EXHIBIT A

FINAL
Aquifer Characterization of the Masonite Plant Property Ukiah, California

November 2002

GREYSTONE®

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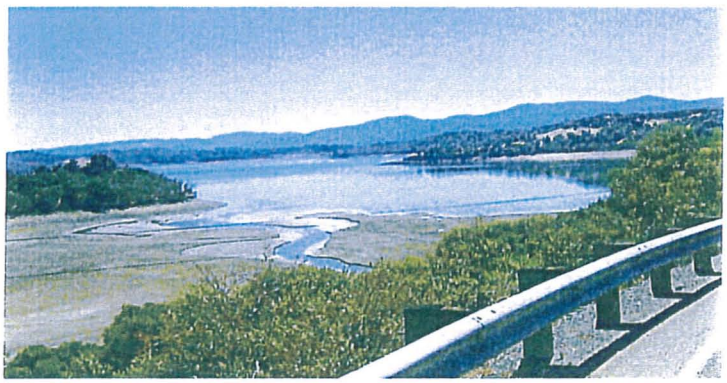

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1.0 INTRODUCTION AND PURPOSE OF INVESTIGATION

The Masonite Plant (Plant) is located in Ukiah, California, in the Russian River Valley near the northern coastal mountains. The Plant was constructed in the 1950's and used water pumped from the shallow alluvial aquifer as its principal water supply over the years. Since 1958, Masonite has drilled five wells capable of yielding a total of approximately 6,000 gallons per minute (gpm). The wells presently exist under various conditions, with some dilapidation due to sanding and well encrustation, resulting in reduced production capacity and poor well efficiency. Well number six (P6) was drilled in 1975 and was tested at 1,080 gpm. This well is used as a water supply for the water treatment plant at the site. Presently it is the sole source of water supply, and reportedly pumps at approximately 60 to 80 gpm. There is no flow meter on the well.

Topographic conditions at the plant site are relatively flat and exist within the river terrace in the Russian River valley. The area where the wells are located was surveyed as part of this investigation. Land surface elevations vary from about 600 to 615 feet above mean sea level (msl). The geology at the eastern part of the plant site consists of Recent and Quaternary sediments overlying bedrock. The alluvial material ranges from clay and silt to sand, cobbles and boulders. The depth of the alluvial material is not known, but nearby wells have been reported to be as deep as 400 feet.

The purpose of this investigation was to determine the relationship between the shallow alluvial aquifer and its hydraulic continuity to the Russian River. The six existing wells are generally located within 1,000 feet of the river except for wells P3, P4, and P5, which are all located on the river bank about 20 feet from the river. To determine this hydraulic continuity, water levels in the site wells were monitored continuously and compared with flow variations in the Russian River that were recorded at two nearby gaging stations. The Coyote Gage at Lake Mendocino and the Hopland Gage located about 12 miles south of Ukiah were used to obtain values of the amount of flow in the river and the stage (depth) of the water. During the monitoring period (October 4 through November 1, 2002), the stream flow in the river varied from 135 to 302 cubic feet per second (cfs) resulting in aquifer water level changes of up to six inches and demonstrating a direct connection between the river and the aquifer.

2.0 PROJECT LOCATION

Figure 1 is a general vicinity map of the City of Ukiah and the surrounding area. It shows the location of the property relative to the gaging stations that were used to provide information on the hourly flow and stage of the Russian River. The Coyote gaging station is located at the release point on Lake Mendocino about two miles upstream of the property and the Hopland gaging station is located about 12 miles south of the Masonite property. The Plant property is located near the north end of Ukiah.

Figure 2 is a well location map of the Plant property. It shows the location of the property, the Russian River, and the wells that were used in the aquifer characterization test. Also shown on Figure 2 is a water table map in the area where the wells are located. The map shows the elevation of the water table as of October 4, 2002. The elevation varies from 588 feet near the

northeastern part of the property to about 585 feet near the southeastern part of the property. Water level data from P6 could not be used for contouring the water table because this well was being pumped at the time. The measured elevation of the water surface of the Russian River was 589 feet on October 3 near well P3. The configuration of the water table contours shows that the groundwater is flowing in a southeast by south direction as if the river was flowing through this part of the property. The groundwater gradient is 0.002 (approximately 9.75 feet per mile).

Figure 3 is a survey map showing the relative well locations and the elevation of the measuring point for each well. Rau and Associates of Ukiah, California conducted the survey on October 2 and 3, 2002. In the figure, the shallow (25 feet) monitor wells are shown with an "M" designation and the pumping wells are shown with a "P" symbol. All seven wells were used in the water level and water quality analysis of the test. Wells P4 and P5 were not used in the data collection because of their proximity to well P3.

3.0 SUMMARY AND RESULTS

3.1 Scope and Method of Investigation

Figures 4 shows the water level and stream flow data of the water table in the six wells that were used to collect the data for the month of October. Water level data was also collected from well P6, but not used in the analysis because the well is being used and cycles frequently during the day. The water levels were collected using pressure transducers and data loggers that are designed to record and store a considerable amount of data while being unattended. With this test, a transducer / logger (In-Situ MiniTroll) was installed in each well and programmed to collect a water level measurement every five minutes from each well for the entire month. From October 4 through November 1, approximately 360,000 bits of water level and water quality data were recorded with the transducers.

The elevation in the water level for these wells is compared to the hourly flow data from the two gaging stations. The scale on the left side of the chart is the water table elevation (feet) above msl. The elevation of the water table varied from 585 to 588 feet during the month and appears to have a direct relationship to the amount of flow in the river. The scale on the right side of the graph represents the flow of the Russian River (in cubic feet per second (cfs)) and reflects hourly measurements of the flow at both the Coyote gage and the Hopland gage.

In general, the water levels in all six wells were rising at a steady rate during the first eight days in response to the increase in flow in the Russian River during this period. On October 12 at about 8 am, the flow was suddenly decreased in the river by about 44 cfs (298 to 254 cfs). The water levels in all of the wells responded within six hours and began to drop at a steady rate and did so for the remainder of the test (Oct 12 to Nov 1). The river flow gradually dropped from a peak of 302 cfs on October 12 to about 150 cfs on November 1. The well by the river (P3) responded in 50 minutes and the well located furthest from the river (P2) responded within six hours. This is the "lag time" response of the wells to the operation of the Coyote gage.

