Aide Ortiz - Supplemental Data Transmittal - Kaweah River Rock

From: Andrew Kopania <akopania@sbcglobal.net>
To: <AOrtiz@waterboards.ca.gov>
Date: 2/14/2011 8:08 AM
Subject: Supplemental Data Transmittal - Kaweah River Rock
CC: Bruce Bunting <BBunting@santafeaggregates.com>, Katharine Wagner <kwagner@downeybrand.com>
Attachments: Data Transmittal Tech Memo.pdf; Plant Well and E-1 lab results.pdf; Data Transmittal Tech Memo.pdf; Plant Well and E-1 lab results.pdf

Aide-

Attached is the supplemental data transmittal that you requested in support of Santa Fe Aggregates January 12, 2011 comment letter on the draft NPDES permit for the Kaweah River Rock facility. Also attached is the laboratory analytical report for the samples collected on December 10, 2011. If you would like Word or Excel versions of specific individual figures, charts, or tables, let me know and I can provide those to you.

Please let me know if you have any questions on this submittal. Thank you once again for your careful consideration of Santa Fe Aggregates' comments.

Sincerely,
Andy Kopania
EMKO Environmental, Inc.

EMKO Environmental, Inc.

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TECHNICAL MEMORANDUM

February 14, 2011

To: Matt Scroggins
Aide Ortiz

From: Andy Kopania

Subject: Technical Memorandum – Supplemental Data Transmittal
Kaweah River Rock Sand and Gravel Plant (NPDES No. CA0082201)

This Technical Memorandum has been prepared on behalf of Santa Fe Aggregates, Inc. and at the request of California Regional Water Quality Control Board-Central Valley Region (RWQCB) staff to provide supplemental data and clarifications to Santa Fe Aggregates' submittal of January 12, 2011 regarding Tentative Waste Discharge Requirements for Santa Fe Aggregates, Inc. Kaweah River Rock Sand and Gravel Plant (NPDES No. CA0082201), circulated September 15, 2010 ("Draft Permit"). The purpose of this Technical Memorandum is to provide maps, data, and documentation discussed during the January 5, 2011 meeting between representatives of Santa Fe and RWQCB staff.

Figure 1 shows the facility location and geographic features in the vicinity. It is important to note that there are outcrops of granitic bedrock to the north, south, east, and even several miles west of the site. Geologically, the facility is located within an alluvial-filled embayment within the Sierra Nevada foothills. Low areas between the bedrock ridges and knolls have been filled with alluvial material deposited by the Kaweah and St. Johns Rivers. Therefore, the alluvium in the area of the facility does not reach the thicknesses or depths that are observed in areas farther to the west of the westernmost granitic outcrops.

As demonstrated from the data and other information presented below, aggregate mining at the Kaweah River Rock quarry has essentially removed the alluvial aquifer material down to the bedrock surface. To maintain the pit in a relatively dry condition to allow mining to occur, groundwater that seeps laterally into the pit is directed to the recharge gallery to the west and to the St. Johns River. Due to the relatively small watershed area of the pit, most of the water that is discharged is groundwater from the dewatering operation.

The primary issues addressed in this Technical Memorandum include:

- Well locations and well completion information;
- Groundwater flow directions and water-level hydrographs;
- Comparison of flows in the St. Johns River with the discharge volume from the Kaweah River Rock facility;
- Groundwater quality data collected in December 2010;
- Comparison of pH levels in the discharge and the receiving water; and
- Additional chemical data plots.

Where appropriate, data tables and figures are included within this memorandum. Additional documentation, such as laboratory analytical reports, are also being transmitted as attachments to this Technical Memorandum.

Well Locations and Well Completion Information

Figure 2 shows the locations of wells in the area for which data on well completion could be obtained. Table 1 presents the completion information available for wells within one mile of the Kaweah River Rock facility. Wells within Township 17S, Range 27E, Section 32 (T17S/R27E-32), T18S/R27E-5, and the east half of T18S/R27E-6, as shown in Figure 2, are included in Table 1. The domestic wells that are monitored as part of the recharge gallery required under the Tulare County Conditional Use Permit (CUP) are located in the east half of the northwest quarter of T18s/R27E-5 and are designated with the letter "C" after the section number in Table 1 (i.e. T18S/R27E-5C). The well designations are consistent with the well-naming system established by the California Department of Water Resources (DWR).

TABLE 1
Well Completion Data
For Wells Within 1 Mile
Of The KRRC Quarry
Tulare County, California

State Well Number	Date of Construction	Well Use	Well Capacity (gpm)	Borehole Depth (ft)	Well Depth (ft)	Screened Interval (ft)	Geologic Unit
Township 17S Range 27E Section 32							
17S/27E-32E	8/2/1984	Irrigation	unk	126	126	0-126	bedrock
17S/27E-32H	5/20/1977	Irrigation	unk	67	67	?-40, ?-64	bedrock
17S/27E-32M	unk	Municipal	unk	162	162	75-90, 105-125, 135-155	alluvial
Township 18S Range 27E Section 5							

18S/27E-5C	10/22/1976	Domestic	unk	57	57	open	alluvial
18S/27E-5C	10/19/1976	Domestic	40	112	112	45-65	alluvial
18S/27E-5C	2/3/1989	Irrigation	80	130	83	40-70	alluvial
18S/27E-5C	10/30/1986	Industrial	60	190	190	open	bedrock
18S/27E-5E1	4/10/1974	Domestic	30	40	40	28-40	alluvial
18S/27E-5E2	4/26/1975	Irrigation	250	125	125	24-64	alluvial
18S/27E-5P	1/31/1974	Irrigation	450	168	168	80-88, 96-110, 118-159	alluvial
18S/27E-5P	12/17/1976	Irrigation	unk	123	123	35-118	alluvial
Township 18S Range 27E Section 6							
18S/27E-6B	4/18/1975	Irrigation	unk	145	145	29-143	alluvial
18S/27E-6G2	3/12/1975	Irrigation	unk	198	160	30-110, 152-156	alluvial
18S/27E-6G3	3/28/1975	Irrigation	unk	100	99	30-97	mixed
18S/27E-6H4	4/8/1986	Irrigation	200	138	136	100-130	alluvial
18S/27E-6J	8/11/1979	Irrigation	unk	48	48	20-36	alluvial
18S/27E-6J	2/2/1976	Irrigation	unk	154	154	35-154	alluvial
18S/27E-6J	2/13/1992	Irrigation	100	140	135	50-130	alluvial
18S/27E-6R	2/4/1977	Irrigation	unk	171	159	63-156	alluvial

The wells located to the west of the Kaweah River Rock facility are primarily completed in the alluvial deposits, and are screened shallower than 70 feet below ground surface. Based on observations in the Kaweah River Rock quarry, this depth is approximately equivalent to the base of the alluvial material.

Groundwater Flow Directions and Water-Level Hydrographs

Figures 4 through 11 present groundwater contour maps of the area based on data from the DWR Water Data Library and from USGS. The contour maps cover the period from 1952 through 2010. The groundwater contours indicate that the orientation of the hydraulic gradient, and presumably the groundwater flow direction, has been relatively consistent over the past 60 years. Although there are some seasonal fluctuations and longer-term climatic influences (i.e. drought versus wet periods), the flow direction has consistently been toward the west-southwest.

Figure 12 presents groundwater elevation hydrographs for several wells in the project vicinity, based on data available from the DWR Water Data Library. The hydrographs present the groundwater levels in terms of both elevation above mean sea level on the left vertical axis, and in terms of depth below

ground surface on the right vertical axis. Near the Kaweah River Rock facility, the depth to groundwater is typically 15 feet to 20 feet below ground surface. At wells located several miles to the west and south, the depth to groundwater increases to as much as 30 feet to 40 feet below ground surface.

The hydrographs shown on Figure 12 also indicate another important condition. The wells that are located near the Kaweah and St. Johns Rivers tend to have relatively stable hydrographs, with minimal seasonal and long-term fluctuations. This is apparent on the hydrographs for the wells labeled Wall (Leach) Monitoring Well, Medders Test Well, 05J001M, 07B001M, 07R001M, and 09L001M. Each of these wells is less than one-half mile from one of the rivers. The wells that are located farther from the rivers have larger seasonal fluctuations and also have noticeable fluctuations due to drought and wet periods, as demonstrated on the hydrographs for wells 36M001M, 17H002M, and 11K001M. These wells are located more than a mile from one of the rivers. Well 34P001M is located approximately one-half mile from the Kaweah River and adjacent to a major bedrock outcrop. This well does not show a response to the mid-1970s drought, but does show a response to the early 1990s dry period and late 1990s wet period.

Overall, the groundwater contour data and water-level hydrographs demonstrate that the primary source of recharge and control over groundwater elevations is the water that is released to the Kaweah River from Terminus Dam and to the St. Johns River at McKays Point.

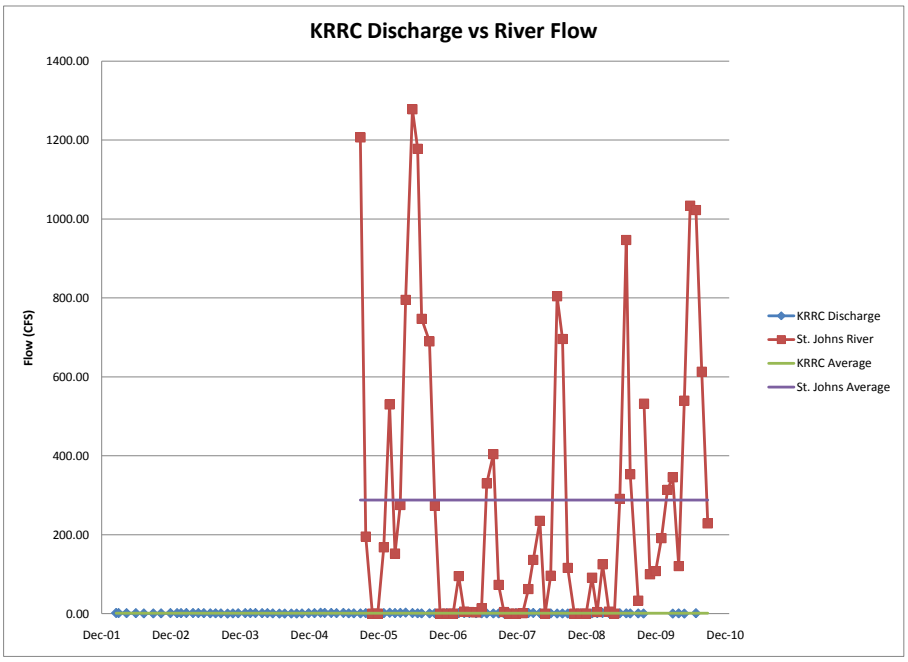
Comparison of Flows in the St. Johns River with the Discharge Volume from the Kaweah River Rock Facility

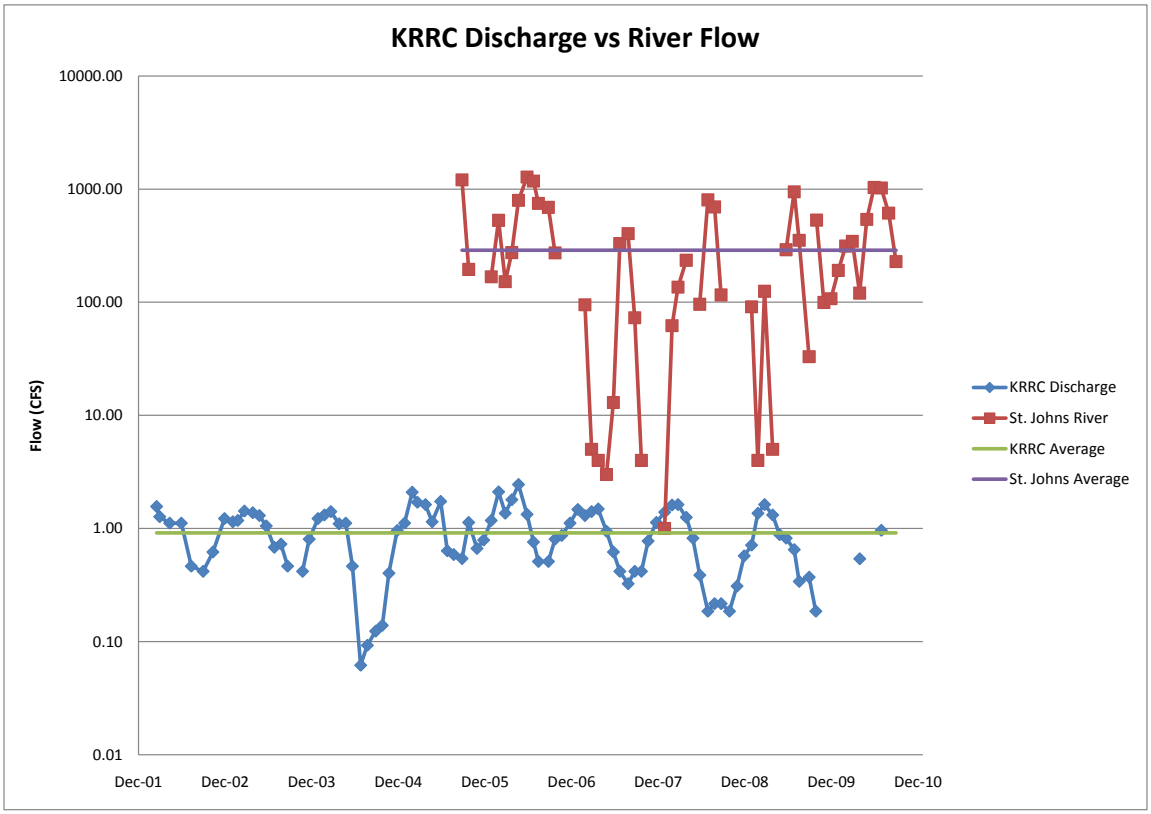
The charts shown below present the monthly average flow rate in the St. Johns River from August 2005 through September 2010 and monthly average E-1 discharge rate from February 2002 through July 2010. The first chart uses a linear scale to show the flow rates. On this chart, it is readily apparent that the E-1 discharge is nearly imperceptible compared to the river flow rates. The second chart uses a logarithmic scale to show the flow rates. Also shown are the overall average flow rate for the river (288 cfs) and the overall average E-1 discharge rate (0.9 cfs). Overall, the average E-1 discharge rate is approximately 0.3 percent (i.e. less than one three-hundredths, or 1/300) of the average river flow, when the river is flowing. The flow data indicate that, on an annual basis, the river provides an approximate 330-fold dilution of the water released to the river at E-1. Therefore, there is not a reasonable potential that the discharge could affect water quality in the river except for brief periods when there is very low flow in the river.

The flow data show that from 2005 to 2010, periods of no flow occurred consistently in October and November, and occasionally in September, December, and April. During periods of no flow, the water discharged to the St. Johns River at E-1 rapidly percolates into the subsurface and does not flow for an appreciable distance downstream of the facility. The months in which there is no flow in the river are not typically part of the irrigation season, so any percolation during these months will not affect irrigation conditions in any way. Therefore, the rapid percolation of the groundwater discharged into

the river does not create the potential for exceedance of irrigation water-quality standards downstream when there is no flow in the river.

As discussed above, the groundwater contour maps and the water-level hydrographs demonstrate that percolation from the rivers is the predominant control mechanism affecting groundwater flow directions and water levels in the area. The discharge from the facility, which is predominantly groundwater pumped from the pit to keep it dewatered, is miniscule in comparison with the flow in the river. Since the groundwater in the area primarily originates from percolation from the river, the discharge from the facility simply represents return of the same water back to the river so that the water can percolate into the subsurface again farther downstream. Discussion of the December 10, 2010 groundwater quality data, below, also supports this conclusion.





Groundwater Quality Data Collected in December 2010

Water samples were collected from the E-1 discharge point and from a groundwater well adjacent to the KRRC office on December 10, 2010 by Bruce Bunting. The samples were analyzed for general mineral parameters, total metals, and oil & grease by BSK Laboratories in Fresno. The analytical laboratory reports are provided as an attachment to this Technical Memorandum. The Office Well is located east and upgradient of the pit at the Kaweah River Rock facility. The E-1 discharge consists primarily of groundwater being dewatered from the quarry pit, downgradient of the processing area and the settling ponds. Therefore, comparison of water-quality parameters from E-1 and the Office Well will provide an indication of any potential effects the mining operations may be having on groundwater quality.

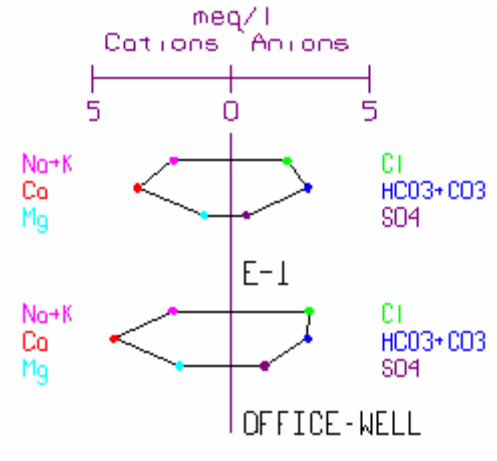
Oil & grease and most metals were not detected in either sample. The table below shows the results for detected constituents. The following two figures are a Stiff Plot and a Piper Diagram of the general mineral parameters. Stiff Plots and Piper Diagrams are standard graphical techniques for analysis of water quality and comparison of water samples.

