Groundwater Quality Sampling West Placer County, California

Prepared for: Placer County

December 21, 2017



Groundwater Quality Sampling West Placer County, California

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December 21, 2017

GEI Project No. 1610374 Subtask 2.2

GROUNDWATER QUALITY SAMPLING WEST PLACER COUNTY

Certifications and Seals

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Date: 12/21/17 Tulus With Date: 12-21-17

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Attachments

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1. Introduction

In 2014, Placer County received grant funding from the California Department of Water Resources (DWR) though the Proposition 1, Sustainable Groundwater Planning – Counties with Stressed Basins Grant Agreement, DWR Grant No. 4600011504, for the Western Placer County Groundwater Assessment Project (Project). The Project Work Plan included four tasks:

- 1. Develop a summary of land use authorities and forecast of future demand
- 2. Develop a Groundwater Sustainability Agency organization structure
- 3. Develop a well extraction facilities inventory database and website
- 4. Perform water quality sampling at six selected wells

This report summarizes the water quality sampling results. Sampling for this task was performed quarterly starting in the fourth quarter (Q4, October-December) of 2016 and concluded the third quarter (Q3, July-September) of 2017. Six wells were chosen for sampling based on results of a regional assessment of water quality (GEI 2017a) performed in 2015 which indicated that these wells had elevated concentrations of salts. Salt concentrations, measured as total dissolved solids (TDS), are an indicator of the general suitability of water for various beneficial uses, including drinking water and agricultural uses. Quarterly sampling was performed from Fall 2016 to Summer 2017 to assess whether TDS concentrations at these wells are stable, decreasing, or increasing and whether groundwater in the area is being degraded.

Degradation of water quality is one of the six undesirable results (also known as "sustainability indicators") that need to be avoided for compliance with the Sustainable Groundwater Management Act of 2014 (SGMA). The information from this water quality trend analysis will be used during the development of a Groundwater Sustainability Plan (GSP) for the North American Subbasin (NASb) by helping to characterize if water quality is being degraded and will help determine if groundwater management actions are needed to address this sustainability indicator.

2. Background

As part of the Western Placer County Groundwater Management Plan (WPC GMP) Year 8 implementation, the City of Roseville, City of Lincoln, Placer County Water Agency, and California American Water (WPC Partners) authorized GEI Consultants (GEI) to sample monitoring wells to characterize water quality throughout WPC and provide a regional assessment of groundwater quality conditions (GEI 2017a). Placer County also collected samples from monitoring wells. This sampling was performed prior to the creation of the West Placer Groundwater Sustainability Agency (WPGSA) and before the involvement of Nevada Irrigation District (NID) in formalized groundwater planning activities in WPC. The baseline water quality samples were collected in fall 2015, following four years of statewide drought when above normal pumping of groundwater may have affected groundwater quality

due to upwelling or migration of brackish water from underlying marine sediments. Placer County collected samples a couple of months later, during the winter 2015.

The 2015 baseline water quality results (GEI 2017a) showed that most of the groundwater in the WPC area is of good quality; however, wells were observed with elevated concentrations of TDS and other constituents, such as Hexavalent Chromium (Cr^{+6}) and Trihalomethanes (THMs). Sampling for trends of these other constituents (CR^{+6} and THMs) were performed by the WPC Partners in a separate study funded by the Partners for Year 9 GMP implementation (GEI 2017b). The six wells sampled in this study were analyzed for TDS and general minerals (major dissolved constituents). This study assesses only TDS trends as a measure of general water quality. TDS has a secondary drinking water maximum contaminant level (MCL) of 500 mg/L and a primary MCL of 1000 mg/L. Both Primary and Secondary MCLs are enforceable drinking water standards in California. Suitability of water for agricultural uses also goes down significantly when the concentrations are above the drinking water MCLs. The presence of salts in groundwater can either be naturally occurring or a result of human activities.

Five of the wells observed with elevated levels of TDS were generally screened in the Lower Mehrten Aquifer, with one screened in the Shallow Aquifer (Laguna/Turlock Lake/Riverbank Formations). The Lower Mehrten Aquifer, and in some areas the Shallow Aquifer, is underlain and in direct contact with the Ione Formation. The Ione Formation was deposited in a marine environment and contains both fresh and brackish water. It is believed that the source of salts in the sampled wells is from the brackish water in the underlying Ione Formation. However, both the Lower Mehrten and Laguna/Turlock/Riverbank Formations are exposed at the ground surface and can receive recharge directly through precipitation. The monitoring wells are located just west of these exposures. Furthermore, TDS concentrations could also change due to chemical reactions when low TDS water encounters sediments and salts are leached from the sediments. Eventually, the salts contained in the sediments are depleted and TDS levels stabilize.

In general, monitoring wells located in the southwestern portion of Western Placer County, in the Lower Mehrten Formation, collect water from hundreds of feet below ground surface and are in a confined aquifer thousands of feet from where water could enter the aquifers. Water from recent rains would take several hundreds of years to reach the monitoring wells. In contrast, the wells located in the central eastern portion of the basin, near Lincoln, are relatively shallow and in or near potential recharge areas where the quality of the water could be affected by recharge in a much shorter timeframe. In both areas the aquifers are underlain by the Ione Formation which could contribute brackish water and affect water quality.

3. Monitoring Wells

The wells sampled are listed in **Table 1** which indicates well depth, screened intervals, and aquifer monitored. **Figure 1** shows the location of the monitoring wells. The tops of all wells are protected by above-ground security vaults which prevent rain water from accumulating in the vaults and potentially seeping into the wells and affecting water quality.

Well ID	Owner/ Purveyor	Depth	Screen Interval	Aquifer
		(ft)	(ft bgs)	Ĩ
MW 3-2	City of Lincoln	75	65-75	Shallow
MW-4	City of Lincoln	25	15-25	Lower Mehrten
WPMW-3A	City of Lincoln	53	48-53	Lower Mehrten
WPMW-5B	California American Water	650	630-650	Lower Mehrten
W77-B	City of Roseville	604	584-594	Lower Mehrten
SVMW-2C	City of Roseville	670	655-665	Lower Mehrten

Table 1. Monitoring Well Details

ft. bgs = feet below ground surface

4. Sampling Procedures

Groundwater monitoring was performed by GEI employees experienced with groundwater sampling. This section describes the protocol used during sample collection. All wells were sampled after purging each well with a submersible pump, except MW-4 which was purged using a new disposable bailer.

GEI personnel measured the depth to groundwater at the monitoring wells using an electric water level sounder accurate to 0.01 foot. The sounder was cleaned and decontaminated prior to the first monitoring well measurement and between each well site. Depth to water measurements were used to determine the volume of water within the well casing and subsequently the purge volume and time for each well. After the depth to groundwater was measured the monitoring wells were purged using the temporary submersible pump or bailer.

The temporary pump and vinyl tubing were cleaned and decontaminated between each well by submersing the pump and bottom of tube that had been submersed in the groundwater at the wells in a solution of Liquinox and running the pump for several minutes. The pump was then submersed in tap water and pumped for three to five minutes.

Each well was purged by pumping at least three well casing volumes of water to obtain representative water samples from the aquifers. The purge water was discharged to the land surface near the monitoring wells. Field parameters, including temperature, pH, electrical conductivity, dissolved oxygen, and turbidity were also measured during pumping to confirm stabilization prior to sample collection. These measurements, along with pumping rates and volumes, are documented on the field purge logs contained in **Attachment A**.

Once each monitoring well was purged, GEI personnel collected water samples directly into laboratory-prepared bottles. Nitrile gloves were worn while collecting samples. A new set of gloves was used at each monitoring well. The samples were placed in an ice chest, cooled below 4 degrees Celsius, and delivered to BSK Laboratories (BSK) of Rancho Cordova, California under standard chain-of-custody procedures. BSK Laboratories is a California-certified laboratory. **Attachment B** contains the laboratory data sheets and chain-of-custody forms.



Figure 1: Monitoring Well Locations

5. Sampling Conditions

Conditions during the four quarterly (Q4 2016 to Q3 2017) groundwater quality sampling events varied depending on the season and each event had different conditions prior to sampling. No samples were collected during rain events, but conditions prior to sampling may affect water quality results (e.g. events may have been preceded by dry conditions, rain events, or pumping season). No water was present inside of the security vaults to indicate that rain water entered the monitoring well casings from the surface.

Significant rains in the area began in October 2016 and continued through February, 2017 with occasional showers in March, April, May, and July as shown in **Figure 2**. Sampling events in Q4 2016, Q1 2017, and Q2 2017 were preceded by significant storm events (>.25") by at least 30 days or less. These storm events may have contributed to significant groundwater recharge from the rains which could reduce salinity, assist in the migration of high salinity water or potentially leach salts from the soils.

Groundwater levels changed between sampling events as shown in **Tables 2 and 3**. From Q4 2016 to Q1 2017 groundwater levels rose by 1 to 4 feet, except at wells MW 3-2 and WPMW-3A which changed less than 0.6 feet. The change was likely due to recharge from the rains but also could be related to decreased pumping. Increases in groundwater levels could change the pressure on the underlying aquifers and limit upwelling or migration of water from the underlying Ione Formation.



Figure 2: Precipitation and Sampling Events

Southwestern Area Wells							
Well Name	Date Sampled	TDS* (mg/L)	Groundwater Levels (Ft BTOC)				
	7/13/2017	840	115.27				
\//DN/\/_5B	4/27/2017	830	111.08				
	1/16/2017	820	113.75				
(LOwer Mehrten)	11/2/2016	860	116.38				
Menitenj	11/12/2015	880					
	2/23/2015	890					
	7/13/2017	950	110.90				
W77-B	4/27/2017	960	109.48				
(Lower	1/16/2017	880	111.76				
Mehrten)	10/31/2016	990	114.13				
	9/23/2015	970					
	7/13/2017	1400	133.99				
CV/MANA OC	4/26/2017	1300	131.94				
SVIVIV-2C	1/16/2017	NS	NS				
(LOWER	11/4/2016	1400	135.97				
mennten)	9/15/2015	1400					
	6/7/2011	1200					
Notes: * Secondary MCL of 500 mg/L							

Table 2: Southwestern Area Sample Results

Above MCL

NS Not Sampled mg/L milligram per liter Ft BTOC Feet Below Top of Casing

	Lincoln Area	a Wells	
Well Name	Date Sampled	TDS * (mg/L)	Groundwater Levels (Ft BTOC)
	7/12/2017	440	57.83
	4/25/2017	550	54.51
MW 3-2	1/17/2017	690	57.21
(Shallow)	10/28/2016	460	57.85
	9/29/2015	510	
	1/3/2005	380	
	7/12/2017	1500	22.30
B 4147 4	4/28/2017	1200	20.30
10100-4	1/17/2017	420	19.54
(Lower Mehrten)	10/28/2016	2000	22.26
Wentenj	9/28/2015	1400	
	12/21/2004	1100	
	7/12/2017	1800	2.94
14/DN/114/ 2A	4/28/2017	1900	2.60
VV FIVI VV-SA	1/17/2017	1200	4.57
(Lower Mohrton)	10/28/2016	2200	4.74
ment terr)	9/24/2015	2000	
	4/13/2011	2100	

Table 3: Lincoln Area Sampling Results

Above MCL NS Not Sampled mg/L milligram per liter Ft BTOC Feet Below Top of Casing

6. Results

For analysis purposes, the wells were separated into two geographic areas, the Southwestern Area (WPMW-5B, W77-B, and SVMW-2C) and the City of Lincoln Area (MW 3-2, MW-4, and WPMW-5B). Laboratory sample results for TDS were plotted with any available previous water quality results, to identify trends in TDS levels over time. **Tables 2 and 3** show available historic data and the four recent sampling results obtained during this study. Samples were not collected from well SVMW-2C during the Q1 2017 as muddy road conditions prevented access to the well location. **Figures 3 and 4** show plots of the water quality results for each well in these two areas.

Sample results for the Southwestern Area monitoring wells, all in the Lower Mehrten, showed:

- $\circ~$ TDS in all wells were above the secondary MCL of 500 mg/L and exhibit a flat to slightly downward trend.
- There was a slight dip in TDS of less than 100 mg/l in two of the monitoring wells (WPMW-5B and W-77) during the winter months, but thereafter returned to about the same concentration prior to sampling.

Sample results for monitoring wells in the Lincoln Area showed more highly variable conditions:

- $\circ~$ The TDS concentrations were not always above the secondary MCL of 500 mg/L.
- In the Lower Mehrten Aquifer (WPMW-3A and MW-4), TDS concentrations showed significant fluctuations, with a dip of about 1000-1500 mg/L in Winter 2017, both of which occurred at about the same timing as slight declines in TDS in the Southwest Area. Due to the wide variability of the results an overall trend cannot be determined with any confidence at this time.
- The Shallow Aquifer (MW 3-2), had an inverse trend to the other monitoring wells and had increased concentrations in Winter 2017. A slight overall increase trend may be occurring.

In all of the wells, except MW 3-2, the TDS values decreased in the Q1 2017 after the first rains reached the area and correlates well with rising groundwater levels. Therefore, an initial increase in groundwater levels (pressure) in the Lower Mehrten Aquifers may initially affect TDS, potentially reducing upwelling from the underlying Ione Formation. Thereafter, the TDS does not appear to have a direct correlation with groundwater levels, but this may be due to mixing of groundwater. MW 3-2 is the only Shallow Aquifer monitoring well and may explain why it did not respond in a similar manner as the other wells. TDS concentrations initially rose during Q1 2017 and then in Q2 2017 began to decline. The initial increase may be due to flushing of salts from the soils followed with subsequent declines due to rain water reaching the aquifers.



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7. Conclusion and Recommendations

When identifying any long-term trends, care must be taken as trends are dependent upon multiple factors, including but not limited to:

- The time of year when the sample was collected, i.e. were samples collected in the spring or in the fall.
- The amount and timing of when the area received rain, i.e. samples collected early in the winter versus those collected later in the winter after significant amounts of rain have occurred.
- Previous year or years rain conditions. For example, the lack of rain, such as the drought years of 2012 through 2015, can allow salt to accumulate in the soils as small amounts of rain water or water applied for agricultural purposes evaporate and leave behind salts. During above average precipitation years these accumulated salts may be flushed and transported to the aquifers, resulting in high TDS concentrations. Over time, these high TDS concentrations will decrease and allow low TDS water (essentially rain) to reach the aquifers.
- Changes in groundwater levels, i.e. seasonal pumping or recharge from precipitation events, may affect the influence of brackish water from the Ione Formation.

Any of these factors could be affecting the variations in TDS concentrations in both the Lincoln Area and Southwest Area monitoring wells. With the current length of the dataset of one year, no long-term trends could be identified with certainty for either area.

Possible conclusions from the short-term trends indicate:

- For wells in the Lincoln Area:
 - Wells screened in the Lower Mehrten Aquifer may be influenced by an increase in groundwater levels resulting in a reduction of brackish water contribution from the underlying Ione Formation. During and immediately after major precipitation events, improved water quality may result from precipitation-induced recharge.
 - At MW 3-2, salts in the soils may have been initially flushed into the aquifer during initial precipitation events and with further rain events the recharged low TDS water may have reached the aquifer and improved the water quality. The TDS concentrations may have a slight upward trend.
- For wells in the Southwestern Area:
 - Slight improvement in TDS concentrations may result from reduced pumping or higher groundwater levels during winter months. It is possible that during the pumping season (late spring to early fall), pumping may induce brackish water from the deeper Ione Formation to move upwards into the Lower Mehrten

Aquifer. Higher groundwater levels during the winter months may reduce flow from the Ione Formation into the Lower Mehrten Aquifers.

While the high variability in data prohibited identifying long term trends in the Lincoln area wells, TDS concentrations appeared stable to slightly declining in the Southwest Area wells. It is recommended that further investigation of elevated levels be performed would include:

- Additional sampling and monitoring occur at both the Lincoln and Southwest Area wells. This will allow for greater clarity in analyzing data for long-term trends, for the source of the elevated TDS levels, and for determining whether management actions are needed to maintain suitable water quality.
- Define the potential extent of the elevated TDS levels in and north of Lincoln by a review of historic literature for wells with water quality data. Inquire with Placer County Environmental Health for water quality samples that have been performed for property owners.
- Define the principal aquifers affected by populating the Groundwater Well Inventory System with additional wells, construction details, and lithologic information from DWR well logs to assess the depth of the formations and aquifers. . Create east-west geologic profiles to show the relationship of the Ione Formation to the fresh water bearing aquifers and the well screen depths, TDS concentrations, and their relationship to the aquifers to show potential mechanism of how high TDS water is entering the fresh water aquifers.
- Plot TDS concentrations versus groundwater levels to assess any potential relationships.
- Collect water quality samples from additional wells in the area to further refine the extent of the elevated concentrations.

Management actions cannot be determined until the additional data is collected and analysis performed to better understand if long-term degradation is occurring and the mechanism for the degradation. Potential management options that may be developed during GSP development and implementation could include:

- Develop a local well construction ordinance to make sure wells are properly constructed to prevent migration of elevated TDS from the Ione Formation.
- Develop a program to identify and destroy abandoned wells to prevent migration of degraded water between aquifers.
- After a sufficient amount of water quality and water level data is collected, a relationship between water levels and water quality could be developed to identify a threshold where if maintained above this level could limit the migration of poor quality water into production aquifers.
- Develop a groundwater mound (recharge) or depression (pumping) that may control the migration of the elevated TDS water into the subbasin.

8. References

GEI Consultants, Inc. 2017a. Baseline Groundwater Quality Study (samples collected Fall 2015). Prepared for the Western Placer County Groundwater Management Plan Group.

GEI Consultants, Inc. 2017b. Memorandum: Water Quality Trends Assessment. Prepared for the Western Placer County Groundwater Management Program – Year 9.



Time	Purge Vol.	Flow Rate	DTW	Temp.	pН	Cond.	Com	ments
	Gallons	GPM	ft btoc	°C		uhmos/cm	Turb	DO
12:04	134 Water	2.5						
12:10	15	2.5		23.7	7.17	1446	0.72	0,34
12:20	40	2.5		23.6	7,19	1434	0,41	0,43
12:30	GS	2.5	8	23.9	7.21	1394	1.02	0.59
1240	90	2,5		24.1	7.17	1428	0.38	1.07
1250	115	2.5		23,9	7.22	1449	0,20	0,31
15:21	fulstray (Stop)							
1252	Start Opun	02,5						
1302	142.5	2.5		23,9	7,20	1451	0.15	0,49
1312	167.5	2,5		23.9	7.15	1455	0,241	0.93
13:22	192,5	2.5		23.8	7,16	1451	0.16	0,27
13:37	217.5	2.5		23,8	7.19	1453	0,13	0,28
1342	242,5	2.5	2	23.8	7,23	434	0,17	0.52

1345 Collect Samples

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
1345	12	Plashic	1	N	NA	clear	
1345	500 mL	- ti	1	N	N/A	claux	
1345	gouml	1.	.]	Y	HNUZ	clear	
						· · · · · · · · · · · · · · · · · · ·	
							T. X

Methods	1		
Decon Equipment:	Cynihox		
Pumping Equipment:	Ginnellis	Red: f102	
Disposal of Discharged	Water: Giv	ound	
Comments:		N .	

By D. HO



Well ID W77-B

I.D. (in) <u>7</u>____



Time	Purge Vol.	Flow Rate	Temp.	pН	Cond.	Com	ments
	Gallons	GPM	°C		uhmos/cm	Turb	Po
1142	1St LL	ater					
1145	q	3	21,4	7.31	1424	0,83	1,36
1153	35.7	3,3	21,8	7.18	1435	2,08	0.62
1158	52.2	3.3	22.2	7.25	1428	0.86	0,68
12.04	72	2,3	22.7	7.29	1412	0.22	0.52
1214	105	3,3	23.0	7,30	1462	0.75	0.60
12 24	138	3,2	22,1	7.27	1449	0,29	0.53
1231	161.1	3,3	23.0	7,28	1448	0.23	0.53
1239	187.5	3.3	22.9	7.25	1451	0,40	0.39
1249	220.5	3.3	231	7,36	1430	0,31	0.60
1259	253,5	3,2	23.0	7.24	1431	0.33	0.59
12:00	(diect a	samples					
	-						
							1.00
				ļ			

Comments:

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J:\California American Water\Project\1323850 Wild Wings\Purge Log_WWRF_08142013



PURGE LOG Page No. ____ of ____

Proj. Name Macer County Proj. No. 1610374 Date 1/16/17 Task No. 2, 2 Weather 50°, Sunny

VO

Well ID W77-B	DTW (ft btoc) 111, 76	T.D. (ft btoc) <u>604</u>
I.D. (in)	604-111.76=492,24 x0,16=78,8 × 3	= 236,3 min purge

Time	Purge Vol.	Flow Rate	Temp.	pН	Cond.	Comments	MA
	Gallons	GPM	°C		uhmos/cm	Turb	DOT
1416	Kf water	3					
1418	6	3	19,8	7.36	1470	0.57	0.64
1422	18	3	2017	7.28	1458	1.01	0,34
1425	27	3	21.2	7.29	1448	2.08	0,36
141.28	36	3	21.4	7,29	1453	1,14	0.28
1432	48	3	21.6	7,26	1454	0.63	0,25
1436	60	3	21.6	7.30	1451	0.89	0.25
1440	72	3	21.9	7.31	1450	1.14	0.24
14 44	84	3	22,0	7.33	1494	2,10	0,21
14 50	102	3	22.0	7.32	1488	2,61	0,62
1456	120	3	22.0	7,32	1476	1.10	0.26
1502	138 .	3	22,2	7,32	1466	0.62	0.28
1507	153	. 3	22.3	7.32	1465	0,51	0.27
1516	171	3	22.2	7.32	1449	0.55	0.31
1526	201	3	22,1	7,31	1459	0.54	0.63
1533	222	3	22,2	7.31	1454	0,43	0.29
1539	240	3	22,3	7,31	1454	0,47	0.23
1545	Collect S	amples					
1600	Decon Ec	surio					

Comments:

D. HO By_

8 10/31/10	W -	77B		=	11. 10		Pump	@ 13	o' de	ιp	
	Arrive	at 9	15]]	100=	14.13	-					
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-9:43	beci	Pur	e						<u> </u>		
Plan	Rate -	lant	60 sec	12	gal		-				
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						•	-	(
Time	Vol	Flow min	Temo	oH	cand		TT IN NTU	DUM	N Ir	1-0	
946	6.9	2.3	20.8	7.05	12.99		Z	711	100		
949	13,8	2,3	71.3	7.14	1307		.77	2.16	fui Si l	n T Gui	-
952	19.8	2.0	21.4	7.15	1304		.40	67	Sci.	-v	
956	31.8	3.0	21.3	7.17	1305		1.77	.68			
958	37.8	3.0	21.6	7.20	1300		50	.73		-	
1009	67.5	2.7	22.0	7.21	1302		26	. 97			
1014	81	2.7	22.1	7.23	1319		,27	.74	Bribbl	15 0.005 0.0	4
1017	89.1	27	22.5	7.20	1415	1	,31	71	1-01-74	es preser	
1019	94.5	2.7	22.5	7.21	1435		,27	83			
1022	102.6	14	22,7	7.21	1425	2	.57	.34			
1025	110.7	T I	12.5	721	1410		0.83	44			
1028	118.8	2.7	22.6	7.21	1419	*	0.55	.30	_		
1030	126.9	2.7	22.7	7.20	1408		0,67	.28			1
1033	135	2.7	22.8	7.20	1404		0.44	,30			
											-7 0
											hite i

1.0	1		1					*			1
Time	Vol	Flaw	Temo	PM	Cond		Turb	DO	Ne	lec_	
10:36	143,1	27	22.9	7.20	1408		0.51	.36			
10:39	151.2	2.7	22.8	7.21	1409		0,44	.42			
10:42	159.3	2.7	22.8	7.21	1407		0.51	0.35			
10:45	167,4	2.7	22.9	7.20	1401		0.41	0.29			
1048	175.5	2.7	22.7	7.21	1400	•	0.49	0.32			
1051	183.6	2,7	22.8	7.21	1349		0.35	0.32			
1054	1917	2.7	22 8	7.20	1401		0.34	0.38			
1057	200,4	2.7	22.8	7.20	1400		0.41	0.30			
1100	208.1	2.7	22.7	7.21	1398	4	0,25	0.42			
1103	216.2	2.7	22.8	7.21	1395	- 1	0.31	0.44			
1106	224.3	2.7	22.7	7.20	1400	1	0,27	0.27			
1111	237.8	2.7	22.7	7.21	1396		0.31	0,35			
1113	243.2	2.7	22.7	7.20	1392	4	0.32	0.32			
1120	collect	sampl	<i>es</i>						and the		
1125	Decon	Egun	ρ				A second		1		
	130 20 00										
		1									
		*						1			
								1	1.1		
						1					
	1			E la				1.1			
	12	. · · · ·								1.11	
		1									
-											
	-F										Retern
	1		1). ()			
-											
			14								
a											



Well ID MW-4

Water Column (ft) 4.7

Casing Volumes: 2'' = 0.16 gpf

GROUNDWATER SAMPLING RECORD

Proj. Name Aller County Samples Date 4/28/17 Weather 65°F, sunny SWL (ft btoc) <u>20.30</u> x 0.16 gpf= 0.752 $x_3 = 2.25 gel$ 4'' = 0.65 gpf

Proj. No. 1610374 Task No. 2-2

Page No. ____ of ___

T.D. (ft btoc) <u>25</u>

Time	Purge Vol.	Flow Rate	DTW	Temp.	pН	Cond.	Cor	nments
	Gallons	GPM	ft btoc	°C		uhmos/cm	Turb	Do
1109	0.25	Bailer		10.3	6.83	1895	55.2	2,24
11/2	0,50	1 1		17.7	6.97	1383	266	2.29
1114	0:75			17.8	6.78	1495	170	1,78
1115	1.0			17.6	6:86	1611	320	2.12
1117	12,25			17.4	6.86	1780	375	2,12
1120	1,50		N N	17.6	6.85	1999	404	2,09
1122	1.75	V	A	17.4	6.88	1957	575	1.85
1124	2.00	A		17.5	6,89	2109	377	1,92
1126	2125		1	17,5	(0.89	2139	396	2,10
1130	Collect	Sample	\$ / \					
								200 A
			×				Sulfin	smell

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
1130	500 m L	plastic		N	M	Turbid,	
1130	IL	dashic	1	N	N	Turbig	
		1	- 21				
	243	_		2			
							1. K

9	\$2 C	
Methods		
Decon Equipment:		
Pumping Equipment:		(ii)
Disposal of Discharged Water :		
Comments:		

Ho

By



Well ID MW - 4

I.D. (in) _2____

PURGE LOG Page No. ____ of ____

Proj. No. 161 03 74 Task No. 2, 2 Proj. Name <u>punce</u> Date 1/17/17Weather <u>46°</u>, <u>parthy clandy</u> DTW (ft bloc) <u>19,54</u> Min purge vol = 2,6 gal **Comments** Proj. Name Placer County