Figure 4A is an exaggerated view of the relative groundwater level changes in the six wells without the flow data from the Russian River. The graph shows barometric pressure recorded throughout the entire test. The water levels during this one-month period varied from 0.3 to 0.5 of a foot (4 to 6 inches) in the wells in response to the change in the flow in the river. A few inches may seem like a minor amount of change, but the trends they show are very definitive in the aquifer response. Generally speaking, since October 4th, the water levels were all rising at a constant rate in response to the increase in flow of the river. After October 12th, the water levels receded at a constant rate when the flow in the river was decreased. The barometric pressure data shows no obvious trend; the only other factor that could have influenced groundwater levels, other than the river, would be a rainfall event. There was no recorded precipitation for several months in Ukiah and the upstream Russian River watershed prior to the test. During this same time period, the stage in the Russian River at the Hopland gage, about 12 miles south of Ukiah, varied by as much as three inches in response to the change in flow in the river.

Figure 5 shows photographs of the wells and Plant property while the test was being conducted in October. Well P6 is the only well that is presently operating and is used for the water treatment plant. Well P3 is located approximately 20 feet from the River and was used for collecting water quality and water level data. Well P3 is a high capacity production well; presently it is not being used because of sanding problems. Well P2 is a production well, but has no pump due to casing damage. The casing and perforated sections are believed to be damaged causing a large loss of production from the well. The figure also shows photos of the transducers that were used in the wells. The MiniTroll transducer is a small diameter instrument capable of being used in one-inch diameter wells or access lines. The Pro 9000 instrument is two-inches in diameter and is used to collect water quality as well as water level and barometric data.

3.2 Water Quality Data

In addition to water level data, we collected continuous water quality data from wells P3 and P6 using the In-Situ MPT 9000 Pro water quality instrument and transducer. Water samples for chemical analysis were also collected from well P6 and from the Russian River near well P3 on October 3. The samples were sent to North Coast Laboratories in Arcata, California for constituent analyses.

A summary of water quality analysis is presented in **Table 1**. Water quality is generally excellent and constituent concentrations between the wells are generally similar. The water sample collected from well P6 is thought to be most representative of the groundwater chemistry in the alluvial aquifer because the well pumps continuously on a daily basis. The other wells are presently unused and the chemistry tends to be "stagnant" and not representative of the aquifer. The other water sample was collected from the Russian River near well P3. In Table 1, the constituents that are most prevalent are alkalinity, hardness, and calcium. Although, the concentrations are considered low, the water is classified as moderately hard because the concentration of both the well water and the river water is greater than 75 mg/l. The groundwater from well P6 is 140 mg/l and the river water is 86 mg/l meaning that the groundwater is slightly harder than the river water. The primary constituent in the hardness is the calcium concentration, which is 30 mg/l for the groundwater and 21 mg/l for the river. The original copy of the analyses performed by North Coast Laboratories is included as **Appendix A**.

Figure 6 shows the continuous, five-minute recordings of the pH and specific conductivity of the groundwater in wells P6 and P3. Again, well P6 is considered representative of the water in the aquifer because the pump runs daily and cycles about 12 times per day. The well is reported to pump about 60 to 80 gpm.

The pH value reflects the acidity of the water. Throughout the test, the pH of the groundwater (well P6) varied from 6.8 to 7.0 and averaged 6.95 from 7,791 readings. This is neutral water. The pH of the river water (Well P3) varied from 6.9 to 7.0 and averaged 6.99 from 7,795 readings. An average groundwater pH of 6.95 and an average surface water pH of 6.99 provides further evidence that the source water is the same.

The specific conductivity value reflects the general salt concentration of the water. In this case, the values are slightly different and are attributed to the depth of the aquifer. Well P6 is 230-feet deep and is screened for most of the aquifer section. The pump is set at a depth of about 60 feet and the water is derived from the aquifer at a depth of 60 to 230 feet. The specific conductivity was very constant during the month of October for well P6. The conductivity value averaged 372 µS/cm for well P6 and 292 µS/cm for well P3. This is considered very good water quality, and again, probably the same source water.

Figure 7 shows the barometric pressure and temperature data that were collected for all of the wells. The barometric sensors were located in wells P3 and P6 and show the barometric pressure that was recorded during the month. The two sensors appear to mirror one another and reflect the microclimate conditions of the two wells that are located about 2000 feet from each other.

The temperature data shows a steady temperature curve for all wells except for well P3. The hourly variations in temperature in this well (63° to 69°F) are attributed to the temperature of the river and the heat storage capacity of the volume of water in the river and adjacent aquifer. The temperatures of the groundwater in the other wells ranged from 55° to 62°F and relate primarily to the well depth and size of the well. The monitoring wells are about 20 to 25-feet deep and the production wells P1, P2, and P6 are reported to be about 200 feet deep. The water temperature of the monitoring wells was lower than in the production wells.

4.0 CONCLUSIONS

1. The shallow alluvial aquifer located on the Plant property is in direct hydraulic connection with the Russian River.
2. Approximately 360,000 data points were collected summarizing the water level and water quality data for the wells and river. Pressure transducers and data loggers were used to collect the data.
3. The elevation of the water table on the eastern part of the property (location of the wells) resides within 585 feet to 589 feet. The surveyed elevation of the river is 589 feet (Oct 3); at this time and location, the river is recharging the aquifer. The water table gradient is about four feet across the property and the direction of groundwater flow is to the south. In essence, the river water is flowing "through" the property.
4. Water quality data confirms that the Russian River water and the shallow alluvial groundwater have similar water chemistry. Water quality is very good, with moderate hardness.