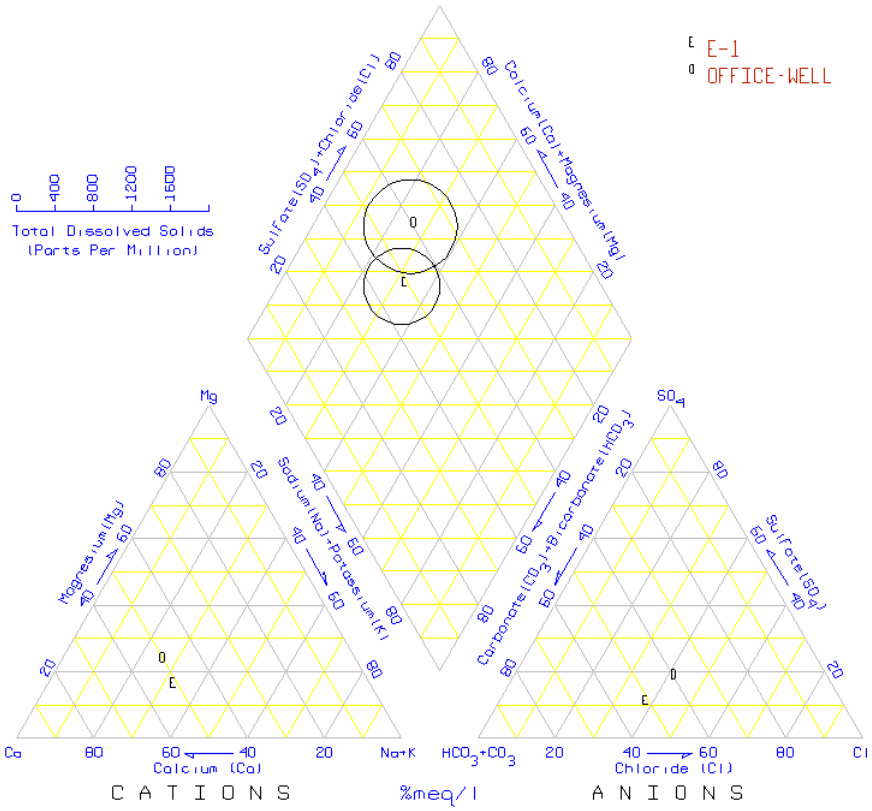
Overall, the two water samples are relatively similar. Both samples are primarily a calcium-bicarbonate water type, as demonstrated by the similar shape of the Stiff Plots and the similar locations of the

sample results on the Piper Diagrams. The sample from the Office Well, however, has notably higher concentrations of chloride, sulfate, calcium, magnesium, and zinc, resulting in higher electrical conductivity (EC) and total dissolved solids (TDS) values than the sample from E-1. The sample from E-1, however, had somewhat elevated levels of manganese, consistent with past monitoring results, whereas the sample from the Office Well did not contain manganese. It should be noted that monitoring data from the domestic wells in the recharge gallery west of the pit has not identified the consistent presence of manganese in groundwater downgradient of the Kaweah River Rock facility, as discussed further below. The sample from E-1 also contained arsenic and boron, although these two metals were present at concentrations only slightly above the detection limit.

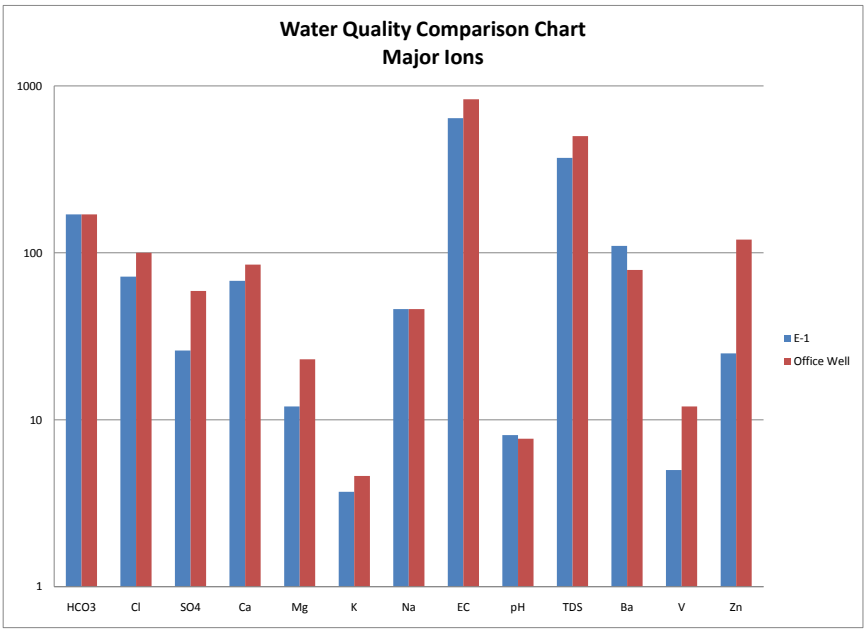
Kaweah River Rock Company
Water Quality Data
Collected 12-10-2010

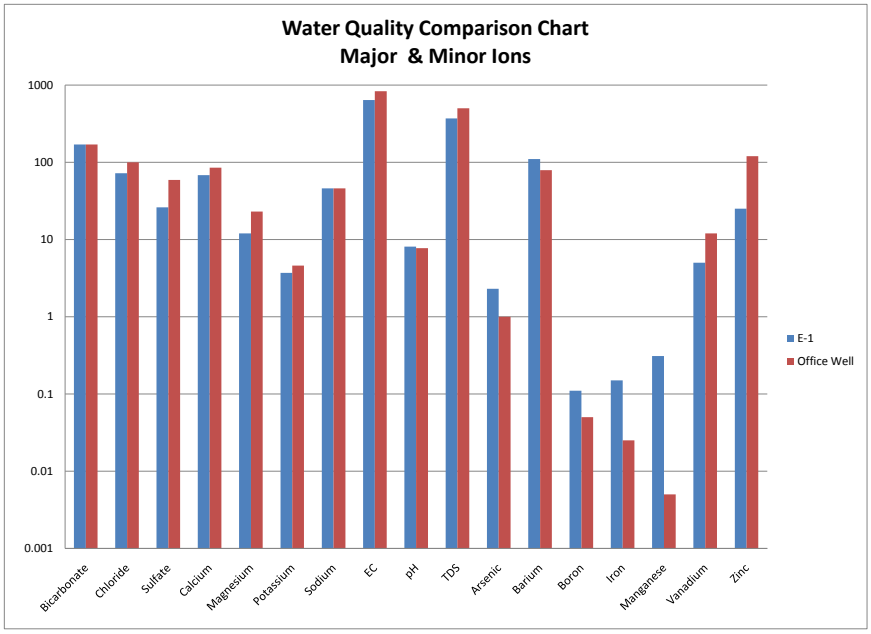
Parameter	Units	E-1	Office Well
Bicarbonate	mg/L	170	170
Chloride	mg/L	72	100
Sulfate	mg/L	26	59
Calcium	mg/L	68	85
Magnesium	mg/L	12	23
Potassium	mg/L	3.7	4.6
Sodium	mg/L	46	46
EC	uS/cm	640	830
pH		8.1	7.7
TDS	mg/L	370	500
Arsenic	ug/L	2.3	<2
Barium	ug/L	110	79
Boron	mg/L	0.11	<0.1
Iron	mg/L	0.15	<0.05
Manganese	mg/L	0.31	<0.01
Vanadium	ug/L	<10	12
Zinc	ug/L	<50	120





The water-quality data can also be evaluated using basic graphing methods, as shown below. The first bar chart compares the major ions plus EC, TDS, and pH in the two samples. The major ions are defined as those present at a concentration of more than one milligram per liter (mg/L) or part per million (ppm). As discussed above, the first bar chart clearly shows that the concentrations of the major ions are similar in both samples but that the concentrations in Office Well sample are slightly higher for most constituents. On the second bar chart, the minor ions (those present at concentrations less than one mg/L) are also shown.

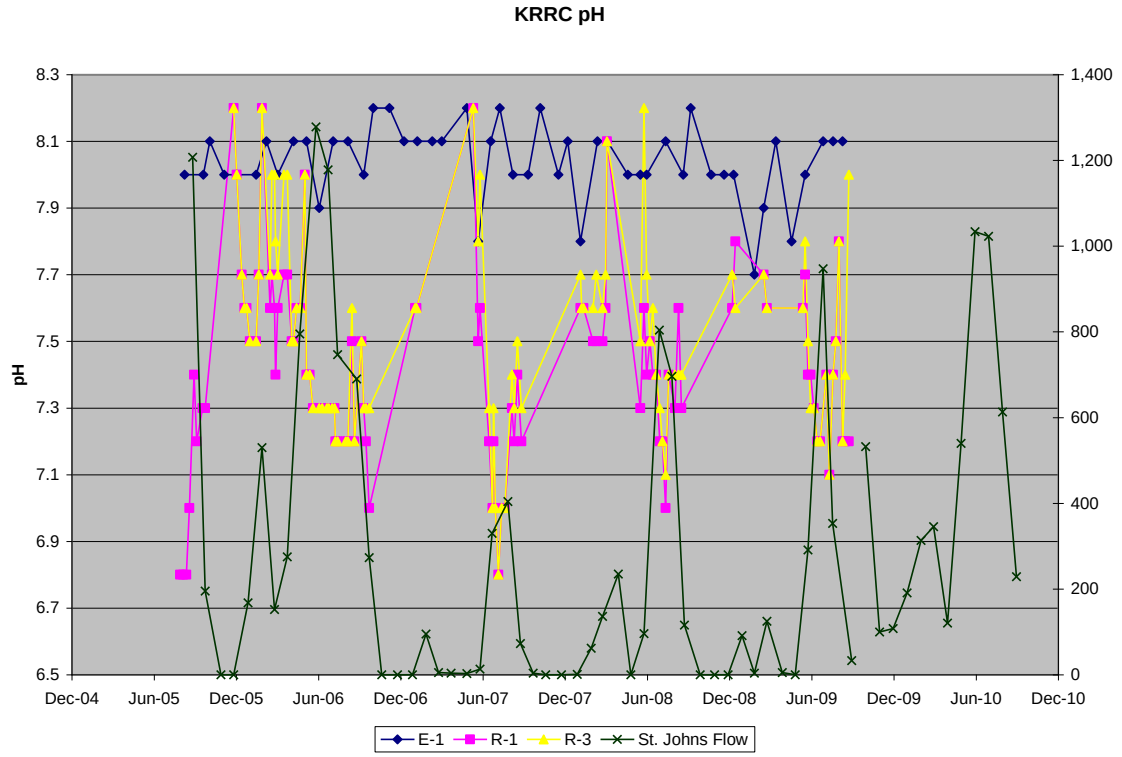

Water Quality Comparison Chart
Major Ions
1000
100
10
1
HCO3
Cl
SO4
Ca
Mg
K
Na
EC
pH
TDS
Ba
V
Zn
E-1
Office Well



Comparison of pH Levels in the Discharge and the Receiving Water

Both the current and the Draft Permit include a condition that the discharge not cause the pH of the water in the St. Johns River to fall below 6.5, exceed 8.3, or change at any time by more than 0.3 units from normal ambient pH. The chart entitled "KRRC pH", below, shows the pH data from R-1 and R-3, and the pH data from the effluent, E-1. In addition, the flow rate in the St. Johns River at McKays Point is shown on the chart.

The data presented on the KRRC pH chart show that the pH at both R-1 and R-3 has varied from 6.8 to 8.2, within the permit limits. The pH at E-1 has been more consistent, only varying from 7.7 to 8.2, with most of the measurements between 8.0 and 8.1. The data also clearly demonstrate that there is not a "normal ambient pH" in the river. The pH in the river can change dramatically based on short-term fluctuations in flow. For example, between May 14, 2007 and July 9, 2007, a period of seven weeks, the pH changed by 1.4 units, from 8.2 to 6.8, in both R-1 and R-3. This rapid change in pH was unrelated to the discharge at E-1 since the same magnitude of fluctuation was observed both upstream, at R-1, and downstream, at R-3.



During the period from August 2005 through April 2010, the pH in the upstream receiving water sample, R-1, was 0.4 units greater than the downstream sample, R-3, on five occasions out of approximately 250 weekly measurements. The pH difference between R-1 and R-3 was never greater than 0.4 pH units during the period from August 2005 through April 2010. The table below shows the dates when the pH differed between R-1 and R-3 by 0.4 pH units. The table also shows the difference between the flow in the river at those times and the discharge flow rate. The very small volume of the discharge at E-1 is insufficient to cause a measurable change in pH in the receiving water. For example, in February 2006, the flow in the St. Johns River was 152 cfs whereas the discharge was 0.88 cfs, or one-half of one percent of the river flow. The data from May 2007 is even more definitive in that the E-1 discharge pH of 7.8 could not have caused the pH in the river to change from 7.6 to 8.0.

Date	pH			Flow (cfs)	
	R-1	R-3	E-1	R-1	E-1
2/21/2006	7.6	8.0			
2/27/2006	7.6	8.0	8.0	152	0.88
3/1/2006	7.4	7.8			
3/6/2006	7.6	8.0			
5/25/2007			7.8		
5/29/2007	7.6	8.0		13	0.4

In summary, the data demonstrate that:

1. the pH in the St. Johns River varies appreciably based on flow;
2. The pH in the discharge and in the effluent have always been within the permit limit of 6.5 to 8.3 pH units;
3. There is not a "normal ambient pH" in the river;
4. During the very few occasions when the change in pH from R-1 to R-3 was 0.4 pH units, the flow in the river was changing rapidly; and
5. The effluent could not have caused the pH fluctuations noted in the river.

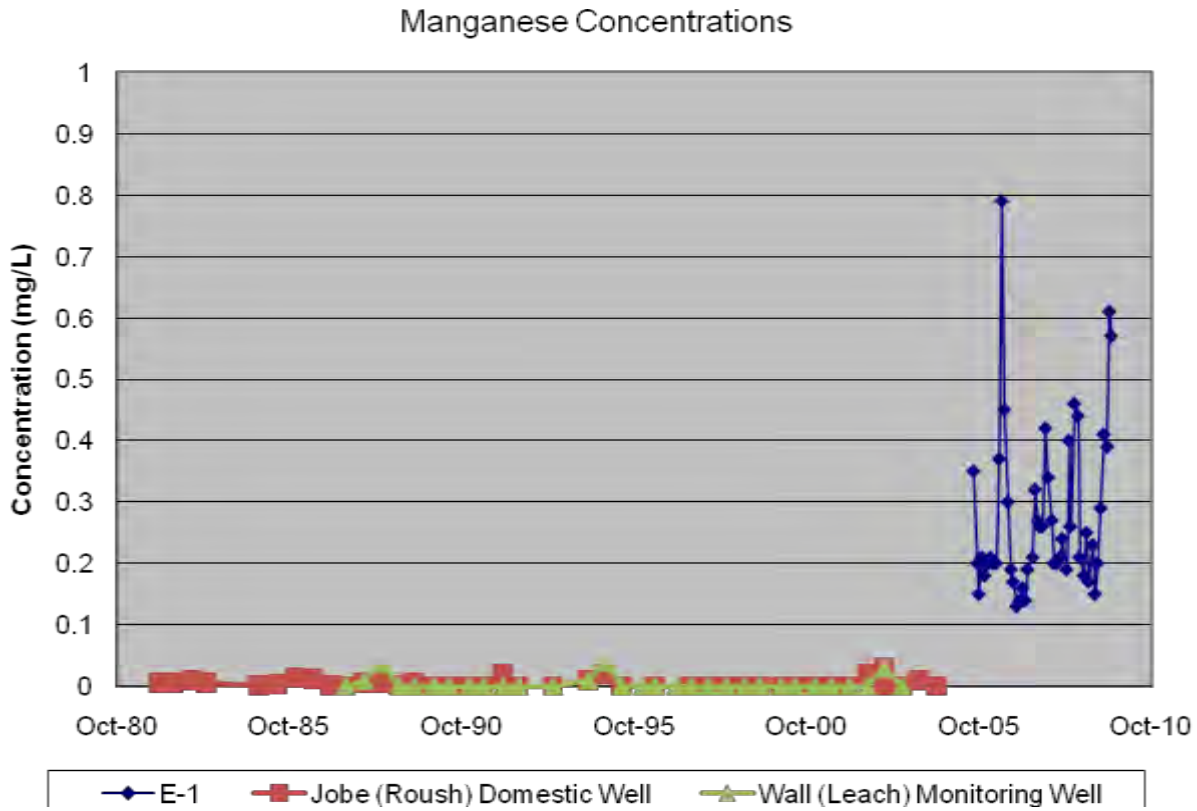
Additional Chemical Data Plots

RWQCB staff have raised the issue of the potential for iron and manganese to be mobilized in the settling ponds at the facility and subsequently affect groundwater quality downgradient of the facility. Based on our discussions with RWQCB staff, this concern is based on anecdotal information, and not on any documented occurrences or actual monitoring data or investigations. To evaluate the potential impact of the decades-long operation of the Kaweah River Rock facility on groundwater downgradient of the facility, charts comparing the iron and manganese concentrations in the E-1 effluent with groundwater concentrations in two downgradient wells have been prepared, as shown below. The two wells, the Jobe, or Roush, domestic well and the Wall, or Leach, monitoring well, have been monitored as part of the recharge gallery that is operated in compliance with the conditions of approval for the CUP for the mine issued by Tulare County. Part of the groundwater that is removed from the pit is directed to the recharge gallery; the remaining quantity of this water is discharged at E-1. Thus, the water that percolates at the recharge gallery is the same water that is discharged to the St. Johns River.