Time	Purge Vol.	Flow Rate	Temp.	pН	Cond.	Comments	Rame.
a i	Gallons	GPM	°C		uhmos/cm	Turb	DUZ
1126	0.75	Bailer	16.8	6.79	682	250	1.80
1129	1.0		17.8	6.72	672	237	1.35
1131	1.25		18.0	6.72	678	283	1,28
11361	1,50		17.9	6.70	683	2.84	1.12
1136	1.75		10.0	6.71	677	347	1.17
1138	2.00		181	6.71	680	341	1.22
1140	2,25		18.1	672	678	398	1.39
1142	2.50		18.1	6.73	681	398	1.48
1144	2.75		18.0	6.73	687	510	1.51
1150	Collect .	Samples					
				1			
				- (
				1			
					4		

Comments:

callfur smell, rocts in well casing

Ditlo By

4 MN 4 - DTW 22 Raits on weber 3 25-22.26 =	Q 14 .26' tran- ainder 2.74	; 00 ponder × 0.16 =	and 0,44 x	3 = 1.3			
Time Vol. 15.07 .25501 1511 .5901 1518 1.5 1521 2.25 1526 3 1535 Collect Dumped HN Field. Per	DO 50% 17% 29% 21% 18% Samp Uz (Uz (Uz (Uz (Uz (Uz (Uz (Uz (Temp 19.1 18.9 19.0 19.0 19.0 19.2 19.2 19.2 ces	pH 6.46 6.52 6.61 6.60 6.61 6.61 6.61 6.14e	Cond 2850 2863 2863 2863 2834 2766 2748 2748	Turb 39.3 235 177 200 358 674		Rtter



Well ID MW-4

Water Column (ft) 2.7-

Casing Volumes: (2" = 0.16 gpf)

GROUNDWATER SAMPLING RECORD

Page No. ____ of /

Proj. Nameplacer Co Weiter Samples Proj. No. 1610344 Date 7/12/17 Weather 83, Sunny SWL (ft btoc) 22.30 gpf = 0.432 $x_3 = 1.3$ x 0.16

4'' = 0.65 gpf

Task No. 2.2

T.D. (ft btoc) 25

OR = Outange

Time	Purge Vol.	Flow Rate	DTW	Temp.	pH	Cond.	Con	nments	
	Gallons	GPM	ft btoc	°C		uhmos/cm	Turb	DUZ	
1049	0.25	Bailer		19.9	6.39	2546	79,0	1.70	Sh Ifin
1052	0.5		\setminus /	18.6	6.48	2576	824	1.78	Smel
1055	0.75			18.5	6.47	2575	617	1.14	Routs
1057	1.0		Y	18,4	6-51	2494	OR	1.87	lin
100	1,25		Λ	18,4	6-59	2568	OR	1.90	(ase
1000	Contraction of the second		1						
1103	1,5		1	18.6	6.56	2545	781	1.01	
1110	Collect	Samples							
		1							
									1
								(1
	5								
			34 	115					

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
11.10	IL	Plastic	1	N	NA	Dark grey	
1110	500 mL	34	1	N	NA	10 Li	
					/	G	
							10 8

Methods			•	8	
Decon Equipment:					
Pumping Equipment:	Bailer		-		Ř.
Disposal of Discharged	Water : Group	nd			
Comments: Sulfur	smell; Routs	inside we	Il casing		
			0		

D. Ho

By



Time	Purge Vol.	Flow Rate	DTW	Temp.	pН	Cond.	Com	ments ma
	Gallons	GPM	ft btoc	°C		uhmos/cm	Turb	DUI
9:24	1	Bailer		21.5	6.46	739	6.29	2,19
932	2			21,3	6.58	737	328	2.81
940	3			21.3	6.68	734	226	1.70
9416	4			21,2	6.70	725	228	3.09
951	5		<u> </u>	21.2	6.76	705	247	2.47
956	6			21.3	6.76	698	335	2.77
1002	7			321.4	6.74	693	448	4,44
1009	8.25			21,41	6.841	686	403	3.34
1015	Collect (Camples						
			<u> </u>					

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
1015		Plastic		N	N/A	Cleav	Comments
1015	500 mL	10		N	NA	clear	
			-			4	
				i	2 T	-	
	·	-		1			
							10 2
				-			
						1	

Methods		10 10	
Decon Equipment:	5 C		
Pumping Equipment: Bailer			30
Disposal of Discharged Water :	Ground		
Comments:			

HG

Dennis

By



GROUNDWATER SAMPLING RECORD

Page No. ____ of __(

Well ID _ M W 3-2 Water Column (ft) $\frac{20.49}{x.16}$ x $\frac{16}{ycf} = \frac{3.3}{x^3}$ x $3 = \frac{9.8}{9c}$ Casing Volumes: 2'' = 0.16 gpf 4'' = 0.65 gpf

Proj. Name Water Samples Date 4/28/17 Weather 60°F, clear SWL (ft btoc) 54,51

Proj. No. 1610374 Task No. 2.2

T.D. (ft btoc) 75

Time	Purge Vol.	Flow Rate	DTW	Temp.	pН	Cond.	Com	ments
	Gallons	GPM	ft btoc	°C		uhmos/cm	Turb	Du
930	Pailer		λ					
\$35			$\langle \rangle$	20.8	7.29	875	3.14	1.87
940	2			20,9	7,18	963	14.6	1.69
945	3			20.7	7.26	964	87.4	2,38
950	4	117	V	20.6	7.27	958	142	2,28
954	5		Λ	20.8	7.27	943	348	2.92
1000	6	X		20.7	7.27	926	380	2,72
1005	7			21.2	711	906	339	3.12
1010	E		1-1-	20.6	7.20	882	341	2,72
1014	9			20.0	7.24	867	299	3.06
1021	10			20.0	7.39	361	2 8)9	2.30
1022	Collect	Sam 10:						

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
1022	500 mL	Plastic	- 1-	2	2		
1022	IL	Plastic	1	N	N		
				-		3	
					21 K		
		-					
							1 ⁰ X

Methods	
Decon Equipment:	
Pumping Equipment:	
Disposal of Discharged Water :	1 F
Comments:	

D. Ho

Bv



Well ID MW 3-2

PURGE LOG

Page No. ____ of ____

Proj. Name<u>Placer Camp</u> Date<u>1/17/17</u> Weather<u>39°, Parthy Clar</u>cky DTW (ft bloc) <u>57,21</u>

Proj. No. 1610374 Task No. 2, 2

T.D. (ft btoc) 75

I.D. (in) <u>Z</u>

Hin Rivge = B.S gal

Time	Purge Vol.	Flow Rate	Temp.	pН	Cond.	Comments	No ma
	Gallons	GPM	°C		uhmos/cm	Turb	00 -2
944	0.5	Bailer	15.5	6.97	646	41.78	2.42
950	1.0		17.9	6.93	625	4.07	2.17
954	1.5		19,1	6.95	740	13.5	2.58
954	2.0		19.6	6.98	888	29.3	2.67
10.04	3.0		19.7	6.99	1132	96.1	2.56
1010	4.0		19.4	7.02	16	157	2.99
1016	5.0		19.4	6.99	1159	195	3.19
1022	6.0		19.3	6.99	1133	177	2.96
1028	7.0		19.3	6.98	1113	136	3,07
1035	8.0		19.4	7.03	1102	174	3.67
1041	9.0	<u> </u>	19.4	7.03	1083	221	5.75
1045	Collect	Sam pl	05		P		
		,					
					1		-
				-			
				1			
		-					
		-			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
L	E		1				

Comments:

By D. Ho

2	10/29,	Ai	NOV-	Weh	4 MW			2		а. Б	L
1	MUN	45.5	210	12:00	>						
	laund	a Hudy	acleon	200 1	2:45	-					
	death	5 720	1 and	220'	10			_			
	104 5	4 Q 1	2:00								
	Locked	well a	nd gate			1					
~~	~		0			¥.					
	MW 2	-2 @	13:0	5							
	ATTU	= 57.9	5' offe	r -							
Min	phill	ing to	ransdu	-er 6 DTL	17 5719)						
Purge 8.	2 gal	2			~				1.20	-	
Time	Vol	00	Temp	at c	rond	Juv	6 (NT	Л			
13:20	0.2500	10,2%	20.5	6.69	695		-				
1336	69	30,5%	12	6.76	699	4.0	>				
1347	2.5	41.4%	21.1	6.87	7.05	25	73				1
1354	4.2	32.5%	2).]	6.84	704	20	26				
1358	5.0	32.3	2).	6.82	702	<u>_</u>]2	11				
1403	6.0	341.0%	21.1	6.82	700	190					
1408	7.0	40.2	21.0	6.88	694	15	8		_		
1413	8.0	35,4	21.0	6.84	690	114	15				L
1418	9,0	40.0	21	6.84	686	15	ъ				
1410 0	ollect go	imples									
_										ļ	
	9							_			
				}	1			-	and the second second		
											Riter
						-	l,		1	1	1 1

	G		ants	GROUN Proj. Name Date 7/1 Weather	DWATER S. Placer C 3/17 74°, sur	AMPLING R Unoter Samp	ECORD Proj. No Task No	Page No 161037 2.2	1_of_ <u>2</u> 74	
	Well ID V	UPCMW-	5B	SWL (ft b	toc) <u>115, 2</u>	7	T.D. (ft bt	oc) <u>650</u>		
	Water Col	umn (ft) <u>53</u> 4	4.73	x <u>0.16</u>	gpf,=	85.55	$x_{3} = 2S(a)$	504		
ζ.	Casing Vo	lumes $2'' = 0.$	16 gpf 4	" = 0.65 gpt	E DS	sec . 607	= 2 GPM	S		
	Time	Purge Vol.	Flow Rate	DTW	Temp.	pН	Cond.	Com	ments	1.
j		Gallons	GPM	ft btoc	°C		uhmos/cm	Turb	DOT	
	9:16	1st Water	2	T I	20.5	1.321	1458	0.561	111	smells

-5

1.54

.56

1.64

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2.3

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Samn	el	Inve	nto	1737	

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:18

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0:20

:02

9.9

41.

S

Time	Volume	Bottle Type	Ouantity	Filtration	Preservation	Appearance	Comments
1042	IL	Plashic	1	N	NA	clean	
1042	500 mL	11	N	N	NA	dear	
1042	500mL	E Star		Y	HINDA	clean	
						S	
							19 ×

Methods					
Decon Equipment:	Liquinox	Ringe			
Pumping Equipment:	Grund füs	Redifio 2	S.,	2	10
Disposal of Discharged	Water: Giv	and			
Comments:					

By D. Ho Sydney Nye

V

R M

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1.50

1.03

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O. -1)

like

	:=:		*			÷	D-1		
, a	G		tants	GROUN Proj. Namo Date 7/ Weather	DWATER S = <u>Macer (</u> 1 <u>3/1</u> 7 74°, S	AMPLING R	RECORD Sumples Proj. No. Task No.	Page No. <u>-</u> <u>161 037</u> <u>2-2</u>	<u>2</u> of <u>2</u> 4
	Well ID M	JP Clotte		SWL (ft b	toc)		T.D. (ft bi	toc)	
	Water Col	umn (ft)		x	gpf =		x 3 =	12	
	Casing Vo	olumes: 2" = 0 gall + previor).16 gpf 4	l'' = 0.65 gp	f	` *'		а в з	
	Time	Purge Vol.	Flow Rate	DTW	Temp.	pН	Cond.	Соп	iments
8	11.2	Gallons	GPM	ft btoc	°C		uhmos/cm	Turb	DOCTO
	10:40	2741.4	3.3	$\sum_{i=1}^{n}$	22.1	7.64	1459	R.41	1.46
calle of	10.42	Collect	sample	5					
~ *			V					×	
4			<u> </u>	<u> </u>					
				+					
				\uparrow					
- 1									
				/	1				
					1.				
				1			1		

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
_							
	÷.						
							20

Methods	
Decon Equipment:	
Pumping Equipment:	

Disposal of Discharged Water :

Comments:

By D. Ho Sydney Nye


2	PURGE LOG Page No.	of
nts	Proj. Name Placer County Water les	Proj. No. 1610374
	Date 4/27/17	Task No. <u>7.</u>
-0	Weather SSF, Partly Chinary	1
- 7 15	DTW (ft btoc) <u> , 08</u>	T.D. (ft btoc) <u>650</u>
Min	Rivge Vol = 259 gal	

Well ID WPMW I.D. (in) _____

Time	Purge Vol.	Flow Rate	Temp.	pН	Cond.	Comm	nents m
	Gallons	GPM	°C		uhmos/cm	Turb	10-2
8.49	1st we	iter					
8:52	9.6	3,2	18.0	7.67	1449	3,07	1.71
8:58	29.8	3.2	18.9	7.62	1404	0.19	1.11
9:03	44.6	3.2	19.0	7.60	1411	0.91	0.51
9:10	67	3.2	20.0	7.70	1328	0.60	1.09
9:19	95.8	3.2	20,4	7.77	1257	0.97	0.91
9:26	118.2	3,2	21.0	7.77	1301	6,20	0,83
9:33	140.6	3.2	21.2	7.77	1401	4,33	1.00
9:39	159.8	3.2	21.3	7.77	1407	2.86	1.05
9:47	185.4	3.2	21,3	7.77	1412	1.42	0.77
9:56	214.2	3,2	21.61	7.73	1422	1,25	1,80
10:07	249,4	3.2	21.6	7.75	1431	0.87	0.90
10:12	265.4	3,2	2/16	7.75	1443	0.73	0.75
10:12	Collect e	cimples					
				1			
			L				
		l					

Comments:

708-0858

Ditto By_

Dayton



PURGE LOG Page No. ____ of ____

Task No. 2.2
T.D. (ft btoc) _650
257.4 min purge

1st water

Time	Purge Vol.	Flow Rate	Temp.	pН	Cond.	Comments	DO mg
1.00	Gallons	GPM	°C		uhmos/cm	Turb	p c
9:37	0,200	and adia					
9:39	5.2	2.6	16.3	7.57	1499	8,3	1.65
9:42	8,16	2.72	17.1	7.51	1495	2,19	0,76
9:45	16.32	2.72	18,1	7.54	1465	1.91	0.72
9:47	21.72	2.72	18.6	7.59	1445	0.54	0.51
9:50	29.88	2.72	18.7	7.59	1442	0.73	0.51
9:56	46.2	2.72	18,9	7.62	1427	0.61	0.53
1003	65.24	2.72	19.6	7.67	1377	0.60	0.37
10 09	81.56	2.72	20.2	7.72	1307	0,34	0.48
10 14	95.16	2.72	20.0	7.73	1301	0.50	0.49
1025	125.08	2.72	20.6	7,72	1416	5.65	5 0.30
1033	146.84	2.72	20.8	7-72	1441	4.53	0.30
1040	165.88	2.72	20.6	7.72	1451	4.11	0.72
1047	184.92	2.72	20,7	7.72	1455	3.89	0.29
1053	201.24	2.72	20.7	7.73	1462	4,02	0.21
1100	220,28	272	20,9	7.72	1470	3,98	0.21
1109	244,76	2.72	20.8	7.72	1468	3,70	0.19
1116	263.8	2.72	20.9	7.72	1477	3.21	0.41
1120	Collect ?	amples					
1130	Decon E	Equipmm-	Y				
1210	Launch	Transde	ncer				
						1	

Comments:

Sulfur smell

By D. Ho

22	WP	HW-S	BO	8:51	· · · .					
TD=4	50		SIF	CAMIN I	bar	Plina	DI	35' dl	200	
DTW-	116.34	3	2.13	y and y			C	· · · · · · · · · · · · · · · · · · ·	P	
	no. ye	Min	Purce	= 407	a d					
Sec. 0	9:12	1.1.4	. 0		In	-				
argun e			-							
										6
Time	Vol	Flow	Temp	DO	Cond	pH	Turb	NUT	s	
9799914	36	30	17.3	76.0.	1222	7.28	3,34		1000	3 5
917	15	3.0	18.0	2.26	1246	7,25	5.32	slist	+ sull	tir
920	24	3.0	18,5	1.05	1243	7.43	1.94	4		
922	30	3.0	18.8	1.14	1239	7.49	3.84			
924	36	3.0	18.7	0.80	1248	7.48	1.37		1 march	
926	42	3,0	18.9	0.60	1234	+ 7.52	1.03			
929	51	3.0	19.4	0.63	1229	7.55	0.71			
932	60	3,0	19.6	0.83	1222	7.58	0,57	-	-	
936	72	3,0	20.0	0.62	1210	7.60	3.94			
938	78	3.0	20,3	0,49	1201	7.62	0,46			
939	81	3.0	20.6	0.51	1190	7.63	0,33			
944	96	3.0	20.6	0.59	190	7,65	1.72			
946	102	3.0	20.7	0,52	1183	7.65	0.46			
949	171	3,0	20.9	0.53	1151	7.67	4.5%			
952	120	3,0	20,9	0.48	1236	7.69	3.75			
959	141	3.0	21.2	0.62	1401	7.46	23,7		× 1	
1003	153	3,0	21.4	0.61	1409	7.67	17.7			
1011	177	3.0	21.3	0:56	1408	7.66	9,14		2	Reter

24 Tìlla I	$\langle \rho \rangle$	Cloup	TPIMO	DO	cond		DH	turb			
1016	197	20	215	0.52	1412		7.65	8.62			
10.21	207	30	217	DES	1416		7.66	9.81			
1028	718	a.c)	171.9	0,54	1418	3	7.66	9.0			
1035	249	3.0	21.8	0.63	1427		765	6.21			
1040	264	3.0	21.8	0.56	1415	Y	7.66	14.5			
1045	2.79	3.0	21.8	0.61	1422		7,66	6.93			
1050	2 94	3.0	21.7	0,56	1424	-	7.65	5.51			
1055	23009	3.0	21.9	157	1422	-	7.65	6.60			
1100	224	2.0	217	0,45	1425		7.65	7.00			
1105	329	20	719	044	1421		7.64	75.13	,		
1110	254	3.0	21.7	6.51	1422		7.64	4.06			
1115	269	20	21.7	0.47	1428	1	7104	5.34			
1120	2 84	2.0	21.8	0.58	1427	1	7.64	4.95			
11253	99 99	2.0	21.8	0.48	1427		7.64	8,19			
FLAS	Tallor	Die	des								2
1130	414	0,00	21.8	0.43	1428		7.64	5,77			
1123	Collect	Samo	ec	- 15							
1(40	Decon	Equ	10				×				
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Well ID SVMW2C

GROUNDWATER SAMPLING RECORD

Page No. ____ of

10001

Proj. Name <u>Plaster County</u> Water Date 7-15-207 (Samples Weather 96°F, Sunny 3 $\frac{133.99}{\text{gpf} = 85.7616 \times 3 = 257.2848}$ SWL (ft btoc) x 0,16

Proj. No. <u>16103</u>74 Task No. <u>2.2</u>

Casing Volumes: 2" = 0.16 gpf 4" = 0.65 gpf

Water Column (ft) 536.01

	Time	Purge Vol.	Flow Rate	DTW	Temp.	pН	Cond.	Com	nents
35.	15:40	Gallons	GPM	ft btoc	°C		uhmos/cm	Turb	VO
1545	\$40	1st water	3						
1245	The start	15	3		23,4	7.05	2000	0,35	2.80
	1555	45	3		122.9	7.29	2003	0.40	0,90
	1605	75	3		23.0	7.36	1953	0.36	0.84
	1615	105	3		V213, 0	7.39	1826	0.29	0.89
	1625	135	S		23.3	7.36	2049	0.51	6.77
	1635	IGS	3		23.3	1.38	2028	GIT	1.01
	1645	195	3		23.5	7.43	2041	0.15	0.82
	1655	225	3		24.	7,34	2076	0.14	1.81
	1705	255	3		23.3	7.43	2047	0,44	1.21
	1710	270	3		23.2	7.45	2055	0.44	15,7
	JFIU	Collect	Sam	ples			_		(a).
			V						

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
1710	112	Plashic		N	N/A	clear	
1710	SUUML	11	Ń	N	N/A	rlear	
1710	500 mL	11		У	HINOZ	clear .	
	93					(
	-				5		· *

Methods	
Decon Equipment: Liquine	×
Pumping Equipment: Grund	Gr Redificz
Disposal of Discharged Water :	Ground
Comments:	

. Ho YP By____



Water Column (ft)

Well ID SVMW-2C

PURGE LOGPage No. [of [Proj. NameProj. NameProj. NameProj. No. 1610374Date9/26/17WeatherClandyDTW (ft bloc)131,94I.D. (in)2MinProgeVal258Scal

	Time	Purge Vol.	Flow Rate	DTW	Temp.	pH	Cond.	Com	ments
		Gallons	GPM	ft btoc	°C		uhmos/cm	Jurb	Do
	15.34	1 St Wate	V2.5						
	1536	5	2.5		21.1	7.17	1916	0.59	0,81
	1540	15	2.5		21.2	7.18	1903	0.34	0.48
	1543	22.5	2.5		21.2	7.21	1898	0,3)	0,51
	1545	27.5	2.5		21,3	7.23	1090	0.22	0.43
425	1551	Flow sho	pred						
10.0	1553	Flow	segin a	sain					
	1555	46.9	2.2	J	2114	7.11	1847	6.40	1.10
	1602	62.3	2.2		21.7	7.18	1826	7,81	0.67
	1607	733	2.2		21.8	7.21	1782	7.51	0.60
	1617	95.3	2.2		21,8	7.27	1767	5.08	[.04
	1627	73	2:2		22.1	7.31	1980	20,1	1.18
	1637	139,3	2.2		22.0	7.40	1990	31.9	1.47
	1647	101.3	2.2		21.3	7.43	19.68	1.82	1.24
	16 58	18515	2.2		22,2	7,38	1997	12,8	0.48
	1712	219.1	2,4		22:2	1:34	.2004	<u>e</u> .	0.46
	1721	240,7	2,4	<u>^</u>	22.3	7.52	2026	12.9	0,45
~	1731	264.7	2.4		22,3	7.54	2021	5.87	0.38
	1721	Collect	Samples						
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Comments:

By Ditlo

38						T					
11/4/16	SUMM	-2C	Q II:	15							
TD=	5251	6701									· · · · · · · · · · · · · · · · · · ·
DTWO	135,0	17'				in a	in i				
670-	135.97	= 534	0340	16 = 85	1,44 ×3		256) 9	al min	paux	e	
primp	216	O' de	ep .						1 0		
Besin	pumpin	g Q -	1207	1135		1					
FILL	Rafe -	2,0	gal								
			min			-50	6. P				
Time	Vol	Flow	Temp	DO	cond	i.	PH	Turb			
1139	8	2.0	21.4	8.50	1640	1.	7.03	12.4			
1141	16	2,0	21.8	2,12	1676		7.02	4.53			
1144	22	2.0	21.9	1,58	1675	4	7.03	3.64			
1146	26	2.0.	22.1	1.45	1678		7.05	2.39			
1151	36	2.0	22.2	1.49	1672	1	7,08	1,39			-
1156	46	2,0	22.2	1.55	1677		7.10	0.69		()	
1202	58	2,0	22.3	1.53	1671		7.12	0,83			
1206	66	2.0	22.5	1.54	1665		7.16	0153			
212	78	2.0	22,5	1.56	1673		7.17	0.67			
1218	90	2.0	22.6	1:55	1728		7.22	0.35			
1223	100	2.0	22,7	117	1844		7.28	1.39			
1230	114	2.0	22.8	1,30	1906	2	7.32	0.73		·	
1236	126	2.0	22.8	1.35	1921	1	7.35	1,42			
1242	38 -	2,0	22,9	1,38	1930		7.39	0.81			
1249	15.2	2	22.7	1.41	1931		7.41	1.09			i
1258	170	2	23.0	1,40	1936		7.44	0,25			
1304	182	2	22,9	1.30	1937		7.46	0.62			Reterns

40 Time	Vol	Flow	Temp	Do	cond	pH	Turb			
1310	194	2	22.9	1.25	1940	7.45	0,45			
1316	206	2	72.9	0,71	1940	7.47	0,66			
1324	222	2	22.9	141	1942	. 7.47	0,38			
1329	232	2	22.9	1.34	1941	7.47	0,37		- De	
1335	244	2	22.9	1.45	1943	7,48	0.56			
12.45	256	2	22.9	1.42	1942	7.48	0,52	i		
1250										
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BSK Associates Fresno 1414 Stanislaus St Fresno, CA 93706 559-497-2888 (Main)



A6K0257 11/15/2016 Invoice: A628192

David Fairman **GEI** Consultants 2868 Prospect Park Drive, Suite 400 Rancho Cordova, CA 95670

RE: Report for A6K0257 WPC WQ sampling Fall 2016

Dear David Fairman,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 11/2/2016. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

If additional clarification of any information is required, please contact your Project Manager, Adam Trevarrow, at (800) 877-8310 or (559) 497-2888 x116.

Thanks again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Adam Trevarrow, Project Manager



Accredited in Accordance with NELAP **ORELAP #4021**

A6K0257 WPC WQ sampling Fall 2016



Case Narrative

Project and	Report Details	Invoice Details
Client:	GEI Consultants	Invoice To: GEI Consultants
Report To:	David Fairman	Invoice Attn: Richard Shatz
Project #:	Placer County	Project PO#: 1610374
Received:	11/02/2016 - 10:30	
Report Due:	11/16/2016	
Sample Ree	ceipt Conditions	
Cooler: Def	ault Cooler	Containers Intact
Temperature	on Receipt ºC: 1.3	COC/Labels Agree
		Received On Wet Ice
		Packing Material - Other
		Sample(s) were received in temperature range.

Initial receipt at BSK-SAC

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

DP1.1 Sample Duplicate RPD exceeded method acceptance criteria.

