FIRST QUARTER 2003 GROUNDWATER MONITORING REPORT

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

June 9, 2003

MFG, Inc. consulting scientists and engineers



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MFG Project No. 030229.2

PROFESSIONAL CERTIFICATION

This report has been prepared by MFG, Inc. under the professional supervision of Edward P. Conti. The findings, recommendations, specifications and/or professional opinions presented in this report have been 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.



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1.0 INTRODUCTION

This report presents the methods and results of the first quarter 2003 groundwater monitoring event performed at the Sierra Pacific Industries (SPI) Arcata Division Sawmill. The Arcata Division Sawmill is located at 2593 New Navy Base Road in Arcata, California (the Site). The Site location is shown in Figure 1. A Site plan is shown in Figure 2. This report was prepared by MFG, Inc. on behalf of SPI.

The first quarter groundwater monitoring event consisted of measuring the depth to water in 19 monitoring wells at the Site and in the Mad River Slough and collecting groundwater samples from 19 monitoring wells at the Site.

This report is organized as described below. Background information is provided in Section 2.0. Water level measurements and an evaluation of the lateral hydraulic gradient are included in Section 3.0. Groundwater sampling methods and chemical analysis results are presented in Section 4.0. The disposal of wastewater is discussed in Section 5.0. The monitoring schedule is presented in Section 6.0, and references cited in this report are listed in Section 7.0.

2.0 BACKGROUND

The Site is located on the Samoa Peninsula in Arcata, Humboldt County, California (Figure 1). The Site was originally undeveloped land, consisting of sand dunes and mud flats, until approximately 1950 when SPI converted the land into a lumber mill. During conversion, SPI filled in portions of the Site. SPI began operations at this facility before the area was completely filled in. The mill has been active from 1950 to present day.

In the early to mid-1960s, the mill started using anti-stain products that contained pentachlorophenol (PCP) and tetrachlorophenol (TCP) on a small amount of milled lumber (Environet, 2003). Historical records indicate that the anti-stain solution was stored in a dip tank that was located at the former green chain (Environet, 2003). The former green chain was located to the south of the current sorter building and immediately west of the current sawmill building (Figure 2). The use of anti-stain solutions containing PCP and TCP was discontinued in July 1985. The area of the former green chain is currently covered with concrete or asphalt and various equipment used to move lumber and lumber cutting by-products.

The subsurface lithology and hydrogeology at the Site was previously investigated and described by Environet Consulting (Environet, 2003). The subsurface lithology consists primarily of fine- to medium-grained sand of apparent sand dune origin to a depth of approximately 22 feet below ground level (bgl), the maximum depth explored during previous drilling activities at the Site. The sand is sporadically interbedded with thin lenses of "Bay Mud," consisting of a mixture of sand and silt (Environet, 2003).

In the eastern portion of the Site, groundwater has been measured in existing monitoring wells at depths ranging from approximately 1 to 5 feet bgl and the groundwater flow direction is generally to the east, toward the Mad River Slough (Figure 2) (Environet, 2003). Groundwater was measured at a depth of approximately 2 feet bgl in a temporary monitoring well that was installed in April 2003 in the vicinity of the Truck Shop, which is located immediately south of the Hyster Shop. Based on the proximity of the Truck Shop to Humboldt Bay, the groundwater flow direction in this area is likely to the south-southeast, toward Humboldt Bay.

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3.0 EVALUATION OF LATERAL HYDRAULIC GRADIENT

3.1 Water Level Measurements

MFG measured the depth to water in all 19 monitoring wells on March 18, 2003 using an electronic water level probe. On March 31, 2003, MFG measured the depth to water in all 19 wells and at the Mad River Slough measuring point. Monitoring well construction details are included in Table 1. The depth to water measurements for March 18 and 31, 2003 are included in Table 2. The depth to water in the monitoring wells ranged from approximately 0.1 to 5.4 feet below the top of casing measuring points, except monitoring well MW-18 where the water level rose above the top of casing measuring point upon opening the well. MFG is in the process of adding a short section of removable PVC blank casing to well MW-18 to prevent a reoccurrence during future seasonally high water table fluctuations.

The depth to water in the tidally influenced Mad River Slough was measured from a surveyed measuring point on the railroad bridge adjacent to the Site. The water in the slough was measured at approximately 15.2 feet below the measuring point on the railroad bridge before the monitoring wells were measured and approximately 15.8 feet below the measuring point on the railroad bridge after the monitoring wells were measured (Table 2). A copy of the elevation survey report for the tide measuring point on the railroad bridge is included in Appendix A.

3.2 Lateral Hydraulic Gradient

Water level elevations were calculated using the depth-to-water measurements and the measuring point elevations of the wells. On March 18, 2003, the calculated water level elevations in the monitoring wells ranged from approximately 4.3 to 9.8 feet above the North American Vertical Datum of 1988 (NAVD 88) (Table 2). On March 31, 2003, the calculated water level elevations in the monitoring wells ranged from 4.1 to 10 feet above the NAVD 88 (Table 2). The water level elevations in the Mad River Slough ranged from approximately 0.6 feet above the NAVD 88 to 0.1 feet below the NAVD 88 during the water level measurement activities on March 31, 2003.

The water level elevations from March 31, 2003 were plotted and contoured on a Site plan to interpret the potentiometric surface for shallow and deep groundwater. The interpreted potentiometric surface for shallow groundwater is shown on Figure 3. The potentiometric surface contours for shallow

groundwater indicate that the lateral hydraulic gradient was to the east and northeast with a magnitude ranging from approximately 0.007 foot/foot near the sorter to approximately 0.03 foot/foot in the sawmill area. A groundwater depression exists in the vicinity of well MW-2 that is consistent with previous monitoring events (Environet, 2002). The interpreted potentiometric surface for deep groundwater is shown on Figure 4. The potentiometric surface contours for deep groundwater indicate that the lateral hydraulic gradient was to the east with a magnitude of approximately 0.003 foot/foot.

4.0 GROUNDWATER SAMPLING AND ANALYSIS

4.1 Field Methods

On March 18 and 20, 2003, monitoring wells MW-1 through MW-19D were purged and sampled. Each monitoring well was purged using a dedicated, disposable Teflon[®] bailer to remove standing water in the well casing. The temperature, pH and specific conductance of the water were monitored during purging and were recorded in the field. Purging was complete when the field-measured parameters were relatively stable and at least three casing volumes of water had been removed from each well. Copies of the groundwater sampling record field forms are included in Appendix B.

After purging, the groundwater in each well was allowed to recover to at least 80 percent of the initial water column height before sampling. Groundwater samples were collected from the monitoring wells using disposable Teflon[®] bailers. The initial volume of water collected from each well was used to measure the temperature, pH, and specific conductance of the groundwater samples. The field parameters measured for the samples are provided in Table 3.

Groundwater samples collected from each monitoring well were placed in two 125-milliliter (ml) glass vials. The vials 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. A chain-of-custody record was completed for the samples and accompanied the samples until received by the laboratory. A copy of the chain-of-custody record for the samples is included in Appendix C.

All non-disposable equipment used to measure water levels and purge and sample the wells was washed in a solution of Liquinox[®] detergent and distilled water and rinsed three times with distilled water before each use. Water generated during groundwater sampling and equipment decontamination was temporarily stored at the Site in two labeled, Department of Transportation (DOT)-approved, 55-gallon drums prior to disposal (Section 5.0).

4.2 Chemical Analysis Methods and Results

The groundwater samples collected from the monitoring wells were analyzed by Alpha Analytical Laboratories Inc. of Ukiah, California (Alpha), a laboratory certified by the California Department of

Health Services (DHS). Alpha analyzed the groundwater samples for chlorinated phenols using the Canadian Pulp Method.

The chemical analysis results for the groundwater samples are presented in Table 4. Copies of the laboratory report and chain-of-custody record are included in Appendix C.

Chlorinated phenols were only detected in the groundwater sample from monitoring well MW-7. The following analytes were detected in the sample from well MW-7: pentachlorophenol (PCP) at a concentration of 19,000 micrograms per liter (μ g/L); 2,3,5,6-tetrachlorophenol at a concentration of 36 μ g/L; 2,3,4,6-tetrachlorophenol at a concentration of 460 μ g/L; and 2,3,4,5-tetrachlorophenol at a concentration of 22 μ g/L. The analyte 2,4,6-trichlorophenol was not detected at or above the laboratory reporting limit (Appendix C). An interpreted isoconcentration contour map of dissolved PCP in shallow groundwater is presented in Figure 5.

Chemical analysis results of groundwater samples collected at the Site during previous sampling events are also presented in this report and include the following constituents: dioxins and furans (Table 5); total organic carbon (TOC), chemical oxygen demand (COD) and chloride (Table 6); natural attenuation parameters (Table 7); and metals (Table 8).

5.0 DISPOSAL OF WASTEWATER

The purge water and equipment wash water generated during the groundwater sampling event are being stored temporarily at the Site in steel, 55-gallon drums (Section 4.1). The drums will be disposed of in accordance with applicable regulations.

6.0 MONITORING SCHEDULE

The second quarter 2003 groundwater monitoring event will be conducted in May 2003. This groundwater monitoring event will consist of the following activities:

- Water levels will be measured in all 19 groundwater monitoring wells;
- Water levels will be measured at the Mad River Slough measuring point before and after the monitoring well measurements;
- Groundwater samples will be collected from all 19 monitoring wells and analyzed for chlorinated phenols using the Canadian Pulp Method; and
- A groundwater sample from monitoring well MW-7 will be analyzed for dioxins and furans using EPA Method 1613/8290.

The methods and results of the sampling event will be presented in a groundwater monitoring report. The report will include: a summary of the activities performed; a discussion of the results; tables consisting of groundwater elevation and laboratory chemical analysis data; maps showing the locations of monitoring wells, the lateral hydraulic gradient of the shallow and deep groundwater and isoconcentration contours of PCP in shallow groundwater; and copies of field data sheets, laboratory analytical reports, and chain of-custody records.

7.0 **REFERENCES**

- Environet Consulting (Environet), 2002. *Results of the 3rd Quarter 2002 Groundwater Monitoring and Sampling Event for Sierra Pacific Industries Arcata Division Sawmills, Arcata, California:* November 25.
- Environet Consulting (Environet), 2003. Results of the Remedial Investigation for Sierra Pacific Industries Arcata Division Sawmills, Arcata, California: January 30.

MONITORING WELL CONSTRUCTION DETAILS $^{\rm 1}$

Sierra Pacific Industries
Arcata Division Sawmill
Arcata, California

WELL NO.	DATE INSTALLED	TOTAL BORING DEPTH (ft bgl)	TOTAL WELL DEPTH (ft bgl)	WELL DIAMETER (inches)	SCREENED INTERVAL (ft bgl)	SCREEN SLOT SIZE (inches)	FILTER PACK INTERVAL (ft bgl)	BENTONITE SEAL INTERVAL (ft bgl)	SURFACE SEAL INTERVAL ² (ft bgl)
MW-1	5-Mar-02	8.0	8.0	2	2.0 - 8.0	0.010	1.5 - 8.0	1.0 - 1.5	0-1.0
MW-2	5-Mar-02	9.0	8.0	2	2.0 - 8.0	0.010	1.5 - 9.0	1.0 - 1.5	0 - 1.0
MW-3	5-Mar-02	8.5	8.0	2	2.0 - 8.0	0.010	1.5 - 8.5	1.0 - 1.5	0 - 1.0
MW-4	5-Mar-02	8.0	8.0	2	2.0 - 8.0	0.010	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-5	7-Mar-02	8.0	8.0	2	2.0 - 8.0	0.010	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-6	7-Mar-02	8.0	8.0	2	2.0 - 8.0	0.010	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-7	7-Mar-02	8.0	8.0	2	2.0 - 8.0	0.010	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-8	8-Mar-02	8.0	8.0	2	2.0 - 8.0	0.010	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-9	8-Mar-02	8.0	8.0	2	2.0 - 8.0	0.010	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-10	11-Nov-02	9.5	8.0	2	2.0 - 8.0	0.010	1.5 - 9.5	1.0 - 1.5	0 - 1.0
MW-11	12-Nov-02	8.5	8.0	2	2.0 - 8.0	0.010	1.5 - 8.5	1.0 - 1.5	0 - 1.0
MW-12	12-Nov-02	9.5	8.0	2	2.0 - 8.0	0.010	1.5 - 9.5	1.0 - 1.5	0 - 1.0
MW-13D	12-Nov-02	21.0	20.0	2	15.0 - 20.0	0.010	13.5 - 21.0	12.0 - 13.5	0-12.0
MW-14	13-Nov-02	8.0	8.0	2	2.0 - 8.0	0.010	1.5 - 8.0	1.0 - 1.5	0 - 1.0
MW-15D	13-Nov-02	21.0	20.0	2	15.0 - 20.0	0.010	14.0 - 21.0	12.0 - 14.0	0 - 12.0
MW-16D	14-Nov-02	21.5	20.0	2	15.0 - 20.0	0.010	14.0 - 21.5	12.0 - 14.0	0-12.0
MW-17	14-Nov-02	9.0	8.0	2	2.0 - 8.0	0.010	1.5 - 9.0	1.0 - 1.5	0 - 1.0
MW-18	13-Nov-02	9.5	8.0	4	2.0 - 8.0	0.010	1.5 - 9.5	1.0 - 1.5	0 - 1.0
MW-19D	14-Nov-02	21.5	20.0	2	15.0 - 20.0	0.010	14.0 - 21.0	12.0 - 14.0	0 - 12.0

NOTES:

ft bgl Feet below ground level.

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.

2 Surface seal interval includes the concrete surface seal and neat cement sanitary seal.

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-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
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
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
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
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
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

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
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
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
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
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
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
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
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

SUMMARY OF WATER LEVEL MEASUREMENTS

WELL NO.	MEASUREMENT ¹ DATE	MP ELEVATION ² (ft NAVD 88)	DEPTH TO WATER (ft bMP)	WATER LEVEL ELEVATION (ft NAVD 88)
MW-15D	02-Dec-02	11.08	5.31	5.77
	18-Mar-03	11.08	5.44	5.64
	31-Mar-03	11.08	5.46	5.62
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
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
MW-18	02-Dec-02	9.53	0.94	8.59
	18-Mar-03	9.53	0.52	9.01
	31-Mar-03 ³	9.53		
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
SLOUGH	31-Mar-03	15.70	15.15	0.55
	31-Mar-03	15.70	15.84	-0.14

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

NOTES:

25:	
ft NAVD 88	Feet above North American Vertical Datum of 1988.
ft bMP	Feet below measuring point.
	Not measured.
SLOUGH	Mad River Slough measuring point on railroad bridge. Water level measurements are
	obtained before and after the water level measurements in the monitoring wells.
1.	Data prior to March 18, 2003 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.
2.	Monitoring wells MW-10 through MW-19D were surveyed by Omsberg & Company on January 27, 2003.
3.	Water level was above the top of casing measuring point.

SUMMARY OF WATER QUALITY PARAMETERS MEASURED IN THE FIELD

WELL NO.	DATE SAMPLED	TEMPERATURE (°C)	SPECIFIC CONDUCTIVITY (µmohs/cm)	pH (std. units)
MW-1	20-Mar-03	14	2,600	6.5
MW-2	20-Mar-03	13	2,100	6.2
MW-3	20-Mar-03	13	1,100	6.4
MW-4	20-Mar-03	14	800	6.5
MW-5	20-Mar-03	14	700	6.6
MW-6	20-Mar-03	11	1,000	6.6
MW-7	20-Mar-03	11	900	6.6
MW-8	18-Mar-03	14	700	6.4
MW-9	18-Mar-03	14	800	6.4
MW-10	18-Mar-03	14	900	6.4
MW-11	20-Mar-03	14	900	6.4
MW-12	18-Mar-03	15	800	6.3
MW-13D	20-Mar-03	14	1,200	6.2
MW-14	20-Mar-03	14	3,000	6.7
MW-15D	20-Mar-03	13	1,300	6.8
MW-16D	18-Mar-03	14	5,200	7.7
MW-17	20-Mar-03	13	1,000	6.4
MW-18	18-Mar-03	14	1,000	6.5
MW-19D	20-Mar-03	16	800	6.7

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

NOTES:

°C µmhos/cm Degrees Celsius. Micromhos per centimeter.

