 GEOMATRIX	Project No. 9329	Figure 3

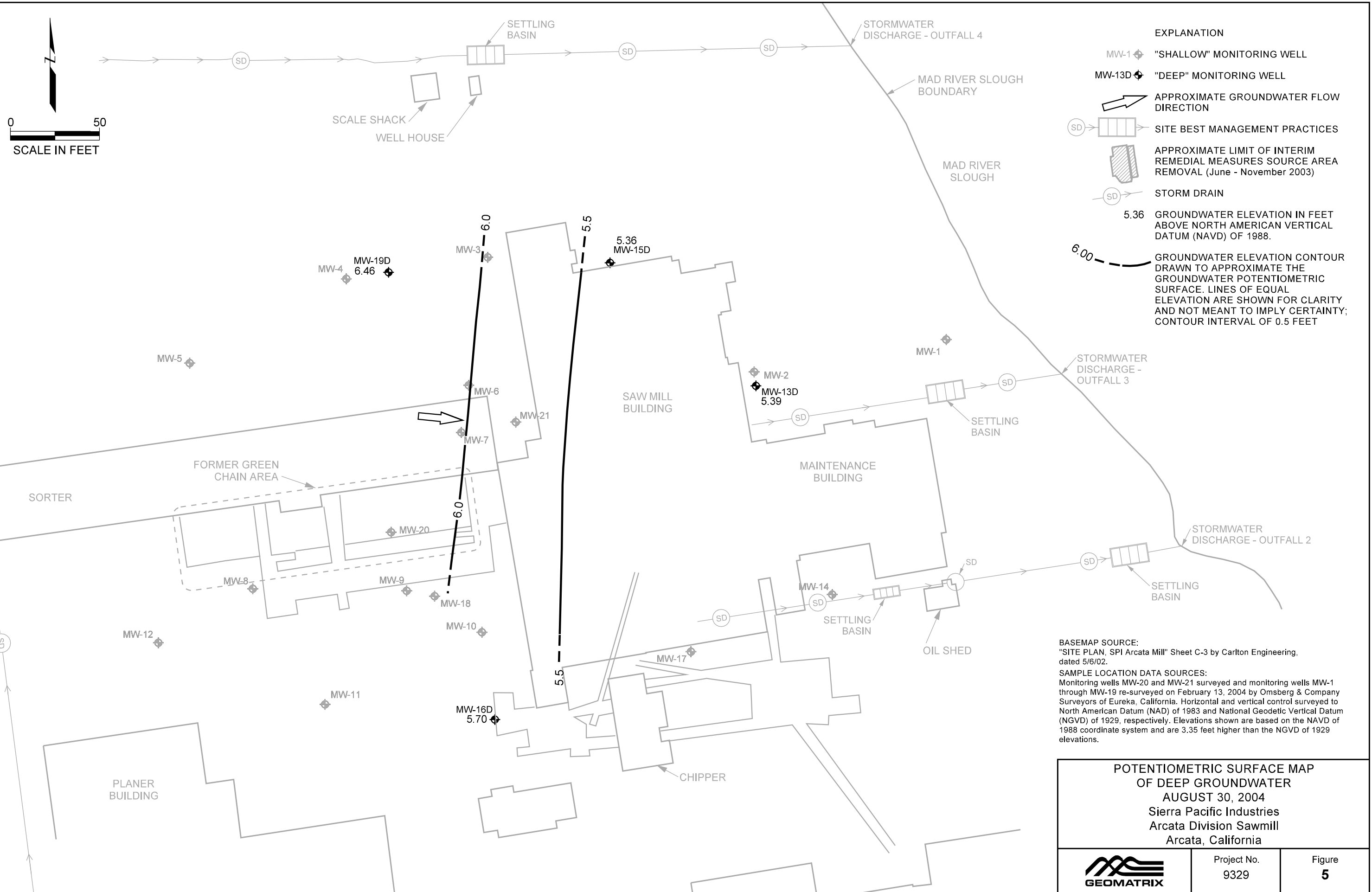
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BASEMAP SOURCE:
 "SITE PLAN, SPI Arcata Mill" Sheet C-3 by Carlton Engineering, dated 5/6/02.
SAMPLE LOCATION DATA SOURCES:
 Monitoring wells MW-20 and MW-21 surveyed and monitoring wells MW-1 through MW-19 re-surveyed on February 13, 2004 by Omsberg & Company Surveyors of Eureka, California. Horizontal and vertical control surveyed to North American Datum (NAD) of 1983 and National Geodetic Vertical Datum (NGVD) of 1929, respectively. Elevations shown are based on the NAVD of 1988 coordinate system and are 3.35 feet higher than the NGVD of 1929 elevations.


POTENTIOMETRIC SURFACE MAP OF SHALLOW GROUNDWATER AUGUST 30, 2004 Sierra Pacific Industries Arcata Division Sawmill Arcata, California		
	Project No. 9329	Figure 4



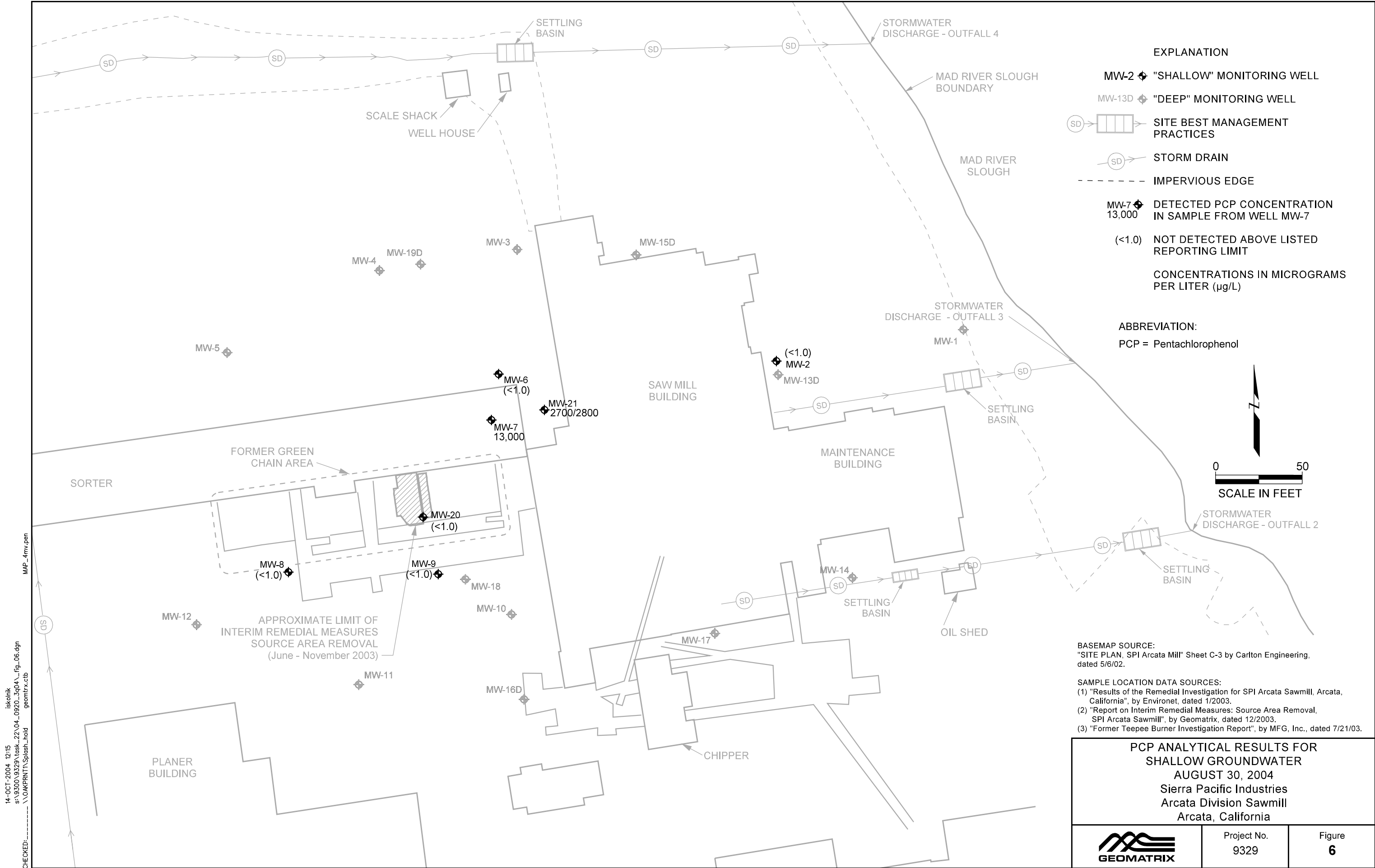
- EXPLANATION**
- MW-1 ◆ "SHALLOW" MONITORING WELL
 - MW-13D ◆ "DEEP" MONITORING WELL
 - ➔ APPROXIMATE GROUNDWATER FLOW DIRECTION
 - (SD) [Symbol] SITE BEST MANAGEMENT PRACTICES
 - [Hatched Area] APPROXIMATE LIMIT OF INTERIM REMEDIAL MEASURES SOURCE AREA REMOVAL (June - November 2003)
 - (SD) [Symbol] STORM DRAIN
 - 5.36 GROUNDWATER ELEVATION IN FEET ABOVE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.
 - 6.00 GROUNDWATER ELEVATION CONTOUR DRAWN TO APPROXIMATE THE GROUNDWATER POTENTIOMETRIC SURFACE. LINES OF EQUAL ELEVATION ARE SHOWN FOR CLARITY AND NOT MEANT TO IMPLY CERTAINTY; CONTOUR INTERVAL OF 0.5 FEET

BASEMAP SOURCE:
 "SITE PLAN, SPI Arcata Mill" Sheet C-3 by Carlton Engineering, dated 5/6/02.

SAMPLE LOCATION DATA SOURCES:
 Monitoring wells MW-20 and MW-21 surveyed and monitoring wells MW-1 through MW-19 re-surveyed on February 13, 2004 by Omsberg & Company Surveyors of Eureka, California. Horizontal and vertical control surveyed to North American Datum (NAD) of 1983 and National Geodetic Vertical Datum (NGVD) of 1929, respectively. Elevations shown are based on the NAVD of 1988 coordinate system and are 3.35 feet higher than the NGVD of 1929 elevations.

POTENTIOMETRIC SURFACE MAP OF DEEP GROUNDWATER AUGUST 30, 2004 Sierra Pacific Industries Arcata Division Sawmill Arcata, California		
 GEOMATRIX	Project No. 9329	Figure 5

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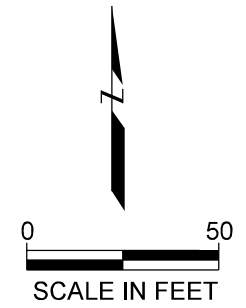
EXPLANATION

MW-2 ◆ "SHALLOW" MONITORING WELL
 MW-13D ◆ "DEEP" MONITORING WELL
 (SD) [Symbol] SITE BEST MANAGEMENT PRACTICES
 (SD) → STORM DRAIN
 - - - - IMPERVIOUS EDGE

MW-7 ◆ DETECTED PCP CONCENTRATION IN SAMPLE FROM WELL MW-7
 13,000
 (<1.0) NOT DETECTED ABOVE LISTED REPORTING LIMIT


CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)

ABBREVIATION:
 PCP = Pentachlorophenol



BASEMAP SOURCE:
 "SITE PLAN, SPI Arcata Mill" Sheet C-3 by Carlton Engineering, dated 5/6/02.

SAMPLE LOCATION DATA SOURCES:
 (1) "Results of the Remedial Investigation for SPI Arcata Sawmill, Arcata, California", by Environet, dated 1/2003.
 (2) "Report on Interim Remedial Measures: Source Area Removal, SPI Arcata Sawmill", by Geomatrix, dated 12/2003.
 (3) "Former Teepee Burner Investigation Report", by MFG, Inc., dated 7/21/03.

