Groundwater Quality Sampling
West Placer County, California

Prepared for:

Placer County

December 21, 2017

Prepared by

GEI Consultants

Consulting Engineers and Scientists

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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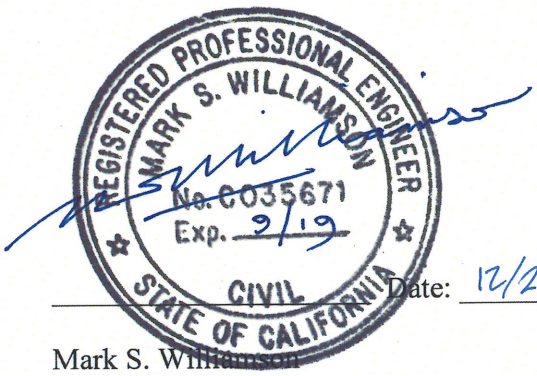

Date: 12/21/2017

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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.

Table 1. Monitoring Well Details

Well ID	Owner/ Purveyor	Depth	Screen Interval	Aquifer
		(ft)	(ft bgs)	
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

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.

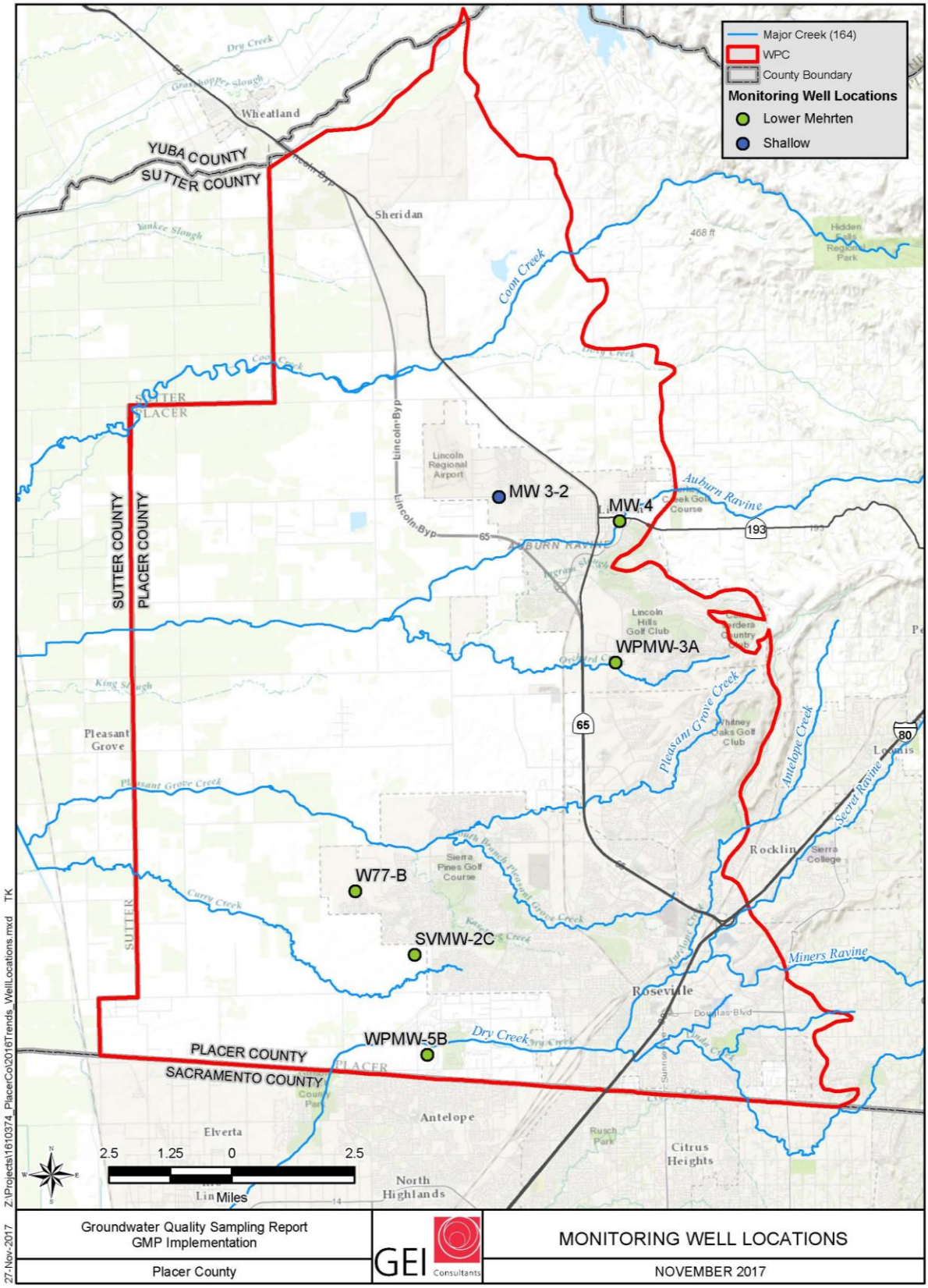

Figure 1: Monitoring Well Locations

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.

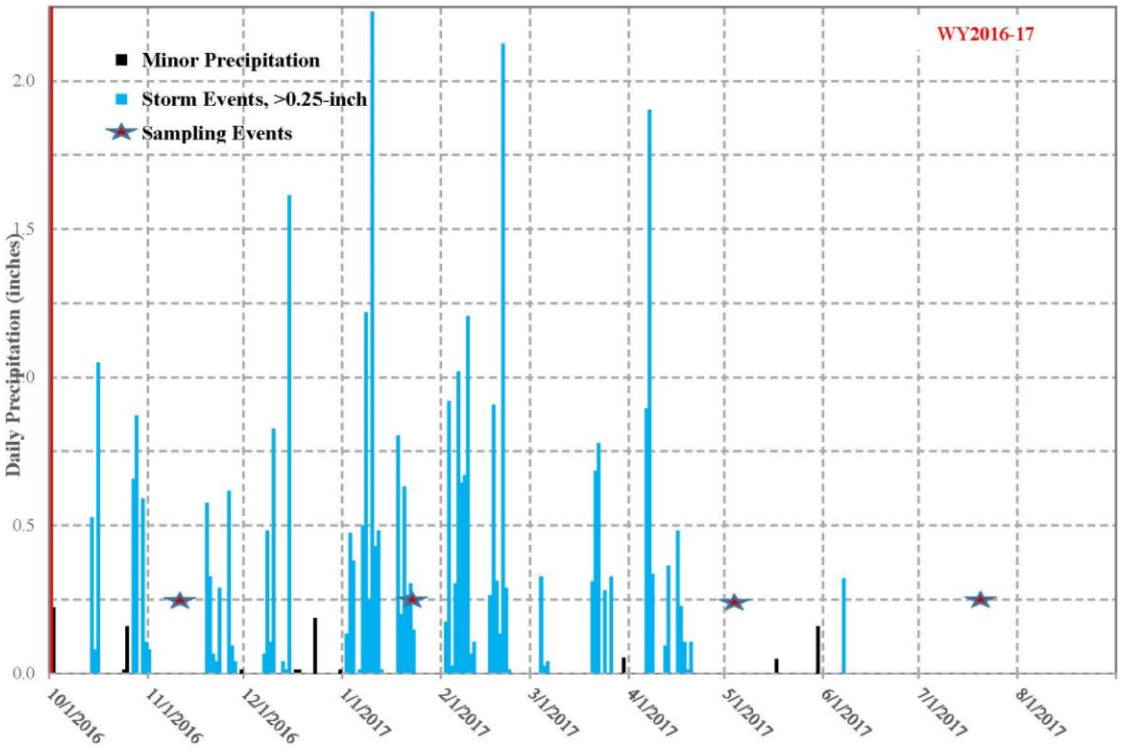

Figure 2: Precipitation and Sampling Events

Table 2: **Southwestern Area Sample Results**

Southwestern Area Wells			
Well Name	Date Sampled	TDS* (mg/L)	Groundwater Levels (Ft BTOC)
WPMW-5B (Lower Mehrten)	7/13/2017	**840**	115.27
	4/27/2017	**830**	111.08
	1/16/2017	**820**	113.75
	11/2/2016	**860**	116.38
	11/12/2015	**880**	
	2/23/2015	**890**	
W77-B (Lower Mehrten)	7/13/2017	**950**	110.90
	4/27/2017	**960**	109.48
	1/16/2017	**880**	111.76
	10/31/2016	**990**	114.13
	9/23/2015	**970**	
SVMW-2C (Lower Mehrten)	7/13/2017	**1400**	133.99
	4/26/2017	**1300**	131.94
	1/16/2017	NS	NS
	11/4/2016	**1400**	135.97
	9/15/2015	**1400**	
	6/7/2011	**1200**	

Notes:
* Secondary MCL of 500 mg/L
Above MCL
NS Not Sampled
mg/L milligram per liter
Ft BTOC Feet Below Top of Casing

Table 3: **Lincoln Area Sampling Results**

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

Notes:
* Secondary MCL of 500 mg/L
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:

- 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:

- 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.