Micronnios per centime

SUMMARY OF CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS FOR CHLORINATED PHENOLS

WELL NO.	DATE SAMPLED ¹	PCP (µg/L)	2,4,6-TRI- CHLORO- PHENOL (µg/L)	2,3,5,6-TCP (μg/L)	2,3,4,6-TCP (μg/L)	2,3,4,5-TCP (μg/L)
	Reporting Limit:	1.0	1.0	1.0	1.0	1.0
MW-1	14-Mar-02	ND	ND	ND	ND	ND
	18-Jul-02	ND	ND	ND	ND	ND
	16-Sep-02	1.8	ND	ND	ND	ND
	03-Oct-02 ²	ND	ND	ND	ND	ND
	02-Dec-02	ND	ND	ND	ND	ND
	20-Mar-03	ND	ND	ND	ND	ND
MW-2	14-Mar-02	7.4	ND	ND	ND	ND
	18-Jul-02	ND	ND	ND	ND	ND
	16-Sep-02	2.5	ND	ND	ND	ND
	03-Dec-02	ND	ND	ND	ND	ND
	20-Mar-03	ND	ND	ND	ND	ND
MW-3	14-Mar-02	1.2	ND	ND	ND	ND
	18-Jul-02	ND	ND	ND	ND	ND
	16-Sep-02	5.0	ND	ND	ND	ND
	03-Dec-02	ND	ND	ND	ND	ND
	20-Mar-03	ND	ND	ND	ND	ND
MW-4	14-Mar-02	8.6	ND	ND	ND	ND
	18-Jul-02	ND	ND	ND	ND	ND
	16-Sep-02	5.7	ND	ND	ND	ND
	03-Dec-02	ND	ND	ND	ND	ND
	20-Mar-03	ND	ND	ND	ND	ND
MW-5	14-Mar-02	4.3	ND	ND	ND	ND
	18-Jul-02	9.1	ND	ND	ND	ND
	16-Sep-02	25	ND	ND	ND	ND
	03-Dec-02	ND	ND	ND	ND	ND
	20-Mar-03	ND	ND	ND	ND	ND
	20-Mar-03 ³	ND	ND	ND	ND	ND
MW-6	14-Mar-02	4.5	ND	ND	ND	ND
	18-Jul-02	ND	ND	ND	ND	ND
	16-Sep-02	6.3	ND	ND	ND	ND
	03-Dec-02	ND	ND	ND	ND	ND
	20-Mar-03	ND	ND	ND	ND	ND

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

SUMMARY OF CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS FOR CHLORINATED PHENOLS

		A	Arcata, California	L		
WELL NO.	DATE SAMPLED ¹	PCP (µg/L)	2,4,6-TRI- CHLORO- PHENOL (µg/L)	2,3,5,6-TCP (μg/L)	2,3,4,6-TCP (μg/L)	2,3,4,5-TCP (µg/L)
	Reporting Limit:	1.0	1.0	1.0	1.0	1.0
MW-7	14-Mar-02	31,000	ND	41	650	24
101 00 - /	18-Jul-02	33,000	ND	ND	990	24 56
	16-Sep-02	44,000	ND	ND	920	64
	03-Dec-02	46,000	ND [1.3]	76	1,300	52
	14-Jan-03 ⁴	51,000	2.4	ND	970	52
	20-Mar-03	19,000	ND	36	460	22
	20-10101-05	17,000	ND	50	400	22
MW-8	14-Mar-02	22	ND	ND	ND	ND
	18-Jul-02	31	ND	ND	ND	ND
	16-Sep-02	4.8	ND	ND	ND	ND
	03-Dec-02	ND	ND	ND	ND	ND
	18-Mar-03	ND	ND	ND	ND	ND
MULO	14.34 02	04	2.1	21	120	<i>с с</i>
MW-9	14-Mar-02	94	3.1	21	130	5.5
	18-Jul-02	2.1	ND	ND	ND	ND
	16-Sep-02	3.1	ND	ND	ND	ND
	03-Dec-02	ND	ND	ND	ND	ND
	18-Mar-03	ND	ND	ND	ND	ND
MW-10	03-Dec-02	ND	ND	ND	ND	ND
	18-Mar-03	ND	ND	ND	ND	ND
MW-11	03-Dec-02	ND	ND	ND	ND	ND
	20-Mar-03	ND	ND	ND	ND	ND
MW-12	03-Dec-02	ND	ND	ND	ND	ND
10100 12	18-Mar-03	ND	ND	ND	ND	ND
	10 1011 00	T(D)				T(B)
MW-13D	03-Dec-02	ND	ND	ND	ND	ND
	20-Mar-03	ND	ND	ND	ND	ND
MW-14	03-Dec-02	ND	ND	ND	ND	ND
	20-Mar-03	ND	ND	ND	ND	ND
MW-15D	03-Dec-02	ND	ND	ND	ND	ND
	20-Mar-03	ND	ND	ND	ND	ND
					-	·
MW-16D	03-Dec-02	1.3	ND	ND	ND	ND
	18-Mar-03	ND	ND	ND	ND	ND

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

SUMMARY OF CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS FOR CHLORINATED PHENOLS

			2,4,6-TRI- Chloro-			
	DATE	РСР	PHENOL	2,3,5,6-TCP	2,3,4,6-TCP	2,3,4,5-TCP
WELL NO.	SAMPLED ¹	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
	Reporting Limit:	1.0	1.0	1.0	1.0	1.0
MW-17	03-Dec-02	ND	ND	ND	ND	ND
	20-Mar-03	ND	ND	ND	ND	ND
MW-18	03-Dec-02	ND	ND	ND	ND	ND
	18-Mar-03	ND	ND	ND	ND	ND
MW-19D	03-Dec-02	ND	ND	ND	ND	ND
	20-Mar-03	ND	ND	ND	ND	ND

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

NOTES:

PCP Pentachlorophenol.

TCP Tetrachlorophenol.

 $\mu g/L \qquad Micrograms \ per \ liter.$

ND Not detected.

[] Indicates the reporting limit if different than that at the top of the column.

1. Data prior to March 18, 2003 were obtained from *Results of the Remedial Investigation for Sierra Pacific Industries - Arcata Division Sawmills, Arcata, California*, dated Jananury 30, 2003, prepared by Environet Consulting.

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

3. Duplicate sample.

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

Chlorinated phenols were analyzed using the Canadian Pulp Method.

SUMMARY OF CHEMICAL ANALYSIS OF THE GROUNDWATER SAMPLE FROM MONITORING WELL MW-7 FOR DIOXINS AND FURANS COLLECTED ON SEPTEMBER 16, 2002

	Arcata, Cali	fornia	
DIOXINS/FURANS	MW-7 (pg/L)	TEF ¹	TEQ ^{2,3} (pg TCDD equiv./L)
2, 3, 7, 8-TCDD	ND	1	0
1, 2, 3, 7, 8-PeCDD	ND	1	0
1, 2, 3, 4, 7, 8-HxCDD	ND	0.1	0
1, 2, 3, 6, 7, 8-HxCDD	ND	0.1	0
1, 2, 3, 7, 8, 9-HxCDD	ND	0.1	0
1, 2, 3, 4, 6, 7, 8-HpCDD	32.4	0.01	0.3
OCDD	144	0.0001	0.01
2, 3, 7, 8-TCDF	ND	0.1	0
1, 2, 3, 7, 8-PeCDF	ND	0.05	0
2, 3, 4, 7, 8-PeCDF	ND	0.5	0
1, 2, 3, 4, 7, 8-HxCDF	ND	0.1	0
	ND	0.1	0
1, 2, 3, 6, 7, 8-HxCDF			0
2, 3, 4, 6, 7, 8-HxCDF	ND	0.1	
1, 2, 3, 4, 7, 8, 9-HxCDF	ND	0.1	0
1, 2, 3, 4, 6, 7, 8-HpCDF	6.59	0.01	0.07
1, 2, 3, 4, 7, 8, 9-HpCDF	ND	0.01	0
OCDF	22.2	0.0001	0
		Total TEQ ³	0.4
		Percent 2, 3, 7, 8-TCDD ⁴	0
NOTES: TEF	Toxicity equivalency factor (unit	laga)	
TEQ	Toxicity equivalency.	less).	
pg/L	Picograms per liter.		
pg TCDD equiv./L	Picograms of TCDD equivalent p	ber liter.	
TCDD	Tetrachlorodibenzo-p-dioxin.		
PeCDD	Pentachlorodibenzo-p-dioxin.		
HxCDD	Hexachlorodibenzo-p-dioxin.		
HpCDD	Heptachlorodibenzo-p-dioxin.		
OCDD TCDF	Octachlorodibenzo-p-dioxin. Tetrachlorodibenzofuran.		
PeCDF	Pentachlorodibenzofuran.		
HxCDF	Hexachlorodibenzofuran.		
HpCDF	Heptachlorodibenzofuran.		
OCDF	Octachlorodibenzofuran.		
ND	Not detected.		1007
1. 2.		7 (WHO-97) adopted from F.X.R. v	an Leeuwen, 1997.
2. 3.	Calculated by multiplying the con NDs were assigned a concentration		
4.		for 2, 3, 7, 8-TCDD by the Total TH	EQ.
	, <u> </u>		

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

Dioxins and furans were analyzed using EPA Method 1613/8290.

Data were obtained from *Results of the Remedial Investigation for Sierra Pacific Industries - Arcata Division Sawmills, Arcata, California*, dated Jananury 30, 2003, prepared by Environet Consulting.

SUMMARY OF CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS FOR TOC, COD AND CHLORIDE

WELL NO.	DATE SAMPLED	TOC (mg/L)	COD (mg/L)	Chloride (mg/L)
-	Reporting Limit:	1.00	10	0.50
MW-1	25-Mar-02	45.7	110	520
MW-2	25-Mar-02	31.1	100	200
MW-3	25-Mar-02	20.0	57	41
MW-4	25-Mar-02	17.1	47	32
MW-5	25-Mar-02	9.04	28	16
MW-6	25-Mar-02	14.6	47	40
MW-7	25-Mar-02	23.2	57	73
MW-8	25-Mar-02	20.1	47	23
MW-9	25-Mar-02	12.3	47	37

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

NOTES:

TOC Total organic carbon. Analyzed using EPA Method 415.1.

COD Chemical oxygen demand. Analyzed using EPA Method 410.2.

mg/L Milligrams per liter.

Chloride was analyzed using EPA Method 300.0.

Data were obtained from the laboratory report provided in the *Report on Recent Hydrogeologic Investigation at Sierra Pacific Industries, Arcata Division Sawmill, 2293 Samoa Road, Arcata, California*, dated April 19, 2002, prepared by Environet Consulting.

SUMMARY OF CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS FOR NATURAL ATTENUATION PARAMETERS

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

			TOTAL													
	DATE	CONDUCTIVITY	ALKALINITY	FREE CO ₂	NO ₃ ⁻¹	SO_4^{-2}	Mn	Fe ⁺²	Ca	Mg	ORP	TSS	TDS	DO 1	pН	METHANE
WELL No	o. SAMPLED	(µS/cm)	(mg CaCO3/L)	(mg CO2/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mV)	(mg/L)	(mg/L)	(mg/L)	(std. units)	(mg/L)
	Reporting Limit:	NA	5.0	50	0.50	2.0	0.30	3.6	1.0	1.0	NA	5.0	10	0.10	NA	0.2
MW-3	14-Jan-03	1,050	420				5.3	32	59	49	130	220	550	9.3	6.38	
MW-7	14-Jan-03	660	350	280	ND	ND	2.9	35	30	50	190	950	560	8.6	6.45	50

NOTES:

 CO_2 Carbon dioxide. Free CO_2 was calculated using SM 4500 CO_2 -D.

NO₃⁻¹ Nitrate. Analyzed using EPA Method 300.0.

 SO_4^{-2} Sulfate. Analyzed using EPA Method 300.0.

Mn Manganese. Analyzed using EPA Method 6010.

Fe⁺² Ferrous iron. Analyzed using EPA Method 3500.

Ca Calcium. Analyzed using EPA Method 6010.

Mg Magnesium. Analyzed using EPA Method 6010.

ORP Oxidation reduction potential. Analyzed using SM 2580.

TSS Total suspended solids. Analyzed using SM 2540 D.

TDS Total dissolved oxygen. Analyzed using SM 2540 C.

DO Dissolved oxygen. Analyzed using SM 4500-O, G.

Conductivity was analyzed using SM 2510. Total alkalinity was analyzed using SM 2320B. pH was analyzed using SM 4500. Methane was analyzed using modified EPA Method 8015. µS/cm Microsiemens per centimeter.

mg CaCO₃/L Milligrams of calcium carbonate per liter.

mg CO_2/L Milligrams of carbon dioxide per liter.

- mg/L Milligrams per liter.
- mV Millivolts.

NA Not applicable.

-- Not analyzed.

ND Not detected.

1. Laboratory measurement.

Data 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.

SUMMARY OF CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS FOR METALS

Sierra Pacific Industries Arcata Division Sawmill Arcata, California

		DATE	Sb	As	Ва	Be	Cd	Cr	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	V	Zn
WEL	LL NO.	SAMPLED	(mg/L)																
		Reporting Limit:	0.15	0.20	0.05	0.01	0.01	0.01	0.05	0.05	0.05	0.0002	0.05	0.05	0.20	0.01	0.40	0.05	0.05
M	W-7	14-Jan-03	ND																

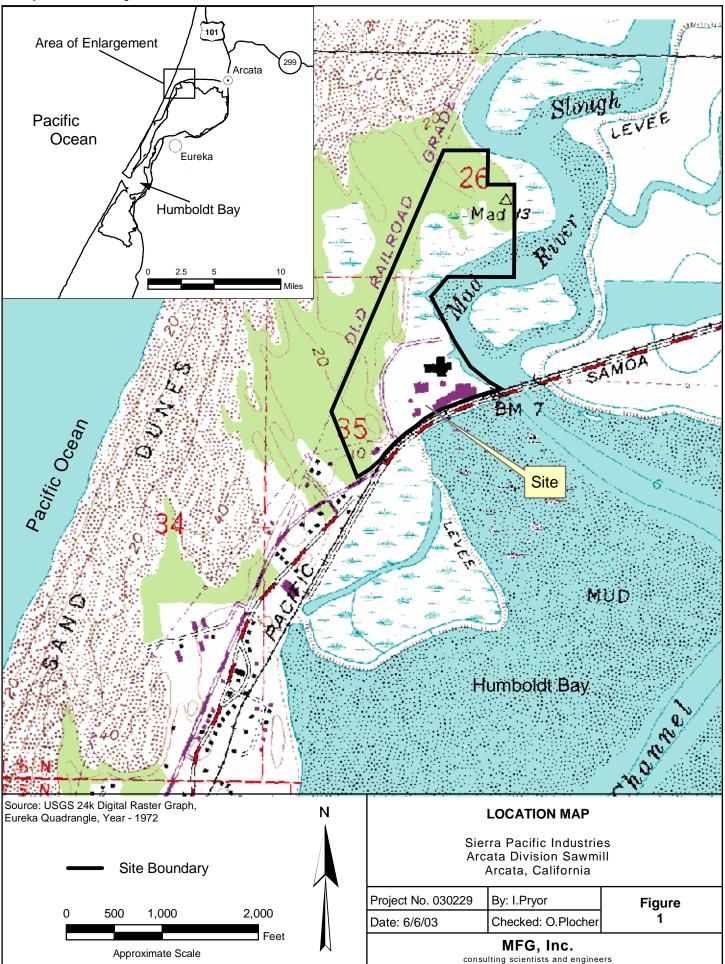
NOTES:			
Sb	Antimony	Hg	Mercury
As	Arsenic	Mo	Molybdenum
Ba	Barium	Ni	Nickel
Be	Beryllium	Se	Selenium
Cd	Cadmium	Ag	Silver
Cr	Chromium	Tl	Thallium
Co	Cobalt	V	Vanadium
Cu	Copper	Zn	Zinc
Pb	Lead		
mg/L	Milligrams per liter.		