PCP ANALYTICAL RESULTS FOR SHALLOW GROUNDWATER AUGUST 30, 2004 Sierra Pacific Industries Arcata Division Sawmill Arcata, California		
 GEOMATRIX	Project No. 9329	Figure 6

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APPENDIX A

Field Records —Groundwater Monitoring Program

DAILY FIELD RECORD

DATE: August 30, 2004

PAGE 1 of 2

Project No: 030275.22

Project Name: SPI Arcata Sawmill

Location: 2593 New Navy Base Road Arcata, Ca 95521

Time on Job: 8:20 AM to 4:30 PM

Weather Conditions: Overcast

Activity: Groundwater Monitoring

PERSONNEL ON SITE

Name	Company	Time In	Time Out
Matt Hillyard	MFG	8:20	11:15
		12:00	4:30

VISITORS ON SITE

Name	Company / Agency	Time In	Time Out

PERSONAL SAFETY

XX	Protective Gloves	XX	Hard Hat		Tyvek Coveralls (W/Y)
XX	Protective Boots	XX	Safety Goggles/Glasses		1/2 - Mask Respirator

Other Safety Equipment (describe):

Monitoring Equipment: Ultrameter

Field Calibration: EC, TDS

WASTE STORAGE INVENTORY

Container Type	Number	Label	Description of Contents and Quantity
55-Gal	2	Faded	2 drums @ MW-8 purge/decon water
55-Gal	1	Faded	1 drum @ MW-7 purge decon water
55-Gal	1	Faded	1 drum @ MW-7 unknown - appears full
55-Gal	1	Faded	1/3 drum @ MW-1 purge/decon water

Full
Full

Number of empty drums on Site:

Location of drums stored on Site:

Signature of Field Representative:

Date: 8/30/04

Notes:

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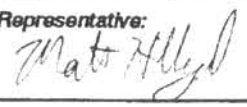
TIME	DESCRIPTION OF DAILY ACTIVITIES & EVENTS
8:20	Arrive @ site check in
8:40	repass-wc WL's begin @ Sloughs
11:00	Finish WL @ Slough calculate purge volumes
11:15	Lunch
12:00	Return to site
12:05	Calibrate w/Hanneter will only calibrate conductivity, TDS and pH/10 troubleshoot pH meter - will not work
1:10	begin sampling MW-8
4:20	Finish MW-7, cleanup
4:30	Leave Site

COMMENTS & CHANGES FROM WORK PLAN

No use of pH meter

TIME TELEPHONE CONVERSATION RECORD

12:30	Call Julie Mills about ultrasonicator problems
1:05	Call Ross Steenson - proceed w/out use of pH sensor

Signature of Field Representative:


McCulley, Frick & Gilman, Inc.

WATER LEVEL MONITORING RECORD

WELL NUMBER or DATE: 8/30/04

Project No: 030275.22 Project Name: SPI Arcata Sawmill PAGE: 1 of 1

Weather Conditions: Overcast

Measuring Point of Well (MP): Notch or North

Measuring Device: Envirotech LTD, Waterline Model 150

Observations / Comments:

DATE or WELL	TIME	MP ELEVATION (feet, NGVD)	DEPTH TO WATER (feet below MP)	CONVERSIONS or CORRECTIONS TO DEPTH TO WATER	WATER LEVEL ELEVATION (feet, NGVD)	REMARKS	MEASURED BY
MW-1	9:57	9.56	4.55				M. Hillyard
MW-2	9:54	9.49	5.07				
MW-3	10:07	11.14	2.42				
MW-4	10:23	10.71	1.37				
MW-5	10:26	10.69	0.71				
MW-6	10:49	9.77	0.99				
MW-7	10:55	9.68	0.84				
MW-8	9:00	10.30	0.94				
MW-9	9:12	9.86	0.89				
MW-10	9:24	9.80	1.13				
MW-11	9:03	10.26	1.20				
MW-12	8:57	10.73	1.13				
MW-13D	9:50	9.84	4.57				
MW-14	9:39	9.02	2.48				
MW-15D	10:04	11.08	5.83				
MW-16D	9:28	9.80	4.13				
MW-17	9:34	8.98	1.21				
MW-18	9:15		0.98				
MW-19D	10:20	11.00	4.60				
MW-20	10:52		2.70				
MW-21	10:54		4.23				
RR	8:43	15.70	15.17				
RR	11:00	15.70	12.20				

Measured by: Matt Hillyard
 Checked by:

McCulley, Frick & Gilman, Inc.

GROUNDWATER SAMPLING RECORD

PAGE: 1 of 1

SAMPLE NUMBER: MW-2

Project No: 030275.22 Project Name: SPI Arcata Sawmill Date 08/30/04

Sampling Location (well ID, etc.): MW-2 Starting Water Level (ft. BMP): 5.07

Sampled by: Matt Hillyard Total Depth (ft. BMP): 7.90 Water Column Height (ft.): 2.83

Measuring Point (MP) of Well: Casing Diameter (In. ID): 2-Inch Multiplication Factor: 0.163

Screened Interval (ft.BGL): 2.0-8.0 Casing Volume (gal.): 46 2X: 1 3X: 1.5 4X:

Filter Pack Interval (ft.BGL): 1.5-9.0 Water Level (ft.BMP) at End of Purge: 5.13

Casing Stick-Up/Down (ft.): Total Depth (ft. BMP) at End of Purge:

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Liquinox detergent & distilled water solution followed by triple rinse w/ distilled water.
 Purging: Disposable Teflon Bailer Sampling: Disposable Teflon Bailer
 Disposal of Discharged Water: 55-Gallon Drum

INSTRUMENTS (indicate make, model, Id.):

Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter
 pH Meter: Ultrameter Field Calibration: pH 4, 7, 10
 Conductivity Meter: Ultrameter Field Calibration: 447, 2070 µmhos
 Other: TDS Ultrameter Field Calibration: 300, 1500 ppm

SAMPLING MEASUREMENTS

Date/Time	Purge Characteristics		Water Quality Data			Appearance		Intake Depth (ft. BMP)	Remarks
	Cumul. Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	pH	Specific Conductance (µmhos/cm) ① Field Temp. ② 25 °C.	Color	Turbidity & Sediment		
212	0		20.0		1203	clear	clear		
214	0.5		19.2		1220	Hydrol	clear		
215	1.0		19.1		1215	gray	slightly cloudy		
216	1.5		19.1		1215	"	"		sample
							IS=859µm		

SAMPLE INVENTORY

Water Level (ft. BMP) Before Sampling: 5.13 Recovery %: 98 Sample Intake Depth (ft. BMP):

Time	Volume	Bottles Collected		Filtration (Y/N)	Preservation (type)	Analysis	Remarks (quality control sample, other)
		Composition (glass, plastic)	Quantity				
218	125 ml	Glass	2	N	-	PCP/TCP	
218	1 Qt	Plastic	1	N	-	TDS	

Chain-of-Custody Record No. 46287/46288

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GROUNDWATER SAMPLING RECORD

PAGE: 1 of 1

SAMPLE NUMBER: MW-6

Project No: 030275.22 Project Name: SPI Arcata Sawmill Date 08/30/04
 Sampling Location (well ID, etc.): MW-6 Starting Water Level (ft. BMP): 0.99
 Sampled by: Matt Hillyard Total Depth (ft. BMP): 7.80 Water Column Height (ft.): 6.81
 Measuring Point (MP) of Well: 9.77 Casing Diameter (in. ID): 2-Inch Multiplication Factor: 0.163
 Screened Interval (ft.BGL): 2.0-8.0 Casing Volume (gal.): 1.11 2X: 2.22 3X: 3.33 4X: 4.44
 Filter Pack Interval (ft.BGL): 1.5-8.0 Water Level (ft.BMP) at End of Purge: 2.5
 Casing Stick-Up/Down (ft.): _____ Total Depth (ft. BMP) at End of Purge: _____

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Liquinox detergent & distilled water solution followed by triple rinse w/ distilled water
 Purging: Disposable Teflon Bailer Sampling: Disposable Teflon Bailer
 Disposal of Discharged Water: 55-Gallon Drum

INSTRUMENTS (indicate make, model, I.D.):

Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter
 pH Meter: Ultrameter Field Calibration: pH 4, 7, 10
 Conductivity Meter: Ultrameter Field Calibration: 447, 2070 µmhos
 Other: TDS Ultrameter Field Calibration: 300, 1500 ppm

SAMPLING MEASUREMENTS

Date/Time	Purge Characteristics		Water Quality Data				Appearance		Intake Depth (ft. BMP)	Remarks
	Cumul. Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	pH	Specific Conductance (µmhos/cm)		Color	Turbidity & Sediment		
					① Field Temp.	② 25 °C.				
235	0		7.8			874	Clear	Clear		
237	1.0		17.6			888	Light gray	Slightly cloudy		
238	2.0		17.3			896	"	"		
240	3.0		17.2			873	"	"		
241	3.5		17.2			883	"	"		Sample
								TDS = 610ppm		

SAMPLE INVENTORY

Water Level (ft. BMP) Before Sampling: 1.85 Recovery %: 87 Sample Intake Depth (ft. BMP): _____

Bottles Collected				Filtration (Y/N)	Preservation (type)	Analysis	Remarks (quality control sample, other)
Time	Volume	Composition (glass, plastic)	Quantity				
244	125 ml	Glass	2	N	-	PCP/TCP	
244	1 Qt	Plastic	1	N	-	TDS	

Chain-of-Custody Record No. 46287/46288

McCulley, Frick & Gilman, Inc.

GROUNDWATER SAMPLING RECORD

SAMPLE NUMBER: MW-7

Project No: 030275.22 Project Name: SPI Arcata Sawmill Date 08/30/04

Sampling Location (well ID, etc.): MW-7 Starting Water Level (ft. BMP): 0.84

Sampled by: Matt Hillyard Total Depth (ft. BMP): 7.88 Water Column Height (ft.): 7.04

Measuring Point (MP) of Well: 9.68 Casing Diameter (in. ID): 2-Inch Multiplication Factor: 0.163

Screened Interval (ft.BGL): 2.0-8.0 Casing Volume (gal.): 15 2X: 230 3X: 345 4X:

Filter Pack Interval (ft.BGL): 1.5-8.0 Water Level (ft.BMP) at End of Purge: 1.60

Casing Stick-Up/Down (ft.): Total Depth (ft. BMP) at End of Purge:

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Liquinox detergent & distilled water solution followed by triple rinse w/ distilled water

Purging: Disposable Teflon Bailer Sampling: Disposable Teflon Bailer

Disposal of Discharged Water: 55-Gallon Drum

INSTRUMENTS (indicate make, model, Id.):

Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter

pH Meter: Ultrameter Field Calibration: ~~pH 4, 7, 10~~

Conductivity Meter: Ultrameter Field Calibration: 1447, 2070 µmhos

Other: TDS Ultrameter Field Calibration: 300, 1500 ppm

SAMPLING MEASUREMENTS

Date/Time	Purge Characteristics		Water Quality Data			Appearance		Intake Depth (ft. BMP)	Remarks
	Cumul. Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	pH	Specific Conductance (µmhos/cm) ① Field Temp. ② 25 °C.	Color	Turbidity & Sediment		
401	0		15.2		729	Yellow	clear		
403	1		14.6		816	gray	cloudy		
404	2		14.5		840	"	"		
406	3		14.4		845	"	"		
407	3.5		14.3		842	"	"		sample
							TDS 580 P2		

SAMPLE INVENTORY

Water Level (ft. BMP) Before Sampling: 1.48 Recovery %: 91 Sample Intake Depth (ft. BMP):

Time	Volume	Bottle Collected		Filtration (Y/N)	Preservation (type)	Analysis	Remarks (quality control sample, other)
		Composition (glass, plastic)	Quantity				
408	125 ml	Glass	2	N	-	PCP/TCP	
408	1 Qt	Plastic	1	N	-	TDS	

Chain-of-Custody Record No. 46287/46288

McCulley, Frick & Gilman, Inc.

GROUNDWATER SAMPLING RECORD

SAMPLE NUMBER: MW-8

Project No: 030275.22 Project Name: SPI Arcata Sawmill Date 08/30/04
 Sampling Location (well ID, etc.): MW-8 Starting Water Level (ft. BMP): 0.94
 Sampled by: Matt Hillyard Total Depth (ft. BMP): 7.90 Water Column Height (ft.): 6.96
 Measuring Point (MP) of Well: 10.3 Casing Diameter (in. ID): 2-Inch Multiplication Factor: 0.163
 Screened Interval (ft.BGL): 2.0-8.0 Casing Volume (gal.): 1.13' 2X: 2.26 3X: 3.39 4X:
 Filter Pack Interval (ft.BGL): 1.5-8.0 Water Level (ft.BMP) at End of Purge: 1.30
 Casing Stick-Up/Down (ft.): Total Depth (ft. BMP) at End of Purge:

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Liquinox detergent & distilled water solution followed by triple rinse w/ distilled water
 Purging: Disposable Teflon Bailor Sampling: Disposable Teflon Bailor
 Disposal of Discharged Water: 55-Gallon Drum

INSTRUMENTS (indicate make, model, Id.):

Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter
 pH Meter: Ultrameter Field Calibration: pH 4, 7, 10 - Not working
 Conductivity Meter: Ultrameter Field Calibration: 447, 2070 µmhos
 Other: TDS Ultrameter Field Calibration: 300, 1500 ppm

SAMPLING MEASUREMENTS

Date/Time	Purge Characterization		Water Quality Data				Appearance		Intake Depth (ft. BMP)	Remarks
	Cumul. Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	pH	Specific Conductance (µmhos/cm)		Color	Turbidity & Sediment		
					Field Temp	@ 25 °C				
117	0		23.6			776	Clear	clear		
124	0.5		21.6			761	light yellow	"		
126	1.0		21.3			756	"	"		
127	1.5		21.1			757	"	5.0-6.0 (TDS)		
128	2.0		21.1			757	"	"		
129	2.5		21.0			757	"	"		
130	3.0		21.0			757	light gray	low turbidity		
131	3.5		21.0			756	"	"		sample
								TDS = 17 ppm		

SAMPLE INVENTORY

Water Level (ft. BMP) Before Sampling: 1.30 Recovery %: 95 Sample Intake Depth (ft. BMP):

