Groundwater Monitoring and Progress Report
Fourth Quarter 2004

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

Prepared for:

Sierra Pacific Industries

January 26, 2005

Project No. 9329.000, Task 22

Geomatrix Consultants

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GEOMATRIX

January 26, 2004
Project 9329.000, 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
Fourth 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.

Ross Steenson, C.HG.
Senior Hydrogeologist

Edward P. Conti, C.E.G., C.HG.
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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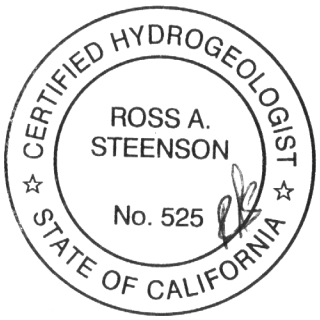
GEOMATRIX

PROFESSIONAL CERTIFICATION

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

January 26, 2005
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.HG.
Senior Hydrogeologist

GEOMATRIX

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

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

Wood surface protection activities historically conducted at the site included the use of an 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, 2003). Two additional monitoring wells (MW-20 and MW-21) were installed in January and February 2004 to monitor shallow groundwater (Geomatrix, 2004a). Monitoring well locations are illustrated on Figure 3. Monitoring well construction details are included in Table 1.

2.2 LITHOLOGY

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

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

2.3 HYDROGEOLOGY

The groundwater surface measured in 21 site monitoring wells has ranged between approximately 0.5 and 5.5 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, 2003).

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

On December 14, 2004, depth to water was measured in all site monitoring wells (MW-1 through MW-21; Figure 3), and at a monitoring point in the Mad River Slough using an electric sounder (Table 2). Water levels were measured in the wells on the first 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 Alconox® detergent solution and then rinsed with distilled water.

Twenty-one monitoring wells (MW-1 through MW-21) were purged and sampled on December 14 and 15, 2004, in accordance with the site MRP. Field personnel used dedicated, disposable Teflon® bailers to 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 and water quality parameters stabilized to within approximately 10 percent of specific conductance, 0.05 pH unit for pH, and 1 degree Celsius for temperature. Copies of the field records for groundwater monitoring and sampling activities are included in Appendix A.

Groundwater samples were collected after purging, if applicable, using the dedicated Teflon® bailers and, for monitoring well MW-21, the peristaltic pump and new tubing. For MW-14, which was purged dry and exhibited a slow recharge rate, the well was allowed to recharge overnight before sampling. 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 analysis of TDS was discontinued during the fourth quarter of 2004 in lieu of field measurements. Historical laboratory analytical results for TDS also are shown in this table.

Groundwater collected from each of the 21 monitoring wells was placed in two 125-milliliter glass vials that were sealed with Teflon®-lined screw caps. After filling, the vials were labeled and placed in an ice-cooled, insulated chest for transport to the laboratory for analysis. In addition, the depth to water in each monitoring well was measured after sampling. 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 a 500-milliliter amber glass bottle sealed with a Teflon®-lined screw cap and sent to the laboratory as described above.

3.1.2 Laboratory Methods

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

3.2 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 groundwater elevation measurements, field measurements of water quality parameters, and laboratory analysis of groundwater samples. Groundwater elevation data provide information on subsurface hydraulic conditions, discussed below as occurrence and movement of groundwater. Groundwater quality is evaluated based on the laboratory analysis of chlorinated phenols. The results are presented below.

3.3.1 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 1.04 to 5.10 feet below the measuring point, with associated groundwater elevations ranging from 4.51 to 9.24 feet above mean sea level (msl), relative to the North American Vertical Datum of 1988. Groundwater elevation data from these monitoring wells indicate that the direction of shallow groundwater flow is generally to the east (Figure 4). The magnitude of the lateral hydraulic gradient ranges from approximately 0.01 foot/foot in the former green chain vicinity to as much as approximately 0.03 foot/foot beneath the sawmill and maintenance buildings. Groundwater elevations within 100 feet of the Mad River Slough shoreline are subject to tidal fluctuations (EnviroNet, 2003) and as such, were not used to evaluate the flow direction or gradient of shallow groundwater.

The groundwater surface measured in deep monitoring wells at the site (i.e., screened from approximately 15 to 20 feet bgs) ranged from 4.38 to 5.75 feet below the measuring point with associated groundwater elevations ranging from 5.40 to 6.24 feet above msl, relative to the North American Vertical Datum of 1988. Groundwater elevation data from these monitoring wells indicate that the direction of deep groundwater flow is generally to the east (Figure 5) at a lateral hydraulic gradient of approximately 0.01 foot/foot.

3.3.2 Groundwater Analytical Results

Twenty-one groundwater monitoring wells were sampled during this period (MW-1 through MW-21). Laboratory analytical reports and sample chain-of-custody records are included in Appendix B. The results for the chlorinated phenol analyses are presented in Table 4. PCP results also are illustrated on Figure 6 (shallow groundwater).

Trichlorophenol, PCP and tetrachlorophenols were only detected in groundwater samples from 2 of the 21 monitoring wells (MW-7 and MW-21; Table 4; PCP is also shown on Figure 6).

The detected concentrations of PCP were 22,000 micrograms per liter (µg/L) in the samples from MW-7 and 3,200 µg/L and 8,100 µg/L in the samples from 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 in accordance with applicable regulations.

During this calendar quarter, no drums of purge water were disposed.

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 at the site from participating in activities that would result in exposure to unacceptable risk.

During the subject period, no pilot study activities were conducted.

5.0 SCHEDULE

The next groundwater monitoring and sampling event for the MRP is scheduled to be performed in March 2005. 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

EnviroNet Consulting (EnviroNet), 2001, Report on Hydrogeologic Investigations at Sierra-Pacific Industries, Arcata Division Sawmill, Arcata, California, October 23.

EnviroNet, 2002a, *Report on Recent Hydrogeologic Investigation at Sierra-Pacific Industries*, Arcata Division Sawmill, Arcata, California, April 19.

EnviroNet, 2002b, *Interim Feasibility Study to Remediate Chlorophenols in Soil and Groundwater*, Arcata Division Sawmill, prepared for Sierra Pacific Industries, Arcata, California, May 1.

EnviroNet, 2003, *Results of the Remedial Investigation for Sierra Pacific Industries*, Arcata Division Sawmills, Arcata, California, May 1.

Geomatrix Consultants, Inc. (Geomatrix), 2004a, *Monitoring Wells MW-20 and MW-21 Installation and Soil Sampling Report*, Arcata Division Sawmill, prepared for Sierra Pacific Industries, Arcata, California, April 7.

Geomatrix, 2004b, *Pilot Study Work Plan for Implementation of Proposed Remedial Action*, Arcata Division Sawmill, prepared for Sierra Pacific Industries, Arcata, California, April 29.

MFG, Inc. (MFG), 2003, *Interim Remedial Measures Report*, Sierra Pacific Industries Arcata Division Sawmill, June 10.

MFG and Geomatrix, 2003, *Third Quarter 2003 Groundwater Monitoring Report*, Arcata Division Sawmill, prepared for Sierra Pacific Industries, Arcata, California, November 3.

U.S. Environmental Protection Agency, 1999, *Contract Laboratory Program National Functional Guidelines for Organic Data Review*, Office of Emergency and Remedial Response, October.

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-04	8	7	4	40.8658416	124.1532563	10.92	11.87	3.2 – 6.8	0.01	2.0 – 7.0	1.0 – 2.0	0 – 1.0
MW-21	12-Feb-04	8.3	8.3	0.75	40.8660161	124.1530089	10.11	12.89	2.1 – 8.1	0.01	1.5 – 8.3	1.0 – 1.5	0 – 1.0
Deep Wells													
MW-13D	12-Nov-02	21	20	2	40.8660809	124.1525231	10.26	9.96	15.0 – 20.0	0.01	13.5 – 21.0	12.0 – 13.5	0 – 12.0
MW-15D	13-Nov-02	21	20	2	40.8662658	124.1528255	11.59	11.19	15.0 – 20.0	0.01	14.0 – 21.0	12.0 – 14.0	0 – 12.0
MW-16D	14-Nov-02	21.5	20	2	40.8655571	124.1530363	10.13	9.83	15.0 – 20.0	0.01	14.0 – 21.5	12.0 – 14.0	0 – 12.0
MW-19D	14-Nov-02	21.5	20	2	40.8662419	124.1532744	11.21	11.06	15.0 – 20.0	0.01	14.0 – 21.0	12.0 – 14.0	0 – 12.0

Notes:
1. 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.
2. Monitoring wells were resurveyed by Omsberg Suveyors and Company of Eureka California on February 13, 2004; latitude and longitude were surveyed relative to North American Datum (NAD) of 1983 and elevations were surveyed relative to National Geodetic Vertical Datum (NGVD) of 1929. Elevations shown have been adjusted by 3.35 feet and presented as North American Vertical Datum (NAVD) of 1988 elevations.
3. Surface seal interval consists of the concrete surface completion and a neat cement sanitary seal, if applicable.
4. Well installed on a raised concrete pad of the former green chain. Depth measurements (ft bgs) are relative to the local ground surface of the concrete pad, which is approximately 1 foot above the grade of the surrounding ground surface.