ND Not detected.

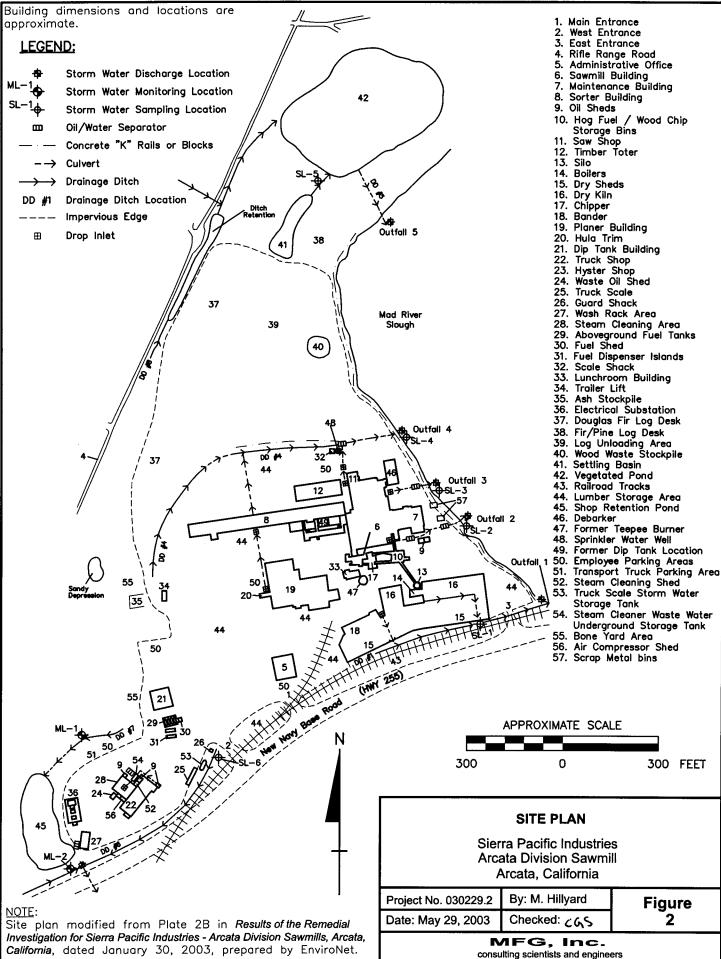
Metals were analyzed using EPA Methods 6010 and 7470.

Data 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.

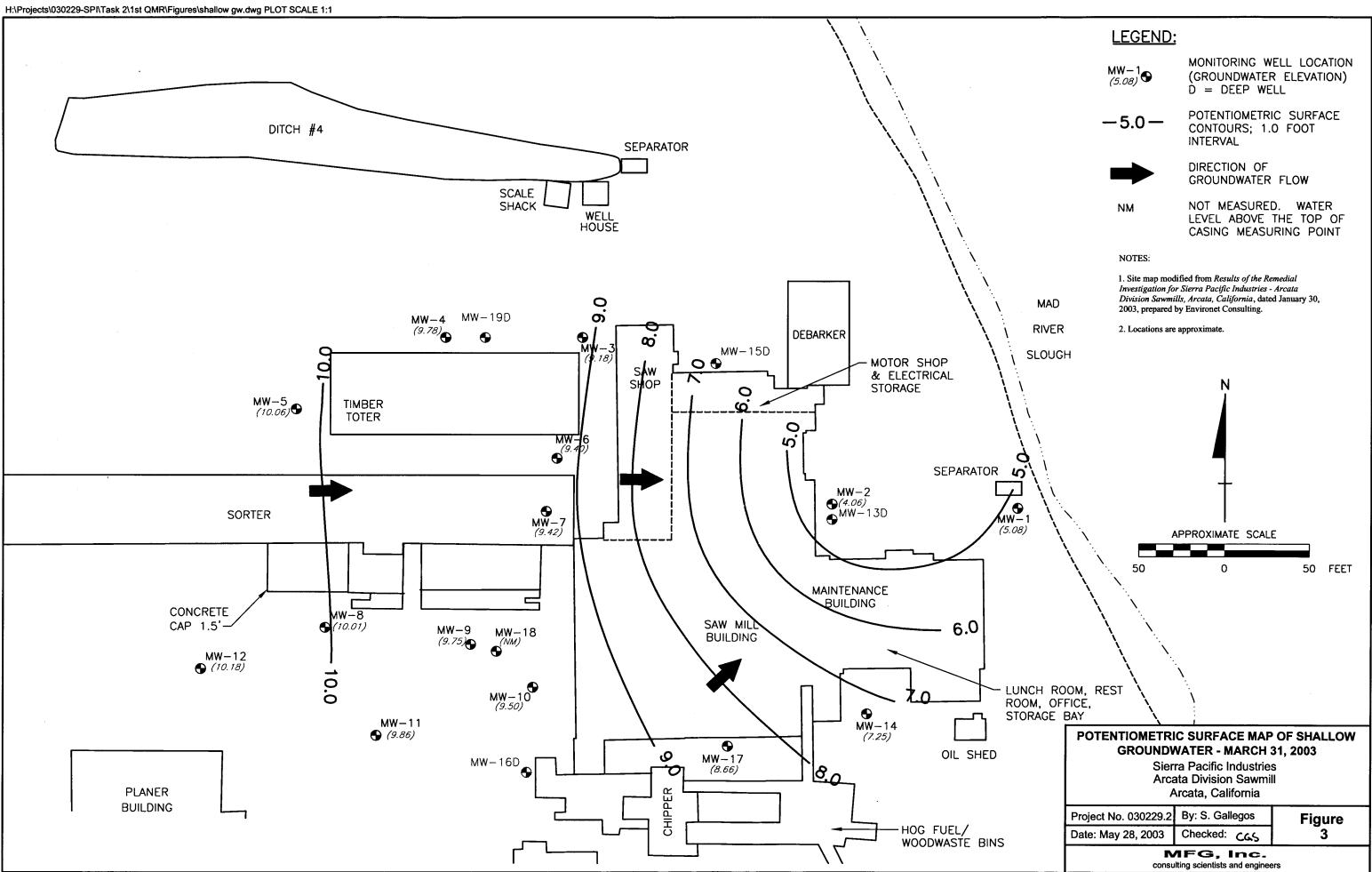
H:\Projects\030229-SPI\fig1_arcata



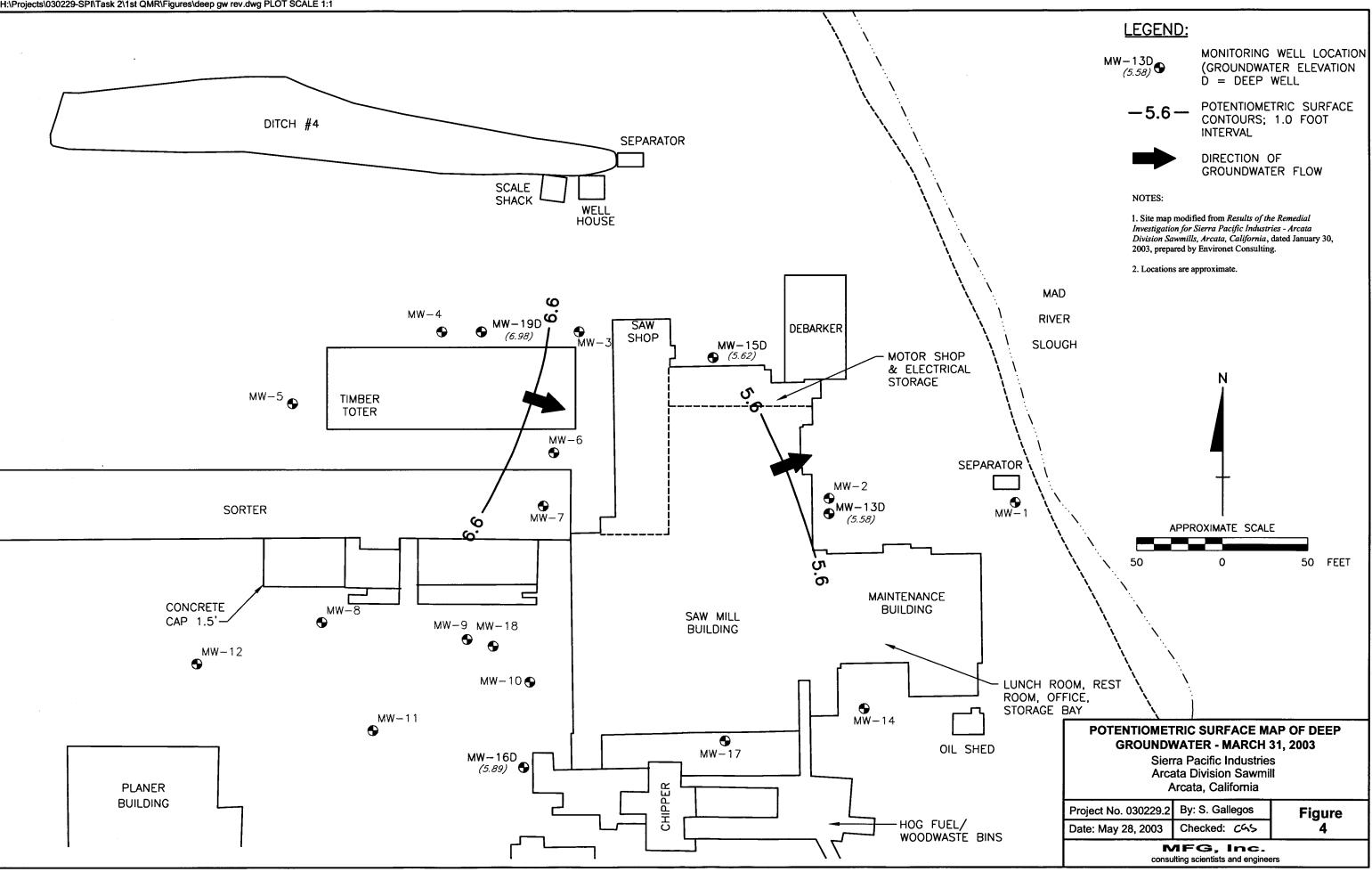
H:\Projects\030229-SPI\Task 2\1st QMR\Figures\Arcata site plan.dwg PLOT SCALE 1:1

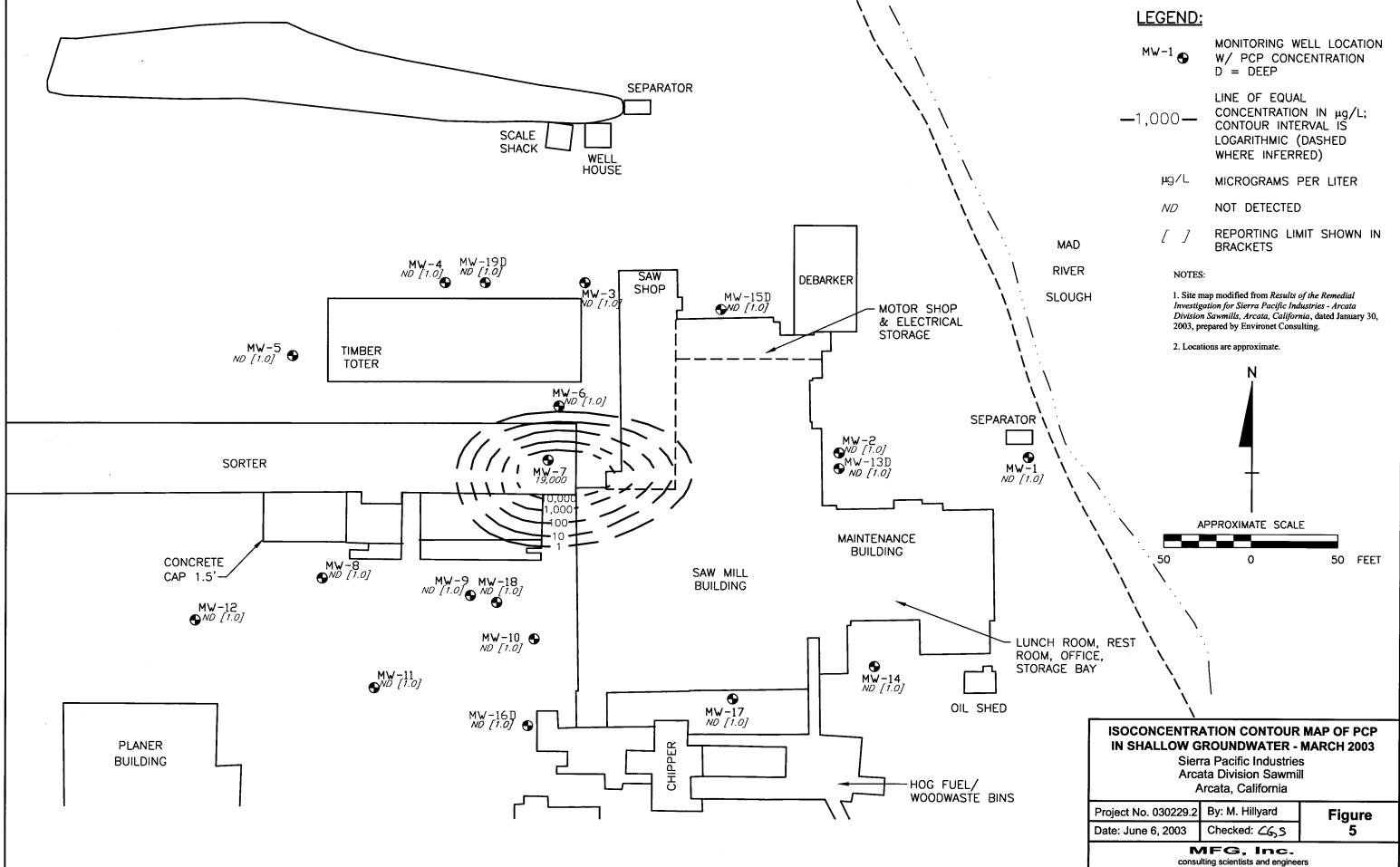


,, property a) mill









H:\Projects\030229-SPI\Task 2\1st QMR\Figures\PCP.dwg PLOT SCALE 1:1

APPENDIX A

Elevation Survey Report for the Measuring Point Located on the Railroad Bridge Over the Mad River Slough



May 5, 2003

Matt Hillyard MFG, Inc. A Tetra Tech Company 1165 "G" Street Arcata, CA 95521

Dear Matt:

At your request, we performed a survey to establish an elevation on a steel plate "temporary bench mark". The elevations are as follows:

1. 2" Brass Cap Bench Mark "J-735 Reset"

Elevation = 14.90'

2. Steel Plate – Temporary Bench Mark

Elevation = 15.70'

Elevation datum is NAVD 88

Please call if you have any questions.

Kenneth J. Omsberg Jr.