Time	Volume	Bottles Collected		Filtration (Y/N)	Preservation (type)	Analysis	Remarks (quality control sample, other)
		Composition (glass, plastic)	Quantity				
135	125 ml	Glass	2	N	-	PCP/TCP	
135	1 Qt	Plastic	1	N	-	TDS	

Chain-of-Custody Record No. 46287/46288

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GROUNDWATER SAMPLING RECORD

PAGE: 1 of 1

SAMPLE NUMBER: MW-9

Project No: 030275.22 Project Name: SPI Arcata Sawmill Date 08/30/04

Sampling Location (well ID, etc.): MW-9 Starting Water Level (ft. BMP): 0.89

Sampled by: Matt Hillyard Total Depth (ft. BMP): 7.80 Water Column Height (ft.): 6.91

Measuring Point (MP) of Well: 9.86 Casing Diameter (in. ID): 2-Inch Multiplication Factor: 0.163

Screened Interval (ft.BGL): 2.0-8.0 Casing Volume (gal.): 1.13 2X: 2.26 3X: 3.39 4X:

Filter Pack Interval (ft.BGL): 1.5-8.0 Water Level (ft.BMP) at End of Purge: 1.22

Casing Stick-Up/Down (ft.): Total Depth (ft. BMP) at End of Purge:

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Liquinox detergent & distilled water solution followed by triple rinse w/ distilled water

Purging: Disposable Teflon Bailer Sampling: Disposable Teflon Bailer

Disposal of Discharged Water: 55-Gallon Drum

INSTRUMENTS (indicate make, model, Id.):

Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter

pH Meter: Ultrameter Field Calibration: pH 4, 7, 10

Conductivity Meter: Ultrameter Field Calibration: 447, 2070 µmhos

Other: TDS Ultrameter Field Calibration: 300,1500 ppm

SAMPLING MEASUREMENTS

Date/Time	Purge Characteristics		Water Quality Data				Appearance		Intake Depth (ft. BMP)	Remarks
	Cumul. Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	pH	Specific Conductance (µmhos/cm)	Color	Turbidity & Sediment			
148	0		21.7		865	Clear	clear			
150	1		20.6		876	Hazy	slighty			
151	2		20.0		868	"	"			
153	3		20.0		867	"	"			
154	3.4		19.8		857	"	"		Sample	
							TDS=550 ppm			

SAMPLE INVENTORY

Water Level (ft. BMP) Before Sampling: 1.22 Recovery %: 95 Sample Intake Depth (ft. BMP):

Time	Bottles Collected			Filtration (Y/N)	Preservation (type)	Analysis	Remarks (quality control sample, other)
	Volume	Composition (glass, plastic)	Quantity				
157	125 ml	Glass	2	N	-	PCP/TCP	
157	1 Qt	Plastic	1	N	-	TDS	

Chain-of-Custody Record No. 46287/46288

McCulley, Frick & Gilman, Inc.

GROUNDWATER SAMPLING RECORD

PAGE: 1 of 1

SAMPLE NUMBER: MW-20

Project No: 030275.22 Project Name: SPI Arcata Sawmill Date 08/30/04

Sampling Location (well ID, etc.): MW-20 Starting Water Level (ft. BMP): 2.70
 Sampled by: Matt Hillyard Total Depth (ft. BMP): 6.50 Water Column Height (ft.): 3.80
 Measuring Point (MP) of Well: Casing Diameter (in. ID): 4-inch Multiplication Factor: .653
 Screened Interval (ft.BGL): Casing Volume (gal.): 2.5 2X: 5 3X: 7.5 4X
 Filter Pack Interval (ft.BGL): Water Level (ft.BMP) at End of Purge: 3.13
 Casing Stick-Up/Down (ft.): Total Depth (ft. BMP) at End of Purge:

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Liquinox detergent & distilled water solution followed by triple rinse w/ distilled water.
 Purging: Disposable Teflon Barter Sampling: Disposable Teflon Bailer
 Disposal of Discharged Water: 55-Gallon Drum

INSTRUMENTS (indicate make, model, Id.):

Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter
 pH Meter: Ultrameter Field Calibration: pH 4, 7, 10
 Conductivity Meter: Ultrameter Field Calibration: 447,2070 µmhos
 Other: TDS Ultrameter Field Calibration: 300,1500 ppm

SAMPLING MEASUREMENTS

Date/Time	Purge Characteristics		Water Quality Data			Appearance		Intake Depth (ft. BMP)	Remarks
	Cumul. Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	pH	Specific Conductance (µmhos/cm) ① Field Temp. ② 25 °C.	Color	Turbidity & Sediment		
307	0		21.4		432	Clear	Clear		
310	20		20.9		488	light	cloudy		
312	40		20.8		480	light	cloudy		
314	60		20.8		482	"	"		
316	7.5		20.8		496	"	"		
							TDS=334 ppM		

SAMPLE INVENTORY

Water Level (ft. BMP) Before Sampling: 3.13 Recovery %: 80% Sample Intake Depth (ft. BMP):

Time	Volume	Bottles Collected		Filtration (Y/N)	Preservation (type)	Analysis	Remarks (quality control sample, other)
		Composition (glass, plastic)	Quantity				
317	125 ml	Glass	4	N	-	PCP/TCP	MS/MSD
317	1 Qt	Plastic	1	N	-	TDS	

Chain-of-Custody Record No. 46287/46288/46289

McCulley, Frick & Gilman, Inc.

GROUNDWATER SAMPLING RECORD

PAGE: 1 of 1

SAMPLE NUMBER: MW-21

Project No: 030275.22 Project Name: SPI Arcata Sawmill Date 08/30/04

Sampling Location (well ID, etc.): MW-21
 Sampled by: Matt Hillyard
 Measuring Point (MP) of Well: _____
 Screened Interval (ft.BGL): _____
 Filter Pack Interval (ft.BGL): _____
 Casing Stick-Up/Down (ft.): _____

Starting Water Level (ft. BMP): 4.23
 Total Depth (ft. BMP): 10.08 Water Column Height (ft.): 5.85
 Casing Diameter (in. ID): 1/2-inch Multiplication Factor: .0102
 Casing Volume (gal.): -06 2X: -12 3X: 18 4X
 Water Level (ft.BMP) at End of Purge: 4.25
 Total Depth (ft. BMP) at End of Purge: _____

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Liquinox detergent & distilled water solution followed by triple rinse w/ distilled water.
 Purging: Peristaltic pump w/ teflon tubing Sampling: Peristaltic pump w/ teflon tubing
 Disposal of Discharged Water: 55-Gallon Drum

INSTRUMENTS (indicate make, model, I.d.):

Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter
 pH Meter: Ultrameter Field Calibration: pH 4, 7, 10
 Conductivity Meter: Ultrameter Field Calibration: 447,2070 µmhos
 Other: TDS Ultrameter Field Calibration: 300,1500 ppm

SAMPLING MEASUREMENTS

Date/Time	Purge Characteristics		Water Quality Data				Appearance		Intake Depth (ft. BMP)	Remarks
	Cumul. Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	pH	Specific Conductance (µmhos/cm)		Color	Turbidity & Sediment		
					Field Temp	25 °C				
337	0		17.0			1085	clear	clear		
338	0.05		16.5			956	"	"		
340	0.10		16.2			928				
341	0.20		16.1			942				
342	0.3		16.1			966	"	"		
344	0.4		16.1			956	"	"		
346	0.45		16.1			957	"	TDS=660ppm		sample

SAMPLE INVENTORY

Water Level (ft. BMP) Before Sampling: 4.45 Recovery %: 96 Sample Intake Depth (ft. BMP): _____

Time	Volume	Bottles Collected		Filtration (Y/N)	Preservation (type)	Analysis	Remarks (quality control sample, other)
		Composition (glass, plastic)	Quantity				
347	125 ml	Glass	4	N	-	PCP/TCP	Duplicate MW-A
347	1 Qt	Plastic	1	N	=	TDS	

Chain-of-Custody Record No. 46287/46288/46289

McCulley, Frick & Gilman, Inc.

MFG, INC.

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

COC No. 46287

Lrcata Office
 Crescent Way
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CA - Irvine
 17770 Cartwright Rd.
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 Fax (949) 253-2954

CA - San Francisco
 180 Howard St., Ste. 200
 San Francisco, CA 94105
 Tel (415) 495-7110
 Fax (415) 495-7107

CO - Boulder
 4900 Pearl East Cir.
 Ste. 300W
 Boulder, CO 80301
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 Fax (303) 447-1836

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 PO Box 30
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 Tel (208) 556-6811
 Fax (208) 556-7271

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 PO Box 7158
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 Ste. 703
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 Fax (732) 738-5711

OR - Portland
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 Ste. 530
 Portland, OR 97205
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 2nd Water St 2nd Fl
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 Portland, OR 97205
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 Houston, TX 77070
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 Texarkana, TX 75503
 Tel (903) 794-0625
 Fax (903) 794-0626

WA - Seattle
 19203 36th Ave. W.
 Ste. 100
 Lynnwood, WA 98036
 Tel (425) 921-4000
 Fax (425) 921-4040

PROJECT NO: 030275-22

PROJECT NAME: SPI Aricata Gwy Monitoring

PAGE: 1 OF: 2

SAMPLER (Signature): Pat [Signature]

PROJECT MANAGER: Ross Stephenson

DATE: 8/31/04

METHOD OF SHIPMENT: courier

CARRIER/WAYBILL NO: —

DESTINATION: Alpha

Field Sample Identification	SAMPLES										ANALYSIS REQUEST							
	Sample			Preservation				FILTRATION*	Containers			Constituents/Method			Handling			Remarks
	DATE	TIME	Matrix*	HCl	HNO ₃	H ₂ SO ₄	COLD		VOLUME (ml/oz)	TYPE*	NO.	PCB/TCB	HOLD	RUSH	STANDARD			
MW-02-200405	8/30	1418	AG				X	U	15ml	G	2	X				X	PCB/TCB by	
MW-06-200408		1444															Canadian pulp method	
MW-07-200408		1608																
MW-08-200408		1335																
MW-09-200408		1357																
MW-20-200408		1517																
MW-21-200408		1547																
TOTAL NUMBER OF CONTAINERS										14			LABORATORY COMMENTS/CONDITION OF SAMPLES			Cooler Temp:		

RELINQUISHED BY:				RECEIVED BY:			
SIGNATURE	PRINTED NAME	COMPANY	DATE	TIME	SIGNATURE	PRINTED NAME	COMPANY
<u>[Signature]</u>	<u>Matt H [Signature]</u>	<u>MFG</u>	<u>8/31/04</u>	<u>12:20</u>	<u>[Signature]</u>	<u>John Taylor</u>	<u>Alpha</u>
							LABORATORY

*KEY: Matrix: AQ - aqueous NA - nonaqueous SD - soil SL - sludge P - petroleum A - air OT - other Containers: P - plastic G - glass T - teflon B - brass OT - other Filtration: F - Filtered U - unfiltered
 DISTRIBUTION: PINK Field Copy YELLOW Laboratory Copy WHITE Return to Originator

MFG, INC.

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

COC No. 46239

Arcata Office

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inc (707) 826-8430-FAX (707) 826-8437

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Lynnwood, WA 98036
Tel (425) 921-4000
Fax (425) 921-4040

PROJECT NO: 030275.72

PROJECT NAME: SPI Arcata GW Monitoring

PAGE: 1 OF: 1

SAMPLER (Signature): Matt Hill

PROJECT MANAGER: Ross Stenson

DATE: 8/31/04

METHOD OF SHIPMENT: cooler

CARRIER/WAYBILL NO: -

DESTINATION: Alpha

Table with columns: SAMPLES (Sample, Preservation, Containers), ANALYSIS REQUEST (Constituents/Method, Handling, Remarks). Includes handwritten entries for samples MW-A and MW-20.

Administrative section containing RELINQUISHED BY (Signature, Name, Company, Date, Time) and RECEIVED BY (Signature, Name, Company, Laboratory) information.

*KEY Matrix AQ-aqueous NA-non-aqueous SO-soil SL-sludge P-petroleum A-air OT-other Containers: P-plastic G-glass T-tellon B-brass OT-other Filtration: F-filtered U-unfiltered
DISTRIBUTION: PINK Field Copy YELLOW Laboratory Copy WHITE Return to Originator

MFG, INC.