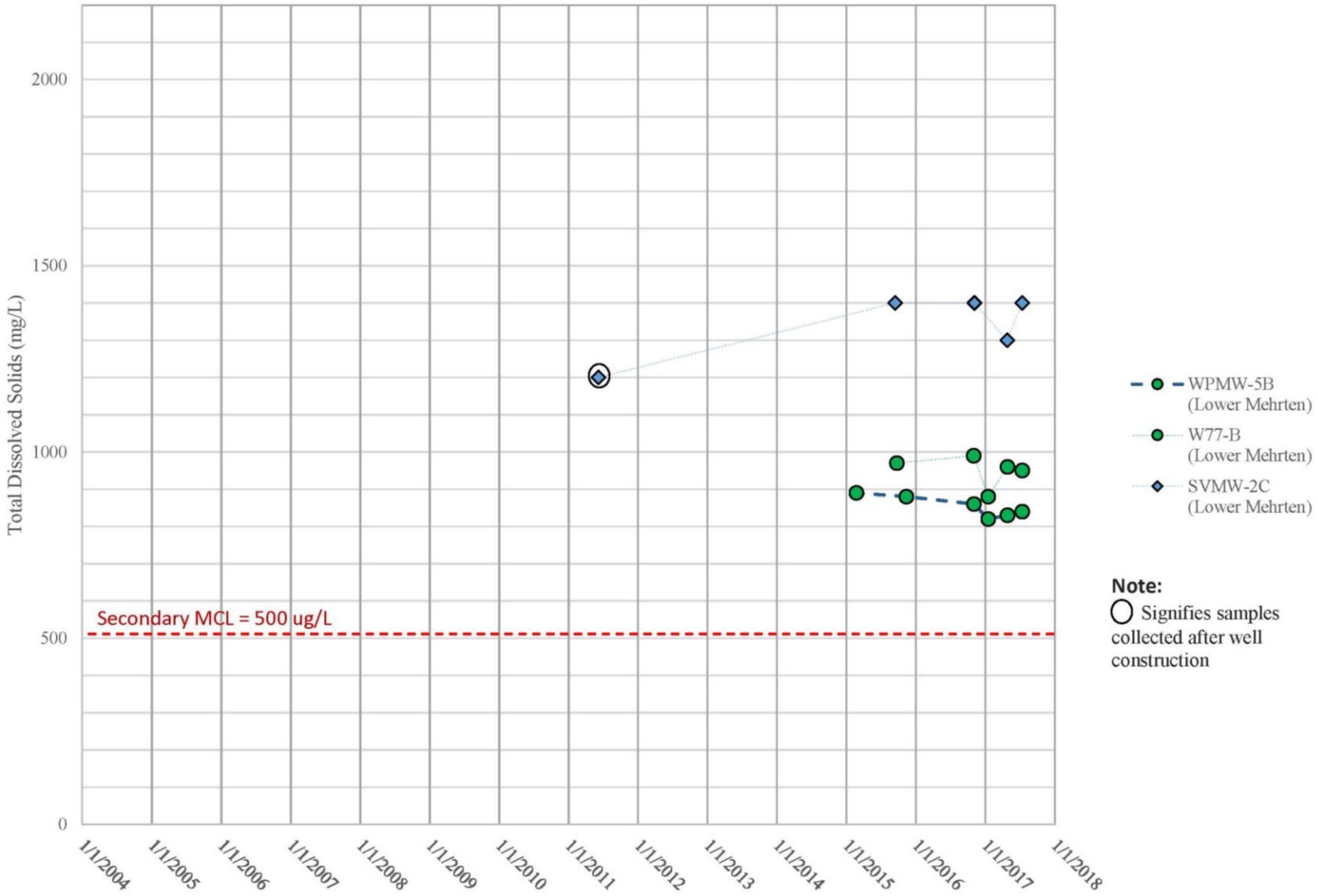

Figure 3: TDS Trends in the Southwest Area

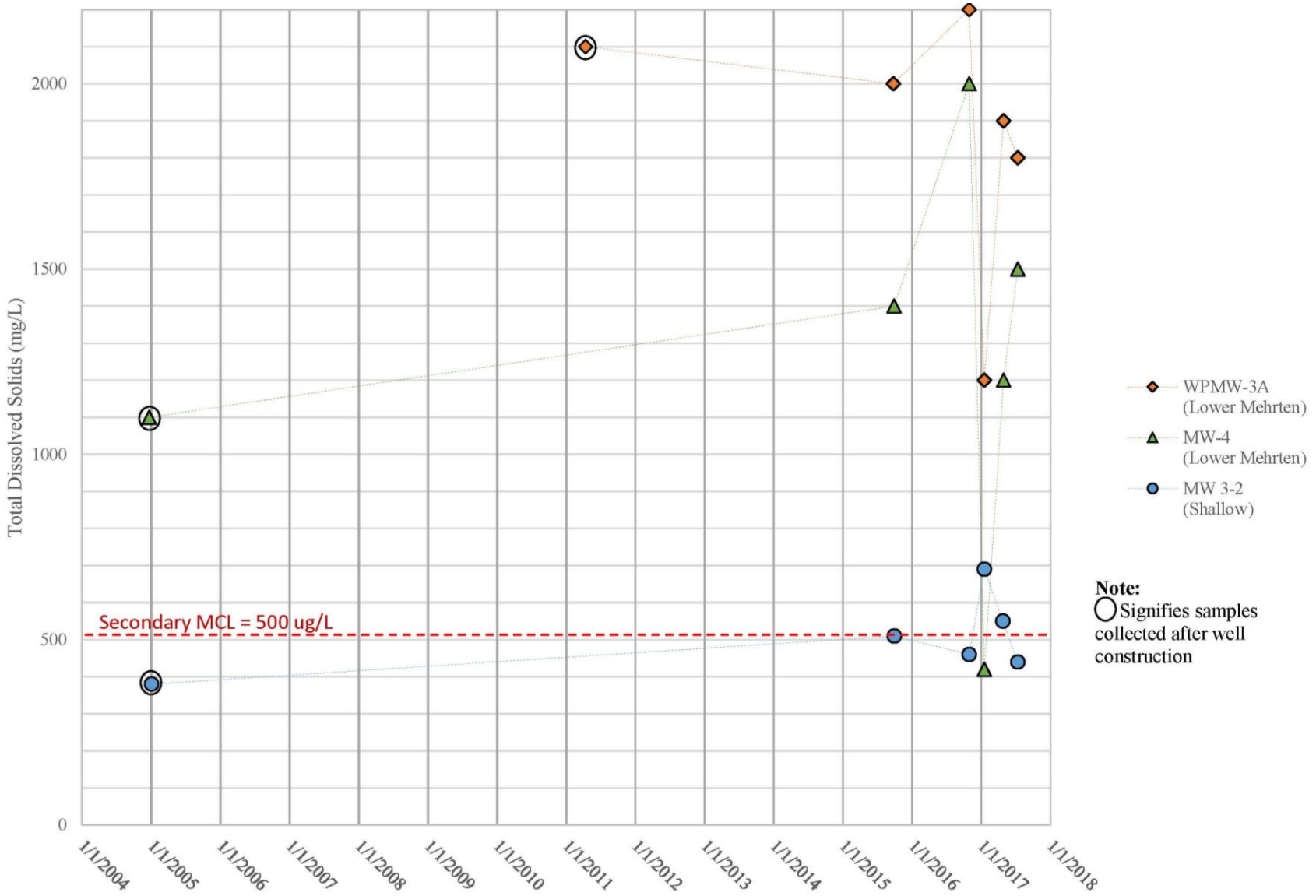

Figure 4: TDS Trends in the Lincoln Area

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.

Attachment A: Purge Logs

GEI Consultants

GROUNDWATER SAMPLING RECORD

Page No. 1 of ____

Proj. Name Placer Co. Water Samples Proj. No. 1610374

Date 7/13/17 Task No. 2.2

Weather 85° F, Sunny

Well ID W77-B SWL (ft btoc) 110.90 T.D. (ft btoc) 604

Water Column (ft) 493.1 x 0.16 gpf = 78.896 x 3 = 236.688

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

6 min x 2.5 GPM = 15 gall 10 min x 2.5 gpm = 25 gall

Time	Purge Vol. Gallons	Flow Rate GPM	DTW ft btoc	Temp. °C	pH	Cond. uhmos/cm	Comments Turb	DO
12:04	1st 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	1436	0.41	0.43
12:30	65	2.5		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
12:51	Power failure (Stop pump)							
1252	Start pump	2.5						
1302	142.5	2.5		23.9	7.20	1451	0.15	0.49
1312	167.5	2.5		23.9	7.15	1455	0.24	0.93
13:22	192.5	2.5		23.8	7.16	1451	0.16	0.27
13:32	217.5	2.5		23.8	7.19	1453	0.13	0.28
1342	242.5	2.5		23.8	7.23	1434	0.17	0.52

1345 Collect Samples

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
1345	1 L	Plastic	1	N	N/A	clear	
1345	500 mL	"	1	N	N/A	clear	
1345	500 mL	"	1	Y	HNO_3	clear	

Methods

Decon Equipment: Liquinox

Pumping Equipment: Grundfos Redi-flo 2

Disposal of Discharged Water: Ground

Comments:

By D. Ho / Sydney Nye

GEI Consultants

PURGE LOG

Page No. ____ of ____

Placer County Grant Funded

Proj. Name Water Samples

Proj. No. 161037-4

Date 4/27/17

Task No. 2.2

Weather 60, sunny

Well ID W77-B

DTW (ft btoc) 109.48

T.D. (ft btoc) 604

I.D. (in) 2

237 gal min purge vol

Time	Purge Vol. Gallons	Flow Rate GPM	Temp. °C	pH	Cond. uhmos/cm	Comments Turb	Comments DO
1142	1st Water						
1145	9	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
1204	72	3.3	22.7	7.29	1412	0.22	0.52
1214	105	3.3	23.0	7.30	1462	0.75	0.60
1224	138	3.3	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	23.1	7.36	1430	0.31	0.60
1259	253.5	3.2	23.0	7.34	1431	0.33	0.59
1300	Collect Samples						

Comments: _____

By D.Ho

GEI Consultants

PURGE LOG

Page No. ____ of ____

Proj. Name Placer County Proj. No. 1610374

Date 1/16/17 Task No. 2.2

Weather 50°, sunny

Well ID W77-B DTW (ft btoc) 111.76' T.D. (ft btoc) 604

I.D. (in) 2 604 - 111.76 = 492.24 x 0.16 = 78.8 x 3 = 236.3 gal min purge vol

Time	Purge Vol. Gallons	Flow Rate GPM	Temp. °C	pH	Cond. uhmos/cm	~~Comments~~ Turb	DO mg/L
1416	Ht water	3					
1418	6	3	19.8	7.36	1470	0.57	0.64
1422	18	3	20.7	7.28	1458	1.01	0.34
1425	27	3	21.2	7.29	1448	2.08	0.36
1428	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
1444	84	3	22.0	7.33	1494	2.10	0.21
1450	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 samples						
1600	Decon Equip						

Comments: _____

By D. Ho

8

10/31/16 W-77B

Arrive at 9:15 DTW = 114.13'

TD = 604'

604 - 114.13 = 489.87 x 0.16 = 78.37 x 3

60° F, overcast Min Purge = 235.14 gal

Pump @ 130' deep

-9:43 begin Purge

Flow Rate = $\frac{1 \text{ gal}}{26 \text{ s}} = \frac{60 \text{ sec}}{1 \text{ min}} = 2.3 \frac{\text{gal}}{\text{min}}$

Time	Vol	Flow gal/min	Temp	pH	Cond	Turb NTU	DO mg/L	Note
946	6.9	2.3	20.8	7.05	1299	.3	2.16	faint sulfur
949	13.8	2.3	21.2	7.14	1307	.27	.80	
952	19.8	2.0	21.4	7.15	1304	.45	.67	
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	.92	
1014	81	2.7	22.1	7.23	1319	.27	.74	Bubbles present
1017	89.1	2.7	22.5	7.20	1415	.31	.71	
1019	94.5	2.7	22.5	7.21	1435	.27	.83	
1022	102.6	"	22.7	7.21	1425	.57	.34	
1025	110.7	"	22.5	7.21	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	
1033	135	2.7	22.8	7.20	1404	0.44	.30	

→

Rita in

10

Time	Vol	Flow	Temp	pH	Cond	Turb	DO	Notes
10:36	143.1	2.7	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	1399	0.35	0.32	
1054	191.7	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	0.25	0.42	
1103	216.2	2.7	22.8	7.21	1395	0.31	0.44	
1106	224.3	2.7	22.7	7.20	1400	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	0.32	0.32	
1130	collect samples							
1135	Decon Equip							

GEI Consultants

GROUNDWATER SAMPLING RECORD

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Proj. Name Placer County water samples Proj. No. 1610374

Date 4/26/17 Task No. 2.2

Weather 65°F, sunny

Well ID MW-4 SWL (ft btoc) 20.30 T.D. (ft btoc) 25

Water Column (ft) 4.7 x 0.16 gpf = 0.752 x 3 = 2.25 gal

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

Time	Purge Vol. Gallons	Flow Rate GPM	DTW ft btoc	Temp. °C	pH	Cond. uhmos/cm	Comments Turb	Comments Do
1109	0.25	Bailer		18.3	6.83	1895	55.2	2.24
1112	0.50			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	1.25			17.4	6.86	1780	375	2.12
1120	1.50			17.6	6.85	1999	404	2.09
1122	1.75			17.4	6.88	1957	575	1.85
1124	2.00			17.5	6.89	2109	377	1.92
1126	2.25			17.5	6.89	2139	396	2.10
1130	Collect samples							
							Sulfur smell	

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
1130	500 mL	plastic	1	N	N	Turbid	
1130	1 L	plastic	1	N	N	Turbid	

Methods

Decon Equipment: _____

Pumping Equipment: _____

Disposal of Discharged Water : _____

Comments: _____

By D. Ho

GEI Consultants

PURGE LOG

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Proj. Name Placer County
Proj. No. 161 0374
Date 1/17/17
Task No. 2.2
Weather 46°, partly cloudy

Well ID MW-4
DTW (ft btoc) 19.54
T.D. (ft btoc) 25'
I.D. (in) 2
min purge vol = 2.6 gal