Abbreviations:
ft bgs = feet below ground surface
ft msl = feet mean sea level

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
	14-Dec-04	9.69	4.30	5.39
MW-2	14-Mar-02	9.49	4.52	4.97
	18-Jul-02	9.49	5.43	4.06
	16-Sep-02	9.49	5.28	4.21
	02-Dec-02	9.49	5.17	4.32
	18-Mar-03	9.49	5.16	4.33
	31-Mar-03	9.49	5.43	4.06
	21-May-03	9.49	5.45	4.04
	27-Aug-03	9.49	5.09	4.40
	03-Nov-03	9.49	5.17	4.32
	23-Mar-04	9.61	5.31	4.30
	17-May-04	9.61	5.43	4.18
	30-Aug-04	9.61	5.07	4.54
	14-Dec-04	9.61	5.10	4.51
MW-3	14-Mar-02	11.14	2.19	8.95
	18-Jul-02	11.14	2.79	8.35
	16-Sep-02	11.14	2.96	8.18
	02-Dec-02	11.14	2.75	8.39
	18-Mar-03	11.14	2.30	8.84
	31-Mar-03	11.14	1.96	9.18
	21-May-03	11.14	2.19	8.95
	27-Aug-03	11.14	2.08	9.06
	03-Nov-03	11.14	2.35	8.79
	23-Mar-04	11.22	2.24	8.98
	17-May-04	11.22	2.25	8.97
	30-Aug-04	11.22	2.42	8.80
	14-Dec-04	11.22	2.79	8.43

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)
MW-4	14-Mar-02	10.71	1.52	9.19
	18-Jul-02	10.71	1.84	8.87
	16-Sep-02	10.71	2.04	8.67
	02-Dec-02	10.71	1.80	8.91
	18-Mar-03	10.71	1.52	9.19
	31-Mar-03	10.71	0.93	9.78
	21-May-03	10.71	1.18	9.53
	27-Aug-03	10.71	1.36	9.35
	03-Nov-03	10.71	1.64	9.07
	23-Mar-04	10.74	1.17	9.57
	17-May-04	10.74	1.17	9.57
	30-Aug-04	10.74	1.37	9.37
	14-Dec-04	10.74	2.21	8.53
MW-5	14-Mar-02	10.69	0.95	9.74
	18-Jul-02	10.69	1.26	9.43
	16-Sep-02	10.69	1.35	9.34
	02-Dec-02	10.69	1.23	9.46
	18-Mar-03	10.69	0.87	9.82
	31-Mar-03	10.69	0.63	10.06
	21-May-03	10.69	0.69	10.00
	27-Aug-03	10.69	0.84	9.85
	03-Nov-03	10.69	0.92	9.77
	23-Mar-04	10.74	0.62	10.12
	17-May-04	10.74	0.78	9.96
	30-Aug-04	10.74	0.71	10.03
	14-Dec-04	10.74	1.50	9.24
MW-6	14-Mar-02	9.77	0.85	8.92
	18-Jul-02	9.77	1.27	8.50
	16-Sep-02	9.77	1.51	8.26
	02-Dec-02	9.77	1.30	8.47
	18-Mar-03	9.77	0.89	8.88
	31-Mar-03	9.77	0.37	9.40
	21-May-03	9.77	0.60	9.17
	27-Aug-03	9.77	0.70	9.07
	03-Nov-03	9.77	1.21	8.56
	23-Mar-04	9.83	0.69	9.14
	17-May-04	9.83	0.78	9.05
	30-Aug-04	9.83	0.99	8.84
	14-Dec-04	9.83	1.25	8.58

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)
MW-7	14-Mar-02	9.68	0.73	8.95
	18-Jul-02	9.68	1.15	8.53
	16-Sep-02	9.68	1.37	8.31
	02-Dec-02	9.68	1.19	8.49
	18-Mar-03	9.68	0.75	8.93
	31-Mar-03	9.68	0.26	9.42
	21-May-03	9.68	0.45	9.23
	27-Aug-03	9.68	0.61	9.07
	03-Nov-03	9.68	1.13	8.55
	23-Mar-04	9.74	0.44	9.30
	17-May-04	9.74	0.50	9.24
	30-Aug-04	9.74	0.84	8.90
	14-Dec-04	9.74	1.04	8.70
MW-8	14-Mar-02	10.30	0.92	9.38
	18-Jul-02	10.30	1.24	9.06
	16-Sep-02	10.30	1.52	8.78
	02-Dec-02	10.30	1.34	8.96
	18-Mar-03	10.30	0.95	9.35
	31-Mar-03	10.30	0.29	10.01
	21-May-03	10.30	0.49	9.81
	27-Aug-03	10.30	0.91	9.39
	03-Nov-03	10.30	1.36	8.94
	23-Mar-04	10.33	0.57	9.76
	17-May-04	10.33	0.54	9.79
	30-Aug-04	10.33	0.94	9.39
	14-Dec-04	10.33	1.29	9.04
MW-9	14-Mar-02	9.86	0.71	9.15
	18-Jul-02	9.86	1.13	8.73
	16-Sep-02	9.86	1.40	8.46
	02-Dec-02	9.86	1.18	8.68
	18-Mar-03	9.86	0.79	9.07
	31-Mar-03	9.86	0.11	9.75
	21-May-03	9.86	0.30	9.56
	27-Aug-03	9.86	0.81	9.05
	03-Nov-03	9.86	1.19	8.67
	23-Mar-04	9.91	0.40	9.51
	17-May-04	9.91	0.38	9.53
	30-Aug-04	9.91	0.89	9.02
	14-Dec-04	9.91	1.05	8.86

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)
MW-10	02-Dec-02	9.80	1.35	8.45
	18-Mar-03	9.80	0.95	8.85
	31-Mar-03	9.80	0.30	9.50
	21-May-03	9.80	0.52	9.28
	27-Aug-03	9.80	1.02	8.78
	03-Nov-03	9.80	1.43	8.37
	23-Mar-04	9.85	0.70	9.15
	17-May-04	9.85	0.61	9.24
	30-Aug-04	9.85	1.13	8.72
	14-Dec-04	9.85	1.24	8.61
MW-11	02-Dec-02	10.26	1.55	8.71
	18-Mar-03	10.26	1.12	9.14
	31-Mar-03	10.26	0.40	9.86
	21-May-03	10.26	0.64	9.62
	27-Aug-03	10.26	1.19	9.07
	03-Nov-03	10.26	1.56	8.70
	23-Mar-04	10.28	0.75	9.53
	17-May-04	10.28	0.69	9.59
	30-Aug-04	10.28	1.20	9.08
	14-Dec-04	10.28	1.44	8.84
MW-12	02-Dec-02	10.73	1.56	9.17
	18-Mar-03	10.73	1.15	9.58
	31-Mar-03	10.73	0.55	10.18
	21-May-03	10.73	0.70	10.03
	27-Aug-03	10.73	1.12	9.61
	03-Nov-03	10.73	1.68	9.05
	23-Mar-04	10.76	0.87	9.89
	17-May-04	10.76	0.76	10.00
	30-Aug-04	10.76	1.13	9.63
	14-Dec-04	10.76	1.55	9.21
MW-14	02-Dec-02	9.02	2.40	6.62
	18-Mar-03	9.02	2.21	6.81
	31-Mar-03	9.02	1.77	7.25
	21-May-03	9.02	1.69	7.33
	27-Aug-03	9.02	2.27	6.75
	03-Nov-03	9.02	2.52	6.50
	23-Mar-04	9.15	2.08	7.07
	17-May-04	9.15	2.15	7.00
	30-Aug-04	9.15	2.48	6.67
	14-Dec-04	9.15	2.30	6.85

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)
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
	14-Dec-04	9.16	1.17	7.99
MW-18	02-Dec-02	9.53	0.94	8.59
	18-Mar-03	9.53	0.52	9.01
	31-Mar-03	9.53	--[3]	NC
	21-May-03	9.53	0.05	9.48
	27-Aug-03	9.53	0.55	8.98
	03-Nov-03	9.53	0.95	8.58
	23-Mar-04	9.92	0.52	9.40
	17-May-04	9.92	0.47	9.45
	30-Aug-04	9.92	0.98	8.94
	14-Dec-04	9.92	1.13	8.79
MW-20	23-Mar-04	11.87	2.36	9.51
	17-May-04	11.87	2.35	9.52
	30-Aug-04	11.87	2.70	9.17
	14-Dec-04	11.87	2.80	9.07
MW-21	23-Mar-04	12.89	3.97	8.92
	17-May-04	12.89	3.99	8.90
	30-Aug-04	12.89	4.23	8.66
	14-Dec-04	12.89	4.36	8.53
Deep Wells				
MW-13D	02-Dec-02	9.84	4.18	5.66
	18-Mar-03	9.84	4.21	5.63
	31-Mar-03	9.84	4.26	5.58
	21-May-03	9.84	4.52	5.32
	27-Aug-03	9.84	4.45	5.39
	03-Nov-03	9.84	4.30	5.54
	23-Mar-04	9.96	4.42	5.54
	17-May-04	9.96	4.54	5.42
	30-Aug-04	9.96	4.57	5.39
	14-Dec-04	9.96	4.56	5.40

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)
MW-15D	02-Dec-02	11.08	5.31	5.77
	18-Mar-03	11.08	5.44	5.64
	31-Mar-03	11.08	5.46	5.62
	21-May-03	11.08	5.74	5.34
	27-Aug-03	11.08	5.71	5.37
	03-Nov-03	11.08	5.51	5.57
	23-Mar-04	11.19	5.66	5.53
	17-May-04	11.19	5.77	5.42
	30-Aug-04	11.19	5.83	5.36
	14-Dec-04	11.19	5.75	5.44
MW-16D	02-Dec-02	9.80	3.99	5.81
	18-Mar-03	9.80	4.17	5.63
	31-Mar-03	9.80	3.91	5.89
	21-May-03	9.80	4.11	5.69
	27-Aug-03	9.80	3.95	5.85
	03-Nov-03	9.80	4.26	5.54
	23-Mar-04	9.83	4.01	5.82
	17-May-04	9.83	4.13	5.70
	30-Aug-04	9.83	4.13	5.70
	14-Dec-04	9.83	4.38	5.45
MW-19D	02-Dec-02	11.00	4.31	6.69
	18-Mar-03	11.00	4.23	6.77
	31-Mar-03	11.00	4.02	6.98
	21-May-03	11.00	4.22	6.78
	27-Aug-03	11.00	4.26	6.74
	03-Nov-03	11.00	4.61	6.39
	23-Mar-04	11.06	4.13	6.93
	17-May-04	11.06	4.63	6.43
	30-Aug-04	11.06	4.60	6.46
	14-Dec-04	11.06	4.82	6.24
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
	14-Dec-04	15.70	12.05	3.65
	14-Dec-04	15.70	9.90	5.80

TABLE 2

SUMMARY OF WATER LEVEL MEASUREMENTS

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

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 calcuated

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 (ºC)	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	17	2,400	6.6	1,800	1,300
	17-May-04	15	2,600	6.3	1,900	1,400
	15-Dec-04	15	3,800	6.6	2,500	--
MW-2	20-Mar-03	13	2,100	6.2	--	--
	22-May-03	14	1,700	6.4	1,100	860
	27-Aug-03	18	1,500	6.6	1,100	760
	03-Nov-03	16	1,590	6.3	1,100	760
	24-Mar-04	13	1,390	6.3	970	740
	17-May-04	15	1,400	6.2	980	730
	30-Aug-04	19	1,200	-- [3]	850	680
	15-Dec-04	14	1,100	6.4	740	--
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	980	6.6	--	410
	17-May-04	16	1,100	6.2	750	510
	15-Dec-04	13	700	6.4	460	--
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	18	760	6.6	520	310
	17-May-04	18	880	6.2	590	360
	15-Dec-04	14	640	6.4	410	--
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	660	6.6	450	380
	17-May-04	15	660	6.3	440	360
	15-Dec-04	15	470	6.4	310	--
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	13	920	6.6	630	430
	24-Mar-04	11	920	6.5	640	410
	17-May-04	14	930	6.3	640	420
	30-Aug-04	17	880	-- [3]	610	430
	15-Dec-04	11	700	6.4	460	--