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

COC No. 45208

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Wallace, ID 83873
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Ste. 100
Lynnwood, WA 98036
Tel (425) 921-4000
Fax (425) 921-4040

PROJECT NO: 070275-22 PROJECT NAME: SPI Arcata GLW Monitoring PAGE: 2 OF: 2
SAMPLER (Signature): [Signature] PROJECT MANAGER: Ross Steenson DATE: 8/31/04
METHOD OF SHIPMENT: Carrier CARRIER/WAYBILL NO: - DESTINATION: Alpha

Field Sample Identification	SAMPLES										ANALYSIS REQUEST					
	Sample			Preservation				Containers			Constituents/Method		Handling		Remarks	
	DATE	TIME	Matrix*	HCl	HNO ₃	H ₂ SO ₄	COLD	FILTRATION*	VOLUME (ml/oz)	TYPE*	NO.	TDS	HOLD	RUSH		STANDARD
MW-02-200405	8/30	1418	AK				X	U	32oz	P	1	X			X	TDS by EPA 160.1
MW-06-200405	8/30	1444														
MW-07-200405	8/30	1608														
MW-08-200405		1335														
MW-09-200405		1357														
MW-20-200405		1517														
MW-21-200405		1547														
TOTAL NUMBER OF CONTAINERS										7		LABORATORY COMMENTS/CONDITION OF SAMPLES				Cooler Temp:

RELINQUISHED BY:					RECEIVED BY:		
SIGNATURE	PRINTED NAME	COMPANY	DATE	TIME	SIGNATURE	PRINTED NAME	COMPANY
<u>[Signature]</u>	<u>Mo-H. H. [Signature]</u>	<u>MFC</u>	<u>8/31/04</u>	<u>12:20</u>	<u>[Signature]</u>	<u>John Taylor</u>	<u>Alpha</u>
							LABORATORY

*KEY Matrix: AQ - aqueous NA - nonaqueous SO - soil SL - sludge P - petroleum A - air OT - other Containers: P - plastic G - glass T - teflon B - brass OT - other Filtration: F - filtered U - unfiltered
DISTRIBUTION: PINK: Field Copy YELLOW: Laboratory Copy WHITE: Return to Originator

APPENDIX B

Laboratory Reports and Chain-of-Custody Records for Groundwater Samples—Groundwater Monitoring Program

FILE 9329



Alpha Analytical Laboratories Inc.

208 Mason St. Ukiah, California 95482

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

RECEIVED
9/17/2004

14 September 2004

Geomatrix Consultants
Attn: Ross Steenson
2101 Webster Street, 12th Floor
Oakland, CA 94612
RE: SPI Arcata GW Monitoring
Work Order: A409001

TASK 22 GW

3rd Quarter 2004 Sampling

Enclosed are the results of analyses for samples received by the laboratory on 08/31/04 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sheri Speaks

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 1 of 9

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

Report Date: 09/14/04 08:44
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A409001	08/31/2004 16:30	GEOMAT	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-02-200408	A409001-01	Water	08/30/04 14:18	08/31/04 16:30
MW-06-200408	A409001-02	Water	08/30/04 14:44	08/31/04 16:30
MW-07-200408	A409001-03	Water	08/30/04 16:08	08/31/04 16:30
MW-08-200408	A409001-04	Water	08/30/04 13:35	08/31/04 16:30
MW-09-200408	A409001-05	Water	08/30/04 13:57	08/31/04 16:30
MW-20-200408	A409001-06	Water	08/30/04 15:17	08/31/04 16:30
MW-21-200408	A409001-07	Water	08/30/04 15:47	08/31/04 16:30

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.

Sheri Speaks

Sheri L. Speaks
Project Manager

9/14/04



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

Report Date: 09/14/04 08:44
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A409001	08/31/2004 16:30	GEOMAT	

Alpha Analytical Laboratories, Inc.

METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	POL	NOTE
MW-02-200408 (A409001-01)		Sample Type: Water			Sampled: 08/30/04 14:18		
Chlorinated Phenols by Canadian Pulp Method							
2,4,6-Trichlorophenol	EnvCan	A140401	09/03/04	09/04/04	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	"	"	"	"	"	ND "	1.0
Pentachlorophenol	"	"	"	"	"	ND "	1.0
Surrogate: Tribromophenol	"	"	"	"		104 %	79-119
Conventional Chemistry Parameters by APHA/EPA Methods							
Total Dissolved Solids	EPA 160.1	A140208	09/02/04	09/09/04	1	680 mg/l	10
MW-06-200408 (A409001-02)		Sample Type: Water			Sampled: 08/30/04 14:44		
Chlorinated Phenols by Canadian Pulp Method							
2,4,6-Trichlorophenol	EnvCan	A140401	09/03/04	09/04/04	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	"	"	"	"	"	ND "	1.0
Pentachlorophenol	"	"	"	"	"	ND "	1.0
Surrogate: Tribromophenol	"	"	"	"		93.2 %	79-119
Conventional Chemistry Parameters by APHA/EPA Methods							
Total Dissolved Solids	EPA 160.1	A140208	09/02/04	09/09/04	1	430 mg/l	10
MW-07-200408 (A409001-03)		Sample Type: Water			Sampled: 08/30/04 16:08		
Chlorinated Phenols by Canadian Pulp Method							
2,4,6-Trichlorophenol	EnvCan	A140401	09/03/04	09/04/04	1	ND ug/l	1.0
2,3,5,6-Tetrachlorophenol	"	"	"	09/06/04	10	54 "	10
2,3,4,6-Tetrachlorophenol	"	"	"	"	"	200 "	10
2,3,4,5-Tetrachlorophenol	"	"	"	"	"	17 "	10
Pentachlorophenol	"	"	"	09/08/04	1000	13000 "	1000
Surrogate: Tribromophenol	"	"	"	09/04/04		99.6 %	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.

Sheri Speaks

Sheri L. Speaks
Project Manager

9/14/04



Alpha Analytical Laboratories Inc.

208 Mason St. Ukiah, California 95482

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CHEMICAL EXAMINATION REPORT

Page 3 of 9

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

Report Date: 09/14/04 08:44
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A409001	08/31/2004 16:30	GEOMAT	

Alpha Analytical Laboratories, Inc.

METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	POL	NOTE
MW-07-200408 (A409001-03)		Sample Type: Water			Sampled: 08/30/04 16:08		
Conventional Chemistry Parameters by APHA/EPA Methods							
Total Dissolved Solids	EPA 160.1	A140208	09/02/04	09/09/04	1	410 mg/l	10
MW-08-200408 (A409001-04)		Sample Type: Water			Sampled: 08/30/04 13:35		
Chlorinated Phenols by Canadian Pulp Method							
2,4,6-Trichlorophenol	EnvCan	A140401	09/03/04	09/04/04	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	"	"	"	"	"	ND "	1.0
Pentachlorophenol	"	"	"	"	"	ND "	1.0
<i>Surrogate: Tribromophenol</i>	"	"	"	"		100 %	79-119
Conventional Chemistry Parameters by APHA/EPA Methods							
Total Dissolved Solids	EPA 160.1	A140208	09/02/04	09/09/04	1	390 mg/l	10
MW-09-200408 (A409001-05)		Sample Type: Water			Sampled: 08/30/04 13:57		
Chlorinated Phenols by Canadian Pulp Method							
2,4,6-Trichlorophenol	EnvCan	A140401	09/03/04	09/04/04	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	"	"	"	"	"	ND "	1.0
Pentachlorophenol	"	"	"	"	"	ND "	1.0
<i>Surrogate: Tribromophenol</i>	"	"	"	"		93.6 %	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.

Sheri Speaks

Sheri L. Speaks
Project Manager

9/14/04



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CHEMICAL EXAMINATION REPORT

Page 4 of 9

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

Report Date: 09/14/04 08:44
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A409001	08/31/2004 16:30	GEOMAT	

Alpha Analytical Laboratories, Inc.

METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	POL	NOTE
MW-09-200408 (A409001-05)		Sample Type: Water			Sampled: 08/30/04 13:57		
Conventional Chemistry Parameters by APHA/EPA Methods							
Total Dissolved Solids	EPA 160.1	AI40208	09/02/04	09/09/04	1	440 mg/l	10
MW-20-200408 (A409001-06)		Sample Type: Water			Sampled: 08/30/04 15:17		
Chlorinated Phenols by Canadian Pulp Method							
2,4,6-Trichlorophenol	EnvCan	AI40401	09/03/04	09/04/04	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	"	"	"	"	"	ND "	1.0
Pentachlorophenol	"	"	"	"	"	ND "	1.0
<i>Surrogate: Tribromophenol</i>	"	"	"	"		105 %	79-119
Conventional Chemistry Parameters by APHA/EPA Methods							
Total Dissolved Solids	EPA 160.1	AI40208	09/02/04	09/09/04	1	300 mg/l	10
MW-21-200408 (A409001-07)		Sample Type: Water			Sampled: 08/30/04 15:47		
Chlorinated Phenols by Canadian Pulp Method							
2,4,6-Trichlorophenol	EnvCan	AI40401	09/03/04	09/04/04	1	ND ug/l	1.0
2,3,5,6-Tetrachlorophenol	"	"	"	"	"	6.4 "	1.0
2,3,4,6-Tetrachlorophenol	"	"	"	09/06/04	10	66 "	10
2,3,4,5-Tetrachlorophenol	"	"	"	09/04/04	1	5.4 "	1.0
Pentachlorophenol	"	"	"	09/08/04	1000	2700 "	1000
<i>Surrogate: Tribromophenol</i>	"	"	"	09/04/04		97.6 %	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.

Sheri Speaks

Sheri L. Speaks
Project Manager

9/14/04



Alpha Analytical Laboratories Inc.

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CHEMICAL EXAMINATION REPORT

Page 5 of 9

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

Report Date: 09/14/04 08:44
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A409001	08/31/2004 16:30	GEOMAT	

Alpha Analytical Laboratories, Inc.

METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	POL	NOTE
MW-21-200408 (A409001-07)		Sample Type: Water		Sampled: 08/30/04 15:47			
Conventional Chemistry Parameters by APHA/EPA Methods							
Total Dissolved Solids	EPA 160.1	A140208	09/02/04	09/09/04	1	450 mg/l	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.

Sheri Speaks

Sheri L. Speaks
Project Manager

9/14/04



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 6 of 9

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

Report Date: 09/14/04 08:44
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A409001	08/31/2004 16:30	GEOMAT	

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 AI40401 - Solvent Extraction										
Blank (AI40401-BLK1)										
				Prepared: 09/03/04 Analyzed: 09/04/04						
Surrogate: Tribromophenol	25.3		ug/l	25.0		101	79-119			
2,4,6-Trichlorophenol	ND	1.0	"							
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	"							
LCS (AI40401-BS1)										
				Prepared: 09/03/04 Analyzed: 09/04/04						
Surrogate: Tribromophenol	24.4		ug/l	25.0		97.6	79-119			
2,4,6-Trichlorophenol	5.53	1.0	"	5.00		111	81-120			
2,3,5,6-Tetrachlorophenol	5.26	1.0	"	5.00		105	78-108			
2,3,4,6-Tetrachlorophenol	5.22	1.0	"	5.00		104	76-108			
2,3,4,5-Tetrachlorophenol	5.02	1.0	"	5.00		100	80-116			
Pentachlorophenol	4.48	1.0	"	5.00		89.6	86-109			
Matrix Spike (AI40401-MS1)										
				Source: A409001-06 Prepared: 09/03/04 Analyzed: 09/04/04						
Surrogate: Tribromophenol	24.6		ug/l	25.0		98.4	79-119			
2,4,6-Trichlorophenol	5.71	1.0	"	5.00	ND	111	75-125			
2,3,5,6-Tetrachlorophenol	5.45	1.0	"	5.00	ND	104	69-115			
2,3,4,6-Tetrachlorophenol	5.29	1.0	"	5.00	ND	103	66-117			
2,3,4,5-Tetrachlorophenol	5.08	1.0	"	5.00	ND	102	70-115			
Pentachlorophenol	4.65	1.0	"	5.00	ND	89.8	55-124			
Matrix Spike Dup (AI40401-MSD1)										
				Source: A409001-06 Prepared: 09/03/04 Analyzed: 09/04/04						
Surrogate: Tribromophenol	25.6		ug/l	25.0		102	79-119			
2,4,6-Trichlorophenol	5.71	1.0	"	5.00	ND	111	75-125	0.00	20	

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Sheri Speaks

Sheri L. Speaks
Project Manager

9/14/04



Alpha Analytical Laboratories Inc.

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CHEMICAL EXAMINATION REPORT

Page 7 of 9

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

Report Date: 09/14/04 08:44
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A409001	08/31/2004 16:30	GEOMAT	

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 AI40401 - Solvent Extraction										
Matrix Spike Dup (AI40401-MSD1)										
2,3,5,6-Tetrachlorophenol	5.40	1.0	"	5.00	ND	103	69-115	0.922	20	
2,3,4,6-Tetrachlorophenol	5.23	1.0	"	5.00	ND	102	66-117	1.14	20	
2,3,4,5-Tetrachlorophenol	5.04	1.0	"	5.00	ND	101	70-115	0.791	20	
Pentachlorophenol	4.68	1.0	"	5.00	ND	90.4	55-124	0.643	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.

Sheri Speaks

Sheri L. Speaks
Project Manager

9/14/04



Alpha

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208 Mason St. Ukiah, California 95482

CHEMICAL EXAMINATION REPORT

Page 8 of 9

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

Report Date: 09/14/04 08:44
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

Order Number: A409001 Receipt Date/Time: 08/31/2004 16:30 Client Code: GEOMAT Client PO/Reference:

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 AI40208 - General Preparation										
Prepared: 09/02/04 Analyzed: 09/09/04										
Blank (AI40208-BLK1)										
Total Dissolved Solids	ND	10	mg/l							
Duplicate (AI40208-DUP1)										
Source: A409001-01 Prepared: 09/02/04 Analyzed: 09/09/04										
Total Dissolved Solids	680	10	mg/l		680			0.00	30	

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Sheri Speaks

Sheri L. Speaks
Project Manager

9/14/04



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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: 09/14/04 08:44
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

<u>Order Number</u>	<u>Receipt Date/Time</u>	<u>Client Code</u>	<u>Client PO/Reference</u>
A409001	08/31/2004 16:30	GEOMAT	

Notes and Definitions

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

MFG, INC.