Time	Purge Vol. Gallons	Flow Rate GPM	Temp. °C	pH	Cond. uhmos/cm	~~Comments~~ Turb	DO mg/L
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
1134	1.50		17.9	6.70	683	284	1.12
1136	1.75		18.0	6.71	677	342	1.17
1138	2.00		18.1	6.71	680	341	1.22
1140	2.25		18.1	6.72	678	348	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						

Comments: Sulfur smell, roots in well casing

By D. Flo

4

MW 4 @ 15:00

- DTW: 22.26'
Roots on transponder and water sounder

25 - 22.26 = 2.74 x 0.16 = 0.44 x 3 = 1.3

Time	Vol.	DO	Temp	pH	Cond	Turb
15.07	.25 gal	50%	19.1	6.46	2856	39.3
1511	.5 gal	17%	18.9	6.52	2863	235
1515	1	29%	19.0	6.61	2834	177
1518	1.5	21%	19.0	6.60	2766	200
1521	2.25	105%	19.4	6.59	2724	358
1526	3	18%	19.2	6.61	2748	674
1535	collect samples					

Dumped HNO_3 - couldn't filter in field. Request in-lab filter

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GROUNDWATER SAMPLING RECORD

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Proj. Name Placer Co Water Samples Proj. No. 1610374
Date 7/12/17 Task No. 2.2
Weather 83, Sunny

Well ID MW-4 SWL (ft btoc) 22.30 T.D. (ft btoc) 25

Water Column (ft) 2.7 x 0.16 gpf = 0.432 x 3 = 1.3

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

OR = Out of Range

Time	Purge Vol. Gallons	Flow Rate GPM	DTW ft btoc	Temp. °C	pH	Cond. uhmos/cm	Comments Turb	Comments DO mg/L	
1049	0.25	Bailer		19.4	6.39	2546	79.0	1.70	Sulfur smell
1052	0.5			18.6	6.48	2576	824	1.78	
1055	0.75			18.5	6.47	2575	617	1.14	Rocks in case
1057	1.0			18.4	6.51	2494	OR	1.87	
1100	1.25			18.4	6.59	2568	OR	1.90	
[illegible]									
1103	1.5			18.6	6.56	2545	781	1.01	
1110	Collect Samples								

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
1110	1 L	Plastic	1	N	N/A	Dark grey	
1110	500 mL	"	1	N	N/A	"	

Methods
Decon Equipment:
Pumping Equipment: Bailer
Disposal of Discharged Water : Ground
Comments: Sulfur smell; Rats inside well casing

By D. Ho

GEI Consultants

GROUNDWATER SAMPLING RECORD

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Proj. Name Placer County Water Samples Proj. No. 1610374
Date 7/12/17 Task No. 2.2
Weather 75°, Sunny

Well ID MW 3-2 SWL (ft btoc) 57.83 T.D. (ft btoc) 75

Water Column (ft) 17.17 x 0.16 gpf = 2.75 x 3 = 8.2

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

Time	Purge Vol. Gallons	Flow Rate GPM	DTW ft btoc	Temp. °C	pH	Cond. uhmos/cm	Comments Turb	Comments DO mg/L
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
946	4			21.2	6.70	725	228	3.09
951	5			21.2	6.76	705	247	2.47
956	6			21.3	6.76	698	335	2.77
1002	7			21.4	6.74	693	448	4.44
1009	8.25			21.4	6.84	686	403	3.34
1015	Collect Samples							

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
1015	1 L	Plastic	1	N	N/A	Clear	
1015	500 mL	"	1	N	N/A	Clear	

Methods
Decon Equipment:
Pumping Equipment: Bailer
Disposal of Discharged Water : Ground
Comments:

By Dennis Ho

GEI Consultants

GROUNDWATER SAMPLING RECORD

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Proj. Name Placer County Water Samples
Proj. No. 161037 4
Date 4/20/17
Task No. 2.2
Weather 60° F, clear

Well ID MW 3-2
SWL (ft btoc) 54.51
T.D. (ft btoc) 75

Water Column (ft) 20.49 x .16 gpf = 3.3 x 3 = 9.8 gal

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

Time	Purge Vol. Gallons	Flow Rate GPM	DTW ft btoc	Temp. °C	pH	Cond. uhmos/cm	Comments Turb	Comments Do
930	Bailer							
935	1			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			20.6	7.27	958	142	2.28
954	5			20.8	7.27	943	348	2.02
1000	6			20.7	7.27	926	380	2.72
1005	7			21.2	7.11	906	339	3.12
1010	8			20.6	7.20	882	341	2.72
1014	9			20.6	7.24	867	249	3.06
1021	10			20.0	7.39	861	289	2.30
1022	Collect Samples							

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
1022	500 mL	Plastic	1	N	N		
1022	1 L	Plastic	1	N	N		

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

By D. Ho

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PURGE LOG

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Proj. Name Placer County
Proj. No. 1610374
Date 1/17/17
Task No. 2.2
Weather 39°, Partly Cloudy

Well ID MW 3-2
DTW (ft btoc) 57.21
T.D. (ft btoc) 75'

I.D. (in) 2
Min Purge = 8.5 gal

Time	Purge Vol. Gallons	Flow Rate GPM	Temp. °C	pH	Cond. uhmos/cm	~~Comments~~ Turb	DO mg/L
944	0.5	Bailer	15.5	6.97	646	4.78	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
959	2.0		19.6	6.98	888	29.3	2.67
1004	3.0		19.7	6.99	1132	96.1	2.56
1010	4.0		19.4	7.02	1161	157	2.94
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		19.4	7.03	1083	221	3.75
1045	Collect Samples						

Comments: _____

By D.Ho

10/28 Airport Well 4 MW
DTW = 45.59' @ 12:00
Launch Hydrasleeves @ 12:45
depths 220' and 230'
- Left site @ 13:00
- Locked well and gate

MW 3-2 @ 13:05
DTW = 57.95', after pulling transducer (DTW = 57.59')

Min Purge 8.2 gal

Time	Vol	DO	Temp	pH	Cond	Turb (NTU
13:30	0.25 gal	16.2%	20.8	6.69	695	4.0
1336	1 gal	38.5%	21.2	6.76	699	273
1347	2.5	41.4%	21.1	6.87	705	206
1354	4.2	32.5%	21.1	6.84	704	141
1358	5.0	32.3%	21.1	6.82	702	190
1403	6.0	34.0%	21.1	6.82	700	158
1408	7.0	40.2	21.0	6.88	694	145
1413	8.0	35.4	21.0	6.84	690	150
1418	9.0	40.0	21	6.84	686	
1419	Collect samples					

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GROUNDWATER SAMPLING RECORD

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Proj. Name Placer Co. Water Samples Proj. No. 1610374

Date 7/13/17 Task No. 2.2

Weather 74°, sunny

Well ID WPC MW-5B SWL (ft btoc) 115.27 T.D. (ft btoc) 650

Water Column (ft) 534.73 x 0.16 gpf = 85.5568 x 3 = 256.6704

75 sec · 60 sec / 1 min = 2 GPM

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

3.3 x 7 min = 23.1 gall (1 previous purge volume)

Time	Purge Vol. Gallons	Flow Rate GPM	DTW ft btoc	Temp. °C	pH	Cond. uhmos/cm	Comments Turb	Comments DO mg/L	
9:16	1st Water	2		20.5	7.32	1458	0.56	.71	smells like Sulfur
9:18	4 gall	2							
9:22	17.2	3.3		19.3	7.39	1436	0.63	.74	
9:27	33.7	3.3		19.7	7.45	1418	0.31	.52	
9:34	56.8	3.3		19.9	7.49	1412	0.30	.8	
9:41	79.9	3.3		20.4	7.55	1370	0.58	1.21	
9:48	103	3.3		21.1	7.59	1291	0.27	0.90	
9:55	126.1	3.3		21.4	7.64	1255	0.20	0.54	
10:02	149.2	3.3		21.7	7.64	1360	1.58	1.05	
10:09	172.3	3.3		21.7	7.54	1425	1.92	0.98	
10:16	195.4	3.3		21.9	7.56	1437	1.90	1.56	
10:23	218.5	3.3		21.9	7.63	1446	1.94	1.03	
10:30	241.6	3.3		22.0	7.64	1453	2.47	1.14	

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
1042	1L	Plastic	1	N	N/A	clear	
1042	500 mL	"	1	N	N/A	clear	
1042	500 mL	"	1	Y	HNO_3	clear	

Methods

Decon Equipment: Liquinox Rinse

Pumping Equipment: Grundfos Redi-flo 2

Disposal of Discharged Water: Ground

Comments:

By D. Ho / Sydney Nye

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GROUNDWATER SAMPLING RECORD

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Proj. Name Placer Co. Water Samples Proj. No. 1610374

Date 7/13/17 Task No. 2.2

Weather 74°, Sunny

Well ID WPCMW-5B SWL (ft btoc) _____ T.D. (ft btoc) _____

Water Column (ft) _____ x _____ gpf = _____ x 3 = _____

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

33 gall + previous purge vol.

Time	Purge Vol. Gallons	Flow Rate GPM	DTW ft btoc	Temp. °C	pH	Cond. uhmos/cm	Comments Turb	DO (mg/l)
10:40	274.6	3.3		22.1	7.64	1459	2.41	1.46
collect samples 10:42	Collect	samples						

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments

Methods

Decon Equipment: _____

Pumping Equipment: _____

Disposal of Discharged Water : _____

Comments: _____

By D. Ho / Sydney Nye

GEI Consultants

PURGE LOG

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(Current Funded)

Proj. Name Placer County Water Samples Proj. No. 1610374

Date 4/27/17 Task No. 2.2

Weather 55°F, Partly Cloudy

Well ID WPMW-5B DTW (ft btoc) 111.08 T.D. (ft btoc) 650

I.D. (in) 2 Min Purge Vol = 259 gal

Time	Purge Vol. Gallons	Flow Rate GPM	Temp. °C	pH	Cond. uhmos/cm	Comments Turb	Comments DO mg/L
8:49	1st water						
8:52	9.6	3.2	18.0	7.67	1449	3.07	1.71
8:58	28.8	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	21.4	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	21.6	7.75	1443	0.73	0.75
10:12	Collect samples						

Comments: Dayton 708-0858

By DHo

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PURGE LOG

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Proj. Name Placer Co
Proj. No. 1610374
Date 1/16/17
Task No. 2.2
Weather Overcast, 41°F

Well ID WPMW-5B
DTW (ft btoc) 113.75'
T.D. (ft btoc) 650'
I.D. (in) 2

650 - 113.75 = 536.25 x 0.16 = 85.8 x 3 = 257.4 min purge

Time	Purge Vol. Gallons	Flow Rate GPM	Temp. °C	pH	Cond. uhmos/cm	~~Comments~~ Turb	DO mg/L
1st water 9:37	~~0.28~~	~~0.50 gpm~~ 2.6					
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
10 03	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	~~5.65~~ 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	2.72	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 Samples						
1130	Decon Equipment						
1210	Launch Transducer						

Comments: Sulfur smell

By D. Ho

22

11/2/16 WPMW-5B @ 8:51

TD=650 51°F, sunny, clear

DTW= 116.38 Pump @ 135' deep

Min Purge = 407 gal

Begin @ 9:12

Time	Vol	Flow	Temp	DO	Cond	pH	Turb	Notes
~~9:14~~	~~6~~	3.0	17.3	~~6.0~~	1222	7.28	3.34	
917	15	3.0	18.0	2.26	1246	7.25	5.32	slight sulfur
920	24	3.0	18.5	1.05	1243	7.43	1.94	
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	
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	1190	7.65	1.72	
946	102	3.0	20.7	0.52	1183	7.65	0.46	
949	111	3.0	20.9	0.53	1151	7.67	4.51	
952	120	3.0	20.9	0.48	1236	7.69	3.75	
959	141	3.0	21.2	0.62	1401	7.66	23.7	
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	→