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 (ºC)	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	870	6.6	600	460
	24-Mar-04	11	960	6.4	--	440
	18-May-04	12	730	6.6	490	370
	30-Aug-04	14	840	-- [3]	580	410
	15-Dec-04	11	700	6.4	460	--
MW-8	18-Mar-03	14	730	6.4	--	--
	21-May-03	16	740	6.3	460	390
	27-Aug-03	21	730	6.2	500	370
	04-Nov-03	17	740	6.4	510	380
	24-Mar-04	14	780	6.2	530	400
	17-May-04	18	800	6.1	530	390
	30-Aug-04	21	760	-- [3]	520	390
	14-Dec-04	14	650	6.3	420	--
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	17	820	6.6	560	350
	24-Mar-04	14	880	6.4	600	380
	17-May-04	16	930	6.1	620	380
	30-Aug-04	20	860	-- [3]	550	440
	14-Dec-04	13	800	6.4	520	--
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	18	880	6.6	600	430
	17-May-04	19	920	6.2	610	420
	14-Dec-04	14	700	6.4	450	--
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	19	880	6.6	600	450
	17-May-04	18	880	6.2	590	430
	14-Dec-04	15	740	6.4	480	--
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	920	6.5	630	480
	17-May-04	20	900	6.0	600	490
	14-Dec-04	14	710	6.4	460	--

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 (ºC)	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	16	3,300	6.6	2,500	2,100
	17-May-04	17	2,800	6.4	2,000	1,800
	15-Dec-04	14	2,500	6.6	1,300	--
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	15	920	6.6	640	450
	17-May-04	15	940	6.5	620	440
	14-Dec-04	12	830	6.4	540	--
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	17	1,100	6.6	760	490
	17-May-04	19	1,000	6.3	670	430
	14-Dec-04	13	860	6.5	560	--
MW-20	24-Mar-04	14	420	6.9	280	250
	18-May-04	18	470	6.7	310	280
	30-Aug-04	21	500	-- [3]	330	300
	15-Dec-04	12	370	6.5	240	--
MW-21	24-Mar-04	12	990	6.3	680	460
	18-May-04	14	1,000	6.3	660	420
	30-Aug-04	16	960	-- [3]	660	450
	15-Dec-04	11	760	6.2	500	--
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	15	1,000	6.1	--	580
	17-May-04	14	1,000	5.8	700	610
	15-Dec-04	14	620	6.1	400	--
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	1,300	6.8	--	790
	17-May-04	13	1,400	6.3	930	800
	15-Dec-04	14	1,000	6.7	650	--

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 (ºC)	Specific Conductance (µmohs/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	16	4,800	7.6	3,700	2,800
	17-May-04	15	4,600	7.3	3,500	2,800
	14-Dec-04	16	3,700	7.7	2,400	--
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	17	760	6.7	520	370
	17-May-04	16	840	6.5	560	430
	15-Dec-04	17	490	6.5	320	--

Notes:
1. Water quality parameters measured in the field using an Ultrameter instrument or a YSI Model 556 instrument; reported measurements recorded towards end of purge after parameters stabilized or from the last purge volume if a well was repeatedly purged dry.
2. Water quality parameter analyzed in the laboratory; EPA Method 160.1.
3. pH meter inoperable.

Abbreviations:
ºC = degrees Celsius
µmhos/cm = micromhos per centimeter at 25 ºC
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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
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	
	15-Dec-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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	

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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
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	
	15-Dec-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	
	15-Dec-04	22,000	1.7	57	310	42	
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	
	14-Dec-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	
	14-Dec-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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	

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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
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	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MW-21	24-Mar-04	800	< 1.0	6.3	17	12	
	18-May-04	1,900	< 1.0	11	36	11	
	18-May-04	670	< 1.0	3.5	16	4.4	duplicate sample
	30-Aug-04	2,700	< 1.0	6.4	66	5.4	
	30-Aug-04	2,800	< 1.0	6.9	68	5.5	duplicate sample
	15-Dec-04	3,200	< 1.0	34	50	5.5	
	15-Dec-04	8,100	2.1	64	120	8.3	duplicate sample

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

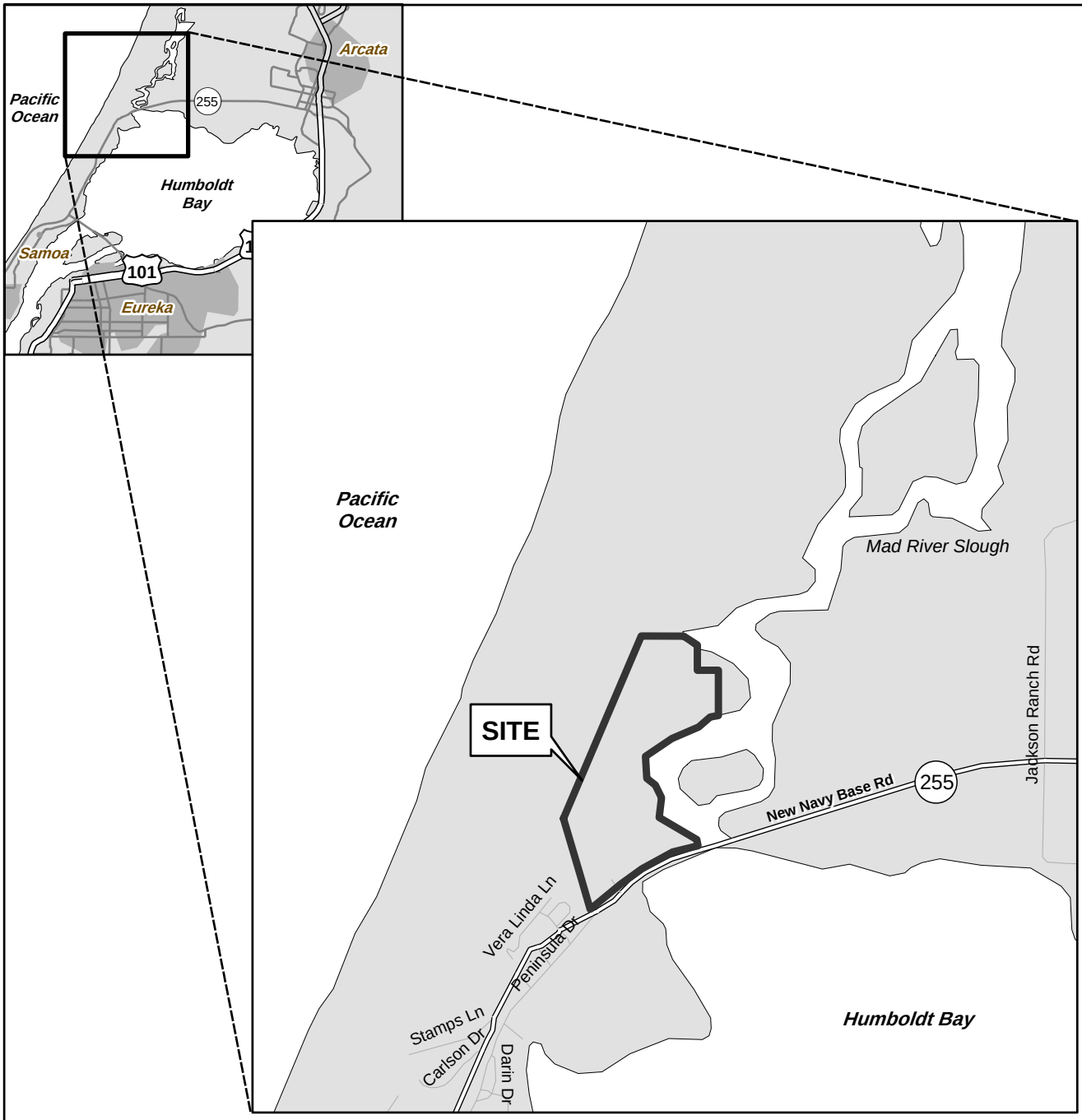
Concentrations in micrograms per liter (µg/L)

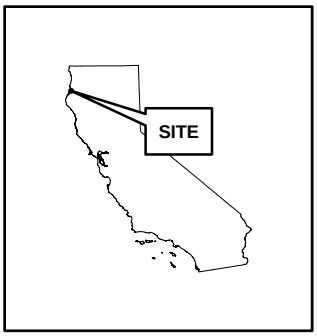
Monitoring Well Number	Date Sampled [1]	Penta-chlorophenol	2,4,6-trichloro-phenol	2,3,5,6-tetrachloro-phenol	2,3,4,6-tetrachloro-phenol	2,3,4,5-tetrachloro-phenol	Comments
Deep Wells							
MW-13D	03-Dec-02	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	20-Mar-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	22-May-03	< 1.0	< 1.0	< 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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	14-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
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	
	17-May-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
	15-Dec-04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	

Notes:
1. Data prior to March 18, 2003 were obtained from Results of the Remedial Investigation for Sierra Pacific Industries, Arcata Division Sawmill, Arcata, California, dated January 30, 2003, prepared by EnviroNet Consulting.
2. Confirmation sample collected due to detection of pentachlorophenol on September 16, 2002.
3. Sample also contained 280 mg/L of 2,3,4-trichlorophenol and 190 mg/L of 2,4,5-trichlorophenol.

