# SECOND QUARTER 2003 GROUNDWATER MONITORING REPORT

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

August 7, 2003



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consulting scientists and engineers

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Prepared For:

SIERRA PACIFIC INDUSTRIES

Prepared By:

MFG, INC. 875 Crescent Way Arcata, California 95521 (707) 826-8430

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.

No. HG 214

CERTIFIED

CERTIFIED

CERTIFIED

ATTOROGEOLOGIST

ATTOROGEOLOG

Edward P. Conti C.HG. No. HG 214 Senior Consulting Geologist MFG, INC.

## **TABLE OF CONTENTS**

		Page
List o	of Tables	iii
1.0	INTRODUCTION	1
2.0	BACKGROUND	2
3.0	EVALUATION OF LATERAL HYDRAULIC GRADIENT	3
	3.1 Water Level Measurements	3
	3.2 Lateral Hydraulic Gradient	3
4.0	GROUNDWATER SAMPLING AND ANALYSIS	4
	4.1 Field Methods	4
	4.2 Chemical Analysis Methods and Results	5
5.0	DISPOSAL OF WASTEWATER	8
6.0	MONITORING SCHEDULE	9
7.0	REFERENCES	10

## LIST OF TABLES

Table No.	<u>Title</u>
1	Monitoring Well Construction Details
2	Summary of Water Level Measurements
3	Summary of Water Quality Parameters
4	Summary of Chemical Analyses of Groundwater Samples from Monitoring Wells for Chlorinated Phenols
5	Summary of Chemical Analyses of Groundwater Samples from Monitoring Well MW-7 for Dioxins and Furans
6	Summary of Chemical Analyses of Groundwater Samples from Monitoring Wells for TOC, COD and Chloride
7	Summary of Chemical Analyses of Groundwater Samples from Monitoring Wells for Natural Attenuation Parameters
8	Summary of Chemical Analyses of Groundwater Samples from Monitoring Wells for Metals

## LIST OF FIGURES

Figure No.	<u>Title</u>
1	Location Map
2	Site Plan
3	Potentiometric Surface Map of Shallow Groundwater, May 21, 2003
4	Potentiometric Surface Map of Deep Groundwater, May 21, 2003
5	Isoconcentration Contour Map of Dissolved PCP in Shallow Groundwater, May 2003
6	Dissolved PCP in Deep Groundwater, May 2003

## LIST OF APPENDICES

<u>Appendix</u>	<u>Title</u>
A	Groundwater Sampling Record Field Forms
В	Laboratory Report and Chain-of-Custody Records for Groundwater Samples Analyzed for Chlorinated Phenols, Total Dissolved Solids and Chloride
С	Laboratory Report and Chain-of-Custody Record for Groundwater Samples Analyzed for Dioxins and Furans

#### 1.0 INTRODUCTION

This report presents the methods and results of the second 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 second 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 September 1987 (MFG, 2003b). 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. The sand is sporadically interbedded with thin lenses of "Bay Mud," consisting of a mixture of sand and silt (Environet, 2003).

Nineteen groundwater monitoring wells have been installed at the Site. Monitoring well construction details are included in Table 1.

In the eastern portion of the Site, groundwater has been measured in the 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). In the southwestern portion of the Site, 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 southwest 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.

#### 3.0 EVALUATION OF LATERAL HYDRAULIC GRADIENT

#### 3.1 Water Level Measurements

MFG measured the depth to water in all 19 monitoring wells and at the Mad River Slough measuring point on May 21, 2003 using an electronic water level probe or a weighted tape. The depth to water measurements for May 21, 2003 are included in Table 2. The depth to water in the monitoring wells ranged from approximately 0.05 to 5.74 feet below the top of casing measuring points.

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 17.2 feet below the measuring point on the railroad bridge before the monitoring wells were measured and approximately 16.8 feet below the measuring point on the railroad bridge after the monitoring wells were measured (Table 2).

## 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 May 21, 2003, the calculated water level elevations in the monitoring wells ranged from approximately 4.0 to 10.0 feet above the North American Vertical Datum of 1988 (NAVD 88) (Table 2). The water level elevations in the Mad River Slough ranged from approximately 1.5 to 1.0 feet below the NAVD 88 during the water level measurement activities on May 21, 2003.

The water level elevations from May 21, 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 direction was to the east and northeast with a magnitude ranging from approximately 0.005 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 and MFG, 2003a). 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 direction was to the east-southeast and east with a magnitude of approximately 0.006 foot/foot.

## 4.0 GROUNDWATER SAMPLING AND ANALYSIS

#### 4.1 Field Methods

On May 21, 22, and 23, 2003, monitoring wells MW-1 through MW-19D were purged and sampled. Each monitoring well was purged using a dedicated, disposable polyethylene 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 A.

After purging, the groundwater in each well was allowed to recover to at least 80 percent of the initial water column height before sampling, except for monitoring well MW-14, which only recovered to approximately 50 percent two hours after purging. Groundwater samples were collected from the 19 monitoring wells using the dedicated, disposable polyethylene bailers. Although not a requirement of the groundwater monitoring program, an additional groundwater sample was collected from monitoring well MW-7 using a peristaltic pump and dedicated polyethylene tubing and filtered in the field using a 0.45–micron filter. The initial volume of water collected from each well was used to measure the temperature, pH, and specific conductance of the groundwater samples. Total dissolved solids was also field-measured and recorded for 10 of the monitoring wells. 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 sealed with Teflon<sup>®</sup>-lined screw caps and a 1-quart plastic bottle sealed with a plastic screw cap. Groundwater sample from monitoring well MW-7 was also placed in a 1-liter amber glass bottle sealed with a Teflon<sup>®</sup>-lined screw cap. The filtered groundwater sample from monitoring well MW-7 (sample MW-7F) was placed in a 1-liter amber glass bottle and two 125-ml glass vials. After filling, the vials and bottles were labeled and placed in an ice-cooled, insulated chest for transport to the laboratory for analysis. Chain-of-custody records were completed for the samples and accompanied the samples until received by the laboratory. Copies of the chain-of-custody records for the groundwater samples are included in Appendix B.

A duplicate groundwater sample, identified as MW-A, was collected from monitoring well MW-7. This sample was placed in two additional 125-ml glass vials.

All non-disposable equipment used to measure water levels and purge and sample the wells was washed in a solution of Liquinox<sup>®</sup> detergent and distilled water and rinsed three times with distilled water before each use. Water generated during groundwater sampling and equipment decontamination is temporarily stored at the Site in three labeled, Department of Transportation (DOT)-approved, 55-gallon drums (Section 5.0). Two of these drums were already partially filled with decontamination and purge water from the first quarter 2003 groundwater sampling event.

## 4.2 Chemical Analysis Methods and Results

Groundwater samples collected from the monitoring wells were analyzed by Alpha Analytical Laboratories Inc. of Ukiah, California, a laboratory certified by the California Department of Health Services (DHS). The groundwater samples were analyzed for chlorinated phenols using the Canadian Pulp Method and total dissolved solids (TDS) using EPA Method 160.1. Although not a requirement of the groundwater monitoring program, a filtered sample from monitoring well MW-7 (sample MW-7F) was analyzed for chlorinated phenols using the Canadian Pulp Method and the sample from monitoring well MW-1 was analyzed for chloride using EPA Method 300.0.

An unfiltered groundwater sample (sample MW-7) and a filtered groundwater sample (sample MW-7F) from monitoring well MW-7 were also sent to Frontier Analytical Laboratory of El Dorado Hills, California (Frontier), a laboratory certified by the DHS. Frontier analyzed the unfiltered groundwater sample for dioxins and furans using EPA Method 1613 in accordance with the annual requirements of the groundwater monitoring program for the Site. Although not a requirement of the groundwater monitoring program, the filtered groundwater sample from monitoring well MW-7 was also analyzed for dioxins and furans using EPA Method 1613.

The chemical analysis results of the groundwater samples are summarized in Table 3 for TDS, Table 4 for chlorinated phenols, Table 5 for dioxins and furans, and Table 6 for chloride. Copies of the laboratory reports and chain-of-custody records are included in Appendices B and C.

The TDS of the groundwater samples ranged from 360 to 3,200 milligrams per liter (mg/L).

Chlorinated phenols were only detected in the groundwater samples from shallow monitoring wells MW-7 and MW-8. The following analytes were detected in the groundwater samples from

monitoring well MW-7 (sample MW-7 and duplicate sample MW-A): pentachlorophenol (PCP) at concentrations of 16,000 and 19,000 micrograms per liter ( $\mu g/L$ ); and 2,3,4,6-tetrachlorophenol (TCP) at concentrations of 400 and 470  $\mu g/L$ . The chlorinated phenol PCP was detected in the groundwater sample from monitoring well MW-8 at a concentration of 1.0  $\mu g/L$ . The chemical analysis results of the filtered sample from monitoring well MW-7 (sample MW-7F) indicated the presence of PCP at a concentration of 14,000  $\mu g/L$  and 2,3,4,6-TCP at a concentration of 400  $\mu g/L$ . The chlorinated phenols 2,4,6-trichlorophenol, 2,3,5,6-TCP, and 2,3,4,5-TCP were not detected at or above the laboratory reporting limits in any of the samples (Table 4).

Chlorinated phenols were not detected in any of the deep groundwater monitoring wells.

An interpreted isoconcentration contour map of dissolved PCP in shallow groundwater is presented in Figure 5. A map showing the distribution of dissolved PCP in deep groundwater (all sample results were "not detected") is presented in Figure 6.

The relative percent differences (RPDs) for the chlorinated phenols detected in the duplicate sample pair from monitoring well MW-7 (samples MW-7 and MW-A) during this sampling event were 17 percent for PCP and 16 percent for 2,3,4,6-TCP. The RPDs for this sampling event are considered acceptable.

Dioxins and furans were detected in the two groundwater samples (unfiltered sample MW-7 and filtered sample MW-7F) from monitoring well MW-7. Concentrations of dioxins ranged from not detected to 449 picograms per liter (pg/L) in the unfiltered sample and from not detected to 231 pg/L in the filtered sample. Concentrations of furans ranged from not detected to 20.7 (estimated) pg/L in the unfiltered sample and from not detected to 7.05 (estimated) pg/L in the filtered sample. The total concentration of dioxins was 550 (estimated) pg/L in the unfiltered sample and 281 (estimated) pg/L in the filtered sample. The total concentration of furans was 69.1 (estimated) pg/L in the unfiltered sample and 39.7 (estimated) pg/L in the filtered sample. The total toxicity equivalency related to the analytical method target analytes (TEQ) of the unfiltered sample was 2.66 pg/L and the TEQ for the filtered sample was 0.996 pg/L. The percent of the total TEQ that is related to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) was zero for both groundwater samples (Table 5).

Chloride was detected in the groundwater sample from monitoring well MW-1 at a concentration of 12 mg/L.

Chemical analysis results of groundwater samples collected at the Site during previous sampling events are also summarized in this report and include the following constituents: 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 first and second quarter 2003 groundwater sampling events are being stored temporarily at the Site in three steel, 55-gallon drums (Section 4.1). The drums will be disposed of by SPI in accordance with applicable regulations.

#### 6.0 MONITORING SCHEDULE

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

- Depth to groundwater 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; and
- Groundwater samples will be collected from all 19 monitoring wells and analyzed for chlorinated phenols using the Canadian Pulp Method and total dissolved solids using EPA Method 160.1.

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; maps showing isoconcentration contours of PCP, if detected, in shallow and deep groundwater; and copies of field groundwater sampling records, laboratory analytical reports, and sample chain of-custody records.

### 7.0 REFERENCES

- Environet Consulting (Environet), 2002. Results of the 3<sup>rd</sup> 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.
- MFG, Inc., 2003a. First Quarter 2003 Groundwater Monitoring Report, Sierra Pacific Industries, Arcata Division Sawmill, 2593 New Navy Base Road, Arcata, California: June 9.
- MFG, Inc., 2003b. Interim Remedial Measures Report, Sierra Pacific Industries, Arcata Division Sawmill, 2593 New Navy Base Road, Arcata, California: June 10.

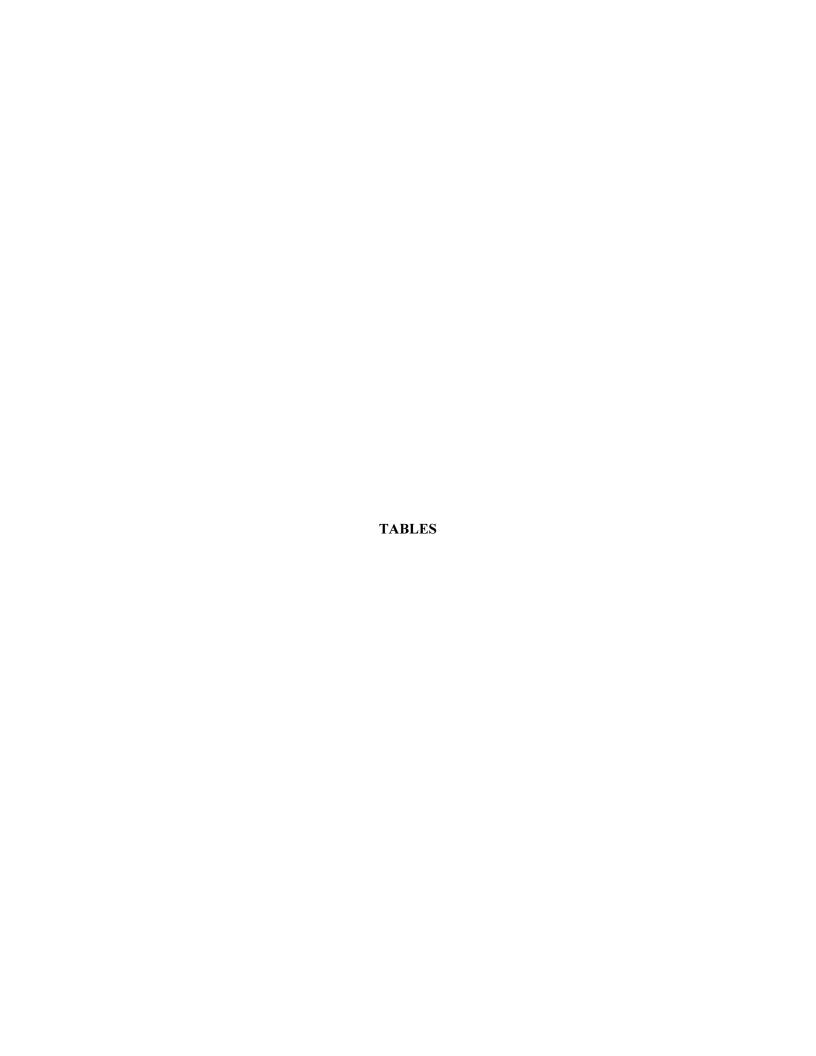


TABLE 1

MONITORING WELL CONSTRUCTION DETAILS 1

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 <sup>2</sup> (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.

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.

<sup>2</sup> Surface seal interval includes the concrete surface seal and neat cement sanitary seal.

TABLE 2
SUMMARY OF WATER LEVEL MEASUREMENTS

WELL NO.	MEASUREMENT <sup>1</sup> DATE	MP ELEVATION <sup>2</sup> (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
	21-May-03	9.56	4.66	4.90
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
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
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
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

TABLE 2
SUMMARY OF WATER LEVEL MEASUREMENTS

WELL NO	MEASUREMENT 1	MP ELEVATION <sup>2</sup>	DEPTH TO WATER	WATER LEVEL ELEVATION
WELL NO. MW-6	DATE 14-Mar-02	(ft NAVD 88) 9.77	(ft bMP) 0.85	(ft NAVD 88) 8.92
IVI VV -0	18-Jul-02	9.77	1.27	8.50
		9.77 9.77	1.51	8.26
	16-Sep-02		1.30	
	02-Dec-02	9.77		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
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
MW-8	14-Mar-02	10.30	0.92	9.38
111 // 0	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
MW-9	14-Mar-02	9.86	0.71	9.15
11111	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
MW-10	02-Dec-02	9.80	1.35	8.45
1V1 VV - 1 U		9.80 9.80	0.95	8.45 8.85
	18-Mar-03			
	31-Mar-03	9.80	0.30	9.50
	21-May-03	9.80	0.52	9.28
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

TABLE 2
SUMMARY OF WATER LEVEL MEASUREMENTS

WELL NO.	MEASUREMENT <sup>1</sup> DATE	MP ELEVATION <sup>2</sup> (ft NAVD 88)	DEPTH TO WATER (ft bMP)	WATER LEVE ELEVATION (ft NAVD 88)
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
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
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
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
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
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
MW-18	02-Dec-02	9.53	0.94	8.59
	18-Mar-03	9.53	0.52	9.01
	31-Mar-03 <sup>3</sup>	9.53		
	21-May-03	9.53	0.05	9.48
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

## TABLE 2

## SUMMARY OF WATER LEVEL MEASUREMENTS

WELL NO.	MEASUREMENT <sup>1</sup> DATE	MP ELEVATION <sup>2</sup> (ft NAVD 88)	DEPTH TO WATER (ft bMP)	WATER LEVEL ELEVATION (ft NAVD 88)				
SLOUGH	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				
NOTES:								
ft NAVD 88	Feet above North American	Vertical Datum of 1988.						
ft bMP	Feet below measuring point	t.						
	Not measured.							
SLOUGH	Mad River Slough measuring	ng point on railroad bridge	e. Water level measurements	are				
	obtained before and after th	e water level measuremen	ts in the monitoring wells.					
1.	Data prior to March 18, 200	3 were obtained from Res	sults of the Remedial Investig	ation for				
	Sierra Pacific Industries - Arcata Division Sawmills, Arcata, California, dated January 30, 2003,							
	prepared by Environet Cons							
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 po	oint.					

TABLE 3
SUMMARY OF WATER QUALITY PARAMETERS

SPECIFIC

			SPECIFIC			
		TEMPERATURE 1	CONDUCTANCE 1	pH <sup>1</sup>	$TDS^{\ 1}$	TDS $^2$
WELL NO.	DATE SAMPLED	(°C)	(µmohs/cm)	(std. units)	(mg/L)	(mg/L)
MW-1	20-Mar-03	14	2,600	6.5		
	22-May-03	14	2,700	6.7		1,400
MW-2	20-Mar-03	13	2,100	6.2		
	22-May-03	14	1,700	6.4	1,100	860
MW-3	20-Mar-03	13	1,100	6.4		
	22-May-03	15	1,000	6.4	630	510
MW-4	20-Mar-03	14	830	6.5		
	22-May-03	16	730	6.4	440	420
MW-5	20-Mar-03	14	670	6.6		
	22-May-03	14	690	6.6	410	360
MW-6	20-Mar-03	11	950	6.6		
	22-May-03	14	1,000	6.3	620	430
MW-7	20-Mar-03	11	910	6.6		
	22-May-03	11	960	6.5		460
MW-8	18-Mar-03	14	730	6.4		
	21-May-03	16	740	6.3	460	390
MW-9	18-Mar-03	14	820	6.4		
	23-May-03	16	870	6.6	550	400
MW-10	18-Mar-03	14	920	6.4		
	23-May-03	17	970	6.7		460
MW-11	20-Mar-03	14	870	6.4		
	21-May-03	17	890	6.4	560	460
MW-12	18-Mar-03	15	830	6.3		
	21-May-03	18	840	6.1		460
MW-13D	20-Mar-03	14	1,200	6.2		
	22-May-03	14	1,100	6.2		600
MW-14	20-Mar-03	14	3,200	6.7		
	22-May-03	15	3,400	6.6		2,100

TABLE 3
SUMMARY OF WATER QUALITY PARAMETERS

## SPECIFIC

		TEMPERATURE <sup>1</sup>	CONDUCTANCE 1	pH <sup>1</sup>	TDS 1	TDS <sup>2</sup>
WELL NO.	DATE SAMPLED	(°C)	(µmohs/cm)	(std. units)	(mg/L)	(mg/L)
MW-15D	20-Mar-03	13	1,300	6.8		
	22-May-03	13	1,300	6.8		800
	40.34 00					
MW-16D	18-Mar-03	14	5,200	7.7		
	23-May-03	14	5,200	7.6		3,200
MW-17	20-Mar-03	13	980	6.4		
	22-May-03	15	1,000	6.5		450
MW-18	18-Mar-03	14	1,000	6.5		
	23-May-03	17	980	6.6	610	640
MW-19D	20-Mar-03	16	810	6.7		
	22-May-03	16	860	6.6	520	480

NOTES:

°C Degrees Celsius.