Expires 9-30-05



APPENDIX B

Groundwater Sampling Record Field Forms

GRC	DUND	WATE	R S/	AMP	LIN	IG R	ECC	ORD	SAMP		UMBER	PAGE: <u>1</u> of: <u>1</u> : MW-1			
Project I	No: <u>0302</u> 2	. <u>9.2</u> Pr	oject Na	me: <u>S</u> F	<u>'I Ar</u>	<u>·cata Sa</u>	wmill					Date 3/ 20/03			
•	-	well ID, etc.)	-			1	f	itarting Water Level (ft. BMP):							
		t Hillyard					Total Depth (ft. BMP): 7.55 feet Water Column Height (ft.): 3.03								
-	-	P) of Well:	6			Casing	g Diameter	(in. ID):	2-Incl	<u>h</u> Multi	plication Factor. 0.163				
		t.BGL):	2.0-	8.0			Casing Volume (gal.): $52X$: $1.03X$ $1.54X$								
		(ft.BGL):	1	5-8.0	•			Water Level (ft.BMP) at End of Purge: 4-93							
Casing	Stick-Up/Do	wn (ft.):	,				1	Depth (ft. B							
QUA	QUALITY ASSURANCE														
METHODS (describe): Cleaning Equipment: Liquinox detergent & distilled water solution followed by triple rinse w/ distilled water.															
	• • •											rinse w/ distilled water.			
-	•	Disposab					<u></u>	Samp	oling:	Bail	er				
-		arged Water			n Di	rum									
INSTRUMENTS (indicate make, model, i.d.): Water Level: Envirotech LTD, Waterline Model 150 Themometer: Ultrameter															
		Ultrame				<u></u>			nometer: Calibrati		PH				
	uctivity Mete	T T1.	meter						Calibrati		20	60 unhos			
Other: Field Calibration:															
SAMPLING MEASUREMENTS															
Date/	Cumul.Vol.	reeteristics Purge	Temp.			llic Cond			Turbic		Intake	Remarks			
Time	(gal)	Rate (gpm)		pН		(µmhos/ id Temp.)	The second s	Color	& Sedir		Depth (ft. BMP)	nonidiks			
1045	Ю							1+ yellow							
1050	.5	0.1	14,5	6.76	2	790		91/4nn	5194+1	ydy					
1053	1.0	17	14,1.	6.54	1	70		\sim	1/						
1076	1.5	,17	13.9	6.53	25:	50		e I]/	11					
pre		.14				T									
								I	1						
								[1						
					1			[1						
				l					1						
SAN	IPLE IN	VENTO	RY	<u>.,</u>					•			Server and a server			
<u> </u>	••••••••••••••••••••••••••••••••••••••	VP) Before S		: 4.4	93	Rec	overy %:	. 86."	<u></u> S	ample	Intake D	epth (ft. BMP):			
		Bottles C	offecte	4			Filtratio	n Prese	rvation		alysis	Remarks			
Time	Volume			ass, plasti	ic)	Quantity 7	(Y/N)		ре) / А-		- 	(quality control sample, other)			
1051	125m	- 919	95				$ \mathcal{N} $	$+^{\nu}$	1	<u>r</u> c	PTTCP				
										 		<u></u>			
	_						†			 					
Chal			43:	284	1 . ·		 1		1	4					
McCulley, Frick & Gilman, Ir							& Gilman, Inc.								
		3W Semple Form	MAC/CAD	Revised 9-1	1-95			L							

GROUNDWATER SAMPLING RECORD SAMPLE NUMBER: MW-2	of:1												
Project No: 030229.2 Project Name: SPI Arcata Sawmill Date 3/2	9/03												
Sampling Location (well ID, etc.): MW-2 Starting Water Level (ft. BMP): 5.20													
Sampled by: Matt Hillyard Total Depth (ft. BMP): 7.65 feet Water Column Height (ft.	2.45												
Measuring Point (MP) of Well: 9.49 Casing Diameter (in. ID): 2-Inch Multiplication Factor: 0.													
Screened Interval (ft.BGL): 2.0-8.0 Casing Volume (gal.): 0-4 2X: 0-8 3X (-2 4X													
Filter Pack Interval (ft.BGL): 1.5-9.0 Water Level (ft.BMP) at End of Purge:													
Casing Stick-Up/Down (ft.): Total Depth (ft. BMP) at End of Purge:													
QUALITY ASSURANCE	.												
METHODS (describe):													
Cleaning Equipment: Liquinox detergent & distilled water solution followed by triple rinse w/ distilled	******												
Purging: Disposable Polythylene Bailer Sampling: Disposable Polythylene Ba	iler												
Disposal of Discharged Water: 55-Gallon Drum													
INSTRUMENTS (indicate make, model, i.d.): Water Level: Envirotech LTD, Waterline Model 150 Thermometer. Ultrameter													
pH MeterUltrameterField Calibration:													
Conductivity Meter. Ultrameter Field Calibration: 2060 embe	5												
Other: Field Calibration:													
SAMPLING MEASUREMENTS													
Date/ Cumul.Vol. Purge Temp. Specific Conductance Color Turbidity Death Remarks													
Time (gal) Rate (gpm) (°C) PH (µmhos/cm) Color Turbidity Depth Remarks Time (gal) Rate (gpm) (°C) PH (µmhos/cm) Color & Sediment (t. BMP)	5												
1210 O Clear Has Ode	pr												
1213 .5 .16 13,6 6.20 2140 1													
1215 1.0 .25 134 6.22 2100 " Slightly	Maddala (dan dan Madalan dan dan dan dan dan dan dan dan dan d												
1217 1.5 .25 13.2 6.18 2070 11 11													
AJE .21													
SAMPLE INVENTORY													
Water Level (ft. BMP) Before Sampling: 5.25 Recovery %: 98.0 Sample Intake Depth (ft. BMP):													
Bottles Collected Filtration Preservation Analysis Remark	(S												
Time Volume Composition (glass, plastic) Quantity (Y/N) (type) Analysis (quality control sa	mple, other)												
1219 125ml glass 2 N NA PCP/TCP													
<u>├───</u>													
Chain-of-Custody Record No. 43284													
McCulley, Frick & Gilman, I	nc.												
1													

GRO	ROUNDWATER SAMPLING RECORD SAMPLE NUMBER: MW-3														
	. 02022	0.2 -		<u>п</u> р	T A										
		<u>9.2</u> Pr			I AI	<u>cata Sa</u>						Date_3/20/03			
		well ID, etc.)		<u>v-3</u>				g Water Le	-						
Sampleo	d by: <u>Mat</u>	<u>t Hillyard</u>		1 4								r Column Height (ft.): 5-68			
Measuri	ng Point (Mi	P) of Well:		<u>.14</u>)-8.0			-		• • • • •			plication Factor: 0.163			
Screene	d Interval (f	LBGL):			-,,		Casing	i Volume (gal.):	1_2	2X: <u>(.</u>	3x 2.7 4x			
Filter Pa	ick Interval ((ft.BGL):	1.:	5-8.5	*		Water	Level (ft.B	MP) at Er	nd of F	urge:				
	Stick-Up/Do						Total [)epth (ft. E	BMP) at Ei	nd of F	^o urge:				
QUA	LITY AS	SURAN	CE				-					u			
	DS (describ														
												rinse w/ distilled water.			
•		Disposab						Sam	pling:	Bail	er	*****			
•		arged Water			n Di	rum									
		ticate make,				1.1.1.70	n	,		T T14					
Water Level: Envirotech LTD, Waterline Model 150 Thermometer. Ultrameter pH Meter. Ultrameter Field Calibration: $l + 4, 7, 0$															
	pH Meter: Ultrameter Field Calibration: I Y Y Y Conductivity Meter: Ultrameter Field Calibration: 2060 nm hos Field Calibration: 1000 nm hos														
	•	erOlua		·							$-\omega$	QC MM HOS			
	Other: Field Calibration: SAMPL ING MEASUREMENTS														
SAMPLING MEASUREMENTS Purge Characteristics Water Quality Data Appearance															
Date/	Cumul.Vol.		Purge Temp. Specific Conductance Color Turbidity Depth Remarks												
Time	(gal)	Rate (gpm)	(°C)	рн	@ Fie	d Temp.		COIOI	& Sedir		(IL BMP)	·			
328	0							Clpar				orange scum			
330	1	.5	133	6.60	10	86		11							
332	2	-5	13.1	6.41	11	10		- U		~					
335	3	.33	13.1	6.41	101	87	·	~ 1							
AUC	4	-43													
	5														
	6				1		******	<u> </u>			1				
	6		}												
			_												
	<u> </u>			<u> </u>	<u> </u>	1]	<u> </u>						
SAN	MPLE IN	VENTO	RY												
Water	Level (ft. Bl	MP) Before S	Sampling	<u>. 2.</u> z	5	Rec	overy %	<u>. 97</u> .	<u>2</u> s	ample	Intake [Depth (ft. BMP):			
	1	Bottles C	· · · · · · · · · · · · · · · · · · ·				Filtratio		ervation	۸n	alysis	Remarks			
Time	Volume		7	ass, plast	ic)	Quantity Z	(Y/N)		ype)	Dri	Trad	(quality control sample, other)			
3:37	125ml	- 9	1995			<u>ح</u>	1 N				TUCP				
										 					
		<u> </u>	<u> </u>	328	V		1	L		I					
Chain-c	of-Custody F	Record No		120	1										
									McCu	lley,	Frick	k & Gilman, Inc.			
Į								1							
L		GW Sample Form	MACACAD	Revised: 9-1	9-95	•		I							

GRC	DUND	WATE	R S/	AMPI	LING R	ECC	ORD	SAMP	LE NU	IMBER	PAGE: 1 : MW-4				
Project I	No: 03022	29.2 Pr	oject Na	me: <u>S</u> P	I Arcata S	awmill					Date 3/2903				
-		(well ID, etc.)				r	g Water L	evel (ft. B	MP):	1.41					
Samole	d by: Mai	tt Hillvard									er Column Height (ft.): 6.3 -				
Measuri	na Point (M	P) of Well:	10	- 71							plication Factor: 0.163				
Screene	d Interval (t.BGL):	2-1	2-8.	0	1					2_3X4X				
Filter Pa	ck interval	(ft.BGL):	1.	5-8	:0						2.0				
	Stick-Up/Do		*****			1	Depth (ft. E								
QUA	LITY AS	SURAN	ICE			I	-				• · · ·				
METHO	DS (describ	e):	~	•••••••••••••••••••••••••••••••••••••••			1			*****	•				
	ing Equipm		Sa	ne	95M		- (
	ng:						Sam	pling:	Baile	er					
		arged Water			n Drum										
		dicate make, virotech I			Model 1ª	0			T TLA	nome - 4 -					
	Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter pH Meter: Ultrameter Field Calibration: $\rho + \frac{1}{2}, \frac{7}{2}$														
	Conductivity Meter. Ultrameter Field Calibration: 2060 Mm hes														
		H		······		-					er sames				
	Other: Field Calibration: SAMPLING MEASUREMENTS														
	Purge Characteristics Water Quality Data Appearance Intake														
Date/ Time	Cumul.Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	pН	Specific Con (µmhos/ @Field Temp.	cm)	Color	Turbic & Sedir		Depth (IL BMP)	Remarks				
223	0						clear				orange scum				
226	1	-33	14.4	6-71	868		ti			-					
228	2	- 5	14.5	6.40	852		<u></u>		~						
230	3	. 5	14,4	6.45	828		13								
Ave	4	4.3													
	5														
l	6		<u> </u>												
			<u> </u>												
SAN	IPLE IN	VENTO	RY												
Water	Level (ft. B	MP) Before S			CRec	covery %	: 91	2-1 s	ample	Intake [Depth (ft. BMP):				
Time	Volume	Bottles C				Filtratio		ervation	An	alysis	Remarks				
	125mL			ass, plast	ic) Quantity	(Y/N)	······	ype)	[2/7CP	(quality control sample, other)				
232	1 CIML	- 9'	955					K-		<u>/ /('</u>					
			*****	<u>`</u>		1			<u> </u>						
Chain-c	of-Custody I	Record No	9	328	34		[
								McCul	lley.	Frick	c & Gilman, Inc.				
 										· •					
		GW Sample Form	MAC/CAD	Revised: 9-1	+05		[

GRC	OUND	WATE	R S/	AMP	LING	RECO	ORD	SAMP	LE NU	MBER:	PAGE: 1 of: 1 MW-5				
Project I	No: 03022	29.2 Pr	oject Na	me: SF	^{PI} Arcata	Sawmill					Date 3/2903				
		(well ID, etc.)				f	g Water Le	evel (ft. B	MP):	Ð	.73				
		t Hillyard				··· 1					r Column Height (ft.): 6-95				
-	-	P) of Well:	100	.69	•	1					plication Factor: 0.163				
		t.BGL):	2.0	-8.0)					-	2 3X 3.3 4X				
		(ft.BGL):		- 78.	0						1.0				
	Stick-Up/Do			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		1	Depth (ft. E								
QUA	LITY AS	SURAN	ICE								• · · ·				
	DS (describ	•					-)								
	ning Equipm		Jane	C	15 /	MW-	-1								
-	ng:						Sam	pling:	Baile	r					
		arged Water			n Drum										
	NSTRUMENTS (indicate make, model, i.d.): Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter														
	pH Meter: Field Calibration: H_ 4, 7, CO														
	eter:	TT T1.	meter		i Calibrati I Calibrati			g umhos							
	Other: Field Calibration:														
	SAMPLING MEASUREMENTS														
Date/		ractoristics		Water	Quality Di Specific C	Apş			Intake						
Time	Cumul.Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	pН	(µmh	os/cm) np. @ 25 °C.	Color	Turbic & Sedir		Depth (ft. BMP)	Remarks				
4:00	0		·			P C Z U .	clear								
4:02	1	, 5.	13.6	6.70	6.75		N j		in the second						
4:04	2	-5	13.5	6.65	675		ţ,								
4:06	3	.5	13,5	6.60	673		11	<u> </u>							
4:67	35	.5	13.5	6.60	673		11								
Are															
1		· ·	i												
SAN	IPLE IN	VENTO	RY				<u> </u>								
Water	Level (ft. Bl	MP) Before S	ampling	: Dr'	28	Recovery %	. 96-4	ts	ample	Intake D	epth (ft. BMP):				
		Botties C	· · · · · · · · · · · · · · · · · · ·			Filtratio	1	ervation	Ans	alysis	Remarks				
Time 4:08				ass, plast				vpe) / A	L	-	(quality control sample, other) MW-5				
			955		2	- <u>N</u>		1	PC	P/TCP	MW-A duplicate				
	in in in in in in mu-A dupl. Cate														
									1		······				
Chain-	of-Custody I	Record No.	43	284	ł										
								McCul	lley,	Frick	& Gilman, Inc.				
ļ		A144 A	1/1000-0	Autor A											
L		GW Semple Form	MACACAD	Hevised: 9-1	5-05		t								

GRO	UND	WATE	R S/	AMPI	_II	IG R	ECO	RD	SAMP	LE NU	JMBER:	PAGE: <u>1_of:</u> 1_ MW-6		
Project I	No: 03022		oiect Na	me: SP	'I A	rcata Sa	wmill					Date 3/2903		
•		well ID, etc.)				ſ		y Water Le	ovel (ft. B	MP):	0.	80		
		t Hillyard										r Column Height (ft.): 6-92		
-	-	P) of Well:	9	77		· ·						blication Factor: 0.163		
Sereene	d intonial (f	t.BGL):	2	8								2 3X 3.3 4X ~		
		(ft.BGL):	1	.50	8		-					*/		
	Stick-Up/Do		· · · · · ·					epth (ft. B						
QUA	LITY AS	SURAN	CE											
METHO	DS (describ	e):	<u>ج</u>			<i>ìs</i>	11	1.1-	1	*****	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			
	ing Equipm		29	me	· · ·	()	100			D 'I				
	ng:			5 C-11-			د.	Sam	oling:	Bail	er			
		arged Water			<u>n D</u>	rum								
	INSTRUMENTS (indicate make, model, i.d.): Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter													
		Ultrame		uternin	/ 111		, 		l Calibrati		ρH	4,710		
Cond	uctivity Met	erUltra	meter						l Calibrati		20	4,7,10 00 unhos		
Other: Field Calibration:														
SAM	SAMPLING MEASUREMENTS													
	Purge Characteristics Water Quality Data Appearance Intake Date/ Cumul Vol Purge Temp Specific Conductance Turbidity Intake													
Time	Cumul.Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	рH	<u> </u>	(µmhos/	cm)	Color			Depth (IL BMP)	Remarks		
425	0							Clear				orange Scum		
428	1	-33	10.8	6-63	C	119		N.						
430	2	.5	10.7	6.57	9	44		. t		~				
432	3	.5	10.8	6.53	9	68	·	Surge V						
433	3.8	.8	10,6	6 8	9	7 1		Ц						
Ave	·	.48												
SAN	IPLE IN	IVENTO	RY											
Water	Level (ft. B	MP) Before S	Sampling	<u>; (.</u>	20	Rec	overy %:	80.	<u>0</u> s	ample	Intake D	Depth (ft. BMP):		
	1	Bottles C					Filtratio	1	ervation	An	alysis	Remarks		
Time				ass, plast	ic)	Quantity	(Y/N)		ype) / A	Dri	Imp	(quality control sample, other)		
435	125m	9	995			<u> </u>	<u>↓</u>		15	101	110			
 							1			1				
Chain-	of-Custody	Record No	4	328	54		1							
		· · · · · · · · · · · · · · · · · · ·					McCulley, Frick & Gilman, Inc.							
 		GW Sample Form	MACACAD	Reviser D.	8-05									
L		UIT OWNOW FURN	สถาวันหาย	FWFTHERE, MA				[·					