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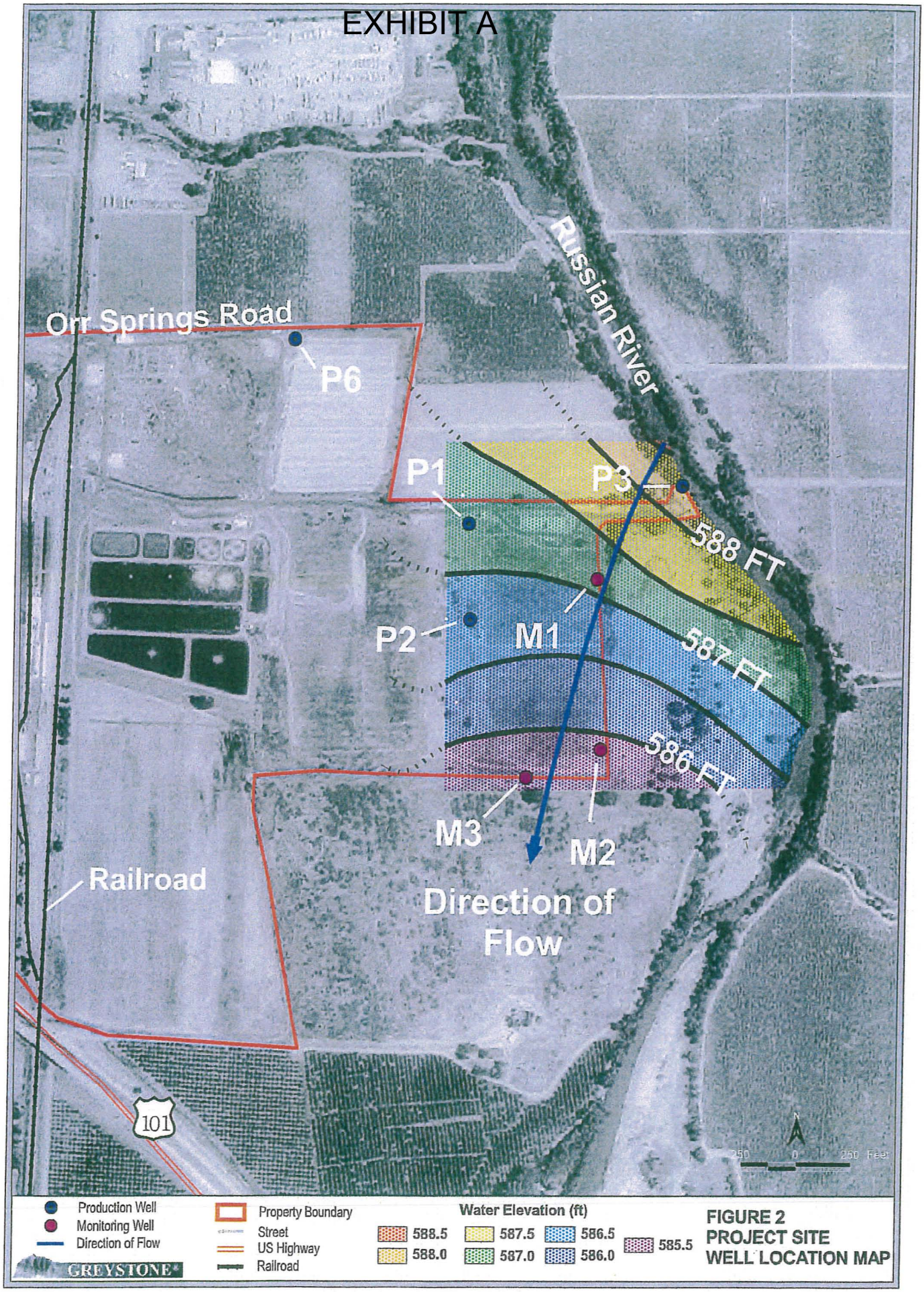