The Manganese Concentration chart shows that, despite the presence of approximately 0.25 to 0.3 mg/L manganese, on average, in the E-1 discharge and the recharge water, manganese is rarely detected in

the wells that are monitored in the recharge gallery. This chart demonstrates that the discharge into the St. Johns River, the recharge gallery, and operations at the facility itself have not resulted in any change in downgradient groundwater quality with respect to manganese.

The Iron Concentration chart shows that iron concentrations in the two wells monitored in the recharge gallery fluctuate appreciably. On many occasions, the iron concentration is relatively low, less than 0.1 mg/L. Occasionally, however, the concentration will spike for a brief period to concentrations that are much higher than those in the E-1 discharge and the recharge water. The E-1 discharge and recharge gallery cannot cause the iron concentrations in groundwater to reach concentrations that are greater than that in the discharge itself. Therefore, it is likely that the spikes in iron concentrations observed in the monitoring wells are due to sampling issues (e.g. high suspended solids affecting total metals results) or well issues (e.g. corrosion). In any case, there is no evidence that the facility has affected iron concentrations in groundwater immediately downgradient.



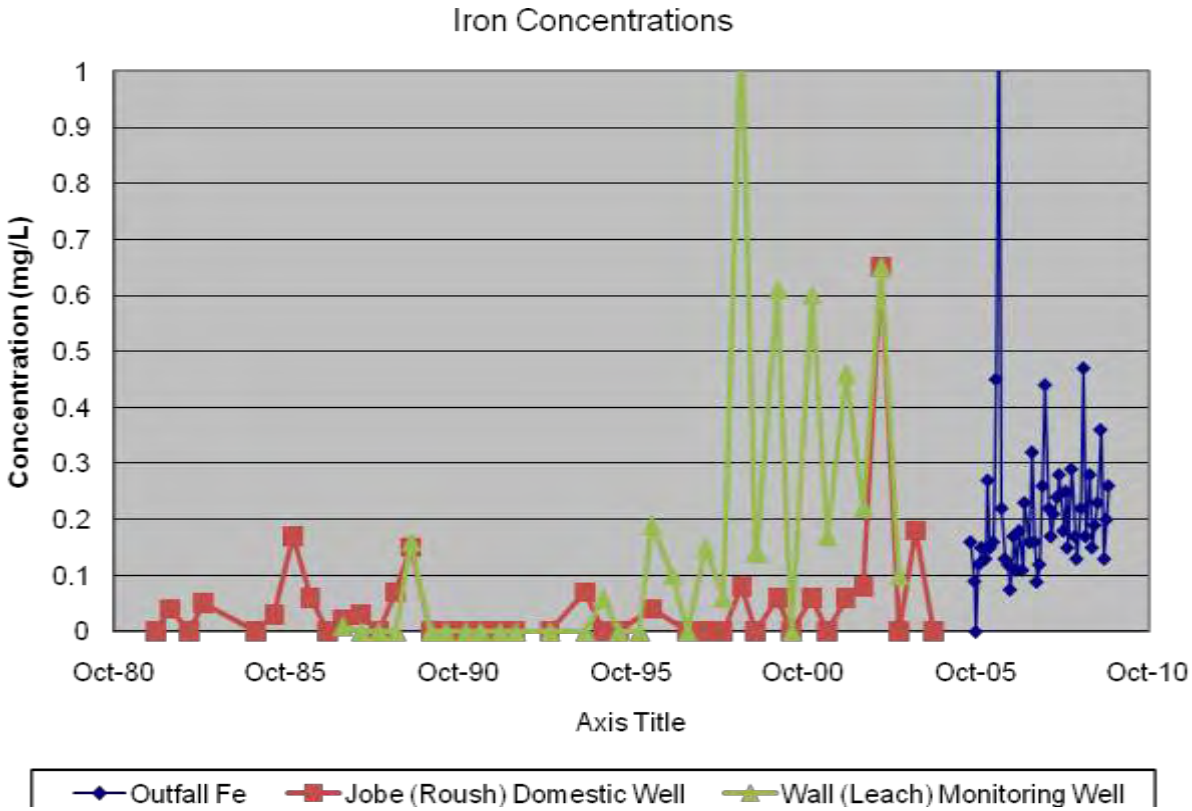

Iron Concentrations
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Oct-80
Oct-85
Oct-90
Oct-95
Oct-00
Oct-05
Oct-10
Axis Title
Outfall Fe
Jobe (Roush) Domestic Well
Wall (Leach) Monitoring Well

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Figure 1
Location Map
Santa Fe Aggregates Kaweah Plant
Woodlake, California

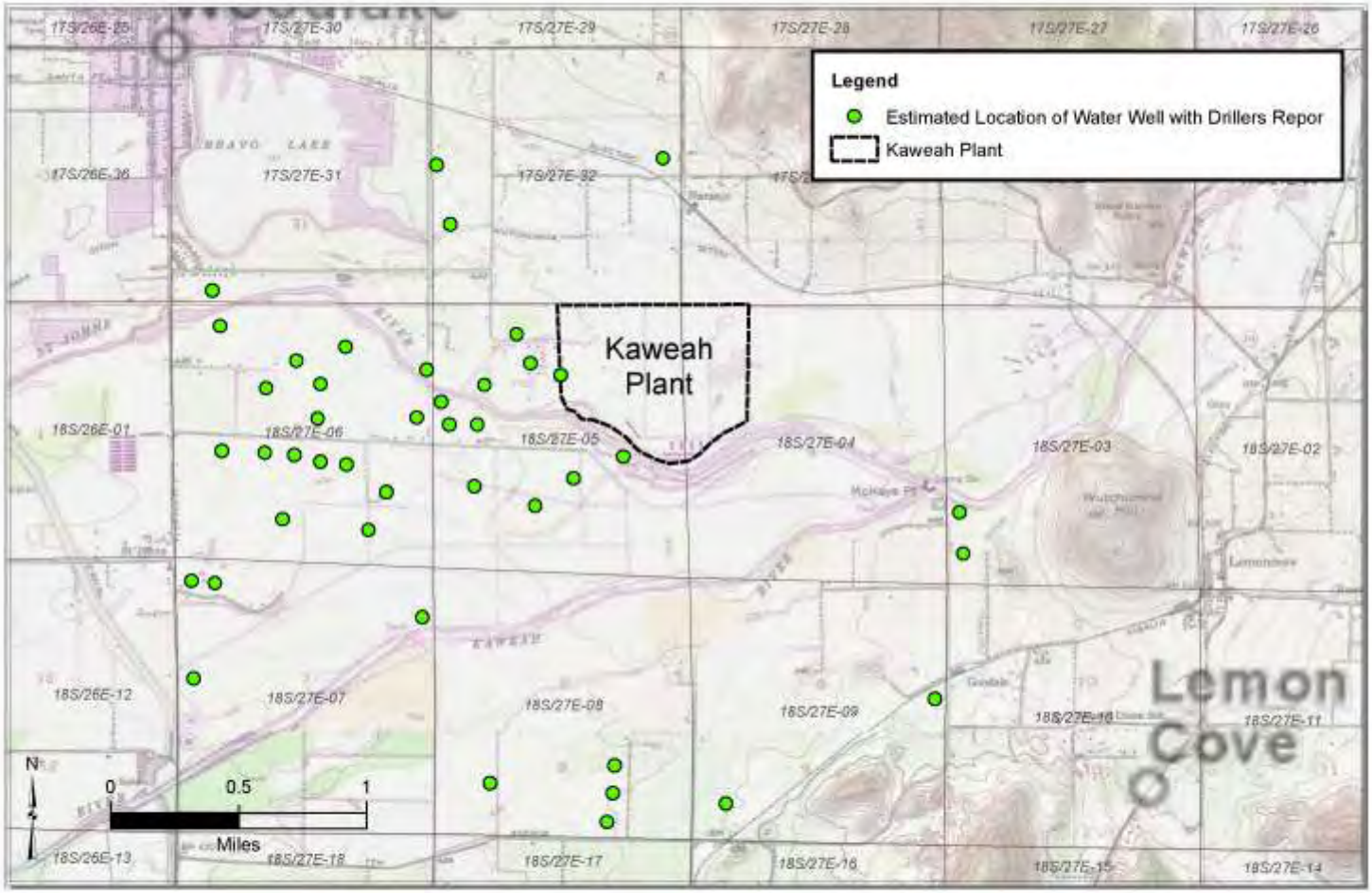

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Figure 2
Well Qualification Map
Estimated Well Locations with Drillers Reports
Kaweah Plant and Vicinity

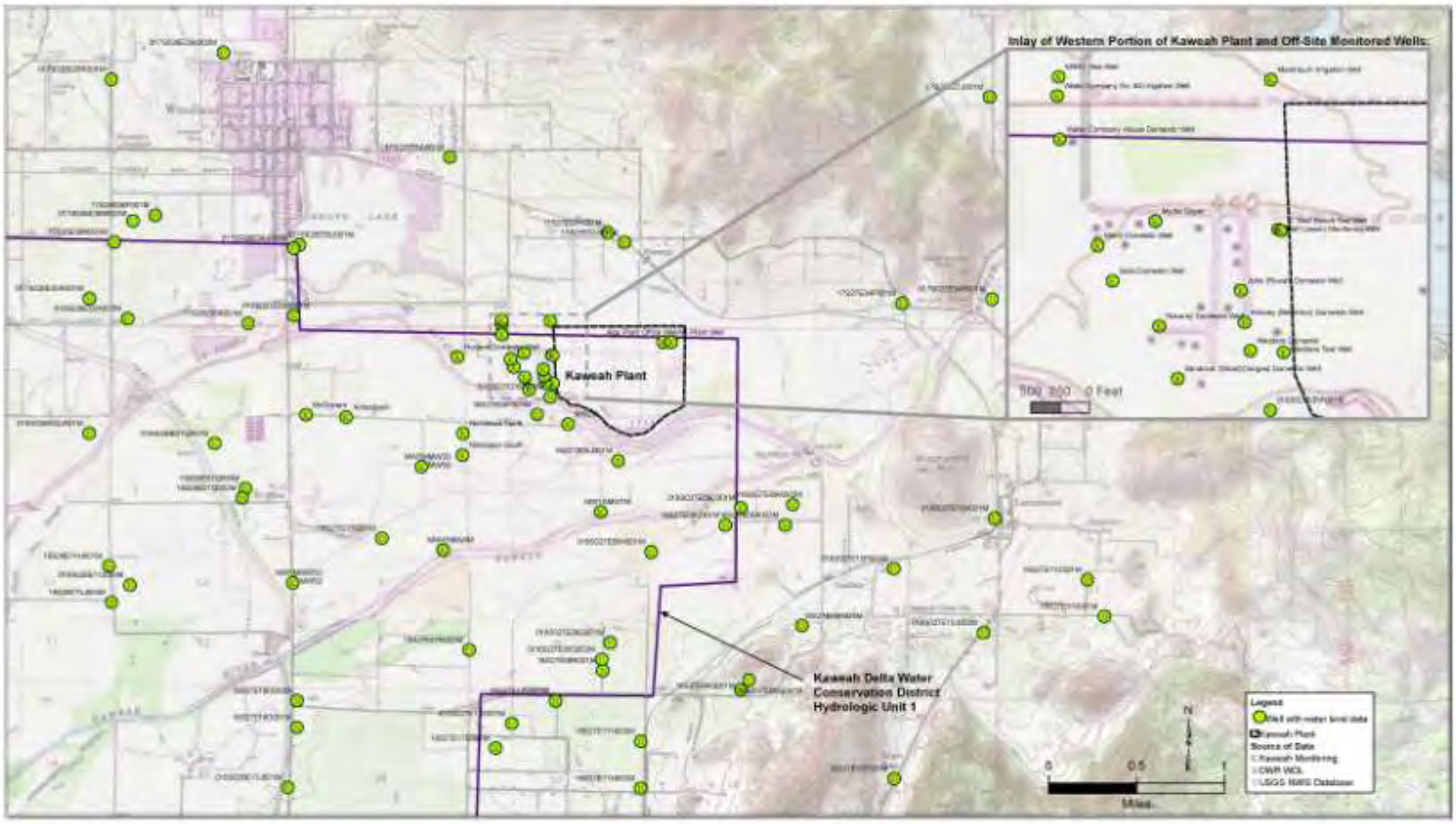

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Figure 3
Wells with Groundwater Elevation Data
Kaweah Plant Vicinity

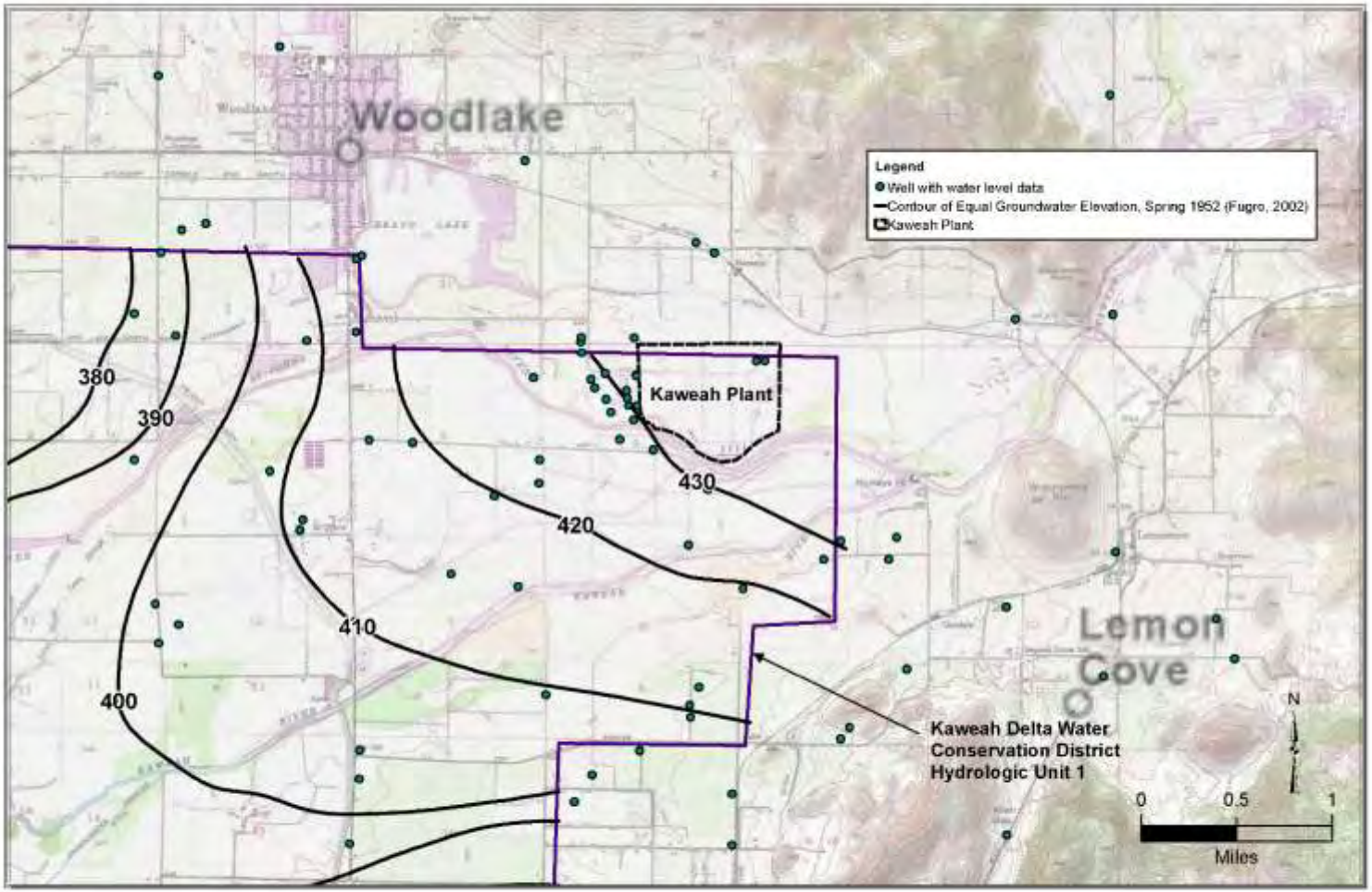

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Figure 4
Contours of Equal Groundwater Elevation
Spring 1952