Report Distribution

Recipient(s)	Report Format	CC:
Richard Shatz	FINAL.RPT	
David Fairman	FINAL.RPT	
Sandy St. Hilaire	FINAL.RPT	



Certificate of Analysis

Sample ID: A6K0257-01 Sampled By: Dennis Ho Sample Description: MW 3-2 Sample Date - Time: 10/28/16 - 14:19 Matrix: Ground Water Sample Type: Grab

BSK Associates Fresno General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed Qual
Alkalinity as CaCO3	SM 2320B	170	3.0	mg/L	1	A615205	11/03/16	11/03/16
Bicarbonate as CaCO3	SM 2320B	170	3.0	mg/L	1	A615205	11/03/16	11/03/16
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A615205	11/03/16	11/03/16
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A615205	11/03/16	11/03/16
Chloride	EPA 300.0	59	1.0	mg/L	1	A615137	11/02/16	11/02/16
Conductivity @ 25C	SM 2510B	690	1.0	umhos/cm	1	A615205	11/03/16	11/03/16
Fluoride	EPA 300.0	0.26	0.10	mg/L	1	A615137	11/02/16	11/02/16
pH (1)	SM 4500-H+ B	7.6		pH Units	1	A615205	11/03/16	11/03/16
pH Temperature in °C		24.8						
Sulfate as SO4	EPA 300.0	36	1.0	mg/L	1	A615137	11/02/16	11/02/16
Total Dissolved Solids	SM 2540C	460	5.0	mg/L	1	A615179	11/03/16	11/10/16

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	48	0.10	mg/L	1	A615507	11/10/16	11/11/16	
Hardness as CaCO3, Dissolved	SM 2340B	280	0.41	mg/L					
Hardness as CaCO3, Dissolved	SM 2340B	280	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	39	0.10	mg/L	1	A615507	11/10/16	11/11/16	
Potassium - Dissolved (1)	EPA 200.7	ND	2.0	mg/L	1	A615507	11/10/16	11/11/16	
Sodium - Dissolved (1)	EPA 200.7	38	1.0	mg/L	1	A615507	11/10/16	11/11/16	



Certificate of Analysis

Sample ID: A6K0257-02 Sampled By: Dennis Ho Sample Description: MW 4 Sample Date - Time: 10/28/16 - 15:35 Matrix: Ground Water Sample Type: Grab

BSK Associates Fresno General Chemistry

					RL			
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed Qual
Alkalinity as CaCO3	SM 2320B	410	3.0	mg/L	1	A615205	11/03/16	11/03/16
Bicarbonate as CaCO3	SM 2320B	410	3.0	mg/L	1	A615205	11/03/16	11/03/16
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A615205	11/03/16	11/03/16
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A615205	11/03/16	11/03/16
Chloride	EPA 300.0	590	5.0	mg/L	5	A615375	11/08/16	11/08/16
Conductivity @ 25C	SM 2510B	2700	1.0	umhos/cm	1	A615205	11/03/16	11/03/16
Fluoride	EPA 300.0	0.19	0.10	mg/L	1	A615137	11/02/16	11/02/16
рН (1)	SM 4500-H+ B	7.6		pH Units	1	A615205	11/03/16	11/03/16
pH Temperature in °C		24.9						
Sulfate as SO4	EPA 300.0	77	1.0	mg/L	1	A615137	11/02/16	11/02/16
Total Dissolved Solids	SM 2540C	2000	5.0	mg/L	1	A615179	11/03/16	11/10/16

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	120	0.10	mg/L	1	A615507	11/10/16	11/11/16	
Hardness as CaCO3, Dissolved	SM 2340B	710	0.41	mg/L					
Hardness as CaCO3, Dissolved	SM 2340B	710	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	97	0.10	mg/L	1	A615507	11/10/16	11/11/16	
Potassium - Dissolved (1)	EPA 200.7	ND	2.0	mg/L	1	A615507	11/10/16	11/11/16	
Sodium - Dissolved (1)	EPA 200.7	320	1.0	mg/L	1	A615507	11/10/16	11/11/16	



Certificate of Analysis

Sample ID: A6K0257-03 Sampled By: Dennis Ho Sample Description: WPMW- 3A Sample Date - Time: 10/28/16 - 16:50 Matrix: Ground Water Sample Type: Grab

BSK Associates Fresno General Chemistry

Analysis	Mathed	Desult	DI	Unite	RL	Detak	Descend	Analyzed	Qual
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Quai
Alkalinity as CaCO3	SM 2320B	110	3.0	mg/L	1	A615205	11/03/16	11/03/16	
Bicarbonate as CaCO3	SM 2320B	110	3.0	mg/L	1	A615205	11/03/16	11/03/16	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A615205	11/03/16	11/03/16	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A615205	11/03/16	11/03/16	
Chloride	EPA 300.0	740	10	mg/L	10	A615375	11/08/16	11/08/16	
Conductivity @ 25C	SM 2510B	3000	1.0	umhos/cm	1	A615205	11/03/16	11/03/16	
Fluoride	EPA 300.0	0.24	0.10	mg/L	1	A615137	11/02/16	11/02/16	
pH (1)	SM 4500-H+ B	7.7		pH Units	1	A615205	11/03/16	11/03/16	
pH Temperature in °C		24.9							
Sulfate as SO4	EPA 300.0	200	1.0	mg/L	1	A615137	11/02/16	11/02/16	
Total Dissolved Solids	SM 2540C	2200	5.0	mg/L	1	A615179	11/03/16	11/10/16	

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	170	0.10	mg/L	1	A615507	11/10/16	11/11/16	
Hardness as CaCO3, Dissolved	SM 2340B	600	0.41	mg/L					
Hardness as CaCO3, Dissolved	SM 2340B	600	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	44	0.10	mg/L	1	A615507	11/10/16	11/11/16	
Potassium - Dissolved (1)	EPA 200.7	4.5	2.0	mg/L	1	A615507	11/10/16	11/11/16	
Sodium - Dissolved (1)	EPA 200.7	390	1.0	mg/L	1	A615507	11/10/16	11/11/16	



Certificate of Analysis

Sample ID: A6K0257-04 Sampled By: Dennis Ho Sample Description: W77 - B Sample Date - Time: 10/31/16 - 11:30 Matrix: Ground Water Sample Type: Grab

BSK Associates Fresno General Chemistry

Analyta	Mathod	Popult	DI	Unito	RL	Potob	Bronarad	Apolyzod	Qual
Analyte	Method	Result	KL	Units	Mult	Balch	Frepareu	Analyzeu	Quai
Alkalinity as CaCO3	SM 2320B	110	3.0	mg/L	1	A615205	11/03/16	11/03/16	
Bicarbonate as CaCO3	SM 2320B	110	3.0	mg/L	1	A615205	11/03/16	11/03/16	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A615205	11/03/16	11/03/16	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A615205	11/03/16	11/03/16	
Chloride	EPA 300.0	380	1.0	mg/L	1	A615137	11/02/16	11/02/16	
Conductivity @ 25C	SM 2510B	1400	1.0	umhos/cm	1	A615205	11/03/16	11/03/16	
Fluoride	EPA 300.0	0.14	0.10	mg/L	1	A615137	11/02/16	11/02/16	
pH (1)	SM 4500-H+ B	7.6		pH Units	1	A615205	11/03/16	11/03/16	
pH Temperature in °C		25.0							
Sulfate as SO4	EPA 300.0	ND	1.0	mg/L	1	A615137	11/02/16	11/02/16	
Total Dissolved Solids	SM 2540C	990	5.0	mg/L	1	A615179	11/03/16	11/10/16	

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	75	0.10	mg/L	1	A615507	11/10/16	11/11/16	
Hardness as CaCO3, Dissolved	SM 2340B	330	0.41	mg/L					
Hardness as CaCO3, Dissolved	SM 2340B	330	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	35	0.10	mg/L	1	A615507	11/10/16	11/11/16	
Potassium - Dissolved (1)	EPA 200.7	4.6	2.0	mg/L	1	A615507	11/10/16	11/11/16	
Sodium - Dissolved (1)	EPA 200.7	150	1.0	mg/L	1	A615507	11/10/16	11/11/16	



A6K0257 WPC WQ sampling Fall 2016

			, ,	Spike	Source		%REC		RPD	Date
Analyte	Result	RL	Units	Level	Result	%REC	Limits	RPD	Limit	Analyzed Qual
		EPA 3	00.0 - Q	uality Co	ntrol					
Batch: A615137										Prepared: 11/2/2016
Prep Method: Method Specific Prepa	aration									Analyst: INH
Blank (A615137-BLK1)			_					_	_	
Chloride	ND	1.0	mg/L							11/02/16
Fluoride	ND	0.10	mg/L							11/02/16
Sulfate as SO4	ND	1.0	mg/L							11/02/16
Blank Spike (A615137-BS1)										
Chloride	100	1.0	mg/L	100		101	90-110			11/02/16
Fluoride	1.0	0.10	mg/L	1.0		103	90-110			11/02/16
Sulfate as SO4	100	1.0	mg/L	100		101	90-110			11/02/16
Blank Spike Dup (A615137-BSD1)										
Chloride	100	1.0	mg/L	100		101	90-110	0	20	11/02/16
Fluoride	1.0	0.10	mg/L	1.0		103	90-110	0	10	11/02/16
Sulfate as SO4	100	1.0	mg/L	100		101	90-110	0	20	11/02/16
Matrix Spike (A615137-MS1), Source:	A6K0263-02									
Chloride	120	1.0	mg/L	50	73	94	80-120			11/02/16
Fluoride	0.64	0.10	mg/L	0.50	0.15	98	80-120			11/02/16
Sulfate as SO4	57	1.0	mg/L	50	8.3	98	80-120			11/02/16
Matrix Spike (A615137-MS2), Source:	A6K0207-02									
Chloride	81	1.0	mg/L	50	33	97	80-120			11/02/16
Fluoride	0.51	0.10	mg/L	0.50	ND	102	80-120			11/02/16
Sulfate as SO4	48	1.0	mg/L	50	ND	96	80-120			11/02/16
Matrix Spike Dup (A615137-MSD1), S	ource: A6K0263-02									
Chloride	120	1.0	mg/L	50	73	96	80-120	1	20	11/02/16
Fluoride	0.65	0.10	mg/L	0.50	0.15	100	80-120	2	10	11/02/16
Sulfate as SO4	58	1.0	mg/L	50	8.3	99	80-120	1	20	11/02/16
Matrix Spike Dup (A615137-MSD2), S	ource: A6K0207-02									
Chloride	82	1.0	mg/L	50	33	98	80-120	1	20	11/02/16
Fluoride	0.52	0.10	mg/L	0.50	ND	103	80-120	1	10	11/02/16
Sultate as SO4	49	1.0	mg/L	50	ND	97	80-120	1	20	11/02/16
		EPA 3	00.0 - Q	uality Co	ntrol					
Batch: A615375 Pren Method: Method Specific Prens	aration									Prepared: 11/8/2016
пер менной. менной эреспис Ртера										Analyst: INH
Blank (A615375-BLK1)										11/00/10
Chloride	ND	1.0	mg/L							11/08/16
Blank Spike (A615375-BS1)										
Chloride	100	1.0	mg/L	100		100	90-110			11/08/16
Matrix Spike (A615375-MS1), Source:	A6K0451-09									
Chloride	54	1.0	mg/L	50	4.3	99	80-120			11/08/16
A6K0257 FINAL 11152016 1443 Printed: 11/15/2016										
QA-RP-0001-10 Final rot			BSKAs	sociates	com —			_		Page 7 of 15
sector over termulapt		** ** **.	201143							



A6K0257 WPC WQ sampling Fall 2016

				Spike	Source		%REC		RPD	Date
Analyte	Result	RL	Units	Level	Result	%REC	Limits	RPD	Limit	Analyzed Qual
		EPA 3	00.0 - Qı	uality Co	ntrol					
Batch: A615375										Prepared: 11/8/2016
Prep Method: Method Specific Pre	eparation									Analyst: INF
Matrix Spike (A615375-MS2), Sour	ce: A6K0811-02									
Chloride	54	1.0	mg/L	50	5.5	97	80-120			11/08/16
Matrix Spike Dup (A615375-MSD1)), Source: A6K0451-09	1.0		50	4.0	100	00.400		00	44/00/40
Chionde	55	1.0	mg/L	50	4.3	100	80-120	1	20	11/08/16
Matrix Spike Dup (A615375-MSD2)), Source: A6K0811-02									
Chloride	56	1.0	mg/L	50	5.5	100	80-120	2	20	11/08/16
		SM 23	20B - Qi	uality Co	ntrol					
Batch: A615205				-						Prepared: 11/3/2016
Prep Method: Method Specific Pre	eparation									Analyst: CEC
Blank (A615205-BI K1)										
Alkalinity as CaCO3	ND	3.0	ma/L							11/03/16
Bicarbonate as CaCO3	ND	3.0	mg/L							11/03/16
Carbonate as CaCO3	ND	3.0	mg/L							11/03/16
Hydroxide as CaCO3	ND	3.0	mg/L							11/03/16
Blank Spike (A615205-BS1)										
Alkalinity as CaCO3	97	3.0	mg/L	100		97	80-120			11/03/16
Blank Spike Dup (A615205-BSD1)										
Alkalinity as CaCO3	95	3.0	mg/L	100		95	80-120	1	20	11/03/16
Duplicate (A615205-DUP1) Source	o. VE 13381-03									
Alkalinity as CaCO3	130	3.0	ma/l		140			12	10	11/03/16 DP1 1
Bicarbonate as CaCO3	130	3.0	ma/l		140			12	10	11/03/16 DP1 1
Carbonate as CaCO3	ND	3.0	ma/L		ND				10	11/03/16
Hydroxide as CaCO3	ND	3.0	mg/L		ND				10	11/03/16
		SM 25	10B - Oi	uality Co	ntrol					
Batch: A615205		0.00 20								Prepared: 11/3/2016
Prep Method: Method Specific Pre	eparation									Analyst: CEG
Blank Snike (A615205-BS1)										
Conductivity @ 25C	1400	10	umhos/c	1400		98	90-110			11/03/16
	1.00		m	. 100		20	00 110			
Blank Spike Dup (A615205-BSD1)										
Conductivity @ 25C	1400	1.0	umhos/c	1400		97	90-110	1		11/03/16
			m							
Duplicate (A615205-DUP1), Source	e: A6J3381-03									
Conductivity @ 25C	290	1.0	umhos/c		290			0	20	11/03/16
			m							



Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
		SM 254	40C - Qı	ality Co	ntrol						
Batch: A615179				2						Prepare	d: 11/3/2016
Prep Method: Method Specific Prep	paration									Ana	lyst: DEH/R
Blank (A615179-BLK1)											
Total Dissolved Solids	ND	5.0	mg/L							11/10/16	
Blank Spike (A615179-BS1)											
Total Dissolved Solids	990	5.0	mg/L	1000		99	70-130			11/10/16	
Duplicate (A615179-DUP1), Source:	A6K0056-01										
Total Dissolved Solids	1600	5.0	mg/L		1600			1	20	11/10/16	
Duplicate (A615179-DUP2), Source:	A6K0228-01										
Total Dissolved Solids	200	5.0	mg/L		200			3	20	11/10/16	
		SM 4500	-H+ B - (Quality C	ontrol						
Batch: A615205										Prepare	d: 11/3/2016
Prep Method: Method Specific Prep	paration									A	nalyst: CEG
Duplicate (A615205-DUP1), Source:	A6J3381-03										
рН (1)	7.7		pH Units		7.7			0	20	11/03/16	



WPC WQ sampling Fall 2016

BSK Associates Fresno Metals Quality Control Report

		-	,	Spike	Source		%REC		RPD	Date
Analyte	Result	RL	Units	Level	Result	%REC	Limits	RPD	Limit	Analyzed Qual
		EPA 2	00.7 - Q	uality Co	ntrol					
Batch: A615507										Prepared: 11/10/201
Prep Method: Filtration - Metals										Analyst: MD
Blank (A615507-BI K2)										
Calcium Dissolved (1)		0.10	ma/l							11/11/16
Magnesium - Dissolved (1)	ND	0.10	mg/L							11/11/16
Rotassium Dissolved (1)	ND	2.10	mg/L							11/11/16
Sodium - Dissolved (1)	ND	2.0	mg/L							11/11/16
	ND	1.0	mg/L							11/11/10
Blank Spike (A615507-BS2)										
Calcium - Dissolved (1)	9.5	0.10	mg/L	10		95	85-115			11/11/16
Magnesium - Dissolved (1)	10	0.10	mg/L	10		102	85-115			11/11/16
Potassium - Dissolved (1)	10	2.0	mg/L	10		100	85-115			11/11/16
Sodium - Dissolved (1)	10	1.0	mg/L	10		101	85-115			11/11/16
Blank Spike Dup (A615507-BSD2)									
Calcium - Dissolved (1)	9.5	0.10	ma/L	10		95	85-115	1	20	11/11/16
Magnesium - Dissolved (1)	10	0.10	ma/l	10		104	85-115	1	20	11/11/16
Potassium - Dissolved (1)	10	20	ma/l	10		101	85-115	2	20	11/11/16
Sodium - Dissolved (1)	10	1.0	mg/L	10		102	85-115	2	20	11/11/16
Matrix Spike (A615507-MS3) Sou	Irco: 46K0257-01									
Calaium Diagolyced (1)	50	0.10	ma/l	10	10	111	70 120			11/11/16
Magnasium Dissolved (1)	59	0.10	mg/L	10	40	110	70-130			11/11/16
Detersium Dissolved (1)	50	0.10	mg/L	10	39	113	70-130			11/11/10
Potassium - Dissolved (1)	11	2.0	mg/∟	10	ND	109	70-130			11/11/10
Sodium - Dissolved (1)	49	1.0	mg/L	10	38	115	70-130			11/11/16
Matrix Spike (A615507-MS4), Sou	irce: A6K0611-03									
Calcium - Dissolved (1)	23	0.10	mg/L	10	14	91	70-130			11/11/16
Magnesium - Dissolved (1)	17	0.10	mg/L	10	8.1	93	70-130			11/11/16
Potassium - Dissolved (1)	12	2.0	mg/L	10	2.0	99	70-130			11/11/16
Sodium - Dissolved (1)	22	1.0	mg/L	10	12	99	70-130			11/11/16
Matrix Spike Dup (A615507-MSD3	3), Source: A6K0257-01									
Calcium - Dissolved (1)	56	0.10	mg/L	10	48	81	70-130	5	20	11/11/16
Magnesium - Dissolved (1)	48	0.10	ma/L	10	39	89	70-130	5	20	11/11/16
Potassium - Dissolved (1)	10	2.0	ma/L	10	ND	104	70-130	5	20	11/11/16
Sodium - Dissolved (1)	47	1.0	mg/L	10	38	92	70-130	5	20	11/11/16
Matrix Spike Dup (A615507-MSD/	4). Source: A6K0611-03									
Calcium - Dissolved (1)	23	0 10	ma/l	10	14	۹N	70-130	Ο	20	11/11/16
Magnesium - Dissolved (1)	17	0.10	ma/l	10	ידי פ 1	00 02	70-130	1	20	11/11/16
Potassium - Dissolved (1)	12	20	ma/l	10	20	00	70-130	۱	20	11/11/16
Sodium - Dissolved (1)	22	2.0 1 0	ma/l	10	<u>-</u> .0 12	97	70-130	1	20	11/11/16
	<u> </u>	1.0	1119/L	10	14		10100			



Certificate of Analysis

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 according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 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.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating
 Procedures.
- 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.
- 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.
- 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.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- · The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	Picocuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit		

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters: **NA**

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresho			
State of California - ELAP	1180	State of Hawaii	4021
State of Nevada	CA000792016-1	State of Oregon - NELAP	4021
EPA - UCMR3	CA00079	State of Washington	C997-16
Sacramento			
State of California - ELAP	2435		
San Bernardino			
State of California - ELAP	2993	State of Oregon - NELAP	4119-001
Vancouver			
State of Oregon - NELAP	WA100008-008	State of Washington	C824-16





geico8314



GEI Consultants



11022016

Turnaround: Standard Due Date: 11/16/2016





Printed: 11/2/2016 5:20:49PM Page 1 of 1 Page 12 of 15

SR-FL-0012-06

can be found at www.bskassociates.com/BSKLabTermsConditions.pdf 3 anna agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions

	Cooling Method:	Shinging Method antiban	Mure Genature and Print	Reliquished by: (Signature and Printed)	Relinguished by (Signature and Printed		(x) HNO3		9-47 M	3 WPHW-3A	2 MW S	1 MW 3-2	#	Matrix Types: S	Dennis tio	Sampler Name (Printed/Signature	Trace (J-Flag)	Reporting Options:	WPC WQ Sampling Fa	Address": 2868 Prospect Park Dr	GEI Consultants, Inc.	Company/Client Name*:		Associates	てして	DCI
Turnaround Time Request Million Constant Turnaround Time Request (Septide 2-289) Turnaround Time Request Septide 2-289 Turnaround Time Request Turnaround Time Request Septide 2-289 Septi	Blue None None Involved.	H XX BAS	4 F. Berrally	Anne TO			rinsed ait of a						Sample Description*	W=Surface Water BW=Bottled Water GW=			amp X EDD Type Std Excel		II 2016, Placer County	ive, Suite 400			*Required Fields	WWW.DSKASSOCIATES.CO	(373) 431-2000 - Lax	1414 Stanislaus St., F
Turnaround Time Request Sandad - 10 basines days Final Surchas days Rush Surchas hatz Rush Surchas may apply Phate: Final: Rush Surchas hatz Phate: Phate: Final: <th>Find so paid, account balances are deemed deline</th> <td></td> <td>165K-SAC</td> <td>Contest Consentrats</td> <td></td> <td></td> <td>ntainer- Need</td> <td> -</td> <td>10/34/10 1130</td> <td>1928/10 1650</td> <td>5251 allaro</td> <td>10/28/16 1414</td> <td>Date Time</td> <td>Ground Water WW=Waste Water STV</td> <td>Other: N/A</td> <td>Merced Co Madera Co</td> <td>SWRCB (Drinking Water)</td> <td>Regulatory Carbon Co</td> <td>Project #: 1610374</td> <td>city: Rancho Cordova</td> <td>Richard Shatz</td> <td>leport Attention*: David Fairman</td> <td>Ten</td> <td>SH</td> <td>CGD7-184 (6CC)</td> <td>resno, CA 93706</td>	Find so paid, account balances are deemed deline		165K-SAC	Contest Consentrats			ntainer- Need	 -	10/34/10 1130	1928/10 1650	5251 allaro	10/28/16 1414	Date Time	Ground Water WW=Waste Water STV	Other: N/A	Merced Co Madera Co	SWRCB (Drinking Water)	Regulatory Carbon Co	Project #: 1610374	city: Rancho Cordova	Richard Shatz	leport Attention*: David Fairman	Ten	SH	CGD7-184 (6CC)	resno, CA 93706
Phone: 916-631-4528 Fail: Placer Co. MW Profile Fail: 10 Email: DF-airman@geiconsultants.com Fail:	vulurel. Delinquent balances are subject to monthly service charges and interest spec	$h=2+6$ $h=2-6$ $h=10$ J_{00} Date	1/-/-16 16/0 Date Time Payment Received at Delivery	Date Time Received by Starature and Printed Name)	Data Time Detailed by Constant and Data format		de sumpled Filtrad		GW	Give	(GIN/ Dumped Natrie Acidationid not	GIM	Matrix* Comments / Station Code / WTRAX	W=Storm Water DW=Drinking Water SO=Solid	Geotracker # Not for Geotracker	Tulare Co	EDT to California SWRCB (Drinking Water)	opies Regulatory Compliance	How would you like to receive your completed results?*	State": zip*: CA 95670	^{PO#} 1610374	Richard Shatz	mp /· δ	Date needed:	Standard - 10 business days	Turnaround Time Request
	Chilling Process Begun (2011) Chilling Process Begun (2011) ceffed in BKK's current Standard Terms and Conditions for Laboratory Services. The person signing for	Amount: PIA#: Init.	Charte Conte	Melin Dicida Homeny			A CALL			< <			Pla Gav (sa filte Col (Nit to m		bles du	T nee e to Mine e to	MW D d tcc field inverse su ing tin	VF S D d is vel	e lab ssue: (S) ontra	acted	E-mail⁺: DFairman@geiconsultants.com	Phone*: 916-631-4528 cell:415-420-2154	And and a second se			geico8314 11/02/2016

Nold General Minoral Package + 1-tworde, Maramess, Minare N About 57 groundwater samples - 85K Final Pricing as of 4-23-35 Final Bottle Dubling for GEJ doing Field Filtering of Metals (9-4-15)

Analytical Parameters, Test Methods, Holding Times Table _

Sample Containers, Preservation and Approximate Detection Limits geico8314

For Groundwater Quality Samples

11/02/2016 JEL

A6K0257

(on sulfauts

		\$435.00	Each						
Î	3x40 ml VOA w/ HCI	\$80		Cool to 4 °C	3x 40ml	Glass	14 Days	EPA 524 2	VOCs
	from GM bottle	\$45.00		Cool to 4 °C	1 Liter	Plastic	14 Days	EPA 314.0	Perchlorate
					11 - I 1 - II				Other
	1x500 ml plastic - no preservation	150		Cool to 4 °C	200 mL	Plastic	6 Months	¢.	Isotopes ¹ O/ ¹⁶ 0 and ¹ H/ ² H
	1x500 AG bottle - no preservation	\$125.00		Cool to 4 °C	200 mL	Plastic	6 Months	÷	Tritium
									Isotopes
ţ	250 ml p w/HN4 + buffer	\$75.00	1 ug/L	NH3 + NH4 (pH 9)	125 mL	Plastic	7 days	EPA 218.6	Hexavalent Chromium
									Boron
	see metals above (will use same bottle)	above	Varies	HNO3, cool to 4 °C	200 mL	Plastic	6 Months	EPA 200 Series	(Ag,Al,As,B,Ba,Be,Cd,Cr,Cu,Fe,Hg,Mn,Ni,Pb,Sb,Se, TI,V,Zn)
									Metals Drinking Water Metals (dissolved)
			0.5 NTU	Cool to 4 °C	250 ml.	Amber Glass	48 Hours	EPA 180.1	Turbidity
	any of these MW samples		Ś	2	.?	.2	~>	~	Odor
	7-10-2014 - per Cathy, Gen Phy will not be analyzed on			Cool to 4 °C	250 ml.	Amber Glass	48 Hours	SM2120B	Color
		and the second second				a da da a co			General Physical
 			1.0 mg/L	Cool to 4 °C	1 Liter	Plastic	7 Days	SM 2450-C	Total Dissolved Solids (TDS)
			0.50 mg/L	Cool to 4 °C	1 Liter	Plastic	28 Days	EPA 300.0	Sulfate
	subcontracted		10 umhos/cm	Cool to 4 °C	1 Liter	Plastic	28 Days	SM 2510-B	Specific Conductance (EC)
	needed for the Nicrate sample that will be		1.0 mg/L	Cool to 4 °C	1 Liter	Plastic	6 Months	EPA 200.7	Sodium
	NOTE: It samples are collected on a FKIDAY		1.0 mg/L	Cool to 4 ^c C	1 Liter	Plastic	6 Months	EPA 200.7	Potassium
		~	None Required	Cool to 4 °C	1 Liter	Plastic	Immediate	EPA 150.1	ρH
	(non-preserved if lab filteres)	Boron)	2.0 mg/L	Cool to 4 °C	1 Liter	Plastic	48 Hours	EPA 300.0	Nitrate - Add
	(w/ NO3 if filtered in the field)	hicitueu	0.1 mg/L	Gool to 4 °C	1 Liter	Plastic	48 Hours	SM5540C	MBAS
	500 ml plastic can be used - 250 ml is easier)	235	1.0 mg/L	Cool to 4 °C	1 Liter	Plastic	6 Months	EPA 200.7	Magnesium 🗲
	w/HNO3 for fireld filtered metals		1.0 mg/L	Cool to 4 °C	1 Liter	Plastic	6 Months	SM2340B	Hardness - All
↑	CHANGE IN (\$250) mi plactic Red Can		0.1 mg/L	Cool to 4 °C	1 Liter	Plastic	28 Days	EPA 300.0	Fluoride - AXX
	(anions/1U3/ M8AS)		1.0 mg/L	Cool to 4 °C	1 Liter	Plastic	28 Days	EPA 300.0	Chloride
	1x1L plastic - no preservation		1.0 mg/L	Cool to 4 °C	1 Liter	Piastic	6 Months	EPA 200.7	Calcium
	ann-preserved for Minerals								Bicarbonate
Î	CHANGE to 1 x 530 ml Plastic White Cap		5.0 mg/L	Cool to 4 °C	1 Liter	Plastic	14 Days	EPA 310.1	Akalinity
						-			General Minerals
	SAMPLE BOTTLES	Cost	MINIMUM REPORTING LIMIT	PRESERVATION	TAINER SIZE/SET	SAMPLE CON BOTTLE TYPE	MAXIMUM HOLDING TIME	ANALYTICAL TESTING METHOD	Parameter

Notes:

All other groups of analyses are assembled from groups published by CLS. Actual analysis groups from BSK need to be confirmed There will be an addiitonal \$30 RUSH subcontract fee for the nitrates on samples submitted on Friday.