 $\mu mhos/cm$  Micromhos per centimeter at 25 °C.

mg/L Milligrams per liter.

NA Not applicable.

-- Not analyzed.

TDS Total dissolved solids.

1. Field-measured parameter.

2. Laboratory-analysis using EPA Method 160.1.

**TABLE 4** SUMMARY OF CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS FOR CHLORINATED PHENOLS

> 2,4,6-TRI-CHLORO-

	DATE	PCP	CHLORO- PHENOL	2,3,5,6-TCP	2,3,4,6-TCP	2,3,4,5-TCP
WELL NO.	SAMPLED <sup>1</sup>	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)
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 <sup>2</sup>	< 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
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
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
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
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 <sup>3</sup>	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	22-May-03	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

**TABLE 4** SUMMARY OF CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS FOR CHLORINATED PHENOLS

> 2,4,6-TRI-CHLORO-

			CHLORO-			
	DATE	PCP	PHENOL	2,3,5,6-TCP	2,3,4,6-TCP	2,3,4,5-TCP
WELL NO.	SAMPLED 1	(µg/L)	$(\mu g/L)$	$(\mu g/L)$	(µg/L)	$(\mu g/L)$
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
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 <sup>4</sup>	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 $^{3}$	16,000	< 1.0	< 1.0	400	< 100
	22-May-03 <sup>5</sup>	14,000	< 1.0	< 1.0	400	< 100
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
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
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
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
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

**TABLE 4** SUMMARY OF CHEMICAL ANALYSES OF GROUNDWATER SAMPLES

FROM MONITORING WELLS FOR CHLORINATED PHENOLS

2,4,6-TRI-CHLORO-

	DATE	PCP	PHENOL	2,3,5,6-TCP	2,3,4,6-TCP	2,3,4,5-TCP
WELL NO.	SAMPLED 1	$(\mu g/L)$	(µg/L)	$(\mu g/L)$	$(\mu g/L)$	$(\mu g/L)$
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
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
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
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
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
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
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

### NOTES:

PCP Pentachlorophenol.

- 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.
- 5. Filtered sample.

Chlorinated phenols were analyzed using the Canadian Pulp Method.

TCP Tetrachlorophenol.

μg/L Micrograms per liter.

Target analyte was not detected at or above the laboratory reporting limit shown.

<sup>1.</sup> 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.

## TABLE 5

## SUMMARY OF CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELL MW-7 FOR DIOXINS AND FURANS

## Sierra Pacific Industries Arcata Division Sawmill Arcata, California

			1, 2,	1, 2, 3,	1, 2, 3,	1, 2, 3,	1, 2, 3,			1, 2,	2, 3,	1, 2, 3,	1, 2, 3,	2, 3,	1, 2, 3,	1, 2, 3,	1, 2, 3,			PERCENT
		2, 3, 7, 8-	3, 7, 8-	4, 7, 8-	6, 7, 8-	7, 8, 9-	4, 6, 7, 8-		2, 3, 7, 8-	3, 7, 8-	4, 7, 8-	4, 7, 8-	6, 7, 8-	4, 6, 7, 8-	7, 8, 9-	4, 6, 7, 8-	4, 7, 8, 9-		TOTAL 1,2	2, 3, 7, 8-
SAMPLE	SAMPLE	TCDD	PeCDD	HxCDD	HxCDD	HxCDD	HpCDD	OCDD	TCDF	PeCDF	PeCDF	HxCDF	HxCDF	HxCDF	HxCDF	HpCDF	HpCDF	OCDF	TEQ	TCDD <sup>3</sup>
ID	DATE	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(pg/L)	(%)
MW-7	16-Sep-02 <sup>4</sup>	<3.12	< 3.45	< 5.82	< 6.31	< 5.32	32.4	144	<3.36	<4.21	<4.59	<2.38	<2.81	< 2.86	< 2.99	6.59	< 6.67	22.2	0.407	0
	22-May-03	<1.62	<4.05	22.6 J	< 3.83	<3.10	30.2	449	<1.26	< 2.04	< 2.02	<1.02	<1.17	<1.19	<1.15	4.97 J	< 0.807	20.7 J	2.66	0
	22-May-03 <sup>5</sup>	<1.27	< 2.00	7.89 J	< 2.47	<1.97	16.3 J	231	<1.01	<1.66	<1.64	<1.09	<1.28	<1.40	<1.67	2.09 J	<1.19	7.05 J	0.996	0
	TEF <sup>6</sup> :	: 1	1	0.1	0.1	0.1	0.01	0.0001	0.1	0.05	0.5	0.1	0.1	0.1	0.1	0.01	0.01	0.0001		

NOTES:	
TCDD	Tetrachlorodibenzo-p-dioxin
PeCDD	Pentachlorodibenzo-p-dioxin
HxCDD	Hexachlorodibenzo-p-dioxin
HpCDD	Heptachlorodibenzo-p-dioxin
OCDD	Octachlorodibenzo-p-dioxin
TCDF	Tetrachlorodibenzofuran
PeCDF	Pentachlorodibenzofuran
HxCDF	Hexachlorodibenzofuran
HpCDF	Heptachlorodibenzofuran
OCDF	Octachlorodibenzofuran
TEQ	Toxicity equivalency.
pg/L	Picograms per liter.
	Not applicable

- < Target analyte was not detected at or above the laboratory reporting limit shown.
- J Analyte concentration was below the calibration range.
- TEF Toxicity equivalency factor (unitless).
- 1. Calculated by multiplying the congener concentration by its TEF.
- 2. When an analyte concentration was not detected, it was assigned a concentration of 0 pg/L to calculate TEQ.
- 3. Calculated by dividing the concentration of 2, 3, 7, 8-TCDD by the Total TEQ. When the concentration of 2, 3, 7, 8-TCDD was not detected, it was assigned a concentration of 0 pg/L for this calculation.
- 4. Data were obtained from Results of the 3rd Quarter 2002 Groundwater Monitoring and Sampling Event for Sierra Pacific Industries Arcata Division Sawmills, Arcata, California, dated November 25, 2002, prepared by Environet Consulting.
- Filtered sample
- 6. World Health Organization, 1997 (WHO-97) adopted from F.X.R. van Leeuwen, 1997.

Dioxins and furans were analyzed using EPA Method 1613.

TABLE 6
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)
MW-1	25-Mar-02	45.7	110	520
	22-May-03			12
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

## 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.

March 2002 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.

<sup>--</sup> Not analyzed.

#### TABLE 7

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

Sierra Pacific Industries **Arcata Division Sawmill** Arcata, California

TOTAL

			IOIAL													
	DATE	CONDUCTIVITY	ALKALINITY	FREE CO <sub>2</sub>	$NO_3^{-1}$	$SO_4^{-2}$	Mn	Fe +2	Ca	Mg	ORP	TSS	TDS	$DO^{1}$	pН	METHANE
WELL NO.	SAMPLED	(µS/cm)	(mg CaCO <sub>3</sub> /L)	$(mg CO_2/L)$	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mV)	(mg/L)	(mg/L)	(mg/L)	(std. units)	(mg/L)
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	< 0.50	<2.0	2.9	35	30	50	190	950	560	8.6	6.45	50
NOTES:			•													
$CO_2$	Carbon dioxide.	Free CO <sub>2</sub> was calculated	d using SM 4500 CC	) <sub>2</sub> -D.			μS/cm Microsiemens per centimeter.									
$NO_3^{-1}$	Nitrate. Analyze	d using EPA Method 300	mg CaCO <sub>3</sub> /L Milligrams of calcium carbonate per liter.													
$SO_4^{-2}$	Sulfate. Analyze	ed using EPA Method 30	mg CO <sub>2</sub> /L Milligrams of carbon dioxide per liter.													
Mn	Manganese. Ana	alyzed using EPA Metho		mg/L Milligrams per liter.												

Conductivity was analyzed using SM 2510. Total alkalinity was analyzed using SM 2320B pH was analyzed using SM 4500.

Ferrous iron. Analyzed using EPA Method 3500.

Magnesium. Analyzed using EPA Method 6010.

Oxidation reduction potential. Analyzed using SM 2580.

Total suspended solids. Analyzed using SM 2540 D.

Total dissolved oxygen. Analyzed using SM 2540 C.

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

Calcium. Analyzed using EPA Method 6010.

Fe +2

Ca

Mg

ORP

TSS

TDS

DO

Methane was analyzed using modified EPA Method 8015.

mV Millivolts.

Target analyte was not detected at or above the laboratory reporting limit shown

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.

## **TABLE 8**

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

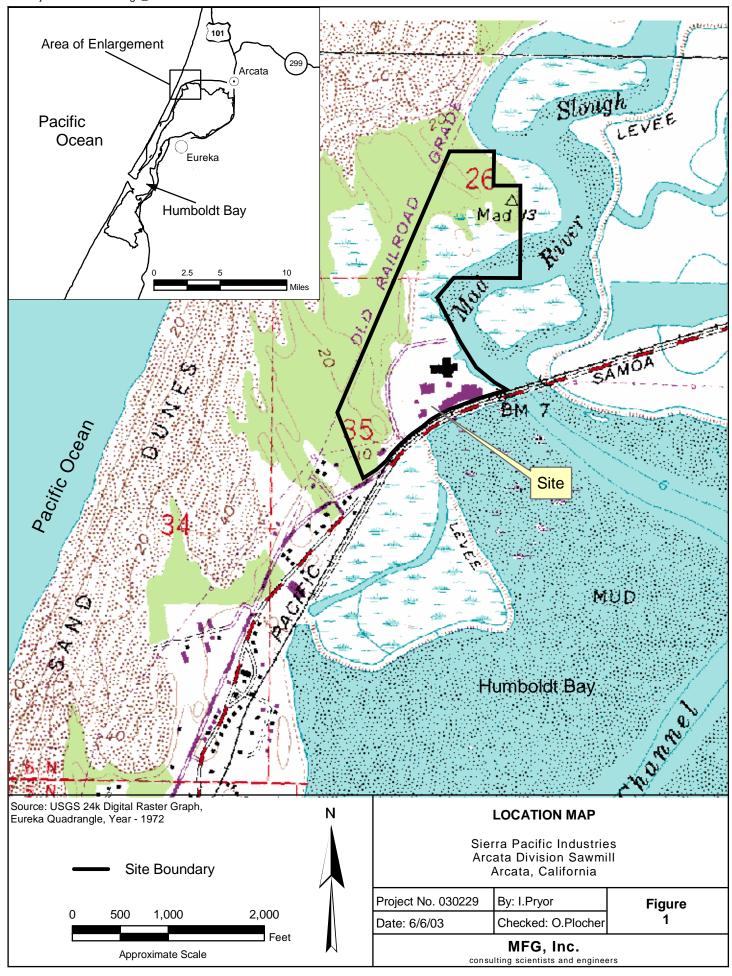
Sierra Pacific Industries Arcata Division Sawmill Arcata, California

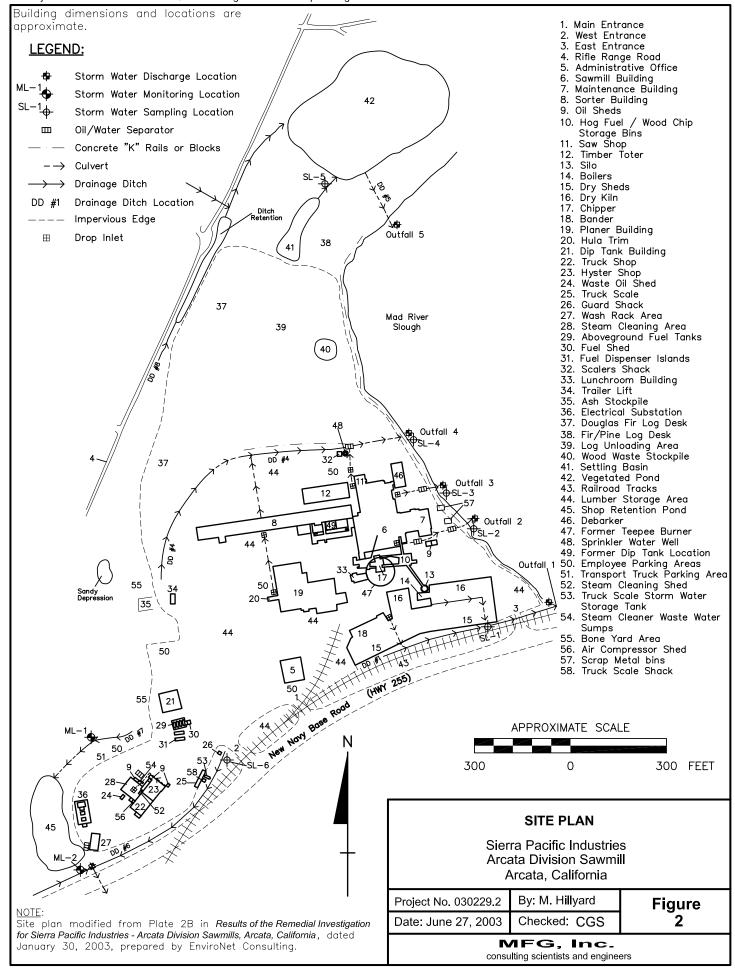
	DATE	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	T1	V	Zn
WELL NO.	SAMPLED	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MW-7	14-Jan-03	< 0.15	< 0.2	< 0.05	< 0.01	< 0.01	< 0.01	< 0.05	< 0.05	< 0.05	< 0.0002	< 0.05	< 0.05	< 0.2	< 0.01	< 0.4	< 0.05	< 0.05
NOTES:																		
Sb	Antimony			Hg	Mercury													
As	Arsenic			Mo	Molybden	um												
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 lit	er.																
<	Target analyte was not detected at or above the laboratory reporting limit shown.																	

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.







# APPENDIX A

**Groundwater Sampling Record Field Forms** 

GRC	UND	WATE	R S	AMP	LING R	EC(	ORD	SAMP	LE N	UMBER	PAGE: 1 of: MW-1				
Project I	Project No: 030229.2 Project Name: SPI Arcata Sawmill Date 5/22/03  Sampling Location (well ID, etc.): MW-1 Starting Water Level (ft. BMP): 4.71														
		•	3 633					aval ## D	MD\.	4-	Date_3/ 703				
•		tt Hillyard	***************************************			1	-	•	•		r Column Height (ft.): 7, 8	24			
	-	P) of Well:_	0.5	6		1					olication Factor: 0.163				
		ft.BGL):		····								_			
			1	5-8.0	+	Casin	g Volume (	gal.):/		2X:(_	5 40 4X 8.0	-			
		(ft.BGL):		0.0	<del></del>		Level (ft.B					[			
Casing	Stick-Up/Do	wn (ft.):				Total	Depth (ft. B	MP) at E	nd of I	Purge:					
QUA	LITY AS	SSURAN	ICE				-				<u>.</u>				
	DS (describ		***************************************		······································			······································	***************************************		•	-			
Clean											rinse w/ distilled wat	ter.			
Purgi	ng:	Disposab	le Poly	<u>ethylen</u>	e Bailer		Sam	pling: Di	ispos	able Po	lyethylene Bailer				
Dispo	Disposal of Discharged Water: 55-Gallon Drum  NSTRUMENTS (indicate make, model, i.d.):														
	Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter														
pH M	pH Meter: Ultrameter Field Calibration: pH 4, 7, 10														
	Conductivity Meter: Ultrameter Field Calibration: 2070 um hps														
	Other: Field Calibration:														
SAMPLING MEASUREMENTS															
Date/	Control Purple Femarks														
Time	(gal)	Rate (gpm) (°C) pH (µmhos/cm) Color Turbidity & Sediment (n. BMP) Remarks													
315	0		14.93	731	3044		clear	Non	<u>.                                    </u>						
316	الم	0,5	14.5	6.87	2775		(1)	((	<del></del>						
317	1.0	0.5	14.5	6-71	2630	****	brn	-h13	h <u>.                                    </u>		sand from bottle	5~			
320	1,5	117	14.4	6.69	2654		11	Į.			The Asset of the				
Aue		, 3													
									***************************************						
						·									
SAN	IPLE IN	VENTO	RY												
		MP) Before S	***************************************	5	l∂Rec	overy %	: 86,	5_s	ample	Intake D	epth (ft. BMP):	. 1			
Time	Volume	Bottles C				Filtratio		rvation	An	alysis	Remarks				
			ittion (gla	ss, plasti	c) Quantity	(Y/N)	) (ty	pe)	Necl	77. 40	(quality control sample, o	other)			
325	125m		195	7		<b> </b>	10		VCF.	1700					
325	1007	W	10171	. <u>.</u>		N	100	<u> </u>	705.	t Chiley, d					
Chain-c	Chain-of-Custody Record No. 43293														
								Inc.	II	Crist	9 Oilman Inc				
-	McCulley, Frick & Gilman, Inc.														
<b></b>			-					nccui	ney,	FIICK	& Gilman, inc.				

GRO	UND'	WATE	R S	AMP	LING	REC	OI	RD	SAME	PLE N	UMBEF	P: MW-	AGE: <u>1</u> of:
Project I	vo: 03022	29.2 Pr	oject Na	ıme:SI	PI Arcat	a Sawm	ill				7-77-4		Date 5/2マ0
Samplin	g Location	(well ID, etc.)	:_M\	<i>W</i> -2		Sta	rtina \	Water Le	vel (ft. E	BMP):	5	,50	0000
		tt Hillyard				1			-	•			Helght (ft.): 2
Measuri	ng Point (M	P) of Well:_	9.4	.9	•								actor: 0.163
		fLBGL):	2.	0.8-0									05 4X 1-
		(ft.BGL):	1	5-9.0	•							5.56	
Casing (	Stick-Up/Do	wn (ft.):				1					Purge:_		**************************************
QUA	LITY AS	SSURAN	ICE					_	***************************************				J - 2
	OS (describ						***************************************			<del></del>	······································		· · · · · · · · · · · · · · · · · · ·
Clean	ing Equipm	ent:Liquin	ox dete	ergent &	ż distille	d water	solu	tion fo	ollowe	d by 1	triple r	inse w/ d	istilled wat
		Disposab						Samp	oling:	Dis	<u>oosable</u>	Polythy	lene Bailer
		arged Water			n Drum	<u>.</u>	-						
		dicate make, virotech L			a Modal	150				€T TI	·		
nH M	teret 1211	Ultram	eter	alcillin	· IVIOUEI	130			nometer Calibrat		tramete	er 7,10	
		er: Ultra				<del>*************************************</del>			Calibrat			O Mm	n16
Other:						·····				-		0.000	
SAMPLING MEASUREMENTS													
Date/ Cumul.Vol. Purge Temp. Specific Conductance Turbicity Intake													
Time	(gal)	Rate (gpm)		PH	(µm)	mp. @ 25		Color	Turbidity Depth & Sediment (IL BMP)			Remarks	
418	0		143		167	5	(	lear	s1 192	(-).		hid pos	tou uc
420	.5	.25	130	6.38	1710	5	1	lear	5.870	1		sand	Lo Hon.
422	1.6	125	139	6.35	1718	7	M le vice si.						
423	1.5	.5	13.9	6.36	1700	7		12		,		દ ૧	۲.
Ave		• 3							709	= 1070 Con			
	<del></del>		, , , , , , , , , , , , , , , , , , , ,				1	~ <del>** *********************************</del>			<u> </u>		
							1			<del>- (), (),</del>			
	-			- B			1		1				
	·					_	$\dashv$				1		
SAM	DIEIN	VENTO	DV	<u> </u>	l				<u> </u>		<u> </u>	<u> </u>	
	<del>(                                    </del>				,55		0	トファ					
vvaleri	_evei (π. Βi	MP) Before S		*		Recovery				ample	Intake [	Pepth (ft. Bi	
Time	Volume			ass, plasti	c) Qua	Filtra	ition   N)	Preser (type		An	alysis	(quality o	Remarks ontrol sample
426	125 ml	- 9/01	99		2		7		<u>入</u>	Pcl	TTCP	1 (4	
426	104	pla	9150				_		A	7	05		
	1	<u> </u>	115		<u> </u>				*	<u> </u>			
Chain-of	-Custody F	Record No	43	29	7			<del>''' '' ''' ''' ''' ''' ''' ''</del>		.,,		· · · · · · · · · · · · · · · · · · ·	
	······			`									
							1		[^^·'	la:-	Ceist	, o 🔿 !!	nan, Inc.