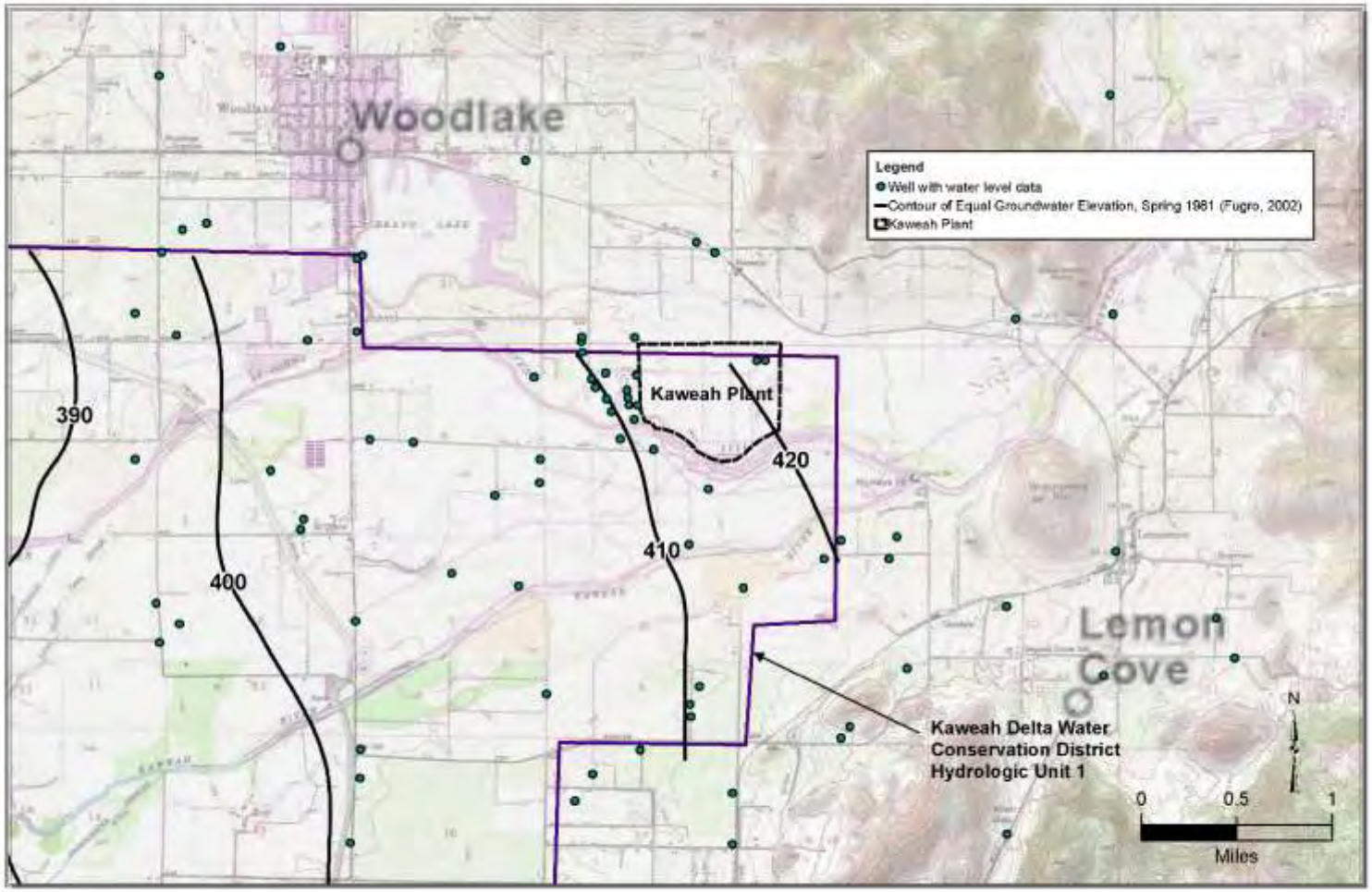

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Figure 5
Contours of Equal Groundwater Elevation
Spring 1981

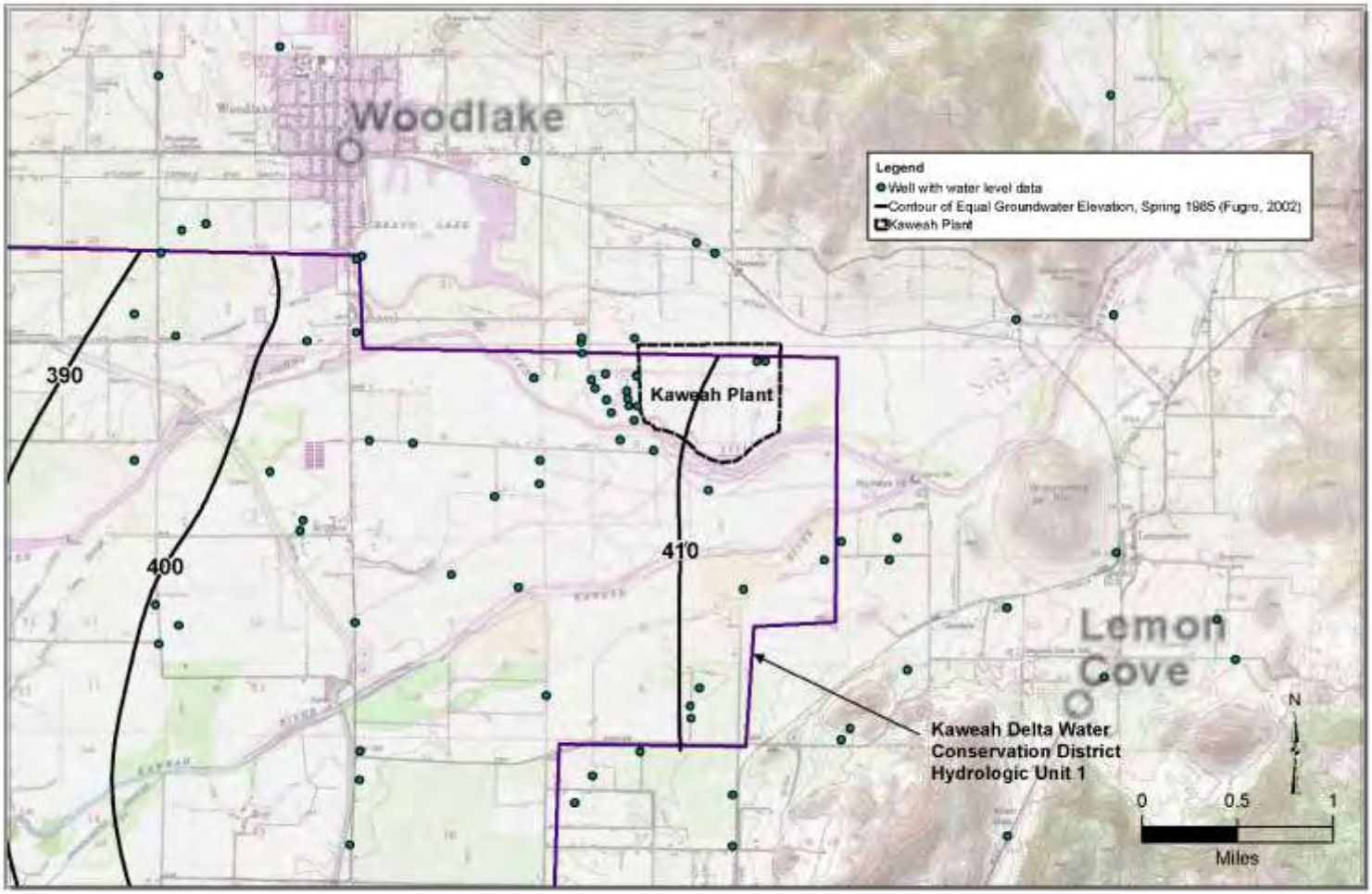

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Figure 6
Contours of Equal Groundwater Elevation
Spring 1985

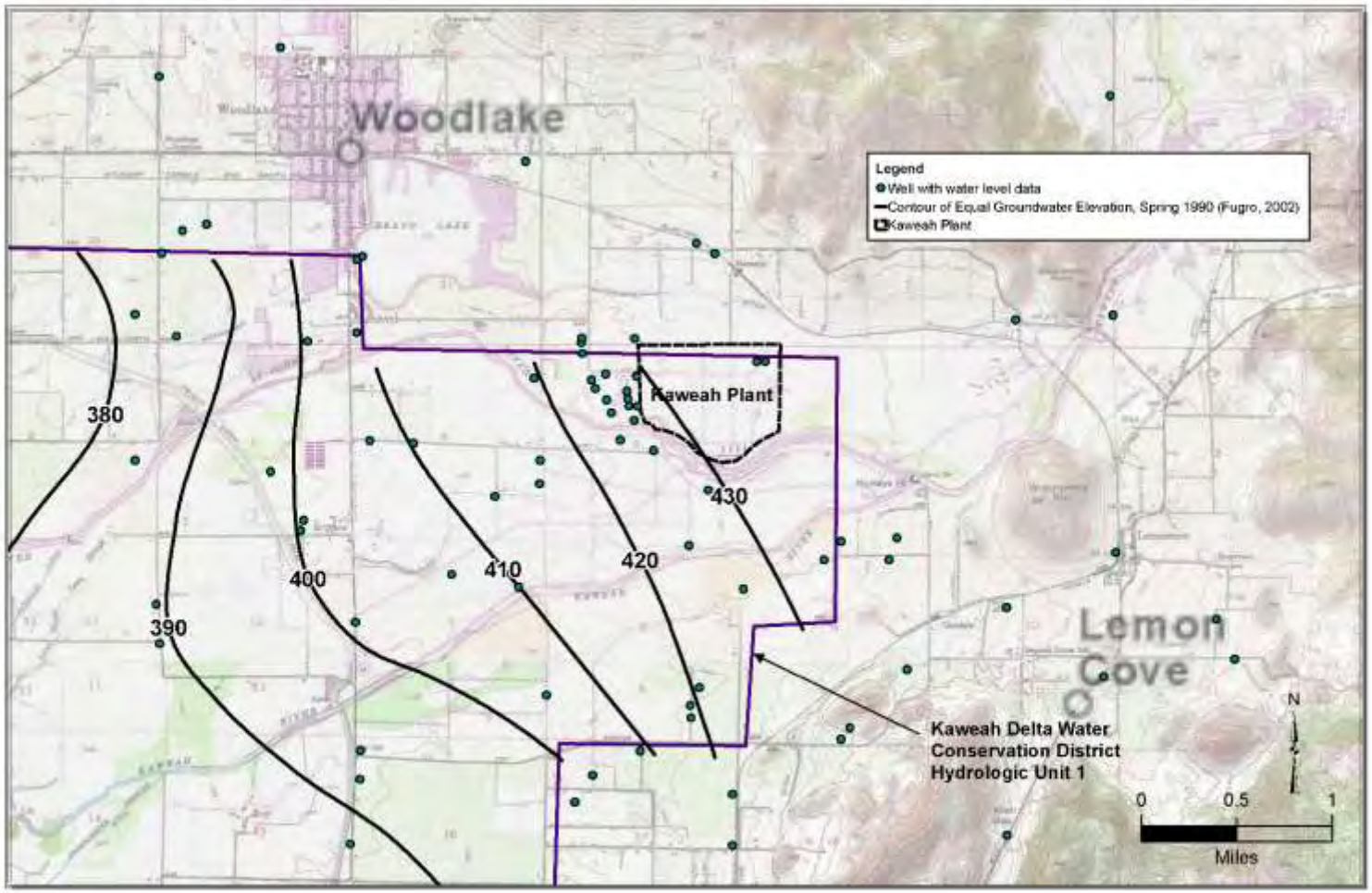

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Figure 7
Contours of Equal Groundwater Elevation
Spring 1990