NOTE #2: If samples are collected on-friday an additional 1x250 ni plastic white cap (non-preserved) bothe will need to be collected for subcontracting to meet the Nitrate holding time

Î

BSK Associates	SR-FL-0002-16
Sample	Integrity

 A6K0257	11/02/2016 10
geico8314	

ЗS	K Bottles: (Yés) No Page	eof	(\		IN THEIR BUILDING HAS	i Billi inni innii anni i	-
	Was temperature within range? Chamietry $\leq 6^{\circ}$ Micro $\leq 10^{\circ}$ C	Yes No N	A	Wer	e correct containe		ocivatives	Yes	9No NA
lnfo	If samples were taken today, is there evidence	Yes No 🕅	À)	Wer	e there bubbles in atiles Only)	the VOA	vials?	Yes	No NA
Ö	Did all bottles arrive unbroken and intact?	(es) No	5	Was	a sufficient amou	nt of sam	ple receive	d? (Yes	No No
S	Did all bottle labels agree with COC?	Tes No	o l	Do s	amples have a ho	ld time <	72 hours?	Yes	No
-	Was sodium thiosulfate added to CN sample(s)	Yes No N	Â)	Was	PM notified of dis	crepancie	es?	Yes	NOCIA
	until chlorine was no longer present?	Chaska		PM:		// I ime:	2.11		
	250mi(A) 500mi(B) TEller(C) 40mi VOA(V)	Criecks	ras	seur		<u>×</u>	ZĮ-		
	Nano (D)White Can		2.2	5		10 16			19 X 19 19 1 1 1
	NOTE (P) It Green Label/Blue Cap and a subscription of the		- 	— 		<u> 17/1</u>) • • • •	\rightarrow	
	Cr6 (P) Pink Label/Blue Cap NH40H(NH4)2SO4 WW	0, pri 2 o nH 9 3-9 7	y Y	N					$\overline{)}$
lab	Cr6 (P) Black Label/Blue Cap ***24 HOUR HOLD TIME***	pH 9.0-9.5	י Y	N		40			/
in th			-	_	18 0	HB.	ıß		
hed	H2SO4 (P) or (AG) Yellow Cap/Label	pH < 2	Y	N		715		/	10000
forn	NaOH (P) Green Cap	CI. pH >10	Y	N				<u>, e e c</u>	es a i Muñañ.
per	NaOH + ZnAc (P)	nH > Q	· Y	N			/		gagadir diadarti
. are	Dissolved Oxygen 300ml (g)		-		**********	-	1 -	1/	n an
A or	None (AG) 608/8081/8082 625 632/8321 8151 8270		n ár <u>a</u>			/]	1-7-	-16	
ير م	HCI (AG)Lt. Blue Label Or G Discol		<u>der dir di</u>	<u>-</u>	·夏日 2 8-18-18 年間1981年	<u> 1</u>		/ C	
eit e	Ascorbic EDTA KH2Ct (AG)Pink Label 525	_	_			<u> </u>	er	9	
ec are	NacOas 250ml (AG)Neon Green Label 515		4 10 1 11 1 1 1 1 1						
8 Каза	Na2030 23011 (HO)			_		\prec			
ti B B B B B B B B B B B B B B B B B B B	NacSoOn (AC)Blue Label EAR THAN 524		-				\searrow		
n n n n n n n n n n n n n n n n n n n	Na25203 (AG) 546, FINA, 524	\Box	18-à-1				\sim		<u>n de de la de la de la de</u> la de la dela de la dela de la dela de la dela de
shloi	NarSe $O_{2} + MCAA$ (CC) Verage Label 521		v	N				$\overline{}$	
ion/c		pn~J	1	. 19					
rvat				-				Gadadije (Baite - Kri	}
rese				<u>T .</u>		. <u></u>	. h. z. iz (n. fer		an ilia ilia ilia menerina
is p	Duffer all ((00)	_		-			1 1 2 2 3 X X X		A. A. A. A. A. A.
lear	Buller pH 4 (CG)	CORL OFFICIAL STREET						<u> </u>	<u></u>
∠ ا"	M3PU4 (GG)Samon Laber			<u> </u>					19.15 Back 19 11
.I	Asbestos 1Liter Plastic w/ Foil					- /		alandara e in	
	Low Level Hg / Metals Double Baggie	_	-	_					
	Bottled Water			-		[1.4494
	Clear Glass 250mL / 500mL / 1 Liter	-	-	- <u>199</u> -1984 - 1	1 	<u> </u>		t a la contraction	121.12. <u>20.121.101.101</u>
	Soll Lube Brass / Steel / Plastic		2 <u>2</u>		y i z dodina je		<u>terrer</u>		
	Container Preservative Date	/Time/Initials		_	Container	Pree	ervative	-Date/Tim	e/Initials
)lit	SVP 92			P	Container	1103			
S	S P		s	P		+			
Comments	Rec. sample's at VI	tt. ullali		20	Red au rinsed np. cn	y fano	ines, ines,	N = 1 d = 10 h = 0	he fi he fi
	befor	e PF	<u>Í</u> †	ec	ing/pre	sec	<u>nrq</u>	1142	11-2-1
					~		J		

Page 15 of 15



BSK Associates Fresno 1414 Stanislaus St Fresno, CA 93706 559-497-2888 (Main)



A6K0830 11/21/2016 Invoice: A628651

Richard Shatz GEI Consultants 2868 Prospect Park Drive, Suite 400 Rancho Cordova, CA 95670

RE: Report for A6K0830 Western Placer County GW Recharge

Dear Richard Shatz,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 11/8/2016. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

If additional clarification of any information is required, please contact your Project Manager, Adam Trevarrow, at (800) 877-8310 or (559) 497-2888 x116.

Thanks again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Adam Trevarrow, Project Manager



Accredited in Accordance with NELAP **ORELAP #4021**

Western Placer County GW Recharge



Case Narrative

Project and	Report Details		Invoice Details	5
Client:	GEI Consultants		Invoice To:	GEI Consultants
Report To:	Richard Shatz		Invoice Attn:	Sandy St. Hilaire
Project #:	WPC WQ Sampling Fall 20	16, Placer County	Project PO#:	1610374
Received:	11/08/2016 - 10:30			
Report Due:	11/22/2016			
Sample Rec Cooler: Defa	eipt Conditions ult Cooler	Containers Intact		
Temperature o	n Receipt °C: 0.0	Received On Wet Ice Packing Material - Other Sample(s) were received in to Initial receipt at BSK-SAC	emperature range.	
Data Qualif	iers			

The following qualifiers have been applied to one or more analytical results:

HT1.0 Holding time exceeded. Sample was received at the lab past holding time.

MS1.0 Matrix spike recoveries exceed control limits.

MS1.4 Matrix spike recovery data unreliable due to significant parent sample concentration relative to fortification level (>4x).

Report Distribution

Recipient(s)	Report Format	CC:
Richard Shatz	FINAL.RPT	
David Fairman	FINAL.RPT	
Sandy St. Hilaire	FINAL.RPT	



Western Placer County GW Recharge

WPC WQ Sampling Fall 2016, Placer County

Certificate of Analysis

Sample ID: A6K0830-01 Sampled By: Dennis Ho Sample Description: WPMW-5B Sample Date - Time: 11/02/16 - 11:33 Matrix: Ground Water Sample Type: Grab

BSK Associates Fresno General Chemistry

					RL				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	110	3.0	mg/L	1	A615393	11/08/16	11/08/16	
Bicarbonate as CaCO3	SM 2320B	110	3.0	mg/L	1	A615393	11/08/16	11/08/16	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A615393	11/08/16	11/08/16	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A615393	11/08/16	11/08/16	
Chloride	EPA 300.0	360	5.0	mg/L	5	A615604	11/12/16	11/12/16	
Conductivity @ 25C	SM 2510B	1400	1.0	umhos/cm	1	A615393	11/08/16	11/08/16	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.050	mg/L	1	A615391	11/08/16 17:10	11/08/16	HT1.0
pH (1)	SM 4500-H+ B	7.9		pH Units	1	A615393	11/08/16	11/08/16	
pH Temperature in °C		23.1							
Sulfate as SO4	EPA 300.0	ND	1.0	mg/L	1	A615634	11/14/16	11/14/16	
Total Dissolved Solids	SM 2540C	860	5.0	mg/L	1	A615463	11/09/16	11/11/16	

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	55	0.10	mg/L	1	A615670	11/15/16	11/16/16	
Hardness as CaCO3, Dissolved	SM 2340B	170	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	8.0	0.10	mg/L	1	A615670	11/15/16	11/16/16	
Potassium - Dissolved (1)	EPA 200.7	3.7	2.0	mg/L	1	A615670	11/15/16	11/16/16	
Sodium - Dissolved (1)	EPA 200.7	220	1.0	mg/L	1	A615670	11/15/16	11/17/16	MS1.4



Western Placer County GW Recharge

WPC WQ Sampling Fall 2016, Placer County

Certificate of Analysis

Sample ID: A6K0830-02 Sampled By: Dennis Ho Sample Description: SVMW - 2C Sample Date - Time: 11/04/16 - 13:46 Matrix: Ground Water Sample Type: Grab

BSK Associates Fresno General Chemistry

					RL				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	87	3.0	mg/L	1	A615393	11/08/16	11/08/16	
Bicarbonate as CaCO3	SM 2320B	87	3.0	mg/L	1	A615393	11/08/16	11/08/16	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A615393	11/08/16	11/08/16	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A615393	11/08/16	11/08/16	
Chloride	EPA 300.0	580	5.0	mg/L	5	A615604	11/12/16	11/12/16	
Conductivity @ 25C	SM 2510B	2000	1.0	umhos/cm	1	A615393	11/08/16	11/08/16	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.050	mg/L	1	A615391	11/08/16 17:10	11/08/16	HT1.0
pH (1)	SM 4500-H+ B	7.8		pH Units	1	A615393	11/08/16	11/08/16	
pH Temperature in °C		23.4							
Sulfate as SO4	EPA 300.0	ND	1.0	mg/L	1	A615634	11/14/16	11/14/16	
Total Dissolved Solids	SM 2540C	1400	5.0	mg/L	1	A615505	11/10/16	11/15/16	

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	110	0.10	mg/L	1	A615670	11/15/16	11/16/16	
Hardness as CaCO3, Dissolved	SM 2340B	350	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	21	0.10	mg/L	1	A615670	11/15/16	11/16/16	
Potassium - Dissolved (1)	EPA 200.7	4.9	2.0	mg/L	1	A615670	11/15/16	11/16/16	
Sodium - Dissolved (1)	EPA 200.7	240	1.0	mg/L	1	A615670	11/15/16	11/17/16	



Western Placer County GW Recharge

BSK Associates Fresno General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
		EPA 30)0.0 - O	uality Co	ntrol						
Batch: A615604			u							Prepared:	11/11/2016
Prep Method: Method Specific Prepa	aration									A	nalyst: INH
Blank (A615604-BLK1)											
Chloride	ND	1.0	mg/L							11/11/16	
Plank Calke (Actors 75)											
ыанк эріке (Аб15604-BS1) Chloride	100	1 0	ma/l	100		100	Q0 110			11/11/10	
	IUU	1.0	my/L	IUU		iUU	JU-110			טראדעה (
Matrix Spike (A615604-MS1), Source:	: A6K0451-12										
Chloride	53	1.0	mg/L	50	4.3	97	80-120			11/11/16	
Matrix Spike Dup (A615604-MSD1), S	ource: A6K0451-12										
Chloride	55	1.0	mg/L	50	4.3	101	80-120	4	20	11/12/16	
		FDA 20	<u>)0 0 0</u>	uality C-	ntrol						
Batch: A615634		∟ra 3(Q	wanty CO						Prenarad	11/14/2010
Prep Method: Method Specific Prepa	iration									. ισραιθά. Δ	nalyst: INH
										<u>r</u>	
Bulfate as SO4		4 ~	me"							11/14/4-	
Sunate as SU4	ND	1.0	rng/L							i i/14/16	
Blank Spike (A615634-BS1)											
Sulfate as SO4	100	1.0	mg/L	100		102	90-110			11/14/16	
Matrix Spike (A615634-MS1), Source:	A6K1448-04										
Sulfate as SO4	68	1.0	mg/L	50	18	100	80-120			11/14/16	
Mately Culles (Address Free)											
Matrix Spike (A615634-MS2), Source:	: A6K1448-06	4.0	ma/l	50	16	100	Q0 400			11/14/40	
Junale do JUH	00	1.0	mg/L	OC	10	TUU	00-120			11/14/10	
Matrix Spike Dup (A615634-MSD1), S	ource: A6K1448-04										
Sulfate as SO4	69	1.0	mg/L	50	18	101	80-120	0	20	11/14/16	
Matrix Spike Dup (A615634-MSD2) S	ource: A6K1448-06										
Sulfate as SO4	66	1.0	mg/L	50	16	100	80-120	1	20	11/14/16	
		en ee	2012 -		ntrol						
Batch: A615303		əivi 23.	∠v¤ - Q	uality Co						Property	1. 11/2/2010
Prep Method: Method Specific Prepa	ıration									i iehalei Vu	alvst: CEC
										AI	, 30. 020
Blank (A615393-BLK1)	15	-	···· *							14/0011	
Aikainity as CaCO3 Bicarbonate as CaCO3	ND ND	3.0 3.0	mg/L mg/l							11/08/16 11/08/16	
Carbonate as CaCO3		3.U 3.0	mg/L							11/08/16	
Hydroxide as CaCO3	ND	3.0 3.0	g/∟ mg/L							11/08/16	
		~	-							-	
ыалк Spike (A615393-BS1)	07	0.0	me/	400		07	20 400			11/09/40	
, sixan inty do UdUUJ	97	3.0	mg/L	100		91	ou-120			i i/Uơ/16	
AURUOSU FINAL 11212016-1031 Printed: 11/21/2016											

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Western Placer County GW Recharge

A6K0830

				Spike	Source		%REC		RPD	Date
Analyte	Result	RL	Units	Level	Result	%REC	Limits	RPD	Limit	Analyzed Qual
		SM 23	320B - Qı	uality Co	ntrol					
Batch: A615393										Prepared: 11/8/2016
Prep Method: Method Specific Prepa	nration									Analyst: CEG
Blank Spike Dup (A615393-BSD1)										
Alkalinity as CaCO3	97	3.0	mg/L	100		97	80-120	0	20	11/08/16
Duplicate (A615393-DUP1), Source: A	\6K0748-04									
Alkalinity as CaCO3	150	3.0	mg/L		150			0	10	11/08/16
Bicarbonate as CaCO3	150	3.0	mg/L		150			0	10	11/08/16
Carbonate as CaCO3	ND	3.0	mg/L		ND				10	11/08/16
Hydroxide as CaCO3	ND	3.0	mg/L		ND				10	11/08/16
		SM 25	i10B - Qu	Jality Co	ntrol					
Batch: A615393										Prepared: 11/8/2016
Prep Method: Method Specific Prepa	aration									Analyst: CEG
Blank Spike (A615393-BS1)										
Conductivity @ 25C	1400	1.0	umhos/c	1400		98	90-110			11/08/16
			m							
Blank Spike Dup (A615393-BSD1)										
Conductivity @ 25C	1400	1.0	umhos/c m	1400		97	90-110	1		11/08/16
Duplicate (A615393-DUP1), Source: A	\6K0748-04									
Conductivity @ 25C	420	10	umhos/c		420			0	20	11/08/16
	.20	1.0	m		0			v	_0	
		SM 25	i40C - Qι	ality Co	ntrol					
Batch: A615463										Prepared: 11/9/2016
Prep Method: Method Specific Prepa	aration									Analyst: DEH/G
Blank (A615463-BLK1)										
Total Dissolved Solids	ND	5.0	mg/L							11/11/16
Blank Spike (A615463-BS1)										
Total Dissolved Solids	990	5.0	mg/L	1000		99	70-130			11/11/16
Dunlicate (A646462 DUD4) Same	K0303 03									
Tetel Discoluted Colline	NORUJU2-U2	-			0.77			-	~~	44 144 140
Iotal Dissolved Solids	970	5.0	mg/L		960			0	20	11/11/16
Duplicate (A615463-DUP2), Source: A	\6K0405-03									
Total Dissolved Solids	150	5.0	mg/L		150			1	20	11/11/16
		SM 25	i40C - Qı	Jality Co	ntrol					
Batch: A615505				-						Prepared: 11/10/2016
Prep Method: Method Specific Prepa	ration									Analyst: DEH/G
Blank (A615505-BLK1)										
Total Dissolved Solids	ND	5.0	mg/L							11/15/16
A0KU83U FINAL 11212016 1031										
			DOLLA							Page 6 of 13
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Western Placer County GW Recharge

Analyte	Result	RL	Units	Spike Level	Source Re <u>sult</u>	%REC_	%REC Limits	RPD	RPD Limit	Date Analyzed Qual
		SM 25	40C - Q	uality Co	ntrol					
Batch: A615505				-						Prepared: 11/10/2016
Prep Method: Method Specific Prepa	ration									Analyst: DEH/G
Blank Spike (A615505-BS1)										
Total Dissolved Solids	990	5.0	mg/L	1000		99	70-130			11/15/16
Duplicate (A615505-DUP1), Source: A	6K0474-03									
Total Dissolved Solids	190	5.0	mg/L		190			1	20	11/15/16
Duplicate (A615505-DUP2), Source: A	6K0648-01									
Total Dissolved Solids	190	5.0	mg/L		190			1	20	11/15/16
		SM 4500)-H+ B -	Quality C	Control					
Batch: A615393										Prepared: 11/8/2016
Prep Method: Method Specific Prepa	ration									Analyst: CEG
Duplicate (A615393-DUP1), Source: A	6K0748-04									
pH (1)	7.6		pH Units		7.6			0	20	11/08/16
		SM 55	40C - Q	uality Co	ntrol					
Batch: A615391				-						Prepared: 11/8/2016
Prep Method: Method Specific Prepa	ration									Analyst: SNH
Blank (A615391-BLK1)										
MBAS, Calculated as LAS, mol wt 340	ND	0.050	mg/L							11/08/16
Blank Spike (A615391-BS1)										
MBAS, Calculated as LAS, mol wt 340	0.95	0.050	mg/L	1.0		95	82-112			11/08/16
Blank Spike Dup (A615391-BSD1)										
MBAS, Calculated as LAS, mol wt 340	0.99	0.050	mg/L	1.0		99	82-112	4	20	11/08/16
Matrix Spike (A615391-MS1), Source:	A6K0790-01									
MBAS, Calculated as LAS, mol wt 340	0.91	0.050	mg/L	1.0	ND	91	80-112			11/08/16
Matrix Spike Dup (A615391-MSD1), So	ource: A6K0790-0	1								
MBAS, Calculated as LAS, mol wt 340	0.94	0.050	mg/L	1.0	ND	94	80-112	3	20	11/08/16



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Western Placer County GW Recharge

BSK Associates Fresno Metals Quality Control Report

			, , , , , , , , , , , , , , , , , , ,								
Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
		EPA 20)0.7 - Q	uality Co	ntrol						
Batch: A615670			~	.,						Prenaras	1.11/15/2019
Prep Method: Filtration Motels										i ieparec	nalvet: MDC
										A	inaryst. WDS
Blank (A615670-BLK1)											
Calcium - Dissolved (1)	ND	0.10	mg/L							11/16/16	
Magnesium - Dissolved (1)	ND	0.10	mg/L							11/16/16	
Potassium - Dissolved (1)	ND	2.0	mg/L							11/16/16	
Blank (A615670-BLK2)											
Sodium - Dissolved (1)	ND	1.0	mg/L							11/17/16	
Blank Spike (A615670-RS1)											
Calcium - Dissolved (1)	9.2	0 10	ma/l	10		92	85-115			11/16/16	
Magnesium - Dissolved (1)	9.7	0.10	ma∕l	10		97	85-115			11/16/16	
Potassium - Dissolved (1)	10	20		10		101	85-115			11/16/16	
	10	2.0	y, L	10			55 110			, 10/10	
Blank Spike (A615670-BS2)											
Sodium - Dissolved (1)	9.5	1.0	mg/L	10		95	85-115			11/17/16	
Blank Spike Dup (A615670-BSD1)											
Calcium - Dissolved (1)	9.4	0.10	mg/L	10		94	85-115	2	20	11/16/16	
Magnesium - Dissolved (1)	9.5	0.10	mg/L	10		95	85-115	2	20	11/16/16	
Potassium - Dissolved (1)	10	2.0	mg/L	10		102	85-115	1	20	11/16/16	
Blank Spike Dup (A615670-BSD2)											
Sodium - Dissolved (1)	9.2	1.0	mg/L	10		92	85-115	4	20	11/17/16	
Matrix Spike (A615670-MS1) Source:	A6K0830-01										
Calcium - Discolved (1)	65 GE	0.40	ma/l	10	55	06	70 100			11/16/10	
Magnesium - Dissolved (1)	17	0.10	mg/∟ ma/l	10	80	90 Q1	70-130			11/16/16	
Potassium - Dissolved (1)	14	20	ma/L	10	3.7	ga	70-130			11/16/16	
. Succiain Biodired (1)	17	2.0	y/L	10	0.1	55	, 0-100			11/10/10	
Matrix Spike (A615670-MS2), Source:	A6K1219-03										
Calcium - Dissolved (1)	24	0.10	mg/L	10	15	96	70-130			11/16/16	
Magnesium - Dissolved (1)	17	0.10	mg/L	10	8.0	90	70-130			11/16/16	
Potassium - Dissolved (1)	12	2.0	mg/L	10	2.2	97	70-130			11/16/16	
Matrix Spike (A615670-MS3), Source:	A6K0830-01										
Sodium - Dissolved (1)	220	1.0	mg/L	10	220	42	70-130			11/17/16	MS1.0 <i>Low</i>
Matrix Spike (A615670-MS4), Source:	A6K1219-03										
Sodium - Dissolved (1)	20	1.0	mg/L	10	12	78	70-130			11/17/16	
Matrix Snike Dun (A615670 MOD4) - 04											
Calcium - Dissolved (1)	64	0.40	ma/l	10	55	86	70 100	4	20	11/16/10	
Galoum - Dissolved (1)	04 17	0.10	mg/L	10	55 8 0	00 86	70-130	۲ د	∠∪ 20	11/16/16	
Potassium - Dissolved (1)	13	2.0	mg/L	10	3.7	96	70-130	3 2	20 20	11/16/16	
			5 -	~		-		-	-		
Matrix Spike Dup (A615670-MSD2), So	ource: A6K1219-03				-	_	- -		-		
Calcium - Dissolved (1)	25	0.10	mg/L	10	15	99	70-130	1	20	11/16/16	
A6K0830 FINAL 11212016 1031											
Printed: 11/21/2016											



Western Placer County GW Recharge

BSK Associates Fresno Metals Quality Control Report

			,								
Δnalvte	Result	RI	Units	Spike	Source Result	%REC	%REC	RPD	RPD	Date Analyzed	Qual
, and you	Rooun		onno	20101	Rooun	/orce o	Emito		2	7 mary 20a	quui
		EPA 2	00.7 - Q	uality Co	ntrol						
Batch: A615670										Prepared	: 11/15/2016
Prep Method: Filtration - Metals										Ar	nalyst: MDS
Matrix Spike Dup (A615670-MSD2), S	ource: A6K1219-03										
Magnesium - Dissolved (1)	17	0.10	mg/L	10	8.0	91	70-130	1	20	11/16/16	
Potassium - Dissolved (1)	12	2.0	mg/L	10	2.2	99	70-130	1	20	11/16/16	
Matrix Spike Dup (A615670-MSD3), S	ource: A6K0830-01										
Sodium - Dissolved (1)	230	1.0	mg/L	10	220	84	70-130	2	20	11/17/16	
Matrix Spike Dup (A615670-MSD4), S	ource: A6K1219-03										
Sodium - Dissolved (1)	20	1.0	mg/L	10	12	80	70-130	1	20	11/17/16	



Certificate of Analysis

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 according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 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.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating
 Procedures.
- 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.
- 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.
- 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.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- · The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	Picocuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit		

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters: **NA**

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

riesho			
State of California - ELAP	1180	State of Hawaii	4021
State of Nevada	CA000792016-1	State of Oregon - NELAP	4021
EPA - UCMR3	CA00079	State of Washington	C997-16
Sacramento			
State of California - ELAP	2435		
San Bernardino			
State of California - ELAP	2993	State of Oregon - NELAP	4119-001
Vancouver			
State of Oregon - NELAP	WA100008-008	State of Washington	C824-16
-		-	





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GEI Consultants



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Turnaround: Standard Due Date: 11/22/2016





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BSK Associates SR-F	L-0002-16
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Sample Integrity

A6K0830

11/08/2016

geico8314



D O	-	Lan Kal				£	1					I ANNUR DHE BOGON NUMBER	00 	 	
BS	K BOTT	es: yes	INO P	age _	<u>\</u> 0	ot					and pre-	eoruatives			1
	Was temp	erature within ra	nge?		Yes, No	o N	A	vvere	correct contai	ners a is real	Jested?		(Ye	s_No	NA
o	If samples	$\sim 5^{\circ}$ Wilcro	v is there evidence		<u> </u>	6		Were	there bubbles	in the	VOA	/ials?	Ye	s No	(NA)
	that chillin	ig has begun?			Yes No	0.0	A	(Volat	iles Only)					2.0	
Q	Did all bo	ttles arrive unbro	ken and intact?		(es	No		Was a	a sufficient am	ount o	of samp	ole received		es	NO
S	Did all bo	ttle labels agree	with COC?		Les	N	•	Do sa	mples have a	hold t	ime </td <td>2 nours / j</td> <td> C</td> <td></td> <td><u> </u></td>	2 nours / j	C		<u> </u>
	Was sodi	um thiosulfate ad	Ided to CN sample	(S)	Yes N	o Ŵ		PM.	Più notnieu or	Bv/Ti	ime:	0.	Ye	es No	• ™ A
	Until Chior	500ml(R) 11 itor	(C) 40m(VOA(V))		Checks	. 1	Pass	ed?	1	7					
	250m(A)	S-O-						-		\square				1	
	Dacu Na	23203		-				_	10	-	2				$\overline{\ }$
	None (P		and the second se	000		~			1				200		
	Cr6 (P) ¹	I Green Label/Blue Ca	PNH40H(NH4)2SO4	DW	CI, pH >	- 8	T	N							
	Cr6 (P)	Pink Label/Blue Cap	NH4OH(NH4)2SO4	ww	pH 9.3-9	9.7	Y	N		-	_			\mathbf{X}	
del et	Cr6 (P)	Black Label/Blue Cap ***24 HOUR HO	NH40H(NH4)2SO4	7199	pH 9.0-	9.5	Y	N			*		/		
	HNO3 () Red Sap or HCI	(P) Purple Cap/Lt. Blue L	abei	—			-	15						
, Lan	H ₂ SO ₄	(P) or (AG)	Yellow Cap/Label		pH <	2	Y	N					<u> </u>	\sim	
	NaOH (I	⊃) Green Cap			CI, pH >	>10	Y	N					7	ð [/	6
	NaOH +	ZnAc (P)			pH >	9	Y	N.							
	Dissolve	d Oxygen 300	ml (g)		_		- 1	-					<u> </u>	~	
	None (A	G) 508/8081/8082	625 632/8321 8151 8	270			-	_					<		nul -
ba a		Lt. Blue Label	G Diesel		_		_	_					$\overline{\ }$		
i i i			t (AC)Pink Label 52	5			<u> </u>							X	
U U U		C, EDTA, KH2C	an Groon Label	5											$\overline{)}$
Ř		250mL (AG) ^{Ne}	on Green Laber 515							-					
les	Na ₂ S ₂ O	3 1 Liter (Brown	1 P) 549					_							
to to	Na ₂ S ₂ O	3 (AG) ^{Blue Label}	548, THM, 524			a de la compañía de l	-	-			<u></u>				
Ξ.	E Na2S2O	3 (CG) ^{Blue Label}	504, 505, 547							_			-		_/_
	Na2S2O	3 + MCAA (CG)	Orange Label 531		pH <	3	Y	N							/
:	B NH₄CI (AG) ^{Purple Label} 5	52				-	-						\bigwedge	
	ခွ် EDA (A	G) ^{Brown Label} D[3Ps					-			-	i de la com			60. (Jan
	웹 HCL (C	G) 524.2,BTEX,G	as, MTBE, 8260/624				-						/-		
	Buffer p	0H 4 (CG)		- Andrews			-			_					
	H₃PO₄	(CG)Salmon Label			- Inc.										
	Other:								-		sconting.	+/-	and the second sec	. Salar	a sun en
	Asbest	os 1Liter Pla	stic w/ Foil						and a strength			++		-	
	Low Le	vel Hg / Metals	Double Baggie					_							
	Bottled	Water	(500	1.14						-					
	Clear C	Blass 250mL	_ / 500mL / 1			•									
	Soil Tu	pe Brass /	Steel / Plastic	<u>ر</u>			-								
		Container	Preservative	Date	⊥ e/Time/l	nitia	als		Contain	er	Pre	servative	Date	/Time	/Initials
Į į	S P	Gontainer	. recentuate					S P							
Ū	S P			-				S P							
t t	2														
a mar															

Labeled by: <u>Grean</u> [1934] Labels checked by: <u>MAH</u> @ [1434]

RUSH Paged by:____ @



BSK Associates Laboratory Fresno 1414 Stanislaus St Fresno, CA 93706 559-497-2888 (Main)



A7A1672 1/31/2017 Invoice: A702633

David Fairman **GEI** Consultants 2868 Prospect Park Drive, Suite 400 Rancho Cordova, CA 95670

RE: Report for A7A1672 WPC WQ sampling Fall 2016

Dear David Fairman,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 1/18/2017. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

If additional clarification of any information is required, please contact your Project Manager, Adam Trevarrow, at (800) 877-8310 or (559) 497-2888 x116.