GRO	UND	NATE	R SA	MPL	_IN	IG R	ECO	RD	SAMPI	ENL	JMBER:	PAGE: <u>1_of:</u> 1 MW-7			
Project N	No: 03022	<u>9.2</u> Pro	piect Nar	ne: SP	I Ar	cata Sa	wmill					Date 3/20/03			
		well ID, etc.):				ſ		Water Le	vel (ft. Bl	ЛР):		0.72			
		t Hillyard					Total D	epth (ft. Bl	MP): <u>7.7</u>	4 fee	t_ Water	Column Height (ft.): 7.02			
•		P) of Well:	9.1	68		·						lication Factor: 0.163			
	-	t.BGL):													
	•	(ft.BGL):	1.5	- 8 - 8	*		Water I	.evel (ft.Bl	MP) at Er	nd of F	ourge:	2 3X 3,3 4X 1.6 T			
	Stick-Up/Do							epth (ft. B							
QUA	LITY AS	SURAN	CE					_				• ·*			
	DS (describ					~ C	ΛΛ	.w-	-			۰.			
	ing Equipm		20	me											
	ng:			11				Samp	oling:	Bail	er				
		arged Water			n Di	rum						- Antoine Martin Martin Contraction of the Contract of the Con			
		dicate make,			۱ ۸-	dal 150	0			T 114	rameto	r			
	Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter pH Meter: Ultrameter Field Calibration: $\ell + 4, -7, \ell 0$														
	Conductivity Meter: Ultrameter Field Calibration: 2060 mmhos														
	Other: Field Calibration:														
	Other: Field Calibration: SAMPLING MEASUREMENTS														
	Purge Characteristics Water Quality Data Appearance Intake														
Date/ Time	Cumul.Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	Hq		l(lc Cond (µmhos/ ld Temp	cm)	Color	Turbic & Sedir		Depth (IL BMP)	Remarks			
449	0							Clear				Orange Scum			
451	1	5.	10.7	6.57	G	79		li							
453	2	- 5	10-7.	6.53	8	90		x t		~					
454	3	1	10-7	6.56	9	06		~1							
455	3.6	.6	10,7	6.56	9	07		((-						
Ave		.6		1											
1	1		1												
				1	1										
SAN		IVENTO	RY				<u></u>								
Water	Level (ft. B	MP) Before S	Sampling	: 1-4	0	Rec	covery %	.90.	<u>ج</u>	ample	e Intake D	epth (ft. BMP):			
		Bottles C					Filtratio	3	orvation	Ar	nalysis	Remarks			
Time				ass, plast	ic)	Quantity			/pe)	I	P/TCP	(quality control sample, other)			
457	7 125mL	- 910	())			<u> </u>	N		A	1-	17101				
Chain-	of-Custody	Record No	43-	284				·····			-				
									McCu	lley	, Fricl	c & Gilman, Inc.			
 		GW Sample Form	MAC/CAD	Revised: 9-	8-05			1							

GRO	UND	WATE	R SA		LING R	ECO	RD	SAMPI	LE NUM	BER:	PAGE: <u>1_of: 1</u> MW-8
•			-		I Arcata Sa	wmill					Date_3/18/03
Sampling	g Location (well ID, etc.)	<u>. MV</u>	V-8	[Starting	Water L	evel (ft. Bl	MP):	0.	95
		t Hillyard				Total De	opth (ft. B	MP): <u>7.7</u>	3 feet	Water	Column Height (ft.): 6-78
Measurir	ng Point (M	P) of Well:	10.	3		Casing	Diameter	(in. ID):2	2-Inch	Multip	lication Factor: 0.163
Screene	d Interval (f	t.BGL):	2-	8		Casing	Volume (gal.):	<u> 2X:</u>	2.7	2_3X_3.3_4X
Filter Pa	ck Interval ((ft.BGL):	<u> </u>	5-8	•	Water L	evel (ft.B	MP) at Er	nd of Pur	ge:	1-22
Casing S	Stick-Up/Do	wn (ft.):				Total De	epth (ft. E	BMP) at Er	nd of Pur	ge:	
QUAI	LITY AS	SURAN	ICE			•	-				بر المراجع الم المراجع المراجع
	DS (describ	-	6		Q. C	M	W.	-1			*
		ent:	<u> </u>	ame		*	*****				
	ıg:		<i>E</i>	5 0-11-			Sam	pling:	Bailer		
		arged Water							······		
	•	dicate make, virotech L	•	•	e Model 150)	Thor	mometer.	Ultra	meter	•
pH Me	eter:	Ultram	eter			-				ort	4,7.0,10
Cond	uctivity Mete	er. Ultra	meter					i Calibrati		20	oleo mahos
Other							Field	d Calibrati	on:		
SAM	PLING	MEASU	REME	ENTS							
	Cumul.Vol.	Purge	Temp.		Quality Data Specific Cond			Turbid	State 1	take	Remarks
Time	(gal)	Rate (gpm)		рH	G Field Temp		Color	Turbidity & Sediment		epth BMP)	1 ICHIMINO
204	0						Clear	~			some foam
1208	1	125.	14.4	6.55	727		11				1+2 sodon
1210	2	-5	14.3	6.36	725		11				
1245	3.	_03	15.3	6.8	736	1	tbrn	1			
1247	4	- 5	14.2	6.45	7-51		, (· · · ·		****
1249	4.5	.25	140	6.39	729						
Ave											
				<u> </u>							
SAM			BY	1	11	1		_ _	<u>I</u>	1	
		MP) Before S	******	· [-	22 Bec	overy %:	9	16.0 s	ample In	take D	epth (ft. BMP):
414164		Botties C		· ·		Filtration		ervation			Remarks
Time	Volume			ass, plast		(Y/N)	(t	ype)	Analy		(quality control sample, other
1250	125m	4 5	lass		2	N	N	4-	PCP/	468	
						 					
		-									
Choin -		Record No		52	84	<u>.</u> Γ					1
Chain-C	n-wustouy t									'm] - I -	9 Oilman Inc
]								MCCU	ney, F	TICK	& Gilman, Inc.
*		GW Sample Form	MAC/CAD	Revised 8-	5-05	{					

GRO	UND	VATE	R SA	MPL	-11	IG R	ECC	RD	SAMPL	E NU	JMBER:	PAGE: <u>1</u> of: <u>1</u> MW-9			
Project N	No: 03022	<u>9.2</u> Pro	piect Nar	ne: SP	I Ar	cata Sa	wmill					Date 3/16/03			
		well ID, etc.):				ſ	Startin	o Water Le	evel (ft. BN	AP):	6.	79			
		t Hillyard			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Total D) Depth (ft. B	MP): 7.7	l fee	t_ Wate	Column Height (ft.): 6.92			
-	-	P) of Well:	9.8	6		· .						lication Factor: 0.163			
	d Interval (f		9.8	- 8								- 3X 3.3 4X -			
	ick Interval (1.5 -	- 8	•		-		MP) at En						
	Stick-Up/Do		3.5					•	•		-				
QUA	LITY AS	SURAN	CE					-				↓ **			
METHO	DS (describ	e):	601	ve.		2 6	Λ	IW	- 1			•			
	ing Equipm	enc	540			<u> </u>			1	D. 1					
		Bailer		<u> </u>				Sam	pling:	Bail	er				
		arged Water			<u>n D</u>	rum									
		dicate make,			Л	ndel 150	0	TL		TIIt	ramete	r i			
	Water Level: Envirotech LTD, Waterline Model 150 Thermometer. Ultrameter pH Meter. Ultrameter Field Calibration: $pH + 4, 7, 10$														
	Conductivity Meter: Ultrameter Field Calibration: 2060 mm Les														
	•									-					
	Other: Field Calibration: SAMPLING MEASUREMENTS														
	Purge Characteristics Water Quality Data Appearance Intake														
Date/ Time	Cumul.Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	pН		untos/ (µmhos/ ald Temp	cm)	Color	Turbid & Sedin		Depth (fL BMP)	Remarks			
104	0							Clear				brunn form/scum			
107	1	.33	14,4	6.80	8	20		1+ 5nm							
110	2	-33	14.1	6.46	G	14		11		~					
112	3	.5	19,1	6.44	8	10		x)		,					
114	4	1,5	14,1	6.47	8	19		٠ر							
hue	为	0.4													
	6				<u> </u>										
SAN	APLE IN	, IVENTÔ	RY				••••••					n			
		MP) Before S		r_ ,9'	3	Rec	overy %	: 98	S	ample	e Intake [)epth (ft. BMP):			
	Matar	Bottles ((a)	Quantity	Filtrati		ervation	Ar	nalysis	Remarks (quality control sample, other)			
Time 1/4	Volum 125m		sition (gi	ass, plast	icj	Cuantity			type)		CP/rd				
<u> "4</u>	100m	4 5	77/	<u>.</u>			+		-		<u> 1/14</u>				
							1			<u> </u>					
Chain-	of-Custody	Record No	43-	284											
 								1	McCu	lley	, Fricl	c & Gilman, Inc.			
 		GW Sample Form	MICOLO	Dandarad. A	8.05										
1		ALLO MOUTH COLLECTION	murunu	THEY SEED.	0.00			1							

GRC	UND	WATE	R S/	AMPI	ING R	ECC	ORD	SAMP	LE NI	JMBER	PAGE: <u>1</u> of: <u>1</u> : MW-10			
Project I	No: 03022	29.2 Pr	oiect Na	me: SP	I Arcata Sa	wmill				-	Date_3/18/03			
-		(well ID, etc.)			ſ		g Water Le	evel (ft. B	MP):		1,99			
		tt Hillyard					-	-	, in the second s		r Column Height (ft.): 6.81			
•		P) of Well:	4	7-80							plication Factor: 0.163			
		t.BGL):			3						2_3X_3.3_4X			
			1	5-0	1.5						4^			
	stick-Up/Dc	(ft.BGL): wn (ft.):					Depth (ft. E	-						
QUA	LITY AS	SSURAN	ICE			-	-							
METHO	DS (describ):	٢.	C	99		U11/	-1			•			
	ing Equipm		<u> </u>	ame	47									
	ng:			5 0 11			Sam	pling:	Bail	er				
		arged Water			n Drum									
		dicate make, virotech T			Model 15	า		•	T TI+	ramata	M			
		Ultram		accinite	Model 15	J		mometer:		1 amere	4.710			
	eter: uctivity Met		imeter				Field Calibration: $p(f+4, 7, 10)$ Field Calibration: Zeo (e O mm hos							
Other				·····			Field Calibration: <u>ZOGOMM hos</u> Field Calibration:							
	SAMPLING MEASUREMENTS													
· · · · ·	Purge Characteristics Water Quality Data Appearance intake													
Date/ Time	Cumul.Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	pH	Specific Conc (µmhos/ @Field Temp)	cm)	Color	Turbic & Sedir		Depth (ft. BMP)	Remarks			
2:42	0										scum/frim on top			
2:45	1	.33	15.2	6.80	897		Ulean				anning o e a v an airinn ain an an ann an ann ann an an ann an			
2:48	2	. 33	14.7.		940		11	1	~					
2:51	3	,33	14,6	6.46	948	-	T 3							
2:53	4	,5	145	6.45	Gar		((
Ave	24	-44									·			
	· B													
]							
SAN	IPLE IN	IVENTO	RY											
Water	·Level (ft. B	MP) Before S	Sampling	r: 1-4 °	Rec	overy %:	: 97	<u>.7</u> s	ample) Intake [Depth (ft. BMP):			
Time	Volum	Bottles C		d ass, plasti	c) Quantity	Filtratio		ervation ype)	An	alysis	Remarks (quality control sample, other)			
255	1250		(995		2	1		A	PC	P/TCP				
							· ·		<u> </u>					
											·			
				1 500- 2					1		········			
Chain-	of-Custody	Record No	4 =	324	5	1		<u></u>						
								McCu	lley,	Frici	k & Gilman, Inc.			
}		GW Sample Form	MAC/CAD	Revised: 9-	1-0 5									
5							5							

								1							
GRO	UND	VATE	R SA	MPI	_IN	GR	ECO	RD	SAMPL	E NU		PAGE: <u>1_of:1</u> MW-11			
Project N	io: <u>03022</u>	<u>9.2</u> Pro	oject Nar	ne: <u>SP</u>	I Arc	cata Sa	wmill					Date <u>3/20/03</u>			
Sampling	Location (well ID, etc.):	MW	7-11		Г	Starting	water L	evel (ft. Bl	MP):		105			
		t Hillyard										r Column Height (ft.): 7.42			
*	-	P) of Well:	10.2	.6		·						blication Factor: 0.163			
	d Interval (fi	BGL	2-4	8								Y 3x 3-6 4x -			
	ck interval (1	5-	8.5					MP) at Er						
	Stick-Up/Do		A						BMP) at Er						
		SURAN	CF								-	÷			
-	DS (describ						-		1.1.	1					
Clean	ing Equipm	ent:		ame	~	019	, 7	14	<u>~</u> -	۱ 					
	ng:						د.	Sam	pling:	Bail	er				
Dispo	sal of Disch	arged Water	<u>. 5</u>	5-Gallo	<u>n Dr</u>	um									
		ticate make,			3.6	1 1 1 7 6		·		TTL					
	Water Level: Envirotech LTD, Waterline Model 150 Thermometer. Ultrameter pH Meter. Ultrameter Field Calibration: $\rho(F, 4, 7, 10)$ Conductivity Meter. Ultrameter														
pH M	eter	Ultrame Ultra	meter			•					1206	ann he s			
		er. <u> </u>	meter	· · · · ·			Field Calibration:								
Other SAM		MEASU	REME	NTS				Field	u validiau	011.		<u>al de la constant de</u>			
	SAMPLING MEASUREMENTS Purge Characteristics Water Quality Data Appearance Date/ Commedities Temps Specific Conductance Intake Date/														
Date/ Time	Cumul.Vol.		Temp. (°C)	pН		lic Cond (µmhos/c		Color	Turbic & Sedir		Depth	Remarks			
	(gai)	Rate (gpm)	(0)		© Fie	ld Temp. (@ 25 ° C.		& Seal		(IL BMP)	Ny amang akan pangkana amin'ny tanàna amin'ny tanàna amin'ny tanàna amin'ny tanàna dia kaominina dia kaominina d			
9:04	0			A				1.1.							
909	1	<u> </u>	14.5	573	86			1+6m				Some wood particles			
912	2	. 33	14.5.	6.10	<u> </u>	76		Cl for		~					
914	3	.5	14.6	6.35	8	79			· · ·						
916	4	.5	14,4	6.40	8	70									
Ave	5	- 33													
	6														
				[1										
				[1			1				· · ·			
SAN		IVENTO	RY	A											
Water	Level (ft. B	MP) Before S	Sampling	: 1.5	3	Rec	overy %	; 93-	5 8	ample	e Intake (Depth (ft. BMP):			
<u> </u>		Bottles C					Filtratio	on Pres	ervation	A.	nalysis	Remarks			
Time	Volum			ass, plast	ic)	Quantity	(Y/N)		type)	I.,,	101yono	(quality control sample, other)			
920	(25mL	<u> </u>	9 1995			2	\mathcal{N}			РСР	1115				
		· · · · · · · · · · · · · · · · · · ·		·····						 					
 	·····								••••••						
			47	528	5	e'									
	ur-Justoay	Record No		,							, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
1									McCu	lley	, Frici	c & Gilman, Inc.			
 		GW Sample Form	MACACAD	Revised: 9-	8-95			ļ							
£					· · · · ·			A							