Time	Vol	Flow	Temp	DO	cond	pH	turb
1016	192	3.0	21.5	0.53	1412	7.65	8.62
1021	207	3.0	21.7	0.55	1416	7.66	9.81
1028	228	3.0	21.9	0.54	1418	7.66	9.0
1035	249	3.0	21.8	0.63	1422	7.65	6.21
1040	264	3.0	21.8	0.56	1415	7.66	14.5
1045	279	3.0	21.8	0.61	1422	7.66	6.93
1050	294	3.0	21.7	0.56	1424	7.65	5.51
1055	~~309~~ 309	3.0	21.9	0.57	1422	7.65	6.60
1100	324	3.0	21.7	0.45	1425	7.65	7.00
1105	339	3.0	21.9	0.44	1421	7.64	5.13
1110	354	3.0	21.7	0.51	1423	7.64	4.06
1115	369	3.0	21.7	0.42	1428	7.64	5.31
1120	384	3.0	21.8	0.58	1427	7.64	4.95
1125	399 ~~399~~	3.0	21.8	0.48	1427	7.64	8.19
~~1128~~	~~Collect Samples~~						
1130	414	3.00	21.8	0.43	1428	7.64	5.77
1133	Collect Samples						
1140	Decon Equip						

GEI Consultants

GROUNDWATER SAMPLING RECORD

Page No. ____ of ____

Proj. Name Master County Water (8 samples) Proj. No. 1610374
Date 7-13-2017 Task No. 2.2
Weather 96°F, sunny

Well ID SVMW2C SWL (ft btoc) 133.99 T.D. (ft btoc) 670

Water Column (ft) 536.01 x 0.16 gpf = 85.7616 x 3 = 257.2848

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

Time 15:40	Purge Vol. Gallons	Flow Rate GPM	DTW ft btoc	Temp. °C	pH	Cond. uhmos/cm	Comments Turb	DO
1540	1st water	3						
1545	15	3		23.4	7.05	2060	0.35	2.80
1555	45	3		22.9	7.29	2003	0.40	0.90
1605	75	3		23.0	7.36	1953	0.36	0.84
1615	105	3		23.0	7.39	1826	0.29	0.89
1625	135	3		23.3	7.36	2049	0.51	0.77
1635	165	3		23.3	7.38	2058	0.17	1.01
1645	195	3		23.5	7.43	2061	0.15	0.82
1655	225	3		24.1	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	2053	0.44	15.7
1710	Collect Samples							

? system error

Sample Inventory

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance	Comments
1710	1 L	Plastic	1	N	N/A	clear	
1710	500 mL	"	1	N	N/A	clear	
1710	500 mL	"	1	Y	HNO3	clear	

Methods
Decon Equipment: Liquinox
Pumping Equipment: Grundfor Redi Flo2
Disposal of Discharged Water : Ground
Comments:

By D. Ho / Sydney Nye

GEI Consultants

PURGE LOG

Page No. 1 of 1

Proj. Name Placer County Grizzly Flooded Water Samples Proj. No. 1610374

Date 4/26/17 Task No. 2.2

Weather 66°F, Cloudy

Well ID SVMW-2C DTW (ft btoc) 131.94 T.D. (ft btoc) 670

Water Column (ft) _____ I.D. (in) 2 Min Purge Vol = 258 gal

Time	Purge Vol. Gallons	Flow Rate GPM	DTW ft btoc	Temp. °C	pH	Cond. uhmos/cm	Comments Turb	DO
1534	1st Water	2.5						
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	1888	0.31	0.51
1545	27.5	2.5		21.3	7.23	1890	0.22	0.43
1551	Flow stopped							
1553	Flow begin again							
1555	46.9	2.2		21.4	7.11	1847	6.40	1.10
1602	62.3	2.2		21.7	7.18	1826	7.81	0.67
1607	73.3	2.2		21.8	7.21	1782	7.51	0.60
1617	95.3	2.2		21.8	7.27	1767	5.08	1.04
1627	117.3	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	161.3	2.2		21.3	7.43	1988	1.82	1.24
1658	185.5	2.2		22.2	7.38	1997	12.8	0.48
1712	219.1	2.4		22.2	7.34	2004	21.1	0.46
1721	240.7	2.4		22.3	7.52	2026	12.4	0.45
1731	264.7	2.4		22.3	7.54	2021	3.87	0.38
1731	Collect	Samples						

42.5

Comments: _____

By D.Ho

11/4/16 SVMW-2C @ 11:15

TD = ~~535~~ 670'

DTW = 135.97'

670 - 135.97 = 534.03 x 0.16 = 85.44 x 3 = 256 gal min purge

pump @ 160' deep

Begin pumping @ ~~1357~~ 1135

Flow Rate = 2.0 gal/min

Time	Vol	Flow	Temp	DO	cond	pH	Turb
1139	8	2.0	21.4	8.50	1640	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	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	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	0.53
1212	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	1.17	1844	7.28	1.39
1230	114	2.0	22.8	1.30	1906	7.32	0.73
1236	126	2.0	22.8	1.35	1921	7.35	1.42
1242	138	2.0	22.9	1.38	1930	7.39	0.81
1249	152	2	22.7	1.41	1931	7.41	1.09
1258	170	2	23.0	1.40	1936	7.44	0.25
1304	182	2	22.9	1.30	1937	7.46	0.62

Time	Vol	Flow	Temp	DO	cond	pH	Turb
1310	194	2	22.9	1.25	1940	7.45	0.45
1316	206	2	22.9	0.71	1940	7.47	0.66
1324	222	2	22.9	1.41	1942	7.47	0.38
1329	232	2	22.9	1.34	1941	7.47	0.37
1335	244	2	22.9	1.45	1943	7.48	0.56
1346	256	2	22.9	1.42	1942	7.48	0.52
~~1350~~							
1345	Collect Sample						
1350	Decon Equip						

Attachment B: Laboratory Analytical Results

BSK Associates Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

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

BSK ASSOCIATES

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 Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 1.3

Containers Intact
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	

Metals

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

Analyte	Method	Result	RL	Units	RL 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	
pH (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	

Metals

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

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
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	

Metals

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

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
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	

Metals

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	

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 300.0 - Quality Control											
Batch: A615137										Prepared: 11/2/2016	
Prep Method: Method Specific Preparation										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), Source: 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), Source: 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	
Sulfate as SO4	49	1.0	mg/L	50	ND	97	80-120	1	20	11/02/16	
EPA 300.0 - Quality Control											
Batch: A615375										Prepared: 11/8/2016	
Prep Method: Method Specific Preparation										Analyst: INH	
Blank (A615375-BLK1)											
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	

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 300.0 - Quality Control											
Batch: A615375										Prepared: 11/8/2016	
Prep Method: Method Specific Preparation										Analyst: INH	
Matrix Spike (A615375-MS2), Source: 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											
Chloride	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 2320B - Quality Control											
Batch: A615205										Prepared: 11/3/2016	
Prep Method: Method Specific Preparation										Analyst: CEG	
Blank (A615205-BLK1)											
Alkalinity as CaCO3	ND	3.0	mg/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: A6J3381-03											
Alkalinity as CaCO3	130	3.0	mg/L		140			12	10	11/03/16	DP1.1
Bicarbonate as CaCO3	130	3.0	mg/L		140			12	10	11/03/16	DP1.1
Carbonate as CaCO3	ND	3.0	mg/L		ND				10	11/03/16	
Hydroxide as CaCO3	ND	3.0	mg/L		ND				10	11/03/16	
SM 2510B - Quality Control											
Batch: A615205										Prepared: 11/3/2016	
Prep Method: Method Specific Preparation										Analyst: CEG	
Blank Spike (A615205-BS1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400		98	90-110			11/03/16	
Blank Spike Dup (A615205-BSD1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400		97	90-110	1		11/03/16	
Duplicate (A615205-DUP1), Source: A6J3381-03											
Conductivity @ 25C	290	1.0	umhos/cm		290			0	20	11/03/16	

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
SM 2540C - Quality Control											
Batch: A615179										Prepared: 11/3/2016	
Prep Method: Method Specific Preparation										Analyst: 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 Control											
Batch: A615205										Prepared: 11/3/2016	
Prep Method: Method Specific Preparation										Analyst: CEG	
Duplicate (A615205-DUP1), Source: A6J3381-03											
pH (1)	7.7		pH Units		7.7			0	20	11/03/16	

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 200.7 - Quality Control											
Batch: A615507										Prepared: 11/10/2016	
Prep Method: Filtration - Metals										Analyst: MDS	
Blank (A615507-BLK2)											
Calcium - Dissolved (1)	ND	0.10	mg/L							11/11/16	
Magnesium - Dissolved (1)	ND	0.10	mg/L							11/11/16	
Potassium - Dissolved (1)	ND	2.0	mg/L							11/11/16	
Sodium - Dissolved (1)	ND	1.0	mg/L							11/11/16	
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	mg/L	10		95	85-115	1	20	11/11/16	
Magnesium - Dissolved (1)	10	0.10	mg/L	10		104	85-115	1	20	11/11/16	
Potassium - Dissolved (1)	10	2.0	mg/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), Source: A6K0257-01											
Calcium - Dissolved (1)	59	0.10	mg/L	10	48	111	70-130			11/11/16	
Magnesium - Dissolved (1)	50	0.10	mg/L	10	39	113	70-130			11/11/16	
Potassium - Dissolved (1)	11	2.0	mg/L	10	ND	109	70-130			11/11/16	
Sodium - Dissolved (1)	49	1.0	mg/L	10	38	115	70-130			11/11/16	
Matrix Spike (A615507-MS4), Source: 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), 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	mg/L	10	39	89	70-130	5	20	11/11/16	
Potassium - Dissolved (1)	10	2.0	mg/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-MSD4), Source: A6K0611-03											
Calcium - Dissolved (1)	23	0.10	mg/L	10	14	90	70-130	0	20	11/11/16	
Magnesium - Dissolved (1)	17	0.10	mg/L	10	8.1	92	70-130	1	20	11/11/16	
Potassium - Dissolved (1)	12	2.0	mg/L	10	2.0	99	70-130	0	20	11/11/16	
Sodium - Dissolved (1)	22	1.0	mg/L	10	12	97	70-130	1	20	11/11/16	

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.**

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

A6K0257

11022016

geico8314

Turnaround: Standard
Due Date: 11/16/2016

GEI Consultants

Printed: 11/2/2016 5:20:49PM
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BSK Associates Engineers & Laboratories

1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
- [X] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
  Date needed:

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*Required Fields

Temp: 1.5

Company/Client Name*	Report Attention*	Invoice To*	Phone*	Fax
GEI Consultants, Inc.	David Fairman Additional cc's: Richard Shatz	Richard Shatz PO#: 1610374	916-631-4528 E-mail*: DFairman@geiconsultants.com	cell:415-420-2154

Address*	City*	State*	Zip*
2868 Prospect Park Drive, Suite 400	Rancho Cordova	CA	95670

Project	Project #	How would you like to receive your completed results?*
WPC WQ Sampling Fall 2016, Placer County	1610374	[X] E-Mail [ ] Fax [ ] Mail

Reporting Options: [ ] Trace (J-Flag) [ ] Swamp [X] EDD Type: Std Excel

Sampler Name (Printed/Signature)*: Dennis Ho

Regulatory Carbon Copies: [ ] SWRCB (Drinking Water) [ ] Merced Co [ ] Fresno Co [ ] Madera Co [ ] Tulare Co [ ] Other: N/A

Regulatory Compliance: [ ] EDT to California SWRCB (Drinking Water) System Number*: N/A [ ] Geotracker #: Not for Geotracker

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Placer Co. MW Profile	General Minerals, TDS	(samples need to be lab filtered due to field issues)	General Minerals, Metals	(Nitrates were subcontracted to meet holding times)
1	MW 3-2	10/28/16	1419	GW			✓		✓	
2	MW 4	10/28/16	1535	GW	Dumped Nitric Acid, could not filter		✓	✓	✓	
3	WPMW-3A	10/28/16	1650	GW			✓		✓	
4	W77-B	10/31/16	1130	GW			✓		✓	

(*) HNO3 rinsed out of container - Need to sampled filtered. bth 11/1/16

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Dennis Ho	GEI Consultants	11/1/16	0952	Brenda Hamilton	BSK-SAC
Phone Brenda F. Bernales	BSK-SAC	11-1-16	1610		
Received for Lab by: (Signature and Printed Name) EG BSK FAR		Date 11-2-16	Time 10:20	Payment Received at Delivery: Date: Amount: PIA#: Check / Cash Init.	