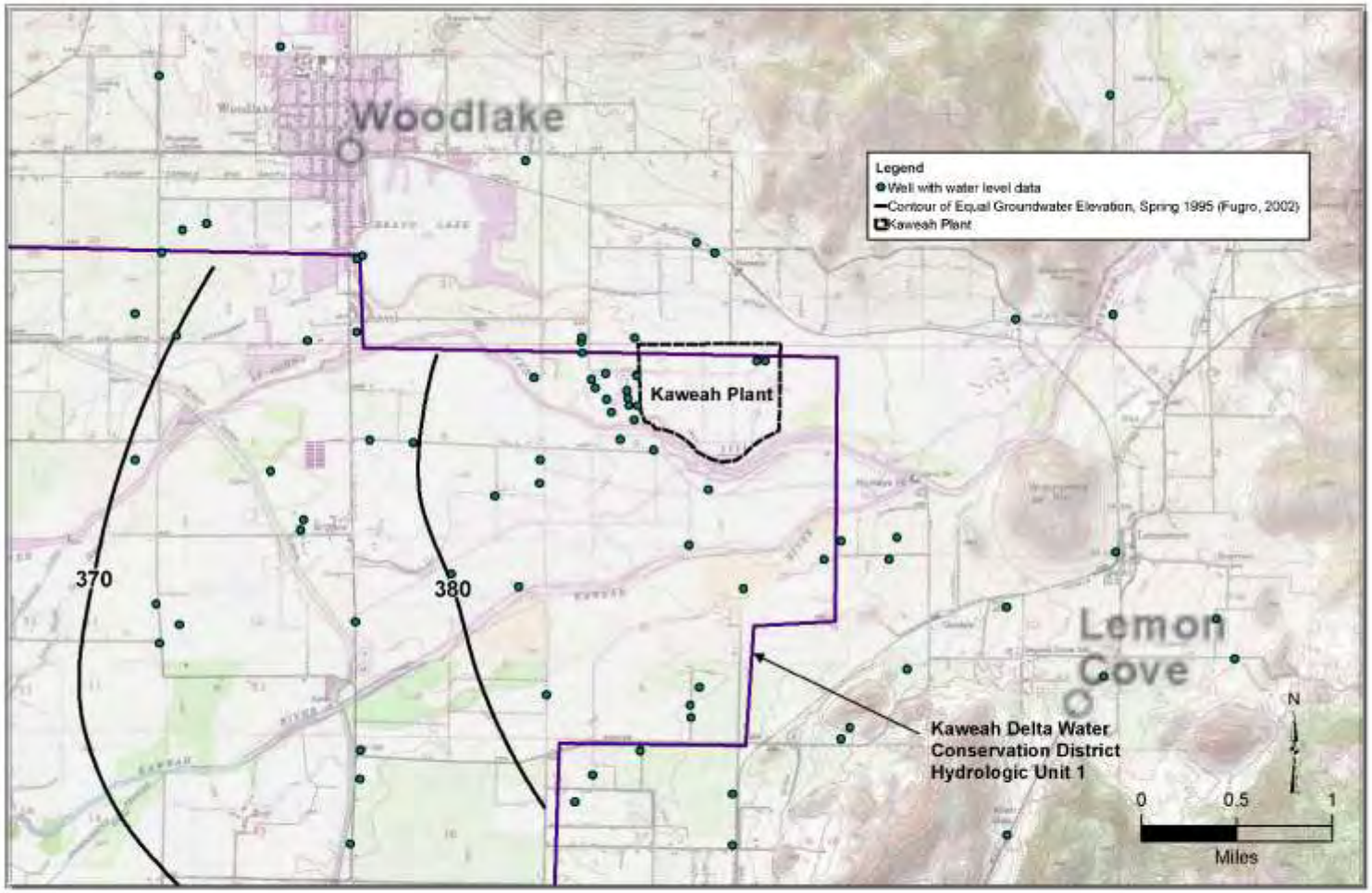

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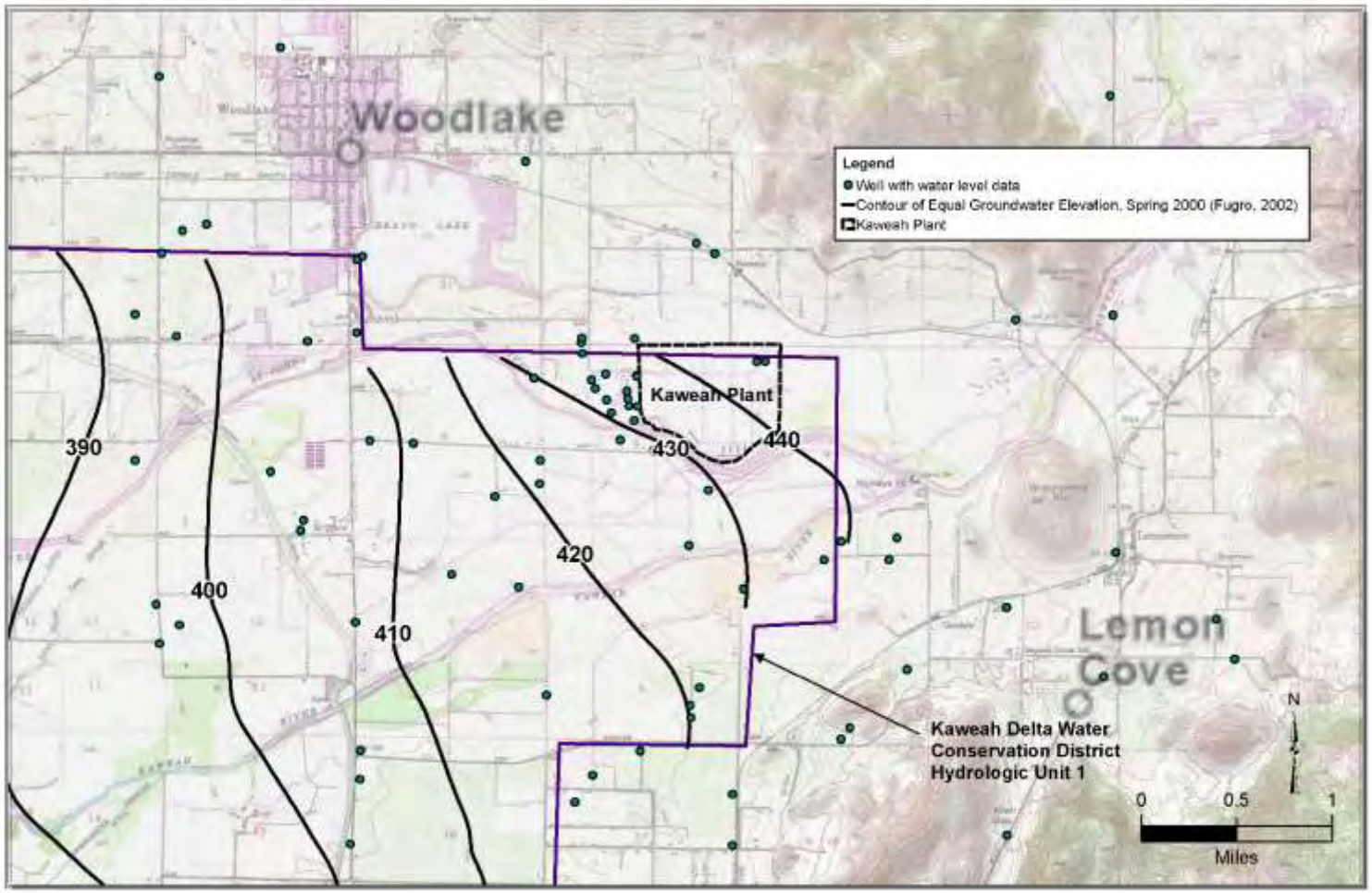
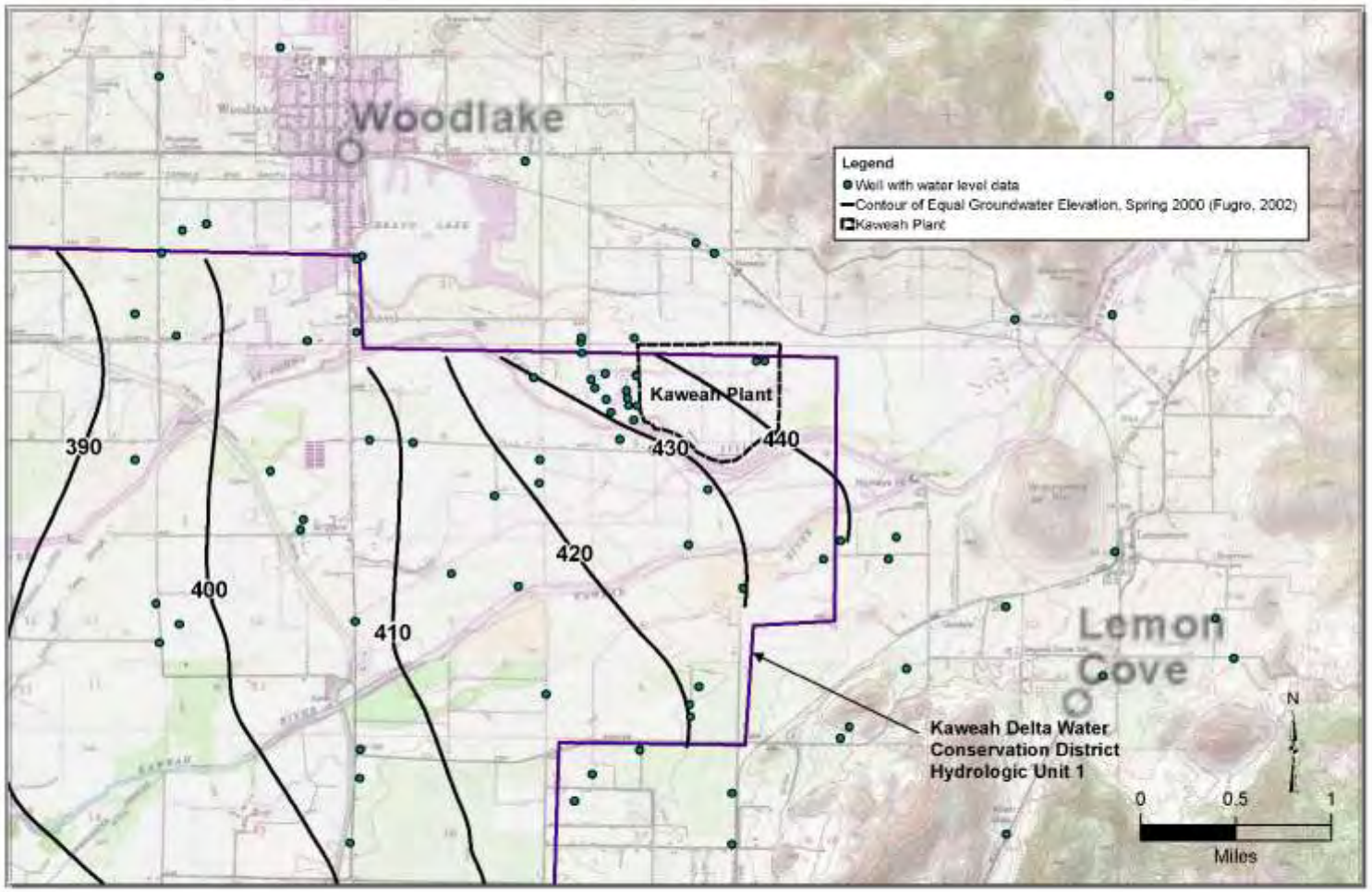
Figure 8
Contours of Equal Groundwater Elevation
Spring 1995



Y:\Kaweah River Rock\Data\GIS\WLEContourMaps.mxd

LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Figure 9
Contours of Equal Groundwater Elevation
Spring 2000



Y:\Kaweah River Rock\Data\GIS\WLEContourMaps.mxd

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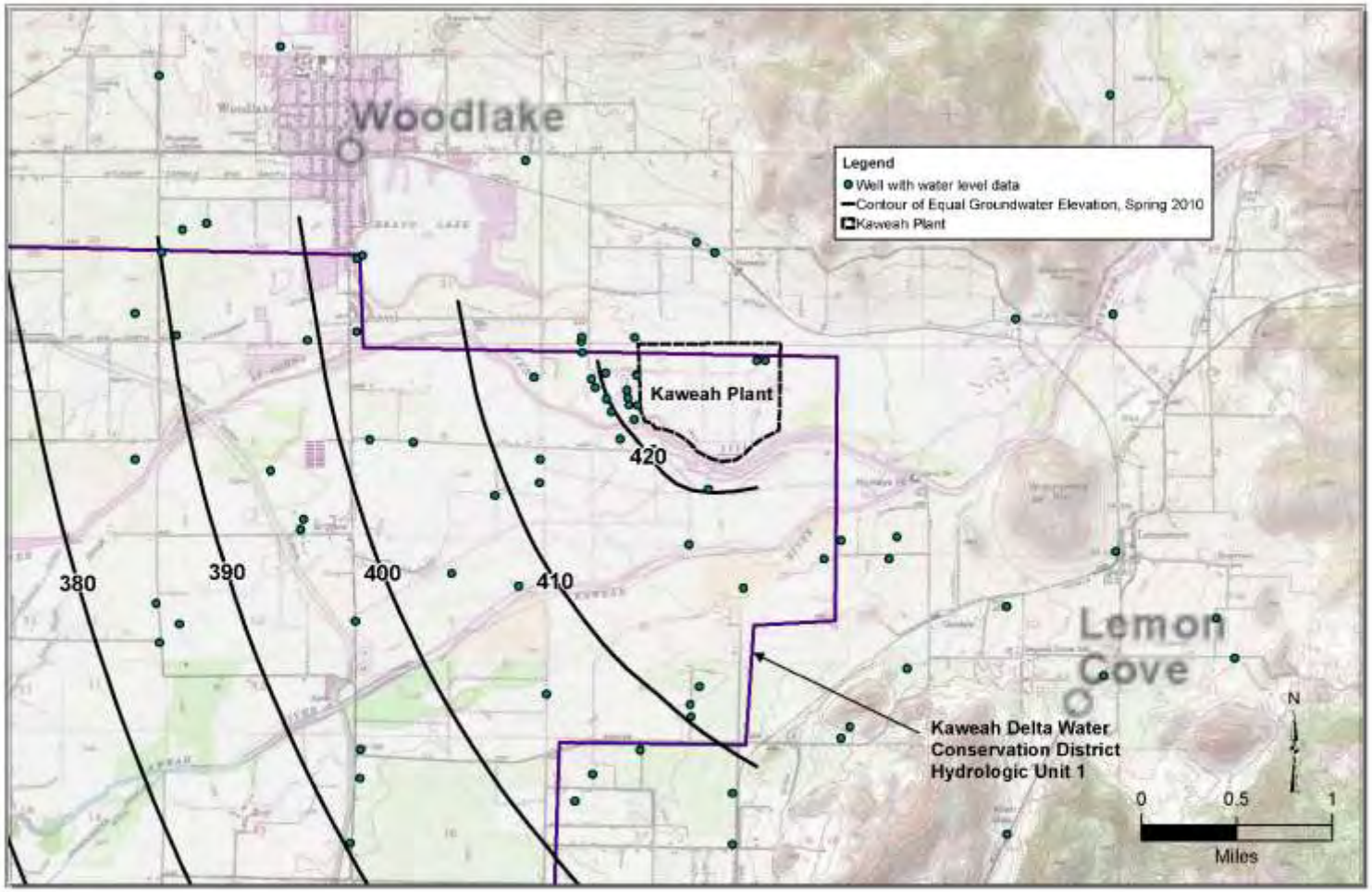
Figure 9
Contours of Equal Groundwater Elevation
Spring 2000



Y:\Kaweah River Rock\Data\GIS\WLEContourMaps.mxd

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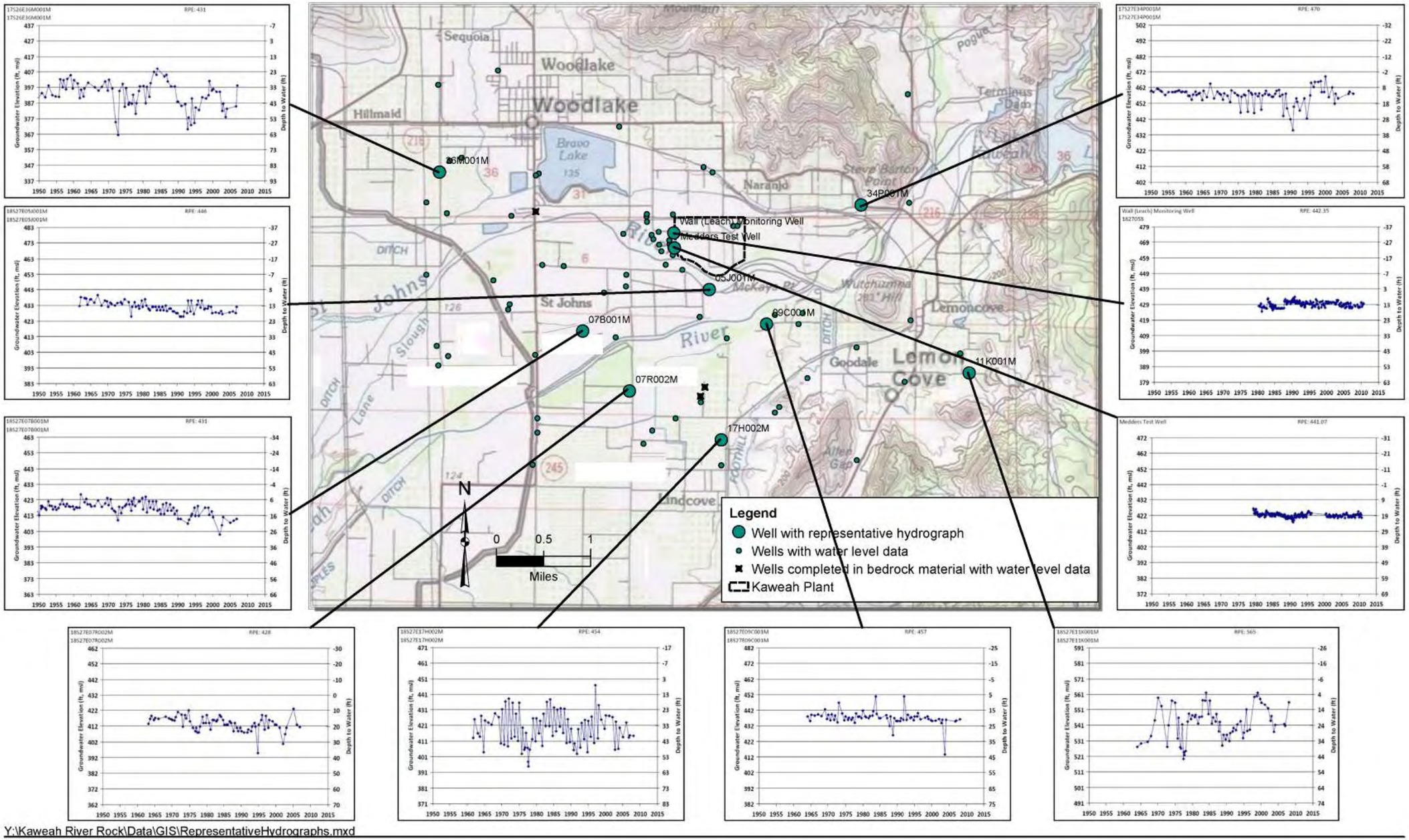
Figure 11
Contours of Equal Groundwater Elevation
Spring 2010



Y:\Kaweah River Rock\Data\GIS\RepresentativeHydrographs.mxd

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Figure 12
Wells with Water Level Data
and Representative Hydrographs

BSK Analytical Laboratories
Engineers & Laboratories

A0L0818

12/17/2010

Bruce Bunting
Kaweah River Rock
PO Box 515
Woodlake, CA 93286

Dear Bruce Bunting,

Thank you for selecting BSK Analytical Laboratories for your analytical testing needs. We have prepared this report in response to your request for analytical services. Enclosed are the results of analyses for samples received by the laboratory on 12/10/2010 13:25.

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

BSK ANALYTICAL LABORATORIES

Paul Erickson
Client Services Representative

1414 Stanislaus Street **Fresno, CA 93706** **(559) 497-2888** **FAX (559) 485-6935** **www.bsklabs.com**

Case Narrative

Work Order Information

Client Name:	Kaweah River Rock	**Submitted by:**	Bruce Bunting
Client Code:	Kawea3302	**Shipped by:**	Walk-In
Work Order:	A0L0818	**COC Number:**	
Project:	Drinking Water Study	**TAT:**	5
Client Project:	E-1 & Office Well	**PO #:**	

Sample Receipt Conditions

Cooler: **Default Cooler** **Temp. ºC:** 4

Containers Intact
COC/Labels Agree
Received On Blue Ice
Sample(s) arrived at lab on same day sampled.
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Report Manager
Bruce Bunting

Report Format
FAL Final Report.rpt

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Engineers & Laboratories

Certificate of Analysis

Bruce Bunting
Kaweah River Rock
PO Box 515
Woodlake, CA 93286

Report Issue Date: 12/17/2010 7:32
Received Date: 12/10/2010
Received Time: 13:25

Lab Sample ID: A0L0818-01
Sample Date: 12/10/2010 08:20
Sample Type: Grab

Client Project: E-1 & Office Well
Sampled by: Client
Matrix: Water

Sample Description: E-1

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Aggressive Index		13				A012511	12/16/10	12/16/10	
Alkalinity as CaCO3	SM 2320 B	170	3.0	mg/L	1	A012289	12/10/10	12/10/10	
Bicarbonate as CaCO3	SM 2320 B	170	3.0	mg/L	1	A012289	12/10/10	12/10/10	
Carbonate as CaCO3	SM 2320 B	ND	3.0	mg/L	1	A012289	12/10/10	12/10/10	
Hydroxide as CaCO3	SM 2320 B	ND	3.0	mg/L	1	A012289	12/10/10	12/10/10	
Chloride	EPA 300.0	72	2.0	mg/L	2	A012283	12/11/10	12/11/10	
Conductivity @ 25C	SM 2510 B	640	1.0	umhos/cm	1	A012289	12/10/10	12/10/10	
Langelier Index	SM 2330 B	0.62				A012511	12/16/10	12/16/10	
MBAS, Calculated as LAS, mol wt 340	SM 5540 C	ND	0.050	mg/L	1	A012271	12/10/10 18:20	12/10/10 18:20	
pH (1)	SM 4500-H+ B	8.1		pH Units	1	A012289	12/10/10	12/10/10	
pH Temperature in °C		23.3							
Sulfate as SO4	EPA 300.0	26	4.0	mg/L	2	A012283	12/11/10	12/11/10	
Total Dissolved Solids	SM 2540C	370	5.0	mg/L	1	A012309	12/13/10	12/15/10	