Thanks again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Adam Trevarrow, Project Manager



Accredited in Accordance with NELAP **ORELAP #4021**

A7A1672 WPC WQ sampling Fall 2016



Case Narrative

Project and	Report Details		Invoice Details	\$
Client:	GEI Consultants		Invoice To:	GEI Consultants
Report To:	David Fairman		Invoice Attn:	Richard Shatz
Project #:	WPC WQ Sampling 1st Qtr,	Placer County - 1610374	Project PO#:	1610374
Received:	1/18/2017 - 09:50			
Report Due:	2/01/2017			
Sample Rec	eipt Conditions			
Cooler: Defa	ult Cooler	Containers Intact		
Temperature o	n Receipt ⁰C: 1.3	COC/Labels Agree Received On Wet Ice Packing Material - Other Sample(s) were received in ter Initial receipt at BSK-SAC	mperature range.	
Data Qualif	iers			

The following qualifiers have been applied to one or more analytical results:

MS1.0 Matrix spike recoveries exceed control limits.

MS1.4 Matrix spike recovery data unreliable due to significant parent sample concentration relative to fortification level (>4x).

Report Distribution

Recipient(s)	Report Format	CC:
Richard Shatz	FINAL.RPT	
David Fairman	FINAL.RPT	
Sandy St. Hilaire	FINAL.RPT	



WPC WQ sampling Fall 2016

WPC WQ Sampling 1st Qtr, Placer County - 1610374

Certificate of Analysis

Sample ID: A7A1672-01 Sampled By: Dennis Ho Sample Description: WPMW-5B Sample Date - Time: 01/16/17 - 11:20 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

Ameluta	Method	Decult	Ы	Unite	RL	Detah	Dremered	Analyzed Ovel
Analyte	Method	Result	KL	Units	Mult	Batch	Prepared	Analyzeu Qual
Alkalinity as CaCO3	SM 2320B	110	3.0	mg/L	1	A700780	01/19/17	01/19/17
Bicarbonate as CaCO3	SM 2320B	110	3.0	mg/L	1	A700780	01/19/17	01/19/17
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A700780	01/19/17	01/19/17
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A700780	01/19/17	01/19/17
Chloride	EPA 300.0	390	1.0	mg/L	1	A700756	01/19/17	01/19/17
Conductivity @ 25C	SM 2510B	1400	1.0	umhos/cm	1	A700780	01/19/17	01/19/17
Fluoride	EPA 300.0	0.28	0.10	mg/L	1	A700756	01/19/17	01/19/17
рН (1)	SM 4500-H+ B	7.8		pH Units	1	A700780	01/19/17	01/19/17
pH Temperature in °C		22.5						
Sulfate as SO4	EPA 300.0	ND	1.0	mg/L	1	A700756	01/19/17	01/19/17
Total Dissolved Solids	SM 2540C	820	5.0	mg/L	1	A700804	01/19/17	01/26/17

Analyte	Method	Result	RL	Units	RL	Batch	Prepared	Analyzed	Qual
Calaium Dissolved (1)	EDA 200 7	55	0.10	ma/l	1	A701025	01/25/17	01/26/17	
Calcium - Dissolved (1)	EPA 200.7	55	0.10	mg/L	I	A701035	01/25/17	01/20/17	
Hardness as CaCO3, Dissolved	SM 2340B	170	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	8.2	0.10	mg/L	1	A701035	01/25/17	01/26/17	
Potassium - Dissolved (1)	EPA 200.7	3.2	2.0	mg/L	1	A701035	01/25/17	01/26/17	
Sodium - Dissolved (1)	EPA 200.7	220	1.0	mg/L	1	A701035	01/25/17	01/26/17	MS1.4



WPC WQ sampling Fall 2016

WPC WQ Sampling 1st Qtr, Placer County - 1610374

Certificate of Analysis

Sample ID: A7A1672-02 Sampled By: Dennis Ho Sample Description: W77-B Sample Date - Time: 01/16/17 - 15:45 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

Amelute	Method	Decult	DI	Unite	RL	Detek	Dremered	Analyzad Oval
Analyte	Methou	Result	RL	Units	Mult	Batch	Prepareu	Analyzeu Quai
Alkalinity as CaCO3	SM 2320B	110	3.0	mg/L	1	A700780	01/19/17	01/19/17
Bicarbonate as CaCO3	SM 2320B	110	3.0	mg/L	1	A700780	01/19/17	01/19/17
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A700780	01/19/17	01/19/17
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A700780	01/19/17	01/19/17
Chloride	EPA 300.0	390	1.0	mg/L	1	A700756	01/19/17	01/19/17
Fluoride	EPA 300.0	0.24	0.10	mg/L	1	A700756	01/19/17	01/19/17
pH (1)	SM 4500-H+ B	7.6		pH Units	1	A700780	01/19/17	01/19/17
pH Temperature in °C		22.7						
Sulfate as SO4	EPA 300.0	ND	1.0	mg/L	1	A700756	01/19/17	01/19/17
Total Dissolved Solids	SM 2540C	880	5.0	mg/L	1	A700804	01/19/17	01/26/17

					RL				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	76	0.10	mg/L	1	A701035	01/25/17	01/26/17	
Hardness as CaCO3, Dissolved	SM 2340B	340	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	36	0.10	mg/L	1	A701035	01/25/17	01/26/17	
Potassium - Dissolved (1)	EPA 200.7	4.8	2.0	mg/L	1	A701035	01/25/17	01/26/17	
Sodium - Dissolved (1)	EPA 200.7	140	1.0	mg/L	1	A701035	01/25/17	01/26/17	



WPC WQ sampling Fall 2016

WPC WQ Sampling 1st Qtr, Placer County - 1610374

Certificate of Analysis

Sample ID: A7A1672-03 Sampled By: Dennis Ho Sample Description: MW 3-2 Sample Date - Time: 01/17/17 - 10:45 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

				11	RL	Datab	B	
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed Qual
Alkalinity as CaCO3	SM 2320B	240	3.0	mg/L	1	A700780	01/19/17	01/19/17
Bicarbonate as CaCO3	SM 2320B	240	3.0	mg/L	1	A700780	01/19/17	01/19/17
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A700780	01/19/17	01/19/17
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A700780	01/19/17	01/19/17
Chloride	EPA 300.0	79	1.0	mg/L	1	A700756	01/19/17	01/19/17
Conductivity @ 25C	SM 2510B	1000	1.0	umhos/cm	1	A700780	01/19/17	01/19/17
Fluoride	EPA 300.0	0.36	0.10	mg/L	1	A700756	01/19/17	01/19/17
pH (1)	SM 4500-H+ B	7.2		pH Units	1	A700780	01/19/17	01/19/17
pH Temperature in °C		22.4						
Sulfate as SO4	EPA 300.0	140	1.0	mg/L	1	A700756	01/19/17	01/19/17
Total Dissolved Solids	SM 2540C	690	5.0	mg/L	1	A700804	01/19/17	01/26/17

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	73	0.10	mg/L	1	A701187	01/27/17	01/30/17	
Hardness as CaCO3, Dissolved	SM 2340B	420	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	57	0.10	mg/L	1	A701187	01/27/17	01/30/17	
Potassium - Dissolved (1)	EPA 200.7	ND	2.0	mg/L	1	A701187	01/27/17	01/30/17	
Sodium - Dissolved (1)	EPA 200.7	58	1.0	mg/L	1	A701187	01/27/17	01/30/17	



WPC WQ sampling Fall 2016

WPC WQ Sampling 1st Qtr, Placer County - 1610374

Certificate of Analysis

Sample ID: A7A1672-04 Sampled By: Dennis Ho Sample Description: MW-4 Sample Date - Time: 01/17/17 - 11:50 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed Qual
Alkalinity as CaCO3	SM 2320B	340	3.0	mg/L	1	A700780	01/19/17	01/19/17
Bicarbonate as CaCO3	SM 2320B	340	3.0	mg/L	1	A700780	01/19/17	01/19/17
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A700780	01/19/17	01/19/17
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A700780	01/19/17	01/19/17
Chloride	EPA 300.0	26	1.0	mg/L	1	A700756	01/19/17	01/19/17
Conductivity @ 25C	SM 2510B	660	1.0	umhos/cm	1	A700780	01/19/17	01/19/17
Fluoride	EPA 300.0	0.25	0.10	mg/L	1	A700756	01/19/17	01/19/17
рН (1)	SM 4500-H+ B	6.9		pH Units	1	A700780	01/19/17	01/19/17
pH Temperature in °C		22.2						
Sulfate as SO4	EPA 300.0	10	1.0	mg/L	1	A700756	01/19/17	01/19/17
Total Dissolved Solids	SM 2540C	420	5.0	mg/L	1	A700804	01/19/17	01/26/17

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	67	0.10	mg/L	1	A701187	01/27/17	01/30/17	
Hardness as CaCO3, Dissolved	SM 2340B	290	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	30	0.10	mg/L	1	A701187	01/27/17	01/30/17	
Potassium - Dissolved (1)	EPA 200.7	ND	2.0	mg/L	1	A701187	01/27/17	01/30/17	
Sodium - Dissolved (1)	EPA 200.7	35	1.0	mg/L	1	A701187	01/27/17	01/30/17	



WPC WQ sampling Fall 2016

WPC WQ Sampling 1st Qtr, Placer County - 1610374

Certificate of Analysis

Sample ID: A7A1672-05 Sampled By: Dennis Ho Sample Description: WPMW-3A Sample Date - Time: 01/17/17 - 13:00 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

					RL				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	100	3.0	mg/L	1	A700780	01/19/17	01/19/17	
Bicarbonate as CaCO3	SM 2320B	100	3.0	mg/L	1	A700780	01/19/17	01/19/17	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A700780	01/19/17	01/19/17	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A700780	01/19/17	01/19/17	
Chloride	EPA 300.0	750	10	mg/L	10	A701219	01/28/17	01/28/17	
Conductivity @ 25C	SM 2510B	3000	1.0	umhos/cm	1	A700780	01/19/17	01/19/17	
Fluoride	EPA 300.0	0.26	0.10	mg/L	1	A700765	01/19/17	01/19/17	
pH (1)	SM 4500-H+ B	7.5		pH Units	1	A700780	01/19/17	01/19/17	
pH Temperature in °C		22.1							
Sulfate as SO4	EPA 300.0	200	1.0	mg/L	1	A700765	01/19/17	01/19/17	
Total Dissolved Solids	SM 2540C	1200	5.0	mg/L	1	A700804	01/19/17	01/26/17	

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed (Qual
Calcium - Dissolved (1)	EPA 200.7	170	0.10	mg/L	1	A701035	01/25/17	01/26/17	
Hardness as CaCO3, Dissolved	SM 2340B	610	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	45	0.10	mg/L	1	A701035	01/25/17	01/26/17	
Potassium - Dissolved (1)	EPA 200.7	4.7	2.0	mg/L	1	A701035	01/25/17	01/26/17	
Sodium - Dissolved (1)	EPA 200.7	360	1.0	mg/L	1	A701035	01/25/17	01/26/17	



Analyte	Result	RI	Units	Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Date Analyzed Qual
	rooun	EPA 3	00.0 - 0	uality Co	ntrol		Linits			- Andry Lou - Gdui
Batch: A700756			v							Prepared: 1/18/2017
Prep Method: Method Specific Prep	paration									Analyst: INH
Blank (A700756-BLK1)										
Chloride	ND	1.0	mg/L							01/18/17
Fluoride	ND	0.10	mg/L							01/18/17
Sulfate as SO4	ND	1.0	mg/L							01/18/17
Blank Spike (A700756-BS1)										
Chloride	100	1.0	mg/L	100		100	90-110			01/18/17
Fluoride	1.0	0.10	mg/L	1.0		104	90-110			01/18/17
Sulfate as SO4	100	1.0	mg/L	100		100	90-110			01/18/17
Matrix Spike (A700756-MS1), Source	e: A7A1651-01									
Chloride	59	1.0	mg/L	50	8.6	100	80-120			01/18/17
Fluoride	0.75	0.10	mg/L	0.50	0.24	103	80-120			01/18/17
Sulfate as SO4	73	1.0	mg/L	50	23	100	80-120			01/18/17
Matrix Spike (A700756-MS2), Source	e: A7A1679-01									
Chloride	50	1.0	mg/L	50	ND	99	80-120			01/19/17
Fluoride	0.56	0.10	mg/L	0.50	ND	113	80-120			01/19/17
Sulfate as SO4	49	1.0	mg/L	50	ND	97	80-120			01/19/17
Matrix Spike Dup (A700756-MSD1),	Source: A7A1651-01									
Chloride	59	1.0	mg/L	50	8.6	102	80-120	1	20	01/18/17
Fluoride	0.76	0.10	mg/L	0.50	0.24	104	80-120	1	10	01/18/17
Sulfate as SO4	74	1.0	mg/L	50	23	102	80-120	1	20	01/18/17
Matrix Spike Dup (A700756-MSD2),	Source: A7A1679-01									
Chloride	51	1.0	mg/L	50	ND	100	80-120	1	20	01/19/17
	0.54	0.10	mg/L	0.50	ND	108	80-120	5	10	01/19/17
Suitate as SU4	49	1.0	mg/L	50	ND	98	80-120	1	20	01/19/17
		EPA 3	00.0 - Q	uality Co	ntrol					
Batch: A700765 Prep Method: Method Specific Prep	paration									Prepared: 1/19/2017 Analyst: INH
Blank (A700765-BLK1)										
Fluoride	ND	0 10	ma/l							01/19/17
Sulfate as SO4	ND	1.0	mg/L							01/19/17
Blank Spike (A700765-BS1)										
Fluoride	1.0	0.10	mg/L	1.0		104	90-110			01/19/17
Sulfate as SO4	100	1.0	mg/L	100		100	90-110			01/19/17
Matrix Spike (A700765-MS1), Source	e: A7A1667-06									
Fluoride	0.60	0.10	mg/L	0.50	ND	102	80-120			01/19/17
Sulfate as SO4	63	1.0	mg/L	50	13	99	80-120			01/19/17
Matrix Spike (A700765-MS2), Source	e: A7A1704-03									

A7A1672 FINAL 01312017 1416 Printed: 1/31/2017 QA-RP-0001-10 Final.rpt



Analyte	- Pooulé	DI	Unite	Spike	Source		%REC	DDD	RPD	Date	Qual
Analyte	Kesuit				ntrol	- 70REC		- 670	- Emilt	Analyzed	Quai
Batch: A700765		EPA 3	uu.u - Qi	uality CO	ntroi					Prenare	d· 1/19/2017
Prep Method: Method Specific Prep	aration									, iepaie A	Analyst: INF
										,	
Matrix Spike (A700765-MS2), Source	e: A7A1704-03	0.40	ma/l	0.50	0.40	107	00 400			01/10/17	
Fluoride	0.93	0.10	mg/L	0.50	0.40	107	80-120			01/19/17	
	04	1.0	iiig/L	50	55	101	00-120			01/19/17	
Matrix Spike Dup (A700765-MSD1),	Source: A7A1667-06										
Fluoride	0.62	0.10	mg/L	0.50	ND	105	80-120	3	10	01/19/17	
Sulfate as SO4	65	1.0	mg/L	50	13	103	80-120	3	20	01/19/17	
Matrix Spike Dup (A700765-MSD2),	Source: A7A1704-03										
Fluoride	0.94	0.10	mg/L	0.50	0.40	108	80-120	1	10	01/19/17	
Sulfate as SO4	85	1.0	mg/L	50	33	103	80-120	1	20	01/19/17	
		EPA 3	00.0 - Q	uality Co	ntrol						
Batch: A701219										Prepare	d: 1/28/2017
Prep Method: Method Specific Prep	aration										Analyst: INH
Blank (A701219-BI K1)											
Chloride	ND	1.0	ma/L							01/28/17	
Blank Spike (A701219-BS1)											
Chloride	100	1.0	mg/L	100		101	90-110			01/28/17	
Matrix Spike (A701219-MS1), Source	e: A7A2791-01										
Chloride	61	1.0	mg/L	50	11	100	80-120			01/28/17	
Matrix Spike (A701219-MS2), Source	e: A7A1437-02										
Chloride	49	1.0	mg/L	50	ND	99	80-120			01/28/17	
Matrix Spike Dup (A701219-MSD1),	Source: A7A2791-01										
Chloride	62	1.0	mg/L	50	11	102	80-120	2	20	01/28/17	
Matrix Spike Dup (A701240 MSD2)	Sauraa: 4744427.02										
Chloride	50urce: A/A1437-02	1.0	ma/l	50		00	80-120	0	20	01/28/17	
Chiolide	50	1.0	ilig/L	50	ND	55	00-120	0	20	01/20/17	
		SM 23	20B - Q	uality Co	ntrol						
Batch: A700780										Prepare	d: 1/19/2017
Prep Method: Method Specific Prep	paration									A	nalyst: CEG
Blank (A700780-BLK1)											
Alkalinity as CaCO3	ND	3.0	mg/L							01/19/17	
Bicarbonate as CaCO3	ND	3.0	mg/L							01/19/17	
Carbonate as CaCO3	ND	3.0	mg/L							01/19/17	
Hydroxide as CaCO3	ND	3.0	mg/L							01/19/17	
Blank Spike (A700780-BS1)											
Alkalinity as CaCO3	94	3.0	mg/L	100		94	80-120			01/19/17	
A7A1672 FINAL 01312017 1416											

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Analyte	Popult	DI	Unite	Spike	Source Result	%REC	%REC	RBD	RPD	Date Analyzed	Qual
Analyte	Result	EM 00	20B 00		ntrol			-820	-Entritt	-Analyzeu	studi
Batch: A700780		51VI 23	- בטם - ענ	uanty 60						Prenarer	1: 1/19/2017
Prep Method: Method Specific Prepar	ation									i iepaie Ar	
										A	
Blank Spike Dup (A700780-BSD1)											
Alkalinity as CaCO3	100	3.0	mg/L	100		101	80-120	7	20	01/19/17	
Duplicate (A700780-DUP1). Source: A7	7A1653-01										
Alkalinity as CaCO3	180	3.0	mg/L		190			1	10	01/19/17	
Bicarbonate as CaCO3	180	3.0	mg/L		190			1	10	01/19/17	
Carbonate as CaCO3	ND	3.0	mg/L		ND				10	01/19/17	
Hydroxide as CaCO3	ND	3.0	mg/L		ND				10	01/19/17	
		SM 25	10B - Qu	ality Co	ntrol						
Batch: A700780		•	4							Prepared	1: 1/19/2017
Prep Method: Method Specific Prepar	ation									Ar	nalyst: CEG
Blank Spike (A700780-BS1)											
Conductivity @ 25C	1400	1.0	umhos/c	1400		99	90-110			01/19/17	
			m								
Blank Spike Dup (A700780-BSD1)											
Conductivity @ 25C	1400	1 0	umhos/c	1400		98	90-110	1		01/19/17	
		1.0	m	. 100			20 110				
Duplicate (A700780-DLIP1) Source: A3	7A1653-01										
Conductivity @ 250	009	1 0	umboe/c		620			0	20	01/10/17	
Conductivity w 200	020	1.0	m		020			0	20	51/13/11	
		SM 25	40C - Qu	ality Co	ntrol						
Batch: A700804										Prepared	1: 1/19/2017
Prep Method: Method Specific Prepar	ration									A	nalyst: DEH
Blank (A700804-BLK1)											
Total Dissolved Solids	ND	5.0	mg/L							01/26/17	
		5.0	5								
Blank Spike (A700804-BS1)											
Total Dissolved Solids	990	5.0	mg/L	1000		99	70-130			01/26/17	
Duplicate (A700804-DUP1) Source: A3	7A1627-01										
Total Dissolved Solids	180	50	ma/L		180			1	20	01/26/17	
		5.0	. ., ⊢		.00				_0		
Duplicate (A700804-DUP2), Source: A	7A1668-01										
Total Dissolved Solids	700	5.0	mg/L		690			1	20	01/26/17	
		SM 4500)-H+ B - (Quality C	Control						
Batch: A700780										Prepared	ป: 1/19/2017
Prep Method: Method Specific Prepar	ration									Ar	nalyst: CEG
Duplicate (A700780-DUP1), Source: A7	7A1653-01										
рН (1)	7.9		pH Units		7.6			4	20	01/19/17	
A7A1672 FINAL 01312017 1416											
Printed: 1/31/2017										— —	10 5
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BSK Associates Laboratory Fresno Metals Quality Control Report

			lanty v	Sonuol	Report						
Analyte	Result	RI	Units	Spike	Source Result	%REC	%REC	RPD	RPD Limit	Date Analyzed	Qual
	rtooun	EDA 24		uality Co	ntrol					- January 200	
Batch: A701035		EPA Z	Q	uanty CO						Dropora	d. 1/25/2017
Prep Method: Filtration - Metals										A	nalvst: MDS
Blank (A701035-BLK2)											
Calcium - Dissolved (1)	ND	0.10	mg/L							01/26/17	
Magnesium - Dissolved (1)	ND	0.10	mg/L							01/26/17	
Potassium - Dissolved (1)	ND	2.0	mg/L							01/26/17	
Sodium - Dissolved (1)	ND	1.0	mg/L							01/26/17	
Blank Spike (A701035-BS2)											
Calcium - Dissolved (1)	3.9	0.10	mg/L	4.0		97	85-115			01/26/17	
Magnesium - Dissolved (1)	4.1	0.10	mg/L	4.0		103	85-115			01/26/17	
Potassium - Dissolved (1)	4.3	2.0	mg/L	4.0		107	85-115			01/26/17	
Sodium - Dissolved (1)	3.9	1.0	mg/L	4.0		97	85-115			01/26/17	
Blank Spike Dup (A701035-BSD2)											
Calcium - Dissolved (1)	4.0	0.10	mg/L	4.0		99	85-115	1	20	01/26/17	
Magnesium - Dissolved (1)	4.1	0.10	mg/L	4.0		103	85-115	0	20	01/26/17	
Potassium - Dissolved (1)	4.2	2.0	mg/L	4.0		105	85-115	2	20	01/26/17	
Sodium - Dissolved (1)	3.9	1.0	mg/L	4.0		98	85-115	1	20	01/26/17	
Matrix Spike (A701035-MS3), Source: A	A7A1672-01										
Calcium - Dissolved (1)	59	0.10	mg/L	4.0	55	98	70-130			01/26/17	
Magnesium - Dissolved (1)	13	0.10	mg/L	4.0	8.2	116	70-130			01/26/17	
Potassium - Dissolved (1)	7.6	2.0	mg/L	4.0	3.2	112	70-130			01/26/17	
Sodium - Dissolved (1)	230	1.0	mg/L	4.0	220	242	70-130			01/26/17	MS1.0 High
Matrix Spike Dup (A701035-MSD3), So	urce: A7A1672-01	I									
Calcium - Dissolved (1)	58	0.10	mg/L	4.0	55	78	70-130	1	20	01/26/17	
Magnesium - Dissolved (1)	12	0.10	mg/L	4.0	8.2	105	70-130	3	20	01/26/17	
Potassium - Dissolved (1)	7.4	2.0	mg/L	4.0	3.2	107	70-130	3	20	01/26/17	
Sodium - Dissolved (1)	220	1.0	mg/L	4.0	220	22	70-130	4	20	01/26/17	MS1.0 <i>Low</i>
		EPA 2	00.7 - Q	uality Co	ntrol						
Batch: A701187										Prepare	d: 1/27/2017
Prep Method: Filtration - Metals										A	nalyst: MDS
Blank (A701187-BLK2)											
Calcium - Dissolved (1)	ND	0.10	mg/L							01/30/17	
Magnesium - Dissolved (1)	ND	0.10	mg/L							01/30/17	
Potassium - Dissolved (1)	ND	2.0	mg/L							01/30/17	
Sodium - Dissolved (1)	ND	1.0	mg/L							01/30/17	
Blank Spike (A701187-BS2)											
Calcium - Dissolved (1)	3.7	0.10	mg/L	4.0		92	85-115			01/30/17	
Magnesium - Dissolved (1)	3.9	0.10	mg/L	4.0		98	85-115			01/30/17	
Potassium - Dissolved (1)	3.8	2.0	mg/L	4.0		94	85-115			01/30/17	
Sodium - Dissolved (1)	3.8	1.0	mg/L	4.0		94	85-115			01/30/17	