Shipping Method: (INTRA) UPS GSO WALK-IN FED EX Courier: _____ Custody Seal: Y (N)

Cooling Method: (Wet) Blue None Chilling Process Begun: (Y) N

Add General Mineral Package + Fluoride, Hardness, Nitrate-N

About 57 groundwater samples - BSK Final Pricing as of 4-23-15
Final Bottle Outline for GEI doing Field Filtering of Metals (9-4-15)

GEI Consultants!

Table __
Analytical Parameters, Test Methods, Holding Times,
Sample Containers, Preservation and Approximate Detection Limits
For Groundwater Quality Samples

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Parameter	ANALYTICAL TESTING METHOD	MAXIMUM HOLDING TIME	SAMPLE CONTAINER BOTTLE TYPE	SIZE/SET	PRESERVATION	MINIMUM REPORTING LIMIT	Cost	SAMPLE BOTTLES
General Minerals								
Akalinity	EPA 310.1	14 Days	Plastic	1 Liter	Cool to 4 °C	5.0 mg/L		CHANGE to 1 x 500 ml Plastic White Cap non-preserved for Minerals ←
Bicarbonate								~~1x1L plastic - no preservation~~
Calcium	EPA 200.7	6 Months	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L		(anions/TDS/~~MBAS~~)
Chloride	EPA 300.0	28 Days	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L		
Fluoride - Add	EPA 300.0	28 Days	Plastic	1 Liter	Cool to 4 °C	0.1 mg/L		CHANGE to 1x250 ml Plastic Red Cap ←
Hardness - Add	SM2340B	6 Months	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L		w/HNO3 for field filtered metals
Magnesium	EPA 200.7	6 Months	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L	235 (included Alkalinity and Boron)	*500 ml plastic can be used - 250 ml is easier)*
~~MBAS~~	~~SM5540C~~	~~48 Hours~~	~~Plastic~~	~~1 Liter~~	~~Cool to 4 °C~~	~~0.1 mg/L~~		*(w/ NO3 if filtered in the field)*
Nitrate - Add	EPA 300.0	48 Hours	Plastic	1 Liter	Cool to 4 °C	2.0 mg/L		*(non-preserved if lab filteres)*
pH	EPA 150.1	Immediate	Plastic	1 Liter	Cool to 4 °C	None Required		
Potassium	EPA 200.7	6 Months	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L		NOTE: If samples are collected on a FRIDAY
Sodium	EPA 200.7	6 Months	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L		an additional 1x250 ml White Cap bottled will be
Specific Conductance (EC)	SM 2510-B	28 Days	Plastic	1 Liter	Cool to 4 °C	10 umhos/cm		needed for the Nitrate sample that will be
Sulfate	EPA 300.0	28 Days	Plastic	1 Liter	Cool to 4 °C	0.50 mg/L		subcontracted
Total Dissolved Solids (TDS)	SM 2450-C	7 Days	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L		
~~General Physical~~								
~~Color~~	SM2120B	48 Hours	Amber Glass	250 ml.	Cool to 4 °C			7-10-2014 - per Cathy, Gen Phy will not be analyzed on
~~Odor~~	?	?	?	?	?	?		any of these MW samples
~~Turbidity~~	EPA 180.1	48 Hours	Amber Glass	250 ml.	Cool to 4 °C	0.5 NTU		
Metals								
Drinking Water Metals (dissolved) (Ag,Al,As,B,Ba,Be,Cd,Cr,Cu,Fe,Hg,Mn,Ni,Pb,Sb,Se,Tl,V,Zn)	EPA 200 Series	6 Months	Plastic	200 mL	HNO3, cool to 4 °C	Varies	inlcuded above	see metals above (will use same bottle)
Boron								
Hexavalent Chromium	EPA 218.6	7 days	Plastic	125 mL	NH3 + NH4 (pH 9)	1 ug/L	$75.00	*250 ml p w/HN4 + buffer* ←
Isotopes								
~~Tritium~~	~~?~~	~~6 Months~~	~~Plastic~~	~~200 mL~~	~~Cool to 4 °C~~		~~$125.00~~	~~1x500 AG bottle - no preservation~~
~~Isotopes $^{16}O/^{18}O$ and $^{1}H/^{2}H$~~	~~?~~	~~6 Months~~	~~Plastic~~	~~200 mL~~	~~Cool to 4 °C~~		~~150~~	~~1x500 ml plastic - no preservation~~
Other								
Perchlorate	EPA 314.0	14 Days	Plastic	1 Liter	Cool to 4 °C		$45.00	from GM bottle
VOCs	EPA 524.2	14 Days	Glass	3x 40ml	Cool to 4 °C		$80	*3x40 ml VOA w/ HCl* ←
						Each	$435.00	

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 ml plastic white cap (non-preserved) bottle will need to be collected for subcontracting to meet the Nitrate holding time ←

BSK Associates SR-FL-0002-16

Sample Integrity

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BSK Bottles: (Yes) No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 10°C	(Yes) No NA	Were correct containe… preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No (NA)	Were there bubbles in the VOA vials? (Volatiles Only)	Yes No (NA)
Did all bottles arrive unbroken and intact?	(Yes) No	Was a sufficient amount of sample received?	(Yes) No
Did all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	(Yes) No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Was PM notified of discrepancies? PM: By/Time:	Yes No (NA)

Bottles Received — "1" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)	Checks	Passed?					
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—	1C	1C, 1B	1C		
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ **DW**	Cl, pH > 8	Y N					
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ **WW**	pH 9.3-9.7	Y N					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ **7199** ***24 HOUR HOLD TIME***	pH 9.0-9.5	Y N					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	1B	MS 1B	1B		
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	Y N					
NaOH (P) Green Cap	Cl, pH >10	Y N					
NaOH + ZnAc (P)	pH > 9	Y N					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2O_3S 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	Y N					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Other:							
Asbestos 1Liter Plastic w/ Foil	—	—					
Low Level Hg / Metals Double Baggie	—	—					
Bottled Water	—	—					
Clear Glass 250mL / 500mL / 1 Liter	—	—					
Soil Tube Brass / Steel / Plastic	—	—					
Tedlar Bag / Plastic Bag	—	—					

11-2-16 EG

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P	2V	HNO3		S P			
S P				S P			

Comments

*Rec. samples out of HT. w/ client ok

Red cap for MW 4 was rinsed and needs to be filtered

Lofts samples unp. check with client before filtering/preserving MA 11-2-16

Labeled by: _____ @ _____ Labels checked by: _____ @ _____ RUSH Paged by: _____ @ _____

BSK Associates Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

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

BSK ASSOCIATES

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 #:	WPC WQ Sampling Fall 2016, Placer County	**Project PO#:**	1610374
Received:	11/08/2016 - 10:30		
Report Due:	11/22/2016		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 0.0

Containers Intact
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:

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	

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

Analyte	Method	Result	RL	Units	RL 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	

Metals

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

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

Analyte	Method	Result	RL	Units	RL 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	

Metals

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	

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 300.0 - Quality Control											
Batch: A615604										Prepared: 11/11/2016	
Prep Method: Method Specific Preparation										Analyst: INH	
Blank (A615604-BLK1)											
Chloride	ND	1.0	mg/L							11/11/16	
Blank Spike (A615604-BS1)											
Chloride	100	1.0	mg/L	100		100	90-110			11/11/16	
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), Source: A6K0451-12											
Chloride	55	1.0	mg/L	50	4.3	101	80-120	4	20	11/12/16	
EPA 300.0 - Quality Control											
Batch: A615634										Prepared: 11/14/2016	
Prep Method: Method Specific Preparation										Analyst: INH	
Blank (A615634-BLK1)											
Sulfate as SO4	ND	1.0	mg/L							11/14/16	
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	
Matrix Spike (A615634-MS2), Source: A6K1448-06											
Sulfate as SO4	66	1.0	mg/L	50	16	100	80-120			11/14/16	
Matrix Spike Dup (A615634-MSD1), Source: 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), Source: A6K1448-06											
Sulfate as SO4	66	1.0	mg/L	50	16	100	80-120	1	20	11/14/16	
SM 2320B - Quality Control											
Batch: A615393										Prepared: 11/8/2016	
Prep Method: Method Specific Preparation										Analyst: CEG	
Blank (A615393-BLK1)											
Alkalinity as CaCO3	ND	3.0	mg/L							11/08/16	
Bicarbonate as CaCO3	ND	3.0	mg/L							11/08/16	
Carbonate as CaCO3	ND	3.0	mg/L							11/08/16	
Hydroxide as CaCO3	ND	3.0	mg/L							11/08/16	
Blank Spike (A615393-BS1)											
Alkalinity as CaCO3	97	3.0	mg/L	100		97	80-120			11/08/16	

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
SM 2320B - Quality Control											
Batch: A615393										Prepared: 11/8/2016	
Prep Method: Method Specific Preparation										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: A6K0748-04											
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 2510B - Quality Control											
Batch: A615393										Prepared: 11/8/2016	
Prep Method: Method Specific Preparation										Analyst: CEG	
Blank Spike (A615393-BS1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400		98	90-110			11/08/16	
Blank Spike Dup (A615393-BSD1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400		97	90-110	1		11/08/16	
Duplicate (A615393-DUP1), Source: A6K0748-04											
Conductivity @ 25C	420	1.0	umhos/cm		420			0	20	11/08/16	
SM 2540C - Quality Control											
Batch: A615463										Prepared: 11/9/2016	
Prep Method: Method Specific Preparation										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	
Duplicate (A615463-DUP1), Source: A6K0302-02											
Total Dissolved Solids	970	5.0	mg/L		960			0	20	11/11/16	
Duplicate (A615463-DUP2), Source: A6K0405-03											
Total Dissolved Solids	150	5.0	mg/L		150			1	20	11/11/16	
SM 2540C - Quality Control											
Batch: A615505										Prepared: 11/10/2016	
Prep Method: Method Specific Preparation										Analyst: DEH/G	
Blank (A615505-BLK1)											
Total Dissolved Solids	ND	5.0	mg/L							11/15/16	

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
SM 2540C - Quality Control											
Batch: A615505										Prepared: 11/10/2016	
Prep Method: Method Specific Preparation										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: A6K0474-03											
Total Dissolved Solids	190	5.0	mg/L		190			1	20	11/15/16	
Duplicate (A615505-DUP2), Source: A6K0648-01											
Total Dissolved Solids	190	5.0	mg/L		190			1	20	11/15/16	
SM 4500-H+ B - Quality Control											
Batch: A615393										Prepared: 11/8/2016	
Prep Method: Method Specific Preparation										Analyst: CEG	
Duplicate (A615393-DUP1), Source: A6K0748-04											
pH (1)	7.6		pH Units		7.6			0	20	11/08/16	
SM 5540C - Quality Control											
Batch: A615391										Prepared: 11/8/2016	
Prep Method: Method Specific Preparation										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), Source: A6K0790-01											
MBAS, Calculated as LAS, mol wt 340	0.94	0.050	mg/L	1.0	ND	94	80-112	3	20	11/08/16	