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

FIGURES





California

N

0 1,200 2,400 Feet

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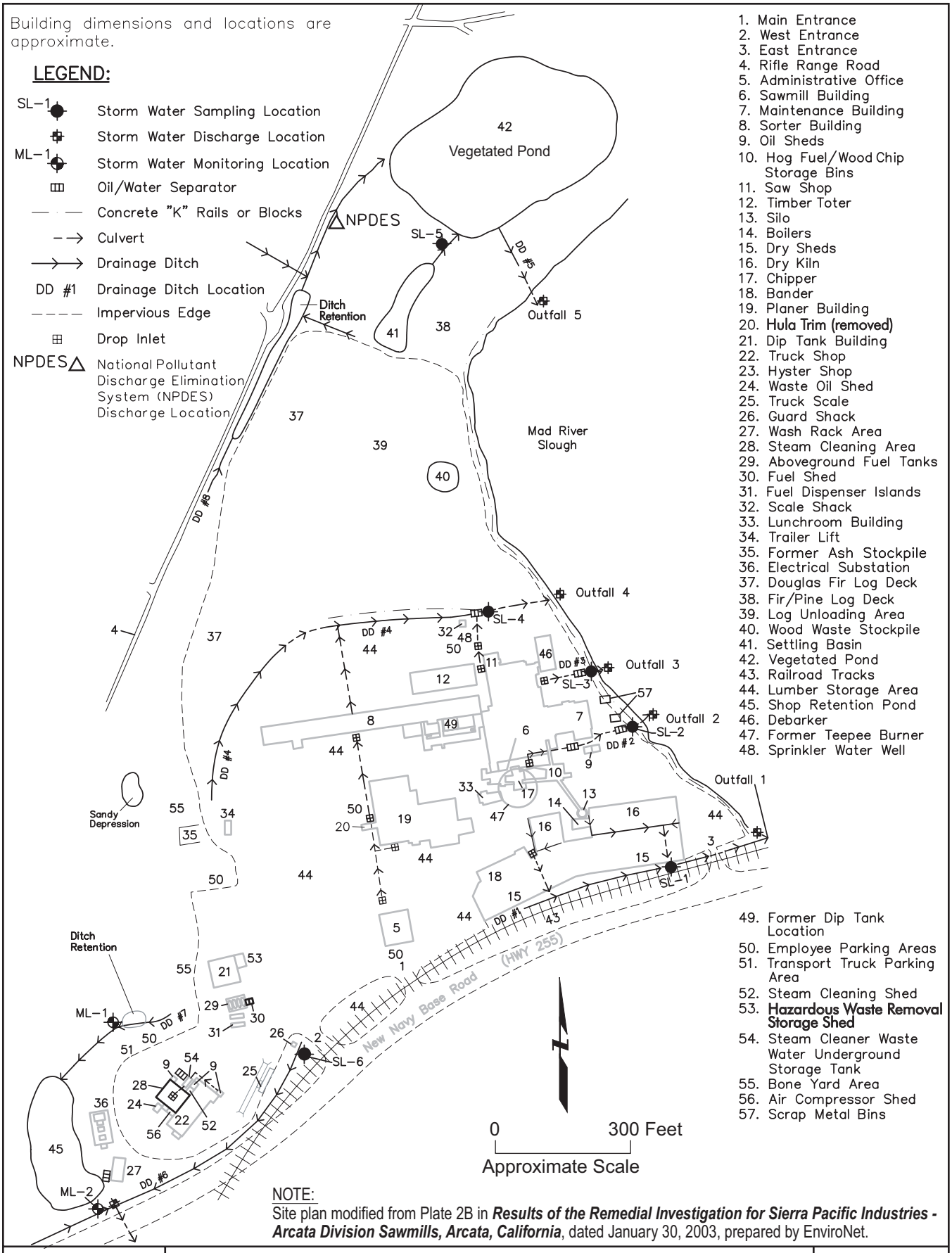
GEOMATRIX

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

Project No.
9329

Figure No.
1



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.

GEOMATRIX

FACILITY MAP
Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

Project No.
9329

Figure
2

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SETTLING BASIN

STORMWATER DISCHARGE - OUTFALL 4

SD

SCALE SHACK

WELL HOUSE

MAD RIVER SLOUGH BOUNDARY

MAD RIVER SLOUGH

MW-3

MW-15D

MW-4

MW-19D

SETTLING BASIN

STORMWATER DISCHARGE - OUTFALL 3

MW-1

MW-5

MW-2

MW-13D

MW-6

SAW MILL BUILDING

MW-21

MW-7

MAINTENANCE BUILDING

FORMER GREEN CHAIN AREA

SORTER

MW-20

STORMWATER DISCHARGE - OUTFALL 2

MW-8

MW-9

MW-18

SETTLING BASIN

MW-14

MW-10

MW-12

OIL SHED

MW-17

MW-11

MW-16D

CHIPPER

PLANER BUILDING

EXPLANATION

MW-1 MONITORING WELL (D = DEEP)

SITE BEST MANAGEMENT PRACTICES

APPROXIMATE LIMIT OF INTERIM REMEDIAL MEASURES SOURCE AREA REMOVAL (June - November 2003)

STORM DRAIN

N

0 50

SCALE IN 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.

FORMER GREEN CHAIN AREA PLAN
Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

GEOMATRIX

Project No. 9329

Figure 3

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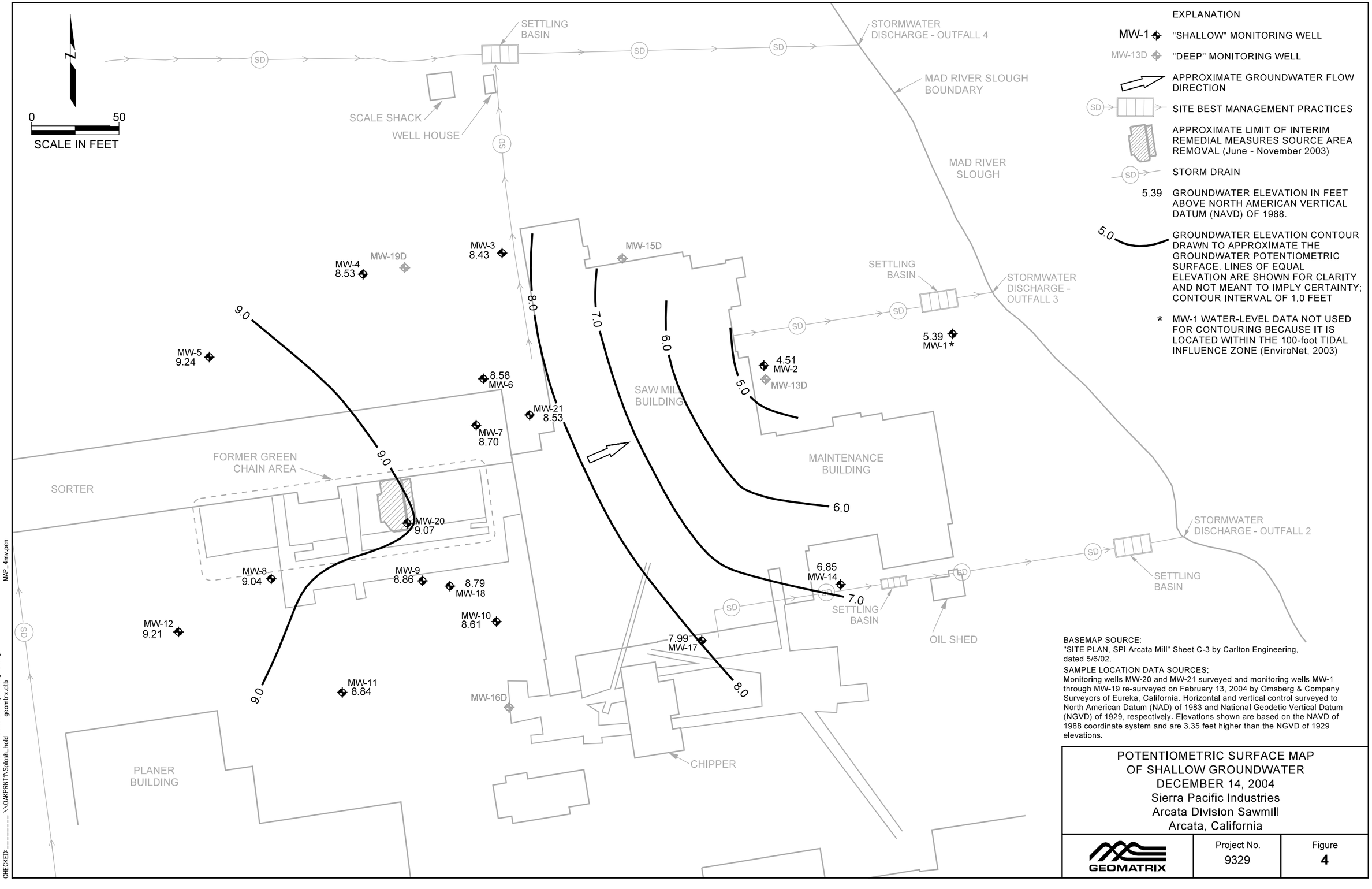

BASEMAP SOURCE:
"SITE PLAN, SPI Arcata Mill" Sheet C-3 by Carlton Engineering, dated 5/6/02.

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 DECEMBER 14, 2004

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

GEOMATRIX

Project No. 9329

Figure 4

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0 50

SCALE IN FEET

SETTLING BASIN

STORMWATER DISCHARGE - OUTFALL 4

MAD RIVER SLOUGH BOUNDARY

SCALE SHACK

WELL HOUSE

MAD RIVER SLOUGH

SD

6.0

5.5

MW-3

MW-4

MW-19D
6.24

5.44
MW-15D

MW-5

MW-6

MW-21

MW-7

SAW MILL BUILDING

SETTLING BASIN

STORMWATER DISCHARGE - OUTFALL 3

MW-1

MW-2

MW-13D
5.40

FORMER GREEN CHAIN AREA

SORTER

MAINTENANCE BUILDING

MW-20

MW-8

MW-9

MW-18

MW-10

MW-12

MW-11

MW-16D
5.45

MW-14

SETTLING BASIN

OIL SHED

MW-17

STORMWATER DISCHARGE - OUTFALL 2

SETTLING BASIN

CHIPPER

PLANER BUILDING

EXPLANATION

MW-1 "SHALLOW" MONITORING WELL

MW-13D "DEEP" MONITORING WELL

APPROXIMATE GROUNDWATER FLOW DIRECTION

SITE BEST MANAGEMENT PRACTICES

APPROXIMATE LIMIT OF INTERIM REMEDIAL MEASURES SOURCE AREA REMOVAL (June - November 2003)