A110		VATE		Z1811 P				SAMP	LE NUMBER:	MW-3
					I Arcata Sa	awmill				Date_5/2703
Sampling	Location (v	vell ID, etc.):	<u>MV</u>	<u>V-3</u>		Startin	g Water L	evel (ft. Bl	MP): 22	0
Sampled	by. <u>Matt</u>	Hillyard				Total [	Pepth (ft. E	вмр): <u>7.7</u>	7 feet Water	r Column Height (ft.): 5.57
Measurin	g Point (MF	) of Well:	11	.14						olication Factor: 0.163
Screened	l Interval (ft	.BGL):		0-8.0		Casing	Volume (	(gal.):	9 2x: 1-8	3x 2-7 4x 3-6
Filter Pac	k Interval (f	t.BGL):	1.:	5-8.5	•	Water	Level (ft.E	MP) at Er	nd of Purge:	2,25
	tick-Up/Dov					1			nd of Purge:	
QUAL	ITY AS	SURAN	CE		······		-	· · · · · · · · · · · · · · · · · · ·		* . ,
METHOD	S (describe	e):	***************************************						<del></del>	•
	• , ,						······································			rinse w/ distilled water.
					•		Sam	pling:_Di	sposable Po	lyethyleneBailer
•		arged Water			n Drum					
	•	icate make,	•	•	. <b>3</b> .4 - 3.1 1 "	0	•		T 114	_
	-			aterline	Model 15	U			Ultramete	r 4 7 10
-	• •	Ultrame	meter	······································	,			d Calibrati	on: P N	7,7,10 70 mg Log
Other:	ctivity Mete	c	1110101	· · · · · · · · · · · · · · · · · · ·		······································		d Calibrati		10 may
		MEASU	SEVIE	ENITO			riek	d Calibrati	on:	
		acteristics	IL_IVIL		Quality Data		Ap	pearance	· · · · · · · · · · · · · · · · · · ·	
	Cumul.Vol.		Temp. (°C)	pН	Specific Con (µmhos/ OField Temp.	cm)	Color	Turbio & Sedir		Remarks
127	0		15,4	6.59	960		Chear	sm. or	c/03	
129	1	,5.	15.1	6.36	100		11			
130	2	1	14.8.	639	1085		J,X	- Few 8	and	
134	3	.25	14.9	6,40	1730		Ţζ	(1		Same le
AVE.	1	, 43						TOS = 6:	27ppm	V
	6									
	AB.									
						·				
SAM	IPLE IN	VENTO	RY	1,	.1		J			
		MP) Before S		: 2,27	Rec	covery %	99	, 1 s	ample Intake D	Depth (ft. BMP):
		Bottles C				Filtration		ervation		Remarks
Time	Volume		sition (gl	ass, plast			0	уре)	Analysis	(quality control sample, oth
138	125 ml		1995		2	N		1A	PCP/TCP	
138	110+		Plas	+16	1	11	4	VX	TOS	
	_		· · · · · · · · · · · · · · · · · · ·			-	_	· · · · · · · · · · · · · · · · · · ·		-
Chain-o	f-Custody F	Record No	43	293						
J, MILL								N O 1		c & Gilman, Inc.
i i										

GRC	UND	WATE	R SA	AMP	LING R	ECC	ORD	SAMPL	E NUMBER	PAGE: 1 of: 1 :: MW-4				
Project I	No: 03022	29.2 Pr	olect Na	me: SP	I Arcata Sa	wmill				Date_5/2 <sup>2</sup> /03				
-		well ID, etc.)	* ***					vel fft. RM	IP): <u> - </u>					
•	•	t Hillyard								er Column Height (ft.): 6,58				
		P) of Well:		7		l .				plication Factor: 0.163				
Screene	d Interval (f	t.BGL):	2.0	-8.0	0					2 <sub>3X</sub> 3. 3 <sub>4X</sub>				
Filter Pa	ck Interval	(ft.BGL):	1,5	-8-	.0	ì			d of Purge:	,				
	Stick-Up/Do							-	d of Purge:					
QUA	LITY AS	SURAN	ICE	······································				· · · · · · · · · · · · · · · · · · ·						
	5544		<del></del>		1:1	-1	1.	7 3 <b>1</b>	1	1 1 1 2 2 1 1				
Clean	Cleaning Equipment: Liquin of detergent + distilled water triple rinse distilled rinse rinse distilled water triple rinse distilled rinse rinse distilled rinse rinse rinse rinse rinse distilled rinse rinse rinse rinse rinse rinse rinse rinse rinse													
Purgi	Purging: Nisforable foly baster  Disposal of Discharged Water: 55-Gallon Drum													
	Disposal of Discharged Water: 55-Gallon Drum													
	NSTRUMENTS (indicate make, model, i.d.):  Water Level: Envirotech LTD, Waterline Model 150  Thermometer: Ultrameter													
Cond	PH Meter: Ultrameter Field Calibration: 1+4,7,10  Conductivity Meter: Ultrameter Field Calibration: 2070 untles													
Other: Field Calibration: SAMPLING MEASUREMENTS														
	Purge Characteristics Water Quality Data Appearance Intake  Date/ Cumul.Vol. Purge Temp. Specific Conductance Turbidity Remarks													
Time	Cumul.Vol. (gal)	Purge Rate (gpm)	(°C)	pН	(µmhos/ © Field Temp	cm)	Color	Turbidity Dep & Sediment (n. BA		Remarks				
1214	0		186	6.39	833	•	51344	Small ovare	Pe, sel					
1216	1	,5.		lo.36	865		4 %	ξ. 1						
1219	2	,33	164	6.38	847		10	~						
1220	3	l	(0-1	6.40	766									
1222	3.6 A	,3	15,8	6.37	729			TDS=44	10	samp)c				
Ave	18	.45			:									
	É													
			<u> </u>											
SAN	IPLE IN	VENTO	RY		11	~~~~~	1	1		1				
	***************************************	MP) Before S		: 1.62	Rec	overy %	. 93	了 Sai	mple Intake I	Depth (ft. BMP):				
		Bottles C		****		Filtration		rvation		Remarks				
Time	Volume		7	ass, plasti		(Y/N)		pe)	Analysis	(quality control sample, other)				
1226	125 ml		(49)		5		N	<u> </u>	0 C1/7CP					
1276	IRT	<del>                                     </del>	1/ash	<i>c</i> .	\	~	12	4	TDS					
<u> </u>														
Ch-a-l-			U	329	) 3									
Chain-C	of-Custody F						_	I-0: "	, 					
I I							ľ	ac Cull	ey, Fricl	k & Gilman, Inc.				
-		3W Sample Form	MACACAD	Revised 9-8	+ <b>0</b> 5									

GRO	UND	WATE	R S	AMP	LING F	RECO	ORD	SAMF	PLE N	JMBER	PAGE: of:_ ' :: MW-5				
Project I	vo: <u>03022</u>	29.2 Pr	oject Na	me: SI	PI Arcata S	Sawmill					Date 5/12/03				
		(well ID, etc.)				1	ng Water Le	evel (ft. E	MP):	0.	71				
4 1		t Hillyard				1	-	-		t Wate	er Column Height (ft.): 6.97				
-	_			69		1					plication Factor: 0.163				
Screene	d Interval (f	P) of Well: t.BGL):	2.0	1 - 8	0						3 3x 3, 45 4x				
	•	(ft.BGL):	1 .	5 - 8		Water	Level fft.B	MP) at F	nd of F	onue.	0.85				
	Stick-Up/Do					4	Depth (ft. B								
QUA	LITY AS	SURAN	ICE					<del></del>	***************************************		* **				
METHO	DS (describ	e):		·	4.1.0										
Clean	ing Equipm	ent: <u>Şa</u>	me	9	·MW.	1	····	·····	<del></del>	····					
Purgir	1g: <u>dis</u>	forable	<u> </u>	56-1	omiler		Samp	oling: <u>/</u>	lisp.	0.5451	'e poly bailer.				
Dispo	Disposal of Discharged Water: 55-Gallon Drum  NSTRUMENTS (indicate make, model, i.d.):														
	Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter														
	pH Meter: Ultrameter Field Celibration: 0 + 4, 7, 10														
Conde	PH Meter: Ultrameter Field Calibration: PH 4, 7, 10  Conductivity Meter: Ultrameter Field Calibration: 2070 un las														
	Conductivity Meter: Ultrameter Field Calibration: 2070 un Los  Other: Field Calibration:														
	SAMPLING MEASUREMENTS														
1	Date/ Cumul.Vol. Purge Temp. Specific Conductance Turbidity Deta Remarks														
Time	(gal)	Purge Rate (gpm)	(°C)	pΗ		/cm)		** Sediment (n. BMP)		Depth	Remarks				
1019	0			6.99	679		Clean								
1017	1	.33	3	6.76	688		Cler				·				
[019	2	-5	143	6-65	690		n			t i					
1021	3	,5	14.3	b-64	687		73								
1023	4	,5	14.4	6.61	68°4		Ąr	T 03=9	14 pan		Sample				
Ave	8	.44							11 -		Ψ				
	<b>6</b>								·						
								1							
								1							
SAM	IPI F IN	VENTO	RV	I	<u> </u>	<u> </u>	1	1		l					
ļ ———		MP) Before S		. <u>(</u> )	85 Re		98	0 -							
Tratel	reset fir Di	NP) Before S		•	He	covery %	· · · · · · · · · · · · · · · · · · ·		ample	Intake D	Pepth (ft. BMP):				
Time	Volume			ass, plast	c) Quantit	Filtration (Y/N)		rvation pe)	Ana	alysis	Remarks (quality control sample, other)				
1026	125m	٤. 0	y 1 às 5.	5	2	À		JA	PCF	/TCP					
1020	116	$ \rho$	1015	1-1:6		$\sim$	4.	'_/si	个	Ds.					
	<u> </u>	(	132	93		<u> </u>	<u> </u>	***************************************	<u> </u>						
Chain-c	f-Custody F	record No		1											
l 1							1	/IcCul	lley,	Frick	& Gilman, Inc.				
	·	3W Sample Form	MACACAD	Revised: 9-6	105										

. 3/

GRC	UND	WATE	R SA	AMP	LING R	ECC	RD	SAMP	LE NUMBE	PAGE:of:				
Project I	No:_03022	29.2 Pr	oject Na	me: SI	PI Arcata S	awmill	·			Date 5/22/03				
		well ID, etc.)				ſ	g Water Le	evel fft. R	MP)· O	60				
		t Hillyard		**************************************	·····	1	-	•	•	ter Column Height (ft.): 7/2				
_	-	P) of Well:	$\alpha$	77	•	1				Itiplication Factor: 0.163				
		t.BGL):	$\circ$	0-8	3.0	1 .		-		4 3X 3.6 4X				
		(ft.BGL):		5 -8		· ·	-			1.20				
	Stick-Up/Do		· · · · · · · · · · · · · · · · · · ·	<del></del>		1	.=	-	nd of Purge:_					
		SSURAN	ICF					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
<del></del>			·····	***************************************	1.5	1 /	1		<del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>	*				
Clean	ing Equipm	ent:	dan	e	95 M	. W -	-							
Purgi	ng: di4	005ab/-c	P	01-11	pailer		Sam	oling: <i>C</i>	dispos	able poly bailer				
		arged Water												
	NSTRUMENTS (indicate make, model, i.d.):  Water Level: Envirotech LTD, Waterline Model 150  Thermometer, Lilltrameter													
	Water Level: Envirotech LTD, Waterline Model 150  Thermometer Ultrameter  Ultrameter Ultrameter													
рН М	pH Meter: Ultrameter Field Celibration: PH 4/7,10													
	Conductivity Meter: Ultrameter Field Calibration: 2070 unles													
Other: Field Calibration: SAMPLING MEASUREMENTS														
SAMPLING MEASUREMENTS  Purgo Characteristics Water Quality Data Appearance														
Date/	te/ Cumul.Vol. Purge Temp.   Specific Conductance Turbidity Intake   Remarks													
Time	(gal)	Rate (gpm)	(°C)	pН	© Field Temp.		Color	& Sedin	, 1116th					
935	0		16.3	7.40	852		Clev	Smalls Barti	ly ande las					
936	1	\ -	17.8	6.64	978	·	11	13						
938	2	-5	17.4	6.43	1063		Slight	1.5						
740	3	-5	13,9	6-38	991			1.0						
941	4		13.8	6.34	1020		ęf	ŤDs=6	125/pm	Somp? 'T				
ALR	5	-67												
	6													
	·		,											
SAN	IPLE IN	VENTO	RY	1										
		MP) Before S		1,2	Rec	overy %:	91-6	S	ample Intake	Depth (ft. BMP):				
	T	Bottles C				Filtratio	<del></del>	rvation	······································	Remarks				
Time 9 J≈	Volume	<del></del>		ss, plast		1 (111.4)		pe)	Analysis	(quality control sample, other				
133	12506		45	***************************************		N	<del></del>	<u> </u>	101/+0	<u> </u>				
945	1 4	<del>                                     </del>	1953 1	<u>~;·</u>		N	N.A	۲	TUS	>				
Chain-c	of-Custody F	Record No	437	294										
	<del></del>				· · · · · · · · · · · · · · · · · · ·		ħ	<b>AcCul</b>	lev. Frid	k & Gilman, Inc.				
<b> </b>		3W Semole Form	MACONO	Omd a -	· AC		_,	<del></del>	,,	on we wrom the transfer of the transfer of				

GRC	UND	WATE	R SA	MP	LING R	RECC	RD	SAMPI	LE NUMBER	PAGE: of: : MW-7					
Project I	No: 03022	29.2 Pr	oject Na	me:SF	PI Arcata S	awmill				Date_5/27/03					
		(well ID, etc.)					g Water L	evel (ft. Bl	MP): <u>Ø</u>	.45					
Sample	d by. Mat	t Hillyard				Total [	- Depth (ft. E	MP): 7.7	4 feet water	er Column Height (ft.): 7-29					
Measuri	ing Point (M	P) of Well:	9.0	e 8	,	1	Casing Diameter (in. ID): 2-Inch Multiplication Factor: 0.163								
Screene	ed Interval (f	t.BGL):	20	-8.0	7					4 3x 3-64x					
Filter Pa	ck Interval	(ft.BGL):	1.	5-8	(°, o	1			nd of Purge:						
	Stick-Up/Do					1			nd of Purge:						
QUA	LITY AS	SSURAN	ICE			1									
METHO	DS (describ	e):		······································		- /				*					
Clear	ning Equipm	ent:	Same	. a,	. MW-					pump disposable house					
Purgi	ng: $\lambda$	5P- Pol-	1. Val	(ev			Sam	pling:	peristaltic	Pump disposable bailer					
Dispo	sal of Disch	arged Water	: <u> </u>	<u>5-Galle</u>	on Drum				,						
		dicate make,			36 1145	<b>'</b> 0			T T1.						
	Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter														
	pH Meter: Ultrameter Field Calibration: pH 4, 7, 10  Conductivity Meter: Ultrameter Field Calibration: 2070 multes														
	Conductivity Meter: Ultrameter Field Calibration: 2070 mm hs 5  Other: Field Calibration:														
	<del></del>	MEASU	DEME	NITO			Field	1 Calibrati	on:						
SAIV		recteriation			Quality Data		And	earance.							
Date/ Time	Cumul.Vol. (gal)	<del></del>	Temp.	Hq	Specific Con (µmhos @ Field Temp	ductance (cm)	Color	Turbidity Dep		Remarks					
1041	0		11.5	663			Neur	cle		The state of the s					
1042	1	1 .	11.2	6.4	926			1/							
1644	2	-5	11.0	6,4	970			((							
1045	3	L	11-1	( <sub>2,3</sub> 3	1141			5/194	TV.d						
1047	4	,5	Ν,τ.	6.55	1000			1.1	<del></del>						
1048	5	l	110	6.50	960			17							
Ave	6	.714													
			<b>1</b>					1							
SAN	IPLE IN	IVENTO	RY	1		<u> </u>	<u> </u>	_1	1						
		MP) Before S	····	: 0,5	O Re	covery %	: 97.	3 s	ample Intake	Depth (ft. BMP):					
		Bottles C	ollecte	d		Filtratio	on Pres	ervation	Analysis	Remarks					
Time		<del></del> -	<del></del>	ass, plast	ic) Quantity	<del>  ` '</del>		ype)		(quality control sample, other					
1125		J	<del>525</del>	****	12	N		A VA	908/TCP	(2-MW-7)2-MW-A					
1125	135m	7	1695			1 7			PCP/TCP Stoxin/fu	MV-7 F					
1140	) IT	1	1955		<del>-                                     </del>	1 4	1 1/2	121 V D	diotin/fura						
	of-Custody F	ρ (	95 F.C	TD	5 1	1 1/1	<del></del>		10110 F14 / 1 W/"	1.1.1					
Chain-	or-Custody F	record No	11-9-	70:					*						
			て フ′	474	•			McCul	lley, Fric	k & Gilman, Inc.					
<u> </u>		GW Samole Form	MACACAD	Revised 0	t.os										

GRO	DUND'	WATE	R S	4MP	LING R	ECC	)RD	SAMP	LE NU	JMBER:	PAGE: 1 of: 1 MW-8				
Project	No:_03022	29.2 Pr	oject Na	me: SI	PI Arcata Sa	awmill		***************************************			Date 5/ 71/03				
		(well ID, etc.)				f	g Water Le	vel fft R	MP)·	1)	1.49				
		tt Hillyard			·····	ŧ	_	-	•		r Column Height (ft.): 7.74				
Magazin	ing Doint (M	D) of Mali	(10	.3	•	l .					olication Factor: 0.163				
Screen	ed Interval (	rtBGL): Z	.0 -	8.0	***************************************						4 3x 3- 6 4x				
Filter Pa	ack Interval	ft.BGL):	1.5	-8.	0	i "		-			0.74				
	Stick-Up/Do		·			1	Depth (ft. B								
QUA	LITY AS	SSURAN	ICE				*			<del></del>	<b>↓</b> · *				
METHO	DS (describ	e):	0		11	A 1	1	***************************************			•				
Clear	ilng Equipm	ent:	) an	ne.	95 100	<u> </u>	<u> </u>				le poly bater				
Purgi	ng: 01 15	posable	1)01	1 0a	ilen		Samp	ling:	Crsp	0900	1 e poly bater				
i .		arged Water			on Drum										
l .	NSTRUMENTS (indicate make, model, i.d.):  Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter														
i i															
	pH Meter: Ultrameter Field Calibration: p 1+ 4, 7, 10  Conductivity Meter: Ultrameter Field Calibration: 2070 um hos														
	Other: Field Calibration: Field Calibration:														
SAM	SAMPLING MEASUREMENTS														
	Purge Characteristics Water Quality Data Appearance Date/ Qumul.Vol. Purge Temp. Specific Conductance Toutifus Intake														
Time	Cumul.Vol. (gal)	Remarks Color Color Depth Remarks													
338	0	O FOR TOTAL (IL SMP)													
340															
342	2	.5		6.35	739			1/							
345	3	.33		C:34	740			<b>J</b>							
346	3.8 %	,4		6.33	<del>                                     </del>			46000			Sample				
Ave.	5	.48						100/7	,01		24 offic				
	6					-			***************************************						
								<del>                                     </del>							
CAN	IDI E IN	VENTO	L	1	<u> </u>			1		l					
	·····	VENTO		0-	7 (/	·	9/								
Water	Level (ft. BI	MP) Before S			/ <u>/Rec</u>	overy %:		<u>ဗ</u> _s	ample	Intake D	epth (ft. BMP):				
Time	Volume			ss, plasti	c) Quantity	Filtratio (Y/N)	1	rvation pe)	Ana	alysis	Remarks (quality control sample, other)				
352	- 125 mi	9	(999		5.	1	n	1,4	PCP	1768					
352	114	1	97 1	C.:	(	N		V A	7	05					
<u> </u>															
<b> </b>		<u> </u>	1170	all.	<u> </u>	<u>l</u>		······································	<u> </u>	**************************************					
Chain-c	of-Custody F	Record No	432	-94	·		· · · · · · · · · · · · · · · · · · ·								
						==1	N.	/lcCul	lev.	Frick	& Gilman, Inc.				
<u> </u>					****	1			- 3 9		<del></del>				
1	•	W Sample Form	MACACAD	Revised: 9-8	-05										