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 200.7 - Quality Control											
Batch: A615670										Prepared: 11/15/2016	
Prep Method: Filtration - Metals										Analyst: MDS	
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-BS1)											
Calcium - Dissolved (1)	9.2	0.10	mg/L	10		92	85-115			11/16/16	
Magnesium - Dissolved (1)	9.7	0.10	mg/L	10		97	85-115			11/16/16	
Potassium - Dissolved (1)	10	2.0	mg/L	10		101	85-115			11/16/16	
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 - Dissolved (1)	65	0.10	mg/L	10	55	96	70-130			11/16/16	
Magnesium - Dissolved (1)	17	0.10	mg/L	10	8.0	91	70-130			11/16/16	
Potassium - Dissolved (1)	14	2.0	mg/L	10	3.7	99	70-130			11/16/16	
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 ***Low***
Matrix Spike (A615670-MS4), Source: A6K1219-03											
Sodium - Dissolved (1)	20	1.0	mg/L	10	12	78	70-130			11/17/16	
Matrix Spike Dup (A615670-MSD1), Source: A6K0830-01											
Calcium - Dissolved (1)	64	0.10	mg/L	10	55	86	70-130	1	20	11/16/16	
Magnesium - Dissolved (1)	17	0.10	mg/L	10	8.0	86	70-130	3	20	11/16/16	
Potassium - Dissolved (1)	13	2.0	mg/L	10	3.7	96	70-130	2	20	11/16/16	
Matrix Spike Dup (A615670-MSD2), Source: A6K1219-03											
Calcium - Dissolved (1)	25	0.10	mg/L	10	15	99	70-130	1	20	11/16/16	

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 200.7 - Quality Control											
Batch: A615670										Prepared: 11/15/2016	
Prep Method: Filtration - Metals										Analyst: MDS	
Matrix Spike Dup (A615670-MSD2), Source: 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), Source: 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), Source: 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.**

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

A6K0830

11082016

geico8314

Turnaround: Standard
Due Date: 11/22/2016

GEI Consultants

Printed: 11/8/2016 6:22:25PM
Page 1 of 1

BSK Associates Engineers & Laboratories
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
☒ Standard - 10 business days
☐ Rush (Surcharge may apply)
Date needed:

A6K0830 11/08/2016
geico8314 10

*Required Fields

Temp: 0.0

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
GEI Consultants, Inc.	David Fairman Additional cc's: Richard Shatz	Richard Shatz PO#: 1610374	916-631-4528	cell:415-420-2154
			E-mail*: DFairman@geiconsultants.com	

Address*:	City*:	State*:	Zip*:
2868 Prospect Park Drive, Suite 400	Rancho Cordova	CA	95670

Project: WPC WQ Sampling Fall 2016, Placer County
Project #: 1610374
How would you like to receive your completed results?* ☒ E-Mail ☐ Fax ☐ Mail

Reporting Options: ☐ Trace (J-Flag) ☐ Swamp ☒ EDD Type: Std Excel

Sampler Name (Printed/Signature)*: DK D. Ho Dennis Ho

Regulatory Carbon Copies: ☐ SWRCB (Drinking Water) ☐ Merced Co ☐ Fresno Co ☐ Madera Co ☐ Tulare Co ☐ Other: N/A

Regulatory Compliance: ☐ EDT to California SWRCB (Drinking Water) System Number*: N/A ☐ Geotracker #: Not for Geotracker

w/4

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Placer Co. MW Profile	General Minerals, TDS	(samples need to be lab filtered due to field issues)	General Minerals, Metals	(Nitrates were subcontracted to meet holding times)
1	WPMW-5B	11/2/16	11:33	GW			✓		✓	
2	SVMW-2C	11/4/16	13:46	GW	1 bottle for both TDS and metals		✓	✓	✓	

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Dennis Ho	GEI Consultants	11/4/16	17:00	Brenda Hamilton	BSK
	BSK	11-7-16	15:45		
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: PIA#: Check / Cash Init.	
BSK PAR		11-8-16	10:30		

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____
Cooling Method: Wet Blue None
Custody Seal: Y N
Chilling Process Begun Y / N

A6K0830 11/08/2016
geico8314 10

BSK Associates SR-FL-0002-16

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 10°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Were there bubbles in the VOA vials? (Volatiles Only)	Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received — "-" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)	Checks	Passed?	1	2			
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—	1C	1C			
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ **DW**	Cl, pH > 8	Y N					
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ **WW**	pH 9.3-9.7	Y N					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ **7199** ***24 HOUR HOLD TIME***	pH 9.0-9.5	Y N					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	1B				
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	Y N					
NaOH (P) Green Cap	Cl, pH >10	Y N					
NaOH + ZnAc (P)	pH > 9	Y N					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2O_3S 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	Y N					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Other:							
Asbestos 1Liter Plastic w/ Foil	—	—					
Low Level Hg / Metals Double Baggie	—	—					
Bottled Water	—	—					
Clear Glass 250mL / 500mL / 1 Liter	—	—					
Soil Tube Brass / Steel / Plastic	—	—					
Tedlar Bag / Plastic Bag	—	—					

11-8-16 Ec

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Labeled by: Ec @ 1434 Labels checked by: SMH @ 1434 RUSH Paged by: _____ @ _____

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

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

BSK ASSOCIATES

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 Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 1.3

Containers Intact
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:

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: 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

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	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	
pH (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	

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Calcium - Dissolved (1)	EPA 200.7	**55**	0.10	mg/L	1	A701035	01/25/17	01/26/17	
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

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

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	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	
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	

Metals

Analyte	Method	Result	RL	Units	RL 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	

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

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General Chemistry

Analyte	Method	Result	RL	Units	RL 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	

Metals

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	

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	
pH (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	

Metals

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	

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

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General Chemistry

Analyte	Method	Result	RL	Units	RL 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	

Metals

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	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control											
Batch: A700756										Prepared: 1/18/2017	
Prep Method: Method Specific Preparation										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: 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: 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	
Fluoride	0.54	0.10	mg/L	0.50	ND	108	80-120	5	10	01/19/17	
Sulfate as SO4	49	1.0	mg/L	50	ND	98	80-120	1	20	01/19/17	
EPA 300.0 - Quality Control											
Batch: A700765										Prepared: 1/19/2017	
Prep Method: Method Specific Preparation										Analyst: INH	
Blank (A700765-BLK1)											
Fluoride	ND	0.10	mg/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: 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: A7A1704-03											

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control											
Batch: A700765										Prepared: 1/19/2017	
Prep Method: Method Specific Preparation										Analyst: INH	
Matrix Spike (A700765-MS2), Source: A7A1704-03											
Fluoride	0.93	0.10	mg/L	0.50	0.40	107	80-120			01/19/17	
Sulfate as SO4	84	1.0	mg/L	50	33	101	80-120			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 300.0 - Quality Control											
Batch: A701219										Prepared: 1/28/2017	
Prep Method: Method Specific Preparation										Analyst: INH	
Blank (A701219-BLK1)											
Chloride	ND	1.0	mg/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: A7A2791-01											
Chloride	61	1.0	mg/L	50	11	100	80-120			01/28/17	
Matrix Spike (A701219-MS2), Source: 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 (A701219-MSD2), Source: A7A1437-02											
Chloride	50	1.0	mg/L	50	ND	99	80-120	0	20	01/28/17	
SM 2320B - Quality Control											
Batch: A700780										Prepared: 1/19/2017	
Prep Method: Method Specific Preparation										Analyst: 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	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2320B - Quality Control											
Batch: A700780										Prepared: 1/19/2017	
Prep Method: Method Specific Preparation										Analyst: CEG	
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: A7A1653-01											
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 2510B - Quality Control											
Batch: A700780										Prepared: 1/19/2017	
Prep Method: Method Specific Preparation										Analyst: CEG	
Blank Spike (A700780-BS1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400		99	90-110			01/19/17	
Blank Spike Dup (A700780-BSD1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400		98	90-110	1		01/19/17	
Duplicate (A700780-DUP1), Source: A7A1653-01											
Conductivity @ 25C	620	1.0	umhos/cm		620			0	20	01/19/17	
SM 2540C - Quality Control											
Batch: A700804										Prepared: 1/19/2017	
Prep Method: Method Specific Preparation										Analyst: DEH	
Blank (A700804-BLK1)											
Total Dissolved Solids	ND	5.0	mg/L							01/26/17	
Blank Spike (A700804-BS1)											
Total Dissolved Solids	990	5.0	mg/L	1000		99	70-130			01/26/17	
Duplicate (A700804-DUP1), Source: A7A1627-01											
Total Dissolved Solids	180	5.0	mg/L		180			1	20	01/26/17	
Duplicate (A700804-DUP2), Source: A7A1668-01											
Total Dissolved Solids	700	5.0	mg/L		690			1	20	01/26/17	
SM 4500-H+ B - Quality Control											
Batch: A700780										Prepared: 1/19/2017	
Prep Method: Method Specific Preparation										Analyst: CEG	
Duplicate (A700780-DUP1), Source: A7A1653-01											
pH (1)	7.9		pH Units		7.6			4	20	01/19/17	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control											
Batch: A701035										Prepared: 1/25/2017	
Prep Method: Filtration - Metals										Analyst: 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: 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), Source: A7A1672-01											
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 ***Low***
EPA 200.7 - Quality Control											
Batch: A701187										Prepared: 1/27/2017	
Prep Method: Filtration - Metals										Analyst: 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)											

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control											
Batch: A701187										Prepared: 1/27/2017	
Prep Method: Filtration - Metals										Analyst: 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 ***Low***
Matrix Spike (A701187-MS4), Source: A7A1924-04											
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), Source: 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 ***Low***
Matrix Spike Dup (A701187-MSD4), Source: 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	

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 - 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

A7A1672

01182017

geico8314

Turnaround: Standard
Due Date: 2/1/2017

GEI Consultants

Printed: 1/18/2017 4:35:05PM
Page 1 of 1

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
- [X] Standard - 10 business days
- [ ] Rush (Surcharge may apply)
- Date needed:

A7A1672
geico8314
01/18/2017
10
C

*Required Fields Temp: 1.3

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*: / Fax:
GEI Consultants, Inc.	David Fairman Additional cc's: Richard Shatz	Richard Shatz PO#: 1610374	916-631-4528 cell: 415-420-2154
			E-mail*: dfairman@geiconsultants.com

Address*:	City*:	State*:	Zip*:
2868 Prospect Park Drive, Suite 400	Rancho Cordova	CA	95670

Project: WPC WQ Sampling 1st Qtr; Placer County
Project #: 161037 4
How would you like to receive your completed results?* [X] E-Mail [ ] Fax [ ] Mail

Reporting Options: [ ] Trace (J-Flag) [ ] Swamp [X] EDD Type: Std Excel

Sampler Name (Printed/Signature)*: Dennis Ho

Regulatory Carbon Copies: [ ] SWRCB (Drinking Water) [ ] Merced Co [ ] Fresno Co [ ] Madera Co [ ] Tulare Co [ ] Other:

Regulatory Compliance: [ ] EDT to California SWRCB (Drinking Water) System Number*: N/A [ ] Geotracker #:

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	General Minerals, TDS	Metals, Filtered	Metals, Unfiltered						
1	WPMW-5B	1/16/17	11:20	GW		✓	✓							
2	W77-B	1/16/17	15:45	GW		✓	✓							
3	MW 3-2	1/17/17	10:45	GW	No preservative	✓		✓						
4	MW-L1	1/17/17	11:50	GW	"	✓		✓						
5	WPMW-3A	1/17/17	13:00	GW		✓	✓							

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Dennis Ho	GEI Consultants	1/17/17	15:10		BSK-SAC
	BSK-SAC	1-17-17	1600		
	BSK FRC	1-18-17	9:50	Payment Received at Delivery: Date	Amount: PIA#: Check / Cash Init.