STORM DRAIN

5.40 GROUNDWATER ELEVATION IN FEET ABOVE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

6.0 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 DECEMBER 14, 2004

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

GEOMATRIX

Project No. 9329

Figure 5

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N

0 50
SCALE IN FEET

SETTLING BASIN
STORMWATER DISCHARGE - OUTFALL 4
MAD RIVER SLOUGH BOUNDARY
SCALE SHACK
WELL HOUSE
MAD RIVER SLOUGH
SD
GS

MW-3 (<1.0)
MW-4 (<1.0)
MW-19D
MW-15D
MW-5 (<1.0)
MW-6 (<1.0)
MW-21 3,200/8,100
MW-7 22,000
SAW MILL BUILDING
SETTLING BASIN
STORMWATER DISCHARGE - OUTFALL 3
(<1.0) MW-1
(<1.0) MW-2
MW-13D
MAINTENANCE BUILDING
FORMER GREEN CHAIN AREA
SORTER
MW-20 (<1.0)
MW-8 (<1.0)
MW-9 (<1.0)
(<1.0) MW-18
MW-10 (<1.0)
MW-12 (<1.0)
APPROXIMATE LIMIT OF INTERIM REMEDIAL MEASURES SOURCE AREA REMOVAL (June - November 2003)
MW-11 (<1.0)
(<1.0) MW-14
SETTLING BASIN
OIL SHED
STORMWATER DISCHARGE - OUTFALL 2
(<1.0) MW-17
MW-16D
CHIPPER
PLANER BUILDING

EXPLANATION

- MW-2 "SHALLOW" MONITORING WELL
- MW-13D "DEEP" MONITORING WELL
- SITE BEST MANAGEMENT PRACTICES
- STORM DRAIN
- IMPERVIOUS EDGE
- MW-7 22,000 DETECTED PCP CONCENTRATION IN SAMPLE FROM WELL MW-7
- (<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 DECEMBER 14 AND 15, 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

GEOMATRIX

Project and Task Number: 9329.000.0 22	Date: 12/14/04
Project Name: SPI Arcata	Field Activity: GW Monitoring
Location: Arcata	Weather: 59 99 x

PERSONNEL: Name	Company	Time In	Time Out
Matt Hillyard	Geomatrix	8:30	1703
Charlie Rome	Geomatrix	8:30	1705

PERSONAL SAFETY CHECKLIST

X	Steel-toed Boots	X	Hard Hat		Tyvek Coveralls
X	Rubber Gloves	X	Safety Goggles		1/2-Face Respirator

DRUM I.D.	DESCRIPTION OF CONTENTS AND QUANTITY	LOCATION

TIME	DESCRIPTION OF WORK PERFORMED
8:30	Arrive @ site, check in @ office w/ Jay Chaney
8:44	measure slough water level
8:50	open wells to let equilibrate
9:45	All wells open
9:53	Begin water levels measure notch on North
	setup decon bucket DI water w/ Alconox
	followed by DI water rinse
1035	Finish water levels
	No YSI Delivery yet to SPI call Luis
	Go to Hardware store buy allen wrench
11:15	Luis calls back YSI here by 1:00
	CFR/MALT calculate purge volumes, eat
	lunch while waiting for YSI
1345	Receive call that YSI is at mill
1400	Back at Mill
	YSI factory calibration no standards to recalibrate
1420	Get empty drums mob to MW-12 to begin Sampling

DAILY FIELD RECORD (continued)

GEOMATRIX

Project and Task Number: 9329.000.0 22 | Date: 12/14/04

TIME	DESCRIPTION OF WORK PERFORMED
1435	collect sample @ MW-12 using disposable teflon bailer
	and decanting into 2 125-ml amber glass containers
	supplied by lab. Samples labeled, placed in ziploc bag
	and stored in ice-filled chest. All other wells sampled
	in this manner unless otherwise noted.
1450	Mob to MW-8
1458	Sample MW-8
1502	Mob to MW-11
1514	Sample MW-11
1516	Mob to MW-9 and MW-18
1526	Sample MW-9
1544	Sample MW-18
1548	Mob to MW-10
1558	Sample MW-10
1600	Mob to MW-16D
1614	Sample MW-16D
1615	Mob to MW-17
1630	Sample MW-17
1635	Mob to MW-14
1644	MW-14 dried up wait till tomorrow to sample
1645	clean up
17:00	take full 55-gal drum to drum sled + label
	w/ pending analysis label
17:05	Leave Site

DAILY FIELD RECORD

GEOMATRIX

Project and Task Number: 9329.000.0 22	Date: 12/15/04
Project Name: SPI Arcata	Field Activity: GW Monitoring
Location: Arcata	Weather: foggy

PERSONNEL: Name	Company	Time In	Time Out
Matt Hillyard	Geomatrix	8:15	12:10
Charlie Rome	Geomatrix	8:15	12:10

PERSONAL SAFETY CHECKLIST

X	Steel-toed Boots	X	Hard Hat		Tyvek Coveralls
X	Rubber Gloves	X	Safety Goggles		1/2-Face Respirator

DRUM I.D.	DESCRIPTION OF CONTENTS AND QUANTITY	LOCATION

TIME	DESCRIPTION OF WORK PERFORMED
8:15	Arrive @ site, check in w/ Jay + Gordie
8:30	Mob to MW-14
8:34	Sample MW-14
8:37	Mob to MW-1
8:47	Sample MW-1
8:50	Mob to MW-2 + MW-13D
8:59	Sample MW-2
9:14	Sample MW-13D
9:18	Mob to MW-15D
9:30	Sample MW-15D
9:34	Mob to MW-3
9:43	Sample MW-3
9:47	Mob to MW-19D
10:01	Sample MW-19D
10:05	Mob to MW-4
10:10	Sample MW-4
10:14	Mob to MW-5

DAILY FIELD RECORD (continued)

GEOMATRIX

Project and Task Number: 9329.000.0 22 | Date: 12/15/04

TIME	DESCRIPTION OF WORK PERFORMED
10:20	Sample MW-5
10:25	Mob to MW-6
10:30	Sample MW-6
	seal up drum take to dip tank Sled and get empty one
	~~Mob~~ No empty drums
10:50	Mob to MW-7
10:55	Sample MW-7
	~~Mob to MW-20~~ get drum (½ full) from
	near MW-1 bring under sorter
11:10	Mob to MW-20
11:21	Sample MW-20 collected additional 500-ml amber for MS/MSD
11:25	Mob to MW-21
11:43	Sample MW-21 w/ peristaltic pump, poly
	& tygon tubing
	collect duplicate sample MW-A in 500 ml amber
11:50	clean up
12:09	~~De~~ Check out at office, Leave Site

WATER LEVEL MONITORING RECORD

GEOMATRIX

Project Name: SPI Arcata Project and Task Number: 9329.000.0 22

Date: 12/14/04 Measured by: MAH/CFR Instrument Used: ES#2

Note: For you convenience, the following abbreviations may be used.

P = Pumping I = Inaccessible D = Dedicated Pump

ST = Steel Tape ES = Electric Sounder MP = Measuring Point WL = Water Level

Well No.	Time	MP Elevation (feet)	Water Level Below MP (feet)	Water Level Elevation (feet)	Previous Water Level Below MP	Remarks
RR	844	15.70	12.05	3.65		
MW-12	955	10.76	1.55	9.21		
MW-8	956	10.33	1.29	9.04		
MW-11	957	10.28	1.44	8.84		
MW-9	1009	9.91	1.05	8.86		Needs new allen wrench 5/16 bolt
MW-18	1006	9.92	1.13	8.79		
MW-10	1008	9.85	1.24	8.61		
MW-16D	1010	9.83	4.38	5.45		
MW-17	1011	9.16	1.17	7.99		
MW-14	1013	9.15	2.30	6.85		
MW-1	1014	9.69	4.30	5.39		
MW-2	1015	9.61	5.10	4.51		
MW-13D	1017	9.96	4.56	5.40		
MW-15D	1020	11.19	5.75	5.44		
MW-3	1021	11.22	2.79	8.43		
MW-19D	1022	11.06	4.82	6.24		
MW-4	1023	10.74	2.21	8.53		
MW-5	1024	10.74	1.50	9.24		
MW-6	1026	9.83	1.25	8.58		
MW-20	1027	11.87	2.80	9.07		
MW-21	1028	12.89	4.36	8.53		
MW-7	1030	9.74	1.04	8.70		
RR	1034	15.70	9.90	5.80		

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-1
Sample ID: MW-01-200412 Duplicate ID: ←
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/15/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 4.30
Depth to Water after Sampling: 4.86
Total Depth to Well: 7.90'
Well Diameter: 2"
1 Casing/Borehole Volume: 0.6 gal
(Circle one)
3
4 Casing/Borehole Volumes: 1.8 gal
(Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
0843	TOC		0	14.68	5.97	9632	lt yellow clear
0844	↓		0.5	14.51	6.43	4652	"
0845			1.0	14.79	6.50	4140	lt grey slightly cloudy
0847			2.0	14.89	6.55	3804	"
							TDS = 2.473 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-2

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-2
Sample ID: MW-02-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/15/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 5.10
Depth to Water after Sampling: 4.98
Total Depth to Well: 7.90'
Well Diameter: 2"
1 Casing/Borehole Volume: 0.5 gal
(Circle one)
3
4 Casing/Borehole Volumes: 1.5 gal
(Circle one)
Total Casing/Borehole Volumes Removed: 3

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
0856	TOC		0	13.48	6.59	1197	clear
0857	↓		0.5	13.67	6.44	1146	clear, some sand
0858			1.0	13.65	6.41	1132	"
0859			1.5	13.68	6.37	1131	"
							TDS = 0.735 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-3
Sample ID: MW-03-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/15/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 2.79
Depth to Water after Sampling: 2.95
Total Depth to Well: 7.90'
Well Diameter: 2"
1 Casing/Borehole Volume: 0.85 gal (Circle one)
3 4 Casing/Borehole Volumes: 2.5 gal (Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
0940	TOC		0	13.22	6.34	724	clear
0941	↓		1.0	13.45	6.29	702	clear
0942			2.0	13.47	6.32	704	lt grey
0943			3.0	13.48	6.36	702	"
							TDS = 0.456 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-2

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-4
Sample ID: MW-04-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/15/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 2.21
Depth to Water after Sampling: 2.78
Total Depth to Well: 7.80'
Well Diameter: 2"
1 Casing/Borehole Volume: 0.92 gal
(Circle one)
3
4 Casing/Borehole Volumes: 2.8 gal
(Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1007	TOC		0.5	14.23	6.43	611	clear
1008	↓		1.0	14.27	6.39	637	lt grey slightly cloudy
1009			2.0	14.38	6.37	642	"
1010			3.0	14.40	6.37	636	"
							TDS=0.413 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-5
Sample ID: MW-05-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/15/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 1.50
Depth to Water after Sampling: 1.60
Total Depth to Well: 7.80'
Well Diameter: 2"
1 Casing/Borehole Volume: 1.03 gal
(Circle one)
3 Casing/Borehole Volumes: 3.1 gal
(Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1016	TOC		0.5	14.32	6.50	477	clear
1017	↓		1.0	14.70	6.50	474	"
1018			2.0	14.75	6.47	472	"
1020			3.5	14.78	6.44	473	"
							TDS = 0.306 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-6
Sample ID: MW-06-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/15/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 1.25
Depth to Water after Sampling: 2.0
Total Depth to Well: 7.80'
Well Diameter: 2"
1 Casing/Borehole Volume: 1.07 gal (Circle one)
3 4 Casing/Borehole Volumes: 3.2 gal (Circle one)
Total Casing/Borehole Volumes Removed: 3 +