Blank Spike Dup (A701187-BSD2)

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BSK Associates Laboratory Fresno Metals Quality Control Report

				Spike	Source		%REC		RPD	Date	
Analyte	Result	RL	Units	Level	Result	%REC	Limits	RPD	Limit	Analyzed	Qual
		EPA 20	00.7 - Q	ualitv Co	ntrol						
Batch: A701187										Prepare	d: 1/27/2017
Prep Method: Filtration - Metals										A	nalvst: MDS
Blank Spike Dup (A701187-BSD2)											
Calcium - Dissolved (1)	3.7	0.10	mg/L	4.0		92	85-115	0	20	01/30/17	
Magnesium - Dissolved (1)	3.8	0.10	mg/L	4.0		94	85-115	4	20	01/30/17	
Potassium - Dissolved (1)	3.8	2.0	mg/L	4.0		95	85-115	1	20	01/30/17	
Sodium - Dissolved (1)	3.7	1.0	mg/L	4.0		93	85-115	1	20	01/30/17	
Matrix Spike (A701187-MS3), Source: /	A7A1779-01										
Calcium - Dissolved (1)	41	0.10	mg/L	4.0	37	99	70-130			01/30/17	
Magnesium - Dissolved (1)	9.0	0.10	mg/L	4.0	5.3	94	70-130			01/30/17	
Potassium - Dissolved (1)	5.6	2.0	mg/L	4.0	ND	99	70-130			01/30/17	
Sodium - Dissolved (1)	190	1.0	mg/L	4.0	180	55	70-130			01/30/17	MS1.0 <i>Low</i>
Matrix Spike (A701187-MS4), Source: A	47A1924-04										
Calcium - Dissolved (1)	16	0.10	mg/L	4.0	13	87	70-130			01/30/17	
Magnesium - Dissolved (1)	5.8	0.10	mg/L	4.0	1.8	99	70-130			01/30/17	
Potassium - Dissolved (1)	4.7	2.0	mg/L	4.0	ND	116	70-130			01/30/17	
Sodium - Dissolved (1)	7.7	1.0	mg/L	4.0	3.9	94	70-130			01/30/17	
Matrix Spike Dup (A701187-MSD3), So	urce: A7A1779-01										
Calcium - Dissolved (1)	40	0.10	mg/L	4.0	37	79	70-130	2	20	01/30/17	
Magnesium - Dissolved (1)	9.1	0.10	mg/L	4.0	5.3	96	70-130	1	20	01/30/17	
Potassium - Dissolved (1)	5.6	2.0	mg/L	4.0	ND	97	70-130	1	20	01/30/17	
Sodium - Dissolved (1)	180	1.0	mg/L	4.0	180	NR	70-130	2	20	01/30/17	MS1.0 <i>Low</i>
Matrix Spike Dup (A701187-MSD4), So	urce: A7A1924-04										
Calcium - Dissolved (1)	17	0.10	mg/L	4.0	13	98	70-130	3	20	01/30/17	
Magnesium - Dissolved (1)	5.7	0.10	mg/L	4.0	1.8	98	70-130	1	20	01/30/17	
Potassium - Dissolved (1)	4.6	2.0	- mg/L	4.0	ND	116	70-130	0	20	01/30/17	
Sodium - Dissolved (1)	7.8	1.0	mg/L	4.0	3.9	97	70-130	2	20	01/30/17	



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 according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 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.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating
 Procedures.
- 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.
- 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.
- 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.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- · The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	Picocuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit		

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno			
State of California - ELAP	1180	State of Hawaii	4021
State of Nevada	CA000792016-1	State of Oregon - NELAP	4021
EPA - UCMR3	CA00079	State of Washington	C997-16
Sacramento			
State of California - ELAP	2435		
San Bernardino			
State of California - ELAP	2993	State of Oregon - NELAP	4119-001
Vancouver			
State of Oregon - NELAP	WA100008-008	State of Washington	C824-16





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GEI Consultants



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Turnaround: Standard Due Date: 2/1/2017



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Cooling Inicial Inco.				
Payment for services rend	lered as noted	d herein	are due in full	in 30 days from the date invoiced. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person si
the Client/Company ackno	wledges that	they are	e either the Cli	r an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions for laboratory services unless contractually bound otherwise.
can be found at www.bska	Issociates.col	m/BSKL	.abTermsCond	s.pdf

Shipping Method: ONTRAC UPS GSO Wi Cooling Method: Wet Blue None	Received to Compy (Signalue and Printed Name) EL BSK	Relinquished Bx (Signature and Prinned Name)	Relinquished by: (Signature and Pringed Name) Defruit 5 Ho Drieto G						S WPMW-3A	4 MW-LI	3 MW 3-2	2 W77 - B	1 WDMM - 58	# Sample Description*	Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground V	Dennis Ho Prices	Sampler Name (Printed/Signature)":	Trace (J-Flag) Swamp R EDD Type: Stol Excel	Reporting Options:	Project Projec	2868 Prospect Park Drive, Swite 400	Additional Additional	Company/Client Name: Report Att	*Required Fields	ASSOCIATES www.bskassociates.com	(559) 497-2888 · Fax (559) 4	1414 Stanislaus St., Fresno,
/ALK-IN FED EX Courier:	The Date Time Payment Received at Delivery.	mpany Park H Time Received by (Signature and Printed Naple	manany ET Correst Unavers U17/17 15:10 Received by Signature and Printed Name						 WD 00:51 F1/F1/	V17/17 11:50 GW 4	1/17/17 10:45 GW No preservative	116/17 15:45 GW	1/10/17 02:11 F1/11/1	Date Time Matrix* Comments / Station Code / WTRAX	Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid		Merced Co Fresno Co System Number*: N/A	SWRCB (Drinking Water) EDT to California SWRCB (Drinking Water)	Regulatory Carbon Copies Regulatory Compliance Regulatory Carbon Copies Regulatory Compliance		iv: Static: Zp: Rancho Cordova CA 95670	http://www.sta	holistic terminer invoice to: Achter and Richard Shatz	Temp: +3	Rush (Surcharge may apply) Date needed:	197-2893 X Standard - 10 business days	CA 93706 Turnaround Time Request
Custody Seal: Y KA Chilling Process Begun W N crited in ISKK current Standard Tems and Conditions for Laboratory Services. The person staning for	Amount: PIA#: Init.	Соправу	VENER Common	1 brachier 1	-					<				67- M- M-	eti eta	eva als 15,	4 , F Un	Mi 74 74	- ev	ral D ed ed	<u>ج</u>	Email: dfa, man 2 ge; consultants, com	916-631-4528 cell; 415-420-2154				A7A1672 01/10/2017

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Ja	iii pi		eyin	· y		1	1			R 	81 818 811 18 9 9 8		I		
BS	K Bo	ttles:	Yes	No	Page	e{ of		.				·····			
	Was te	mperatur	e within ra	ange? o < 8°C		es No	NA	Wer	e correct contain	ners and pro	eservatives		Yes	No	NA
မ္	If samp	oles were	taken too	lay, is there evide	ence	Yes No.	NA	Wer	e there bubbles	in the VOA	vials?		Yes	No	NA NA
	that ch Did all	illing has hottles ar	begun?	oken and intact?		Vez	No	(Vola Was	atiles Only)	ount of sam	nle receive	d?	Xes		No
ğ	Did all	bottle lab	els agree	with COC?		Yes	No	Dos	samples have a	hold time <	72 hours?	<u>u.</u>	Yes		110
	Was so	dium thic	osulfate a	dded to CN sam	ple(s)	Yes No	NCAL	Was	SPM notified of (discrepanci	es?		Yes	No	NA
	250ml	A) 500m	IS NO IONG	r(C) 40ml VOA(V)	Checks	Pa	Ssed?	1-5	By/Time:					
	Bacti I	Na ₂ S ₂ O ₃	-	(1)				<u></u>	Contraction of the second		1				
	None	(P) ^{White Ci}	ар						10						
	Cr6 (P) Lt. Green I	Label/Blue C	^{ap} NH4OH(NH4)2SO	4 DW	Cl, pH > 8	3 Y	N					$\overline{)}$		
	Cr6 (P) Pink Labe	el/Blue Cap	NH4OH(NH4)2SO	4 WW	pH 9.3-9.	7 Y	Ν							
lab	Cr6 (P) Black Lab	el/Blue Cap	NH4OH(NH4)2SO	4 7199	nH 9 0-9	5 Y	N	trans a Section						
the		***24	HOUR HO	OLD TIME***		P			I R						
edir	HNO ₃	(B) Red Ca	or HCI	(P) Purple Cap/Lt. Blu	e Label			_	10						
orme	H ₂ SO ₂	(P) (or (AG) Yellow Cap/Labi	el su	pH < 2	<u> </u>	N							
perf	NaOH	(P) Green				Cl, pH >1	U Y	<u>N</u>				$\langle -$			
are	NaUH		(P)	ml (g)		pH>9	y y	N					68 <u>64 (</u>		
A or	None		gen soo	(iii (g)		-					/				
pe N/			label on	625, 632/8321, 8151	8270										
eive				G, Diesel	05							<u> </u>			
Rec.	Nac). 250m		on Green Label Exe	025					1	r .				
cks a	Na ₂ Sc Na ₂ Sc	$\Omega_{0} = 1$ Lite	r (Brown	D) 540	<u></u>	<u>1900 JK</u> (***					1-18	H)	7		
che	Na ₂ S ₂	$O_3 + Energy$	Blue Label	548 THM 524							6				
nie Bo	Na ₂ S ₂	<u>O₃ (CG)</u>	Blue Label	504, 505, 547							-09				
chlo	Na ₂ S ₂	 O₃ + MC	AA (CG	Orange Label 531		oH < 3	Y	N			\mathbf{X}				
tion/	NHAC	(AG)Puri	ple Label E	52								$\overline{\mathbf{N}}$			<u> 1979 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975</u>
erva	EDA (AG) ^{Brown}	Label DE	3Ps									\mathbf{X}		
Dres	HCL (CG) 524.	2.BTEX.G	as. MTBE. 8260/62	24	_							1		<u></u>
sus	Buffer	pH 4 (C	G)												1995 - J
me	H₃PO.	4 (CG) ^{Sal}	mon Label				-								
	Other							381.000000000000000000000000000000000000					1	8.5.80.80	
	Asbes	stos 11	Liter Plas	stic w/ Foil		4	_						-		
	Bottle	d Water										\checkmark			
	Clear	Glass	250mL	. / 500mL / 1	Liter		20-12-20-20-00								
	Soil T	ube B	rass /	Steel / Plast	ic		_				_				
	redia	Cont	iner	Preservative	Date	 e/Time/Initi	als		Container	Pres	ervative	Da	te/Tim	ie/Ini	itials
plit	SP							S P							
S	SP							S P							
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BSK Associates Laboratory Fresno 1414 Stanislaus St Fresno, CA 93706 559-497-2888 (Main)



A7E0202 5/15/2017 Invoice: A711549

David Fairman **GEI** Consultants 2868 Prospect Park Drive, Suite 400 Rancho Cordova, CA 95670

RE: Report for A7E0202 WPC WQ sampling Fall 2016

Dear David Fairman,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 5/2/2017. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

If additional clarification of any information is required, please contact your Project Manager, Adam Trevarrow, at (800) 877-8310 or (559) 497-2888 x116.

Thanks again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Adam Trevarrow, Project Manager



Accredited in Accordance with NELAP **ORELAP #4021**



Case Narrative

Project and	l Report Details	Invoice Details	
Client:	GEI Consultants	Invoice To: GEI Consultants	
Report To:	David Fairman	Invoice Attn: Richard Shatz	
Project #:	1610373	Project PO#: 1610373	
Received:	5/02/2017 - 11:30		
Report Due:	5/16/2017		
Sample Re	ceipt Conditions		
Cooler: Def Temperature	fault Cooler on Receipt ºC: 0.0	Containers Intact COC/Labels Agree Preservation Confirmed Received On Wet Ice	

Preservation Confirmed Received On Wet Ice Packing Material - Bubble Wrap Packing Material - Foam Sample(s) were received in temperature range. Initial receipt at BSK-SAC

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

- DP1.1 Sample Duplicate RPD exceeded method acceptance criteria.
- HT1.3 Holding time exceeded. Sample was analyzed past the holding time.
- MS1.0 Matrix spike recoveries exceed control limits.
- MS1.4 Matrix spike recovery data unreliable due to significant parent sample concentration relative to fortification level (>4x).

Report Distribution

Recipient(s)	Report Format	CC:
Richard Shatz	FINAL.RPT	
David Fairman	FINAL.RPT	
Sandy St. Hilaire	FINAL.RPT	



Certificate of Analysis

Sample ID: A7E0202-01 Sampled By: Dennis Ho Sample Description: MW 3-2 Sample Date - Time: 04/28/17 - 10:22 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed Qual
Alkalinity as CaCO3	SM 2320B	280	3.0	mg/L	1	A705412	05/02/17	05/02/17
Bicarbonate as CaCO3	SM 2320B	280	3.0	mg/L	1	A705412	05/02/17	05/02/17
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A705412	05/02/17	05/02/17
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A705412	05/02/17	05/02/17
Chloride	EPA 300.0	38	1.0	mg/L	1	A705624	05/06/17	05/06/17
Conductivity @ 25C	SM 2510B	850	1.0	umhos/cm	1	A705412	05/02/17	05/02/17
pH (1)	SM 4500-H+ B	7.6		pH Units	1	A705412	05/02/17	05/02/17
pH Temperature in °C		23.8						
Sulfate as SO4	EPA 300.0	98	1.0	mg/L	1	A705624	05/06/17	05/06/17
Total Dissolved Solids	SM 2540C	550	5.0	mg/L	1	A705448	05/03/17	05/08/17

					RL				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	64	0.10	mg/L	1	A705700	05/09/17	05/10/17	
Hardness as CaCO3, Dissolved	SM 2340B	350	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	46	0.10	mg/L	1	A705700	05/09/17	05/10/17	
Potassium - Dissolved (1)	EPA 200.7	ND	2.0	mg/L	1	A705700	05/09/17	05/10/17	
Sodium - Dissolved (1)	EPA 200.7	57	1.0	mg/L	1	A705700	05/09/17	05/10/17	



Certificate of Analysis

Sample ID: A7E0202-02 Sampled By: Dennis Ho Sample Description: MW 4 Sample Date - Time: 04/28/17 - 11:30 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

					RL			
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed Qual
Alkalinity as CaCO3	SM 2320B	420	3.0	mg/L	1	A705412	05/02/17	05/02/17
Bicarbonate as CaCO3	SM 2320B	420	3.0	mg/L	1	A705412	05/02/17	05/02/17
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A705412	05/02/17	05/02/17
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A705412	05/02/17	05/02/17
Chloride	EPA 300.0	380	1.0	mg/L	1	A705624	05/05/17	05/05/17
Conductivity @ 25C	SM 2510B	2000	1.0	umhos/cm	1	A705412	05/02/17	05/02/17
pH (1)	SM 4500-H+ B	7.4		pH Units	1	A705412	05/02/17	05/02/17
pH Temperature in °C		23.9						
Sulfate as SO4	EPA 300.0	77	1.0	mg/L	1	A705624	05/05/17	05/05/17
Total Dissolved Solids	SM 2540C	1200	5.0	mg/L	1	A705448	05/03/17	05/08/17

					RL				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	140	0.10	mg/L	1	A705700	05/09/17	05/10/17	
Hardness as CaCO3, Dissolved	SM 2340B	710	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	89	0.10	mg/L	1	A705700	05/09/17	05/10/17	
Potassium - Dissolved (1)	EPA 200.7	ND	2.0	mg/L	1	A705700	05/09/17	05/10/17	
Sodium - Dissolved (1)	EPA 200.7	170	1.0	mg/L	1	A705700	05/09/17	05/10/17	



Sample ID: A7E0202-03 Sampled By: Dennis Ho Sample Description: SVMW-2C Sample Date - Time: 04/26/17 - 17:31 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

					RL			
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed Qual
Alkalinity as CaCO3	SM 2320B	93	3.0	mg/L	1	A705412	05/02/17	05/02/17
Bicarbonate as CaCO3	SM 2320B	93	3.0	mg/L	1	A705412	05/02/17	05/02/17
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A705412	05/02/17	05/02/17
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A705412	05/02/17	05/02/17
Chloride	EPA 300.0	540	2.0	mg/L	2	A705624	05/06/17	05/06/17
Conductivity @ 25C	SM 2510B	2000	1.0	umhos/cm	1	A705412	05/02/17	05/02/17
рН (1)	SM 4500-H+ B	7.8		pH Units	1	A705412	05/02/17	05/02/17
pH Temperature in °C		23.8						
Sulfate as SO4	EPA 300.0	ND	1.0	mg/L	1	A705624	05/06/17	05/06/17
Total Dissolved Solids	SM 2540C	1300	5.0	mg/L	1	A705448	05/03/17	05/08/17

					RL				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	110	0.10	mg/L	1	A705700	05/09/17	05/10/17	MS1.4
Hardness as CaCO3, Dissolved	SM 2340B	350	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	21	0.10	mg/L	1	A705700	05/09/17	05/10/17	
Potassium - Dissolved (1)	EPA 200.7	4.4	2.0	mg/L	1	A705700	05/09/17	05/10/17	
Sodium - Dissolved (1)	EPA 200.7	250	1.0	mg/L	1	A705700	05/09/17	05/10/17	MS1.4



Sample ID: A7E0202-04 Sampled By: Dennis Ho Sample Description: WPMW - 3A Sample Date - Time: 04/28/17 - 12:35 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

					RL			
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed Qual
Alkalinity as CaCO3	SM 2320B	91	3.0	mg/L	1	A705412	05/02/17	05/02/17
Bicarbonate as CaCO3	SM 2320B	91	3.0	mg/L	1	A705412	05/02/17	05/02/17
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A705412	05/02/17	05/02/17
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A705412	05/02/17	05/02/17
Chloride	EPA 300.0	740	2.0	mg/L	2	A705624	05/06/17	05/06/17
Conductivity @ 25C	SM 2510B	3000	1.0	umhos/cm	1	A705412	05/02/17	05/02/17
pH (1)	SM 4500-H+ B	7.7		pH Units	1	A705412	05/02/17	05/02/17
pH Temperature in °C		23.9						
Sulfate as SO4	EPA 300.0	180	2.0	mg/L	2	A705624	05/06/17	05/06/17
Total Dissolved Solids	SM 2540C	1900	5.0	mg/L	1	A705448	05/03/17	05/08/17

					RL				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	170	0.10	mg/L	1	A705700	05/09/17	05/10/17	
Hardness as CaCO3, Dissolved	SM 2340B	610	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	44	0.10	mg/L	1	A705700	05/09/17	05/10/17	
Potassium - Dissolved (1)	EPA 200.7	4.6	2.0	mg/L	1	A705700	05/09/17	05/10/17	
Sodium - Dissolved (1)	EPA 200.7	370	1.0	mg/L	1	A705700	05/09/17	05/10/17	



Sample ID: A7E0202-05 Sampled By: Dennis Ho Sample Description: WPMW - 5B Sample Date - Time: 04/27/17 - 10:12 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

					RL				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	110	3.0	mg/L	1	A705412	05/02/17	05/02/17	
Bicarbonate as CaCO3	SM 2320B	110	3.0	mg/L	1	A705412	05/02/17	05/02/17	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A705412	05/02/17	05/02/17	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A705412	05/02/17	05/02/17	
Chloride	EPA 300.0	370	1.0	mg/L	1	A705624	05/05/17	05/05/17	
Conductivity @ 25C	SM 2510B	1400	1.0	umhos/cm	1	A705412	05/02/17	05/02/17	
pH (1)	SM 4500-H+ B	7.9		pH Units	1	A705412	05/02/17	05/02/17	
pH Temperature in °C		23.9							
Sulfate as SO4	EPA 300.0	ND	1.0	mg/L	1	A705624	05/05/17	05/05/17	
Total Dissolved Solids	SM 2540C	830	5.0	mg/L	1	A705448	05/03/17	05/08/17	

					RL				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	55	0.10	mg/L	1	A705700	05/09/17	05/10/17	
Hardness as CaCO3, Dissolved	SM 2340B	170	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	8.3	0.10	mg/L	1	A705700	05/09/17	05/10/17	
Potassium - Dissolved (1)	EPA 200.7	3.0	2.0	mg/L	1	A705700	05/09/17	05/10/17	
Sodium - Dissolved (1)	EPA 200.7	220	1.0	mg/L	1	A705700	05/09/17	05/11/17	



Certificate of Analysis

Sample ID: A7E0202-06 Sampled By: Dennis Ho Sample Description: W77 - 8 Sample Date - Time: 04/27/17 - 13:00 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed Qual
Alkalinity as CaCO3	SM 2320B	110	3.0	mg/L	1	A705412	05/02/17	05/02/17
Bicarbonate as CaCO3	SM 2320B	110	3.0	mg/L	1	A705412	05/02/17	05/02/17
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A705412	05/02/17	05/02/17
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A705412	05/02/17	05/02/17
Chloride	EPA 300.0	380	1.0	mg/L	1	A705620	05/06/17	05/06/17
Conductivity @ 25C	SM 2510B	1500	1.0	umhos/cm	1	A705412	05/02/17	05/02/17
рН (1)	SM 4500-H+ B	7.7		pH Units	1	A705412	05/02/17	05/02/17
pH Temperature in °C		23.9						
Sulfate as SO4	EPA 300.0	ND	1.0	mg/L	1	A705620	05/06/17	05/06/17
Total Dissolved Solids	SM 2540C	960	5.0	mg/L	1	A705448	05/03/17	05/08/17

					RL				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	71	0.10	mg/L	1	A705700	05/09/17	05/10/17	
Hardness as CaCO3, Dissolved	SM 2340B	320	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	34	0.10	mg/L	1	A705700	05/09/17	05/10/17	
Potassium - Dissolved (1)	EPA 200.7	4.4	2.0	mg/L	1	A705700	05/09/17	05/10/17	
Sodium - Dissolved (1)	EPA 200.7	140	1.0	mg/L	1	A705700	05/09/17	05/11/17	



Batch: A705624 Prep Method: Method Specific Prepa Blank Spike (A705624-BS1) Chloride Sulfate as SO4	100 100 100	EPA 3 (1.0 1.0	00.0 - Qi	uality Co	ntrol					Prenared: 5/5/2017
Batch: A705624 Prep Method: Method Specific Prepa Blank Spike (A705624-BS1) Chloride Sulfate as SO4	100 100 100	1.0 1.0		-						Prenared: 5/5/2017
Prep Method: Method Specific Prepa Blank Spike (A705624-BS1) Chloride Sulfate as SO4	100 100 100	1.0 1.0								1 iepaieu. 3/3/2017
Blank Spike (A705624-BS1) Chloride Sulfate as SO4	100 100 : A7E0755-04	1.0 1.0								Analyst: BCB
Blank Spike (A705624-BS1) Chloride Sulfate as SO4	100 100 : A7E0755-04	1.0 1.0								,
Chloride Sulfate as SO4	100 100 : A7E0755-04	1.0 1.0								
Sulfate as SO4	100 : A7E0755-04	1.0	mg/L	100		101	90-110			05/05/17
	: A7E0755-04		mg/L	100		101	90-110			05/05/17
	: A7E0755-04		Ū							
Matrix Spike (A705624-MS1), Source										
Chloride	56	1.0	mg/L	50	5.4	102	80-120			05/05/17
Sulfate as SO4	54	1.0	mg/L	50	3.6	101	80-120			05/05/17
Matrix Spike (A705624-MS2), Source	: A7E0755-05									
Chloride	53	1.0	mg/L	50	2.9	100	80-120			05/05/17
Sulfate as SO4	53	1.0	mg/L	50	2.9	99	80-120			05/05/17
Matrix Spika Dun (A705004 MOD4)										
Chlorida	50urce. A/ EV/ 33-04	1.0	ma/l	FO	5 4	101	00 400	4	20	05/05/17
Sulfate as SO4	00 54	1.0	mg/L	50	5.4 3.6	101	00-120 80-120	1	20 20	05/05/17
	J 4	1.0	mg/∟	50	5.0	100	00-120	ı	20	00/00/11
Matrix Spike Dup (A705624-MSD2), S	Source: A7E0755-05									
Chloride	52	1.0	mg/L	50	2.9	99	80-120	1	20	05/05/17
Sulfate as SO4	52	1.0	mg/L	50	2.9	98	80-120	1	20	05/05/17
		SM 23	20B - Oi	uality Co	ntrol					
Batch: A705412		0.11 20								Prenared: 5/2/2017
Prep Method: Method Specific Prep	aration									Analyst: CEG
	-									
Blank (A705412-BLK1)										
Alkalinity as CaCO3	ND	3.0	mg/L							05/02/17
Bicarbonate as CaCO3	ND	3.0	mg/L							05/02/17
Carbonate as CaCO3	ND	3.0	mg/L							05/02/17
Hydroxide as CaCO3	ND	3.0	mg/L							05/02/17
Blank Spike (A705412-BS1)										
Alkalinity as CaCO3	97	3.0	mg/L	100		97	80-120			05/02/17
Diank Onlike Dune (4705140 DOD ()										
	00		ma/l	100		06	00 100		20	05/02/17
	90	3.0	mg/L	100		96	80-120	1	20	05/02/17
Duplicate (A705412-DUP1), Source:	A7E0167-01									
Alkalinity as CaCO3	200	3.0	mg/L		200			0	10	05/02/17
Bicarbonate as CaCO3	200	3.0	mg/L		190			1	10	05/02/17
Carbonate as CaCO3	ND	3.0	mg/L		3.6			75	10	05/02/17 DP1.1
Hydroxide as CaCO3	ND	3.0	mg/L		ND				10	05/02/17
		SM 25	10B - Qi	uality Co	ntrol					
Batch: A705412				2						Prepared: 5/2/2017
Prep Method: Method Specific Prep	aration									Analyst ⁻ CFG
										- ,