GRO	UND	VATE	R SA	MPL	_IN	GR	ECO	RD	SAMPL	E NL	JMBER:	PAGE: <u>1 of: 1</u> MW-12			
Project N	lo: 03022	9.2 Pro	biect Nan	ne SP	I Arc	cata Sa	wmill					Date 3/6/03			
		well ID, etc.):				[Starting	y Water Le	vel (ft. Bl	MP):		15			
		t Hillyard					Total D	epth (ft. B	MP): 4	44	Water	Column Height (ft.): 7.29			
-	-	P) of Well:	10	73								lication Factor: 0.163			
Screene	d Interval (fi	.BGL):	2	-8								<u>4 3x 3.6 4x</u>			
Filter Pa	ck interval (ft.BGL):	1.3	-9	ウ		Water	Level (ft.Bl	MP) at Er	nd of F	ourge:	3-1			
Casing §	Stick-Up/Do	wn (ft.):						epth (ft. B							
QUA	LITY AS	SURAN	CE				-	-				.			
	DS (describ	-		Ga	m	e d	or s	N	N-	-1		•			
	ing Equipm					<u>e</u> "	()	/ 0 -	- If	Bail	er	1948 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 200			
	- J .	Bailer arged Water	5	5-Gallo	n Dr	าเm		Samp	oling:	Dan		<u></u>			
		dicate make,				<u>um</u>						·			
		virotech L			e Mo	del 150)	Then	nometer:	Ult	ramete	(
pH M	pH Meter: Ultrameter Field Calibration: P /+ Y Y 10 Conductivity Meter: Ultrameter Field Calibration: 20 6 C mm hes														
Cond	Conductivity Meter: Ultrameter Other: Field Calibration:														
	SAMPLING MEASUREMENTS														
Date/	Cumul.Vol.	Purge	Temp.		Spec	tic Cond (µmhos/e		Color	Turbic		Intake Depth	Remarks			
Time	(gai)	Rate (gpm)	(°C)			kd Temp			& Sedir	nent	(IL BMP)	•			
1142	0		х					dor							
1144	1	.5.	15-4	5.90	77	12		derber			<u> </u>				
1146	2	15	15.0	6.22	8	17		Itbin		~					
1147	3)	19.9	6.27	8	64		L _I	· · ·						
11 49	- 4	.5	14.9	6.29	E	529		11							
Ave	3	-57													
	6														
			1	1	1										
					1										
SAN			RY	1											
Water	Level (ft. B	MP) Before S	Sampling	: Za	05	Rec	overy %	. 87.	7 s	ample	e Intake D	Pepth (ft. BMP):			
		Botties C			T		Filtratio	1	ervation	A	nalysis	Remarks			
Time		ì		ass, plast	ic)	Quantity 2			ype)	<u> </u>	-	(quality control sample, other)			
1157	- 125ml	4->	1995				+	+	<u> </u>	PCF	1100				
							1								
Chain-	of-Custody	Record No.	Y -	528	55										
									McCu	lley	, Frick	c & Gilman, Inc.			
		GW Sample Form	MAC/CAD	Revised: 0-											

GRO	UND	VATE	R SA	MPL	INC	G R	ECO	RD	SAMPL	LE NU	MBER:	PAGE: 1of: 1 MW-13D			
	. 02022	0.2 -		CD	[Å rac	to So						Date 3/ 2903			
		<u>9.2</u> Pro			I AICE	<u>ita Sa</u> Г					U.	<u>98</u>			
		well ID, etc.):	IVI W	-15D					vel (ft. Bh						
-		t Hillyard	<u> </u>	14								Column Height (ft.): 15.52			
Measurii	ng Point (Mf	P) of Well:			1							lication Factor: 0.163			
Screene	d Interval (ft	.BGL):	17-0	0-20	1.0		Casing	Volume (gal.):	2	2X:	4X			
Filter Pa	ck Interval (ft.BGL):	13-5	21			Water L	.evel (ft.B	MP) at Er	nd of P	urge:				
Casing S	Stick-Up/Dor	wn (ft.):					Total D	epth (ft. B	MP) at Er	nd of F	Purge:				
QUA	LITY AS	SURAN	CE				*	-				مربع المربعين المربعي			
METHO	DS (describ	e):			6.		Q	S	MI	ر ر	_)				
	ing Equipmo				19	ne	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		-						
	ng:			T (7, 11)	D			Sam	pling:	Bail	er				
		arged Water			n Dru	<u>m</u>	<u>h y - a v a v iveli u dokumento</u> r								
	NSTRUMENTS (indicate make, model, i.d.): Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter														
	PH Meter: Ultrameter Field Calibration: <u>PI+ 4, 7, 10</u>														
pH M	pH Meter: Ultrameter Field Calibration: PTF 9, 7, 70 Conductivity Meter: Ultrameter Field Calibration: 2060 un hos														
	Other: Field Calibration:														
	SAMPLING MEASUREMENTS														
Date/	Cumul.Vol.		istics Weter Quality Data Appearance Intake												
Time	(gal)	Rate (gpm)	(°C)	pН		······································	© 25 ° C.	COIOI	& Sedir	nent	(ft. BMP)				
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1136	4	-66	14.2	614	83	0		11		~					
1145	e	,2	14.1	6.24	103	Į.		11							
1152	7,5	21		6-18	116	Ø		C)							
1153	8	,5	137	6.20	1160	2		11							
Ave		,27													
	<u> </u>			<u> </u>											
SAN	IPLE IN	IVENTO	RY							`					
Water	Level (ft. B	MP) Before S	Sampling	: 5,0	0	Rec	overy %:	9G.	<u>4</u> s	ample	Intake D	epth (ft. BMP):			
		Botties (, ,				Filtratic		ervation	Ar	alysis	Remarks			
Time				ass, plast		luantity		(type)	01	OTTP	(quality control sample, other)			
1155	125nl	- 21.	799			\sim	N	-N	A	15	110				
			amuninum diriktishingu												
	I	<u> </u>	<u> </u>	28						1		L			
Chain-	of-Custody	Record No	<u>Y /</u>	08	/						7				
									McCu	lley,	, Frick	c & Gilman, Inc.			
										-					
		GW Sample Form	MACICAD	Revised: 9-	8-05				· ·						

GRO	UND	NATE	R SA	MPL	_IN		ECO	RD	SAMPL	E NL	JMBER:	PAGE: <u>1</u> of: <u>1</u> MW-14
Project N	lo: 03022	.9.2 Pro	biect Nan	ne: SP	I Ar	cata Sa	wmill					Date 3/2903
						Γ		y Water Le	vel (ft. BM	ΛP):		1.97
												r Column Height (ft.): 5.83
•		•				•		• •	•			
		-	2	-8								
			15	8	2							
		•	****						-			
QUA		SURAN	CE			1	-	-				مىنىتىمىيەتىمىيەتىيەتىمەتىيەتىيەتىيەتىيەتىيەتىيەتىيەتىيەتىيەتىي
METHO	DS (describ	e):		`				14				·
Clean	ing Equipm	ent:	~	ane?	-	90	5 /					
							د.	Sam	oling:	Bail	er	
Dispo	sal of Disch	arged Water	<u>. 5</u>	5-Gallo	n D	rum						
						. J.1 150	`	•		T 114		
				aterline		5del 150)					
pH M	eter:	<u>Ultrame</u>	meter			,				on:	1-50	60, 65
		er. Olla	meter									
				INITO				Field	Calibrau			
SAIV					Quel	ty Data		Api				
GROUNDWATER SAMPLING RECORD SAMPLE NUMBER: MW-14 SAMPLE NUMBER: MW-14 Sample down (well D, etc.): MW-14 Sample down (well D): 2-Inch Multiplication Factor, 0.163 Casing Stak-Up/Down (th.): Casing Stak-Up/Down (th.): Total Depth (t. BMP) at End of Purge: Casing Stak-Up/Down (th.): Total Depth (t. BMP) at End of Purge: Casing Stak-Up/Down (th.): Total Depth (t. BMP) at End of Purge: Casing Stak-Up/Down (th.): Total Depth (t. BMP) at End of Purge: Total Depth (t. BMP) at End of Purge: Total Depth (t. BMP) at End of Purge: Co												
		Hate (gpm)	(**)		@ Fk	eld Temp. (⊉ <u>25 ° C.</u>	X. 11. X		nent	(IL BMP)	
<u> </u>		16	17 0	112		10:50			3			177 / Q.J.O.1
<u> </u>					1							
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Arvo	<u> </u>	-	ļ								1	
 	3		<u> </u>	 	 							
<u> </u>	G				ļ			ļ			ļ	
	1			1	Ι							
SAN			RY	1	1	1		1				
				: 4.3	30	Rec	overy %	: 66	s	ample	e Intake (Depth (ft. BMP):
		Bottles (collecte	d			·		ervation	۸.	ohioio	
					ic)) (1	ype)			(quality control sample, other)
12%	1250	<u>14</u>	9 (75	55		2	\mathcal{N}		· X	PC	TCP	24rs, no recoverf
										ļ		,
									,	 		
			1 1	70	\sim	ļ	1	l		I		
Chain-	of-Custody	Record No	<u> </u>	<u> 7 C</u>	8	7						
								McCulley, Frick & Gilman, Inc.				
		GW Semple Form	MACACAD	Reviser D	8-05			1				
L		ALL ORIGINAL LAUR			~ ~~			1				

GRO	UND	VATE	R SA	MPL	ING I	RECO	RD	SAMPL	E NU		
Project N	o. 03022	9.2 Pro	iect Nan	ne: SP	I Arcata S	Sawmill					Date 3/20/03
							a Water L	evel (ft. BN	٨P):		5-51
										Wate	r Column Height (ft.): 14.29
•			109	7							
Measunr	ig Point (Mi		15-	-20		Casing	Volumo	(m) . Z	3,	v. 4.6	0 3x 6.9 AX
Screene	d Interval (T	.BGL):	14-	21	•	1.					
Filter Pa	ck interval (it.DGL)				1	•	-			
Casing S	Stick-Up/Do	wn (ft.):						SMP) at Er		urge:	
			CE			.	-				
	-	-		Se	no	0.6	M	~-1			
						<u> </u>	-	, ,	Raile	21	
			. 5	5 Galla	n Drum		Sam	ipiing:	Dan	<u>_1</u>	
					Model 1	50	The	mometer	Ult	ramete	ſ
Water	Level: Lil	Ultrame	$\frac{1D}{1}$	atornic	/ 1010001 1						
		Ultra	meter			, <u>77, 4</u> , 4, 4, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7,				206	Cum 405
		MFAŚUJ	REME	NTS							
<u> </u>				Water (Ap	pearance		Intake	
GROUNDWATER SAMPLING RECORD SAMPLE NUMBER: MW-15D SAMPLE NUMBER: MW-15D Sampled by:											
136	SAMPLE NUMBER: MW-15D Joint 100 State 100 Stat										
143	Z	-29	132	le-83	140	`]				
148	¥`						It pre	\	~		
154		.33	13,1	6.81	1309	- -	11		· .		
158	7.5	4			1312						
Ave	,	∔∤			<u> </u>						
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 	·		<u> </u>			-					
			<u> </u>	<u> </u>			1			<u> </u>	
SAN			RY	1	1		1			1	
				. 5,	52 F	Recoverv %	99.	9 8	ample	Intake I	Depth (ft. BMP):
	Luter (IL D	-							· ·		
Time	Volum					tity (Y/N) ((type)		alysis	(quality control sample, other
200	> 125m	4 91.	995		2	-N	- N	A	100	p/tch	
				· · · ·					ļ		
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			1 8 100	/			l		1		
Chain-	of-Custody	Record No	49	283			-				
					<u>,</u>		1	McCu	lley,	, Fricl	k & Gilman, Inc.
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L		GW Sample Form	MACACAD	Havised: 9-	C+O		1				

GRO	UNDV	VATE	R SA	MPL	.IN	IG RI	ECO	RD	SAMPL	E NU	MBER:	PAGE:_1of:_1 MW-16D
Project N	io: 03022	9.2 Pro	ject Narr	10: <u>SP</u>	I Ar	cata Sav	wmill					Date_3/18/03
Samplin	Location h	well ID, etc.):	MW	′-16D		[Starting	Water Le	vel (ft. BN	IP):	4.17	
		t Hillyard					Total D	epth (ft. B	MP): 19-	.44	Water	Column Height (ft.): 15,27
Measurir	na Point (Mf	P) of Well:	9.8			•	Casing	Diameter	(in. ID):2	-Inch	Multipl	ication Factor: 0.163
Screene	d Interval (ft	.BGL):	150	20			Casing	Volume (gal.): <u> </u>	52	X:5	_3X_7. 5 4X
Filter Pa	ck Interval (ft.BGL):	14 -	21.	7				MP) at En			
	Stick-Up/Dov						Total D	epth (ft. B	MP) at En	d of F	'urge:	
QUA	LITY AS	SURAN	CE					-				
	DS (describ	-		ς,			0, C	Λ	w.	-1		
	ing Equipme			~	1		~ ~	Sam		Bail	er	
	· O ·	Bailer arged Water	54	5-Gallo	n D	rum		ວan	haan Ar			
		arged water. Jicate make,										
Water	Level: En	virotech L	TD, W	aterline	: <u>M</u>	odel 150)	Then	mometer	Ult	rameter	
		Ultrame							Calibratic	m:	p(+	in a second s
	uctivity Mete	T T1.	meter					Fiek	i Calibratio	on:	Z0,	40 inches
Other		•						Field	d Calibratio	on:		
		MEASU	,				y				<u></u>	
Date/	Cumul.Vol.	· · · ·	Temp.			ity Data liic Cond (µmhos/c		Color	Turbid		intake Depth	Remarks
Time	(gal)	Rate (gpm)	(°C)	L.,	¢ Fk	old Temp			& Sedin	nent	(IL BMP)	
314	0		· · ·						-		 	
324	S	-33	14.8	7.56	48	30		d la bra			 	
3 30	4	_ 33	14.7	7.48	5	130		11		~		
3 37	6	.29	14.5	7.78	9	320		1(
340	7	-33	14.4	7.68	5	250	10				<u> </u> [
342	в	- 50	14.4	7.70	5	175		9				
			<u> </u>		 			_			ļ	
SAN	APLE IN	IVENTO	RY	• A	-							
Water	r Level (ft. B	MP) Before \$	Sampling	: 4-0	21	Rec	overy %	: 101	S	ample	e Intake D	epth (ft. BMP):
	1	Bottles				Our and the	Filtratio		ervation	A	nalysis	Remarks (quality control sample, other)
Time				ass, plast	uC)	Quantity		1 7	type) A	D	(D bort	And the second s
346	125m	4 9	(955				N		r (9/11	
				<u>`</u>			1			 		
							1					
Chain-	of-Custody	Record No	43	28	5							
								1	McCu	lley	, Frick	& Gilman, Inc.
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		GW Sample Form	MACACAD	Revised: 9	8-05			<u> </u>	· ·			

GRC		NATE	r sa	MPI	_ING	RECO	RD	SAMPI	LE NU	JMBER:	PAGE: <u>1</u> of: <u>1</u> MW-17
Project I	No: 03022	9.2 Pro	olect Nar	ne: SP	I Arcata S	Sawmill					Date 3/20/03
						ſ	a Water Le	vel (ft. Bl	MP):	0,	94
-	-	•	8.9	78							
	-		2	-8	**********	-		•			
		-	1.5	-9	•						
		•					-	-			
QUA	LITY AS	SURAN	CE				-	11. 1. 1. 1. 1. 1. 1. 1. 1. 1 .			
	•	-				ac /	du	1			
				ane	C.	~ > /			Dail	~ 44	MP-M-1,-1,
-	-		5	5 Calla			Samp	oling:	Ballo	er	
					e Model 1	50	Thom	nometer	τΠt	ramete	r · · ·
				awillin		~~~				P 1+-	4,710
	•	T T1 /			<u></u>					20	60 mm hos
Othe	•					na gan ga ka					
		MEAŜUI	REME	ENTS							
Date/		1		Water			App			Intake	
Time			EAŜUREMENTS teristice Mater Quality Data Appearance Intake Purge Temp. PH Specific Conductance Color Turbidity Depth Remarks ate (gpm) (°C) pH G Field Temp. 0 25°C. Color & Sediment (n. BMP)	Remarks							
941	SAMPLE NUMBER: MW-17 Date 3/29/03 project Name: SPI Arcata Savmill Date 3/29/03 project Name: SPI Arcata Savmill Date 3/29/03 Starting Water Level (ft. BMP): 0.94 Starting Water Level (ft. BMP) at End of Purge: Total Depth (ft. BMP):										
945	1	,25	12,0	6.6	930	•	1+gray	/			
948	2	-33	12-1		990		11		-	· ·	
951	3	-33	12.1	6.59	998		11				
G54	4	,33	12-9	6-56	984		1				
Ave	5,	. 31									
]	74								A		
	<u> </u>			1							
										1	
SAN	MPLE IN	IVENTO	RY								A
				: [7 г	Recovery %	. 88	,4_s	Sample	Intake [Depth (ft. BMP):
		Bottles C	ollecte	d	r				T		Remarks
Time				ass, plast	<u> </u>			ype)	1	-	
1055	125 m(1995		'2			<u>~</u>	PC	P/TCP	
									 		
	l		4-31	28			<u></u>		1		
Chain-	of-Custody	Record No	()	-0.	, 						0 Otherson Inc
1								McCu	lley,	Frici	K & Gliman, Inc.