GRC	UND	WATE	R S/	AMP	LING R	RECO	ORD	SAMP	LE N	JMBER	PAGE: \_of:_1 :: MW-9			
Project l	No: <u>03022</u>	.9.2 Pr	roject Na	me:SI	PI Arcata S	awmill					Date_5/ <sup>23</sup> /03			
Samplin	g Location (	well ID, etc.)	:_ <u>MV</u>	V-9		Startin	ng Water L	evel (ft. B	MP):_		0.20			
		t Hillyard				1	-	•	•		er Column Height (ft.): 7.5/			
Measuri	ng Point (M	P) of Well:	9.8	6	•	1					plication Factor: 0.163			
		t.BGL):		-8.0		,		,		_	44 3x 3-664x			
		(ft.BGL):				Water	Level (ft.P	MP) at F	nd of F	orue.	0-54			
	Stick-Up/Do			24 5		1	Depth (ft. E							
QUA	LITY AS	SURAN	ICE				-				<u> </u>			
METHO	DS (describ	e):	***************************************		11/11	1		<del> </del>			•			
Clean	ing Equipm	ent: <u>Ş</u> <u>ə</u>	me	95	MW-				<del></del>					
Purgi	ng: 01/5	9059016	e po	ry &	oailer		Sam	pling: 0	1750	0595	le poly balla			
	Disposal of Discharged Water: 55-Gallon Drum													
	NSTRUMENTS (indicate make, model, i.d.):													
	Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter													
-	pH Meter: Ultrameter Field Calibration: $\rho \leftarrow \psi$ , $\gamma \leftarrow D$													
	i loci Galipiatori.													
Other: Field Calibration: SAMPLING MEASUREMENTS														
Purge Characteristics Water Quality Data Appearance														
Date/ Time	Cumul.Vol. (gal)	<del></del>	Temp.	рΗ	Specific Con (µmhes/ © Field Temp	cm)	Color	Turbidity Inta		Intake Depth (#LBMP)	Remarks			
1027	0			857		Cleur	5674	rds.		Small or Pathons				
1030	-1	, 33	16.0	6.64	895		1.5	(/			IV XV V			
1032	2	.5	15.7	6.62	870		ĺ1	. (	*		.,			
1033	3	l	15.6	6-66	870		١ţ	(100	14		() 3 · · · · · · · · · · · · · · · · · ·			
10 35	4	. 5	15.5	662	870		١	. (	1		's guy te			
Aue.	5	.5						TD5:1	549 ppm.					
	6													
					j.k									
SAN	IPLE IN	VENTO	RY	1	<u> </u>	<u> </u>	1	1	. :	<u>.</u>				
		MP) Before S		. Ø.50	Rec	∞very %	: 96		ample	Intake [	Depth (ft. BMP):			
		Bottles C	ollecte	d		Filtration		ervation	19K.	······································	Remarks			
Time	Volume			ass, plast	ic) Quantity		) (6	уре)		alysis	(quality control sample, other			
(038	125m		<del></del>		2	1	ν,	A	PCP,	1tcp				
1036	1 Q1	1 - 1	ors fic	·····	·   +	N	N	X	II	V)				
Chain-c	of-Custody F	 Record No	43	329	G	<u> </u>		•	<u> </u>					
								McCul	lley,	Frick	c & Gilman, Inc.			
		W Samole Form	MACKAD	Dadad 01	· or		1				187 L 18			

GRC	UND	WATE	R SA	MPI	ING R	ECC	)RD	SAMPL	E NUMBER:	PAGE:(_of:_\ MW-10					
Project I	Project No: 030229.2 Project Name: SPI Arcata Sawmill Date 5/3/03  Sampling Location (well ID, etc.): MW-10 Starting Water Level (ft. BMP): 41														
			-			<u> </u>	a Water Le	val fft. RM	(P)·	<u>Φ.41</u>					
		t Hillyard								r Column Height (ft.): 7, 35					
		DV -414/-H-	90	30		i				olication Factor: 0.163					
Screene	d Interval (f	t.BGL): (ft.BGL):	2.0-	8.0		i '				4 3x 3-6 4x					
Filter Pa	ck Interval	fft.BGL):	1.5	-9.5	, *	1	-	-	d of Purge:	1 0 0					
	Stick-Up/Do					1			d of Purge:						
QUA	LITY AS	SSURAN	CE	**************************************		<u>.</u>	_		<del></del>	· ·					
METHO	DS (describ	e):	^ .	_	- 1	1110	/			*					
Clean	ing Equipm	ent:	701h	<u>re</u>	as 10	(W-	`	<del></del> ,							
Purgi	Cleaning Equipment: Same as MW-1  Purging: 15 posable poly barler . Sampling: 15 posable poly barler  Disposal of Discharged Water: 55-Gallon Drum														
	Disposal of Discharged Water: 55-Gallon Drum  NSTRUMENTS (indicate make, model, i.d.):														
	NSTRUMENTS (indicate make, model, i.d.):  Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter														
	pH Meter: Ultrameter Field Celibration: PH 4,7,00														
	pH Meter: Ultrameter Field Calibration: 17 4,7,0  Conductivity Meter: Ultrameter Field Calibration: 2070 win he 3														
	Other: Field Calibration:														
SAM	SAMPLING MEASUREMENTS														
	Date/ Cumul.Vol. Purge Temp. Specific Conductance Turbidity Death Remarks														
Time	(gal)	Rate (gpm)		ρН		Color	& Sedim	, 113 <del>0</del> 0111	Remarks						
855	0		19,5			<b>u</b> 25 ° C.	Men	Slah	1/20211111	small particles					
859	24	15.	172		950		14	(1	9						
901	3 1	-5	17,2	6.72	965		11	4							
903	4 <b>4</b>	- 5	17,2	le.71	970		11	, C j		Sample					
Ave	4	15													
	15														
	6														
								1							
SAN	IPI F IN	VENTO	RY	L	11		1	•	<u></u>						
		MP) Before S	······································	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	1.30Rec	overv %	. 67.	9 Sa	mnle Intake F	Pepth (ft. BMP):					
		Bottles C				Filtratio		rvation		Remarks					
Time	Volume		ition (gla	ss, plasti		(Y/N)	1 .	pe)	Analysis	(quality control sample, other)					
906	125 m		919	55	2	N	N	<del></del>	PCP/TCF						
906	( Q+	Pla	524			N		レナ	TDS						
<u> </u>					· · · · · · · · · · · · · · · · · · ·	<del> </del>									
Chain-	of-Custorty F	Becord No	43	29	8	<u> </u>									
!							L.	nccull	ey, rrick	& Gilman, Inc.					
1		GW Sample Form	******	Side 4 6 8											

GRC	UND	WATE	R SA	MPI	LIN	IG R	ECC	ORD	SAMP	LE N	JMBER:	PAGE: (_of:_) MW-11		
Project I	Project No: 030229.2 Project Name: SPI Arcata Sawmill Date 5/21/03  Sampling Location (well ID, etc.): MW-11 Starting Water Level (ft. BMP): 0.69													
•							r		vel (ft. B	MP):	C	2.69		
		t Hillyard					i .					r Column Height (ft.): 7.36		
Measuri	ng Point (M	P) of Well:	10.2	26			ı		iameter (in. ID): 2-Inch Multiplication Factor: 0.163					
Screene	d Interval (f	t.BGL):	2.0-	8.0		4						4 3x 3.6 4x		
Filter Pa	ick Interval	(ft.BGL):	1.5	- g.	<u> </u>	Title to an in the street	Water	Level (ft.Bl	MP) at E	nd of F	urge:	0.72		
	•	wn (ft.):		***************************************		·	1	Depth (ft. B				1		
QUA	LITY AS	SURAN	CE				•	•		******************				
METHO	DS (describ	e): SA	ne.	m c	N	14 / 1	1		······································	***************************************		-		
Clean	ing Equipm	ent: <u>59</u> 204-618	0 -4	1 1	200	140		<del></del>	-	1.00	-6-6	(0. 0.1.1.6.1		
								· Samp	oling:	19 (p	0390	re pol-1 bailer		
	Disposal of Discharged Water: 55-Gallon Drum  NSTRUMENTS (indicate make, model, i.d.):													
	Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter													
рН М	pH Meter: Ultrameter Field Calibration: 0 + 4,7,10													
Cond	Conductivity Meter: Ultrameter Field Calibration: 2070 umbes													
	Other: Field Calibration:													
SAMPLING MEASUREMENTS    Purgo Characteristics   Water Quality Data   Appearance														
Date/	Cumul.Vol. Purge Temp. Specific Conductance Color Turbidity Depth Remarks													
Time	(gai) Hate (gpitt) (°C) © Field Temp								& Sedir	nent	(IL BMP)			
423	0					5 1.34 V	y smallword y partiels							
426	1	,33.	(83	6.43	8	95		1+9rey	1 1					
428	2	.5	17.3	6.41	8	90		11	,	†				
430	3	.5	169	6.37	1	93		21	A.3					
432	4	.5	17.4	640	8	94		11	T.D.S =	555 pp.		Sanple		
Ave	5	-44	· · · · · · · · · · · · · · · · · · ·				***************************************							
	6									***************************************				
										***************************************				
					T				1					
SAN	IPLE IN	VENTO	RY	<u> </u>	<b></b>			<u>.</u>	<u>.l</u>	**************************************	1			
		MP) Before S	***************************************	<u>O</u> .	72	2 Rec	overy %	. 98	-9 s	amnla	Intake C	Pepth (ft. BMP):		
		Bottles C		`			Filtration		rvation	r i	<del></del>	Remarks		
Time	Volume		ition (gla	ss, plasti	c)	Quantity		(ty	pe)	An	alysis	(quality control sample, other)		
4:34		4	7/	96		2-	N			PCI	750			
4:36	114	- P	lashe	<u> </u>	$\dashv$		1	1/1/	<u> </u>	上	05			
Chain-c	Chain-of-Custody Record No. 43298													
<b> </b>	McCulley, Frick & Gilman, Inc.													
L									noou!	ııcy,	THUN	a annian, mo.		
	4	GW Sample Form	MACACAD	Revised: 9-8	-05	······································	****	ĺ						

GRC	UND	WATE	R SA	MPI	ING R	ECC	ORD	SAMP	LE N	JMBER:	PAGE:of: MW-12			
Project I	No: 03022	.9.2 Pr	oject Nar	ne:_SF	I Arcata Sa	awmill					Date_5/ <sup>2(</sup> /03			
		well ID, etc.)					g Water Le	vel (ft. Bl	MP);	٥	70			
		t Hillyard					_	-			r Column Height (ft.): 7. 3			
Measuri	na Point (M	P) of Well:	10.	73	,						olication Factor: 0.163			
Screene	d Interval (f	t.BGL): (ft.BGL):	2.0-	80		Casino	volume (c	ral.):	Z ;	- ex: 2.4	3X 3.6 4X			
Filter Pa	ck Interval	(ft.BGL):	1.5	-9.5	-	Water	Level (ft.Bl	MP) at Er	nd of F	urae:	3X 3. 6 4X			
	Stick-Up/Do					l .	Depth (ft. B							
QUA	LITY AS	SURAN	ICE		······		-		<u>.,</u>		•			
METHO	DS (describ	e):			111.11			***************************************	<del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>					
Clean	ing Equipm	ent: <u>Sa</u>	me	as /	$n\omega$ -1	<del>- :</del>								
	Purging: disposable poly barler sampling: disposable poly barler  Disposal of Discharged Water: 55-Gallon Drum													
	NSTRUMENTS (indicate make, model, i.d.):													
	Water Level: Envirotech LTD, Waterline Model 150 Thermometer: Ultrameter													
	pH Meter: Ultrameter Field Calibration: PH 4, 7, 10													
Other: Field Calibration: SAMPLING MEASUREMENTS														
	Purge Characteristics Water Quality Data Appearance Intake													
Time	Cumul.Vol. (gal)	Purge Rate (gpm)	Temp. (℃)	На	(μmhos/ <b>Q</b> Field Temp.	cm)	Color Turbidit & Sedim			Depth (ft. BMP)	Remarks			
Z56	0		21.0	5.41	748	٠	clear	No	ne					
258	1	- 5	18.0	5.78	797	·	,							
300	2	,5	17.7	5.87	842		·		~					
302	3	.5	174	5.99	836									
304	4	5	17.5	6.11	842									
306	4.5	.25	177	6.13	8 45						Sample			
Ave	8	.45												
SAN	IPLE IN	VENTO	RY	<del></del>	•	***		.*			на на наменя на применя на примен			
Water	Level (ft. Bl	MP) Before S	ampling	1.7	Rec	overy %	: 85	,2_s	ample	Intake D	Pepth (ft. BMP):			
Time	Value	Bottles C	·		- Io	Filtratio	1	rvation	An	alysis	Remarks			
3/C	2 125m	<del></del>	ition (gla	ss, plasti	c) Quantity	(V/N)		pe)	100	1210	(quality control sample, other)			
310		1 77	195 1	· · · · · · · · · · · · · · · · · · ·	<del>-   -</del>	1		VA NA	101	1101 DC				
$\vdash$	1	<del>-   /</del>	(/,1/			1 ''	1		<del>                                     </del>	V)				
Chain-c	Chain-of-Custody Record No. 43298													
				· · · · · · · · · · · · · · · · · · ·			N	/IcCul	ley,	Frick	& Gilman, Inc.			
		OW Damete Fem	1440200	D	ne.									
1		GW Sample Form	MAUNUAD	rsevssed: #-	rwa		ı							

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GRC	UND	WATE	R S/	AMPI	LINC	3 R	ECC	RD	SAMP	LE N	JMBER:	MW-13D
Project I	No: 03022	29.2 Pr	oject Na	me:SF	I Arca	ıta Sa	wmill					Date_5/2903
Samplin	g Location	(well ID, etc.)	<u>: MV</u>	V-13D			Startin	g Water Le	evel (ft. B	MP):	4.6	5
,	•	tt Hillyard					Total [	Depth (ft. B	MP): ( ?	0(	Wate	r Column Height (ft.): 14.36
	-	P) of Well:	9.8	4								dication Factor: 0.163
		t.BGL):/	5.0-	20.0	2							3x 7.05 4x
		(ft.BGL):					Water	, Level (ft.B	MP) at E	nd of f	ourae:	5,59
	Stick-Up/Do						ŧ .	Depth (ft. B				
QUA	LITY AS	SURAN	ICE					*		· · · · · · · · · · · · · · · · · · ·	·····	/
METHO	DS (describ	e):		***************************************			***************************************					
Clean	ing Equipm	ent: <u>&gt;</u>	me	95 /	<u>4 W</u>	$\frac{-I_a}{I_a}$	······································			<del></del>		e polybailer
Purgii	ng: d 15	posable	$\rho_{o}$	1-1 On	le			Sam	oling: 🗘	13P	0595/	e polybailer
'		arged Water			n Dru	<u>m</u>						
	•	dicate make, virotech L		•	Mod.	al 150	n	***************************************		T T14	tramata	<b>,</b>
		Ultrame		accillin	> 1410(I)	. 13	<u> </u>		nometer. I Calibrat		tramete	4,7,10
Cond	uctivity Met	er. Ultra	meter		·····				Calibrat Calibrat			O um hos
Other			<del>, *</del>				<del></del>		Calibrat			
	,	MEASU	REME	ENTS								
Date/	Purge Cha Cumul.Vol.	recteristics Purge	Temp.	<del></del>	Quality Specific		iuctance	App	erance		Intake	
Time	(gal)	Rate (gpm)	•	PH	(μ	mhos/		Color	* Sedi	ment	Depth (ft. BMP)	Remarks
342	_ 0		15.4	7.06	73,	/		Clear	Very	ı, He		
340	21/2	, 5	13.6	6.54	79	Z		, IX	ν.	/		
350	4 2	. 5	PRG	620	82			7 5		((		
355	G 3	-4	13.5	Ge.1.6	940	9	*	(L	10	•		
356	7.1 A	.34		6-16	104	0		J+ 650	. 7(			
400	8 6	-5	13.7	6.16				tt bon	(/			sample
Ave	N	-44										<i>V</i>
	h			* * *								
	£				×.							
SAN	IPLE IN	IVENTO	RY			1						
Water	Level (ft. B	MP) Before S	ampling	•	5.4	_Rec	overy %:	94.	<u>8                                    </u>	ample	Intake D	epth (ft. BMP):
Time	Volume	Bottles C		d ass, plasti	c) O:	antity	Filtratio		rvation (pe)	An	alysis	Remarks (quality control sample, other)
465	17Tm	<del></del>		, [		Tank	1/1/		4 4	701	VITOP	(down't country outshe' offer)
<u> </u>	Tat		42			ļ.	75		A		TDS	
									~~~		<u> </u>	
		<u> </u>		, <u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>		······································						
Chain-c	of-Custody I	Record No	43	299	·	·					,	
						***************************************			<b>McCu</b> l	lev.	Frick	& Gilman, Inc.
·		GW Samole Form	MCDID	Davidson 60	ne .			-				

GRC	UND	NATE	R SA	AMPI	LIN	IG R	ECC	ORD	SAMI	PLE N	UMBER:	PAGE:of: MW-14
Project	No: 03022	9.2 Pr	oject Na	me: SF	PI Ar	cata Sa	wmill					Date 5F 403
-		well ID, etc.)	-			ſ		g Water	Level (ft. l	BMP):	1-62	
•		t Hillyard										r Column Height (ft.):6 18
Measuri	ng Point (Mi	of Well:	9.	02								olication Factor: 0.163
Screene	ed Interval (f	BGL):	2.0	- 8.0	0							Z 3X 3 4X 4
Filter Pa	ack Interval (	ft.BGL):	1.5	-8.	0				BMP) at E			· 010
Casing	Stick-Up/Do	wn (ft.):	•/************************************	·			Total I	Depth (ft.	BMP) at I	End of	Purge:	092 MH
QUA	LITY AS	SURAN	ICE		***************************************	1				·		
Clear	DS (describ	ont Sa	me	99	M	w-1						
		00395 10				ler		Sar	npling:	disp	008ab	le poly baller
		arged Water			n Di	rum						
	•	<b>ic</b> ate make, ⁄irotech L		•	e Mo	ndel 150	)	T1.	momete	_ Tn	tramete	, <b>r</b>
	eter:	T 71.		atomin	J 1VIC		,					
	uctivity Mete	T 71.	meter						ld Calibra	•	207	O unhos
Other	•								ld Calibra			
SAM	PLING I	MEASU	REME	ENTS		•						
Date/	Purge Char Cumul.Vol.	ecteristics Purge	Temp.		Spec	ty Data			Turb		Intake	Remarks
Time	(gal)	Rate (gpm)		рН	·	(μmhos/c kdTemp.€		Color	& Sed		Depth (ft. BMP)	neriaiks
249	0		170	6.74	2.5	346		Cle	in-	one		·
251	1	· T.	16.3	6.62	2-6	391		lt.br	7			
753	2	.5	15.5	6.58	31	60		1 7		**		
257	3	,25	15.2	6.58	30	150		bro~	٠ .			bottom a fuell
Ave	ø	-375										
	É					`						
	Ó											
SAN	IPLE IN	VENTO	RY			***************************************		*		,		
Water	Level (ft. BI	(P) Before S	ampling	4.5	7	Reco	overy %	:51.0	1 :	Sample	Intake D	Pepth (ft. BMP):
Time	1 1/24	Bottles C	<del>-</del>			O	Filtratio	1	servation	Ar	nalysis	Remarks
505	Volume 125m		ition (gla	uss, plasti	(C)	Quantity	(Y/N)		(type)	1	1/tCP	(quality control sample, other
505			Plas		$\dashv$	1	N		1.5 <u> </u>		05	9
			1				- //	$\top$		1		
				320	_							