A7E0202 FINAL 05152017 1623 Printed: 5/15/2017 QA-RP-0001-10 Final.rpt



				Spike	Source		%REC		RPD	Date
Analyte	Result	RL	Units	Level	Result	%REC	Limits	RPD	Limit	Analyzed Qual
		SM 25	10B - Qu	ality Co	ntrol					
Batch: A705412										Prepared: 5/2/2017
Prep Method: Method Specific Preparati	ion									Analyst: CEG
Blank Spike (A705412-BS1)										
Conductivity @ 25C	1400	1.0	umhos/c m	1400		101	90-110			05/02/17
Blank Spike Dup (A705412-BSD1)										
Conductivity @ 25C	1400	1.0	umhos/c m	1400		100	90-110	1		05/02/17
Duplicate (A705412-DUP1), Source: A7E	0167-01									
Conductivity @ 25C	760	1.0	umhos/c m		770			1	20	05/02/17
		SM 25	40C - Qu	ality Co	ntrol					
Batch: A705448 Prep Method: Method Specific Preparati	on			·						Prepared: 5/3/2017 Analyst: DEH
Blank (A705448-BI K1)										
Total Dissolved Solids	ND	5.0	mg/L							05/08/17
Blank Spike (A705448-BS1)										
Total Dissolved Solids	990	5.0	mg/L	1000		99	70-130			05/08/17
Duplicate (A705448-DUP1), Source: A7E	0103-01									
Total Dissolved Solids	48	5.0	mg/L		47			2	20	05/08/17
Duplicate (A705448-DUP2), Source: A7E	0111-01									
Total Dissolved Solids	43	5.0	mg/L		41			5	20	05/08/17
		SM 4500)-H+ B - (Quality C	Control					
Batch: A705412 Prep Method: Method Specific Preparati	ion									Prepared: 5/2/2017 Analyst: CEG
Duplicate (A705412-DUP1), Source: A7E	0167-01									
pH (1)	8.3		pH Units		8.3			0	20	05/02/17



BSK Associates Laboratory Fresno Metals Quality Control Report

Amelute	Descrit	D	Unite	Spike	Source	0/ DE0	%REC	DBB	RPD	Date	Qual
Analyte	Result	RL	Units	Lever	Result	%REC	Limits	-RPD	Limit	Analyzed	Quar
		EPA 2	00.7 - Q	uality Co	ntrol						
Batch: A705700										Prepar	red: 5/9/2017
Prep Method: Filtration - Metals										A	nalyst: MDS
Blank (A705700-BLK2)											
Calcium - Dissolved (1)	ND	0.10	mg/L							05/10/17	
Magnesium - Dissolved (1)	ND	0.10	mg/L							05/10/17	
Potassium - Dissolved (1)	ND	2.0	mg/L							05/10/17	
Sodium - Dissolved (1)	ND	1.0	mg/L							05/10/17	
Blank Spike (A705700-BS2)											
Calcium - Dissolved (1)	3.8	0.10	mg/L	4.0		96	85-115			05/10/17	
Magnesium - Dissolved (1)	4.1	0.10	mg/L	4.0		103	85-115			05/10/17	
Potassium - Dissolved (1)	4.0	2.0	mg/L	4.0		99	85-115			05/10/17	
Sodium - Dissolved (1)	3.9	1.0	mg/L	4.0		98	85-115			05/10/17	
Blank Spike Dup (A705700-BSD2)											
Calcium - Dissolved (1)	3.9	0.10	mg/L	4.0		98	85-115	2	20	05/10/17	
Magnesium - Dissolved (1)	4.3	0.10	mg/L	4.0		108	85-115	4	20	05/10/17	
Potassium - Dissolved (1)	4.2	2.0	mg/L	4.0		105	85-115	6	20	05/10/17	
Sodium - Dissolved (1)	4.0	1.0	mg/L	4.0		101	85-115	3	20	05/10/17	
Matrix Spike (A705700-MS3), Sou	rce: A7E0202-03										
Calcium - Dissolved (1)	110	0.10	mg/L	4.0	110	16	70-130			05/10/17	MS1.0 <i>Low</i>
Magnesium - Dissolved (1)	25	0.10	mg/L	4.0	21	106	70-130			05/10/17	
Potassium - Dissolved (1)	8.5	2.0	mg/L	4.0	4.4	103	70-130			05/10/17	
Sodium - Dissolved (1)	240	1.0	mg/L	4.0	250	NR	70-130			05/10/17	MS1.0 <i>Low</i>
Matrix Spike (A705700-MS4), Sou	rce: A7E0256-02										
Calcium - Dissolved (1)	580	0.10	mg/L	4.0	550	749	70-130			05/10/17	MS1.0 High
Magnesium - Dissolved (1)	410	0.10	mg/L	4.0	400	155	70-130			05/10/17	MS1.0 High
Potassium - Dissolved (1)	20	2.0	mg/L	4.0	15	122	70-130			05/10/17	-
Sodium - Dissolved (1)	700	1.0	mg/L	4.0	680	499	70-130			05/10/17	MS1.0 <i>High</i>
Matrix Spike Dup (A705700-MSD3), Source: A7E0202-03										
Calcium - Dissolved (1)	110	0.10	mg/L	4.0	110	128	70-130	4	20	05/10/17	
Magnesium - Dissolved (1)	25	0.10	mg/L	4.0	21	99	70-130	1	20	05/10/17	
Potassium - Dissolved (1)	8.5	2.0	mg/L	4.0	4.4	104	70-130	1	20	05/10/17	
Sodium - Dissolved (1)	250	1.0	mg/L	4.0	250	148	70-130	3	20	05/10/17	MS1.0 <i>High</i>
Matrix Spike Dup (A705700-MSD4), Source: A7E0256-02										
Calcium - Dissolved (1)	580	0.10	mg/L	4.0	550	817	70-130	1	20	05/10/17	MS1.0 High
Magnesium - Dissolved (1)	420	0.10	mg/L	4.0	400	374	70-130	2	20	05/10/17	MS1.0 High
Potassium - Dissolved (1)	20	2.0	mg/L	4.0	15	130	70-130	2	20	05/10/17	-
Sodium - Dissolved (1)	700	1.0	mg/L	4.0	680	567	70-130	0	20	05/10/17	Hiah



BSK Associates Laboratory Fresno Organics Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
		EPA 5	24.2 - Q	uality Co	ntrol						
Batch: A705478				-						Prepar	ed: 5/3/2017
Prep Method: EPA 524.2										A	nalyst: ANM
Blank (A705478-BLK1)											
Bromodichloromethane	ND	0.50	ug/L							05/03/17	
Bromoform	ND	0.50	ug/L							05/03/17	
Chloroform	ND	0.50	ug/L							05/03/17	
Dibromochloromethane	ND	0.50	ug/L							05/03/17	
Surrogate: 1,2-Dichlorobenzene-d4	49			50		97	70-130			05/03/17	
Surrogate: Bromofluorobenzene	49			50		98	70-130			05/03/17	
Blank Spike (A705478-BS1)											
Bromodichloromethane	11	0.50	ug/L	10		114	70-130			05/03/17	
Bromoform	12	0.50	ug/L	10		118	70-130			05/03/17	
Chloroform	11	0.50	ug/L	10		113	70-130			05/03/17	
Dibromochloromethane	11	0.50	ug/L	10		114	70-130			05/03/17	
Surrogate: 1,2-Dichlorobenzene-d4	55			50		109	70-130			05/03/17	
Surrogate: Bromofluorobenzene	55			50		110	70-130			05/03/17	
Blank Spike Dup (A705478-BSD1)											
Bromodichloromethane	10	0.50	ug/L	10		100	70-130	13	30	05/03/17	
Bromoform	11	0.50	ug/L	10		107	70-130	10	30	05/03/17	
Chloroform	10	0.50	ug/L	10		100	70-130	12	30	05/03/17	
Dibromochloromethane	10	0.50	ug/L	10		102	70-130	11	30	05/03/17	
Surrogate: 1,2-Dichlorobenzene-d4	49			50		97	70-130			05/03/17	
Surrogate: Bromofluorobenzene	50			50		101	70-130			05/03/17	
Matrix Spike (A705478-MS1), Source:	A7E0215-01										
Bromodichloromethane	12	0.50	ug/L	10	ND	119	47-151			05/03/17	
Bromoform	12	0.50	ug/L	10	ND	121	29-162			05/03/17	
Chloroform	30	0.50	ug/L	10	18	127	52-148			05/03/17	
Dibromochloromethane	12	0.50	ug/L	10	ND	118	44-149			05/03/17	
Surrogate: 1,2-Dichlorobenzene-d4	55		-	50		111	70-130			05/03/17	
Surrogate: Bromofluorobenzene	56			50		112	70-130			05/03/17	



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 according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 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.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating
 Procedures.
- 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.
- 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.
- 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.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	Picocuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit		

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno			
State of California - ELAP	1180	State of Hawaii	4021
State of Nevada	CA000792016-1	State of Oregon - NELAP	4021
EPA - UCMR3	CA00079	State of Washington	C997-16
State of New York	12073		
Sacramento			
State of California - ELAP	2435		
San Bernardino			
State of California - ELAP	2993	State of Oregon - NELAP	4119-001
Vancouver		-	
State of Oregon - NELAP	WA100008-008	State of Washington	C824-16
-		-	





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GEI Consultants





Printed: 5/2/2017 5:06:49PM Page 1 of 1

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Shipping Method: ONTRAS Cooling Method: Wet Blue Payment for services rendered as need herein are due in full the Filemformanne activationates that they are also in the full	Receiptrong Lab by: (Signature and Printed Name)	Reinquished by: (Signaure and Printed Varie)	Relinguished by: (Signature and Printed Name) Derwhis Ho Drith	17 1 Airport Well 4 MM	13 1 WPMW - 2A	IL CVMW - IA	1 SVMW-2A	6 1 MW 1-3	9 5 DC MW - 3	8 5 DC MW -2	7 5 DCMW - 1	8 - EEM 2 9	5 2 WPMW - 5B	4 2 WPMW - 3A	5 1 SVMW - 2C	2 2 MW-4	1 2 MW 3 -2	# Sample D	Matrix Types: SW=Surface V	Dennis Ho	Sampler Name (Printed/Signature)*:	Reporting Options:	Project: WPC WQ Sampling Fall 2016,	Address*: 2868 Prospect Park Drive, Suit	GEI Consultants, Inc.	Company/Client Name*:	9	Associates Engineers/Taboratories	BSK
UPS GSO None Within 30 days from the date Invoiced. If not so	22 - J.J.																	escription*	Vater BW=Bottled Water GW=Groun	1		EDD Type: Std Excel	WPC Partners	e 400	Rich	Report Davi	*Required Fields	www.bskassociates.com	1414 Stanislaus St., Fresn (559) 497-2888 · Fax (559)
WALK-IN FED EX C	2 2 2 2 2 2 3	Company BASAL	GET Consultants 4	4/28/17 8:44	1/26/17 10:00 1	4/24/17 11:55 0	4/26/17 17:07	05: El El/a1/4	+1/25/17 15:05	00:21 t1/51/4	04: 51 E1/22/4	4/27/17 15:00	4/27/17 10:12	4/28/17 12:35	1561 61/07/4	4/28/17 11:30 0	0 27:01 E1/82/17	Sampled* Date Time	nd Water WW=Waste Water STW=Sto	Other: N/A		Regulatory Carbon Copies SWRCB (Drinking Water)	Project #: 1610373	cityt: Rancho Cordova	ard Shatz	Attention*: d Fairman	— Тетр: (o, CA 93706) 497-2893 _
CULIE: 	ate Time Payment Received at Delivery:	ate Time Received by: (Signature and Printed Na	ale Time Received by: (Stopature and Printed Na 1/2.8/17 15:50 YA Stopature and Printed Na	GW	6W	<u>у</u> к	6W	6W	6W	GW	C-IW	GW	GW	5W	GNW collected 1 L - Limited Volu	SW	34	Matrix* Comments / Station Code / WTRAX	orm Water DW=Drinking Water SO=Solid	Geotracker #: Not for Geotracker	resno Co System Number*: N/A	Regulatory Compliance	How would you like to receive your completed results	State*: Zip': CA 95670	^{PO#:} 1610373	Invoice To*: Richard Shatz	<u>J.o.</u>	Date needed:	Turnaround Time Request Standard - 10 business days
Custody Seal: Y/25 Chilling Process Begun: Q/N specified in BSK's current Standard Terms and Co publicities for laboration and constraints	Amount	me)							< <	< <				< <			✓	Pla Grev (sai filter	mp red	er C cal ples I due) S	nee	ع MW (i γ د ed to field	Profi rals be lat issue	le s)	E-mail*: DFairman@geic	Phone*: 916-631-4528	6		A7E0202 geico8314
by face	PIA#: Init.	Company	Company SAL-SAC	< <	۲ 	<		<	<	<			-					(Nit to m C·	rat lee Y	tes vet ho it M		e sub ng tim	econtra nes)	acted	onsultants.com	Fax: cell:415-420-2154			05/02/2017 10

SR-FL-0012-06

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BSK Associates SR-FL-0002-18

Sample Integrity

A7E0202	
geico8314	



BSI	K Bo	ttles: Yes	NO P	age	l of	1		**********				
	Was te	mperature within r	ange?	<u> </u>	(Yes) No M	- ιΔ	Wer	e correct contai	ners and p	reservatives	Kes	No NA
0	Chemistry ≤ 6°C Micro < 8°C			Yes No MA		received for the tests requested? Ves Were there bubbles in the VOA vials? Yes (Volatiles Only) Yes Was a sufficient amount of sample received? Ves						
l uế										Yes	No 🚺	
ပ္စ										d? 🤇	§) No	
U U U U				Cos N	lo	Do samples have a hold time <72 hours?				Ye	s No	
	Was so until ch	odium thiosulfate a Norine was no long	idded to CN sample ger present?	:(s)	Yes No 🕻	\mathbb{A}	Was PM:	/as PM notified of discrepancies? M: By/Time:			Yes	No NA
	250ml(A) 500ml(B) 1Lite	er(C) 40ml VOA(V)		Checks	Pas	sed?	1-2	7	4-6	7-9	10-14
	Bacti I	Na ₂ S ₂ O ₃							2			
	None	(P) ^{White Cap}			_	-		16,18	IC	1C, 18	10,18	
	Cr6 (P) Lt. Green Label/Blue C	ap NH4OH(NH4)2SO4	DW	Cl, pH > 8	Ø	N					14
	Cr6 (P) Pink Label/Blue Cap	NH4OH(NH4)2SO4	ww	pH 9.3-9.7	Y	N					
the lab	Cr6 (P	Black Label/Blue Cap	NH4OH(NH4)2SO4 7 OLD TIME***	'199	pH 9.0-9.5	Y	N					
E	HNO ₃	(P) Red Cap or HCI	(P) Purple Cap/Lt. Blue La	apel	—	-						
uec	H ₂ SO4	4 (P) or (AG) Yellow Cap/Label		pH < 2	Y	N					
Le l	NaOH	(P) Green Cap			CI, pH >10	Y	N		1			
e pe	NaOH	+ ZnAc (P)			pH > 9	Y	N			1200		
 V/A or are	Dissol	ved Oxygen 300)ml (a)	<u> </u>		-		in the state of the second		<u>- Prins Antonio (1986)</u> -	<u>ta ang 1, 198 k</u> a	
	None	(AG) 608/8081/8082	625 632/8321 8151 82	70						and the second		
ed	HCL (A	G Lt. Blue Label								<u>. Marka ka</u> ka		
eithe	Ascor											
kec	NasSC	Dic, EDTA, KT2C	con Green Label 525									
S B S	Na2OC	0 1 Liter (Ro)	- D) = 10	•								
ttle	Na252	O3 1 Liter (Brown	1 P) 549			-					7	l Definition
Bol	Na ₂ S ₂	O ₃ (AG) Blue Laber	548, THM, 524			-	<u> </u>					
lori	Na ₂ S ₂		504, 505, 547			-					-	
on/ct	Na ₂ S ₂	O ₃ + MCAA (CG)Orange Label 531		pH < 3	Y	N					
rvati	NH₄C	(AG) ^{Purple Label}	552			-						
ser	EDA (AG) ^{Brown} Label DBPs				<u> </u>	-						
pre	HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624			_	-	_						
ans	Buffer pH 4 (CG)											
ů,	H3PO4 (CG) ^{Salmon Label}				-	<u> </u>						
l	Other:									A THOMAS AND TO MAD		
	Asbestos 1Liter Plastic w/ Foil					<u></u>						
	Low Level Hg / Metals Double Baggie Bottled Water										1.20202.01	
	Clear Glass 250mL / 500mL / 1 Liter					_					12 - Sta State - State - State - State - State - State	
	Soil Tube Brass / Steel / Plastic				<u> </u>	-	<u></u>					
	Tedlar Bag / Plastic Bag				—	-						1
it		Container	Preservative	Date	/Time/Initial	s		Container	Pre	servative	Date/Ti	ne/Initials
Spl	SP					8	S P					
	SP					5	S P					
ents												
l mu											i	
Ŭ												
Labe	led by:	Try @ f	Labels	s che	cked by: <u>C</u>	EY	_@	1502	RUSH F	Paged by:_	(<u></u>

Final Bottle O	About 57 gr
utline for GEI	oundwater sa
doing Field-	mples - BSK
Filtering of N	Final Pricing
/letals (9-4-15)	as of 4-23-15



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Analytical Parameters, Test Methods, Holding Times, Sample Containers, Preservation and Approximate Detection Limits

For Groundwater Quality Samples

		\$435.00	Each						Notes:
ſ	3x40 ml VOA w/ HCI	\$80		Cool to 4 °C	3x 40ml	Glass	14 Days	EPA 524.2	VOCs
	from GM bottle	\$45.00		Cool to 4 °C	1 Liter	Plastic	14 Days	EPA 314.0	Perchlorate
									Other states and the second second second
	1x500 ml plastic - no preservation	150		Cool to 4 °C	200 mL	Plastic	6 Months	¢	lsotopes [™] O/ [™] 0 and ⁺ H/ ^e H
	1x500 AG bottle - no preservation	\$125.00		Cool to 4°C	200 mL	Plastic	6 Months	÷	Tritium
									Isotopes
1	250 ml p w/HN4 + buffer	\$75.00	1 ug/L	NH3 + NH4 (pH 9)	125 mL.	Plastic	7 days	EPA 218.6	Hexavalent Chromium
								and a second	Boron
	see metals above (will use same bottle)	inlcuded above	Varies	HNC3, cool to 4 °C	200 mL	Plastic	6 Months	EPA 200 Series	(Ag,Al,As,B,Ba,Be,Cd,Cr,Cu,Fe,Hg,Mn,Ni,Pb,Sb,Se, T,V,Zn)
									Metals
			0.5 NTU	Cool to 4 °C	250 ml.	Amber Glass	48 Hours	EPA 180.1	Turbidity
	any of these MW samples		;	?	?	ć	->	Ś	Odor
	7-10-2014 - per Cathy, Gen Phy will not be analyzed on			Cool to 4 °C	250 ml.	Amber Glass	48 Hours	SM2120B	Color
									General Physical
			1.0 mg/L	Cool to 4 °C	1 Liter	Plastic	7 Days	SM 2450-C	Total Dissolved উপids (TDS)
			0.50 mg/L	Cool to 4 °C	1 Liter	Plastic	28 Days	EPA 300.0	Sulfate
	subcontracted		10 umhos/cm	Cool to 4 °C	1 Liter	Plastic	28 Days	SM 2510-B	Specific Conductance (EC)
	needed for the Nitrate sample that will be		1.0 mg/L	Cool to 4 °C	1 Liter	Plastic	6 Months	EPA 200.7	Sodium
	an additional 1x250 ml White Can bottled will be		1.0 mg/L	Cool to 4 °C	1 Liter	Plastic	6 Months	EPA 200.7	Potassium
			None Required	Cool to 4 °C	1 Liter	Plastic	Immediate	EPA 150.1	PH
	(non-preserved if lab filteres)	Boron)	2.0 mg/L	Cool to 4 °C	1 Liter	Plastic	48 Hours	EPA 300.0	Nitrate
	(w/ NO3 if filtered in the field)	hcincipaed	0.1 mg/L	Cool to 4 °C	1 Liter	Plastic	48 Hours	SM5540C	MBAS
	500 ml plastic can be used - 250 ml is easier)	235	1.0 mg/L	Cool to 4 °C	1 Liter	Plastic	6 Months	EPA 200.7	Magnesium
	w/HNO3 for field filtered metais		1.0 mg/L	Cool to 4 °C	1 Liter	Plastic	6 Months	SM2340B	Hardness
ſ	CHANGE to 1x350 ml plastic Berl Can		0.1 mg/L	Cool to 4 °C	1 Liter	Plastic	28 Days	EPA 300.0	Fluoride
	(anions/TDS/ MBAS)		1.0 mg/L	Cool to 4 °C	1 Liter	Plastic	28 Days	EPA 300.0	Chloride
	1x1L plastic - no preservation		1.0 mg/L	Cool to 4 °C	1 Liter	Plastic	6 Months	EPA 200.7	Calcium
	non-preserved for Minerals					and the second second			Bicarbonate
Î	CHANGE to 1 x 500 ml Plastic White Cap		5.0 mg/L	Cool to 4 °C	1 Liter	Plastic	14 Days	EPA 310.1	Akalinity
									General Minerals
		Cost	LIMIT				TIME	METHOD	
	SAMPLE BOTTLES		REPORTING	PRESERVATION	SIZE/SET	BOTTLE TYPE	HOLDING	TESTING	Parameter
			MINIMUM		TAINER	SAMPLE CON	MAXIMUM	ANALYTICAL	

All other groups of analyses are assembled from groups published by CLS. Actual analysis groups from BSK need to be confirmed. There will be an additional \$30 RUSH subcontract fee for the nitrates on samples submitted on Friday.

NOTE #2: If samples are collected on Friday an additional 1x250 ml plastic white cap (non-preserved) bottle will need to be collected for subcontracting to meet the Nitrate holding time

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Richard Shatz GEI Consultants 2868 Prospect Park Drive, Suite 400 Rancho Cordova, CA 95670

RE: Report for A7G1747 Western Placer County GW Recharge

Dear Richard Shatz,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 7/18/2017. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

If additional clarification of any information is required, please contact your Project Manager, Adam Trevarrow, at (800) 877-8310 or (559) 497-2888 x116.

Thanks again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

ilam

Adam Trevarrow, Project Manager



Accredited in Accordance with NELAP **ORELAP #4021**

A7G1747 Western Placer County GW Recharge



Case Narrative

Project and	Report Details	Invoice Details	
Client:	GEI Consultants	Invoice To: GEI Consultants	
Report To:	Richard Shatz	Invoice Attn: Sandy St. Hilaire	
Project #:	Placer County Water Samp	oles - 1610374 Project PO# : 1610374	
Received:	7/18/2017 - 11:20		
Report Due:	8/01/2017		
Sample Rec	eipt Conditions		
Cooler: Defa Temperature o	ult Cooler n Receipt °C: 5.8	Containers Intact COC/Labels Agree Received On Wet Ice Packing Material - Bubble Wrap Sample(s) were received in temperature range. Initial receipt at BSK-SAC	
Cooler: New Temperature o	Cooler n Receipt ⁰C: 18.9	Containers Intact COC/Labels Agree Received On Wet Ice Packing Material - Bubble Wrap Sample(s) were received in temperature range. Initial receipt at BSK-SAC	

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

DL1.0	ample required a dilution due to the matrix or high concentration of a non-target analyte.	
220		

MS1.0 Matrix spike recoveries exceed control limits.

MS1.4 Matrix spike recovery data unreliable due to significant parent sample concentration relative to fortification level (>4x).