GRO	UNDV	VATE	R SA	MPL	.IN		ECO	RD	SAMPL	E NU	IMBER:	PAGE: <u>1_of:2</u> MW-18
Project N	lo: 03022	9.2 Pro	lect Nan	ne: SPI	Ar	cata Sa	wmill					Date 3/18/03
Compline	$10. \underline{-0.0022}$	well ID, etc.):	MW	7-18		ſ		Water Le	vel (ft. BN	(P):		,57
		t Hillyard					Total D	epth (ft. Bl	MP): 6.	86	Wate	r Column Height (ft.): 8.29
•	ng Point (MF	P) of Well:	9:	53								blication Factor: 0.653
	d Interval (ft	BGI)	2-8	53 9.5								3X 16.2 4X
	ck Interval (ft BGL):	.5-	9.5	*		-	_evel (ft.Bl				
	Stick-Up/Do							epth (ft. B	•			
QUA	LITY AS	SURAN	CE				-	-				
METHO	DS (describ	e):		C.	an	A	90	~ /	NW	-1		•
	ing Equipme				40	<u>t</u>	9			Bail	or	
	ng:		. 5	5 Gallo	- D	r11m	د	Samp	oling:	Dan		
		arged Water:				<u>. u.111</u>						
Water	MENTS (INC	icate make, virotech L'	TD. W	aterline	Mo	odel 150)	Ther	nometer:_	Ult	ramete	r
DH M	eter:	Ultrame	eter						Calibratic		plt	4,7,10 20 mm hos
										e O muhos		
Other								Field	I Calibratio	on:		
SAM	PLING	MEASU	REME	ENTS								
Date/	Purge Cha Cumul.Vol.	Purge	Temp.	Water		lilic Cond			Turbid	itv	Intake	Remarks
Time	(gal)	Rate (gpm)		pН	@ Fk	(µmhos/ eid Temp	and the second	Color	& Sedin		Depth (fl. BMP)	
132	0	0										reflective film
137	2	.4.	14,5	6.70	1	210		l+ brn				
142	4	-4	14.7.	6.59	1	057		u		-		
149	6	- 29	14.3	6.59	10	097		11				
153	8	- 5	14.2	6.55	11	35		<u></u> (1				
158	10	-4	14.0	6.54	11	20		1+ 5 m CLOOK	_			
203	12	-4	140	6.53	10	900		11				
208	14	.4	13.9	6.53		947		(
212	15	.25	13.1	6.47	(046		1				
SAN		IVENTO	RY				L	.				
		MP) Before S		I:		Rec	xvery %	·	S	ample	e Intake	Depth (ft. BMP):
Time		Bottles	Collecte		ic)	Quantity	Filtratio	n Pres	ervation ype)	A	nalysis	Remarks (quality control sample, other
	* voulle		Subir (9)		,			<u></u>	1001			(See Prie Zot 2)
						 	1					
										<u> </u>		
	I						1		-			
Chain-	of-Custody	Record No	5	ee pry	22	-ot 2		[
	-								McCu	lley	, Fric	k & Gilman, Inc.
 			*** m	A								
L		GW Sample Form	MAC/CAD	Revised: 9-	8-05			1				

GRO	UND\	NATE	R SA	MPI	LIN	GR	ECO	RD	SAMPI	E NU	JMBER:	PAGE: 2 of: 2 MW-18
Project N	10: 03022	9.2 Pro	oject Nar	ne: SP	'I Arc	cata Sa	wmill	L				Date 3/ 18/03
						ſ		water Le	vel (ft. Bl	MP):		.51
	-											Column Height (ft.): 8.29
												- • •
	-					1						
	•				•	1						
		•				1		•	-			
Casing S	Stick-Up/Do	wn (ft.):					Total C	epth (ft. B	MP) at Ei	nd of F	ourge:	•
QUA	LITY AS	SURAN	CE				-	-				- ·*
	-	-			So	mp	95	M	~~~	١		
				<u> </u>	~		ź	Samp	ling:	Bail	er	
					on Dr	um						
					- <i>۱</i> /-	dal 1 <i>50</i>	h			T 114	romoto	1
pH M	eter:	Ultrame	eter					Field	Calibrati	on:	P (+	T, T, 10
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Chain	-of-Custody	Record No	<u> </u>				4	•			
								McCu	lley	, Fricl	k & Gilman, Inc.
L							4				
		GW Sample Form	MACACAD	Revised: 9	8-85		<u> </u>				

APPENDIX C

Laboratory Report and Chain-of-Custody Record for Groundwater Samples



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

17 April 2003

Tetra Tech/MFG, Inc.

APR 2 8 2003

MFG, Inc - Arcata Attn: Matt Hillyard 1165 G. Street, Suite E Arcata, CA 95521

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RE: SPI - Arcata

Work Order: A303520

Enclosed are the results of analyses for samples received by the laboratory on 03/21/03 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ung M

Cheryl Watson For Sheri L. Speaks **Project Manager**

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CHEMICAL EXAMINATION REPORT

Page 1 of 11

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Matt Hillyard

Report Date: 04/17/03 10:01 Project No: 030229.2 Project ID: SPI - Arcata

<u>Order Number</u>	Receipt Date/Time	<u>Client Code</u>	Client PO/Reference
A303520	03/21/2003 16:45	MFGARC	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	A303520-01	Water	03/20/03 10:57	03/21/03 16:45
MW-2	A303520-02	Water	03/20/03 12:19	03/21/03 16:45
MW-3	A303520-03	Water	03/20/03 15:37	03/21/03 16:45
MW-4	A303520-04	Water	03/20/03 14:32	03/21/03 16:45
MW-5	A303520-05	Water	03/20/03 16:08	03/21/03 16:45
MW-6	A303520-06	Water	03/20/03 16:35	03/21/03 16:45
MW-7	A303520-07	Water	03/20/03 16:57	03/21/03 16:45
MW-8	A303520-08	Water	03/18/03 12:50	03/21/03 16:45
MW-9	A303520-09	Water	03/18/03 13:14	03/21/03 16:45
MW-10	A303520-10	Water	03/18/03 14:55	03/21/03 16:45
MW-11	A303520-11	Water	03/20/03 09:12	03/21/03 16:45
MW-12	A303520-12	Water	03/18/03 11:55	03/21/03 16:45
MW-13D	A303520-13	Water	03/20/03 11:55	03/21/03 16:45
MW-14	A303520-14	Water	03/20/03 12:30	03/21/03 16:45
MW-15D	A303520-15	Water	03/20/03 14:00	03/21/03 16:45
MW-16D	A303520-16	Water	03/18/03 15:46	03/21/03 16:45
MW-17	A303520-17	Water	03/20/03 10:55	03/21/03 16:45
MW-18	A303520-18	Water	03/18/03 14:20	03/21/03 16:45
MW-19D	A303520-19	Water	03/20/03 15:13	03/21/03 16:45
MW-A	A303520-20	Water	03/20/03 00:00	03/21/03 16:45

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Tetra Tech/MFG, Inc.

Jung M

Cheryl Watson For Sheri L. Speaks Project Manager



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CHEMICAL EXAMINATION REPORT

Page 2 of 11

MFG, Inc - Arcata	
1165 G. Street, Suite E	
Arcata, CA 95521	
Attn: Matt Hillyard	

Report Date: 04/17/03 10:01 Project No: 030229.2 Project ID: SPI - Arcata

Order NumberReceipt Date/TimeClient CodeClient PO/ReferenceA30352003/21/2003 16:45MFGARC
A303520 03/21/2003 16:45 MFGARC

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Cheryl Watson For Sheri L. Speaks Project Manager



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1165 G. Street Arcata, CA 95	521				Report Date: Project No:				
Attn: Matt Hil	llyard				Project ID:	SPI - Arcata	Ļ		
<u>Order Number</u> A303520	Receipt Date/Time 03/21/2003 16:45			ent Code FGARC		Client PO	Reference		
		Alpha A	nalytical	Laborato	ries, Inc.				
	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT		PQL	NOTE
MW-1 (A303520-01)		5	Sample Typ	e: Water	Sam	pled: 03/20/03 1	0:57		
Chlorinated Phenols by Canadia	an Pulp Method								
2,4,6-Trichlorophenol	EnvCan	AC32615	03/24/03	03/24/03	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol		"	**	11	*	ND "		1.0	
2,3,4,6-Tetrachlorophenol	**	**	"	**	n	ND "		1.0	
2,3,4,5-Tetrachlorophenol	"	"	н	н	"	ND "		1.0	
Pentachlorophenol	**	"	"	"	**	ND "		1.0	
Surrogate: Tribromophenol	12	"	H	"		95.6 %	50-150		
MW-2 (A303520-02)		1	Sample Ty	oe: Water	Sam	pled: 03/20/03 1	2:19		
Chlorinated Phenols by Canadi	an Pulp Method					•			
2,4,6-Trichlorophenol	EnvCan	AC32615	03/24/03	03/24/03	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol	N	"	11	н	**	ND "		1.0	
2,3,4,6-Tetrachlorophenol	11			"	*	ND "		1.0	
2,3,4,5-Tetrachlorophenol	"	Ħ		"	H	ND "		1.0	
Pentachlorophenol	н	*	н	n	Ħ	ND "		1.0	
Surrogate: Tribromophenol	"	"	"	"		73.9 %	50-150	1.0	
MW-3 (A303520-03)			Sample Ty	pe: Water	Sam	pled: 03/20/03 1	5:37		
Chlorinated Phenols by Canadi	an Pulp Method								
2,4,6-Trichlorophenol	EnvCan	AC32615	03/24/03	03/24/03	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol	н		n	"		ND "		1.0	
2,3,4,6-Tetrachlorophenol	**	Ħ	n			ND "		1.0	
2,3,4,5-Tetrachlorophenol	. 39	н	*	**		ND "		1.0	
Pentachlorophenol	π	"	11	**	**	ND "		1.0	
Surrogate: Tribromophenol	"	"	"	"		83.1 %	50-150		
MW-4 (A303520-04)			Sample Ty	pe: Water	San	npled: 03/20/03	14:32		
Chlorinated Phenols by Canad	ian Pulp Method		• • •	•					
2,4,6-Trichlorophenol	EnvCan	AC32615	03/24/03	03/24/03	1	ND ug/l		1.0	
2,3,5,6-Tetrachlorophenol	11	"	11	"		ND "		1.0	
2,3,4,6-Tetrachlorophenol	n		н	"	"	ND "		1.0	
2,3,4,5-Tetrachlorophenol	**	11	**	"	"	ND "		1.0	
Pentachlorophenol	н	"	H	**		ND "		1.0	

CHEMICAL EXAMINATION REPORT

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Cheryl Watson For Sheri L. Speaks Project Manager

4/17/03

Tetra Tech/MFG, Inc.



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CHEMICAL EXAMINATION REPORT MFG. Inc - Arcata 1165 G. Street, Suite E Report Date: 04/17/03 10:01 Arcata, CA 95521 Project No: 030229.2 Attn: Matt Hillyard Project ID: SPI - Arcata Order Number Receipt Date/Time Client Code **Client PO/Reference** A303520 03/21/2003 16:45 MFGARC Alpha Analytical Laboratories, Inc. METHOD BATCH PREPARED ANALYZED DILUTION RESULT POL NOTE MW-4 (A303520-04) Sample Type: Water Sampled: 03/20/03 14:32 Chlorinated Phenols by Canadian Pulp Method (cont'd) Surrogate: Tribromophenol EnvCan 03/24/03 99.6 % 50-150 MW-5 (A303520-05) Sample Type: Water Sampled: 03/20/03 16:08 **Chlorinated Phenols by Canadian Pulp Method** 2,4,6-Trichlorophenol EnvCan AC32615 03/24/03 03/24/03 1 ND ug/l 1.0 2,3,5,6-Tetrachlorophenol ND " 1.0 2,3,4,6-Tetrachlorophenol 11 ND " 1.0 2,3,4,5-Tetrachlorophenol ND " 1.0 Pentachlorophenol ND " 1.0 Surrogate: Tribromophenol 101 % 50-150 MW-6 (A303520-06) Sample Type: Water Sampled: 03/20/03 16:35 Chlorinated Phenols by Canadian Pulp Method 2,4,6-Trichlorophenol EnvCan AC32615 03/24/03 03/24/03 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 % 50-150 MW-7 (A303520-07) Sample Type: Water Sampled: 03/20/03 16:57 **Chlorinated Phenols by Canadian Pulp Method** 2,4,6-Trichlorophenol EnvCan AC32615 03/24/03 03/24/03 1 ND ug/l 1.0 2,3,5,6-Tetrachlorophenol 3 03/25/03 36 " 1.0 4 2,3,4,6-Tetrachlorophenol ** 460 " 1.0 2,3,4,5-Tetrachlorophenol ,, " 5 22 " 1.0 Pentachlorophenol 11 и 19000 " 1.0 Surrogate: Tribromophenol 03/24/03 76.7% 50-150 MW-8 (A303520-08) Sample Type: Water Sampled: 03/18/03 12:50 **Chlorinated Phenols by Canadian Pulp Method** 2,4,6-Trichlorophenol EnvCan AC32615 03/24/03 03/24/03 1 ND ug/l 1.0 The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in the section of custody document. ung M

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Cheryl Watson For Sheri L. Speaks Project Manager