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

COC No. 46287

Arcata Office
875 Crescent Way
Arcata, CA 95521-6741
Phone (707) 826-8430- FAX (707) 826-8437

CA - Irvine
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Fax (949) 253-2954

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180 Howard St., Ste. 200
San Francisco, CA 94105
Tel (415) 495-7110
Fax (415) 495-7107

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4900 Pearl East Cir.
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Boulder, CO 80301
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Fax (303) 447-1836

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Wallace, ID 83873
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Missoula, MT 59807
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Fax (512) 338-1331

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Fax (281) 890-5044

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19203 36th Ave. W.
Ste. 100
Lynnwood, WA 98036
Tel (425) 921-4000
Fax (425) 921-4040

← Geomatrix
2101 Webster St 12th Fl
Oakland, CA 94612
(510)663-4107

PROJECT NO: 030275-22 PROJECT NAME: SPI Arcata GW Monitoring PAGE: 1 OF: 2
SAMPLER (Signature): Matt Hilliard PROJECT MANAGER: Ross Steenson DATE: 8/31/04
METHOD OF SHIPMENT: Courier CARRIER/WAYBILL NO: — DESTINATION: Alpha

Field Sample Identification	SAMPLES										ANALYSIS REQUEST								
	Sample			Preservation				FILTRATION*	Containers			Constituents/Method			Handling			Remarks	
	DATE	TIME	Matrix*	HCl	HNO ₃	H ₂ SO ₄	COLD		VOLUME (ml/oz)	TYPE*	NO.	PCP/TCP	HOLD	RUSH	STANDARD				
MW-02-200408	8/30	1418	AD				X	U	125ml	6	2	X						A409001	
MW-06-200408		1444																	x PCP/TCP by
MW-07-200408		1608																	Canadian pulp method
MW-08-200408		1335																	
MW-09-200408		1357																	
MW-20-200408		1517																	
MW-21-200408		1547																	
TOTAL NUMBER OF CONTAINERS											14	LABORATORY COMMENTS/CONDITION OF SAMPLES					Cooler Temp: 2.6		

RELINQUISHED BY:					RECEIVED BY:				
SIGNATURE	PRINTED NAME	COMPANY	DATE	TIME	SIGNATURE	PRINTED NAME	COMPANY		
<i>[Signature]</i>	Matt Hilliard	MFG	8/31/04	12:30	<i>[Signature]</i>	John Taylor	Alpha		
<i>[Signature]</i>	John Taylor	Alpha	8/31/04	16:30	<i>[Signature]</i>	Speaks	ALPHA	LABORATORY	

*KEY Matrix: AD - aqueous MA - nonaqueous SO - soil SL - sludge P - petroleum A - air OT - other Containers: P - plastic G - glass T - teflon B - brass OT - other Filtration: F - filtered U - unfiltered
DISTRIBUTION: PINK Field Copy YELLOW Laboratory Copy WHITE Return to Originator

MFG, INC.

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

COC No. **46288**

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Arcata, CA 95521-6741
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*Geomatrix
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Fax (903) 794-0626

WA - Seattle
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Ste. 100
Lynnwood, WA 98036
Tel (425) 921-4000
Fax (425) 921-4040

PROJECT NO: 030275.22 PROJECT NAME: SPI Arcata GW Monitoring PAGE: 2 OF: 2
SAMPLER (Signature): Mat Hilliard PROJECT MANAGER: Ross Steenson DATE: 8/31/04
METHOD OF SHIPMENT: Courier CARRIER/WAYBILL NO: — DESTINATION: Alpha

Field Sample Identification	SAMPLES										ANALYSIS REQUEST								
	Sample			Preservation				FILTRATION*	Containers			Constituents/Method			Handling			Remarks	
	DATE	TIME	Matrix*	HCl	HNO ₃	H ₂ SO ₄	COLD		VOLUME (ml/oz)	TYPE*	NO.	TDS	HOLD	RUSH	STANDARD				
MW-02-200408	8/30	1418	AG				X	U	32oz	P	1	X						A409001	
MW-06-200408	8/30	1444																	
MW-07-200408	8/30	1608																	
MW-05-200408		1335																	
MW-09-200408		1357																	
MW-20-200408		1517																	
MW-21-200408		1547																	
TOTAL NUMBER OF CONTAINERS										7			LABORATORY COMMENTS/CONDITION OF SAMPLES						Cooler Temp: 2.6

1
2
3
4
5
6
7

RELINQUISHED BY:					RECEIVED BY:		
SIGNATURE	PRINTED NAME	COMPANY	DATE	TIME	SIGNATURE	PRINTED NAME	COMPANY
<i>Mat Hilliard</i>	Matt Hilliard	MFG	8/31/04	12:30	<i>John Taylor</i>	John Taylor	Alpha
<i>John Taylor</i>	John Taylor	Alpha	8/31/04	16:30	<i>Shen Speaks</i>	Shen Speaks	Alpha

*KEY Matrix AG - aqueous NA - nonaqueous SO - soil SL - sludge P - petroleum A - air OT - other Containers: P - plastic G - glass T - teflon B - brass QT - other Filtration: F - filtered U - unfiltered

DISTRIBUTION: PINK Field Copy YELLOW Laboratory Copy WHITE Return to Originator

PROJECT 9329



Alpha Analytical Laboratories Inc.

208 Mason St. Ukiah, California 95482

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RECEIVED
9/15/2009

Task 22 GW Monitoring

BLIND DUPLICATE

08 September 2004

Geomatrix Consultants
Attn: Ross Steenson
2101 Webster Street, 12th Floor
Oakland, CA 94612
RE: SPI Arcata GW Monitoring
Work Order: A409002

Enclosed are the results of analyses for samples received by the laboratory on 08/31/04 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Melanie B. Neece 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 1 of 5

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

Report Date: 09/08/04 15:13
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

Order Number
A409002

Receipt Date/Time
08/31/2004 16:30

Client Code
GEOMAT

Client PO/Reference

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-A-200408	A409002-01	Water	08/30/04 00:00	08/31/04 16:30

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.

Melanie B. Neece For Sheri L. Speaks
Project Manager

9/8/2004



Alpha Analytical Laboratories Inc.

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CHEMICAL EXAMINATION REPORT

Page 2 of 5

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

Report Date: 09/08/04 15:13
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A409002	08/31/2004 16:30	GEOMAT	

Alpha Analytical Laboratories, Inc.

METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	POL	NOTE
MW-A-200408 (A409002-01)		Sample Type: Water		Sampled: 08/30/04 00:00			
Chlorinated Phenols by Canadian Pulp Method							
2,4,6-Trichlorophenol	EnvCan	AI40401	09/03/04	09/04/04	1	ND ug/l	1.0
2,3,5,6-Tetrachlorophenol	"	"	"	"	"	6.9 "	1.0
2,3,4,6-Tetrachlorophenol	"	"	"	09/06/04	10	68 "	10
2,3,4,5-Tetrachlorophenol	"	"	"	09/04/04	1	5.5 "	1.0
Pentachlorophenol	"	"	"	09/08/04	1000	2800 "	1000
Surrogate: Tribromophenol	"	"	"	09/04/04		102 %	79-119

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Melanie B. Neece For Sheri L. Speaks
Project Manager

9/8/2004



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CHEMICAL EXAMINATION REPORT

Page 3 of 5

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

Report Date: 09/08/04 15:13
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

Order Number
A409002

Receipt Date/Time
08/31/2004 16:30

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 AI40401 - Solvent Extraction										
Blank (AI40401-BLK1) Prepared: 09/03/04 Analyzed: 09/04/04										
Surrogate: Tribromophenol	25.3		ug/l	25.0		101	79-119			
2,4,6-Trichlorophenol	ND	1.0	"							
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	"							
LCS (AI40401-BS1) Prepared: 09/03/04 Analyzed: 09/04/04										
Surrogate: Tribromophenol	24.4		ug/l	25.0		97.6	79-119			
2,4,6-Trichlorophenol	5.53	1.0	"	5.00		111	81-120			
2,3,5,6-Tetrachlorophenol	5.26	1.0	"	5.00		105	78-108			
2,3,4,6-Tetrachlorophenol	5.22	1.0	"	5.00		104	76-108			
2,3,4,5-Tetrachlorophenol	5.02	1.0	"	5.00		100	80-116			
Pentachlorophenol	4.48	1.0	"	5.00		89.6	86-109			
Matrix Spike (AI40401-MS1) Source: A409001-06 Prepared: 09/03/04 Analyzed: 09/04/04										
Surrogate: Tribromophenol	24.6		ug/l	25.0		98.4	79-119			
2,4,6-Trichlorophenol	5.71	1.0	"	5.00	ND	111	75-125			
2,3,5,6-Tetrachlorophenol	5.45	1.0	"	5.00	ND	104	69-115			
2,3,4,6-Tetrachlorophenol	5.29	1.0	"	5.00	ND	103	66-117			
2,3,4,5-Tetrachlorophenol	5.08	1.0	"	5.00	ND	102	70-115			
Pentachlorophenol	4.65	1.0	"	5.00	ND	89.8	55-124			
Matrix Spike Dup (AI40401-MSD1) Source: A409001-06 Prepared: 09/03/04 Analyzed: 09/04/04										
Surrogate: Tribromophenol	25.6		ug/l	25.0		102	79-119			
2,4,6-Trichlorophenol	5.71	1.0	"	5.00	ND	111	75-125	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.

Melanie B. Neece For Sheri L. Speaks
Project Manager

9/8/2004



Alpha

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CHEMICAL EXAMINATION REPORT

Page 4 of 5

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

Report Date: 09/08/04 15:13
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

Order Number: A409002
Receipt Date/Time: 08/31/2004 16:30
Client Code: GEOMAT
Client PO/Reference:

Chlorinated Phenols by Canadian Pulp Method - Quality Control

Table with columns: Analyte(s), Result, PQL, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Flag. Includes data for 2,3,5,6-Tetrachlorophenol, 2,3,4,6-Tetrachlorophenol, 2,3,4,5-Tetrachlorophenol, and Pentachlorophenol.

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.

Melanie B. Neece (Signature)

Melanie B. Neece For Sheri L. Speaks
Project Manager

9/8/2004



Alpha

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e-mail: clientservices@alpha-labs.com

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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: 09/08/04 15:13
Project No: 9329.000/030275.22
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A409002	08/31/2004 16:30	GEOMAT	

Notes and Definitions

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

MFG, INC.

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

COC No. 46289

Arcata Office
75 Crescent Way
Arcata, CA 95521-6741
Phone (707) 826-8430-FAX (707) 826-8437

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San Francisco, CA 94105
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Boulder, CO 80301
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Tel (406) 728-4600
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Edison, NJ 08837
Tel (732) 738-5707
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Oakland, CA 94612
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Pittsburgh, PA 15212
Tel (412) 321-2278
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4807 Spicewood Springs Rd.
Bldg. IV, 1st Floor
Austin, TX 78759
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TX - Houston
12337 Jones Rd.
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Houston, TX 77070
Tel (281) 890-5068
Fax (281) 890-5044

TX - Port Lavaca
320 East Main
Port Lavaca, TX 77979
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TX - Texarkana
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WA - Seattle
19203 36th Ave. W.
Ste. 100
Lynnwood, WA 98036
Tel (425) 921-4000
Fax (425) 921-4040

PROJECT NO: 030275.22 PROJECT NAME: SPI Arcata GW Monitoring PAGE: 1 OF: 1
SAMPLER (Signature): Matt Hilliard PROJECT MANAGER: Ross Steenson DATE: 8/31/04
METHOD OF SHIPMENT: Courier CARRIER/WAYBILL NO: - DESTINATION: Alpha

Field Sample Identification	SAMPLES										ANALYSIS REQUEST						
	Sample			Preservation				FILTRATION*	Containers		Constituents/Method	Handling			Remarks		
	DATE	TIME	Matrix*	HCl	HNO ₃	H ₂ SO ₄	COLD		VOLUME (ml/oz)	TYPE*		NO.	PER/TEP	MS/MSD		HOLD	RUSH
MW-A - 200408	8/30	-	AQ				X	U	125ml	G	2	X				X	PCP/TEP by
MW-20-200408	8/30	1517	AQ				X	U	125ml	G	2	X				X	Canadian pulp method
TOTAL NUMBER OF CONTAINERS										LABORATORY COMMENTS/CONDITION OF SAMPLES							
										Cooler Temp: <u>2.6</u>							

RELINQUISHED BY:					RECEIVED BY:		
SIGNATURE	PRINTED NAME	COMPANY	DATE	TIME	SIGNATURE	PRINTED NAME	COMPANY
<u>[Signature]</u>	<u>Matt Hilliard</u>	<u>MFG</u>	<u>8/31/04</u>	<u>12:20</u>	<u>[Signature]</u>	<u>John Taylor</u>	<u>Alpha</u>
<u>[Signature]</u>	<u>John Taylor</u>	<u>ALPHA</u>	<u>8/31/04</u>	<u>16:30</u>	<u>[Signature]</u>	<u>Shon Speaks</u>	<u>ALPHA</u>

*KEY: Matrix: AQ - aqueous; NA - nonaqueous; SO - soil; SL - sludge; P - petroleum; A - air; OT - other. Containers: P - plastic; G - glass; T - teflon; B - brass; OT - other. Filtration: F - filtered; U - unfiltered.
DISTRIBUTION: PINK: Field Copy; YELLOW: Laboratory Copy; WHITE: Return to Originator

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. We performed the data quality review using U.S. Environmental Protection Agency National Functional Guidelines for Organic Data Review (U.S. EPA, 1999).