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1027	TOC		0	11.52	6.20	715	clear
1028	↓		1.0	11.22	6.29	721	"
1029			2.0	11.19	6.33	719	"
1030			3.5	11.21	6.36	705	"
							TDS = 0.458 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-7
Sample ID: MW-07-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/15/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 1.04
Depth to Water after Sampling: 1.50
Total Depth to Well: 7.80'
Well Diameter: 2"
1 Casing/Borehole Volume: 1.1 gal
(Circle one)
3
4 Casing/Borehole Volumes: 3.3 gal
(Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1051	TOC		0.5	11.05	6.38	714	Clear
1052	↓		1.0	11.01	6.37	759	"
1053			2.0	11.02	6.35	753	"
1055			3.5	10.98	6.35	705	"
							TDS = 0.455 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-8
Sample ID: MW-08-200412 Duplicate ID: ~
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/14/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 1.29
Depth to Water after Sampling: 1.56
Total Depth to Well: 7.80'
Well Diameter: 2"
1 Casing/Borehole Volume: 1.11 gal (Circle one)
3 Casing/Borehole Volumes: 3.3 gal (Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1454	TOC		.5	13.73	6.46	643	clear
1455	↓		1.0	13.78	6.37	643	lt yellow
1456			2.0	13.92	6.32	645	"
1457			2.5	13.96	6.31	645	"
1458			3.0	13.99	6.29	647	"
1458			3.5	14.01	6.29	647	"
							TDS=.420 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: see MW-12
YSI 556

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-9
Sample ID: MW-09-200412 Duplicate ID: _____
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/14/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 1.05
Depth to Water after Sampling: _____
Total Depth to Well: 7.80'
Well Diameter: 2"
1 Casing/Borehole Volume: 1.15 gal
(Circle one)
3
4 Casing/Borehole Volumes: 3.44 gal
(Circle one)
Total Casing/Borehole Volumes Removed: 3

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1521	TOC		0	13.30	6.45	730	clear
1522	↓		1.0	13.33	6.42	779	"
1523			2.0	13.34	6.43	792	"
1525			3.0	13.45	6.43	798	"
1526			3.5	13.49	6.43	798	"
							TDS=.518 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-10
Sample ID: MW-10-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/14/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 1.24
Depth to Water after Sampling: 2.22
Total Depth to Well: 7.85'
Well Diameter: 2"
1 Casing/Borehole Volume: 1.12 gal (Circle one)
3
4 Casing/Borehole Volumes: 3.37 gal (Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1555	TOC		0	13.99	6.47	749	clear
1556	↓		1.0	13.67	6.46	716	lt grey
1557			2.0	13.71	6.45	700	lt brn, slightly cloudy
1558			3.5	13.71	6.43	695	"
							TDS = 0.452 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-11
Sample ID: MW-11-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/14/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 1.44
Depth to Water after Sampling: 1.50
Total Depth to Well: 8.45'
Well Diameter: 2"
1 Casing/Borehole Volume: 1.19 gal
(Circle one)
3
~~4~~ Casing/Borehole Volumes: 3.60 gal
(Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1509	TOC		0.5	14.10	6.36	730	~~clear~~ lt grey, cloudy, black particles
1510	↓		1.5	14.39	6.39	735	lt grey, cloudy
1511			2.5	14.67	6.42	735	"
1512			3.0	15.45	6.42	732	"
1513			4.0	14.97	6.44	738	"
1514			4.5	14.92	6.45	737	"
							TDS = .478 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-12
Sample ID: MW-12-200412 Duplicate ID: —
Sample Depth: Top of Column
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/14/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 1.55
Depth to Water after Sampling: 2.16
Total Depth to Well: 8.50'
Well Diameter: 2"
1 Casing/Borehole Volume: ~~1~~ 1.18 gallons (Circle one)
~~4~~ 3 Casing/Borehole Volumes: 3.5 gallons (Circle one)
~~Total~~ Casing/Borehole Volumes Removed: 3-4

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1427	TOC		0.5	14.18	6.42	683	clear
1429	↓		1.0	14.03	6.31	712	"
1431			2.0	13.90	6.46	718	lt brn + slightly cloudy @ bottom of bailer
1432			3.0	13.92	6.41	713	"
1433			3.5	14.03	6.42	707	"
1435	↓		4.0	13.96	6.41	709	" sample
							TDS = .464 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: YSI 556 Factory Calibrated

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-13D
Sample ID: MW-13D-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/15/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 4.56
Depth to Water after Sampling: 5.28
Total Depth to Well: 19.10'
Well Diameter: 2"
1 Casing/Borehole Volume: 2.4 gal (Circle one)
3 4 Casing/Borehole Volumes: 7.1 gal (Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
0904	TOC		0.5	13.84	6.36	527	clear
0906	↓		2.0	14.41	6.12	502	"
0907			3.0	14.65	6.05	550	"
0910			4.5	14.52	6.06	556	"
0912			6.0	14.59	6.08	570	"
0914			7.25	14.50	6.12	616	"
							TDS = 0.400 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-14
Sample ID: MW-14-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/14/04 purge 12/15 sample
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 2.30
Depth to Water after Sampling: 3.13
Total Depth to Well: 7.90'
Well Diameter: 2"
1 Casing Borehole Volume: 0.95 gal (Circle one)
3 ~~4~~ Casing Borehole Volumes: 2.9 gal (Circle one)
Total Casing Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
12/14 1637	TOC		0	12.94	6.45	2100	clear lt amber color
1638	↓		1.0	13.19	6.57	2241	"
1639			2.0	13.53	6.52	2384	"
1646			~~3.5~~	13.78	6.53	2416	cloudy amber well drying up
1641	↓		3.0	14.03	6.55	2481	"
12/15 0834	TOC						TDS = 1.310 g/L sample

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: see MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes: well driedup little recovery wait till tomorrow to sample

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-15D
Sample ID: MW-15D-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/15/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 5.75
Depth to Water after Sampling: 5.81
Total Depth to Well: 19.90'
Well Diameter: 2"
1 Casing/Borehole Volume: 2.3 gal (Circle one)
3 Casing/Borehole Volumes: 6.9 gal (Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
0922	TOC		0	13.32	6.30	579	clear
0923	↓		1.5	13.54	6.42	567	clear, some orange particles
0925			3.0	13.97	6.53	913	clear, lt yellow tint
0927			4.0	14.22	6.59	1007	"
0928			5.0	14.17	6.62	1000	"
0929			6.0	14.10	6.65	1005	"
0930			7.0	14.07	6.67	1004	"
							TDS = 0.652 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-16D
Sample ID: MW-16D-200412 Duplicate ID: ~
Sample Depth:
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/14/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 4.38
Depth to Water after Sampling: 4.22
Total Depth to Well: 19.65'
Well Diameter: 2"
1 Casing/Borehole Volume: 2.59 gal (Circle one)
3 ~~4~~ Casing/Borehole Volumes: 7.79 gal (Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1605	TOC		0	13.90	7.29	3042	clear amber color
1607	↓		2.0	14.80	7.60	3115	"
1609			4.0	15.39	7.65	3938	"
1612			6.0	15.52	7.71	3792	"
1614			8.0	15.53	7.74	3691	"
							TDS: 2.397 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: see MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-17
Sample ID: MW-17-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/14/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 1.17
Depth to Water after Sampling: 2.45
Total Depth to Well: 7.60'
Well Diameter: 2"
1 Casing/Borehole Volume: 1.1 gallons
(Circle one)
3 Casing/Borehole Volumes: 3.3 gallons
(Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1625	TOC		0.5	12.34	7.17	911	clear
1627	↓		1.5	12.08	6.58	819	"
1628			2.0	12.03	6.51	824	"
1629			3.0	12.02	6.47	842	"
1630			4.0	12.00	6.45	834	"
							TDS=0.542g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: see MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-18
Sample ID: MW-18-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/14/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 1.13
Depth to Water after Sampling: 1.94
Total Depth to Well: 8.35'
Well Diameter: 4"
1 Casing/Borehole Volume: 4.77 gal (Circle one)
3 4 Casing/Borehole Volumes: 14.30 gal (Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1532	TOC		0	13.54	6.45	778	Clear
1534	↓		2.5	13.41	6.43	808	"
1536			5.0	13.36	6.44	833	"
1538			7.5	13.35	6.45	855	"
1540			10.0	13.34	6.49	857	"
1542			12.5	13.33	6.49	866	"
1544	↓		15.0	13.33	6.50	855	"
							TDS = 0.555 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-19D
Sample ID: MW-19D-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/15/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 4.82
Depth to Water after Sampling: 6.93
Total Depth to Well: 19.85'
Well Diameter: 2"
1 Casing/Borehole Volume: 2.5 gal
(Circle one)
3 4 Casing/Borehole Volumes: 7.5 gal
(Circle one)
Total Casing/Borehole Volumes Removed: 3

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
0950	TOC		0.5	15.30	6.48	551	clear
0952	↓		2.0	16.57	6.45	579	"
0954			3.0	17.12	6.54	579	"
0955			4.0	17.27	6.62	576	"
0958			6.0	17.08	6.58	529	"
1001			7.5	16.95	6.52	494	TDS=0.321 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes:

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-20
Sample ID: MW-20-200412 Duplicate ID: —
Sample Depth: TOC
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/15/04
Sampled By: MAH/CFR
Method of Purging: DISPOSABLE TEFLON BAILER
Method of Sampling: DISPOSABLE TEFLON BAILER

Initial Depth to Water: 2.80
Depth to Water after Sampling: 4.90
Total Depth to Well: 6.50'
Well Diameter: 4"
1 Casing/Borehole Volume: ~~0.6 gal~~ 2.4 gal (Circle one)
3
4 Casing/Borehole Volumes: ~~1.8 gal~~ 7.3 gal (Circle one)
Total Casing/Borehole Volumes Removed: 3+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1113	TOC		0	12.17	6.44	369	Clear
1115	↓		2.0	12.42	6.48	386	clear w/ sediment in bottom of bailer
1117			4.0	12.42	6.48	380	"
1119			6.0	12.41	6.47	377	"
1121			8.0	12.38	6.47	372	"
							TDS = 0.242 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes: Sample volume doubled for MS/MSD.