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Aluminum	EPA 200.7	ND	0.050	mg/L	1	A012340	12/14/10	12/14/10	
Antimony	EPA 200.8	ND	2.0	ug/L	1	A012340	12/14/10	12/16/10	
Arsenic	EPA 200.8	2.3	2.0	ug/L	1	A012340	12/14/10	12/16/10	
Barium	EPA 200.8	110	5.0	ug/L	1	A012340	12/14/10	12/16/10	
Beryllium	EPA 200.8	ND	1.0	ug/L	1	A012340	12/14/10	12/16/10	
*Boron	EPA 200.7	0.11	0.10	mg/L	1	A012340	12/14/10	12/14/10	
Cadmium	EPA 200.8	ND	1.0	ug/L	1	A012340	12/14/10	12/16/10	
Calcium	EPA 200.7	68	0.10	mg/L	1	A012340	12/14/10	12/14/10	
Chromium	EPA 200.8	ND	10	ug/L	1	A012340	12/14/10	12/16/10	
*Cobalt	EPA 200.8	ND	10	ug/L	1	A012340	12/14/10	12/16/10	
Copper	EPA 200.7	ND	0.050	mg/L	1	A012340	12/14/10	12/14/10	
Copper	EPA 200.8	ND	5.0	ug/L	1	A012340	12/14/10	12/16/10	
Hardness as CaCO3		220		mg/L					
Hardness as CaCO3	SM 2340B	220		mg/L					
Iron	EPA 200.7	0.15	0.050	mg/L	1	A012340	12/14/10	12/14/10	
Lead	EPA 200.8	ND	5.0	ug/L	1	A012340	12/14/10	12/16/10	
Magnesium	EPA 200.7	12	0.10	mg/L	1	A012340	12/14/10	12/14/10	
Manganese	EPA 200.7	0.31	0.010	mg/L	1	A012340	12/14/10	12/14/10	
Mercury	EPA 200.8	ND	0.40	ug/L	1	A012340	12/14/10	12/16/10	
*Molybdenum	EPA 200.8	ND	10	ug/L	1	A012340	12/14/10	12/16/10	

BSK Analytical Laboratories
Engineers & Laboratories

Certificate of Analysis

Bruce Bunting
Kaweah River Rock
PO Box 515
Woodlake, CA 93286

Report Issue Date: 12/17/2010 7:32
Received Date: 12/10/2010
Received Time: 13:25

Lab Sample ID: A0L0818-01
Sample Date: 12/10/2010 08:20
Sample Type: Grab

Client Project: E-1 & Office Well
Sampled by: Client
Matrix: Water

Sample Description: E-1

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Nickel	EPA 200.8	ND	10	ug/L	1	A012340	12/14/10	12/16/10	
Potassium	EPA 200.7	**3.7**	2.0	mg/L	1	A012340	12/14/10	12/14/10	
Selenium	EPA 200.8	ND	2.0	ug/L	1	A012340	12/14/10	12/16/10	
Silver	EPA 200.7	ND	0.010	mg/L	1	A012340	12/14/10	12/14/10	
Silver	EPA 200.8	ND	10	ug/L	1	A012340	12/14/10	12/16/10	
Sodium	EPA 200.7	**46**	1.0	mg/L	1	A012340	12/14/10	12/14/10	
Thallium	EPA 200.8	ND	1.0	ug/L	1	A012340	12/14/10	12/16/10	
*Vanadium	EPA 200.8	ND	10	ug/L	1	A012340	12/14/10	12/16/10	
Zinc	EPA 200.7	ND	0.050	mg/L	1	A012340	12/14/10	12/14/10	
Zinc	EPA 200.8	ND	50	ug/L	1	A012340	12/14/10	12/16/10	

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Oil and Grease (HEM)									
*Total Oil & Grease	EPA 1664A	ND	1.0	mg/L	1	A012335	12/13/10	12/14/10	

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Engineers & Laboratories

Certificate of Analysis

Bruce Bunting
Kaweah River Rock
PO Box 515
Woodlake, CA 93286

Report Issue Date: 12/17/2010 7:32
Received Date: 12/10/2010
Received Time: 13:25

Lab Sample ID: A0L0818-02
Sample Date: 12/10/2010 11:30
Sample Type: Grab

Client Project: E-1 & Office Well
Sampled by: Client
Matrix: Water

Sample Description: Office

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
*Aggressive Index		12				A012511	12/16/10	12/16/10	
Alkalinity as CaCO3	SM 2320 B	170	3.0	mg/L	1	A012289	12/10/10	12/10/10	
Bicarbonate as CaCO3	SM 2320 B	170	3.0	mg/L	1	A012289	12/10/10	12/10/10	
Carbonate as CaCO3	SM 2320 B	ND	3.0	mg/L	1	A012289	12/10/10	12/10/10	
Hydroxide as CaCO3	SM 2320 B	ND	3.0	mg/L	1	A012289	12/10/10	12/10/10	
Chloride	EPA 300.0	100	2.0	mg/L	2	A012283	12/11/10	12/11/10	
Conductivity @ 25C	SM 2510 B	830	1.0	umhos/cm	1	A012289	12/10/10	12/10/10	
Langelier Index	SM 2330 B	0.30				A012511	12/16/10	12/16/10	
MBAS, Calculated as LAS, mol wt 340	SM 5540 C	ND	0.050	mg/L	1	A012271	12/10/10 18:20	12/10/10 18:20	
pH (1)	SM 4500-H+ B	7.7		pH Units	1	A012289	12/10/10	12/10/10	
pH Temperature in °C		23.5							
Sulfate as SO4	EPA 300.0	59	4.0	mg/L	2	A012283	12/11/10	12/11/10	
Total Dissolved Solids	SM 2540C	500	5.0	mg/L	1	A012309	12/13/10	12/15/10	

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Aluminum	EPA 200.7	ND	0.050	mg/L	1	A012361	12/14/10	12/14/10	
Antimony	EPA 200.8	ND	2.0	ug/L	1	A012350	12/14/10	12/14/10	
Arsenic	EPA 200.8	ND	2.0	ug/L	1	A012350	12/14/10	12/14/10	
Barium	EPA 200.8	79	5.0	ug/L	1	A012350	12/14/10	12/14/10	
Beryllium	EPA 200.8	ND	1.0	ug/L	1	A012350	12/14/10	12/14/10	
*Boron	EPA 200.7	ND	0.10	mg/L	1	A012361	12/14/10	12/14/10	
Cadmium	EPA 200.8	ND	1.0	ug/L	1	A012350	12/14/10	12/14/10	
Calcium	EPA 200.7	85	0.10	mg/L	1	A012361	12/14/10	12/14/10	
Chromium	EPA 200.8	ND	10	ug/L	1	A012408	12/15/10	12/15/10	
*Cobalt	EPA 200.8	ND	10	ug/L	1	A012350	12/14/10	12/14/10	
Copper	EPA 200.7	ND	0.050	mg/L	1	A012361	12/14/10	12/14/10	
Copper	EPA 200.8	ND	5.0	ug/L	1	A012350	12/14/10	12/14/10	
Hardness as CaCO3		310		mg/L					
Hardness as CaCO3	SM 2340B	310		mg/L					
Iron	EPA 200.7	ND	0.050	mg/L	1	A012361	12/14/10	12/14/10	
Lead	EPA 200.8	ND	5.0	ug/L	1	A012350	12/14/10	12/14/10	
Magnesium	EPA 200.7	23	0.10	mg/L	1	A012361	12/14/10	12/14/10	
Manganese	EPA 200.7	ND	0.010	mg/L	1	A012361	12/14/10	12/14/10	
Mercury	EPA 200.8	ND	0.40	ug/L	1	A012350	12/14/10	12/14/10	
*Molybdenum	EPA 200.8	ND	10	ug/L	1	A012350	12/14/10	12/14/10	

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BSK Analytical Laboratories
Engineers & Laboratories

Certificate of Analysis

Bruce Bunting
Kaweah River Rock
PO Box 515
Woodlake, CA 93286

Report Issue Date: 12/17/2010 7:32
Received Date: 12/10/2010
Received Time: 13:25

Lab Sample ID: A0L0818-02
Sample Date: 12/10/2010 11:30
Sample Type: Grab

Client Project: E-1 & Office Well
Sampled by: Client
Matrix: Water

Sample Description: Office

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Nickel	EPA 200.8	ND	10	ug/L	1	A012350	12/14/10	12/14/10	
Potassium	EPA 200.7	**4.6**	2.0	mg/L	1	A012361	12/14/10	12/14/10	
Selenium	EPA 200.8	ND	2.0	ug/L	1	A012408	12/15/10	12/15/10	
Silver	EPA 200.7	ND	0.010	mg/L	1	A012361	12/14/10	12/14/10	
Silver	EPA 200.8	ND	10	ug/L	1	A012350	12/14/10	12/14/10	
Sodium	EPA 200.7	**46**	1.0	mg/L	1	A012361	12/14/10	12/14/10	
Thallium	EPA 200.8	ND	1.0	ug/L	1	A012350	12/14/10	12/14/10	
***Vanadium**	EPA 200.8	**12**	10	ug/L	1	A012350	12/14/10	12/14/10	
Zinc	EPA 200.7	**0.13**	0.050	mg/L	1	A012361	12/14/10	12/14/10	
Zinc	EPA 200.8	**120**	50	ug/L	1	A012350	12/14/10	12/14/10	

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Oil and Grease (HEM)									
*Total Oil & Grease	EPA 1664A	ND	1.0	mg/L	1	A012335	12/13/10	12/14/10	

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General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Batch: A012271				Analyst: MAT		Prepared: 12/10/2010					
Blank (A012271-BLK1) SM 5540 C - Quality Control											
MBAS, Calculated as LAS, mol wt 340	ND	0.050	mg/L							12/10/10	
Blank Spike (A012271-BS1) SM 5540 C - Quality Control											
MBAS, Calculated as LAS, mol wt 340	0.91	0.050	mg/L	1.0		91	80-120			12/10/10	
Blank Spike Dup (A012271-BSD1) SM 5540 C - Quality Control											
MBAS, Calculated as LAS, mol wt 340	0.92	0.050	mg/L	1.0		92	80-120	1	20	12/10/10	
Matrix Spike (A012271-MS1) SM 5540 C - Quality Control					**Source: A0L0692-01**						
MBAS, Calculated as LAS, mol wt 340	0.87	0.050	mg/L	1.0	ND	87	80-120			12/10/10	
Matrix Spike Dup (A012271-MSD1) SM 5540 C - Quality Control					**Source: A0L0692-01**						
MBAS, Calculated as LAS, mol wt 340	0.89	0.050	mg/L	1.0	ND	89	80-120	1	20	12/10/10	
Batch: A012283				Analyst: AJT		Prepared: 12/10/2010					
Blank (A012283-BLK1) EPA 300.0 - Quality Control											
Chloride	ND	1.0	mg/L							12/11/10	
Sulfate as SO4	ND	2.0	mg/L							12/11/10	
Blank Spike (A012283-BS1) EPA 300.0 - Quality Control											
Chloride	48	1.0	mg/L	50		96	90-110			12/11/10	
Sulfate as SO4	48	2.0	mg/L	50		97	90-110			12/11/10	
Blank Spike Dup (A012283-BSD1) EPA 300.0 - Quality Control											
Chloride	47	1.0	mg/L	50		94	90-110	3	10	12/11/10	
Sulfate as SO4	50	2.0	mg/L	50		99	90-110	2	10	12/11/10	
Matrix Spike (A012283-MS1) EPA 300.0 - Quality Control					**Source: A0L0828-01**						
Chloride	110	2.0	mg/L	100	8.8	106	80-120			12/11/10	
Sulfate as SO4	120	4.0	mg/L	100	13	106	80-120			12/11/10	
Matrix Spike (A012283-MS2) EPA 300.0 - Quality Control					**Source: A0L0828-03**						
Chloride	110	2.0	mg/L	100	6.6	106	80-120			12/11/10	
Sulfate as SO4	120	4.0	mg/L	100	9.0	106	80-120			12/11/10	
Matrix Spike Dup (A012283-MSD1) EPA 300.0 - Quality Control					**Source: A0L0828-01**						
Chloride	110	2.0	mg/L	100	8.8	101	80-120	4	10	12/11/10	
Sulfate as SO4	110	4.0	mg/L	100	13	101	80-120	5	10	12/11/10	
Matrix Spike Dup (A012283-MSD2) EPA 300.0 - Quality Control					**Source: A0L0828-03**						
Chloride	110	2.0	mg/L	100	6.6	106	80-120	0	10	12/11/10	
Sulfate as SO4	110	4.0	mg/L	100	9.0	106	80-120	0	10	12/11/10	
Batch: A012289				Analyst: CEG		Prepared: 12/10/2010					
Blank (A012289-BLK1) SM 2320 B - Quality Control											
Alkalinity as CaCO3	ND	3.0	mg/L							12/10/10	

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General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Batch: A012289				Analyst: CEG		Prepared: 12/10/2010					
Blank (A012289-BLK1) SM 2320 B - Quality Control											
Bicarbonate as CaCO3	ND	3.0	mg/L							12/10/10	
Carbonate as CaCO3	ND	3.0	mg/L							12/10/10	
Conductivity @ 25C	ND	1.0	umhos/cm							12/10/10	
Hydroxide as CaCO3	ND	3.0	mg/L							12/10/10	
Blank Spike (A012289-BS1) SM 2320 B - Quality Control											
Alkalinity as CaCO3	110	3.0	mg/L	100		106	80-120			12/10/10	
Blank Spike Dup (A012289-BSD1) SM 2320 B - Quality Control											
Alkalinity as CaCO3	90	3.0	mg/L	100		90	80-120	16	20	12/10/10	
Duplicate (A012289-DUP1) SM 2320 B - Quality Control					**Source: A0L0818-02**						
Alkalinity as CaCO3	180	3.0	mg/L		170			0	10	12/10/10	
Bicarbonate as CaCO3	180	3.0	mg/L		170			0	10	12/10/10	
Carbonate as CaCO3	ND	3.0	mg/L		ND				10	12/10/10	
Conductivity @ 25C	830	1.0	umhos/cm		830			0	20	12/10/10	
Hydroxide as CaCO3	ND	3.0	mg/L		ND				10	12/10/10	
pH (1)	7.7		pH Units		7.7			0	20	12/10/10	
Batch: A012309				Analyst: DEH		Prepared: 12/13/2010					
Blank (A012309-BLK1) SM 2540C - Quality Control											
Total Dissolved Solids	ND	5.0	mg/L							12/15/10	
Blank (A012309-BLK2) SM 2540C - Quality Control											
Total Dissolved Solids	ND	5.0	mg/L							12/15/10	
Duplicate (A012309-DUP1) SM 2540C - Quality Control					**Source: A0L0812-01**						
Total Dissolved Solids	350	5.0	mg/L		360			3	20	12/15/10	
Duplicate (A012309-DUP2) SM 2540C - Quality Control					**Source: A0L0795-01**						
Total Dissolved Solids	430	5.0	mg/L		430			1	20	12/15/10	

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Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
Batch: A012340				Analyst: NRE		Prepared: 12/14/2010						
Blank (A012340-BLK2) EPA 200.7 - Quality Control												
Aluminum	0.10	0.050	mg/L							12/14/10	BL04	
Boron	ND	0.10	mg/L							12/14/10		
Calcium	0.26	0.10	mg/L							12/14/10	BL05	
Copper	ND	0.050	mg/L							12/14/10		
Iron	ND	0.050	mg/L							12/14/10		
Magnesium	ND	0.10	mg/L							12/14/10		
Manganese	ND	0.010	mg/L							12/14/10		
Potassium	ND	2.0	mg/L							12/14/10		
Silver	ND	0.010	mg/L							12/14/10		
Sodium	ND	1.0	mg/L							12/14/10		
Zinc	ND	0.050	mg/L							12/14/10		
Blank Spike (A012340-BS2) EPA 200.7 - Quality Control												
Aluminum	0.40	0.050	mg/L	0.20		202	85-115			12/14/10	BS06	***High***
Boron	0.64	0.10	mg/L	0.60		107	85-115			12/14/10		
Calcium	10	0.10	mg/L	10		103	85-115			12/14/10		
Copper	0.20	0.050	mg/L	0.20		101	85-115			12/14/10		
Iron	2.0	0.050	mg/L	2.0		101	85-115			12/14/10		
Magnesium	9.8	0.10	mg/L	10		98	85-115			12/14/10		
Manganese	0.20	0.010	mg/L	0.20		98	85-115			12/14/10		
Potassium	10	2.0	mg/L	10		101	85-115			12/14/10		
Silver	0.10	0.010	mg/L	0.10		103	85-115			12/14/10		
Sodium	10	1.0	mg/L	10		104	85-115			12/14/10		
Zinc	0.20	0.050	mg/L	0.20		102	85-115			12/14/10		
Blank Spike Dup (A012340-BSD2) EPA 200.7 - Quality Control												
Aluminum	0.27	0.050	mg/L	0.20		134	85-115	41	20	12/14/10	BS06	***High***
Boron	0.63	0.10	mg/L	0.60		105	85-115	1	20	12/14/10		
Calcium	10	0.10	mg/L	10		101	85-115	3	20	12/14/10		
Copper	0.20	0.050	mg/L	0.20		102	85-115	1	20	12/14/10		
Iron	2.0	0.050	mg/L	2.0		102	85-115	1	20	12/14/10		
Magnesium	9.9	0.10	mg/L	10		99	85-115	1	20	12/14/10		
Manganese	0.20	0.010	mg/L	0.20		99	85-115	1	20	12/14/10		
Potassium	10	2.0	mg/L	10		101	85-115	0	20	12/14/10		
Silver	0.10	0.010	mg/L	0.10		102	85-115	0	20	12/14/10		
Sodium	10	1.0	mg/L	10		105	85-115	1	20	12/14/10		
Zinc	0.20	0.050	mg/L	0.20		101	85-115	1	20	12/14/10		
Matrix Spike (A012340-MS2) EPA 200.7 - Quality Control					**Source: A0L0659-03**							
Aluminum	0.28	0.050	mg/L	0.20		141	70-130			12/14/10		***High***
Boron	5.1	0.10	mg/L	0.60	4.6	85	70-130			12/14/10		
Calcium	67	0.10	mg/L	10	58	92	70-130			12/14/10		
Copper	0.24	0.050	mg/L	0.20	ND	101	70-130			12/14/10		
Iron	2.1	0.050	mg/L	2.0	ND	101	70-130			12/14/10		
Magnesium	47	0.10	mg/L	10	38	93	70-130			12/14/10		
Manganese	0.22	0.010	mg/L	0.20	0.022	98	70-130			12/14/10		
Potassium	31	2.0	mg/L	10	21	99	70-130			12/14/10		
Silver	0.10	0.010	mg/L	0.10	ND	101	70-130			12/14/10		