FIGURE 2
PROJECT SITE
WELL LOCATION MAP

EXHIBIT A

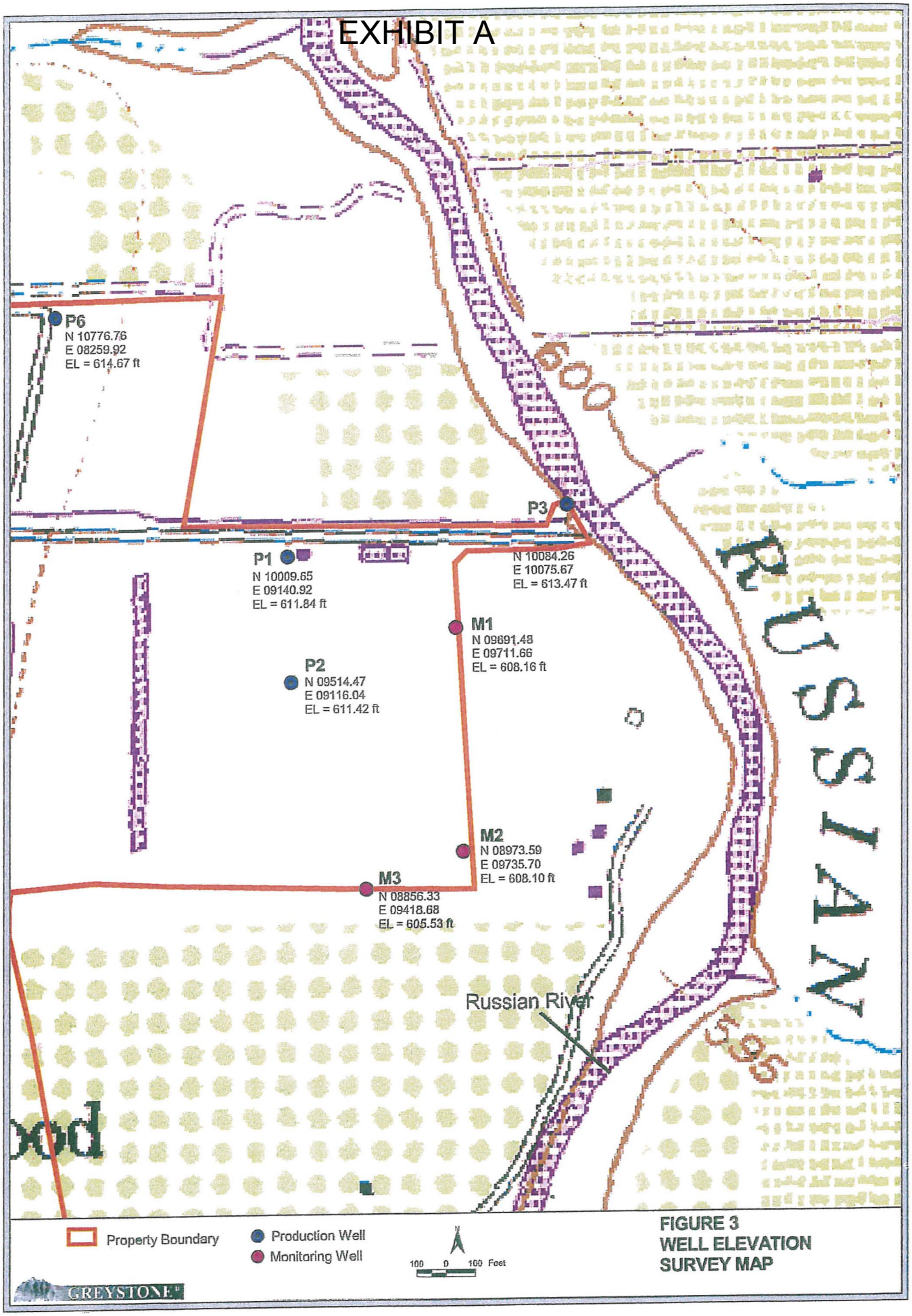

FIGURE 3
WELL ELEVATION
SURVEY MAP

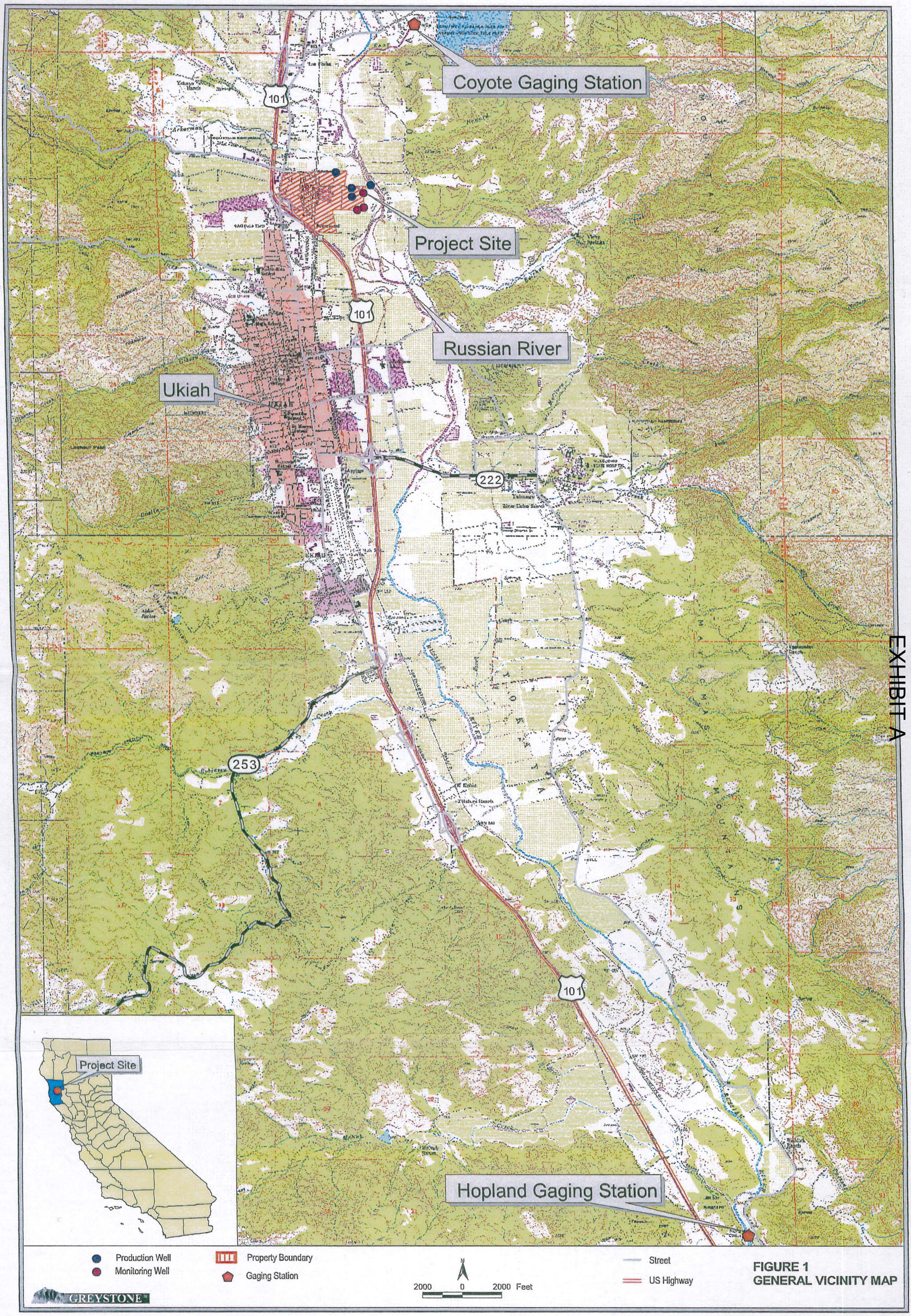

FIGURE 1
GENERAL VICINITY MAP

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Figure 4 Water Level and Stream Flow Data - Masonite Plant in Ukiah, CA