GEOMATRIX

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: MW-21
Sample ID: MW-21-200412 Duplicate ID: MW-A-200412
Sample Depth: ~~TOC~~ 2 above well bottom
Project and Task No.: 9329.000.0 22
Project Name: SPI ARCATA
Date: 12/15/04
Sampled By: MAH/CFR
Method of Purging: ~~DISPOSABLE TEFLON BAILER~~ peristaltic pump poly tubing + tygon
Method of Sampling: ~~DISPOSABLE TEFLON BAILER~~ peristaltic pump poly tubing + tygon

Initial Depth to Water: 4.36 4.40
Depth to Water after Sampling:
Total Depth to Well: 10.80'
Well Diameter: 0.75"
1 Casing/Borehole Volume (Circle one): ~~1.05~~ gal 0.15 gal
3 or ~~4~~ Casing/Borehole Volumes (Circle one): ~~3.15~~ gal 0.45 gal
Total Casing/Borehole Volumes Removed: 4+

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Remarks (color, turbidity, and sediment)
1137	8.8' ~~TOC~~	0.12	0	11.16	6.13	736	clear
1138	↓	↓	0.12	11.27	6.10	738	"
1139			0.24	11.33	6.13	740	"
1140			0.36	11.36	6.16	743	"
1141			0.48	11.38	6.20	748	"
1142			0.60	11.38	6.22	754	"
1143	↓	↓	0.72	11.40	6.24	758	"
							TDS = 0.496 g/L

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temperature C				
Instrument Reading				

Model or Unit No.: See MW-12

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)			
Temperature C			
Instrument Reading			

Model or Unit No.:

Notes: 17 sec per 125 mL = .12 gal/min
Intake and sample depth at approx 2' above bottom of well

APPENDIX B

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

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

30 December 2004

Geomatrix Consultants
Attn: Ross Steenson
2101 Webster Street, 12th Floor
Oakland, CA 94612
RE: SPI Arcata GW Monitoring
Work Order: A412497

Enclosed are the results of analyses for samples received by the laboratory on 12/16/04 14:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lisa Jansen

Lisa E. Jansen For Sheri L. Speaks
Project Manager

Alpha Analytical Laboratories Inc.
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CHEMICAL EXAMINATION REPORT

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

Report Date: 12/30/04 14:21
Project No: 9329.000.0/030275
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A412497	12/16/2004 14:35	GEOMAT	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-12-200412	A412497-01	Water	12/14/04 14:35	12/16/04 14:35
MW-08-200412	A412497-02	Water	12/14/04 14:58	12/16/04 14:35
MW-11-200412	A412497-03	Water	12/14/04 15:14	12/16/04 14:35
MW-18-200412	A412497-04	Water	12/14/04 15:44	12/16/04 14:35
MW-09-200412	A412497-05	Water	12/14/04 15:26	12/16/04 14:35
MW-10-200412	A412497-06	Water	12/14/04 15:58	12/16/04 14:35
MW-16D-200412	A412497-07	Water	12/14/04 16:14	12/16/04 14:35
MW-17-200412	A412497-08	Water	12/14/04 16:30	12/16/04 14:35
MW-14-200412	A412497-09	Water	12/15/04 08:34	12/16/04 14:35
MW-01-200412	A412497-10	Water	12/15/04 08:47	12/16/04 14:35
MW-02-200412	A412497-11	Water	12/15/04 08:59	12/16/04 14:35
MW-13D-200412	A412497-12	Water	12/15/04 09:14	12/16/04 14:35
MW-15D-200412	A412497-13	Water	12/15/04 09:30	12/16/04 14:35
MW-03-200412	A412497-14	Water	12/15/04 09:43	12/16/04 14:35
MW-19D-200412	A412497-15	Water	12/15/04 10:01	12/16/04 14:35
MW-04-200412	A412497-16	Water	12/15/04 10:10	12/16/04 14:35
MW-05-200412	A412497-17	Water	12/15/04 10:20	12/16/04 14:35
MW-06-200412	A412497-18	Water	12/15/04 10:30	12/16/04 14:35
MW-07-200412	A412497-19	Water	12/15/04 10:55	12/16/04 14:35
MW-20-200412	A412497-20	Water	12/15/04 11:21	12/16/04 14:35
MW-21-200412	A412497-21	Water	12/15/04 11:43	12/16/04 14:35
MW-A-200412	A412497-22	Water	12/15/04 00:00	12/16/04 14:35

Lisa E. Jansen For Sheri L. Speaks
Project Manager

12/30/2004

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CHEMICAL EXAMINATION REPORT

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

Report Date: 12/30/04 14:21
Project No: 9329.000.0/030275
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A412497	12/16/2004 14:35	GEOMAT	

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

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A412497	12/16/2004 14:35	GEOMAT	

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	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT		PQL	NOTE
MW-12-200412 (A412497-01)			**Sample Type: Water**			**Sampled: 12/14/04 14:35**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/21/04	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	*"*	*"*	*"*	*"*		*92.0 %*	*79-119*		
MW-08-200412 (A412497-02)			**Sample Type: Water**			**Sampled: 12/14/04 14:58**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/21/04	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	*"*	*"*	*"*	*"*		*90.0 %*	*79-119*		
MW-11-200412 (A412497-03)			**Sample Type: Water**			**Sampled: 12/14/04 15:14**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/21/04	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	*"*	*"*	*"*	*"*		*91.6 %*	*79-119*		
MW-18-200412 (A412497-04)			**Sample Type: Water**			**Sampled: 12/14/04 15:44**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	

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Alpha Analytical Laboratories, Inc.

	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT		PQL	NOTE
MW-18-200412 (A412497-04)			**Sample Type: Water**			**Sampled: 12/14/04 15:44**			
Chlorinated Phenols by Canadian Pulp Method (cont'd)									
Pentachlorophenol	EnvCan	"	"	12/22/04	"	ND "		1.0	
Surrogate: Tribromophenol	"	"	"	"		*93.6 %*	*79-119*		
MW-09-200412 (A412497-05)			**Sample Type: Water**			**Sampled: 12/14/04 15:26**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	"	"	"	"		*79.2 %*	*79-119*		
MW-10-200412 (A412497-06)			**Sample Type: Water**			**Sampled: 12/14/04 15:58**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	"	"	"	"		*88.0 %*	*79-119*		
MW-16D-200412 (A412497-07)			**Sample Type: Water**			**Sampled: 12/14/04 16:14**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	"	"	"	"		*89.6 %*	*79-119*		
MW-17-200412 (A412497-08)			**Sample Type: Water**			**Sampled: 12/14/04 16:30**			

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	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT		PQL	NOTE
MW-17-200412 (A412497-08)			**Sample Type: Water**			**Sampled: 12/14/04 16:30**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	*"*	*"*	*"*	*"*		*89.6 %*	*79-119*		
MW-14-200412 (A412497-09)			**Sample Type: Water**			**Sampled: 12/15/04 08:34**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	*"*	*"*	*"*	*"*		*97.2 %*	*79-119*		
MW-01-200412 (A412497-10)			**Sample Type: Water**			**Sampled: 12/15/04 08:47**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	*"*	*"*	*"*	*"*		*101 %*	*79-119*		
MW-02-200412 (A412497-11)			**Sample Type: Water**			**Sampled: 12/15/04 08:59**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	

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	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT		PQL	NOTE
MW-02-200412 (A412497-11)			**Sample Type: Water**			**Sampled: 12/15/04 08:59**			
Chlorinated Phenols by Canadian Pulp Method (cont'd)									
Pentachlorophenol	EnvCan	"	"	12/22/04	"	ND "		1.0	
Surrogate: Tribromophenol	"	"	"	"		*99.6 %*	*79-119*		
MW-13D-200412 (A412497-12)			**Sample Type: Water**			**Sampled: 12/15/04 09:14**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	"	"	"	"		*92.8 %*	*79-119*		
MW-15D-200412 (A412497-13)			**Sample Type: Water**			**Sampled: 12/15/04 09:30**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	"	"	"	"		*99.2 %*	*79-119*		
MW-03-200412 (A412497-14)			**Sample Type: Water**			**Sampled: 12/15/04 09:43**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	"	"	"	"		*101 %*	*79-119*		
MW-19D-200412 (A412497-15)			**Sample Type: Water**			**Sampled: 12/15/04 10:01**			

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	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT		PQL	NOTE
MW-19D-200412 (A412497-15)			**Sample Type: Water**			**Sampled: 12/15/04 10:01**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	*"*	*"*	*"*	*"*		*91.2 %*	*79-119*		
MW-04-200412 (A412497-16)			**Sample Type: Water**			**Sampled: 12/15/04 10:10**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	*"*	*"*	*"*	*"*		*92.0 %*	*79-119*		
MW-05-200412 (A412497-17)			**Sample Type: Water**			**Sampled: 12/15/04 10:20**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	*"*	*"*	*"*	*"*		*100 %*	*79-119*		
MW-06-200412 (A412497-18)			**Sample Type: Water**			**Sampled: 12/15/04 10:30**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	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	

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A412497	12/16/2004 14:35	GEOMAT	

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	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT		PQL	NOTE
MW-06-200412 (A412497-18)			**Sample Type: Water**			**Sampled: 12/15/04 10:30**			
Chlorinated Phenols by Canadian Pulp Method (cont'd)									
Pentachlorophenol	EnvCan	"	"	12/22/04	"	ND "		1.0	
Surrogate: Tribromophenol	*"*	*"*	*"*	*"*		*95.2 %*	*79-119*		
MW-07-200412 (A412497-19)			**Sample Type: Water**			**Sampled: 12/15/04 10:55**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	1	**1.7 ug/l**		**1.0**	
2,3,5,6-Tetrachlorophenol	"	"	"	12/23/04	50	**57 "**		**50**	
2,3,4,6-Tetrachlorophenol	"	"	"	"	"	**310 "**		**50**	
2,3,4,5-Tetrachlorophenol	"	"	"	"	100	**42 "**		**10**	
Pentachlorophenol	"	"	"	"	1000	**22000 "**		**1000**	
Surrogate: Tribromophenol	*"*	*"*	*"*	*12/22/04*		*111 %*	*79-119*		
MW-20-200412 (A412497-20)			**Sample Type: Water**			**Sampled: 12/15/04 11:21**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/21/04	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	*"*	*"*	*"*	*"*		*105 %*	*79-119*		
MW-21-200412 (A412497-21)			**Sample Type: Water**			**Sampled: 12/15/04 11:43**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol	"	"	"	12/23/04	20	**34 "**		**20**	
2,3,4,6-Tetrachlorophenol	"	"	"	"	"	**50 "**		**20**	
2,3,4,5-Tetrachlorophenol	"	"	"	12/22/04	1	**5.5 "**		**1.0**	
Pentachlorophenol	"	"	"	12/23/04	500	**3200 "**		**500**	
Surrogate: Tribromophenol	*"*	*"*	*"*	*12/22/04*		*100 %*	*79-119*		
MW-A-200412 (A412497-22)			**Sample Type: Water**			**Sampled: 12/15/04 00:00**			

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

Lisa Jansen

Lisa E. Jansen For Sheri L. Speaks
Project Manager

12/30/2004

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

CHEMICAL EXAMINATION REPORT

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

Report Date: 12/30/04 14:21
Project No: 9329.000.0/030275
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A412497	12/16/2004 14:35	GEOMAT	

Alpha Analytical Laboratories, Inc.