PRECISION

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

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

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 analysis are reported in laboratory analytical reports, included in Appendix B and D.

RPDs for the groundwater monitoring program and pilot study program data were acceptable.

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 quarterly groundwater monitoring and pilot study programs. Results of the review are summarized below.

- **Hold times.** Samples were analyzed within the holding time for each analytical method.
- **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 is considered complete and representative.

TABLE C-1
RELATIVE PERCENT DIFFERENCES
BETWEEN DUPLICATE SAMPLES¹

Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Concentrations reported in micrograms per liter (µg/L).

Constituent	Reporting Limit	Quarterly Groundwater Sampling		Relative Percent Difference
		Sample Concentration MW-21	Duplicate Sample Concentration MW-A	
PCP	1	2700	2800	3.6%
2,3,4,5-TeCP	1	5.4	5.5	1.8%
2,3,4,6-TeCP	1	66	68	3.0%
2,3,5,6-TeCP	1	6.4	6.9	7.5%

Notes:

1. Quarterly groundwater samples collected on August 30, 2004 and analyzed by Alpha Analytical Laboratory, of Ukiah, California, for chlorinated phenols using the Canadian Pulp Method. Only constituents with detections in either the primary and/or secondary sample are listed in this table.
2. RPD calculated as $([2(S-D)]/[S+D]) \times 100$ where S is the sample concentration and D is the blind duplicate sample concentration.
3. For sample concentrations less than two times the reporting limit, the absolute difference between the sample concentration and the blind duplicate sample is calculated.

Abbreviations:

PCP = pentachlorophenol
 TeCP = tetrachlorophenol

APPENDIX D

Copies of Manifest for Wastewater Disposal

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. C A D 0 4 7 4 0 3 5 3 6 2 4 0 4 4		Manifest Document No.		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.									
3. Generator's Name and Mailing Address SIERRA PACIFIC INDUSTRIES ARCAT P.O. BOX 1189 ARCATA CA 95518						A. State Manifest Document Number 24024044											
4. Generator's Phone (707) 443-3111						B. State Generator's ID											
5. Transporter 1 Company Name ASEBURY ENVIRONMENTAL SERVICES				6. US EPA ID Number C A D 0 2 8 2 7 7 0 3 6		C. State Transporter's ID (Reserved.)											
7. Transporter 2 Company Name						D. Transporter's Phone (800) 974-4466											
8. US EPA ID Number						E. State Transporter's ID (Reserved.)											
9. Designated Facility Name and Site Address DEMINO / KERDOON 2000 NORTH ALAMEDA STREET COMPTON CA 90222						10. US EPA ID Number C A T 0 8 0 0 1 3 3 5 2		G. State Facility's ID									
11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers		13. Total Quantity		14. Unit Wt/Vol		I. Waste Number					
a. NON RCRA HAZARDOUS WASTE LIQUID (WATER WITH TRACE PENTACHLOROPHENOL)						No.		Type		State		343					
						b.						2912 DM		291111 D G		EPA/Other NONE	
												State		EPA/Other			
												State		EPA/Other			
c.						State		EPA/Other									
						State		EPA/Other									
d.						State		EPA/Other									
						State		EPA/Other									
J. Additional Descriptions for Materials Listed Above 11A) 200920 L X SS (1) Fr. # 43107415						K. Handling Codes for Wastes Listed Above											
15. Special Handling Instructions and Additional Information USE PPE NAERG # 11A 171 SITE: 2693 NEW NAVY BASE ROAD, ARCAT, CA 95618						EMERGENCY CONTACT CHEMTREC 1-800-424-9300											
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.										If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.							
Printed/Typed Name Jay Chenevay				Signature <i>Jay Chenevay</i>				Month Day Year 09 17 13 10 14									
17. Transporter 1 Acknowledgement of Receipt of Materials						Printed/Typed Name GILBERT ANANDA		Signature <i>Gilbert Ananda</i>		Month Day Year 09 17 13 10 14							
18. Transporter 2 Acknowledgement of Receipt of Materials						Printed/Typed Name		Signature		Month Day Year							
19. Discrepancy Indication Space																	
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.																	
Printed/Typed Name						Signature				Month Day Year							

DO NOT WRITE BELOW THIS LINE.

APPENDIX E

Laboratory Reports and Chain-of-Custody Records for Surface Water and Debris Samples—Pilot Study Program

APPENDIX E
TRACER DILUTION TESTS

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

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Figure E-2	Plots of Bromide Concentrations versus Time

APPENDIX

Appendix E-1	Alpha Analytical Work Order A408430
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APPENDIX E

TRACER DILUTION TESTS

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

1.0 BACKGROUND

Tracer dilution methods involve adding a “tracer” to the screened interval of a well, followed by monitoring the concentration of the tracer over time in the same well. Periodic measurements of the tracer concentration are performed as the tracer is flushed from the well screen under natural groundwater flow conditions. The rate of groundwater flow through the well screen (Q) is directly determined from the rate of tracer dilution (i.e., the change in tracer concentration with time).

Estimating Q (Dilution Phase): Dilution of the tracer occurs as groundwater moves through the well screen, and the rate of dilution is directly related to Q and inversely related to the test interval volume (V) as follows:

$$\frac{dC}{dt} = -\left(\frac{Q}{V}\right) \cdot C(t) \quad \text{Equation (1)}$$

where V = the volume of the test interval (volume of the well screen + casing where mixing and measurement of tracer concentration occurs). The tracer is added to the well screen and is well mixed, resulting in an initial tracer concentration (C_o) for the start of the test (time $[t] = 0$). Flow rate (Q) is calculated directly by integrating Equation 1 from time $t = 0$ to some elapsed time (t), where C_o decreases to a concentration C .

Q can be obtained graphically by plotting the natural logarithm of the tracer concentration versus time (i.e., $\ln[C]$ versus t). The graphical method results in an average value for all of the data collected over the test, rather than just 2-point measurements. The initial tracer concentration (C_o) can be extrapolated from the data (the Y-intercept of the plot is $\ln[C_o]$), as a check on the test conditions. Q can be obtained from the slope of Equation 2 below:

$$\ln(C) = -\left(\frac{Q}{V}\right)t + \ln(C_o) \quad \text{Equation (2)}$$

The flow rate through the well screen (Q) is converted to the linear groundwater velocity (v) through the permeable treatment media by dividing by the cross-sectional area of the well screen (A ; well diameter x length of screen), a flow distortion factor (α) ranging from 2 to 3 for 2-inch polyvinylchloride wells¹, and the estimated effective porosity (n) of the aquifer system (assumed to be 0.25 for this work):

$$v = \frac{Q}{(nA\alpha)} \quad \text{Equation (3)}$$

2.0 FIELD METHODS

A total of three dilution tests were completed on August 19, 2004. The conditions of each test are summarized in Table E-1. This section describes the procedures for conducting the tracer dilution tests.

2.1 INSTRUMENT CALIBRATION

The tracer concentration (bromide ion) was monitored with submersible bromide-specific probes (TempHion Water Quality Sensors, Instrumentation Northwest) connected to a hand-held meter for manual measurements of tracer concentration over the course of the test. The probes were calibrated following the instructions provided by the manufacturer. A 10,000 milligram per liter solution of bromide ion (the standard solution) was diluted with groundwater from well MW-2 to prepare calibration standards that were of 200, 20, and 2 milligram per liter in bromide concentration. Each probe was calibrated before being inserted into the well. A review of the real-time bromide concentration data in the field indicated that the calibration curves for MW-7 and MW-8 were resulting in higher values than expected based on the amount of bromide added to each well at the start of the test. Therefore, at the end of the tests for MW-7 and MW-8, the probes were re-calibrated using water from the respective test well at the end of each test. The pre-test calibration curve for MW-2 and post-test calibration curves for MW-7 and MW-8 are attached as Figure E-1 to this Appendix.

2.2 TRACER RELEASE AND MONITORING

To start each test, a pre-determined volume of 10,000 milligram per liter stock of bromide solution was measured with a 100-milliliter Pyrex® graduated cylinder and added to the screened interval of the well using ¼-inch LDPE tubing connected to a peristaltic pump. The

¹ Drost, W., D. Klotz, A. Koch, H. Moser, F. Neumaier, and W. Rauert, 1968, Point Dilution Methods of Investigating Ground Water Flow by Means of Radioisotopes. *Water Resources Research*, Vol. 4, No. 1, p. 125-146.

discharge point of the injection line was located below the water level in each well (Table E-1) for each test. Another length of LDPE tubing was installed at the bottom of the well screen and attached to the pump. When the pump was operating, groundwater was extracted from the bottom of the well screen and injected near the top of the well screen at a flow rate of approximately 600 milliliters per minute; the pump was operated for the duration of the test to keep the test interval well mixed. Tracer concentration was monitored in each well for the duration of the tests. Two water samples were collected from MW-2 and MW-7 and one sample was collected from MW-8 at different times during each test and submitted to Alpha Analytical Laboratories, Inc., for analysis of bromide by EPA Method 300.1 (ion chromatography). These results are discussed below.

3.0 RESULTS

Bromide concentration data (as the natural logarithm of bromide concentration) were plotted against time for each test (Figure E-2). The concentration of bromide initially increased as the tracer mixed within the test interval, and then decreased as tracer was flushed out of the interval due to groundwater flow through the well. A discussion of each test is provided below.

MW-2 Groundwater Velocity Range: 0.4 to 0.7 feet per day

The tracer dilution test at MW-2 was operated for approximately 8.75 hours after the tracer was released in the well; the field data are presented graphically in Figure E-2. The natural logarithm of tracer concentration plotted against time closely followed a linear trend, with an r-squared value of 0.998. This trend suggests that the tracer was well mixed, and the dilution rate (and therefore groundwater velocity) was relatively constant over the test duration. The flow rate through the well screen was 0.003 liter per minute, based on the slope of the linear best-fit line (-0.0017) and the test interval volume (1.61 liters). The flow rate was translated to a groundwater velocity using an assumed effective porosity of $n=0.25$ and the range of expected flow distortion ($\alpha=3$ to 2). Based on the measured flow rate and assumed porosity and flow distortion, the calculated groundwater velocity ranged from 0.4 to 0.7 foot/day in the vicinity of MW-2 on August 19, 2004 (Table E-3).

The intercept of the trend line was used to extrapolate an initial bromide concentration of 183 milligram per liter, which differs from the expected initial concentration of 190 milligram per liter by a relative percent difference (RPD) of 4 percent (Table E-3). This difference is small, and the good agreement between the extrapolated and expected initial bromide concentrations suggests that the conditions of the test were satisfied. As a check on the field measurements, groundwater samples were collected at two different times during the test for laboratory

analysis of bromide. These results are presented in Table E-2. The RPD between the reported bromide concentration for the sample collected at 13:49 hours and the in-well measurement using the bromide specific electrode was 27 percent; the RPD for the sample collected at 18:00 hours was 4 percent. Variation between these results is expected because the laboratory sample was extracted near the bottom of the well, and the bromide-specific probe measurement was obtained from close to the center of the test interval.

MW-7 Groundwater Velocity Range: 0.1 to 0.2 foot per day

The tracer dilution test at MW-7 was operated for approximately 7.9 hours after the tracer was released in the well; the field data are presented graphically in Figure E-2. The natural logarithm of tracer concentration plotted against time closely followed a linear trend, with an r-squared value of 0.990. The flow rate through the well screen was 0.002 liter per minute, based on the slope of the linear best-fit line (-0.0005) and the test interval volume (3.61 liters). The flow rate was translated to a groundwater velocity using an assumed effective porosity of $n=0.25$ and the range of expected flow distortion ($\alpha=3$ to 2). Based on the measured flow rate and assumed porosity and flow distortion, the calculated groundwater velocity ranged from 0.1 to 0.2 foot/day in the vicinity of MW-7 on August 19, 2004 (Table E-3).

The intercept of the trend line was used to extrapolate an initial bromide concentration of 156 milligram per liter, which differs from the expected initial concentration of 208 milligram per liter by a RPD of 29 percent (Table E-3). This difference is larger than that observed for MW-2, suggesting that either the calculated test interval volume was larger than that expected based on the test setup (Table E-1) or mixing may have been insufficient during the early stages of the test. As a check on the field measurements, groundwater samples were collected at two different times during the test for laboratory analysis of bromide. These results are presented in Table E-2. The RPD between the reported bromide concentration for the sample collected at 14:00 hours, and the in-well measurement using the bromide-specific electrode was 1 percent; the RPD for the sample collected at 18:00 hours was 10 percent. The relatively small RPD for these samples suggests that the probe calibration was not compromised.