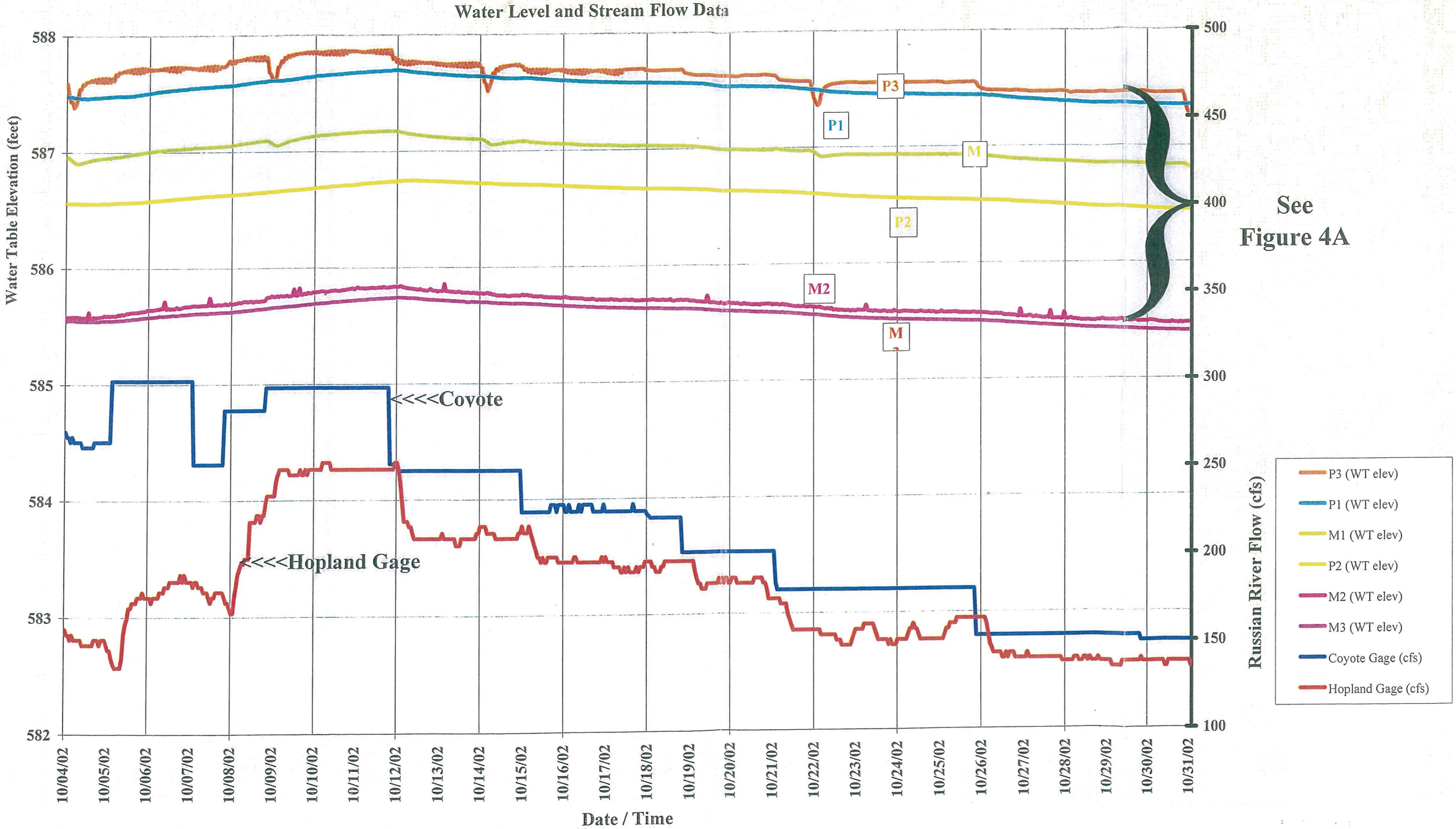

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Figure 4A Relative Groundwater Level Changes