GRO	UND	WATE	R S/	AMPI	LING R	ECO	RD	SAMPLE	NUMBER	PAGE: ( of:\ MW-15D
Project I	vo: 03022	.9.2 Pr	oject Na	me: SP	I Arcata Sa	awmill	ì			Date_5/23/03
		well ID, etc.)					Water Le	vel (ft. BMP)	:5.83	
		t Hillyard								r Column Height (ft.):13.98
Manageri	na Doint (M.	D) of Mall:	11 19	9		1				plication Factor: 0.163
Screene	d Interval (f	t.BGL):	15,0	1-20	1.0					3x 6.9 4x
Filter Pa	ck Interval	(ft.BGL):	4-0-	-21.6	2					5 91
	Stick-Up/Do					3		MP) at End		
QUA	LITY AS	SURAN	CE				-			<i>→</i> · · ·
METHO	DS (describ	e):		······································	11111	1				•
Clean	ing Equipm	ent:	me	95	.70000				7,	e poly bailer
Purgir	1g: <u>d 13</u>	p05951-6	po	14 69	:11er		Samp	oling: <u>d 19</u>	Dosable	poly bailer
		arged Water dicate make,			ıı Drum					
	•	-	-	-	Model 15	0	Thom	nometer:U	Лtramete	r
		Ultrame						Calibration:	1	4,7,10
	uctivity Mete		meter					Calibration:	<del></del>	
Other		·	<del></del>				Field	Calibration:		
		MEASU			-					
Date/	Cumul.Vol.	racteristics Purge	Temp.		Quality Data Specific Con	ductance		Turbidity	Intake	Remarks
Time	(gal)	Rate (gpm)	(°C)	рН	(µmhos/ @FieldTemp		Color	& Sedimen	Depth (t. BMP)	* TOTE ACTION
203	0		130	6.72	695	·	clean	Thethe	les	
207	24	15.	131	6.60			, i			
210	4 2	67	13,1	6.74	13-29		i L	7		
217	6 B	,29	127	6.86	1342		V-14.	V- 1,4+	12	
230	7 4	33	13.1	6.82	1338		l(	er		gemple
Ave.	Ŕ	-41				\ -				
1	6									
	7									
	8					***************************************				
SAN	I PI F IN	VENTO	RY	<u>.</u>			<u> </u>	1		
ļ		MP) Before S		: 5,	91 Box	overy %:	99,	4 sam	nia intalca F	Pepth (ft. BMP):
* rate	Cavel (IC DI	Bottles C			nec	Filtratio		rvation		Remarks
Time	Volume		ition (gl	ass, plasti	c) Quantity			pe)	Analysis	(quality control sample, other
223	12.5m		10189		<u></u>	1 ~	N		<u> </u>	2
222	IRA	1	lask	<i>V::</i>		N	1 1	<u> </u>	-U.S	
<b> </b>						<del>                                     </del>	*		·····	Ĺ.
Chain-c	of-Custody F	Record No	<u> </u>	320	19				,	
	<del>Ma 188</del> a mbrash a a haist an ann a	***************************************		\$ .			· .	<b>AcCulle</b>	y, Frick	& Gilman, Inc.
		GW Sample Form	MACACAD	Revised 9-8					4	

GRC	UND	WATE	R SA	MPI	LING F	RECO	ORD	SAMP	LE NU	IMBER:	PAGE:of:  MW-16D
Project I	No: 03022	29.2 Pr	oiect Na	me: SP	I Arcata S	awmill					Date 5/ <sup>23</sup> /03
		well ID, etc.)	-			Startin	o Water Le	evel (ft. B	MP):	4	4.00
		t Hillyard		***************************************		Total	Depth (ft. B	MP): 19	,44	Water	Column Height (ft.): 15. 44
		P) of Well:	9,9	80		1					lication Factor: 0.163
	d Interval (f	t.BGL):	5.0-	20.0		£					2 3X 7.5 4X
	ck Interval	(ft.BGL):	4.0-	21.5		1	Level (ft.B				
Casing	Stick-Up/Do	wn (ft.);				1	Depth (ft. B				
QUA	LITY AS	SURAN	ICE				.*	· · · · · · · · · · · · · · · · · · ·	······································	<del></del>	
METHO	DS (describ	e):	San	1.P	- M	1//-	.				*
Clean	ing Equipm	ent:		1 . 6	99 /	,007	1	.,		. 1. /	e poly bailer
Purgi	19: 0/19	on sable	10	5 0-11-	arler.		· Samp	pling: 0	1940	Sab a	e poly bailer
		arged Water			n Drum						
		<b>dicate make,</b> virotech L			e Model 15	0	TL	mometer:	Tilta	rametei	•
		Ultrame		atomin	Niodel 13	<u> </u>		nometer:   Calibrati		2 H	4,7,10
•	uctivity Met	T 71.	meter					Calibrati			70 muhos
Other	=							l Calibrati			
SAM	PLING	MEASU	REME	NTS	•						
Date/	Purge Cha Cumul Vol.	racteristics Purge	Temp.	Water	Quality Date Specific Con		APP	serence		Intake	
Time	(gal)	Rate (gpm)		pН	(µmhos @ Field Temp.	cm)	Color	* Sedir		Depth (ft. BMP)	Remarks
319	0	·	143	8.05	4470		prown	dea	~		
823	24	, 5.	14.2	7.85	4640		ν.	10		,	
826	4 2	,67	144	7.65	5730		11	1	`~		
830	6 4	.5	144	7.62	<b>5</b> 380		11	į,	)		
833	84	.67	14.4	7.61	5200		1.	1	,		
Ave.	ち	,57									
	- 6										,
	7	·									
	-8		·				·				
SAN	IPLE IN	VENTO	RY		. 144 ·				•		
Water	Level (ft. Bl	MP) Before S			<u></u>	overy %	: 99.2	s	ample	Intake D	epth (ft. BMP):
Time	Volume	Bottles C	····	ı ıss, plasti	c) Quantity	Filtration		rvation	Ana	alysis	Remarks
837	125m	i	auori (gia	iss, piasu 5	c) Cadariuty	+		/pe)	8 Cb		(quality control sample, other)
837	10+		0/45	÷4.		I i		VA	Tr	//CP	
			<del>V</del>	<u>.</u>		1			1		
Chain-c	of-Custody F	Record No	47	329	1						
1							ľ	<b>McCul</b>	ley,	Frick	& Gilman, Inc.
<b></b>	***************************************	3W Sample Form	MACACAD	Revised: 9-8	-45	***************************************	1				

GRC	UND	WATE	R SA	MPI	LING F	RECO	ORD	SAMP	LE N	JMBER:	PAGE:of: MW-17
Project I	No: 03022	29.2 Pr	olect Na	me: SP	I Arcata S	Sawmill	****				Date_5/2903
		(well ID, etc.)				f	g Water Le	aval ## B	MD).	0	
		t Hillyard		· · · · · · · · · · · · · · · · · · ·				-			r Column Height (ft.): 6.95
		P) of Well:		8	,	i					olication Factor: 0.163
		t.BGL):	20-	8.0							26 3X 3.394X
		(ft.BGL):			*	1	Level (ft.B				
			1.7	7,0		1					
	Stick-Up/Do					Total	Depth (ft. B	Mr) at E	na or i	-urge:	
·		SSURAN	CE		<del></del>	*	-				
METHO	DS (describ	e):	0	م د	MU	121					•
Clean	ing Equipm	ent: SA	1e	non!	1 600	7er			1.0	On to a	ble poly builer
Disno	eal of Disch	arged Water	· · · · · ·	5-Gallo	n Drum		· Samp	oung: <u>     (</u>	/(1/	prove	act how pancer
		dicate make,			11 210111			<del></del>	······································		
		virotech L		-	Model 1:	50	Then	nometer:	Ult	ramete	r
рН М	eter:	Ultrame	eter					Calibrati		ort	4,7,10
Cond	uctivity Met	or. Ultra	meter	<del> </del>			Field	Calibrati	on:	20	70 imbres
Other		·				· ·	Field	Calibrat	on:		
		MEASU									
Date/	Purge Che Cumul.Vol.	racteristics Purge	Temp.		Quality Dat Specific Co	nductance		Turbic	fity	Intake	Remarks
Time	(gal)	Rate (gpm)		рН	(μm hos @ Field Temp		Color	& Sedir		Depth (ft. BMP)	rendiks
42	0		14.5	6.70	810		Cken	Der po	des		
444	1	.5.	146	6.45	1040	,	House	( '			
446	2	-5	146	6.54	1019		gray	Cbu	12/y		
448	3	-5	145	6.56	lowi		ر ع	1	j		
449	3.5	,5	146e	4.54	995		. (	.03			garple
Aue.	<i>\$</i>	15									
	16	·									
			. 3	da <sup>*</sup>							
SAN	IPLE IN	VENTO	RY	<u>.                                    </u>	<u> </u>	<u> </u>	<u> I</u>				
· · · · · · · · · · · · · · · · · · ·	(**	MP) Before S	······································		4 1 Re	covery %	: 87.	8 s	ample	Intake D	Pepth (ft. BMP):
	T	Bottles C			- 484	Filtrati		rvation	r	alysis	Remarks
Time	Volume		ition (gla	ss, plasti				/pe)		2// 20	(quality control sample, other)
452	125m		1997	<i>.</i>	12	10		<u>A</u>	rct	1100	
	121	<del>                                     </del>	1015/11	<u></u>	,	N		CA	11	<u> </u>	
						1			<b> </b>		
Chain-c	of-Custody F	Record No	42	129	٩				·		
	<del></del>							McCul	lev.	Frick	& Gilman, Inc.
						:	•	<del></del> <del></del>	3 ,		e me mesecingensis and energy.
l		3W Semple Form	MACACAD	Revised: 0-8	-05		1				

GRO	UND	WATE	R SA	MPL	ING R	ECC	RD	SAMPI	LE NU	IMBER:	PAGE:(_of:/_ MW-18
Prolect N	no: 03022	9.2 Pr	olect Nar	ne: SP	I Arcata Sa	awmill	1				Date_5/ <sup>-3</sup> /03
•		well ID, etc.)					g Water I e	vel fft Ri	MP):	BVE	cosing
		t Hillyard				Total C	enth (ft Ri	VOI (IC DI VIP):	8.8	6 Water	Column Height (ft.): 8,86
-	-	P) of Well:		53		i					dication Factor: 0.653
		t.BGL):			<del>*************************************</del>						3x 17. 4 4x
		(ft.BGL):	, ~	-9.5	~		Level (ft.Bl	-			1
	Stick-Up/Do		***************************************			1	Depth (ft. Bi				
		SURAN	ICE			<u> </u>					
	DS (describ			·	· M	$\overline{\mathcal{U}}$	- [				
Clean	ing Equipm	ent:	ane	<u> </u>	s M		1	<del></del>			
						9	Samp	ling: <u>d</u>	500	Sabil	e poly builer
		arged Water			n Drum ·	·			-		
		dicate make, virotech T			Modal 15	0			T II.4.	ramata	r
		Virotech L Ultram		aterine	Model 15	U		nometer:			r 1,7,10
PH M	eter	er. Ultra	meter					Calibrati Calibrati			umhe 5
Other		JI		<del></del>				Calibrati		00 70	, 200pt 9
		MEASU	REME	NTS			Fielu	Calbiau	OH.		
		racteristics			uality Date		App	• arance	<u> </u>	1	
Date/ Time	Cumul.Vol. (gal)	Purge Rate (gpm)	Temp. (°C)	Hq	Specific Con (µmhos/ @ Field Temp.	cm)	Color	Turbio & Sedir		Intake Depth (t. BMP)	Remarks
737	Ø 0		110	6.74	945		1+oranse	Clan	dy	i	
944	514	.71	17,0	6.62			† % `	(1			
950	104	<b>.</b> 83	17.7	6.57	1205		Clear	51027	they	-	
954.	140	١	14.9	6.66	low		(1)	[]			
1000	17.5	,58	16.8	le.65	980		(,	. (1			Gaaple
Ave	160	,76						TP5-76	09104		·
	42										4.
	斑				-	·	·	<i>(9</i> )			
								- 3			
		IVENTO									
Water	Level (ft. Bl	MP) Before S	Sampling	<u> 2.95</u>	Re	covery %	: 39.	<u> </u>	ample	Intake D	Pepth (ft. BMP);
Time		Bottles C	ollecte	1		Filtratio	•	rvation	An	alysis	Remarks
1003	Volume		7	ss, plasti	c) Quantity	+	(ty	pe) #	ECP.	- A	(quality control sample, other
1003			955 1/9520		<del>-   - \</del>	1 1/4	10	<del></del>		776P	
(UU)	100	+	95-0			1 N	10)		<del>  '</del>	<u>u/</u>	
			5			1			<del>                                     </del>		
Chain-c	of-Custody I	Record No	42	299	(						
-							ľ	/IcCu	lley,	Frick	ና <u> </u>
		GW Sample Form	MACACAD	Revised: 9-8	<b>-9</b> 5						

GRC	OUND	WATE	R S	AMP	LIN	IG R	ECC	ORD	SAMP	LE NUMBE	R: N	PAGE: of: MW-19D
Project	No: 03022	29.2 Pr	roject Na	me: SF	PI Ar	cata Sa	wmill					Date_5/2403
		(well ID, etc.)						g Water L	evel (ft. B	MP):	ZZ	
Sample	d by. Ma	tt Hillyard					Total (	Depth (ft. E	3MP): 19	74 W	ter Co	lumn Height (ft.):/5.52
Measuri	ing Point (M	P) of Well:_	11.	.0								tion Factor: 0.163
Screene	ed Interval (1	t.BGL):	15.0	0-20	0.0		Casing	y Volume (	(gal.):	. 5 2X:_	7	3X_75_4X
Filter Pa	ack Interval	(ft.BGL):	14.6	1-21.	0	·	Water	Level (ft.E	MP) at E	nd of Purge:	5	8 4
Casing	Stick-Up/Do	wn (ft.):								nd of Purge;		
QUA	LITY AS	SSURAN	ICE			<del></del>		-		***************************************	, <u></u>	. · ·
METHO	DS (describ	e): S	20.0	95	1	11.1.	./			····		*
Clean	ing Equipm	ent:	11000	95	-/0		***********					
		sposabla	1					Sam	pling: 🗷	15 posably	par	y beater
		arged Water dicate make,			וע ווי	uIII	***************************************				<del></del>	
		virotech L			e Mo	del 15	0	Ther	mometer	Ultrame	ter	
		Ultram							d Calibrati	on: P	H '	4,710
	uctivity Met	***	meter						1 Calibrat		07	dunho5
Other	<u> </u>	·							d Calibrat			\
75		MEASU	` .			•	·					
Date/	Purge Cha Cumul.Vol.	recteristics Purge	Temp.		Speci	ty Data (ic Conc			Turbi	Intak		Damedia
Time	(gal)	Rate (gpm)	, ,	рН		(μmhos/ kd Temp	em) @ 25 ° C.	Color	Turbio	* I 164111	ון מי	Remarks
1246	0		16.1	6.8	1	40		Clean	Small a			**************************************
1250	24	.5	15,6	6.56	8	40		C(	7		1	·
253	4 2	67	15.0	6.58	8	55		10			1	
1298	( <b>8</b>	,4	15.7	660		60					1	
103	7.84	,36	15.4	660	80	64	· · · · · · · · · · · · · · · · · · ·	ł (		<i>(</i> ,	1	augle
Are	Š	,44		70 4					TD5=5,		╁	· central
,	16					7				- PP-11	1	
	M						***************************************				1-	
	Ŕ	<b>1</b>			I				1		1	
SAN	<u> </u>	VENTO	RV	1	1	l		<u>L</u>				
	T			58	5			. 89, 5	~			- 2
vvater	revei (tt. Bi	MP) Before S		·		Rec	overy %:	·		ample Intake	Depth	
Time	Volume		,	ass, plasti	ic) (	Quantity	Filtratio (Y/N)		ervation ype)	Analysis	(q	Remarks uality control sample, other
107	125 m	4 9	199	5		2	N	N		PCP/TC		
107	1/10+	Pla	5/17	·	$=$ $\mathbb{I}$		N	N	A	TOS	>	
		· ·		************************	-	***************************************	<b></b>		<del></del>			
~ ·			43	301			<u> </u>		<del></del>	<u> </u>		
Chain-c	of-Custody F	decord No		<u> </u>		***************************************				-		
İ				•				l	McCul	ley, Frid	k &	Gilman, Inc.
	<del></del>	Otti Camala Earm	1110010	Dudand 0'5	. 05							

# APPENDIX B

Laboratory Report and Chain-of-Custody Records for Groundwater Samples Analyzed for Chlorinated Phenols, Total Dissolved Solids and Chloride



Alpha Analytical Laboratories Inc. 208 Mason St. Ukiah, California 95482

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

09 June 2003

MFG, Inc - Arcata

Attn: Ed Conti

1165 G. Street, Suite E

Arcata, CA 95521

RE: SPI Arcata Sawmill Work Order: A305489

Enclosed are the results of analyses for samples received by the laboratory on 05/23/03 15:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nena M. Burgess For Sheri L. Speaks

Project Manager

RECEIVED

JUN 1 2 2003

Tetra Tech/MFG, Inc.



208 Mason St. Ukiah, California 95482

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

# CHEMICAL EXAMINATION REPORT

Page 1 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30 Project No: 030229.2

Project ID: SPI Areata Sawmill

Order Number

Receipt Date/Time

Client Code

Client PO/Reference

A305489

05/23/2003 15:30

**MFGARC** 

# ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	A305489-01	Water	05/22/03 15:25	05/23/03 15:30
MW-2	A305489-02	Water	05/22/03 16:26	05/23/03 15:30
MW-3	A305489-03	Water	05/22/03 13:38	05/23/03 15:30
MW-4	A305489-04	Water	05/22/03 12:26	05/23/03 15:30
MW-5	A305489-05	Water	05/22/03 10:26	05/23/03 15:30
MW-6	A305489-06	Water	05/22/03 09:45	05/23/03 15:30
MW-7	A305489-07	Water	05/22/03 11:25	05/23/03 15:30
MW-7F	A305489-08	Water	05/22/03 11:45	05/23/03 15:30
MW-A	A305489-09	Water	05/22/03 11:25	05/23/03 15:30
MW-7	A305489-10	Water	05/22/03 11:25	05/23/03 15:30
MW-7F	A305489-11	Water	05/22/03 11:40	05/23/03 15:30
MW-8	A305489-12	Water	05/21/03 15:52	05/23/03 15:30
MW-9	A305489-13	Water	05/23/03 10:38	05/23/03 15:30
MW-10	A305489-14	Water	05/23/03 09:06	05/23/03 15:30
MW-11	A305489-15	Water	05/21/03 16:34	05/23/03 15:30
MW-12	A305489-16	Water	05/21/03 15:10	05/23/03 15:30
MW-14	A305489-17	Water	05/22/03 17:05	05/23/03 15:30
MW-13D	A305489-18	Water	05/22/03 16:05	05/23/03 15:30
MW-15D	A305489-19	Water	05/22/03 14:23	05/23/03 15:30
MW-16D	A305489-20	Water	05/23/03 08:37	05/23/03 15:30
MW-17	A305489-21	Water	05/22/03 16:52	05/23/03 15:30
MW-18	A305489-22	Water	05/23/03 10:03	05/23/03 15:30
MW-19D	A305489-23	Water	05/22/03 13:07	05/23/03 15:30

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JUN 1 2 2003

Tetra Tech/MFG, Inc.