MW-8 Groundwater Velocity Range: 2 to 4 feet per day

The tracer dilution test at MW-8 was operated for approximately 4.5 hours after the tracer was released in the well; the field data are presented graphically in Figure E-2. The natural logarithm of tracer concentration plotted against time closely followed a linear trend, with an r-squared value of 0.998. The flow rate through the well screen was 0.031 liter per minute, based on the slope of the linear best-fit line (-0.0087) and the test interval volume (3.61 liters). The

flow rate was translated to a groundwater velocity using an assumed effective porosity of $n=0.25$ and the range of expected flow distortion ($\alpha=3$ to 2). Based on the measured flow rate and assumed porosity and flow distortion, the calculated groundwater velocity ranged from 2 to 3 feet/day in the vicinity of MW-8 on August 19, 2004 (Table E-3).

The intercept of the trend line was used to extrapolate an initial bromide concentration of 257 milligram per liter, which differs from the expected initial concentration of 208 milligram per liter by a RPD of 21 percent (Table E-3). This difference suggests that the probe calibration may have been compromised, the calculated test interval volume may have been smaller than that expected based on the test setup (Table E-1) or mixing may have been insufficient during the early stages of the test. As a check on the field measurements, a groundwater sample was collected at 14:10 hours for comparison with the field measurement (Table E-2). The RPD between the reported bromide concentration for the sample collected at 14:10 hours, and the in-well measurement using the bromide-specific electrode was 69 percent; suggesting that the probe calibration was not accurate.

Because the probe data were suspect, the rate of groundwater flow was calculated based on the laboratory results only, using Equation 2, and assuming an initial concentration (C_0) of 208 milligram per liter. The bromide concentration for the sample collected from MW-8 at 14:10 hours, 229 minutes after the start of the test, was reported to be 17 milligram per liter. Using $C=17$ milligrams per liter, $t=229$ minutes, and the same values for V , A , and n , the calculated groundwater velocity using Equations 2 and 4 is 3.9 feet/day (for $\alpha=2$). Based on this analysis, the estimated range in groundwater velocity in the vicinity of MW-8 is expanded to 2 to 4 feet/day, based on the field data, laboratory data, and using a range in α from 3 to 2.

TABLE E-1
SUMMARY OF TRACER DILUTION TEST SETUP AND OPERATION
 Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Well ID	MW-2	MW-7	MW-8
Depth to Water (feet bTOC) ¹	5.29	0.91	0.90
Depth to Top of Well Screen (feet bTOC) ²	2.00	2.00	2.00
Depth to Bottom of Well Screen (feet bTOC) ²	8.00	8.00	8.00
Well Casing Internal Diameter (inches) ²	2.05	2.05	2.05
Well Casing Volume per Foot (L)	0.65	0.65	0.65
Injection Depth (feet bTOC) ³	5.30	2.10	2.10
Extraction Depth (feet bTOC) ⁴	7.80	7.70	7.70
Test Interval Volume (V; L) ⁵	1.61	3.61	3.61
Test Interval Area (ft ²) ⁶	0.43	1.02	1.02
Recirculation Rate (mL/min) ⁷	600	600	600
Mass of Bromide (Br) injected (mg) ⁸	305	750	750
Date and Time of Tracer Release	8/19/04 9:15	8/19/04 10:27	8/19/04 10:21
Date and Time of Test Termination ⁹	8/19/04 18:00	8/19/04 18:18	8/19/04 14:50
Duration of Test (minutes)	525	471	269
Calculated Initial Bromide concentration: C _o (mg/L) ¹⁰	190	208	208

Notes:

1. Depth to water measured on August 19, 2004. bTOC = below top of casing.
2. Based on well construction information.
3. Depth of tubing connected to the discharge end of the peristaltic pump head.
4. Depth of tubing connected to the suction end of the peristaltic pump head.
5. Casing volume between the injection depth and bottom of the well screen in liters (L).
6. Cross-sectional area of the well screen in square feet (ft²).
7. Rate at which groundwater was extracted and simultaneously re-injected into each well.
mL/min = milliliters per minute.
8. 10,000 mg/L of an aqueous Bromide Standard solution was measured with volumetric glassware and added to MW-2, MW-7, and MW-8 at the start of the test; 30 mL was added to MW-2, 75 mL was added to MW-7 and MW-8.
9. Water samples were collected at this time for laboratory analysis of bromide concentration by EPA Method 300.0.
10. Calculated initial bromide concentration (mg of bromide/test interval volume).

TABLE E-2
LABORATORY ANALYTICAL RESULTS FOR BROMIDE

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

Concentrations in milligrams per liter (mg/L)

Monitoring Well Number	Time Sampled ¹	Bromide Concentration (Downhole Field Measurement)	Bromide Concentration (Laboratory Analysis)	Relative % Difference
MW-2	13:49	114	150	27
	18:00	80	77	4
MW-7	14:00	139	140	1
	18:18	121	110	10
MW-8	14:10	35	17	69

Notes:

1. Sample collected from peristaltic pump discharge during test operation.
2. Sample submitted to Alpha Analytical Laboratories, Inc., for analysis of bromide using EPA Method 300.1.
3. Relative Percent Difference (RPD) is calculated by:

$$RPD \% = \frac{|2(S_1 - S_2)|}{S_1 + S_2} \times 100$$

TABLE E-3
SUMMARY OF TRACER DILUTION TEST RESULTS
 Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California

Calculation Summary	MW-2	MW-7	MW-8
Groundwater Velocity based on Field Measurements:			
Slope of ln[C] vs. time (-Q/V) ¹	-0.0017	-0.0005	-0.0087
Intercept of ln[C] vs. time (ln[C _o]) ¹	5.21	5.05	5.55
Flow Rate (Q; L/min) ²	0.003	0.002	0.031
Calculated Initial Bromide concentration: C _o (mg/L) ³	190	208	208
Extrapolated Initial Bromide concentration: C _o (mg/L) ⁴	183	156	257
Relative % Difference Between Expected and Extrapolated C _o (mg/L) ⁵	4	29	21
Groundwater Velocity Range (feet per day)⁶	0.4 - 0.7	0.1 - 0.2	2 - 4

Notes:

1. Based on the ln[C] vs. time curve (Figure A-2)
2. Slope (Q/V) multiplied by the test interval volume (V; Table A-1).
3. Calculated initial bromide concentration (from Table A1)
4. Based on the linear regression of field data (Figure A-2)
5. Relative Percent Difference (RPD) is calculated by:

$$RPD \% = \left| \frac{2(S_1 - S_2)}{S_1 + S_2} \right| \times 100$$

6. Calculated using Equation 4; effective porosity (n=0.25), flow distortion (α=2 to 3) and test interval area (A) reported in Table A-1.

Abbreviations:

C = concentration

Q = rate of groundwater flow through the well screen

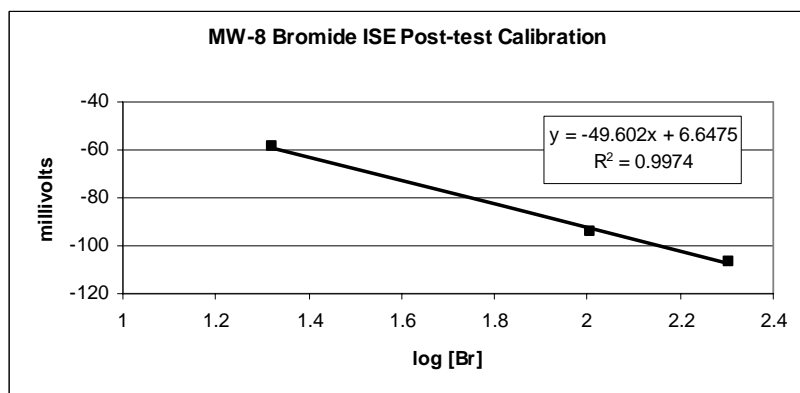
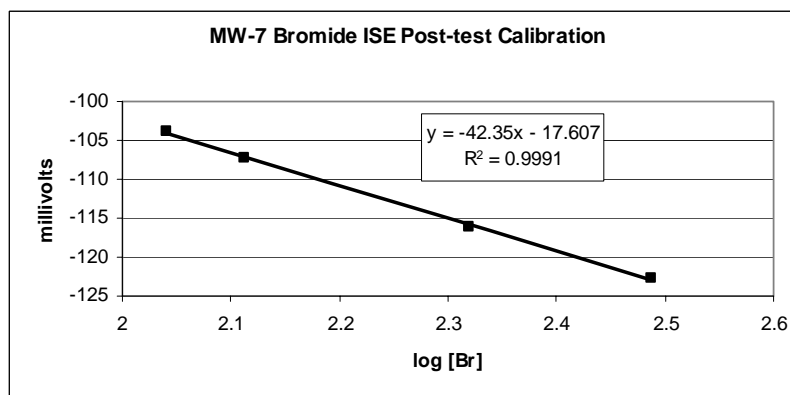
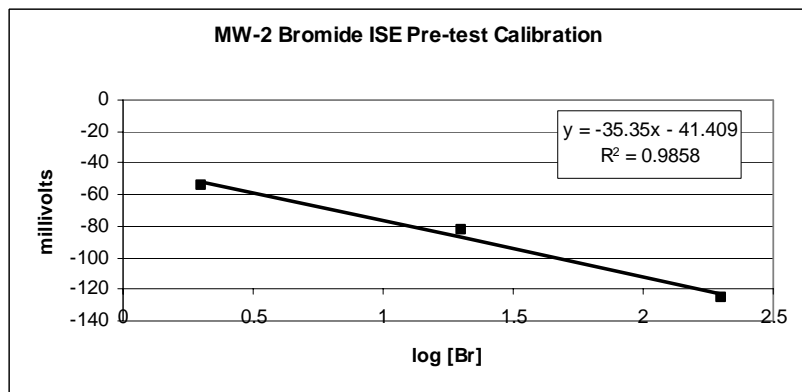
V = volume

C_o = initial concentration

L/min = liters per minute

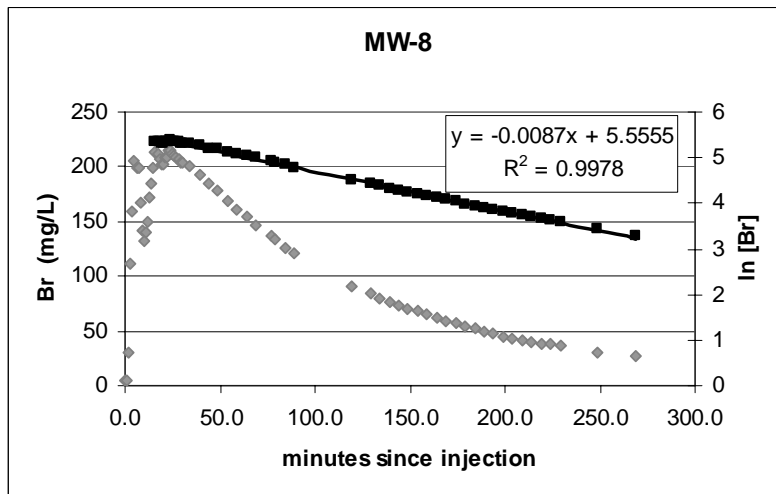
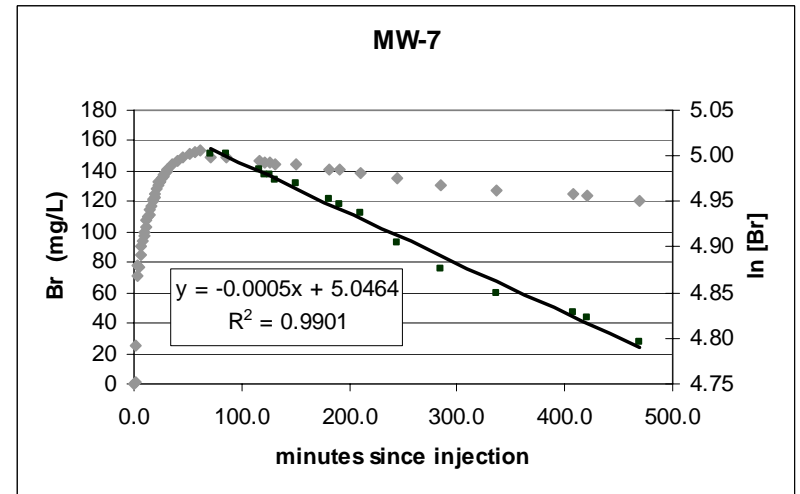
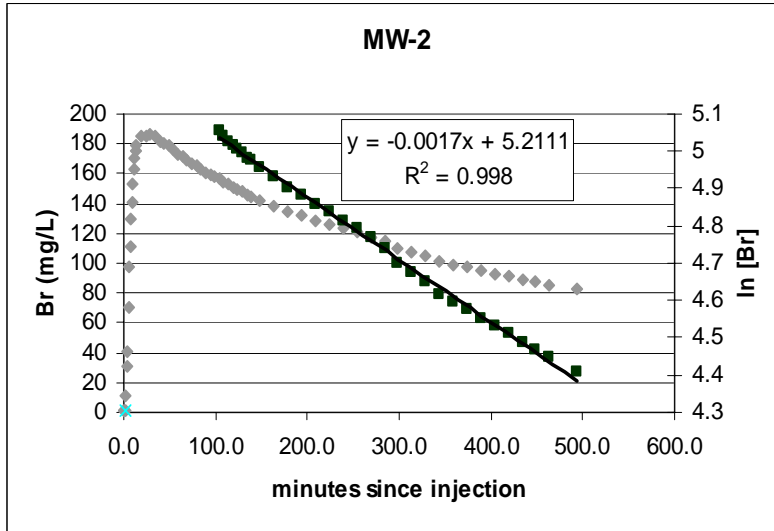
mg/L = milligrams per liter

FIGURE E-1
CALIBRATION CURVES
 Sierra Pacific Industries
 Arcata Division Sawmill
 Arcata, California



**FIGURE E-2
PLOTS OF BROMIDE CONCENTRATIONS
VERSUS TIME**

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California



Notes:

1. Grey diamonds represent field measurements of bromide (Br) concentration in milligrams per liter (mg/L).
2. Black squares represent the natural logarithm of bromide concentration (ln[Br]).
3. Linear best-fit line to the ln[Br] vs. time (as minutes since injection of bromide) is shown as a straight black line. Equation of best-fit line and r-squared values are posted on each plot.