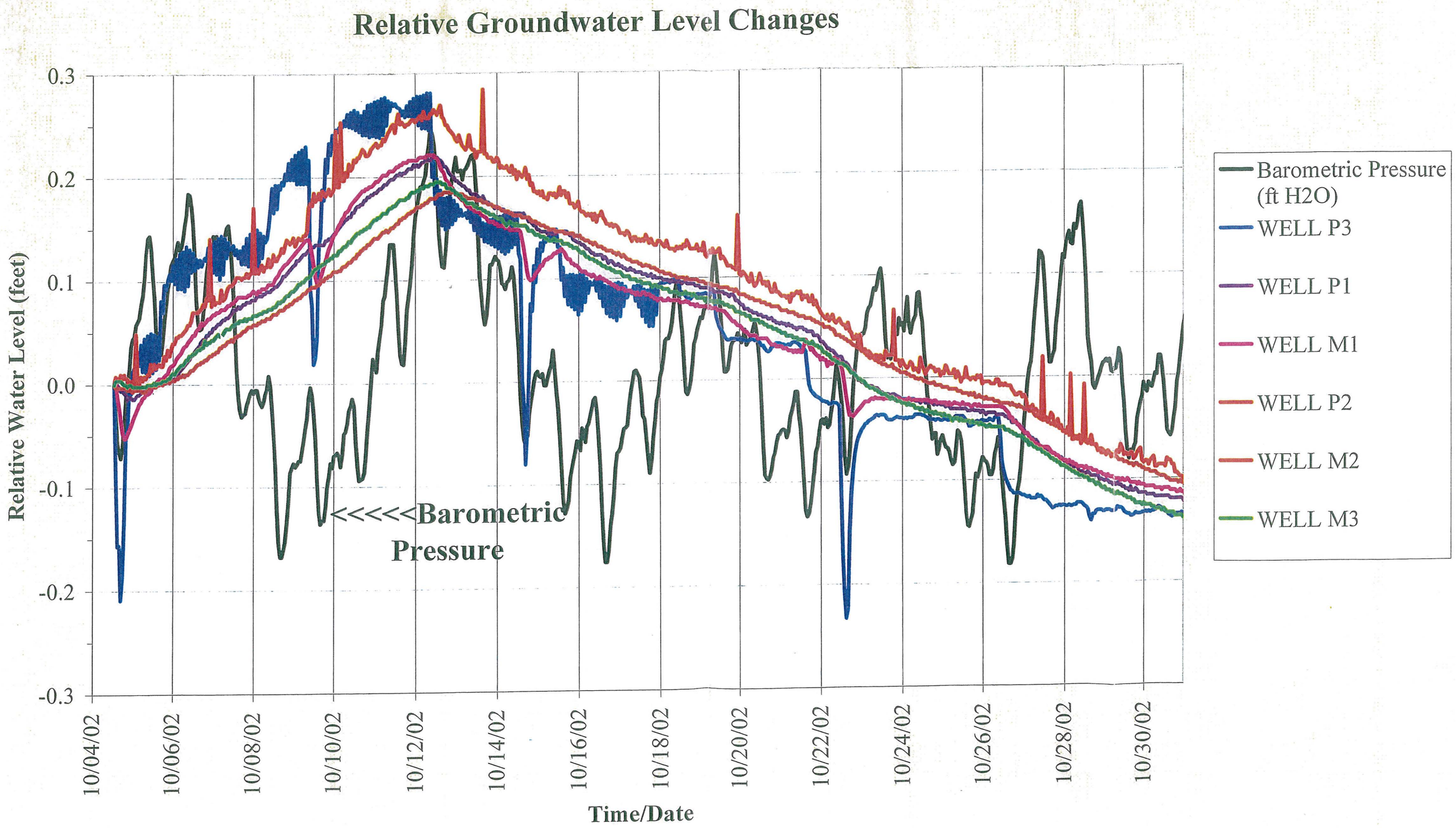

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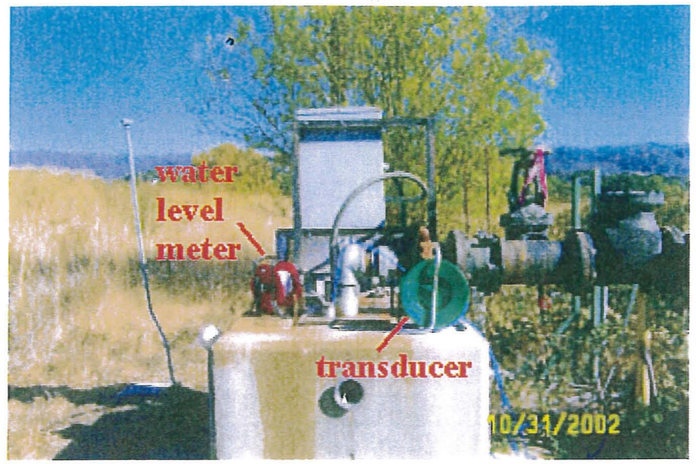
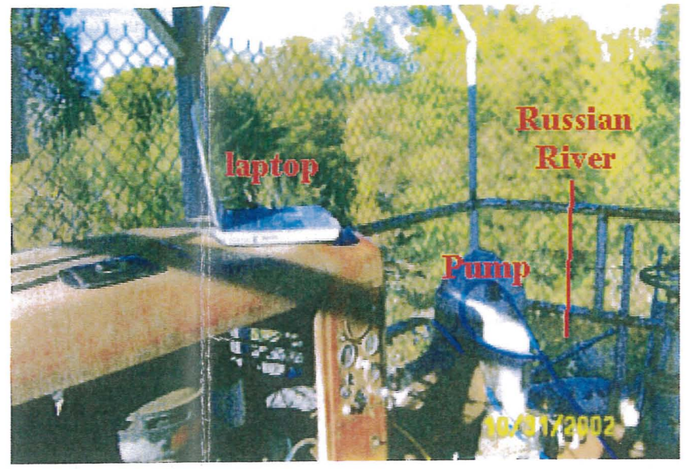
Figure 5: Photos of the Characterization Tests, Ukiah, California



Well P6 – Well is pumping

Well P3



Well P3 – Downloading Data with Laptop

In-Situ Transducers

Monitor Well M1

Well P2 with no pump

EXHIBIT A

Figure 6 pH and Conductivity Data for Wells P3 and P6 - Masonite Plant, Ukiah, CA

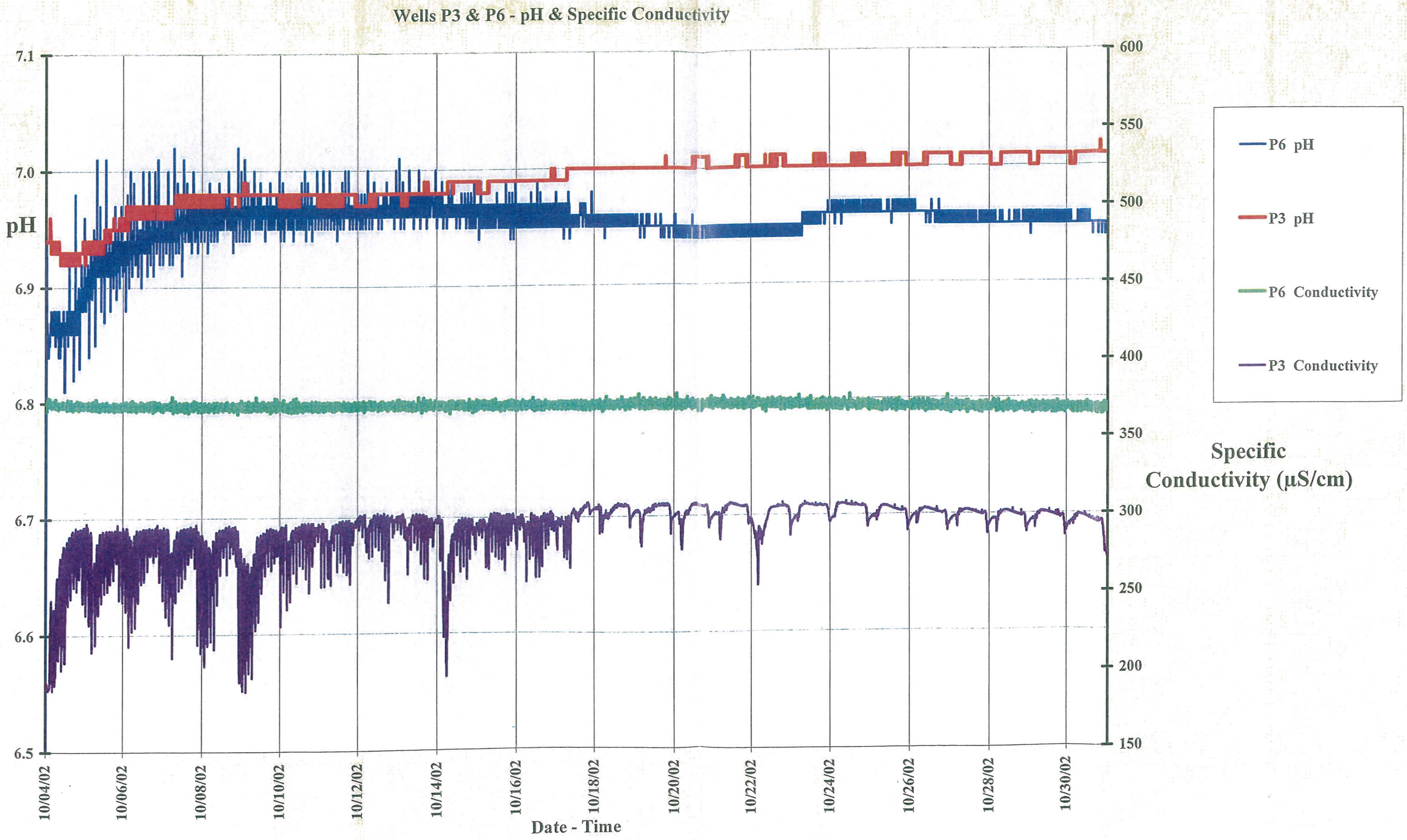


EXHIBIT A

Figure 7 Temperature and Barometric Pressure - All Wells - Masonite Plant, Ukiah, CA