Nena M. Burgess For Sheri L. Speaks Project Manager



208 Mason St. Ukiah, California 95482

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# CHEMICAL EXAMINATION REPORT

Page 2 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30 Project No: 030229.2

Project ID: SPI Arcata Sawmill

Order Number A305489 Receipt Date/Time 05/23/2003 15:30

Client Code MFGARC Client PO/Reference

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# CHEMICAL EXAMINATION REPORT

Page 3 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30 Project No: 030229.2

Project ID: SPI Arcata Sawmill

Receipt Date/Time

Client Code

Client PO/Reference

Order Number A305489

05/23/2003 15:30

**MFGARC** 

		Alpha A	nalvtical	Laborato	ries. Inc.			
	METHOD			ANALYZED		RESULT	POL	NOTE
MW-1 (A305489-01)			Sample Ty	oe: Water		Sampled: 05/22/03 15:25		
Chlorinated Phenols by Canadian P	ulp Method							
2,4,6-Trichlorophenol	EnvCan	AF30907	05/28/03	06/03/03	1	ND ug/l	1.0	
2,3,5,6-Tetrachlorophenol	**	**	Ħ	**	н	ND "	1.0	
2,3,4,6-Tetrachlorophenol	11	**	**	**	11	ND "	1.0	
2,3,4,5-Tetrachlorophenol	**	Ħ	**	11	11	ND "	1.0	
Pentachlorophenol	u	**	11	**	**	ND "	1.0	
Surrogate: Tribromophenol	"	"	"	"		92.0 % 79	0-119	
Anions by EPA Method 300.0								
Anions by EPA Method 300.0 Chloride	EPA 300.0	ÁE32307	05/23/03	05/23/03	1	12 mg/l	0.50	
MW-2 (A305489-02) Chlorinated Phenols by Canadian F	Puln Method		Sample Ty	pe: Water		Sampled: 05/22/03 16:26		
2,4,6-Trichlorophenol	EnvCan	AF30907	05/28/03	06/03/03	1	ND ug/l	1.0	
2,3,5,6-Tetrachlorophenol	Envean	111 30307	11	"	**	ND "	1.0	
2,3,4,6-Tetrachlorophenol	**	**	**		11	ND "	1.0	
2,3,4,5-Tetrachlorophenol	n	**	Ħ	"	**	ND "	1.0	
Pentachlorophenol	15	tt	**	**	**	ND "	1.0	
Surrogate: Tribromophenol	"	"	"	"			9-119	

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# CHEMICAL EXAMINATION REPORT

Page 4 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30 Project No: 030229.2

Project ID: SPI Arcata Sawmill

Order Number

Receipt Date/Time

Client Code

Client PO/Reference

A305489

05/23/2003 15:30

**MFGARC** 

		Alpha A	nalytical	Laborato	ries, Inc.		
	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	POL NOT
MW-2 (A305489-02)			Sample Typ	oe: Water		Sampled: 05/22/03 16:26	
Conventional Chemistry Parameter	rs by APHA/EPA M	<b>1ethods</b>					
Total Dissolved Solids	EPA 160.1	AE32717	05/27/03	05/30/03	1	860 mg/l	10
MW-3 (A305489-03)			Sample Ty	pe: Water		Sampled: 05/22/03 13:38	
Chlorinated Phenols by Canadian I	Pulp Method						
2,4,6-Trichlorophenol	EnvCan	AF30907	05/28/03	06/03/03	1	ND ug/l	1.0
2,3,5,6-Tetrachlorophenol	11	11	**		**	ND "	1.0
2,3,4,6-Tetrachlorophenol	**	tt .	n	**	**	ND "	1.0
2,3,4,5-Tetrachlorophenol	**	**	n	**	"	ND "	1.0
Pentachlorophenol	"	"	**	**	17	ND "	1.0
Surrogate: Tribromophenol	"	"	"	n		98.0 % 79-	119
Conventional Chemistry Parameter	rs by APHA/EPA N	<b>1ethods</b>					
<b>Total Dissolved Solids</b>	EPA 160.1	AE32717	05/27/03	05/30/03	1	510 mg/l	10
MW-4 (A305489-04)			Sample Ty	pe: Water		Sampled: 05/22/03 12:26	
Chlorinated Phenols by Canadian l	Pulp Method						
2,4,6-Trichlorophenol	EnvCan	AF30907	05/28/03	06/03/03	1	ND ug/l	1.0
2,3,5,6-Tetrachlorophenol	11	**	**	*	**	ND "	1.0
2,3,4,6-Tetrachlorophenol	н	11	Ħ	"	**	ND "	1.0
2,3,4,5-Tetrachlorophenol	'n	"	"	**	**	ND"	1.0
Pentachlorophenol	**	n	tt	"	"	ND"	1.0
Surrogate: Tribromophenol	n	"	"	"	***************************************	104 % 79-	-119

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# CHEMICAL EXAMINATION REPORT

Page 5 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30 Project No: 030229.2

Project ID: SPI Arcata Sawmill

Order Number

Receipt Date/Time

Client Code

Client PO/Reference

A305489

05/23/2003 15:30

**MFGARC** 

		Alpha A	analytical	Laborato	ries, Inc.			
	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	POL	NOTE
MW-4 (A305489-04)			Sample Ty	pe: Water		Sampled: 05/22/03 12:	26	
Conventional Chemistry Paramete	rs by APHA/EPA M	<b>1ethods</b>				•		
Total Dissolved Solids	EPA 160.1	AE32717	05/27/03	05/30/03	1	420 mg/l	10	
MW-5 (A305489-05)			Sample Ty	pe: Water		Sampled: 05/22/03 10:	26	
Chlorinated Phenols by Canadian	Pulp Method			•		•		
2,4,6-Trichlorophenol	EnvCan	AF30907	05/28/03	06/03/03	1	ND ug/l	1.0	
2,3,5,6-Tetrachlorophenol	Ħ	"	Ħ	**	**	ND "	1.0	
2,3,4,6-Tetrachlorophenol	"	n	**	**	"	ND"	1.0	
2,3,4,5-Tetrachlorophenol	11	H	11	11	"	ND"	1.0	
Pentachlorophenol	n	"	**	11	**	ND "	1.0	
Surrogate: Tribromophenol	"	,,	"	"		114 %	79-119	************
Conventional Chemistry Parameter	rs by APHA/EPA N	<b>1ethods</b>						
Total Dissolved Solids	EPA 160.1	AE32717	05/27/03	05/30/03	1	360 mg/l	10	
MW-6 (A305489-06)			Sample Ty	pe: Water		Sampled: 05/22/03 09:	45	
Chlorinated Phenols by Canadian	Pulp Method		_	-		•		
2,4,6-Trichlorophenol	EnvCan	AF30907	05/28/03	06/03/03	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	Ħ	11	Ħ	. "	"	ND "	1.0	
Pentachlorophenol	n	"	11	**	11	ND"	1.0	
Surrogate: Tribromophenol	"	"	"	"		108 %	79-119	

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# CHEMICAL EXAMINATION REPORT

Page 6 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30 Project No: 030229.2

Project ID: SPI Arcata Sawmill

Order Number A305489

Receipt Date/Time

Client Code 05/23/2003 15:30 **MFGARC** 

Client PO/Reference

		Alpha A	nalytical	Laborato	ries, Inc.			
	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	POL	NOTE
MW-6 (A305489-06)			Sample Ty	pe: Water		Sampled: 05/22/03 09:45		
Conventional Chemistry Parameter	s by APHA/EPA M	lethods				•		
Total Dissolved Solids	EPA 160.1	AE32717	05/27/03	05/30/03	1	430 mg/l	10	
MW-7 (A305489-07)			Sample Ty	pe: Water		Sampled: 05/22/03 11:25		
Chlorinated Phenols by Canadian I	Pulp Method							
2,4,6-Trichlorophenol	EnvCan	AF30907	05/28/03	06/03/03	1	ND ug/l	1.0	
2,3,5,6-Tetrachlorophenol	**	**	Ħ	06/06/03	u	ND"	1.0	
2,3,4,6-Tetrachlorophenol	**	**	Ħ	11	100	470 "	100	
2,3,4,5-Tetrachlorophenol	n.	**	11	11	11	ND"	100	R-
Pentachlorophenol	11	**	**	"	1000	19000 "	1000	
Surrogate: Tribromophenol	"	"	"	06/03/03		109 % 79-	119	
Conventional Chemistry Parameter	s by APHA/EPA M	<b>Iethods</b>						
<b>Total Dissolved Solids</b>	EPA 160.1	AE32717	05/27/03	05/30/03	1	460 mg/l	10	
MW-7F (A305489-08)			Sample Ty	pe: Water		Sampled: 05/22/03 11:45		
Chlorinated Phenols by Canadian I	Pulp Method							
2,4,6-Trichlorophenol	EnvCan	AF30907	05/28/03	06/03/03	1	ND ug/l	1.0	
2,3,5,6-Tetrachlorophenol	**	H	**	**	**	ND "	1.0	
2,3,4,6-Tetrachlorophenol	•	Ħ	**	06/06/03	100	400 "	100	
2,3,4,5-Tetrachlorophenol	**	**	**	17	tt	ND "	100	R-
Pentachlorophenol	**	"	n	**	1000	14000 "	1000	
Surrogate: Tribromophenol	#	"	"	06/03/03		99.2 % 79-	119	·····
MW-A (A305489-09)			Sample Ty	pe: Water		Sampled: 05/22/03 11:25		
Chlorinated Phenols by Canadian l	Pulp Method							
2,4,6-Trichlorophenol	EnvCan	AF30907	05/28/03	06/03/03	1	ND ug/l	1.0	
2,3,5,6-Tetrachlorophenol	"	**	11	**	**	ND "	1.0	
2,3,4,6-Tetrachlorophenol	**	*	"	06/06/03	100	400 "	100	
2,3,4,5-Tetrachlorophenol	H	"	"	**	"	ND "	100	R-
Pentachlorophenol	tt	u	11	**	1000	16000 "	1000	
Surrogate: Tribromophenol	11	"	"	06/03/03		96.0 % 79-	119	

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Nena M. Burgess For Sheri L. Speaks Project Manager



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### CHEMICAL EXAMINATION REPORT

Page 7 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30

Project No: 030229.2

Project ID: SPI Arcata Sawmill

Receipt Date/Time

Client Code

Client PO/Reference

Ord	er	N	um	ıber
A30	154	18	9	

05/23/2003 15:30

**MFGARC** 

Alpha Analytical Laboratories, Inc. BATCH PREPARED ANALYZED DILUTION **METHOD** RESULT POL NOTE MW-A (A305489-09) Sample Type: Water Sampled: 05/22/03 11:25 MW-8 (A305489-12) Sample Type: Water Sampled: 05/21/03 15:52 Chlorinated Phenols by Canadian Pulp Method 2,4,6-Trichlorophenol EnvCan AF30907 05/28/03 06/06/03 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 1.0 " 1.0 Surrogate: Tribromophenol 79-119 92.4 % Conventional Chemistry Parameters by APHA/EPA Methods **Total Dissolved Solids** EPA 160.1 AE32717 05/27/03 05/30/03 390 mg/l 10 MW-9 (A305489-13) Sample Type: Water Sampled: 05/23/03 10:38 Chlorinated Phenols by Canadian Pulp Method 2,4,6-Trichlorophenol EnvCan AF30907 05/28/03 06/06/03 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 11 Pentachlorophenol ND " 1.0 Surrogate: Tribromophenol 96.0 % 79-119 Conventional Chemistry Parameters by APHA/EPA Methods **Total Dissolved Solids** EPA 160.1 AE32717 05/27/03 05/30/03 400 mg/l 10 MW-10 (A305489-14) Sampled: 05/23/03 09:06 Sample Type: Water Chlorinated Phenols by Canadian Pulp Method 2,4,6-Trichlorophenol EnvCan AF30907 05/28/03 06/05/03 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

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ND "

1.0



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#### CHEMICAL EXAMINATION REPORT

Page 8 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30 Project No: 030229.2

Project ID: SPI Arcata Sawmill

Order Number

Receipt Date/Time

Client Code

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A305489

05/23/2003 15:30

**MFGARC** 

Alpha Analytical Laboratories, Inc. **METHOD** BATCH PREPARED ANALYZED DILUTION RESULT POL NOTE MW-10 (A305489-14) Sample Type: Water Sampled: 05/23/03 09:06 Chlorinated Phenols by Canadian Pulp Method (cont'd) 06/05/03 Surrogate: Tribromophenol EnvCan 114% 79-119 Conventional Chemistry Parameters by APHA/EPA Methods **Total Dissolved Solids** EPA 160.1 AE32717 05/27/03 05/30/03 460 mg/l 10 MW-11 (A305489-15) Sample Type: Water Sampled: 05/21/03 16:34 Chlorinated Phenols by Canadian Pulp Method 2,4,6-Trichlorophenol EnvCan AF30907 05/28/03 06/05/03 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 116% 79-119 Conventional Chemistry Parameters by APHA/EPA Methods **Total Dissolved Solids** EPA 160.1 AE32717 05/27/03 05/30/03 460 mg/l 10 MW-12 (A305489-16) Sample Type: Water Sampled: 05/21/03 15:10 Chlorinated Phenols by Canadian Pulp Method 2,4,6-Trichlorophenol AF30907 05/28/03 06/05/03 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 100 % 79-119

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Nena M. Burgess For Sheri L. Speaks Project Manager



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### CHEMICAL EXAMINATION REPORT

Page 9 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30 Project No: 030229.2

Project ID: SPI Arcata Sawmill

Order Number

Receipt Date/Time

Client Code

Client PO/Reference

A305489

Surrogate: Tribromophenol

05/23/2003 15:30

**MFGARC** 

Alpha Analytical Laboratories, Inc. **METHOD** BATCH PREPARED ANALYZED DILUTION RESULT POL NOTE MW-12 (A305489-16) Sample Type: Water Sampled: 05/21/03 15:10 Conventional Chemistry Parameters by APHA/EPA Methods **Total Dissolved Solids** EPA 160.1 AE32717 05/27/03 05/30/03 460 mg/l 10 MW-14 (A305489-17) Sample Type: Water Sampled: 05/22/03 17:05 Chlorinated Phenols by Canadian Pulp Method 2,4,6-Trichlorophenol 05/28/03 06/05/03 EnvCan AF30907 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 109 % 79-119 Conventional Chemistry Parameters by APHA/EPA Methods **Total Dissolved Solids** EPA 160.1 AE32717 05/27/03 05/30/03 2100 mg/l 10 MW-13D (A305489-18) Sample Type: Water Sampled: 05/22/03 16:05 Chlorinated Phenols by Canadian Pulp Method 2,4,6-Trichlorophenol EnvCan 05/28/03 AF30907 06/05/03 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

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109 %

79-119

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### CHEMICAL EXAMINATION REPORT

Page 10 of 17

MFG. Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30

Project No: 030229.2

Project ID: SPI Arcata Sawmill

Order Number

Receipt Date/Time

Client Code

Client PO/Reference

A305489

Pentachlorophenol

Surrogate: Tribromophenol

05/23/2003 15:30

**MFGARC** 

Alpha Analytical Laboratories, Inc. **METHOD** BATCH PREPARED ANALYZED DILUTION RESULT NOTE POL MW-13D (A305489-18) Sample Type: Water Sampled: 05/22/03 16:05 Conventional Chemistry Parameters by APHA/EPA Methods **Total Dissolved Solids** EPA 160.1 AE32717 05/27/03 1 600 mg/l 05/30/03 10 MW-15D (A305489-19) Sample Type: Water Sampled: 05/22/03 14:23 Chlorinated Phenols by Canadian Pulp Method 2,4,6-Trichlorophenol EnvCan AF30907 05/28/03 06/03/03 ND ug/l 1.0 1 2,3,5,6-Tetrachlorophenol ND" 1.0 2,3,4,6-Tetrachlorophenol ND" 1.0 2,3,4,5-Tetrachlorophenol ND" 1.0 ND" Pentachlorophenol 1.0 88.8 % Surrogate: Tribromophenol 79-119 Conventional Chemistry Parameters by APHA/EPA Methods EPA 160.1 **Total Dissolved Solids** AE32717 05/27/03 05/30/03 1 800 mg/l 10 MW-16D (A305489-20) Sample Type: Water Sampled: 05/23/03 08:37 Chlorinated Phenols by Canadian Pulp Method 2,4,6-Trichlorophenol EnvCan AF30907 05/28/03 06/05/03 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

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ND"

94.0 %

6/9/03

1.0

79-119

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# CHEMICAL EXAMINATION REPORT

Page 11 of 17

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Report Date: 06/09/03 13:30 Project No: 030229.2

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Client PO/Reference

A305489 05/23/2003 15:30

**MFGARC** 

		Alpha A	nalytical	Laborato	ries, Inc.			
	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	POL	NOTE
MW-16D (A305489-20)			Sample Ty	pe: Water		Sampled: 05/23/03 08:37		
Conventional Chemistry Parameter	rs by APHA/EPA M	<b>1ethods</b>				-		
<b>Total Dissolved Solids</b>	EPA 160.1	AE32717	05/27/03	05/30/03	1	3200 mg/l	10	
MW-17 (A305489-21)			Sample Ty	ne: Water		Sampled: 05/22/03 16:52		
Chlorinated Phenols by Canadian	Pulp Method		~p.c . ,	por muos		Sumpreur Co/MM/CO 1010M		
2,4,6-Trichlorophenol	EnvCan	AF30907	05/28/03	06/05/03	1	ND ug/l	1.0	
2,3,5,6-Tetrachlorophenol	"	**	**	n	11	ND "	1.0	
2,3,4,6-Tetrachlorophenol	"	n		"	Ħ	ND "	1.0	
2,3,4,5-Tetrachlorophenol	"	**	**	11	**	ND "	1.0	
Pentachlorophenol	n	11	H	11	91	ND "	1.0	
Surrogate: Tribromophenol	II .	"	"	"		112 % 79-1	19	
Conventional Chemistry Paramete	rs by APHA/EPA N	1ethods						
<b>Total Dissolved Solids</b>	EPA 160.1	AE32717	05/27/03	05/30/03	1	450 mg/l	10	
MW-18 (A305489-22)		Sample Type: Water			Sampled: 05/23/03 10:03			
Chlorinated Phenols by Canadian	Pulp Method							
2,4,6-Trichlorophenol	EnvCan	AF30907	05/28/03	06/05/03	1	ND ug/l	1.0	
2,3,5,6-Tetrachlorophenol	u	**	Ħ	**	"	ND "	1.0	
2,3,4,6-Tetrachlorophenol	u	**	**	#	**	ND "	1.0	
2,3,4,5-Tetrachlorophenol	**	**	**	н	,,	ND "	1.0	
Pentachlorophenol	"	#	11	**	"	ND"	1.0	
Surrogate: Tribromophenol	"	11	n	"		101 % 79-,	119	

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# CHEMICAL EXAMINATION REPORT

Page 12 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30 Project No: 030229.2

Project ID: SPI Arcata Sawmill

Order Number

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Client Code MFGARC

Client PO/Reference

A305489 05/23/2003 15:30

		Alpha A	Analytical	Laborato	ries, Inc.			
	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	POL NO	
MW-18 (A305489-22)		Sample Type: Water				Sampled: 05/23/03 10:03		
Conventional Chemistry Paramete	rs by APHA/EPA M	lethods						
<b>Total Dissolved Solids</b>	EPA 160.1	AE32717	05/27/03	05/30/03	1	640 mg/l	10	
MW-19D (A305489-23)		Sample Type: Water				Sampled: 05/22/03 13:07		
Chlorinated Phenols by Canadian	Pulp Method							
2,4,6-Trichlorophenol	EnvCan	AF30907	05/28/03	06/05/03	1	ND ug/l	1.0	
2,3,5,6-Tetrachlorophenol	"	ŧŧ	**	"	11	ND "	1.0	
2,3,4,6-Tetrachlorophenol	11	**	**	**	Ħ	ND "	1.0	
2,3,4,5-Tetrachlorophenol	"	ŧŧ	**	**	"	ND"	1.0	
Pentachlorophenol	**	"	*1	·	H	ND "	1.0	
Surrogate: Tribromophenol	"	"	"	"		104 % 79-11	9	
Conventional Chemistry Paramete	rs by APHA/EPA M	lethods						
Total Dissolved Solids	EPA 160.1	AE32717	05/27/03	05/30/03	1	480 mg/l	10	

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

JUN 1 2 2003

Nena M. Burgess For Sheri L. Speaks Project Manager



Alpha 🖊 Analytical Laboratories Inc.