Shipping Method: CONTRACT UPS GSO WALK-IN FED EX Courier:
Cooling Method: Wet Blue None
Custody Seal: Y
Chilling Process Begun: Y / N

A7A1672 01/18/2017
geico8314 10

BSK Associates SR-FL-0002-18

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Were there bubbles in the VOA vials? (Volatiles Only)	Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received — "=" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)	Checks	Passed?	1-5				
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—	1C				
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	Y N					
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	Y N					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	Y N					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	1B				
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	Y N					
NaOH (P) Green Cap	Cl, pH >10	Y N					
NaOH + ZnAc (P)	pH > 9	Y N					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	Y N					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Other:							
Asbestos 1Liter Plastic w/ Foil	—	—					
Low Level Hg / Metals Double Baggie	—	—					
Bottled Water	—	—					
Clear Glass 250mL / 500mL / 1 Liter	—	—					
Soil Tube Brass / Steel / Plastic	—	—					
Tedlar Bag / Plastic Bag	—	—					

1-18-17 EM

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Labeled by: EM @ 1437 Labels checked by: CMM @ 14:42 RUSH Paged by: _____ @ _____

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

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

BSK ASSOCIATES

Case Narrative

Project and 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 Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 0.0

Containers Intact
COC/Labels Agree
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	

Metals

Analyte	Method	Result	RL	Units	RL 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

Analyte	Method	Result	RL	Units	RL 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	

Metals

Analyte	Method	Result	RL	Units	RL 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	

Certificate of Analysis

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

Analyte	Method	Result	RL	Units	RL 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	
pH (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	

Metals

Analyte	Method	Result	RL	Units	RL 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

Certificate of Analysis

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

Analyte	Method	Result	RL	Units	RL 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	

Metals

Analyte	Method	Result	RL	Units	RL 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	

Certificate of Analysis

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

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	**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	

Metals

Analyte	Method	Result	RL	Units	RL 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	
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	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	

Metals

Analyte	Method	Result	RL	Units	RL 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	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control											
Batch: A705624										Prepared: 5/5/2017	
Prep Method: Method Specific Preparation										Analyst: BCB	
Blank Spike (A705624-BS1)											
Chloride	100	1.0	mg/L	100		101	90-110			05/05/17	
Sulfate as SO4	100	1.0	mg/L	100		101	90-110			05/05/17	
Matrix Spike (A705624-MS1), Source: A7E0755-04											
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 Spike Dup (A705624-MSD1), Source: A7E0755-04											
Chloride	56	1.0	mg/L	50	5.4	101	80-120	1	20	05/05/17	
Sulfate as SO4	54	1.0	mg/L	50	3.6	100	80-120	1	20	05/05/17	
Matrix Spike Dup (A705624-MSD2), 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 2320B - Quality Control											
Batch: A705412										Prepared: 5/2/2017	
Prep Method: Method Specific Preparation										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	
Blank Spike Dup (A705412-BSD1)											
Alkalinity as CaCO3	96	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 2510B - Quality Control											
Batch: A705412										Prepared: 5/2/2017	
Prep Method: Method Specific Preparation										Analyst: CEG	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2510B - Quality Control											
Batch: A705412										Prepared: 5/2/2017	
Prep Method: Method Specific Preparation										Analyst: CEG	
Blank Spike (A705412-BS1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400		101	90-110			05/02/17	
Blank Spike Dup (A705412-BSD1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400		100	90-110	1		05/02/17	
Duplicate (A705412-DUP1), Source: A7E0167-01											
Conductivity @ 25C	760	1.0	umhos/cm		770			1	20	05/02/17	
SM 2540C - Quality Control											
Batch: A705448										Prepared: 5/3/2017	
Prep Method: Method Specific Preparation										Analyst: DEH	
Blank (A705448-BLK1)											
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: A7E0103-01											
Total Dissolved Solids	48	5.0	mg/L		47			2	20	05/08/17	
Duplicate (A705448-DUP2), Source: A7E0111-01											
Total Dissolved Solids	43	5.0	mg/L		41			5	20	05/08/17	
SM 4500-H+ B - Quality Control											
Batch: A705412										Prepared: 5/2/2017	
Prep Method: Method Specific Preparation										Analyst: CEG	
Duplicate (A705412-DUP1), Source: A7E0167-01											
pH (1)	8.3		pH Units		8.3			0	20	05/02/17	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control											
Batch: A705700										Prepared: 5/9/2017	
Prep Method: Filtration - Metals										Analyst: 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), Source: A7E0202-03											
Calcium - Dissolved (1)	110	0.10	mg/L	4.0	110	16	70-130			05/10/17	MS1.0 ***Low***
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 ***Low***
Matrix Spike (A705700-MS4), Source: 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 ***High***
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 ***High***
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	***High***

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 524.2 - Quality Control											
Batch: A705478										Prepared: 5/3/2017	
Prep Method: EPA 524.2										Analyst: 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	

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 - 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

A7E0202

05022017

geico8314

Turnaround: Standard
Due Date: 5/16/2017

GEI Consultants

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

BSK Associates Engineers & Laboratories
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
☒ Standard - 10 business days
☐ Rush (Surcharge may apply)
Date needed:

A7E0202 geico8314 05/02/2017 10

*Required Fields — Temp: 0.0

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
GEI Consultants, Inc.	David Fairman Additional cc's: Richard Shatz	Richard Shatz PO#: 1610373	916-631-4528	cell:415-420-2154
			E-mail*: DFairman@geiconsultants.com	

Address*:	City*:	State*:	Zip*:
2868 Prospect Park Drive, Suite 400	Rancho Cordova	CA	95670

Project:	Project #:	How would you like to receive your completed results?*
WPC WQ Sampling Fall 2016, WPC Partners	1610373	☒ E-Mail ☐ Fax ☐ Mail

Reporting Options: ☐ Trace (J-Flag) ☐ Swamp ☒ EDD Type: Std Excel

Sampler Name (Printed/Signature)*: Dennis Ho

Regulatory Carbon Copies: ☐ SWRCB (Drinking Water) ☐ Merced Co ☐ Fresno Co ☐ Madera Co ☐ Tulare Co ☐ Other: N/A

Regulatory Compliance: ☐ EDT to California SWRCB (Drinking Water) System Number*: N/A ☐ Geotracker #: Not for Geotracker

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Placer Co. MW Profile	General Minerals	(samples need to be lab filtered due to field issues)	TDS	(Nitrates were subcontracted to meet holding times)	Cr6	TTHM		
1	2 MW 3-2	4/28/17	10:22	GW			✓		✓					
2	2 MW-4	4/28/17	11:30	GW			✓		✓					
3	1 SVMW-2C	4/26/17	1731	GW	collected 1L - Limited Volume		✓		✓					
4	2 WPMW-3A	4/28/17	12:35	GW			✓		✓					
5	2 WPMW-5B	4/27/17	10:12	GW			✓		✓					
6	2 W77-B	4/27/17	13:00	GW			✓		✓					
7	5 DCMW-1	4/25/17	13:40	GW			✓		✓			✓		
8	5 DC MW-2	4/25/17	12:00	GW			✓		✓			✓		
9	5 DC MW-3	4/25/17	15:05	GW			✓		✓			✓		
10	1 MW 1-3	4/20/17	13:50	GW							✓			
11	1 SVMW-2A	4/26/17	17:07	GW							✓			
12	1 CVMW-1A	4/26/17	11:55	GW							✓			
13	1 WPMW-2A	4/26/17	10:00	GW							✓			
14	1 Airport Well 4 MW	4/28/17	8:44	GW							✓			

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Dennis Ho	GEI Consultants	4/28/17	15:50		
		5/1/17	1550		
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery:	
		5/2/17	1130	Date: Amount: PIA#:	Check / Cash Init.

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____
Cooling Method: Wet Blue None
Custody Seal: Y / N
Chilling Process Begun: Y / N
6w, Foam

A7E0202 05/02/2017
geico8314 10

BSK Associates SR-FL-0002-18

Sample Integrity

BSK Bottles: (Yes) No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Were correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No (NA)	Were there bubbles in the VOA vials? (Volatiles Only)	Yes No (NA)
Did all bottles arrive unbroken and intact?	(Yes) No	Was a sufficient amount of sample received?	(Yes) No
Did all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Was PM notified of discrepancies? PM: By/Time:	Yes No (NA)

Bottles Received — "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)	Checks	Passed?	1-2	3	4-6	7-9	10-14
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—	1C, 1B	1C	1C, 1B	1C, 1B	
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 **DW**	Cl, pH > 8	(Y) N					1A
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 **WW**	pH 9.3-9.7	Y N					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 **7199** ***24 HOUR HOLD TIME***	pH 9.0-9.5	Y N					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	Y N					
NaOH (P) Green Cap	Cl, pH >10	Y N					
NaOH + ZnAc (P)	pH > 9	Y N					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—				3c	
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	Y N					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Other:							
Asbestos 1Liter Plastic w/ Foil	—	—					
Low Level Hg / Metals Double Baggie	—	—					
Bottled Water	—	—					
Clear Glass 250mL / 500mL / 1 Liter	—	—					
Soil Tube Brass / Steel / Plastic	—	—					
Tedlar Bag / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Labeled by: JH @ 1457 Labels checked by: CEH @ 1500 RUSH Paged by: _____ @ _____

About 57 groundwater samples - BSK Final Pricing as of 4-23-15
Final Bottle Outline for GEI doing Field-Filtering of Metals (9-4-15)

~~Table~~

Analytical Parameters, Test Methods, Holding Times,
Sample Containers, Preservation and Approximate Detection Limits
For Groundwater Quality Samples