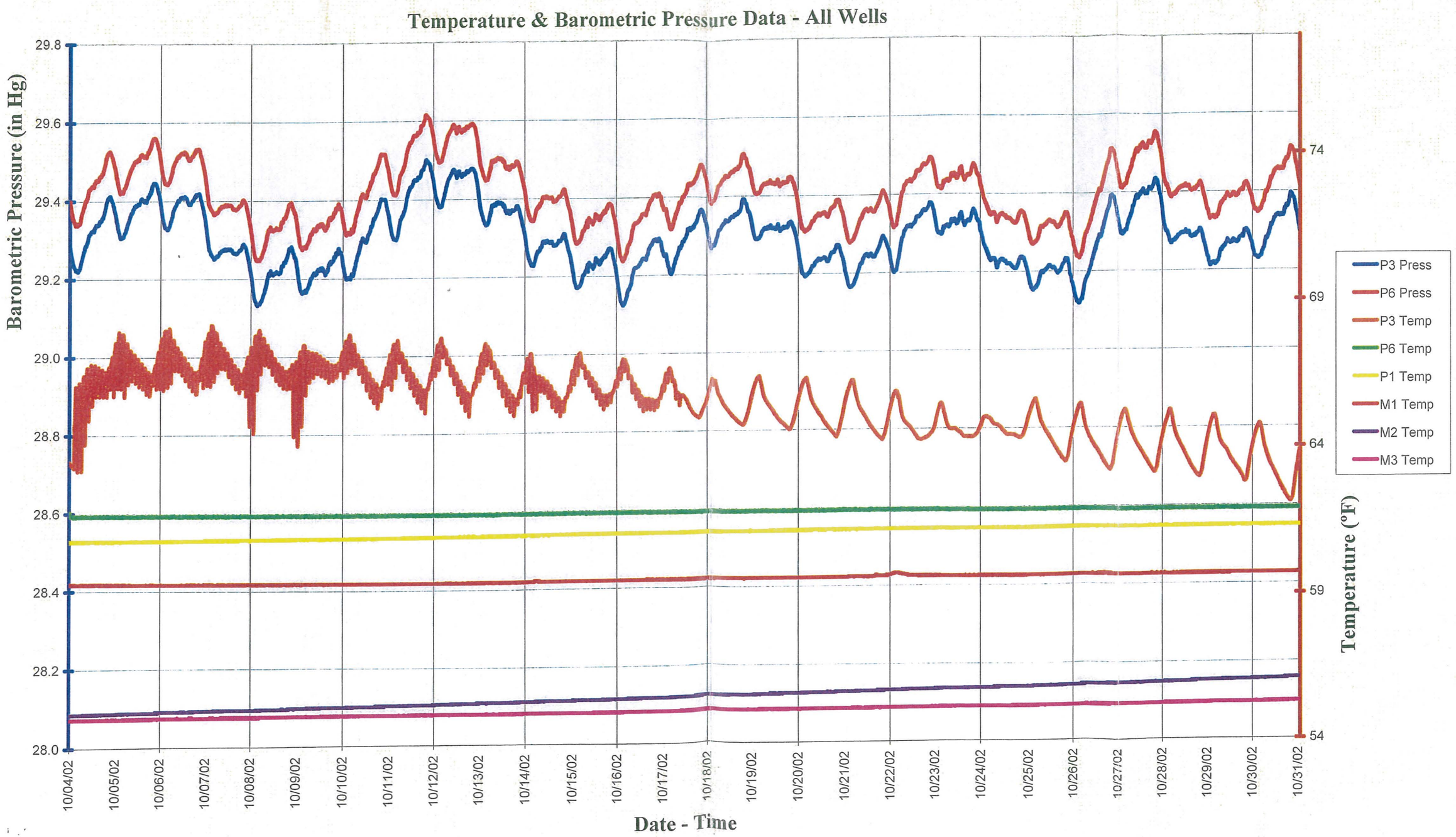


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Table 1
Water Quality Analyses - Masonite Plant

Location	Russian River Sample[1]	Well P6[1]
Sample Number	RR-1	P6-1
Chemical Parameter[2]	Result*	Result*
Alkalinity	84	160
Antimony	ND	ND
Arsenic	ND	ND
Beryllium	ND	ND
Cadmium	ND	ND
Calcium	21.0	30.0
Chloride	2.9	6.1
Chromium	ND	ND
Copper	ND	0.012
Fluoride	ND	0.18
Hardness	86	140
Iron	0.16	0.75
Lead	ND	0.015
Magnesium	8.1	16.0
Mercury	ND	ND
Nickel	ND	ND
Nitrate	ND	0.84
Nitrite	ND	ND
pH	7.8	7.0
Selenium	ND	ND
Silver	ND	ND
Sulfate	8.8	9.4
TDS	110	190
Thallium	ND	ND
Zinc	ND	0.21

1. Samples collected on October 4, 2002

2. Samples were analyzed by North Coast Laboratories, LTD., Arcata, CA

* All values are in milligrams per liter (mg/l), except pH

* ND - Not Detected at the reporting Limit

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Appendix A
Analytical Report –
Water Quality Analyses - Well P6 & the Russian River
North Coast Laboratories

EXHIBIT A

Date: 15-Oct-02
WorkOrder: 0210085

ANALYTICAL REPORT

Client Sample ID: RR-1 Received: 10/3/02 Collected: 10/2/02 9:16
Lab ID: 0210085-01A