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Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual	
Batch: A012340				Analyst: NRE		Prepared: 12/14/2010						
Matrix Spike (A012340-MS2)	**EPA 200.7 - Quality Control**					**Source: A0L0659-03**						
Sodium	430	1.0	mg/L	10	420	51	70-130			12/14/10	MS02	***Low***
Zinc	0.22	0.050	mg/L	0.20	ND	97	70-130			12/14/10		
Matrix Spike Dup (A012340-MSD2)	**EPA 200.7 - Quality Control**					**Source: A0L0659-03**						
Aluminum	0.27	0.050	mg/L	0.20		136	70-130	3	20	12/14/10		***High***
Boron	5.2	0.10	mg/L	0.60	4.6	100	70-130	2	20	12/14/10		
Calcium	67	0.10	mg/L	10	58	97	70-130	1	20	12/14/10		
Copper	0.24	0.050	mg/L	0.20	ND	102	70-130	1	20	12/14/10		
Iron	2.1	0.050	mg/L	2.0	ND	102	70-130	1	20	12/14/10		
Magnesium	47	0.10	mg/L	10	38	96	70-130	1	20	12/14/10		
Manganese	0.22	0.010	mg/L	0.20	0.022	99	70-130	1	20	12/14/10		
Potassium	31	2.0	mg/L	10	21	99	70-130	0	20	12/14/10		
Silver	0.10	0.010	mg/L	0.10	ND	103	70-130	2	20	12/14/10		
Sodium	430	1.0	mg/L	10	420	91	70-130	1	20	12/14/10		
Zinc	0.22	0.050	mg/L	0.20	ND	99	70-130	1	20	12/14/10		
Blank (A012340-BLK1)	**EPA 200.8 - Quality Control**											
Antimony	ND	2.0	ug/L							12/16/10		
Arsenic	ND	2.0	ug/L							12/16/10		
Barium	6.1	5.0	ug/L							12/16/10	BL05	
Beryllium	ND	1.0	ug/L							12/16/10		
Cadmium	ND	1.0	ug/L							12/16/10		
Chromium	ND	10	ug/L							12/16/10		
Cobalt	ND	10	ug/L							12/16/10		
Copper	ND	5.0	ug/L							12/16/10		
Lead	ND	5.0	ug/L							12/16/10		
Mercury	ND	0.40	ug/L							12/16/10		
Molybdenum	ND	10	ug/L							12/16/10		
Nickel	ND	10	ug/L							12/16/10		
Selenium	ND	2.0	ug/L							12/16/10		
Silver	ND	10	ug/L							12/16/10		
Thallium	ND	1.0	ug/L							12/16/10		
Vanadium	ND	10	ug/L							12/16/10		
Zinc	ND	50	ug/L							12/16/10		
Blank Spike (A012340-BS1)	**EPA 200.8 - Quality Control**											
Antimony	230	2.0	ug/L	200		113	85-115			12/16/10		
Arsenic	200	2.0	ug/L	200		101	85-115			12/16/10		
Barium	210	5.0	ug/L	200		105	85-115			12/16/10		
Beryllium	190	1.0	ug/L	200		96	85-115			12/16/10		
Cadmium	190	1.0	ug/L	200		97	85-115			12/16/10		
Chromium	200	10	ug/L	200		99	85-115			12/16/10		
Cobalt	190	10	ug/L	200		94	85-115			12/16/10		
Copper	190	5.0	ug/L	200		95	85-115			12/16/10		
Lead	210	5.0	ug/L	200		104	85-115			12/16/10		
Mercury	2.3	0.40	ug/L	2.5		91	85-115			12/16/10		
Molybdenum	200	10	ug/L	200		102	85-115			12/16/10		
Nickel	200	10	ug/L	200		99	85-115			12/16/10		

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Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Batch: A012340				Analyst: MAS		Prepared: 12/14/2010					
Blank Spike (A012340-BS1) EPA 200.8 - Quality Control											
Selenium	200	2.0	ug/L	200		101	85-115			12/16/10	
Silver	88	10	ug/L	100		88	75-125			12/16/10	
Thallium	220	1.0	ug/L	200		110	85-115			12/16/10	
Vanadium	210	10	ug/L	200		107	85-115			12/16/10	
Zinc	210	50	ug/L	200		103	85-115			12/16/10	
Blank Spike Dup (A012340-BSD1) EPA 200.8 - Quality Control											
Antimony	220	2.0	ug/L	200		112	85-115	1	20	12/16/10	
Arsenic	190	2.0	ug/L	200		97	85-115	4	20	12/16/10	
Barium	200	5.0	ug/L	200		98	85-115	7	20	12/16/10	
Beryllium	190	1.0	ug/L	200		93	85-115	4	20	12/16/10	
Cadmium	190	1.0	ug/L	200		97	85-115	0	20	12/16/10	
Chromium	200	10	ug/L	200		98	85-115	2	20	12/16/10	
Cobalt	180	10	ug/L	200		92	85-115	3	20	12/16/10	
Copper	190	5.0	ug/L	200		93	85-115	3	20	12/16/10	
Lead	200	5.0	ug/L	200		102	85-115	2	20	12/16/10	
Mercury	2.4	0.40	ug/L	2.5		96	85-115	6	20	12/16/10	
Molybdenum	210	10	ug/L	200		103	85-115	1	20	12/16/10	
Nickel	190	10	ug/L	200		95	85-115	4	20	12/16/10	
Selenium	200	2.0	ug/L	200		99	85-115	2	20	12/16/10	
Silver	92	10	ug/L	100		92	75-125	4	20	12/16/10	
Thallium	210	1.0	ug/L	200		106	85-115	3	20	12/16/10	
Vanadium	210	10	ug/L	200		103	85-115	4	20	12/16/10	
Zinc	200	50	ug/L	200		99	85-115	4	20	12/16/10	
Matrix Spike (A012340-MS1) EPA 200.8 - Quality Control						**Source: A0L0659-03**					
Antimony	230	2.0	ug/L	200	ND	114	70-130			12/16/10	
Arsenic	200	2.0	ug/L	200	2.0	100	70-130			12/16/10	
Barium	260	5.0	ug/L	200	73	94	70-130			12/16/10	
Beryllium	170	1.0	ug/L	200	ND	85	70-130			12/16/10	
Cadmium	190	1.0	ug/L	200	ND	95	70-130			12/16/10	
Chromium	200	10	ug/L	200	ND	100	70-130			12/16/10	
Cobalt	180	10	ug/L	200	ND	90	70-130			12/16/10	
Copper	210	5.0	ug/L	200	35	89	70-130			12/16/10	
Lead	180	5.0	ug/L	200	ND	91	70-130			12/16/10	
Mercury	2.3	0.40	ug/L	2.5	ND	94	70-130			12/16/10	
Molybdenum	220	10	ug/L	200	ND	105	70-130			12/16/10	
Nickel	180	10	ug/L	200	ND	92	70-130			12/16/10	
Selenium	210	2.0	ug/L	200	4.3	102	70-130			12/16/10	
Silver	85	10	ug/L	100	ND	85	70-130			12/16/10	
Thallium	200	1.0	ug/L	200	ND	99	70-130			12/16/10	
Vanadium	200	10	ug/L	200	ND	102	70-130			12/16/10	
Zinc	220	50	ug/L	200	ND	94	70-130			12/16/10	
Matrix Spike Dup (A012340-MSD1) EPA 200.8 - Quality Control						**Source: A0L0659-03**					
Antimony	230	2.0	ug/L	200	ND	114	70-130	0	20	12/16/10	
Arsenic	210	2.0	ug/L	200	2.0	105	70-130	5	20	12/16/10	
Barium	270	5.0	ug/L	200	73	99	70-130	4	20	12/16/10	

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Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Batch: A012340				Analyst: MAS		Prepared: 12/14/2010					
Matrix Spike Dup (A012340-MSD1)	**EPA 200.8 - Quality Control**					**Source: A0L0659-03**					
Beryllium	180	1.0	ug/L	200	ND	89	70-130	5	20	12/16/10	
Cadmium	190	1.0	ug/L	200	ND	96	70-130	1	20	12/16/10	
Chromium	210	10	ug/L	200	ND	103	70-130	3	20	12/16/10	
Cobalt	190	10	ug/L	200	ND	94	70-130	4	20	12/16/10	
Copper	220	5.0	ug/L	200	35	94	70-130	4	20	12/16/10	
Lead	190	5.0	ug/L	200	ND	95	70-130	4	20	12/16/10	
Mercury	2.3	0.40	ug/L	2.5	ND	91	70-130	4	20	12/16/10	
Molybdenum	230	10	ug/L	200	ND	109	70-130	4	20	12/16/10	
Nickel	200	10	ug/L	200	ND	99	70-130	7	20	12/16/10	
Selenium	210	2.0	ug/L	200	4.3	103	70-130	1	20	12/16/10	
Silver	85	10	ug/L	100	ND	85	70-130	1	20	12/16/10	
Thallium	200	1.0	ug/L	200	ND	98	70-130	1	20	12/16/10	
Vanadium	220	10	ug/L	200	ND	109	70-130	6	20	12/16/10	
Zinc	230	50	ug/L	200	ND	98	70-130	3	20	12/16/10	
Batch: A012350				Analyst: MAS		Prepared: 12/14/2010					
Blank (A012350-BLK1)	**EPA 200.8 - Quality Control**										
Antimony	ND	2.0	ug/L							12/14/10	
Arsenic	ND	2.0	ug/L							12/14/10	
Barium	ND	5.0	ug/L							12/14/10	
Beryllium	ND	1.0	ug/L							12/14/10	
Cadmium	ND	1.0	ug/L							12/14/10	
Cobalt	ND	10	ug/L							12/14/10	
Copper	ND	5.0	ug/L							12/14/10	
Lead	ND	5.0	ug/L							12/14/10	
Mercury	ND	0.40	ug/L							12/14/10	
Molybdenum	ND	10	ug/L							12/14/10	
Nickel	ND	10	ug/L							12/14/10	
Silver	ND	10	ug/L							12/14/10	
Thallium	ND	1.0	ug/L							12/14/10	
Vanadium	ND	10	ug/L							12/14/10	
Zinc	ND	50	ug/L							12/14/10	
Blank Spike (A012350-BS1)	**EPA 200.8 - Quality Control**										
Antimony	50	2.0	ug/L	50		100	85-115			12/14/10	
Arsenic	48	2.0	ug/L	50		95	85-115			12/14/10	
Barium	51	5.0	ug/L	50		102	85-115			12/14/10	
Beryllium	49	1.0	ug/L	50		98	85-115			12/14/10	
Cadmium	51	1.0	ug/L	50		103	85-115			12/14/10	
Cobalt	50	10	ug/L	50		101	85-115			12/14/10	
Copper	49	5.0	ug/L	50		97	85-115			12/14/10	
Lead	53	5.0	ug/L	50		106	85-115			12/14/10	
Mercury	0.92	0.40	ug/L	1.0		92	85-115			12/14/10	
Molybdenum	50	10	ug/L	50		101	85-115			12/14/10	
Nickel	50	10	ug/L	50		101	85-115			12/14/10	
Silver	49	10	ug/L	50		97	75-125			12/14/10	
Thallium	55	1.0	ug/L	50		110	85-115			12/14/10	

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Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Batch: A012350				Analyst: MAS		Prepared: 12/14/2010					
Blank Spike (A012350-BS1)	**EPA 200.8 - Quality Control**										
Vanadium	47	10	ug/L	50		94	85-115			12/14/10	
Zinc	ND	50	ug/L	50		95	85-115			12/14/10	
Blank Spike Dup (A012350-BSD1)	**EPA 200.8 - Quality Control**										
Antimony	51	2.0	ug/L	50		101	85-115	1	20	12/14/10	
Arsenic	49	2.0	ug/L	50		97	85-115	2	20	12/14/10	
Barium	51	5.0	ug/L	50		102	85-115	1	20	12/14/10	
Beryllium	51	1.0	ug/L	50		101	85-115	3	20	12/14/10	
Cadmium	51	1.0	ug/L	50		103	85-115	0	20	12/14/10	
Cobalt	52	10	ug/L	50		104	85-115	3	20	12/14/10	
Copper	49	5.0	ug/L	50		98	85-115	0	20	12/14/10	
Lead	53	5.0	ug/L	50		106	85-115	1	20	12/14/10	
Mercury	0.95	0.40	ug/L	1.0		95	85-115	3	20	12/14/10	
Molybdenum	50	10	ug/L	50		100	85-115	1	20	12/14/10	
Nickel	51	10	ug/L	50		102	85-115	1	20	12/14/10	
Silver	49	10	ug/L	50		97	75-125	0	20	12/14/10	
Thallium	55	1.0	ug/L	50		110	85-115	1	20	12/14/10	
Vanadium	49	10	ug/L	50		99	85-115	4	20	12/14/10	
Zinc	ND	50	ug/L	50		97	85-115	2	20	12/14/10	
Matrix Spike (A012350-MS1)	**EPA 200.8 - Quality Control**					**Source: A0L0733-01**					
Antimony	110	4.0	ug/L	100	ND	105	70-130			12/14/10	
Arsenic	100	4.0	ug/L	100	ND	103	70-130			12/14/10	
Barium	240	10	ug/L	100	130	116	70-130			12/14/10	
Beryllium	100	2.0	ug/L	100	ND	101	70-130			12/14/10	
Cadmium	110	2.0	ug/L	100	ND	107	70-130			12/14/10	
Cobalt	100	20	ug/L	100	ND	101	70-130			12/14/10	
Copper	95	10	ug/L	100	ND	95	70-130			12/14/10	
Lead	100	10	ug/L	100	ND	104	70-130			12/14/10	
Mercury	1.9	0.80	ug/L	2.0	ND	96	70-130			12/14/10	
Molybdenum	110	20	ug/L	100	ND	108	70-130			12/14/10	
Nickel	99	20	ug/L	100	ND	99	70-130			12/14/10	
Silver	95	20	ug/L	100	ND	95	70-130			12/14/10	
Thallium	110	2.0	ug/L	100	ND	109	70-130			12/14/10	
Vanadium	170	20	ug/L	100	70	103	70-130			12/14/10	
Zinc	100	100	ug/L	100	ND	101	70-130			12/14/10	
Matrix Spike Dup (A012350-MSD1)	**EPA 200.8 - Quality Control**					**Source: A0L0733-01**					
Antimony	100	4.0	ug/L	100	ND	102	70-130	3	20	12/14/10	
Arsenic	100	4.0	ug/L	100	ND	102	70-130	1	20	12/14/10	
Barium	240	10	ug/L	100	130	117	70-130	0	20	12/14/10	
Beryllium	100	2.0	ug/L	100	ND	103	70-130	1	20	12/14/10	
Cadmium	110	2.0	ug/L	100	ND	105	70-130	2	20	12/14/10	
Cobalt	100	20	ug/L	100	ND	100	70-130	1	20	12/14/10	
Copper	94	10	ug/L	100	ND	94	70-130	2	20	12/14/10	
Lead	110	10	ug/L	100	ND	106	70-130	2	20	12/14/10	
Mercury	2.1	0.80	ug/L	2.0	ND	103	70-130	7	20	12/14/10	
Molybdenum	110	20	ug/L	100	ND	106	70-130	2	20	12/14/10	