208 Mason St. Ukiah, California 95482

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

#### CHEMICAL EXAMINATION REPORT

Page 13 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30 Project No: 030229.2

Project ID: SPI Arcata Sawmill

Order Number

Receipt Date/Time

Client Code

Client PO/Reference

A305489

05/23/2003 15:30

**MFGARC** 

# 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 AF30907 - Solvent Extraction										
Blank (AF30907-BLK1)				Prepared:	05/28/03	Analyzed	l: 06/03/03			
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	**							
2,3,4,5-Tetrachlorophenol	ND	1.0	**							
Pentachlorophenol	ND	1.0	**							
Surrogate: Tribromophenol	24.6		n	24.9		98.8	79-119			***************************************
LCS (AF30907-BS1)				Prepared:	05/28/03	Analyzed	l: 06/03/03			
2,4,6-Trichlorophenol	5.2	1.0	ug/l	5.00		104	81-120			
2,3,5,6-Tetrachlorophenol	4.5	1.0	n	5.00		90.0	78-108			
2,3,4,6-Tetrachlorophenol	4.8	1.0	"	5.00		96.0	76-108			
2,3,4,5-Tetrachlorophenol	5.0	1.0	**	5.00		100	80-116			
Pentachlorophenol	5.0	1.0	**	5.00		100	86-109			
Surrogate: Tribromophenol	24.9	·········	n	24.9		100	79-119			
Matrix Spike (AF30907-MS1)	Sou	rce: A305	489-19	Prepared	05/28/03	Analyzed	1: 06/03/03			
2,4,6-Trichlorophenol	5.5	1.0	ug/l	5.00	ND	110	75-125			
2,3,5,6-Tetrachlorophenol	4.1	1.0	**	5.00	ND	82.0	69-115			
2,3,4,6-Tetrachlorophenol	4.1	1.0	**	5.00	ND	82.0	66-117			
2,3,4,5-Tetrachlorophenol	4.6	1.0	**	5.00	ND	92.0	70-115			
Pentachlorophenol	4.3	1.0	**	5.00	ND	86.0	55-124			
Surrogate: Tribromophenol	23.5		Ħ	24.9		94.4	79-119			
Matrix Spike Dup (AF30907-MSD1)	Sou	rce: A305	489-19	Prepared	: 05/28/03	Analyze	d: 06/03/03			
2,4,6-Trichlorophenol	5.6	1.0	ug/l	5.00	ND	112	75-125	1.80	20	
2,3,5,6-Tetrachlorophenol	4.1	1.0	**	5.00	ND	82.0	69-115	0.00	20	

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Nena M. Burgess For Sheri L. Speaks Project Manager

6/9/03



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208 Mason St. Ukiah, California 95482

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

#### CHEMICAL EXAMINATION REPORT

Page 14 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30 Project No: 030229.2

Project ID: SPI Arcata Sawmill

Order Number

Receipt Date/Time

Client Code

Client PO/Reference

A305489

05/23/2003 15:30

MFGARC

### 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 AF30907 - Solvent Extraction										
Matrix Spike Dup (AF30907-MSD1)	Sou	ce: A305	489-19	Prepared	05/28/03	Analyzed	1: 06/03/03			
2,3,4,6-Tetrachlorophenol	4.4	1.0	H	5.00	ND	88.0	66-117	7.06	20	
2,3,4,5-Tetrachlorophenol	4.7	1.0	**	5.00	ND	94.0	70-115	2.15	20	
Pentachlorophenol	4.5	1.0	**	5.00	ND	90.0	55-124	4.55	20	
Surrogate: Tribromophenol	24.0		u	24.9		96.4	79-119			

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Tetra Tech/MFG, Inc.

Nena M. Burgess For Sheri L. Speaks Project Manager

6/9/03



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208 Mason St. Ukiah, California 95482

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

#### CHEMICAL EXAMINATION REPORT

Page 15 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30 Project No: 030229.2

Project ID: SPI Arcata Sawmill

Order Number

Receipt Date/Time

Client Code

Client PO/Reference

A305489

05/23/2003 15:30

**MFGARC** 

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

		·····								
Result	]	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
				Prepared:	05/27/03	Analyzed	: 05/30/03			
ND		10	mg/l						-	
So	urce:	A3054	489-20	Prepared:	05/27/03	Analyzed	: 05/30/03			
3280		10	mg/l		3200			2.47	30	
	ND <b>So</b>	ND <b>Source</b> :	ND 10  Source: A3054	ND 10 mg/l Source: A305489-20	Result         PQL         Units         Level           ND         10         mg/l           Source: A305489-20         Prepared:	Result         PQL         Units         Level         Result           Prepared: 05/27/03           ND         10         mg/l           Source: A305489-20         Prepared: 05/27/03	Result         PQL         Units         Level         Result         %REC           Prepared:         05/27/03         Analyzed           ND         10         mg/l           Source:         A305489-20         Prepared:         05/27/03         Analyzed	Result         PQL         Units         Level         Result         %REC         Limits           Prepared: 05/27/03 Analyzed: 05/30/03           ND         10         mg/l         Prepared: 05/27/03 Analyzed: 05/30/03           Source: A305489-20         Prepared: 05/27/03 Analyzed: 05/30/03	Result         PQL         Units         Level         Result         %REC         Limits         RPD           Prepared: 05/27/03 Analyzed: 05/30/03           ND         10         mg/l         Prepared: 05/27/03 Analyzed: 05/30/03         Analyzed: 05/30/03	Result         PQL         Units         Level         Result         %REC         Limits         RPD         Limit           Prepared: 05/27/03 Analyzed: 05/30/03           ND         10         mg/l           Source: A305489-20         Prepared: 05/27/03 Analyzed: 05/30/03

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208 Mason St. Ukiah, California 95482

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

### CHEMICAL EXAMINATION REPORT

Page 16 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30

Project No: 030229.2

Project ID: SPI Arcata Sawmill

Order Number A305489

Receipt Date/Time

05/23/2003 15:30

Client Code MFGARC

Client PO/Reference

#### Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag			
Batch AE32307 - General Preparation													
Blank (AE32307-BLK1)				Prepared	& Analyze	ed: 05/23/	03						
Chloride	ND	0.50	mg/l						-				
LCS (AE32307-BS1)		Prepared & Analyzed: 05/23/03											
Chloride	2.77	0.50	mg/l	3.00		92.3	90-110						
LCS Dup (AE32307-BSD1)				Prepared	& Analyz	ed: 05/23/	03						
Chloride	2.84	0.50	mg/l	3.00		94.7	90-110	2.50	20				
Duplicate (AE32307-DUP1)	Soul	rce: A305	479-07	Prepared	& Analyz	ed: 05/23/	03						
Chloride	20.9	1.0	mg/l		21			0.477	200				
Matrix Spike (AE32307-MS1)	Sou	rce: A305	479-07	Prepared	& Analyz	ed: 05/23/	03						
Chloride	25.7	1.0	mg/l	5.00	21	94.0	80-120						
Matrix Spike Dup (AE32307-MSD1)	Source: A305479-07 P			Prepared	& Analyz	ed: 05/23/	03						
Chloride	25.5	1.0	mg/l	5.00	21	90.0	80-120	0.781	20				

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Tetra Tech/MFG, Inc.

Nena M. Burgess For Sheri L. Speaks Project Manager

6/9/03



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208 Mason St. Ukiah, California 95482

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

#### CHEMICAL EXAMINATION REPORT

Page 17 of 17

MFG, Inc - Arcata 1165 G. Street, Suite E Arcata, CA 95521 Attn: Ed Conti

Report Date: 06/09/03 13:30 Project No: 030229.2

Project ID: SPI Arcata Sawmill

Order Number A305489 Receipt Date/Time 05/23/2003 15:30

Client Code MFGARC Client PO/Reference

**Notes and Definitions** 

R-05 The sample was diluted due to the presence of high levels of non-target analytes resulting in elevated reporting

imits.

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

RECEIVED

JUN 1 2 2003

Tetra Tech/MFG, Inc.

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P.O. Box 30
Wallace, ID
83873-0030
Tel: (208) 556-6811
Fax: (208) 556-7271

☐ San Francisco Office

180 Howard Street, Suite 200

San Francisco, CA 94105-1617

Phone (415) 495-7110 – Fax (415) 495-7107

Seattle Office
19203 36th Avenue W.
Suite 101
Lynnwood, WA 98036-5707
Tel: (425) 921-4000
Fax: (425) 921-4040

COC No. 43293

PROJECT NO: <u>0</u> 30 SAMPLER (Signatur METHOD OF SHIPM	e): Mal This	nd .	PROJE	C/	IAME PI ARRI	: ROJ ER/	58 IECT WAY	エー MANA BILL N	AGE NO:	ΛC9 ER: <u>b</u>	to Sd	(	<i>on</i>	<del>}.</del>	DE	STIN	ATIC	DN:	:	<u>-</u>	PAGE: DATE: 5 Ipha	OF: 1/23/	5
		SAM	PLES														Α	NA	LYS	IS R	REQUEST		
Manager of the Manager of the Control of the Contro		s	ample		F	rese	ervatio	on		Con	taine	rs	Со	nstitu	ents/l	Method	d L	Hai	ndlir	ng		Remarks	
Samp	Field Sample Identification DATE TIME W T								FILTRATION*	VOLUME (ml/oz)	TYPE*	NO.	PCP/TCP	T05	Chloride			HOLD	RUSH	STANDARD	email mattahi	llyad @ nfgenv	.com
MW-I A	305489 -	5/22	1525	AQ						125mc	6	2	X							$\times$	PCP/TCF	by (	a nadian
1W-1		5/22	1525	\$					<u></u>	10+	P	1		×	×			_		1	pull	Met .	hod
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SIGNATURE PRINTED NAME COMPANY								TE		TIME			SIC	NATI	JRE		!	PRII	NTE	D NA	AME	COMPA	NY A
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JUN 1 2 7	2003			DISTRIE	BUTION:	PINK:	Held Copy	YELLOW: L	.aboratoi	ry Copy Wi	u i E: Hetu	in to Ur	igiriatOf								-		

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Lynnwood, WA 98036-5707 Tel: (425) 921-4000 Fax: (425) 921-4040 PAGE: 2 OF: 5

COC No. 43294

PROJECT NO: 03	e): Monto AM	god	PROJEC		Р	ROJE	ECT I	MANA	4GE	R:	60				, DES	STINI	ATIOI	V·	_ _A	PAGE DATE	2	OF:	5/03
METHOD OF SHIPM	PROJECT MANAGER: ECC COTT:  DATE: 5/2/03  MENT: COULTE CARRIER/WAYBILL NO:  DESTINATION: A Pha  SAMPLES  SAMPLES  SAMPLES  SAMPLES  SAMPLES  SAMPLES  Containers  Constituents/Method Handling  Remarks  DATE: 5/2/03  Phase Constituents/Method Handling  Phase Constituents/Method Handling  Phase Constituents/Method Handling  Phase Consti																						
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The law as	The best one of the same					5	/23	63	T	153		> Sobalo		OX	<u>S</u>	<u>.</u> S	D6	éak	A	leha	FORM		
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JUN 1	Z 20KF3 Matrix: AQ - aque	ous NA - nonaqu	ieous SO - soil	SL - sluc	dge P-p	etroleum /	A - air OT eld Copy			ers: P - plas: ry Copy Wi				- brass (	OT - other	Filtrati	on: F-filt	ered U-	unfilter	ed			

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PROJECT NO: 030229. Z SAMPLER (Signature): Math Holy

Field

Sample

Identification

METHOD OF SHIPMENT:

**SAMPLES** 

DATE

5/23

5/23

5/21

5/21

15/21

**RELINQUISHED BY:** 

PRINTED NAME

Sample

1038

906

15/0

Matrix: AQ - aqueous NA - nonaqueous SO - soil SL - sludge P - petroleum A - air OT - other

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19203 36th Avenue W. Suite 101

Filtration: F - filtered U - unfiltered

COC No. 43298

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Containers: P - plastic G - glass T - teflon B - brass OT - other

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

SIGNATURE

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Boulder Office
4900 Pearl East Circle
Suite 300W
Boulder, CO 80301-6118
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☐ Irvine Office 17770 Cartwright Road Suite 500 Irvine, CA 92614-5850 Tel: (949) 253-2951 Osburn Office
P.O. Box 30
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83873-0030
Tel: (208) 556-6811
Fax: (208) 556-7271

☐ San Francisco Office

180 Howard Street, Suite 200

San Francisco, CA 94105-1617

Phone (415) 495-7110 - Fax (415) 495-71

| Seattle Office | South | Sou

Fax: (707) 826-8437	Boulder, CO 80301-6118 Tel: (303) 447-1823 Fax: (303) 447-1836	Tel: (949) ( Fax: (949) (	253-2951 253-2954		Te Fa	l: (208) 5 x: (208) 5	556-68 556-72	311 <b>Ph</b> 271	one (4	15) 495-711	0 – Fax	(415)	495-71	07	Tel: (4 Fax: (4	25) 921-4 25) 921-4	1000 1040						
PROJECT NO: <u>03</u> SAMPLER (Signatur METHOD OF SHIPM	0229.7 re): Mast 74 MENT: (Omn) 1	Uzur	PROJEC /	C/	IAM F ARR	PROJI	ECT	MAN	IAG	<i>^(ڡ</i> → ER:	60	1				STINA	AOIT <i>A</i>	J:		PAGE: DATE:	45	,OF: -/23/	5
		SAM	PLES														AN	ALYS	SIS F	EQUES	ST		
		S	ample			Prese	rvat	ion		Con	taine	rs	Co	nstitue	ents/N	/lethod	Н	andli	ng		Re	emarks	
Field Samp Identific	Matrix*	HCI	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	COLD	FILTRATION*	VOLUME (ml/oz)	TYPE*	NO.	d24/d2d	T.05		-	HOLD	RUSH	STANDARD				,			
MW-130				X		125AL	6	2	X						X								
MW-130-	1						1Q+	P	1		X					11							
MW-15D.										125mL	G	2	X						$\sqcup$				
MW-150.	) 19	5/22	1423	Ш				11_	_ _	lat	P	1		ン			_	-	H				
MW-16D1		5/23	837					11_		125mc	6	2	×					-	igspace	<u> </u>			
Mw-16D)	30	5/23	837					4		IRT	P	1		X				_					
mw-17		5/22	1652					e-statement of the statement of the stat		125ML	6	2	X	Ţ				-					
MW-17)	21	5/26	1652							1Q+	P	1		ン				<u> </u>					
MW-18,		5/23	1003							125ml	1 G	2	X	1				ऻ	<del> \/</del>				
MW-18)	<b>み</b> る	5/23	1003	,				Ø.		11Q7	11	1	LABO		ev cor	MENTS	/CONDIT	ION O	L	PLES	O	ar Tamp	
		10.079				TOTA	L NUI	MBER OF	CON	AINEHS			LABO	JAATOI	AT COI	VIIVILITIO					C00	er Temp	
RELINQUISHED BY:																		ECIE			1	COMPA	NIV
SIGNATURE PRINTED NAME COMPANY							D	ATE		TIME			SIG	NATI	JRE 1		PF	RINTE	=D N/	4ME ———	<b> </b>	A A	1
Mat Alber Matt Hilmel MFG						15	1/2	3/03		1200	)	4	1	da	ly_		1	Z	AL	<u>Y</u>	al	shai	abo
Del.						3	1/2	3/03	3	193	2	2	53	30	<u>60</u>	6	<u>S.</u>	SC	$)\alpha$	eks	A	LABORATO	)BY
												'				LADOI (AT							
- HEUEIV	*KEY Matrix: AQ - aqu	eous NA - nonaq	ueous SO - soil	SL - slu	dge P-	petroleum PINIK- F	A - air Field Cor	OT - other	Conta V: Labora	ainers: P - plas atory Copy W	tic G - g HITE: Ret	lass T	- teflon B riginator	- brass	OT - other	Filtratio	on: F - filte	red U - I	unfiltered				

#### MFG, Inc. COC No. 43301 CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS ☐ Seattle Office ☐ Irvine Office ☐Osburn Office □ San Francisco Office 19203 36th Avenue W. 17770 Cartwright Road P.O. Box 30 4900 Pearl East Circle 180 Howard Street, Suite 200 Suite 101 Wallace ID Suite 500 Boulder, CO 80301-6118 Tel: (303) 447-1823 Fax: (303) 447-1836 Lynnwood, WA 98036-5707 frvine, CA 92614-5850 Tel: (949) 253-2951 Fax: (949) 253-2954 83873-0030 San Francisco, CA 94105-1617 Phone (415) 495-7110 - Fax (415) 495-7107 Tel: (425) 921-4000 Fax: (425) 921-4040 Tel: (208) 556-6811 Fax: (208) 556-7271 PROJECT NAME: SPI-Arcata PROJECT NO: 030229, 2 PAGE: 5 PROJECT MANAGER: Ed SAMPLER (Signature): 744 747 DESTINATION: CARRIER/WAYBILL NO: **ANALYSIS REQUEST SAMPLES** Handling Containers Constituents/Method Preservation Sample

Remarks FILTRATION\* STANDARD VOLUME RUSH HOLD Field Matrix (ml/oz) H<sub>2</sub>SO<sub>4</sub> TYPE\* HNO3 COLD 오 Sample 8 DATE TIME Identification 1A305489.23/5/2 X × 1307 × × 1Qx -5.3 LABORATORY COMMENTS/CONDITION OF SAMPLES TOTAL NUMBER OF CONTAINERS Cooler Temp: RECIEVED BY: **RELINQUISHED BY:** COMPANY PRINTED NAME TIME SIGNATURE COMPANY DATE PRINTED NAME **SIGNATURE** Containers: P - plastic G - glass T - teflon B - brass OT - other Filtration: F - filtered , U - unfiltered Matrix: AQ - aqueous NA - nonaqueous SO - soil SL - sludge P - petroleum A - air OT - other DISTRIBUTION: PINK: Field Copy YELLOW: Laboratory Copy WHITE: Return to Originator

Tetra Tech/MFG, Inc.

Arcata Office

1165 G Street, Suite E

Arcata, CA 95521-5817

METHOD OF SHIPMENT:

Tel: (707) 826-8430 Fax: (707) 826-8437

☐ Boulder Office

Suite 300W

## APPENDIX C

Laboratory Report and Chain-of-Custody Record for Groundwater Samples Analyzed for Dioxins and Furans



July 2, 2003

FAL Project ID: 1798 Addendum

Mr. Jason Triolo MFG, Inc. 180 Howard Street, Suite 200 San Francisco, CA 94105-1617

Dear Mr. Triolo,

Enclosed is the amended report for Frontier Analytical Laboratory project **1798**. This corresponds to Alpha Analytical Laboratories, Inc. subcontract order # A305489. The two aqueous samples received on 5/28/03 were extracted and analyzed by EPA Method 1613 for tetra through octa chlorinated dibenzo dioxins and furans. Alpha Analytical Laboratories, Inc. requested a turnaround time of 14 days for project **1798**. Frontier Analytical Laboratory successfully fulfilled this request.

The report was amended to include MS/MSD data as well as to customize the analytical data sheets to include all the MFG, Inc. requested reporting information. The pagination for the entire project has the suffix "A" signifying the report has been amended.

The following report consists of an Analytical Data section and a Sample Receipt section. The Analytical Data section contains the project-sample tracking log, qualifier reference guide, ML/MDL form and the analytical results. The Sample Receipt section contains a copy of your original chain of custody, our sample login form and a sample photo.

If you have any questions regarding project 1798, please feel free to contact me at (916) 934-0900. Thank you for choosing Frontier Analytical Laboratory for your analytical testing needs.

Sincerely,

Bradley B. Silverbush Director of Operations

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JUL - 3 2003



# Frontier Analytical Laboratory

Project-Sample Tracking Log

**FAL Project ID:** 

**1798** 

	Received on:	<u>05/28/03</u>	Project Due:	06/12/03	Storage:	<u>R-2</u>	
FAL	Client	Client	Requested		Sampling	Sampling	Hold Time
Sample ID	Project ID	Sample ID	Method/s	Matrix	Date	Time	Due Date
1798-01-SA	A305489	A305489-10	1613	Aqueous	5/22/03	11:25 AM	05/21/04
1798-02-SA	A305489	A305489-11	1613	Aqueous	5/22/03	11:40 AM	05/21/04

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# **Qualifier Reference Guide**

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
В	Analyte is present in Method Blank
С	Chemical Interference
D	Presence of Diphenyl Ethers
Е	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
$J^{\ddagger}$	Analyte concentration is below calibration range
M	Maximum possible concentration
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyte Not Detected

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<sup>&</sup>lt;sup>‡</sup> "J" values are equivalent to DNQ (detected but not qualified) for California Toxics Rule (CTR)/National Pollutant Discharge Elimination System (NPDES) samples

# EPA Method 1613/8290 Aqueous MDL (SPE Extraction)



Analyte	ML	MDL
2,3,7,8-TCDD	5.00	1.36
1,2,3,7,8-PeCDD	25.0	2.08
1,2,3,4,7,8-HxCDD	25.0	2.97
1,2,3,6,7,8-HxCDD	25.0	3.23
1,2,3,7,8,9-HxCDD	25.0	2.90
1,2,3,4,6,7,8-HpCDD	25.0	1.74
OCDD	50.0	6.49
2,3,7,8-TCDF	5.00	1.23
1,2,3,7,8-PeCDF	25.0	1.79
2,3,4,7,8-PeCDF	25.0	1.72
1,2,3,4,7,8-HxCDF	25.0	1.04
1,2,3,6,7,8-HxCDF	25.0	1.26
1,2,3,7,8,9-HxCDF	25.0	1.34
2,3,4,6,7,8-HxCDF	25.0	1.51
1,2,3,4,6,7,8-HpCDF	25.0	1.18
1,2,3,4,7,8,9-HpCDF	25.0	1.34
OCDF	50.0	3.98

Project 1475, extracted 1/6/03; analyzed 1/14/03. Based on a 1.0 Liter sample, pg/L.