Parameter	ANALYTICAL TESTING METHOD	MAXIMUM HOLDING TIME	SAMPLE CONTAINER BOTTLE TYPE	SIZE/SET	PRESERVATION	MINIMUM REPORTING LIMIT	Cost	SAMPLE BOTTLES
General Minerals								
Akalinity	EPA 310.1	14 Days	Plastic	1 Liter	Cool to 4 °C	5.0 mg/L		**CHANGE to 1 x 500 ml Plastic White Cap non-preserved for Minerals** ←
Bicarbonate								~~**1x1L plastic - no preservation**~~
Calcium	EPA 200.7	6 Months	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L		(anions/TDS/~~MBAS~~)
Chloride	EPA 300.0	28 Days	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L		
Fluoride	EPA 300.0	28 Days	Plastic	1 Liter	Cool to 4 °C	0.1 mg/L		**CHANGE to 1x250 ml Plastic Red Cap w/HNO3 for field filtered metals** ←
Hardness	SM2340B	6 Months	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L		***500 ml plastic can be used - 250 ml is easier)***
Magnesium	EPA 200.7	6 Months	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L	235	***(w/ NO3 if filtered in the field)***
~~MBAS~~	~~SM5540C~~	~~48 Hours~~	~~Plastic~~	~~1 Liter~~	~~Cool to 4 °C~~	~~0.1 mg/L~~	(included	***(non-preserved if lab filteres)***
Nitrate	EPA 300.0	48 Hours	Plastic	1 Liter	Cool to 4 °C	2.0 mg/L	Alkalinity and	
pH	EPA 150.1	Immediate	Plastic	1 Liter	Cool to 4 °C	None Required	Boron)	**NOTE: IF samples are collected on a FRIDAY an additional 1x250 ml White Cap bottled will be needed for the Nitrate sample that will be subcontracted**
Potassium	EPA 200.7	6 Months	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L		
Sodium	EPA 200.7	6 Months	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L		
Specific Conductance (EC)	SM 2510-B	28 Days	Plastic	1 Liter	Cool to 4 °C	10 umhos/cm		
Sulfate	EPA 300.0	28 Days	Plastic	1 Liter	Cool to 4 °C	0.50 mg/L		
Total Dissolved Solids (TDS)	SM 2450-C	7 Days	Plastic	1 Liter	Cool to 4 °C	1.0 mg/L		
~~General Physical~~								
~~Color~~	SM2120B	48 Hours	Amber Glass	250 ml.	Cool to 4 °C			7-10-2014 - per Cathy, Gen Phy will not be analyzed on any of these MW samples
~~Odor~~	?	?	?	?	?	?		
~~Turbidity~~	EPA 180.1	48 Hours	Amber Glass	250 ml.	Cool to 4 °C	0.5 NTU		
Metals								
Drinking Water Metals (dissolved) (Ag,Al,As,B,Ba,Be,Cd,Cr,Cu,Fe,Hg,Mn,Ni,Pb,Sb,Se, Tl,V,Zn)	EPA 200 Series	6 Months	Plastic	200 mL	HNO3, cool to 4 °C	Varies	inlcuded above	see metals above (will use same bottle)
Boron								
Hexavalent Chromium	EPA 218.6	7 days	Plastic	125 mL.	NH3 + NH4 (pH 9)	1 ug/L	$75.00	***250 ml p w/HN4 + buffer*** ←
Isotopes								
~~Tritium~~	~~?~~	~~6 Months~~	~~Plastic~~	~~200 mL~~	~~Cool to 4 °C~~		~~$125.00~~	~~**1x500 AG bottle - no preservation**~~
~~Isotopes $^{16}O/^{18}O$ and $^{1}H/^{2}H$~~	~~?~~	~~6 Months~~	~~Plastic~~	~~200 mL~~	~~Cool to 4 °C~~		~~150~~	~~**1x500 ml plastic - no preservation**~~
Other								
Perchlorate	EPA 314.0	14 Days	Plastic	1 Liter	Cool to 4 °C		$45.00	from GM bottle
VOCs	EPA 524.2	14 Days	Glass	3x 40ml	Cool to 4 °C		$80	***3x40 ml VOA w/ HCl*** ←
						Each	$435.00	

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 additonal $30 RUSH subcontract fee for the nitrates on samples submitted on Friday.

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

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

A7G1747
8/02/2017
Invoice: A718810

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,

Adam Trevarrow, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

BSK ASSOCIATES

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 Samples - 1610374	**Project PO#:**	1610374
Received:	7/18/2017 - 11:20		
Report Due:	8/01/2017		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 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 Cooler
Temperature on Receipt ºC: 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	Sample required a dilution due to the matrix or high concentration of a non-target analyte.
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: 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	

Metals

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	

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

Analyte	Method	Result	RL	Units	RL 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	

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
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	

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	

Metals

Analyte	Method	Result	RL	Units	RL 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	

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

Analyte	Method	Result	RL	Units	RL 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	

Metals

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	

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	
pH (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	

Metals

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	

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

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	**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	

Metals

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	

BSK Associates Laboratory Fresno
General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control											
Batch: A709375										Prepared: 7/24/2017	
Prep Method: Method Specific Preparation										Analyst: BCB	
Blank (A709375-BLK1)											
Chloride	ND	1.0	mg/L							07/24/17	
Fluoride	ND	0.10	mg/L							07/24/17	
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: A7G1738-02											
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: A7G1536-01											
Chloride	51	1.0	mg/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), Source: A7G1738-02											
Chloride	67	1.0	mg/L	50	16	101	80-120	4	20	07/24/17	
Fluoride	0.61	0.10	mg/L	0.50	ND	102	80-120	5	10	07/24/17	
Matrix Spike Dup (A709375-MSD2), Source: 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 300.0 - Quality Control											
Batch: A709662										Prepared: 7/29/2017	
Prep Method: Method Specific Preparation										Analyst: BCB	
Blank (A709662-BLK1)											
Sulfate as SO4	ND	1.0	mg/L							07/29/17	
Blank Spike (A709662-BS1)											
Sulfate as SO4	100	1.0	mg/L	100		102	90-110			07/29/17	
Matrix Spike (A709662-MS1), Source: A7G1738-02											
Sulfate as SO4	58	1.0	mg/L	50	7.0	101	80-120			07/29/17	
Matrix Spike Dup (A709662-MSD1), Source: A7G1738-02											
Sulfate as SO4	59	1.0	mg/L	50	7.0	103	80-120	2	20	07/29/17	
EPA 300.0 - Quality Control											
Batch: A709663										Prepared: 7/29/2017	
Prep Method: Method Specific Preparation										Analyst: BCB	
Blank (A709663-BLK1)											
Sulfate as SO4	ND	1.0	mg/L							07/29/17	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control											
Batch: A709663										Prepared: 7/29/2017	
Prep Method: Method Specific Preparation										Analyst: BCB	
Blank Spike (A709663-BS1)											
Sulfate as SO4	100	1.0	mg/L	100		101	90-110			07/29/17	
Matrix Spike (A709663-MS1), Source: 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 2320B - Quality Control											
Batch: A709032										Prepared: 7/18/2017	
Prep Method: Method Specific Preparation										Analyst: CEG	
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											
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 2510B - Quality Control											
Batch: A709032										Prepared: 7/18/2017	
Prep Method: Method Specific Preparation										Analyst: CEG	
Blank Spike (A709032-BS1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400		103	90-110			07/18/17	
Blank Spike Dup (A709032-BSD1)											
Conductivity @ 25C	1500	1.0	umhos/cm	1400		104	90-110	1		07/18/17	
Duplicate (A709032-DUP1), Source: A7G1568-03											
Conductivity @ 25C	240	1.0	umhos/cm		250			7	20	07/18/17	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2540C - Quality Control											
Batch: A709108										Prepared: 7/19/2017	
Prep Method: Method Specific Preparation										Analyst: 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: 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 Control											
Batch: A709032										Prepared: 7/18/2017	
Prep Method: Method Specific Preparation										Analyst: CEG	
Duplicate (A709032-DUP1), Source: A7G1568-03											
pH (1)	7.9		pH Units		7.9			0	20	07/18/17	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control											
Batch: A709206										Prepared: 7/20/2017	
Prep Method: Filtration - Metals										Analyst: 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), Source: 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), Source: A7G1747-03											
Calcium - Dissolved (1)	160	0.10	mg/L	4.0	170	NR	70-130			07/31/17	MS1.0 ***Low***
Magnesium - Dissolved (1)	42	0.10	mg/L	4.0	41	14	70-130			07/31/17	MS1.0 ***Low***
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 ***Low***
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 ***Low***
Magnesium - Dissolved (1)	44	0.10	mg/L	4.0	41	58	70-130	4	20	07/31/17	MS1.0 ***Low***
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 ***Low***

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

A7G1747

07182017

geico8314

Turnaround: Standard
Due Date: 8/1/2017

GEI Consultants

Printed: 7/18/2017 5:03:37PM
Page 1 of 1

BSK Associates Engineers & Laboratories
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
☒ Standard - 10 business days
☐ Rush (Surcharge may apply)
☐ Date needed:

A7G1747 07/18/2017
geico8314 10

*Required Fields

Temp: 5.8 / 18.9

Company/Client Name*:	Report Attention*:	Invoice To*:	Phone*:	Fax:
GEI Consultants, Inc.	David Fairman Additional cc's: Richard Shatz	Richard Shatz PO#: 1610374	916-631-4528	cell:415-420-2154
			E-mail*: DFairman@geiconsultants.com	

Address*:	City*:	State*:	Zip*:
2868 Prospect Park Drive, Suite 400	Rancho Cordova	CA	95670

Project: Placer County Water Samples
~~WPC WQ Sampling Fall 2016, Placer County~~
Project #: 1610374

How would you like to receive your completed results?* ☒ E-Mail ☐ Fax ☐ Mail

Reporting Options: ☐ Trace (J-Flag) ☐ Swamp ☒ EDD Type: Std Excel

Sampler Name (Printed/Signature)*: Dennis Ho

Regulatory Carbon Copies: ☐ SWRCB (Drinking Water) ☐ Merced Co ☐ Fresno Co ☐ Madera Co ☐ Tulare Co ☐ Other: N/A

Regulatory Compliance: ☐ EDT to California SWRCB (Drinking Water) System Number*: N/A ☐ Geotracker #: Not for Geotracker

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	Placer Co. MW Profile	General Minerals	(samples need to be lab filtered due to field issues)	TDS	~~(Nitrates were subcontracted to meet holding times)~~	Metals				
1	2 MW 3-2	7/12/17	1015	GW			✓	✓	✓		✓				
2	2 MW 4	7/12/17	1110	GW			✓	✓	✓		✓				
3	3 WPMW-3A	7/12/17	1245	GW			✓		✓		✓				
4	3 WPCMW-5B	7/13/17	1042	GW	Red bottle is unfiltered. No HNO_3		✓	✓	✓		✓				
5	3 W77-B	7/13/17	1345	GW			✓		✓		✓				
6	3 SVMW-2C	7/13/17	1710	GW			✓		✓		✓				

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Dennis Ho	GEI Consultants	7/13/17	18:15	Jordan Baxter	GEI Consultants
Relinquished by: (Signature and Printed Name) Jordan Baxter	Company GEI	Date 7/14/17	Time 0903	Received by: (Signature and Printed Name) C. Grant	Company BSK-SAC
Received for Lab by: (Signature and Printed Name) BSK FAL		Date 7/18/17	Time 11:20	Payment Received at Delivery: Date:	Amount: Check / Cash PIA# Init.

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: _____
Cooling Method: Wet Blue None
Custody Seal: Y / N
Chilling Process Begun: Y / N

Payment for services rendered as noted herein are due in full within 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 signing for the Client/Company acknowledges that they are either the Client or 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 can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

BSK Associates SR-FL-0002-18

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Were there bubbles in the VOA vials? (Volatiles Only)	Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received — "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)	Checks	Passed?	1-2	3-5	6
Bacti $Na_2S_2O_3$	—	—			
None (P) White Cap	—	—	1C, 1B	1C, 1B	1C, 1B
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	Y N			
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	Y N			
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	Y N			
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—		1B	1B
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	Y N			
NaOH (P) Green Cap	Cl, pH >10	Y N			
NaOH + ZnAc (P)	pH > 9	Y N			
Dissolved Oxygen 300ml (g)	—	—			
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—			
HCl (AG) Lt. Blue Label O&G, Diesel	—	—			
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—			
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—			
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—			
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—			
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—			
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	Y N			
NH_4Cl (AG) Purple Label 552	—	—			
EDA (AG) Brown Label DBPs	—	—			
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—			
Buffer pH 4 (CG)	—	—			
H_3PO_4 (CG) Salmon Label	—	—			
Other:					
Asbestos 1Liter Plastic w/ Foil	—	—			
Low Level Hg / Metals Double Baggie	—	—			
Bottled Water	—	—			
Clear Glass 250mL / 500mL / 1 Liter	—	—			
Soil Tube Brass / Steel / Plastic	—	—			
Tedlar Bag / Plastic Bag	—	—			

71817

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Labeled by: _____ @ 1550 Labels checked by: _____ @ _____ RUSH Paged by: _____ @ _____