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Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Batch: A012350				Analyst: MAS		Prepared: 12/14/2010					
Matrix Spike Dup (A012350-MSD1) EPA 200.8 - Quality Control						**Source: A0L0733-01**					
Nickel	100	20	ug/L	100	ND	100	70-130	1	20	12/14/10	
Silver	93	20	ug/L	100	ND	93	70-130	3	20	12/14/10	
Thallium	110	2.0	ug/L	100	ND	110	70-130	1	20	12/14/10	
Vanadium	170	20	ug/L	100	70	103	70-130	0	20	12/14/10	
Zinc	100	100	ug/L	100	ND	101	70-130	0	20	12/14/10	
Batch: A012361				Analyst: NRE		Prepared: 12/14/2010					
Blank (A012361-BLK1) EPA 200.7 - Quality Control											
Aluminum	ND	0.050	mg/L							12/14/10	
Boron	ND	0.10	mg/L							12/14/10	
Calcium	ND	0.10	mg/L							12/14/10	
Copper	ND	0.050	mg/L							12/14/10	
Iron	ND	0.050	mg/L							12/14/10	
Magnesium	ND	0.10	mg/L							12/14/10	
Manganese	ND	0.010	mg/L							12/14/10	
Potassium	ND	2.0	mg/L							12/14/10	
Silver	ND	0.010	mg/L							12/14/10	
Sodium	ND	1.0	mg/L							12/14/10	
Zinc	ND	0.050	mg/L							12/14/10	
Blank Spike (A012361-BS1) EPA 200.7 - Quality Control											
Aluminum	0.43	0.050	mg/L	0.40		107	85-115			12/14/10	
Boron	1.2	0.10	mg/L	1.2		104	85-115			12/14/10	
Calcium	10	0.10	mg/L	10		104	85-115			12/14/10	
Copper	0.41	0.050	mg/L	0.40		104	85-115			12/14/10	
Iron	4.3	0.050	mg/L	4.0		108	85-115			12/14/10	
Magnesium	10	0.10	mg/L	10		102	85-115			12/14/10	
Manganese	0.41	0.010	mg/L	0.40		102	85-115			12/14/10	
Potassium	11	2.0	mg/L	10		107	85-115			12/14/10	
Silver	0.21	0.010	mg/L	0.20		107	85-115			12/14/10	
Sodium	11	1.0	mg/L	10		110	85-115			12/14/10	
Zinc	0.40	0.050	mg/L	0.40		101	85-115			12/14/10	
Blank Spike Dup (A012361-BSD1) EPA 200.7 - Quality Control											
Aluminum	0.46	0.050	mg/L	0.40		115	85-115	7	20	12/14/10	
Boron	1.4	0.10	mg/L	1.2		114	85-115	9	20	12/14/10	
Calcium	11	0.10	mg/L	10		109	85-115	5	20	12/14/10	
Copper	0.45	0.050	mg/L	0.40		114	85-115	9	20	12/14/10	
Iron	4.5	0.050	mg/L	4.0		112	85-115	4	20	12/14/10	
Magnesium	11	0.10	mg/L	10		111	85-115	9	20	12/14/10	
Manganese	0.44	0.010	mg/L	0.40		110	85-115	8	20	12/14/10	
Potassium	11	2.0	mg/L	10		111	85-115	4	20	12/14/10	
Silver	0.23	0.010	mg/L	0.20		116	85-115	8	20	12/14/10	BS01 ***High***
Sodium	11	1.0	mg/L	10		114	85-115	4	20	12/14/10	
Zinc	0.44	0.050	mg/L	0.40		109	85-115	8	20	12/14/10	
Matrix Spike (A012361-MS1) EPA 200.7 - Quality Control						**Source: A0L0818-02**					

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Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Batch: A012361				Analyst: NRE		Prepared: 12/14/2010					
Matrix Spike (A012361-MS1) EPA 200.7 - Quality Control						**Source: A0L0818-02**					
Aluminum	0.76	0.050	mg/L	0.80	ND	95	70-130			12/14/10	
Boron	2.5	0.10	mg/L	2.4	ND	99	70-130			12/14/10	
Calcium	100	0.10	mg/L	20	85	84	70-130			12/14/10	
Copper	0.78	0.050	mg/L	0.80	ND	98	70-130			12/14/10	
Iron	8.0	0.050	mg/L	8.0	ND	100	70-130			12/14/10	
Magnesium	42	0.10	mg/L	20	23	93	70-130			12/14/10	
Manganese	0.77	0.010	mg/L	0.80	ND	96	70-130			12/14/10	
Potassium	24	2.0	mg/L	20	4.6	97	70-130			12/14/10	
Silver	0.40	0.010	mg/L	0.40	ND	101	70-130			12/14/10	
Sodium	65	1.0	mg/L	20	46	94	70-130			12/14/10	
Zinc	0.90	0.050	mg/L	0.80	0.13	96	70-130			12/14/10	
Matrix Spike Dup (A012361-MSD1) EPA 200.7 - Quality Control						**Source: A0L0818-02**					
Aluminum	0.80	0.050	mg/L	0.80	ND	100	70-130	5	20	12/14/10	
Boron	2.5	0.10	mg/L	2.4	ND	100	70-130	1	20	12/14/10	
Calcium	100	0.10	mg/L	20	85	91	70-130	1	20	12/14/10	
Copper	0.79	0.050	mg/L	0.80	ND	99	70-130	1	20	12/14/10	
Iron	8.3	0.050	mg/L	8.0	ND	103	70-130	3	20	12/14/10	
Magnesium	43	0.10	mg/L	20	23	99	70-130	3	20	12/14/10	
Manganese	0.78	0.010	mg/L	0.80	ND	97	70-130	1	20	12/14/10	
Potassium	24	2.0	mg/L	20	4.6	99	70-130	2	20	12/14/10	
Silver	0.41	0.010	mg/L	0.40	ND	102	70-130	0	20	12/14/10	
Sodium	66	1.0	mg/L	20	46	100	70-130	2	20	12/14/10	
Zinc	0.90	0.050	mg/L	0.80	0.13	96	70-130	0	20	12/14/10	
Batch: A012408				Analyst: MAS		Prepared: 12/15/2010					
Blank (A012408-BLK1) EPA 200.8 - Quality Control											
Chromium	ND	10	ug/L							12/15/10	
Selenium	ND	2.0	ug/L							12/15/10	
Blank Spike (A012408-BS1) EPA 200.8 - Quality Control											
Chromium	51	10	ug/L	50		101	85-115			12/15/10	
Selenium	52	2.0	ug/L	50		104	85-115			12/15/10	
Blank Spike Dup (A012408-BSD1) EPA 200.8 - Quality Control											
Chromium	48	10	ug/L	50		96	85-115	6	20	12/15/10	
Selenium	49	2.0	ug/L	50		98	85-115	6	20	12/15/10	
Matrix Spike (A012408-MS1) EPA 200.8 - Quality Control						**Source: A0L0332-01**					
Chromium	110	20	ug/L	100	ND	94	70-130			12/15/10	
Selenium	120	4.0	ug/L	100	ND	116	70-130			12/15/10	
Matrix Spike Dup (A012408-MSD1) EPA 200.8 - Quality Control						**Source: A0L0332-01**					
Chromium	110	20	ug/L	100	ND	93	70-130	1	20	12/15/10	
Selenium	120	4.0	ug/L	100	ND	118	70-130	2	20	12/15/10	

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Organics Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Batch: A012335				Analyst: AMR		Prepared: 12/13/2010					
Blank (A012335-BLK1) EPA 1664A - Quality Control											
Total Oil & Grease	ND	1.0	mg/L							12/14/10	
Blank Spike (A012335-BS1) EPA 1664A - Quality Control											
Total Oil & Grease	38	1.0	mg/L	40		94	78-114			12/14/10	
Blank Spike Dup (A012335-BSD1) EPA 1664A - Quality Control											
Total Oil & Grease	38	1.0	mg/L	40		95	78-114	1	30	12/14/10	
Matrix Spike (A012335-MS1) EPA 1664A - Quality Control					**Source: A0L0455-01**						
Total Oil & Grease	38	1.0	mg/L	41	ND	92	78-114			12/14/10	

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Certificate of Analysis

12/17/2010

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
- Sample(s) received, prepared, and analyzed within the method specified criteria unless otherwise noted within this report.
- The results relate only to the samples analyzed in accordance with test(s) requested by the client on the Chain of Custody document. Any analytical quality control exceptions to method criteria that are to be considered when evaluating these results have been flagged and are defined in the data qualifiers section.
- All results are expressed on wet weight basis unless otherwise specified.
- All positive results for EPA Methods 504.1, 502.2, and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Results contained in this analytical report must be reproduced in its entirety.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- BSK Analytical Laboratories certifies that the test results contained in this report meet all requirements of the NELAC Standards for applicable certified drinking water chemistry analyses unless qualified or noted in the Case Narrative.
- Analytical data contained in this report may be used for regulatory purposes to meet the requirements of the Federal or State drinking water, wastewater, and hazardous waste programs.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals. Samples submitted to the laboratory have been analyzed outside of this holding time requirement.
- * - This is not a NELAP accredited analyte.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- (2) The digestion used to produce this result deviated from EPA 200.2 by excluding hydrochloric acid in order to produce acceptable recoveries for affected metals.
- (2C) Result reported from secondary analytical column.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.

Certifications:

State of California - CDPH - ELAP	1180
State of California - CDPH - NELAP	04227CA
State of New Mexico - NMED-DWB	
State of Nevada - NDEP	CA000792009A

Definitions and Flags for Data Qualifiers

mg/L:	Milligrams/Liter (ppm)	M:	Method Detection Limit	MDA:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)		:DL x Dilution	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	ND:	None Detected at RL	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	pCi/L:	Picocuries per Liter	Present:	1 or more CFU/100mLs
		NR:	Non-Reportable	RL Mult:	RL Multiplier

MS02 Matrix spike recovery was low; the associated blank spike recovery was acceptable.

BS06 Recovery for this analyte was biased high; associated samples were ND.

BS01 The associated blank spike recovery was above acceptance limits. Results were accepted based on duplicate spike.

BL05 Target analyte detected in method blank at or above reporting limit. Concentration found in the sample was >10 times that found in the blank.

BL04 Detected in the method blank. All associated samples were non-detect for this analyte.

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A0L0818

Kaweah River Rock

Kawea3302 12102010

Bruce Bunting
Drinking Water Study

Turnaround: Standard
Due Date: 12/17/2010

Sample ID	Sample Description	Date Sampled	Lab Notes
A0L0818-01	E-1	12/10/2010	
A0L0818-02	Office	12/10/2010	

BSK ANALYTICAL LABORATORIES

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A0L0818 12/10/2010
Kawea3302 5

* Required Fields

Temp _____

Client/Company Name *:	Report Attention* :	Phone* : Fax* :
KRP/Santa Fe	Bruce Bentley	564 3302
Address* City* State* Zip*		Email :
PO Box 515 Woodlake CA 93286		

Project Information: E-1 & Office well

PO#

Quote#

Carbon Copies: (Circle One)
CDHS Fresno Co EPA
Merced Co Tulare Co
Other:

How would you like your completed results sent? ☒ E-Mail ☐ Fax ☐ EDD ☐ Mail Only

Sampler Name Printed / Signature*

QC Request: STD Level II

Result Request **Surcharge: STD 5Day** 2Day** 1Day**

REGULATORY COMPLIANCE
Electronic Data Transfer: Y N
System No.*

Matrix Types: RSW= Raw Surface Water CFW= Chlorinated Finished Water CWW= Chlorinated Waste Water BW= Bottled Water RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Storm Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bots	Sampled* Date	Sampled* Time	Sample Description/Location*	Matrix*	Comments / Station Code	See attached
1		12/10/10	0920	E-1			X
2		12/10/10	1130	Office			X
						Pg 1 of 3	

Bruce Bentley

Relinquished by : (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
	Santa Fe	12/10/10	1325		
Relinquished by : (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company

Received for lab by : (Signature and Printed Name) Paul Erickson — Date 12/10/10 — Time 1325

Payment Received at Delivery: Date: Amount: Check/Cash/Card: PIA# Init:

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

P) 2 of 3

Subject : FW: Water Well Analyte List.xls
Date : Fri, 12 Nov 2010 09:22:00 -0800
From : Bruce Bunting <BBunting@santafeaggregates.com>
To : perickson@bskinc.com <perickson@bskinc.com>
Cc : Andrew Kopania <akopania@sbcglobal.net>

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Kawea3302

12/10/2010
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Paul
Here is the list
Bruce

From: Andrew Kopania [mailto:akopania@sbcglobal.net]
Sent: Friday, November 12, 2010 8:36 AM
To: perickson@bskinc.com; Bruce Bunting
Subject: RE: Water Well Analyte List.xls

Here is the list of metals I would like analyzed.

Metals	
Analyte	Method (2)
aluminum	EPA 6010B
antimony	EPA 6010B
arsenic	EPA 6010B
barium	EPA 6010B
beryllium	EPA 6010B
boron	EPA 6010B
cadmium	EPA 6010B
chromium	EPA 6010B
cobalt	EPA 6010B
copper	EPA 6010B
iron	EPA 6010B
lead	EPA 6010B
manganese	EPA 6010B
molybdenum	EPA 6010B
mercury	EPA 7470A
nickel	EPA 6010B
selenium	EPA 6010B
silver	EPA 6010B
thallium	EPA 6010B
vanadium	EPA 6010B
zinc	EPA 6010B

We need a "total" analysis, so the samples should not be filtered. Let me know if you have any additional questions.

Andy Kopania

--- On **Fri, 11/12/10, Bruce Bunting <*BBunting@santafeaggregates.com*>** wrote:

> From: Bruce Bunting <BBunting@santafeaggregates.com>
> Subject: RE: Water Well Analyte List.xls
> To: "perickson@bskinc.com" <perickson@bskinc.com>

Water Co.
Well Water Testing Program
KRRC

(P) 3 of 3

General Mineral Parameters
Chloride
Boron
pH
Hardness
Calcium
Magnesium
Specific Conductance
Total Dissolved Solids
Iron
Manganese
Total Metals
Oil and Grease

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Kawea3302

12/10/2010
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Contact:
Dr. Andrew Kopania
EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762
(916)939-0133 office
(916)718-5511 cell
akopania@sbcglobal.net

Sample Integrity

Pg. 1 of 2 **WORK O** A0L0818 Kawea3302 12/10/2010 5

Date Received 12/10/10

Section 1- Receiving Information

Sample Transport: ONTRAC UPS PMS (Walk-In) BSK-Courier GSO Fed Exp. Other: _____

Samples arrived at lab on same day sampled: Yes X No _____ (If Yes- Temperature is not needed)

Coolers/Ice Chests Description/Temperature(s): (If more than 4 received, list information in comment section)

1) 4° 2) _____ 3) _____ 4) _____

Was Temperature In Range (Y) N N/A Received On Ice: Wet (Blue) Received Ambient: Y (N)

Describe type of packing materials: (Bubble Wrap) Foam Packing Peanuts Paper Other: _____

Initial Receipt: BSK-Visalia BSK-Bakersfield BSK-SAC BSK-FDL (BSK-FAL)

Were ice chest custody seals present? Y (N) Intact: Y (N)

Section 2- COC Info.	Completed Yes	Completed No	Info From Container		Completed Yes	Completed No	Info From Container
Was COC Received	✓			Analysis Requested	✓		
Date Sampled	✓			Any hold times less than 72hr	✓		
Time Sampled	✓			Client Name	✓		
Sample ID	✓			Address	✓		
Special Storage/Handling Ins.		✓		Telephone #	✓		

Section 3- Bottles / Analysis	Yes	No	N/A	Comment
Did all bottles arrive unbroken and intact?	✓			
Were bottle custody seals present?		✓		
Were bottle custody seals intact?		✓		
Did all bottle labels agree with COC?	✓			
Were correct containers used for the tests requested?	✓			
Were correct preservations used for the tests requested?	✓			
Was a sufficient amount of sample sent for tests indicated?	✓			
Were bubbles present in VOA Vials? **(Volatile Methods Only)**			✓	
Were Ascorbic Acid Bottles received with the VOAs?			✓	

Section 4- Comments / Discrepancies

Sample(s) Split/Preserve: Yes (No) Container: _____ Preservation: _____ Dt/Time/Init _____

Container: _____ Preservation: _____ Dt/Time/Init _____

Was Client Service Rep. notified of discrepancies: Yes No (N/A) CSR: _____ Notified By: _____

Explanations / Comments

Report Comment Entered:

Labeled by: KM @ 16:17 Labels checked by: MA @ 1630

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Sample Integrity Pg 2 of 2

BSK Bottles (Yes) No WORK

250ml (A) 500ml (B) 1Liter (C) Amber Glass (AG)

Container(s) Received	1	2					
Bacti $Na_2S_2O_3$							
None (p) White Cap	2G,1A	2G,1A					
None (p) Blue Cap w/NH4 + Buffer							
HNO_3 (p) Red Cap	1A	1A					
H_2SO_4 (p) Yellow Cap							
NaOH (p) Green Cap							
Other:							
Dissolved Oxygen 300ml (g)							
Centrifuge Tube HNO_3							
250ml (AG) None							
250ml (AG) H_2SO_4 COD Yellow Label							
250ml (AG) $Na_2S_2O_3$ 515,547 Blue Label							
250ml (AG) $Na_2S_2O_3$+ MCAA 531.1 Orange Label							
250ml (AG) NH_4Cl 552 Purple Label							
250ml (AG) EDA DBPs Brown Label							
250ml (AG) Other:							
500ml (AG) None							
500ml (AG) H_2SO_4 TPH-Diesel Yellow Label							
1 Liter (AG) None							
1 Liter (AG) H_2SO_4 O&G Yellow Label	2	2					
1 Liter (AG) $Na_2S_2O_3$ 548 / 525 / 521 Blue Label							
1 Liter (P) $Na_2S_2O_3$+ H_2SO_4 549							
1 Liter (AG) NaOH+ZnAc Sulfide							
1 Liter (AG) Ascorbic/EDTA/Pot Citrate 527 Grey Label							
1 Liter (AG) CuSO4/Trizma 529 Turquoise Label							
1 Liter (AG) Na_2SO_3 / HCL 525 **UCMR** Neon Green Label							
1 Liter (AG) Ammonium Chloride 535 Purple Label							
40ml VOA Vial Clear – HCL							
40ml VOA Vial Amber – $Na_2S_2O_3$							
40ml VOA Vial Clear – None							
40ml VOA Vial Clear - $Na_2S_2O_3$ 504, 505							
40ml VOA Vial Clear – H_3PO_4							
Other:							
Asbestos 1Liter Plastic/Foil							
Radon 200ml Clear (g)							
Low Level Hg/Metals Double Baggie							
Bioassay Jug							
250 Clear Glass Jar							
500 Clear Glass Jar							
1 Liter Clear Glass Jar							
Plastic Bag							
Soil Tube Brass / Steel / Plastic							
Tedlar Bags							

12/10/10