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JUL - 3 2003

wir G, Inc.



FAL ID: 1798-01-MB Date Extracted: 6/3/03 ICal: PCDDFAL1-3-8 Acquired: 5-JUN-03 Client ID: Method Blank Date Received: NA GC Column: db5 Matrix: Aqueous Amount: 1.000 L Units: pg/L WHO TEQ: 0.00 Extraction Batch No.: 1778 MS/MSD Batch No.: 1514 Compound Conc DI Qual WHO Tox Compound Conc DI. Qual #Hom 2,3,7,8-TCDD 1.36 1,2,3,7,8-PeCDD 3.61 1,2,3,4,7,8-HxCDD 3.68 1,2,3,6,7,8-HxCDD 3.98 Total Tetra-Dioxins 1.36 0 1,2,3,7,8,9-HxCDD 3.19 Total Penta-Dioxins 3.61 0 1,2,3,4,6,7,8-HpCDD 3.29 3.98 Total Hexa-Dioxins 0 OCDD 9.90 3.29 Total Hepta-Dioxins 0 2,3,7,8-TCDF 1.15 1,2,3,7,8-PeCDF 1.56 2,3,4,7,8-PeCDF 1.59 1,2,3,4,7,8-HxCDF 1.53 1,2,3,6,7,8-HxCDF 1.92 2,3,4,6,7,8-HxCDF 2.01 1,2,3,7,8,9-HxCDF 2.58 Total Tetra-Furans 1.15 0 1,2,3,4,6,7,8-HpCDF 1.14 Total Penta-Furans 1.61 0 1,2,3,4,7,8,9-HpCDF 1.52 Total Hexa-Furans 2.58 0 3.51 Total Hepta-Furans 1.52 0 Internal Standards % Rec QC Limits Qual 13C-2,3,7,8-TCDD 25.0 - 164 77.6 13C-1,2,3,7,8-PeCDD 25.0 - 181 73.9 32.0 - 141 13C-1,2,3,4,7,8-HxCDD 80.3 13C-1,2,3,6,7,8-HxCDD 80.5 28.0 - 130 13C-1,2,3,4,6,7,8-HpCDD 82.4 23.0 - 140 13C-OCDD 80.6 17.0 - 157 13C-2,3,7,8-TCDF 78.0 24.0 - 169 13C-1,2,3,7,8-PeCDF 76.0 24.0 - 185 13C-2,3,4,7,8-PeCDF 21.0 - 178 76.5 13C-1,2,3,4,7,8-HxCDF 95.5 26.0 - 152 13C-1,2,3,6,7,8-HxCDF 94.2 26.0 - 123 13C-2,3,4,6,7,8-HxCDF 90.1 29.0 - 147 13C-1,2,3,7,8,9-HxCDF 84.7 28.0 - 136 13C-1,2,3,4,6,7,8-HpCDF 28.0 - 143 86.7 RECEIVED 26.0 - 138 13C-1,2,3,4,7,8,9-HpCDF 93.4 13C-OCDF 90.4 17.0 - 157 JUL - 3 2003 Cleanup Surrogate MFG, Inc. 37CL-2,3,7,8-TCDD 90.0 35.0 - 197

Analyst: 1



FAL ID: 1798-01-OPR Client ID: OPR		Date Extracted: 6/3/03 Date Received: NA	ICal: PCDDFAL1-3-8 GC Column: db5	Acquired: 5-JUN-03
Matrix: Aqueous		Amount: 1.000 L	Units: ng/mL	WHO TEQ: NA
Extraction Batch No.: 1778	3	Amount: 1:000 E	MS/MSD Batch No.: 1514	WITO TEG. NA
Extraction batch not: 1770	,		HOYHOD Baccil No.: 1514	
Compound	Conc	QC Limits		
2,3,7,8-TCDD	10.5	6.70 - 15.8		
1,2,3,7,8-PeCDD	52.5	35.0 - 71.0		
1,2,3,4,7,8-HxCDD	51.7	35.0 - 82.0		
1,2,3,6,7,8-HxCDD	53.5	38.0 - 67.0		
1,2,3,7,8,9-HxCDD	49.1	32.0 - 81.0		
1,2,3,4,6,7,8-HpCDD	52.7	35.0 - 70.0		
OCDD	104	78.0 - 144		
2,3,7,8-TCDF	10.5	7.50 - 15.8		
1,2,3,7,8-PeCDF	47.7	40.0 - 67.0		
2,3,4,7,8-PeCDF	46.8	34.0 - 80.0		
1,2,3,4,7,8-HxCDF	47.8	36.0 - 67.0		
1,2,3,6,7,8-HxCDF	49.7	42.0 - 65.0		
2,3,4,6,7,8-HxCDF	48.6	39.0 - 65.0		
1,2,3,7,8,9-HxCDF	50.2	35.0 - 78.0		
1,2,3,4,6,7,8-HpCDF	48.4	41.0 - 61.0		
1,2,3,4,7,8,9-HpCDF	49.4	39.0 - 69.0		
OCDF	97.2	63.0 - 170		
Internal Standards	% Rec	QC Limits		•
13C-2,3,7,8-TCDD	85.4	20.0 - 175		
13C-1,2,3,7,8-PeCDD	74.5	21.0 - 227		
13C-1,2,3,4,7,8-HxCDD	77.9	21.0 - 193		
13C-1,2,3,6,7,8-HxCDD	79.2	25.0 - 163		
13C-1,2,3,4,6,7,8-HpCDD	69.0	26.0 - 166		
13c-ocdd	69.8	13.0 - 198		
13C-2,3,7,8-TCDF	82.6	22.0 ~ 152		
13C-1,2,3,7,8-PeCDF	78.0	21.0 - 192		
13C-2,3,4,7,8-PeCDF	81.2	13.0 - 328		
13C-1,2,3,4,7,8-HxCDF	89.7	19.0 - 202		
13C-1,2,3,6,7,8-HxCDF	87.0	21.0 - 159		
13C-2,3,4,6,7,8-HxCDF	88.88	17.0 - 205		
13C-1,2,3,7,8,9-HxCDF	76.2	22.0 - 176		
13C-1,2,3,4,6,7,8-HpCDF	77.7	21.0 - 158		RECEIVED
13C-1,2,3,4,7,8,9-HpCDF	78.4	20.0 - 186		
13c-ocdf	77.8	13.0 - 198		JUL - 3 2003
				JOE - 9 5003
				7 يعمر معزي ن
Cleanup Surrogate				MFG, Inc.
37cl-2,3,7,8-TCDD	104	31.0 - 191		
			_	
Analyst:			Revie	ewed by:



FAL ID: 1798-01-SA		Date Extra			ICal: PCDDFAL1-3-	8 Acq	uired:	5 - JUN - (	03
Client ID: A305489-10		Date Recei		8/03	GC Column: db5	11110	750 - 3	,,	
Matrix: Aqueous	,	Amount: 0.	960 L		Units: pg/L		TEQ: 2	.66	
Extraction Batch No.: 1778					MS/MSD Batch No.:	1514			
Compound	Conc	DL	Qual	WHO Tox	Compound	Conc	DL	Qual	#Hom
2,3,7,8-TCDD	-	1.62		-					
1,2,3,7,8-PeCDD	-	4.05		-					
1,2,3,4,7,8-HxCDD	22.6	-	J	2.26					
1,2,3,6,7,8-HxCDD	-	3.83			Total Tetra-Dioxins	•	1.62		0
1,2,3,7,8,9-HxCDD	-	3.10		-	Total Penta-Dioxins	13.6	-	J	2
1,2,3,4,6,7,8-HpCDD	30.2	-		0.302	Total Hexa-Dioxins	32.4	-		2
OCDD	449	-		0.0449	Total Hepta-Dioxins	55.5	-		2
2,3,7,8-TCDF	· -	1.26		_					
1,2,3,7,8-PeCDF	_	2.04		_					
2,3,4,7,8-PeCDF	_	2.02		_					
1,2,3,4,7,8-HxCDF	-	1.02		_					
1,2,3,6,7,8-HxCDF	-	1.17		_					
2,3,4,6,7,8-HxCDF	_	1.19		_					
1,2,3,7,8,9-HxCDF	_	1.15		-	Total Tetra-Furans	20.1	_		4
1,2,3,4,6,7,8-HpCDF	4.97	-	J	0.0497	Total Penta-Furans	4.34	_	J	1
The state of the s	4.71	0.807	J	0.0491	Total Hexa-Furans		-		
1,2,3,4,7,8,9-HpCDF		0.807				4.50	-	J	1
OCD F	20.7	-	J	0.00207	Total Hepta-Furans	19.5	-	J	2
Internal Standards	% Rec	QC Limit	s Qu	ıal					
13C-2,3,7,8-TCDD	81.6	25.0 - 10	6/.						
13C-1,2,3,7,8-PeCDD	75.9	25.0 - 1							
13C-1,2,3,4,7,8-HxCDD	82.7	32.0 - 1							
13C-1,2,3,6,7,8-HxCDD	83.3	28.0 - 1							
13C-1,2,3,4,6,7,8-HpCDD	78.7	23.0 - 1							
13C-OCDD	83.6	17.0 - 1							
130 0000	03.0	17.0	<i>.</i> 1						
13C-2,3,7,8-TCDF	83.0	24.0 - 1	69						
13C-1,2,3,7,8-PeCDF	82.5	24.0 - 1	85						
13C-2,3,4,7,8-PeCDF	82.6	21.0 - 1	78						
13C-1,2,3,4,7,8-HxCDF	87.5	26.0 - 1							
13C-1,2,3,6,7,8-HxCDF	87.8	26.0 - 1	23						
13C-2,3,4,6,7,8-HxCDF	84.0	29.0 - 1	47						
13C-1,2,3,7,8,9-HxCDF	82.7	28.0 - 13							
13C-1,2,3,4,6,7,8-HpCDF	83.7	28.0 - 1				(max.)	_ ^ r	13 /1	
13C-1,2,3,4,7,8,9-HpCDF	89.1	26.0 - 1				$\mathbf{R}$	ECE	- I V I	=D
13C-OCDF	91.7	17.0 - 1				, , , , , , , , , , , , , , , , , , ,	-		
130 0001	7111		-,			J	UL -	3 200	13
Cleanup Surrogate							MEC	3, Inc	•
37Cl-2,3,7,8-TCDD	83.6	35.0 - 19	97						
Analyst:						Reviewed b	ov: I		
							1.10	7	
Date: 7/1/03						Date:	THO	ـــــــــــــــــــــــــــــــــــ	



FAL ID: 1798-02-SA		Date Extra			ICal: PCDDFAL1-3-8	B Acq	uired:	5 - JUN - (	03
Client ID: A305489-11		Date Recei	•	28/03	GC Column: db5				
Matrix: Aqueous		Amount: 0.	954 L		Units: pg/L		TEQ: 0	.996	
Extraction Batch No.: 1778					MS/MSD Batch No.:	1514			
Compound	Conc	DL	Qual	WHO Tox	Compound	Conc	DL	Qual	#Hom
2,3,7,8-TCDD	-	1.27		-					
1,2,3,7,8-PeCDD	•	2.00		-					
1,2,3,4,7,8-HxCDD	7.89	-	J	0.789					
1,2,3,6,7,8-HxCDD	· -	2.47		-	Total Tetra-Dioxins	-	1.27		0
1,2,3,7,8,9-HxCDD	-	1.97		-	Total Penta-Dioxins	9.60	-	J	2
1,2,3,4,6,7,8-HpCDD	16.3	-	J	0.163	Total Hexa-Dioxins	11.6	-	J	2
OCDD	231	-		0.0231	Total Hepta-Dioxins	28.8	-		2
2,3,7,8-TCDF	-	1.01		-					
1,2,3,7,8-PeCDF	-	1.66		-					
2,3,4,7,8-PeCDF	-	1.64		-					
1,2,3,4,7,8-HxCDF	-	1.09		-					
1,2,3,6,7,8-HxCDF	-	1.28							
2,3,4,6,7,8-HxCDF	_	1.40		-					
1,2,3,7,8,9-HxCDF	_	1.67		_	Total Tetra-Furans	26.8	-	М	5
1,2,3,4,6,7,8-HpCDF	2.09	-	J	0.0209	Total Penta-Furans	-	1.66	11	0
1,2,3,4,7,8,9-HpCDF	207	1.19	J	0.0209	Total Hexa-Furans	-	1.67		
		1.17		0 000705			1.07		0
OCDF	7.05	-	J	0.000705	Total Hepta-Furans	5.83	-	J	2
Internal Standards	% Rec	QC Limit	s Qu	ual					
13C-2,3,7,8-TCDD	87.5	25.0 - 10	54			,			
13C-1,2,3,7,8-PeCDD	79.9	25.0 - 18							
13C-1,2,3,4,7,8-HxCDD	91.9	32.0 - 14							
13C-1,2,3,6,7,8-HxCDD	89.1	28.0 - 13							
13C-1,2,3,4,6,7,8-HpCDD	85.2	23.0 - 1							
13c-ocdd	93.9	17.0 - 1							
13C-2,3,7,8-TCDF	90.4	24.0 - 10	40						
13C-1,2,3,7,8-PeCDF	89.8	24.0 - 18							
	90.9								
13C-2,3,4,7,8-PeCDF		21.0 - 1							
13C-1,2,3,4,7,8-HxCDF	96.2	26.0 - 1							
13C-1,2,3,6,7,8-HxCDF	95.3	26.0 - 17							
13C-2,3,4,6,7,8-HxCDF	91.7	29.0 - 14							
13C-1,2,3,7,8,9-HxCDF	90.5	28.0 - 13							
13C-1,2,3,4,6,7,8-HpCDF	91.5	28.0 - 14			ח		/ / J	-	
13C-1,2,3,4,7,8,9-HpCDF	96.7	26.0 - 13			H	ECEI	VE	)	
13C-OCDF	96.1	17.0 - 1	57						
						JUL - 3	2003		
Cleanup Surrogate						MFG, I	nc		
37cl-2,3,7,8-TCDD	98.7	35.0 - 19	97						
Analyst:						Reviewed b	y:	E,	<del></del>
Date: 7/1/03						Date:	7/1	103	***************************************



FAL ID: 1514-03-MS/MSD Client ID: 056 MS/MSD Matrix: Aqueous

Extraction Batch No.: 1510

Date Extracted: 1/28/03 Date Received: 1/17/03

Sample Amount: 1.013 L MS Amount: 1.008 L

MSD Amount: 1.010 L

ICal: PCDDFAL1-1-20

GC Column: db5 Units: pg

MS/MSD Batch No.: 1514

MS Acquired: 30-JAN-03 MSD Acquired: 30-JAN-03

WHO TEQ: NA

	Amount	Sample	MS	MSD		
Compound	Spiked	Amount	Amount	Amount	% RSD Qua	al .
2,3,7,8-TCDD	200	-	228	230	0.873	
1,2,3,7,8-PeCDD	1000	-	1190	1160	2.55	
1,2,3,4,7,8-HxCDD	1000	-	1230	1170	5.00	
1,2,3,6,7,8-HxCDD	1000	· -	1180	1170	0.851	
1,2,3,7,8,9-HxCDD	1000	-	1190	1180	0.844	
1,2,3,4,6,7,8-HpCDD	1000	-	1100	1110	0.905	
OCDD	2000	<u>.</u>	2450	2440	0.409	
2,3,7,8-TCDF	200	-	223	218	2.27	
1,2,3,7,8-PeCDF	1000	-	1160	1080	7.14	
2,3,4,7,8-PeCDF	1000	-	1160	1180	1.71	
1,2,3,4,7,8-HxCDF	1000	_	989	1080	8.80	
1,2,3,6,7,8-HxCDF	1000	-	1030	1070	3.81	
2,3,4,6,7,8-HxCDF	1000	•	1030	1010	1.96	
1,2,3,7,8,9-HxCDF	1000	-	1060	1020	3.85	
1,2,3,4,6,7,8-HpCDF	1000	-	1020	1050	2.90	
1,2,3,4,7,8,9-HpCDF	1000	_	1040	1050	0.957	
OCDF	2000	-	1990	2060	3.46	
Internal Standards		% Rec	% Rec	% Rec	QC Limits	
13C-2,3,7,8-TCDD	2000	95.5	81.2	78.1	25.0 - 150	
13C-1,2,3,7,8-PeCDD	2000	101	95.3	77.6	25.0 - 150	
13C-1,2,3,4,7,8-HxCDD	2000	80.2	72.1	65.8	25.0 - 150	
13C-1,2,3,6,7,8-HxCDD	2000	88.8	74.6	66.6	25.0 - 150	
13C-1,2,3,4,6,7,8-HpCDD	2000	90.1	75.1	64.7	25.0 - 150	
13C-OCDD	4000	97.6	80.2	68.1	25.0 - 150	
(50 00)		71.10	00.2	00.1	23.0 130	
13C-2,3,7,8-TCDF	2000	88.8	81.1	88.6	25.0 - 150	
13C-1,2,3,7,8-PeCDF	2000	92.4	76.8	81.2	25.0 - 150	
13C-2,3,4,7,8-PeCDF	2000	88.9	81.8	75.0	25.0 - 150	
13C-1,2,3,4,7,8-HxCDF	2000	76.2	66.0	57.4	25.0 - 150	
13C-1,2,3,6,7,8-HxCDF	2000	75.8	65.4	58.4	25.0 - 150	
13C-2,3,4,6,7,8-HxCDF	2000	74.9	68.3	62.1	25.0 - 150	
13C-1,2,3,7,8,9-HxCDF	2000	82.3	67.4	62.8	25.0 - 150	
13C-1,2,3,4,6,7,8-HpCDF	2000	71.1	58.2	50.6	25.0 - 150	
13C-1,2,3,4,7,8,9-HpCDF	2000	70.1	59.4	52.5	25.0 - 150	
13C-OCDF	4000	89.5	72.0	64.8	25.0 - 150	
Cleanup Surrogate						
37cl-2,3,7,8-TCDD	800	107	104	106	25.0 - 150	

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MFG, Inc.

Reviewed by:

#### SUBCONTRACT ORDER

798

# Alpha Analytical Laboratories, Inc. A305489

### SENDING LABORATORY:

Alpha Analytical Laboratories, Inc.

P.O. Box 1508 (208 Mason St.)

Ukiah, CA 95482 Phone: (707)468-0401 Fax: (707)468-5267

Project Manager:

Sheri L. Speaks

#### RECEIVING LABORATORY:

Frontier Analytical Laboratory

5172 Hillsdale Circle

El Dorado, CA 95762

Phone:916-934-0900

Fax: 916-934-0999

Terms: Net 30

Analysis	Due	Expires	Comments	
A305489-10 MW-7 [Wa	ter] Sampled 05/2	22/03 11:25 Pacific		
Dioxins Full List	06/09/03 12:00	05/21/04 11:25		
Containers Supplied:				
1L Amber- Unpres. (A)				
A305489-11 MW-7F [W	ater] Sampled 05	3/22/03 11:40 Pacific		
Dioxins Full List	06/09/03 12:00	05/21/04 11:40		
Containers Supplied:				
1L Amber- Unpres. (A)				
Report to State		,		
System Name:		Employed by:		
User ID:		Sampler:		
System Number:				

RESUlts & INV TO SPI. Sierra pucific Ind.

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Shori	Speciko	59303 Ka	M 300 51	128/03 11:00
Released By	Date	Received By	Date	
Released By	Date	Received By	Date	



# **Frontier Analytical Laboratory**

Sample Login Form

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**Project ID:** 

<u>1798</u>

MFG, Inc.

Client: Alpha Analytical (SPI)

Client Project ID: A305489

Date Received: 05/28/03 TAT: 14

Time Received: 11:00 AM

Received By: kz

# of Samples Received: 2 # of Dups: 0

Storage Location: R-2

Checklist	Yes	No	N/A	Comments
Method of Delivery:	Х			Fed-Ex/UPS/Courier/Other
Shipping container received intact?	X			
Custody seals(s) present and intact?			X	
Method of cooling:	Χ			Ice/Blue ice/Dry ice/Other
Sample arrival temperature (C):	Х			2 degrees C
Sample containers intact?	Х			
Chain of Custody present and complete?	X			
Return shipping container to client?	X			
Test for residual chlorine?	X			Thiosulfate added? no
Earliest sample hold time expiration:	Х			Date: 5/21/04
Adequate Sample Volume?	Х			
Anomalies or additional comments:				





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