Report Distribution

Recipient(s)	Report Format	CC:
Richard Shatz	FINAL.RPT	
David Fairman	FINAL.RPT	
Sandy St. Hilaire	FINAL.RPT	


Western Placer County GW Recharge

Placer County Water Samples - 1610374

Certificate of Analysis

Sample ID: A7G1747-01 Sampled By: Dennis Ho Sample Description: MW 3-2 Sample Date - Time: 07/12/17 - 10:15 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed Qual
Alkalinity as CaCO3	SM 2320B	200	3.0	mg/L	1	A709032	07/18/17	07/18/17
Bicarbonate as CaCO3	SM 2320B	200	3.0	mg/L	1	A709032	07/18/17	07/18/17
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A709032	07/18/17	07/18/17
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A709032	07/18/17	07/18/17
Chloride	EPA 300.0	44	1.0	mg/L	1	A709375	07/24/17	07/24/17
Conductivity @ 25C	SM 2510B	680	1.0	umhos/cm	1	A709032	07/18/17	07/18/17
Fluoride	EPA 300.0	0.20	0.10	mg/L	1	A709375	07/24/17	07/24/17
pH (1)	SM 4500-H+ B	7.6		pH Units	1	A709032	07/18/17	07/18/17
pH Temperature in °C		23.2						
Sulfate as SO4	EPA 300.0	57	1.0	mg/L	1	A709662	07/29/17	07/29/17
Total Dissolved Solids	SM 2540C	440	5.0	mg/L	1	A709108	07/19/17	07/24/17

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	48	0.10	mg/L	1	A709206	07/20/17	07/31/17	
Hardness as CaCO3, Dissolved	SM 2340B	250	0.41	mg/L					
Hardness as CaCO3, Dissolved	SM 2340B	250	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	32	0.10	mg/L	1	A709206	07/20/17	07/31/17	
Potassium - Dissolved (1)	EPA 200.7	ND	2.0	mg/L	1	A709206	07/20/17	07/31/17	
Sodium - Dissolved (1)	EPA 200.7	44	1.0	mg/L	1	A709206	07/20/17	07/31/17	



Western Placer County GW Recharge

Placer County Water Samples - 1610374

Certificate of Analysis

Sample ID: A7G1747-02 Sampled By: Dennis Ho Sample Description: MW 4 Sample Date - Time: 07/12/17 - 11:10 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

					RL				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	290	3.0	mg/L	1	A709032	07/18/17	07/18/17	
Bicarbonate as CaCO3	SM 2320B	290	3.0	mg/L	1	A709032	07/18/17	07/18/17	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A709032	07/18/17	07/18/17	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A709032	07/18/17	07/18/17	
Chloride	EPA 300.0	610	2.0	mg/L	2	A709375	07/24/17	07/24/17	
Conductivity @ 25C	SM 2510B	2600	1.0	umhos/cm	1	A709032	07/18/17	07/18/17	
Fluoride	EPA 300.0	ND	0.20	mg/L	2	A709375	07/24/17	07/24/17	DL1.0
pH (1)	SM 4500-H+ B	7.2		pH Units	1	A709032	07/18/17	07/18/17	
pH Temperature in °C		23.1							
Sulfate as SO4	EPA 300.0	100	2.0	mg/L	2	A709663	07/29/17	07/29/17	
Total Dissolved Solids	SM 2540C	1500	5.0	mg/L	1	A709108	07/19/17	07/24/17	

Apolyto	Mathod	Becult	DI	Unito	RL	Potob	Droporod	Applyzod	Qual
Analyte	Wethou	Result	KL	Units	Mult	Datch	Prepareu	Analyzeu	Quai
Calcium - Dissolved (1)	EPA 200.7	120	0.10	mg/L	1	A709206	07/20/17	07/31/17	
Hardness as CaCO3, Dissolved	SM 2340B	650	0.41	mg/L					
Hardness as CaCO3, Dissolved	SM 2340B	650	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	86	0.10	mg/L	1	A709206	07/20/17	07/31/17	
Potassium - Dissolved (1)	EPA 200.7	ND	2.0	mg/L	1	A709206	07/20/17	07/31/17	
Sodium - Dissolved (1)	EPA 200.7	240	1.0	mg/L	1	A709206	07/20/17	07/31/17	



Western Placer County GW Recharge

Placer County Water Samples - 1610374

Certificate of Analysis

Sample ID: A7G1747-03 Sampled By: Dennis Ho Sample Description: WPMW-3A Sample Date - Time: 07/12/17 - 12:45 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed Qual
Alkalinity as CaCO3	SM 2320B	92	3.0	mg/L	1	A709032	07/18/17	07/18/17
Bicarbonate as CaCO3	SM 2320B	92	3.0	mg/L	1	A709032	07/18/17	07/18/17
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A709032	07/18/17	07/18/17
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A709032	07/18/17	07/18/17
Chloride	EPA 300.0	760	2.0	mg/L	2	A709375	07/24/17	07/24/17
Conductivity @ 25C	SM 2510B	3000	1.0	umhos/cm	1	A709032	07/18/17	07/18/17
Fluoride	EPA 300.0	0.25	0.20	mg/L	2	A709375	07/24/17	07/24/17
pH (1)	SM 4500-H+ B	7.7		pH Units	1	A709032	07/18/17	07/18/17
pH Temperature in °C		23.0						
Sulfate as SO4	EPA 300.0	180	2.0	mg/L	2	A709663	07/29/17	07/29/17
Total Dissolved Solids	SM 2540C	1800	5.0	mg/L	1	A709108	07/19/17	07/24/17

					RL				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	170	0.10	mg/L	1	A709206	07/20/17	07/31/17	MS1.4
Hardness as CaCO3, Dissolved	SM 2340B	600	0.41	mg/L					
Hardness as CaCO3, Dissolved	SM 2340B	600	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	41	0.10	mg/L	1	A709206	07/20/17	07/31/17	MS1.4
Potassium - Dissolved (1)	EPA 200.7	4.6	2.0	mg/L	1	A709206	07/20/17	07/31/17	
Sodium - Dissolved (1)	EPA 200.7	380	1.0	mg/L	1	A709206	07/20/17	07/31/17	



Western Placer County GW Recharge

Placer County Water Samples - 1610374

Certificate of Analysis

Sample ID: A7G1747-04 Sampled By: Dennis Ho Sample Description: WPCMW-5B Sample Date - Time: 07/13/17 - 10:42 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

					RI				
Analyte	Method	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	110	3.0	mg/L	1	A709032	07/18/17	07/18/17	
Bicarbonate as CaCO3	SM 2320B	110	3.0	mg/L	1	A709032	07/18/17	07/18/17	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A709032	07/18/17	07/18/17	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A709032	07/18/17	07/18/17	
Chloride	EPA 300.0	390	1.0	mg/L	1	A709375	07/24/17	07/24/17	
Conductivity @ 25C	SM 2510B	1500	1.0	umhos/cm	1	A709032	07/18/17	07/18/17	
Fluoride	EPA 300.0	0.25	0.10	mg/L	1	A709375	07/24/17	07/24/17	
pH (1)	SM 4500-H+ B	7.9		pH Units	1	A709032	07/18/17	07/18/17	
pH Temperature in °C		22.9							
Sulfate as SO4	EPA 300.0	ND	1.0	mg/L	1	A709663	07/29/17	07/29/17	
Total Dissolved Solids	SM 2540C	840	5.0	mg/L	1	A709108	07/19/17	07/24/17	

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	53	0.10	mg/L	1	A709206	07/20/17	07/31/17	
Hardness as CaCO3, Dissolved	SM 2340B	160	0.41	mg/L					
Hardness as CaCO3, Dissolved	SM 2340B	160	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	7.3	0.10	mg/L	1	A709206	07/20/17	07/31/17	
Potassium - Dissolved (1)	EPA 200.7	2.9	2.0	mg/L	1	A709206	07/20/17	07/31/17	
Sodium - Dissolved (1)	EPA 200.7	220	1.0	mg/L	1	A709206	07/20/17	07/31/17	



Western Placer County GW Recharge

Placer County Water Samples - 1610374

Certificate of Analysis

Sample ID: A7G1747-05 Sampled By: Dennis Ho Sample Description: W77-B Sample Date - Time: 07/13/17 - 13:45 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed Qual
Alkalinity as CaCO3	SM 2320B	120	3.0	mg/L	1	A709032	07/18/17	07/18/17
Bicarbonate as CaCO3	SM 2320B	120	3.0	mg/L	1	A709032	07/18/17	07/18/17
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A709032	07/18/17	07/18/17
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A709032	07/18/17	07/18/17
Chloride	EPA 300.0	390	1.0	mg/L	1	A709375	07/24/17	07/24/17
Conductivity @ 25C	SM 2510B	1400	1.0	umhos/cm	1	A709032	07/18/17	07/18/17
Fluoride	EPA 300.0	0.15	0.10	mg/L	1	A709375	07/24/17	07/24/17
рН (1)	SM 4500-H+ B	7.6		pH Units	1	A709032	07/18/17	07/18/17
pH Temperature in °C		22.8						
Sulfate as SO4	EPA 300.0	ND	1.0	mg/L	1	A709662	07/29/17	07/29/17
Total Dissolved Solids	SM 2540C	950	5.0	mg/L	1	A709108	07/19/17	07/24/17

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	72	0.10	mg/L	1	A709206	07/20/17	07/31/17	
Hardness as CaCO3, Dissolved	SM 2340B	310	0.41	mg/L					
Hardness as CaCO3, Dissolved	SM 2340B	310	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	32	0.10	mg/L	1	A709206	07/20/17	07/31/17	
Potassium - Dissolved (1)	EPA 200.7	4.6	2.0	mg/L	1	A709206	07/20/17	07/31/17	
Sodium - Dissolved (1)	EPA 200.7	150	1.0	mg/L	1	A709206	07/20/17	07/31/17	



Western Placer County GW Recharge

Placer County Water Samples - 1610374

Certificate of Analysis

Sample ID: A7G1747-06 Sampled By: Dennis Ho Sample Description: SVMW 2C Sample Date - Time: 07/13/17 - 17:10 Matrix: Ground Water Sample Type: Grab

BSK Associates Laboratory Fresno General Chemistry

Analysis	Mothed	Desult		11	RL	Detab	Deserved	Ameliand	Qual
Analyte	Metrioa	Result	RL	Units	Mult	Batch	Prepared	Analyzed	Quai
Alkalinity as CaCO3	SM 2320B	92	3.0	mg/L	1	A709032	07/18/17	07/18/17	
Bicarbonate as CaCO3	SM 2320B	92	3.0	mg/L	1	A709032	07/18/17	07/18/17	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	A709032	07/18/17	07/18/17	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	A709032	07/18/17	07/18/17	
Chloride	EPA 300.0	550	2.0	mg/L	2	A709375	07/24/17	07/24/17	
Conductivity @ 25C	SM 2510B	2000	1.0	umhos/cm	1	A709032	07/18/17	07/18/17	
Fluoride	EPA 300.0	ND	0.20	mg/L	2	A709375	07/24/17	07/24/17	DL1.0
pH (1)	SM 4500-H+ B	7.8		pH Units	1	A709032	07/18/17	07/18/17	
pH Temperature in °C		22.8							
Sulfate as SO4	EPA 300.0	ND	2.0	mg/L	2	A709663	07/29/17	07/29/17	DL1.0
Total Dissolved Solids	SM 2540C	1400	5.0	mg/L	1	A709108	07/19/17	07/24/17	

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	110	0.10	mg/L	1	A709206	07/20/17	07/31/17	
Hardness as CaCO3, Dissolved	SM 2340B	350	0.41	mg/L					
Hardness as CaCO3, Dissolved	SM 2340B	350	0.41	mg/L					
Magnesium - Dissolved (1)	EPA 200.7	20	0.10	mg/L	1	A709206	07/20/17	07/31/17	
Potassium - Dissolved (1)	EPA 200.7	4.4	2.0	mg/L	1	A709206	07/20/17	07/31/17	
Sodium - Dissolved (1)	EPA 200.7	250	1.0	mg/L	1	A709206	07/20/17	07/31/17	



Western Placer County GW Recharge

BSK Associates Laboratory Fresno General Chemistry Quality Control Report

Analyte	Posult	DI	Unite	Spike	Source Result	9/ REC	%REC	PPP	RPD	Date
- Andry to	Result	EDA 20			ntrol			שיאר	-Eanit	-Analyzeu Qual
Batch: A709375		EFA 31	JJ.U - QI	uanty 60						Prepared: 7/24/2017
Prep Method: Method Specific Prepara	tion									Analyst: BCE
										,
ыапк (A709375-BLK1)			m-//							07/04/47
Fluoride		1.0 0.10	mg/L mg/l							07/24/17 07/24/17
		0.10	g/L							···= ·· · ·
Blank Spike (A709375-BS1)										
Chloride	100	1.0	mg/L	100		101	90-110			07/24/17
Fluoride	1.0	0.10	mg/L	1.0		103	90-110			07/24/17
Matrix Spike (A709375-MS1), Source: A	7G1738-02									
Chloride	70	1.0	mg/L	50	16	106	80-120			07/24/17
Fluoride	0.64	0.10	mg/L	0.50	ND	108	80-120			07/24/17
Matrix Spike (A709375-MS2) Source: A	7G1536-01									
Chloride	51	10	ma/L	50	ND	102	80-120			07/24/17
Fluoride	0.54	0.10	mg/L	0.50	ND	107	80-120			07/24/17
			-							
Matrix Spike Dup (A709375-MSD1), Sou	Irce: A7G1738-02	÷ · ·					00.1-		0.5	07/04/47
Chioride	67	1.0	mg/L	50	16 סוא	101	80-120	4	20 10	U7/24/17 07/24/17
i idonac	0.01	0.10	nıg/L	0.50	NU	102	ou-120	э	10	01124/11
Matrix Spike Dup (A709375-MSD2), Sou	Irce: A7G1536-01									
Chloride	51	1.0	mg/L	50	ND	103	80-120	1	20	07/24/17
Fluoride	0.53	0.10	mg/L	0.50	ND	106	80-120	1	10	07/24/17
		EPA 30	0.0 - Qu	uality Co	ntrol					
Batch: A709662										Prepared: 7/29/2017
Prep Method: Method Specific Prepara	tion									Analyst: BCB
Blank (A709662-BLK1)									_	
Sulfate as SO4	ND	1.0	mg/L							07/29/17
			5 -							
Blank Spike (A709662-BS1)										
Sulfate as SO4	100	1.0	mg/L	100		102	90-110			07/29/17
Matrix Spike (A709662-MS1). Source: A	7G1738-02									
Sulfate as SO4	58	1.0	mg/L	50	7.0	101	80-120			07/29/17
			-							
Matrix Spike Dup (A709662-MSD1), Sou	Irce: A7G1738-02	÷ · ·					00.1-	-	0.5	07/00/47
Suitate as SO4	59	1.0	mg/L	50	7.0	103	80-120	2	20	07/29/17
		EPA 30	0.0 - Qı	uality Co	ntrol					
Batch: A709663										Prepared: 7/29/2017
Prep Method: Method Specific Prepara	tion									Analyst: BCB
Blank (A709663-BLK1)										
Sulfate as SO4	ND	10	ma/L							07/29/17
		1.0	9 , –							
A7G1747 EINAL 00000047 4400										
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Western Placer County GW Recharge

BSK Associates Laboratory Fresno General Chemistry Quality Control Report

				Spike	Source		%REC		RPD	Date
Analyte	Result	RL	Units	Level	Result	%REC	Limits	RPD	Limit	Analyzed Qual
		EPA 30)0.0 - Qu	ality Co	ntrol					
Batch: A709663				-						Prepared: 7/29/2017
Prep Method: Method Specific Prep	aration		_			_		_	_	Analyst: BCE
Blank Spike (A709663-BS1)										
Sulfate as SO4	100	10	ma/L_	100		101	90-110			07/29/17
			· J· =							
Matrix Spike (A709663-MS1), Source	9: A7G1738-03									
Sulfate as SO4	50	1.0	mg/L	50	ND	99	80-120			07/29/17
Matrix Spike Dup (A709663-MSD1)	Source: A7G1738-03									
Sulfate as SO4	51	1.0	mg/L	50	ND	101	80-120	2	20	07/29/17
		SM 23	20B - Ov	ality Co-	ntrol					
Batch: A709032		5141 23	u(i							Prepared: 7/18/2013
Prep Method: Method Specific Prep	aration									Analvst: CEC
Blank (A709032-BLK1)										
Alkalinity as CaCO3	ND	3.0	mg/L							07/18/17
Bicarbonate as CaCO3	ND	3.0	mg/L							07/18/17
Carbonate as CaCO3	ND	3.0	mg/L							07/18/17
Hydroxide as CaCO3	ND	3.0	mg/L							07/18/17
Blank Spike (A709032-BS1)										
Alkalinity as CaCO3	100	3.0	mg/L	100		101	80-120			07/18/17
Blank Spike Dup (A709032-BSD1)										
Alkalinity as CaCO3	100	3.0	mg/L	100		100	80-120	1	20	07/18/17
			-							
Duplicate (A709032-DUP1), Source:	A7G1568-03									07/10/10
Alkalinity as CaCO3	95	3.0	mg/L		97			2	10	07/18/17
Bicarbonate as CaCO3	95	3.0	mg/L		97 			2	10	07/18/17
Carbonate as CaCO3	ND	3.0	mg/L		ND				10	07/18/17
Hydroxide as CaCO3	ND	3.0	mg/L		ND				10	07/18/17
		SM 25	10B - Qı	iality Coi	ntrol					
Batch: A709032										Prepared: 7/18/201
Prep Method: Method Specific Prep	aration									Analyst: CEC
Blank Spike (A709032-BS1)										
Conductivity @ 25C	1400	1.0	umhos/c	1400		103	90-110			07/18/17
			m			-				
Blank Spike Dup (A709032-BSD1)										
Conductivity @ 25C	1500	1.0	umhos/c	1400		104	90-110	1		07/18/17
		-	m				-			
Duplicate (A709032-DUP1). Source:	A7G1568-03									
Conductivity @ 25C	240	1.0	umhos/c		250			7	20	07/18/17
	·		m					-	-	



Western Placer County GW Recharge

BSK Associates Laboratory Fresno General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Re <u>sult</u>	%REC	%REC Limits	RPD	RPD Limit	Date Anal <u>yzed</u>	Qual
		SM 254	40C - Qi	uality Co	ntrol						
Batch: A709108										Prepare	d: 7/19/2017
Prep Method: Method Specific Prepa	aration									A	nalyst: DEH
Blank (A709108-BLK1)											
Total Dissolved Solids	ND	5.0	mg/L							07/24/17	
Blank Spike (A709108-BS1)											
Total Dissolved Solids	990	5.0	mg/L	1000		99	70-130			07/24/17	
Duplicate (A709108-DUP1), Source: A	A7G1732-03										
Total Dissolved Solids	180	5.0	mg/L		180			1	20	07/24/17	
Duplicate (A709108-DUP2), Source: /	A7G1478-01										
Total Dissolved Solids	620	5.0	mg/L		620			0	20	07/24/17	
		SM 4500	-H+ B -	Quality C	ontrol						
Batch: A709032										Prepare	d: 7/18/2017
Prep Method: Method Specific Prepa	aration									A	nalyst: CEG
Duplicate (A709032-DUP1), Source: /	A7G1568-03										
рН (1)	7.9		pH Units		7.9			0	20	07/18/17	



Western Placer County GW Recharge

BSK Associates Laboratory Fresno Metals Quality Control Report

	IVIX		aunty	oontioi	пероп						
Ameluia	Decult	Ы	Unite	Spike	Source		%REC		RPD	Date	Qual
Analyte	Result	KL	Units	Lever	Result	76REC	Linius	RPD	Linin	Analyzeu	Quai
		EPA 2	00.7 - Q	uality Co	ntrol					_	
Batch: A709206										Prepare	ed: 7/20/2017
Prep Method: Filtration - Metals										A	nalyst: MDS
Blank (A709206-BLK2)											
Calcium - Dissolved (1)	ND	0.10	mg/L							07/31/17	
Magnesium - Dissolved (1)	ND	0.10	mg/L							07/31/17	
Potassium - Dissolved (1)	ND	2.0	mg/L							07/31/17	
Sodium - Dissolved (1)	ND	1.0	mg/L							07/31/17	
Blank Spike (A709206-BS2)											
Calcium - Dissolved (1)	3.9	0.10	mg/L	4.0		98	85-115			07/31/17	
Magnesium - Dissolved (1)	3.9	0.10	mg/L	4.0		98	85-115			07/31/17	
Potassium - Dissolved (1)	4.0	2.0	mg/L	4.0		100	85-115			07/31/17	
Blank Spike (A709206-BS3)											
Sodium - Dissolved (1)	3.9	1.0	mg/L	4.0		98	85-115			08/01/17	
Blank Spike Dup (A709206-BSD2)											
Calcium - Dissolved (1)	3.9	0.10	mg/L	4.0		98	85-115	1	20	07/31/17	
Magnesium - Dissolved (1)	3.8	0.10	mg/L	4.0		95	85-115	3	20	07/31/17	
Potassium - Dissolved (1)	4.1	2.0	mg/L	4.0		102	85-115	2	20	07/31/17	
Blank Spike Dup (A709206-BSD3)											
Sodium - Dissolved (1)	3.9	1.0	mg/L	4.0		97	85-115	1	20	08/01/17	
Matrix Spike (A709206-MS3), Sour	ce: A7G1733-01										
Calcium - Dissolved (1)	30	0.10	mg/L	4.0	25	122	70-130			07/31/17	
Magnesium - Dissolved (1)	18	0.10	mg/L	4.0	13	109	70-130			07/31/17	
Potassium - Dissolved (1)	9.3	2.0	mg/L	4.0	5.2	102	70-130			07/31/17	
Sodium - Dissolved (1)	13	1.0	mg/L	4.0	8.9	102	70-130			07/31/17	
Matrix Spike (A709206-MS4), Sour	ce: A7G1747-03										
Calcium - Dissolved (1)	160	0.10	mg/L	4.0	170	NR	70-130			07/31/17	MS1.0 <i>Low</i>
Magnesium - Dissolved (1)	42	0.10	mg/L	4.0	41	14	70-130			07/31/17	MS1.0 <i>Low</i>
Potassium - Dissolved (1)	8.2	2.0	mg/L	4.0	4.6	91	70-130			07/31/17	
Sodium - Dissolved (1)	360	1.0	mg/L	4.0	380	NR	70-130			07/31/17	MS1.0 <i>Low</i>
Matrix Spike Dup (A709206-MSD3)	, Source: A7G1733-01										
Calcium - Dissolved (1)	29	0.10	mg/L	4.0	25	109	70-130	2	20	07/31/17	
Magnesium - Dissolved (1)	17	0.10	mg/L	4.0	13	99	70-130	2	20	07/31/17	
Potassium - Dissolved (1)	9.3	2.0	mg/L	4.0	5.2	101	70-130	1	20	07/31/17	
Sodium - Dissolved (1)	13	1.0	mg/L	4.0	8.9	99	70-130	1	20	07/31/17	
Matrix Spike Dup (A709206-MSD4)	, Source: A7G1747-03										
Calcium - Dissolved (1)	170	0.10	mg/L	4.0	170	NR	70-130	5	20	07/31/17	MS1.0 <i>Low</i>
Magnesium - Dissolved (1)	44	0.10	mg/L	4.0	41	58	70-130	4	20	07/31/17	MS1.0 <i>Low</i>
Potassium - Dissolved (1)	8.3	2.0	mg/L	4.0	4.6	93	70-130	1	20	07/31/17	
Sodium - Dissolved (1)	370	1.0	mg/L	4.0	380	NR	70-130	5	20	07/31/17	MS1.0 <i>Low</i>

Certificate of Analysis

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 according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 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.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating
 Procedures.
- 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.
- 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.
- 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.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- · The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	Picocuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit		

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno			
State of California - ELAP	1180	State of Hawaii	4021
State of Nevada	CA000792016-1	State of Oregon - NELAP	4021
EPA - UCMR4	CA00079	State of Washington	C997-16
State of New York	12073		
Sacramento			
State of California - ELAP	2435		
San Bernardino			
State of California - ELAP	2993	State of Oregon - NELAP	4119-001
Vancouver			
State of Oregon - NELAP	WA100008-008	State of Washington	C824-16





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GEI Consultants



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Turnaround: Standard Due Date: 8/1/2017





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Payment for services rendered as noted herein are due in full within 30 days from the dats invoiced. If the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, t can be found at www.bskassociates.com/BSKLabi forms.Conflictions.odf	Cooling Method: Web Blue None	the way and	Recovery of Lab by Admante and Finited Varies	Dennis Ho	Delina utilada kar (Crimentus en al Dinista Alema)				3 SUMW 2C	3 W77-B	3 WPCHW -5B	3 WMMW-3A	2 MW 4	2 MW 3-2	# Sample Description*	Matrix Types. SW=Surface Water BW=Bottled Water GW=	Dennis Ha	Sampler Name (Printed/Signature)*:	Reporting Options:	WPC WQ Sampling Fall 2016, Placer County-	2868 Prospect Park Drive, Suite 400			*Required Fields	Associates Engineers@Taboratories	(DD) (DD) 49/-2000 Fax (
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uent. Delinquent balances are subject to monthly service charges and interest sp ant for the services on this Chain of Custody, and agrees to BSK's terms and cor	Courier:		The second price and printed hap	7/13/H 18:15 K: Kinature and Printed Nam		/	/		GW	GNW	GIN Red bother is unfiltered.	GW	SW	GNW	Matrix* Comments / Station Code / WTRAX	V=Storm Water DW=Drinking Waler SO=Solid	Inlare Co Geotracker #: Not for Geotracker	Fresno Co System Number*: N/A	ppies Regulatory Compliance EDT to California SWRCB (Drinking Wate	How would you like to receive your completed results?" X E-Mail Fax Mail	State: 2/p": CA 95670	1610374	Richard Shatz	<u>15:</u> S-8 / / 8-9	Rush (Surcharge may apply) Date needed:	X Standard - 10 business days	Turnaround Time Request
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BSK Associates SR-FL-0002-18

Sample Integrity

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BS	K Bo	ottles:/Yes	s No	Page	of	/			# 22 2 4 67 19 6 1 92 63 4 9 9 9 63 9 9	IM U I I MI I I I I MI I I I MI I I MU I MU I MU I M	1 1)0	.101000000	
	Was te Chemi	emperature within istry ≤ 6°C Mic	range? ro < 8°C		(Pes No	NA	Wei rece	e correct contain lived for the test	ners and pr s requested	eservatives j?	Yes	No N	٩٨
C Info	If sam that ch	ples were taken to hilling has begun?	day, is there evide	nce	Yes No e	A	Wei (Vol	e there bubbles atiles Only)	in the VOA	vials?	Yes	No N	6
ŏ	Did all	bottles arrive unb	roken and intact?		Yes I	No	Was	s a sufficient am	ount of sam	ple received		N Las	0
O	Wass	odium thiosulfate	e with COC? added to CN samp	le(s)		<u>vo</u>	Was	semples have a	noio time < discrepanci	rz nours? es?	16		7
	until cl	nlorine was no long	ger present?	10(0)	Yes No (NA	PM:		By/Time:		Yes	No N	
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	None	(P) ^{White Cap}				-		16,18	14,18	1413	Louis and the second		$\boldsymbol{\Sigma}$
	Cr6 (F) Lt. Green Label/Blue (^{Cap} NH4OH(NH4)2SO4	DW	Cl, pH > 8	Y	N					1	/
	Cr6 (F	Pink Label/Blue Cap	NH4OH(NH4)2SO4	ww	pH 9.3-9.7	Y	Ν						
he lab	Cr6 (F) Black Latel/Blue Cap ***24 HOUR H	NH40H(NH4)2SO4	7199	pH 9.0-9.5	Y	Ň		98.2 × 65		1	18:5	7
in t	HNO ₃	(P) Red Cap or HCI	(P) Purple Cap/Lt. Blue	Label		-			13	in		Par	
ned	H ₂ SO.	4 (P) or (AG) Yellow Cap/Label		pH < 2	†γ	N	1000				X	
rfori	NaOH	l (P) Green Cap		<u>1872(-) - 98-</u> 9	Cl. pH >10	Υ	N					\square	<u>00707-2-3</u>
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A o	None	(AG) 608/8081/0082	SOE 632/0324 0454 1	070		830							
, Ż			, 023, 032/6321, 8151, 1	5210								<u> </u>	il altra Posto
sithe											/	/	
le e	ASCO	DIC, EDTA, $\mathbf{KH}_2\mathbf{C}$	SI (AG) The Laber 52	25 		-				1.00.00 Page 100			Sec. 19. 50
ks a	Na ₂ St	J3 250mL (AG)	euriciden Laber 515	<u> 199</u> 2093	4.						<u>8. </u> 8.		
hec	Na ₂ S ₂	O ₃ 1 Liter (Brown	n P) 549	Seculation (94		10000					\rightarrow	19. 19. 40 (St. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	
e e	Na ₂ S ₂	O ₃ (AG) ^{Bille Label}	548, THM, 524			1.3	<u>na</u> Na tyra i		51. J. (1997)			¥	
lor.	Na ₂ S ₂	O ₃ (CG) ^{Blue Label}	504, 505, 547			-							
n/c	Na ₂ S ₂	O ₃ + MCAA (CG) ^{Orange Label} 531	- Taking	pH < 3	Y	N					Λ	
atio	NH₄C	(AG) ^{Purple Label}	552			-							
ser	EDA (AG) ^{Brown Label} DI	BPs			1			1000		1		k (park) 7 Silla Taris
bre	HCL (CG) 524.2,BTEX,G	as, MTBE, 8260/624			-	_						
ans	Buffer	pH 4 (CG)			98°	1 .	<u> </u>		8.00				
ae B	H ₃ PO	4 (CG)Salmon Label			- 1	1 -						V	
ا آ	Other		-				22462-61,855					Λ	
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