PROJECT 9329

BSK ANALYTICAL LABORATORIES

BSK Submission Number: 2004081699

09/08/2004

Sheri L. Speaks
Alpha Analytical Laboratories Inc
208 Mason Street
Ukiah, CA 95482

RECEIVED
9/15/04



TASK 23 REMED.
PILOT STUDY
BOREHOLE DIL. TESTS

Dear Sheri L. Speaks,

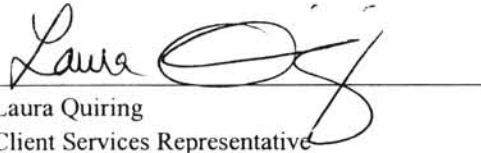
Thank you for selecting BSK Analytical Laboratories for your analytical testing needs. We have prepared this report in response to your request for analytical services. Please find enclosed the following sections for your complete laboratory report, each uniquely paginated:

CASE NARRATIVE: An overview of the work performed.
CERTIFICATE OF ANALYSIS: Analytical results.
REPORT OF SAMPLE INTEGRITY
CHAIN OF CUSTODY FORM

Certification: I certify that this data package is in compliance with NELAC Standards for applicable analyses under NELAP Certificate #04227CA, and is in compliance with ELAP Standards for applicable certified analyses under ELAP Certificate #1180, except for the conditions listed.

If additional clarification of any information is required, please contact your Client Services Representative, Laura Quiring, at (800) 877-8310 or (559) 497-2888.

BSK ANALYTICAL LABORATORIES


Laura Quiring
Client Services Representative



SAMPLE AND RECEIPT INFORMATION

The sample(s) was received, prepared, and analyzed within the method specified holding times unless otherwise noted on the Certificate of Analysis. Samples, when shipped, arrived within acceptable temperature requirements of 0° to 6° Celsius unless otherwise noted on the Report of Sample Integrity. Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.

QUALITY CONTROL

All analytical quality controls are within established method criteria except when noted in the Quality Control section or on the Certificate of Analysis. All positive results for EPA Methods 504.1, 502.2, and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed. OC samples may include analytes not requested in this submission.

<u>RUN</u>	<u>ORDER</u>	<u>TEST</u>	<u>ANALYTE</u>	<u>COMMENT</u>
78947	492147	EPA 300.1	Bromide (Br)	LCSD recovery was out of the acceptance range, however the LCS recovery was within the acceptance range, therefore the data were reported.
78947	492147	EPA 300.1	Bromate (BrO3)	LCSD recovery was out of the acceptance range, however the LCS recovery was within the acceptance range, therefore the data were reported.
78947	492147	EPA 300.1	Chlorite (ClO2)	LCSD recovery was out of the acceptance range, however the LCS recovery was within the acceptance range, therefore the data were reported.
78947	492147	EPA 300.1	Chlorate (ClO3)	LCSD recovery was out of the acceptance range, however the LCS recovery was within the acceptance range, therefore the data were reported.

SAMPLE RESULT INFORMATION

Samples are analyzed as received (wet weight basis) unless noted here. The results relate only to the items tested. Any exceptions to be considered when evaluating these results are also listed here, if applicable. Results contained in this package shall not be reproduced, except in full, without written approval of BSK Analytical Laboratories.

<u>ORDER</u>	<u>TEST</u>	<u>ANALYTE</u>	<u>COMMENT</u>
--------------	-------------	----------------	----------------



BSK ANALYTICAL LABORATORIES

Sheri L. Speaks
Alpha Analytical Laboratories Inc
208 Mason Street
Ukiah, CA 95482

Certificate of Analysis
NELAP Certificate #04227CA
ELAP Certificate #1180



Report Issue Date: 09/08/2004

BSK Submission #: 2004081699

BSK Sample ID #: 487407

Project ID: A408430

Project Desc:

Submission Comments:

Sample Type: Liquid
Sample Description: MW-2-1349
Sample Comments: A408430-01

Date Sampled: 08/19/2004
Time Sampled: 1349
Date Received: 08/24/2004

Inorganics

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromide (Br)	EPA 300.1	150	mg/L	0.005	900	4.500	09/02/04	09/02/04

mg/L: Milligrams/Liter (ppm)
mg/Kg: Milligrams/Kilogram (ppm)
µg/L: Micrograms/Liter (ppb)
µg/Kg: Micrograms/Kilogram (ppb)
%Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit
DLR: Detection Limit for Reporting
: PQL x Dilution
ND: None Detected at DLR

H: Analyzed outside of hold time
P: Preliminary result
S: Suspect result. See Case Narrative for comments.
E: Analysis performed by External laboratory.
See External Laboratory Report attachments.

Report Authentication Code:



Page 1 of 5

BSK ANALYTICAL LABORATORIES

Sheri L. Speaks
Alpha Analytical Laboratories Inc
208 Mason Street
Ukiah, CA 95482

Certificate of Analysis
NELAP Certificate #04227CA
ELAP Certificate #1180



Report Issue Date: 09/08/2004

BSK Submission #: 2004081699

BSK Sample ID #: 487408

Project ID: A408430

Project Desc:

Submission Comments:

Sample Type: Liquid
Sample Description: MW-7-1400
Sample Comments: A408430-02

Date Sampled: 08/19/2004
Time Sampled: 1400
Date Received: 08/24/2004

Inorganics

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromide (Br)	EPA 300.1	140	mg/L	0.005	800	4.000	09/02/04	09/02/04

mg/L: Milligrams/Liter (ppm)
mg/Kg: Milligrams/Kilogram (ppm)
µg/L: Micrograms/Liter (ppb)
µg/Kg: Micrograms/Kilogram (ppb)
%Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit
DLR: Detection Limit for Reporting
: PQL x Dilution
ND: None Detected at DLR

H: Analyzed outside of hold time
P: Preliminary result
S: Suspect result. See Case Narrative for comments.
E: Analysis performed by External laboratory.
See External Laboratory Report attachments.

Report Authentication Code: 

Page 2 of 5

BSK ANALYTICAL LABORATORIES

Sheri L. Speaks
 Alpha Analytical Laboratories Inc
 208 Mason Street
 Ukiah, CA 95482

Certificate of Analysis
 NELAP Certificate #04227CA
 ELAP Certificate #1180



Report Issue Date: 09/08/2004

BSK Submission #: 2004081699

BSK Sample ID #: 487409

Project ID: A408430

Project Desc:

Submission Comments:

Sample Type: Liquid
 Sample Description: MW-8-1410
 Sample Comments: A408430-03

Date Sampled: 08/19/2004
 Time Sampled: 1410
 Date Received: 08/24/2004

Inorganics

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromide (Br)	EPA 300.1	17	mg/L	0.005	100	0.500	09/02/04	09/02/04

mg/L: Milligrams/Liter (ppm)
 mg/Kg: Milligrams/Kilogram (ppm)
 µg/L: Micrograms/Liter (ppb)
 µg/Kg: Micrograms/Kilogram (ppb)
 %Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit
 DLR: Detection Limit for Reporting
 : PQL x Dilution
 ND: None Detected at DLR

H: Analyzed outside of hold time
 P: Preliminary result
 S: Suspect result. See Case Narrative for comments.
 E: Analysis performed by External laboratory.
 See External Laboratory Report attachments.

Report Authentication Code:



Page 3 of 5

BSK ANALYTICAL LABORATORIES

Sheri L. Speaks
 Alpha Analytical Laboratories Inc
 208 Mason Street
 Ukiah, CA 95482

Certificate of Analysis
 NELAP Certificate #04227CA
 ELAP Certificate #1180



Report Issue Date: 09/08/2004

BSK Submission #: 2004081699

BSK Sample ID #: 487410

Project ID: A408430

Project Desc:

Submission Comments:

Sample Type: Liquid
 Sample Description: MW-2-1800
 Sample Comments: A408430-04

Date Sampled: 08/19/2004
 Time Sampled: 1800
 Date Received: 08/24/2004

Inorganics

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromide (Br)	EPA 300.1	77	mg/L	0.005	500	2.500	09/02/04	09/02/04

mg/L: Milligrams/Liter (ppm)
 mg/Kg: Milligrams/Kilogram (ppm)
 µg/L: Micrograms/Liter (ppb)
 µg/Kg: Micrograms/Kilogram (ppb)
 %Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit
 DLR: Detection Limit for Reporting
 : PQL x Dilution
 ND: None Detected at DLR

H: Analyzed outside of hold time
 P: Preliminary result
 S: Suspect result. See Case Narrative for comments.
 E: Analysis performed by External laboratory.
 See External Laboratory Report attachments.

Report Authentication Code:



Page 4 of 5

BSK ANALYTICAL LABORATORIES

Sheri L. Speaks
 Alpha Analytical Laboratories Inc
 208 Mason Street
 Ukiah, CA 95482

Certificate of Analysis
 NELAP Certificate #04227CA
 ELAP Certificate #1180



Report Issue Date: 09/08/2004

BSK Submission #: 2004081699

BSK Sample ID #: 487411

Project ID: A408430

Project Desc:

Submission Comments:

Sample Type: Liquid
 Sample Description: MW-7-1818
 Sample Comments: A408430-05

Date Sampled: 08/19/2004
 Time Sampled: 1818
 Date Received: 08/24/2004

Inorganics

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromide (Br)	EPA 300.1	110	mg/L	0.005	600	3.000	09/02/04	09/02/04

mg/L: Milligrams/Liter (ppm)
 mg/Kg: Milligrams/Kilogram (ppm)
 µg/L: Micrograms/Liter (ppb)
 µg/Kg: Micrograms/Kilogram (ppb)
 %Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit
 DLR: Detection Limit for Reporting
 : PQL x Dilution
 ND: None Detected at DLR

H: Analyzed outside of hold time
 P: Preliminary result
 S: Suspect result. See Case Narrative for comments.
 E: Analysis performed by External laboratory.
 See External Laboratory Report attachments.

Report Authentication Code: 

14.4

Chain-of-Custody Record

Project No.: 9329		ANALYSES										REMARKS							
Samplers (Signature):		Date	Time	Sample Number	EPA Method 8021 (Full Scan)	EPA Method 8021 (Hal. VOCs only)	EPA Method 8021 (BTEX only)	EPA Method 8260	EPA Method 8270 (Full Scan)	EPA Method 8270 SIM (PAHS only)	Method 8015M (Gasoline)	Method 8015M (Diesel)	Method 8015M (Motor Oil)	Silica Gel Cleanup	Filtered	Preserved	Cooled	No. of Containers	Additional Comments
P.B.		8/19/04	1349	MW-7-1349	A408430-01									X	N	N	N	1	ANALYSIS FOR BROMIDE ONLY!
		8/19/04	1400	MW-7-1400	2									X	N	N	N	1	"
		8/19/04	1410	MW-8-1410	3									X	N	N	N	1	"
		8/19/04	1800	MW-2-1800	4									X	N	N	N	2	"
		8/19/04	1818	MW-7-1818	5									X	N	N	N	2	"
																			OK to dilute per client - NB
																			Per Peter project name is SPI - Arcata
Laboratory: Alpha Analytical		Turnaround Time: Standard			Results to: Peter Bennett										Total No. of Containers: 7				
Requisitioned by (Signature):		Date: 8/19	Requisitioned by (Signature):		Date: 8/19										Method of Shipment: Overnight				
Printed Name: Peter Bennett		Time: 9:50	Printed Name:		Date:										Laboratory Comments and Log No.:				
Company: Geomatrix			Company:		Date:														
Received by: Peter Burgess		Date: 8/20/04	Received by:		Date:														
Printed Name: Peter Burgess		Time: 9:50	Printed Name:		Date:														
Company: Geomatrix			Company:		Date:														