Test Name: Alkalinity Reference: Std. Meth. 18th Ed. 2320 B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Alkalinity	84	1.0	mg/L CaCO3	1.0		10/10/02

Test Name: F, SO4, Cl, NO3, NO2 Reference: EPA 300.0

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Nitrate (as Nitrogen)	ND	0.10	mg/L	1.0		10/3/02
Nitrite (as Nitrogen)	ND	0.10	mg/L	1.0		10/3/02
Fluoride	ND	0.10	mg/L	1.0		10/3/02
Chloride	2.9	0.10	mg/L	1.0		10/3/02
Sulfate	8.8	0.50	mg/L	1.0		10/3/02

Test Name: pH Reference: Std. Meth. 18th Ed. 4500 H+ B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
pH	7.8	N/A	pH Units	1.0		10/3/02

Test Name: Total Dissolved Solids Reference: EPA 160.1

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Total Dissolved Solids	110	10	mg/L	1.0		10/8/02

Client Sample ID: RR-1 Received: 10/3/02 Collected: 10/2/02 9:16
Lab ID: 0210085-01B

Test Name: Arsenic Reference: EPA 200.9

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Arsenic	ND	10	µg/L	1.0	10/7/02	10/14/02

Test Name: Hardness Reference: Std. Meth. 18th Ed. 2340 B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Hardness	86	7.0	mg/L CaCO3	1.0		10/11/02

Test Name: ICAP Metals with Acid Digestion Reference: EPA 200.7

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Antimony	ND	50	µg/L	1.0	10/7/02	10/9/02
Beryllium	ND	1.0	µg/L	1.0	10/7/02	10/9/02
Cadmium	ND	10	µg/L	1.0	10/7/02	10/9/02
Calcium	21,000	1,000	µg/L	1.0	10/7/02	10/9/02
Chromium	ND	10	µg/L	1.0	10/7/02	10/9/02
Copper	ND	10	µg/L	1.0	10/7/02	10/9/02
Iron	160	100	µg/L	1.0	10/7/02	10/9/02
Magnesium	8,100	250	µg/L	1.0	10/7/02	10/9/02
Nickel	ND	20	µg/L	1.0	10/7/02	10/9/02

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Date: 15-Oct-02

WorkOrder: 0210085

ANALYTICAL REPORT

Silver	ND	10	µg/L	1.0	10/7/02	10/9/02
Zinc	ND	20	µg/L	1.0	10/7/02	10/9/02

Test Name: Lead — Reference: EPA 200.9

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Lead	ND	10	µg/L	1.0	10/7/02	10/10/02

Test Name: Mercury — Reference: EPA 245.1

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Mercury	ND	1.0	µg/L	1.0	10/4/02	10/7/02

Test Name: Selenium — Reference: EPA 200.9

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Selenium	ND	10	µg/L	1.0	10/7/02	10/11/02

Test Name: Thallium — Reference: EPA 200.9

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Thallium	ND	10	µg/L	1.0	10/7/02	10/14/02

Client Sample ID: P6-1 — Received: 10/3/02 — Collected: 10/2/02 9:37

Lab ID: 0210085-02A

Test Name: Alkalinity — Reference: Std. Meth. 18th Ed. 2320 B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Alkalinity	160	1.0	mg/L CaCO3	1.0		10/10/02

Test Name: F, SO4, Cl, NO3, NO2 — Reference: EPA 300.0

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Nitrate (as Nitrogen)	0.84	0.10	mg/L	1.0		10/3/02
Nitrite (as Nitrogen)	ND	0.10	mg/L	1.0		10/3/02
Fluoride	0.18	0.10	mg/L	1.0		10/3/02
Chloride	6.1	0.10	mg/L	1.0		10/3/02
Sulfate	9.4	0.50	mg/L	1.0		10/3/02

Test Name: pH — Reference: Std. Meth. 18th Ed. 4500 H+ B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
pH	7.0	N/A	pH Units	1.0		10/3/02

Test Name: Total Dissolved Solids — Reference: EPA 160.1

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Total Dissolved Solids	190	10	mg/L	1.0		10/8/02

EXHIBIT A

Date: 15-Oct-02
WorkOrder: 0210085

ANALYTICAL REPORT

Client Sample ID: P6-1
Lab ID: 0210085-02B

Received: 10/3/02 Collected: 10/2/02 9:37

Test Name: Arsenic — Reference: EPA 200.9

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Arsenic	ND	10	µg/L	1.0	10/7/02	10/14/02

Test Name: Hardness — Reference: Std. Meth. 18th Ed. 2340 B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Hardness	140	7.0	mg/L CaCO3	1.0		10/11/02

Test Name: ICAP Metals with Acid Digestion — Reference: EPA 200.7

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Antimony	ND	50	µg/L	1.0	10/7/02	10/9/02
Beryllium	ND	1.0	µg/L	1.0	10/7/02	10/9/02
Cadmium	ND	10	µg/L	1.0	10/7/02	10/9/02
Calcium	30,000	1,000	µg/L	1.0	10/7/02	10/9/02
Chromium	ND	10	µg/L	1.0	10/7/02	10/9/02
Copper	12	10	µg/L	1.0	10/7/02	10/9/02
Iron	750	100	µg/L	1.0	10/7/02	10/9/02
Magnesium	16,000	250	µg/L	1.0	10/7/02	10/9/02
Nickel	ND	20	µg/L	1.0	10/7/02	10/9/02
Silver	ND	10	µg/L	1.0	10/7/02	10/9/02
Zinc	21	20	µg/L	1.0	10/7/02	10/9/02

Test Name: Lead — Reference: EPA 200.9

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Lead	15	10	µg/L	1.0	10/7/02	10/10/02

Test Name: Mercury — Reference: EPA 245.1

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Mercury	ND	1.0	µg/L	1.0	10/4/02	10/7/02

Test Name: Selenium — Reference: EPA 200.9

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Selenium	ND	10	µg/L	1.0	10/7/02	10/11/02

Test Name: Thallium — Reference: EPA 200.9

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Thallium	ND	10	µg/L	1.0	10/7/02	10/14/02