	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT		PQL	NOTE
MW-A-200412 (A412497-22)			**Sample Type: Water**			**Sampled: 12/15/04 00:00**			
Chlorinated Phenols by Canadian Pulp Method									
2,4,6-Trichlorophenol	EnvCan	AL42012	12/20/04	12/22/04	1	**2.1 ug/l**		**1.0**	
2,3,5,6-Tetrachlorophenol	"	"	"	12/23/04	50	**64 "**		**50**	
2,3,4,6-Tetrachlorophenol	"	"	"	"	100	**120 "**		**100**	
2,3,4,5-Tetrachlorophenol	"	"	"	12/22/04	1	**8.3 "**		**1.0**	
Pentachlorophenol	"	"	"	12/23/04	1000	**8100 "**		**1000**	
Surrogate: Tribromophenol	*"*	*"*	*"*	*12/22/04*		*110 %*	*79-119*		

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Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A412497	12/16/2004 14:35	GEOMAT	

SourceResult

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 AL42012 - EPA 8151A										
Blank (AL42012-BLK1)				Prepared: 12/20/04 Analyzed: 12/21/04						
2,4,6-Trichlorophenol	ND	1.0	ug/l							
2,3,5,6-Tetrachlorophenol	ND	1.0	"							
2,3,4,6-Tetrachlorophenol	ND	1.0	"							
2,3,4,5-Tetrachlorophenol	ND	1.0	"							
Pentachlorophenol	ND	1.0	"							
Surrogate: Tribromophenol	*23.2*		*"*	*25.0*		*92.8*	*79-119*			
LCS (AL42012-BS1)				Prepared: 12/20/04 Analyzed: 12/21/04						
2,4,6-Trichlorophenol	4.70	1.0	ug/l	5.00		94.0	81-120			
2,3,5,6-Tetrachlorophenol	5.01	1.0	"	5.00		100	78-108			
2,3,4,6-Tetrachlorophenol	4.44	1.0	"	5.00		88.8	76-108			
2,3,4,5-Tetrachlorophenol	4.98	1.0	"	5.00		99.6	80-116			
Pentachlorophenol	5.32	1.0	"	5.00		106	86-109			
Surrogate: Tribromophenol	*23.0*		*"*	*25.0*		*92.0*	*79-119*			
Matrix Spike (AL42012-MS1)	**Source: A412497-20**			Prepared: 12/20/04 Analyzed: 12/21/04						
2,4,6-Trichlorophenol	4.75	1.0	ug/l	5.00	ND	88.2	75-125			
2,3,5,6-Tetrachlorophenol	5.08	1.0	"	5.00	ND	93.6	69-115			
2,3,4,6-Tetrachlorophenol	4.03	1.0	"	5.00	ND	73.0	66-117			
2,3,4,5-Tetrachlorophenol	4.87	1.0	"	5.00	ND	97.4	70-115			
Pentachlorophenol	5.20	1.0	"	5.00	ND	89.6	55-124			
Surrogate: Tribromophenol	*25.0*		*"*	*25.0*		*100*	*79-119*			
Matrix Spike Dup (AL42012-MSD1)	**Source: A412497-20**			Prepared: 12/20/04 Analyzed: 12/21/04						
2,4,6-Trichlorophenol	4.19	1.0	ug/l	5.00	ND	77.0	75-125	12.5	20	
2,3,5,6-Tetrachlorophenol	4.41	1.0	"	5.00	ND	80.2	69-115	14.1	20	

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Project Manager

12/30/2004

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CHEMICAL EXAMINATION REPORT

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Oakland, CA 94612
Attn: Ross Steenson

Report Date: 12/30/04 14:21
Project No: 9329.000.0/030275
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A412497	12/16/2004 14:35	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 AL42012 - EPA 8151A										
Matrix Spike Dup (AL42012-MSD1)	**Source: A412497-20**			Prepared: 12/20/04 Analyzed: 12/21/04						
2,3,4,6-Tetrachlorophenol	3.77	1.0	"	5.00	ND	67.8	66-117	6.67	20	
2,3,4,5-Tetrachlorophenol	4.14	1.0	"	5.00	ND	82.8	70-115	16.2	20	
Pentachlorophenol	4.05	1.0	"	5.00	ND	66.6	55-124	24.9	20	QM-08
Surrogate: Tribromophenol	*23.8*		*"*	*25.0*		*95.2*	*79-119*			

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12/30/2004

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Report Date: 12/30/04 14:21
Project No: 9329.000.0/030275
Project ID: SPI Arcata GW Monitoring

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A412497	12/16/2004 14:35	GEOMAT	

Notes and Definitions

QM-08	The RPD was outside acceptance limits for MS/MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
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

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Chain-of Custody Record

Date: 12/15/04 | Page 1 of 2

Project No.: 9329.000.0

Samplers (Signature:) Matt Hillyard

ANALYSES

Date	Time	Sample Number	EPA Method 8021 (Full Scan)	EPA Method 8021 (Hal. VOCs only)	EPA Method 8021 (BETX 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	Chlorinated Phenols Canadian pulp mthd	Soil (S), Water (W) Vapor (V), or Other (o)	Filtered	Preserved	Cooled	No. of Containers	Additional Comments
																			A412497
12/14	1435	MW-12-200412											X	W			X	2	1
	1458	MW-08-200412																2	2
	1514	MW-11-200412																2	3
	1544	MW-18-200412																2	4
	1526	MW-09-200412																2	5
	1558	MW-10-200412																2	6
	1614	MW-16D-200412																2	7
	1630	MW-17-200412																2	8
12/15	0834	MW-14-200412																2	9
	0847	MW-01-200412																2	10
	0859	MW-02-200412																2	11
	0914	MW-13D-200412																2	12
	0930	MW-15D-200412																2	13
	0943	MW-03-200412																2	14
	1001	MW-19D-200412																2	15

REMARKS

Laboratory: Alpha Ukiah

Turnaround Time: STD

Results to: Ross Steenson

Total No. of Containers: 30

Relinquished by (Signature): Matt Hillyard	Date: 12/16	Relinquished by (Signature): Bob Schultz	Date: 12/16	Relinquished by (Signature):	Date:
Printed Name: Matt Hillyard	Time: 1050	Printed Name: Bob Schultz	Time: 1435	Printed Name:	Time:
Company: Geomatrix		Company: Alpha		Company:	
Received by: Bob Schultz	Date: 12/16	Received by:	Date: 12/16/04	Received by:	Date:
Printed Name: BOB SCHULTZ	Time: 1050	Printed Name: Leslie Quinn	Time: 1435	Printed Name:	Time:
Company: Alpha		Company: Alpha Labs		Company:	

Method of Shipment: Courier

Laboratory Comments and Log No.: 2.8°C

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2101 Webster Street, 12th Floor • Oakland, CA 94612
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Chain-of Custody Record

Date: 12/15/04 | Page 2 of 2

Project No.: 9329.000.0

Samplers (Signature:) Matt Hillyard

Date	Time	Sample Number	EPA Method 8021 (Full Scan)	EPA Method 8021 (Hal. VOCs only)	EPA Method 8021 (BETX 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	Chlorinated Phenols Canadian pulp	Soil (S), Water (W) Vapor (V), or Other (o)	Filtered	Preserved	Cooled	No. of Containers	Additional Comments
12/15	1010	MW-04-200412											1	W			X	1	16
	1020	MW-05-200412																2	17
	1030	MW-06-200412																2	18
	1055	MW-07-200412																2	19
	1121	MW-20-200412																3	MS/MSD additional volume 20
	1143	MW-21-200412																2	21
12/15	—	MW-A-200412											x					1	22

ANALYSES

REMARKS

Laboratory: Alpha Ukiah

Turnaround Time: STD

Results to: Ross Steenson

Total No. of Containers: 14

Relinquished by (Signature):	Date:	Relinquished by (Signature):	Date:	Relinquished by (Signature):	Date:	Method of Shipment: Courier
Matt Hillyard	12/16	Bob Schultz	12/16			
Printed Name: Matt Hillyard	Time:	Printed Name: Bob Schultz	Time:	Printed Name:	Time:	Laboratory Comments and Log No.:
Company: Geomatrix	1050	Company: ALPHA	1435	Company:		2.8°C
Received by: Bob Schultz	Date: 12/16	Received by: Leslie Quinn	Date: 12/16/04	Received by:	Date:	
Printed Name: BOB SCHULTZ	Time:	Printed Name: Leslie Quinn	Time:	Printed Name:	Time:	
Company: ALPHA	1050	Company: Alpha Labs	1435	Company:		

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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.

RPDs for the groundwater monitoring program data were acceptable even though the RPDs between the primary (MW-21) and the duplicate (MW-A) field samples were extremely variable. This situation has been consistent from field duplicates collected at this and other locations previously.

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 program. 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 SAMPLES[1]

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	500/1,000	3,200	8,100	86.7%
2,3,4,5-TeCP	1.0	5.5	8.3	40.6%
2,3,4,6-TeCP	20/100	50	120	82.4%
2,3,5,6-TeCP	20/50	34	64	61.2%

Notes:

1. Quarterly groundwater samples collected on December 15, 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]) x 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.
4. The reporting limit is presented as the reporting limit for MW-21/MW-A for the listed constituent when the laboratory chose to use different dilutions with which to analyze the respective samples.

Abbreviations:
PCP = pentachlorophenol
TeCP = tetrachlorophenol