4/17/03

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CHEMICAL EXAMINATION REPORT

Page 5 of 11

	CI				IN KEFUK	*		Page 5 of
MFG, Inc - Ar	cata							
1165 G. Street	t, Suite E				Report Dat	e: 04/17/03 10	:01	
Arcata, CA 95	521				Project N			
Attn: Matt Hil	llvard				•	D: SPI - Arcata	1	
	-		<i>a</i> .		j			
<u>Order Number</u> A303520	Receipt Date/Time			ent Code		Client PO	/Reference	
K303320	03/21/2003 16:45		MI	FGARC				
	· .	Alpha A	nalytical	Laborato	ries, Inc.			
	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	PQL	, NOTE
MW-8 (A303520-08)		5	Sample Typ	e: Water	S	ampled: 03/18/03 1		
Chlorinated Phenols by Canadia	an Pulp Method (cont'd)					· · · · · · · · · · · · · ·		
2,3,5,6-Tetrachlorophenol	EnvCan	"	19	03/24/03	"	ND "	1.0)
2,3,4,6-Tetrachlorophenol	н	11		*	11	ND "	1.0)
2,3,4,5-Tetrachlorophenol	"	"	н	••	"	ND "	1.0)
Pentachlorophenol	tt	11	"	11	**	ND "	1.0)
Surrogate: Tribromophenol	"	"	"	"		101 %	50-150	
MW-9 (A303520-09)			Sample Ty	pe: Water	S	ampled: 03/18/03 1	3:14	
Chlorinated Phenols by Canadia	an Pulp Method					•		
2,4,6-Trichlorophenol	EnvCan	AC32615	03/24/03	03/24/03	1	ND ug/l	1.	0
2,3,5,6-Tetrachlorophenol	"		11		н	ND "	1.	
2,3,4,6-Tetrachlorophenol	**	Ħ	"	**	"	ND "	1.	
2,3,4,5-Tetrachlorophenol	**		**		"	ND "	1.	
Pentachlorophenol	11	"	н	**	**	ND "	1.	
Surrogate: Tribromophenol	H	n	"	11		98.8 %	50-150	
MW-10 (A303520-10)			Sample Ty	pe: Water	S	Sampled: 03/18/03 1	14:55	
Chlorinated Phenols by Canadi	an Pulp Method			-		• • • • • •		
2,4,6-Trichlorophenol	EnvCan	AC32615	03/24/03	03/24/03	1	ND ug/l	1	0
2,3,5,6-Tetrachlorophenol	**	H	Ħ	11	"	ND "		.0
2,3,4,6-Tetrachlorophenol	н	**	**	"	61	ND "		.0
2,3,4,5-Tetrachlorophenol	**	**	**	Ħ	**	ND "		.0
Pentachlorophenol	11	"	"	11	**	ND "	1	.0
Surrogate: Tribromophenol	"	H	"	"		101 %	50-150	
MW-11 (A303520-11)			Sample Ty	pe: Water	5	Sampled: 03/20/03	09:12	
Chlorinated Phenols by Canad	ian Pulp Method					-		
2,4,6-Trichlorophenol	EnvCan	AC32616	03/25/03	03/25/03	1	ND ug/l	1	.0
2,3,5,6-Tetrachlorophenol	**	*1	**	**	H	ND "		.0
2,3,4,6-Tetrachlorophenol	۳.	**	"	**	н	ND "		.0
2,3,4,5-Tetrachlorophenol	"	"	"	11	**	ND "		.0
Pentachlorophenol	**	"	"	"	"	ND "		.0
Surrogate: Tribromophenol	"	"	H	"		83.1 %	50-150	

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any auton

Cheryl Watson For Sheri L. Speaks Project Manager

4/17/03

Tetra Tech/MFG, Inc.



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CHEMICAL EXAMINATION REPORT Page 6 of 11 MFG, Inc - Arcata 1165 G. Street, Suite E Report Date: 04/17/03 10:01 Arcata, CA 95521 Project No: 030229.2 Attn: Matt Hillvard Project ID: SPI - Arcata Order Number **Receipt Date/Time** Client Code Client PO/Reference A303520 03/21/2003 16:45 MFGARC Alpha Analytical Laboratories, Inc. METHOD BATCH PREPARED ANALYZED DILUTION RESULT POL NOTE MW-11 (A303520-11) Sample Type: Water Sampled: 03/20/03 09:12 MW-12 (A303520-12) Sample Type: Water Sampled: 03/18/03 11:55 **Chlorinated Phenols by Canadian Pulp Method** 2,4,6-Trichlorophenol EnvCan AC32616 03/25/03 03/25/03 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 81.5 % 50-150 MW-13D (A303520-13) Sample Type: Water Sampled: 03/20/03 11:55 **Chlorinated Phenols by Canadian Pulp Method** 2,4,6-Trichlorophenol EnvCan AC32616 03/25/03 03/25/03 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 11 ... ND " 1.0 . Surrogate: Tribromophenol " 92.0 % 50-150 MW-14 (A303520-14) Sample Type: Water Sampled: 03/20/03 12:30 **Chlorinated Phenols by Canadian Pulp Method** 2,4,6-Trichlorophenol EnvCan AC32616 03/25/03 03/25/03 ND ug/l 1.0 2,3,5,6-Tetrachlorophenol ND " 1.0 2,3,4,6-Tetrachlorophenol . ., ND " 1.0 ۲ 2,3,4,5-Tetrachlorophenol ** = ND " 1.0 ... " ... Pentachlorophenol .. ND " 1.0 Surrogate: Tribromophenol " 80.7 % 50-150 MW-15D (A303520-15) Sample Type: Water Sampled: 03/20/03 14:00 **Chlorinated Phenols by Canadian Pulp Method** 2,4,6-Trichlorophenol EnvCan AC32616 03/25/03 03/25/03 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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Cheryl Watson For Sheri L. Speaks Project Manager

4/17/03

Tetra Tech/MFG, Inc.



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	Cl	HEMICA	AL EXAN	AINATIC	ON REPORT	•			Page 7 of 1	1
MFG, Inc - Ar	cata									
1165 G. Street Arcata, CA 95 Attn: Matt Hil	, Suite E 521				•	: 04/17/03 10 b: 030229.2 b: SPI - Arcata				
Order Number	Receipt Date/Time		Clie	nt Code		Client PO	Reference			
A303520	03/21/2003 16:45			GARC			reference			
		Alpha A	nalytical	Laborato	ories, Inc.					
	METHOD				DILUTION	RESULT		PQL	NOTE	
MW-15D (A303520-15)		S	Sample Typ	e: Water	Sa	mpled: 03/20/03 1	4:00	1.45		
Chlorinated Phenols by Canadia	n Pulp Method (cont'd)				· · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·				
Pentachlorophenol	EnvCan	"	**	03/25/03		ND "		1.0		
Surrogate: Tribromophenol	"	"	"	"		89.2 %	50-150			
MW-16D (A303520-16)		5	Sample Typ	oe: Water	Sa	mpled: 03/18/03 1	5:46			
Chlorinated Phenols by Canadia	in Pulp Method		• • •							
2,4,6-Trichlorophenol	EnvCan	AC32616	03/25/03	03/25/03	1	ND ug/l		1.0		
2,3,5,6-Tetrachlorophenol	"		"	**	"	ND "		1.0		
2,3,4,6-Tetrachlorophenol		**	**	**	n	ND "		1.0		
2,3,4,5-Tetrachlorophenol	99	11	11		"	ND "		1.0		
Pentachlorophenol	**	"		*	"	ND "		1.0		
Surrogate: Tribromophenol	n	11	"	"		87.6 %	50-150			-
MW-17 (A303520-17)			Sample Ty	pe: Water	Sa	mpled: 03/20/03	10:55			
Chlorinated Phenols by Canadia	an Pulp Method				~-					
2,4,6-Trichlorophenol	EnvCan	AC32616	03/25/03	03/25/03	1	ND ug/l		1.0		
2,3,5,6-Tetrachlorophenol	H	"	н	11	"	ND "		1.0		
2,3,4,6-Tetrachlorophenol	"	**	*		*	ND "		1.0		
2,3,4,5-Tetrachlorophenol	**	H	-11	**	"	ND "		1.0		
Pentachlorophenol	11	*		**	**	ND "		1.0		
Surrogate: Tribromophenol	11	"	"	11		90.4 %	50-150			
MW-18 (A303520-18)			Sample Ty	pe: Water	S	ampled: 03/18/03	14:20			
Chlorinated Phenols by Canadi	an Pulp Method			•		•				
2,4,6-Trichlorophenol	EnvCan	AC32616	03/25/03	03/25/03	1	ND ug/l		1.0		
2,3,5,6-Tetrachlorophenol	"	н		**	"	ND "		1.0		
2,3,4,6-Tetrachlorophenol		H	**	"	**	ND "		1.0		
2,3,4,5-Tetrachlorophenol	"	"		H	"	ND "		1.0		
Pentachlorophenol	**	"	*	"	**	ND "		1.0		
Surrogate: Tribromophenol	"	"	"	"		83.9 %	50-150			-
MW-19D (A303520-19)			Sample Ty	pe: Water	S	ampled: 03/20/03	15:13			
Chlorinated Phenols by Canadi	an Pulp Method		• ×J		5					

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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Cheryl Watson For Sheri L. Speaks Project Manager

4/17/03

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208 Mason St. Ukiah, California 95482

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CHEMICAL EXAMINATION REPORT Page 8 of 11 MFG. Inc - Arcata 1165 G. Street, Suite E Report Date: 04/17/03 10:01 Arcata, CA 95521 Project No: 030229.2 Attn: Matt Hillyard Project ID: SPI - Arcata Order Number Receipt Date/Time Client Code Client PO/Reference A303520 03/21/2003 16:45 MFGARC Alpha Analytical Laboratories, Inc. METHOD BATCH PREPARED ANALYZED DILUTION RESULT PQL NOTE MW-19D (A303520-19) Sample Type: Water Sampled: 03/20/03 15:13 Chlorinated Phenols by Canadian Pulp Method (cont'd) 2,4,6-Trichlorophenol EnvCan AC32616 03/25/03 03/25/03 ND ug/l 1.0 1 2,3,5,6-Tetrachlorophenol . ND " 1.0 .. 2,3,4,6-Tetrachlorophenol ND " 1.0 ., **f**T 2,3,4,5-Tetrachlorophenol ND " 1.0 11, Pentachlorophenol ND " 1.0 " Surrogate: Tribromophenol " 106 % 50-150 MW-A (A303520-20) Sample Type: Water Sampled: 03/20/03 00:00 **Chlorinated Phenols by Canadian Pulp Method** 2,4,6-Trichlorophenol EnvCan AC32616 03/25/03 03/25/03 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 n ND " 1.0 ** 11 Pentachlorophenol ND " 1.0 ... Surrogate: Tribromophenol 100 % 50-150

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CHEMICAL EXAMINATION REPORT

Page 9 of 11

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Matt Hillyard

Order Number

A303520

Report Date:04/17/03 10:01Project No:030229.2Project ID:SPI - Arcata

<u>Client Code</u> MFGARC Client PO/Reference

03/21/2003 16:45

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 AC32615 - Solvent Extraction										
Blank (AC32615-BLK1)				Prepared	& Analyz	ed: 03/24/	03			
2,4,6-Trichlorophenol	ND	1.0	ug/l	-						
2,3,5,6-Tetrachlorophenol	ND	1.0	H							
2,3,4,6-Tetrachlorophenol	ND	1.0	**							
2,3,4,5-Tetrachlorophenol	ND	1.0	н							
Pentachlorophenol	ND	1.0	n							
Surrogate: Tribromophenol	25.0		"	24.9		100	50-150			
LCS (AC32615-BS1)				Prepared	& Analyz	ed: 03/24/	03			
2,4,6-Trichlorophenol	5.07	1.0	ug/l	5.00		101	85-115			
2,3,5,6-Tetrachlorophenol	4.68	1.0	н	5.00		93.6	85-115			
2,3,4,6-Tetrachlorophenol	4.51	1.0		5.00		90.2	85-115			
2,3,4,5-Tetrachlorophenol	4.57	1.0	**	5.00		91.4	85-115			
Pentachlorophenol	4.40	1.0	*	5.00		88.0	85-115			
Surrogate: Tribromophenol	23.5		H	24.9		94.4	50-150			
Matrix Spike (AC32615-MS1)	Sou	Irce: A303	496-01	Prepared	l & Analyz	ed: 03/24	/03			A-0 ⁻
2,4,6-Trichlorophenol	4.88	1.0	ug/l	5.00	ND	97.6	80-120			<u></u>
2,3,5,6-Tetrachlorophenol	4.47	1.0		5.00	ND	89.4	80-120			
2,3,4,6-Tetrachlorophenol	4.31	1.0	"	5.00	ND	86.2	80-120			
2,3,4,5-Tetrachlorophenol	4.32	1.0	મ	5.00	ND	86.4	80-120			
Pentachlorophenol	4.08	1.0	W	5.00	ND	81.6	80-120			
Surrogate: Tribromophenol	22.0		"	24.9		88.4	50-150			
Batch AC32616 - Solvent Extraction										
Blank (AC32616-BLK1)				Prepared	l & Analyz	zed: 03/25	/03			
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	н							

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	Ann	W Ton

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CHEMICAL EXAMINATION REPORT

Page 10 of 11

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Matt Hillyard

Order Number

A303520

Report Date:04/17/03 10:01Project No:030229.2Project ID:SPI - Arcata

Client Code
MFGARC

Client PO/Reference

Receipt Date/Time 03/21/2003 16:45

Chlorinated Phenols by Canadian Pulp Method - Quality Control

Analyte(s)	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
		TQL	Onts	Level	Result	Juice	Linuts	KI D	1.111111	riag
Batch AC32616 - Solvent Extraction										
Blank (AC32616-BLK1)				Prepared	& Analyze	ed: 03/25/0	03			
2,3,4,5-Tetrachlorophenol	ND	1.0	H							
Pentachlorophenol	ND	1.0	**							
Surrogate: Tribromophenol	25.8		"	24.9		104	50-150			
LCS (AC32616-BS1)				Prepared	& Analyz	ed: 03/25/	03			
2,4,6-Trichlorophenol	5.46	1.0	ug/l	5.00		109	85-115			
2,3,5,6-Tetrachlorophenol	4.98	1.0	*	5.00		99.6	85-115			
2,3,4,6-Tetrachlorophenol	4.90	1.0	H	5.00		98.0	85-115			
2,3,4,5-Tetrachlorophenol	4.81	1.0	"	5.00		96.2	85-115			
Pentachlorophenol	4.77	1.0	"	5.00		95.4	85-115			
Surrogate: Tribromophenol	25.8		"	24.9		104	50-150			
Matrix Spike (AC32616-MS1)	Sou	rce: A303	520-11	Prepared	& Analyz	ed: 03/25/	'03			
2,4,6-Trichlorophenol	5.09	1.0	ug/l	5.00	ND	102	80-120			
2,3,5,6-Tetrachlorophenol	4.49	1.0	Ħ	5.00	ND	89.8	80-120			
2,3,4,6-Tetrachlorophenol	4.28	1.0	"	5.00	ND	85.6	80-120			
2,3,4,5-Tetrachlorophenol	4.36	1.0	H	5.00	ND	87.2	80-120			
Pentachlorophenol	4.06	1.0	н	5.00	ND	81.2	80-120			
Surrogate: Tribromophenol	22.9		"	24.9	******	92.0	50-150			
Matrix Spike Dup (AC32616-MSD1)	Sou	irce: A303	520-11	Prepared	l & Analyz	zed: 03/25	/03			
2,4,6-Trichlorophenol	5.15	1.0	ug/l	5.00	ND	103	80-120	1.17	20	
2,3,5,6-Tetrachlorophenol	4.49	1.0	"	5.00	ND	89.8	80-120	0.00	20	
2,3,4,6-Tetrachlorophenol	4.44	1.0		5.00	ND	88.8	80-120	3.67	20	
2,3,4,5-Tetrachlorophenol	4.43	1.0	**	5.00	ND	88.6	80-120	1.59	20	
Pentachlorophenol	4.23	1.0		5.00	ND	84.6	80-120	4.10	20	
Surrogate: Tribromophenol	23.0		"	24.9		92.4	50-150			

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Tetra Tech/MFG, Inc.

Cheryl Watson For Sheri L. Speaks Project Manager



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	CHEMIC	CAL EXAMINATI	ON REPORT		Page 11 of 11
MFG, Ir	nc - Arcata				
1165 G.	Street, Suite E		Report Date:	04/17/03 10:01	
Arcata,	CA 95521		Project No:	030229.2	
Attn: M	att Hillyard		Project ID:	SPI - Arcata	
Order Number	Receipt Date/Time	Client Code		Client PO/Reference	
A303520	03/21/2003 16:45	MFGARC			

Notes and Definitions

- The Matrix Spike Duplicate (MSD) for this batch was not valid due to a failure to add sample reagents. The batch was A-01 accepted based on acceptable LCS, MS and surrogate recovery on all samples.
- Analyte DETECTED DET
- 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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