APPENDIX 1a

PRELIMINARY ENGINEERING REPORT
For The
WELDON REGIONAL CONSOLIDATION PROJECT

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I. INTRODUCTION

Weldon, CA is a census designated place, located on the east side of Lake Isabella, approximately 53 miles northeast of Bakersfield, California. The population was 2,642 at the 2010 census, up from 2,387 at the 2000 census. It is comprised primarily of small residential neighborhoods located along the south side of California State Highway 178. The proposed water system consolidation project area encompasses part of the easterly portion of Weldon.

Each of the small residential neighborhoods has its own independent water system and all of them use groundwater supply wells as their sole source of water supply. The Weldon area is located within the Kern River Valley Groundwater Basin in Kern County. A list of the existing water systems within the proposed Project area is provided below:

- Long Canyon Water Company
- Rainbird Valley Mutual Water Company
- Tradewinds Water Association
- Bella Vista Mutual Water Company
- Sierra Vista Restaurant
- Lake Isabella K.O.A.

- Hillview Acres Mutual Water Company
- Lakeview Ranchos Mutual Water Company
- South Fork Elementary School
- Valley Estates P.O.A.
- South Fork Middle School
- Weldon Methodist Church
- South Fork Women's Club

- Indicates Project Participant
- Indicates Potential Project Participant

Several of these water systems have water quality issues and exceed the regulated maximum contaminant levels (MCL) for Uranium, Nitrate, and Arsenic. Complete water quality results for the past ten years for each of the project participants systems have been attached hereto as Appendix A. In July of 2015, two casing hammer test wells were drilled to find better water quality for the area and both test wells were successful. A recommendation was therefore made to drill, construct, and equip a municipal water well at each test well location to serve a new consolidated community water system.

The Long Canyon Water Company, Rainbird Mutual Water Company, Tradewinds Water Association, Bella Vista Mutual Water Company, Sierra Vista Restaurant, and the Lake Isabella K.O.A. have all indicated a willingness to participate in a project to consolidate these existing water systems into a single system. This will involve constructing two new municipal water wells at the test well locations as referenced above and abandoning or disconnecting the existing water supply wells that do not meet Drinking Water Standards.

In light of these water quality issues, five project alternatives have been considered and evaluated herein to consolidate these six water systems into a single system. Consideration has also been given to the other water systems nearby to ensure future consolidation with the new community water system would be feasible.

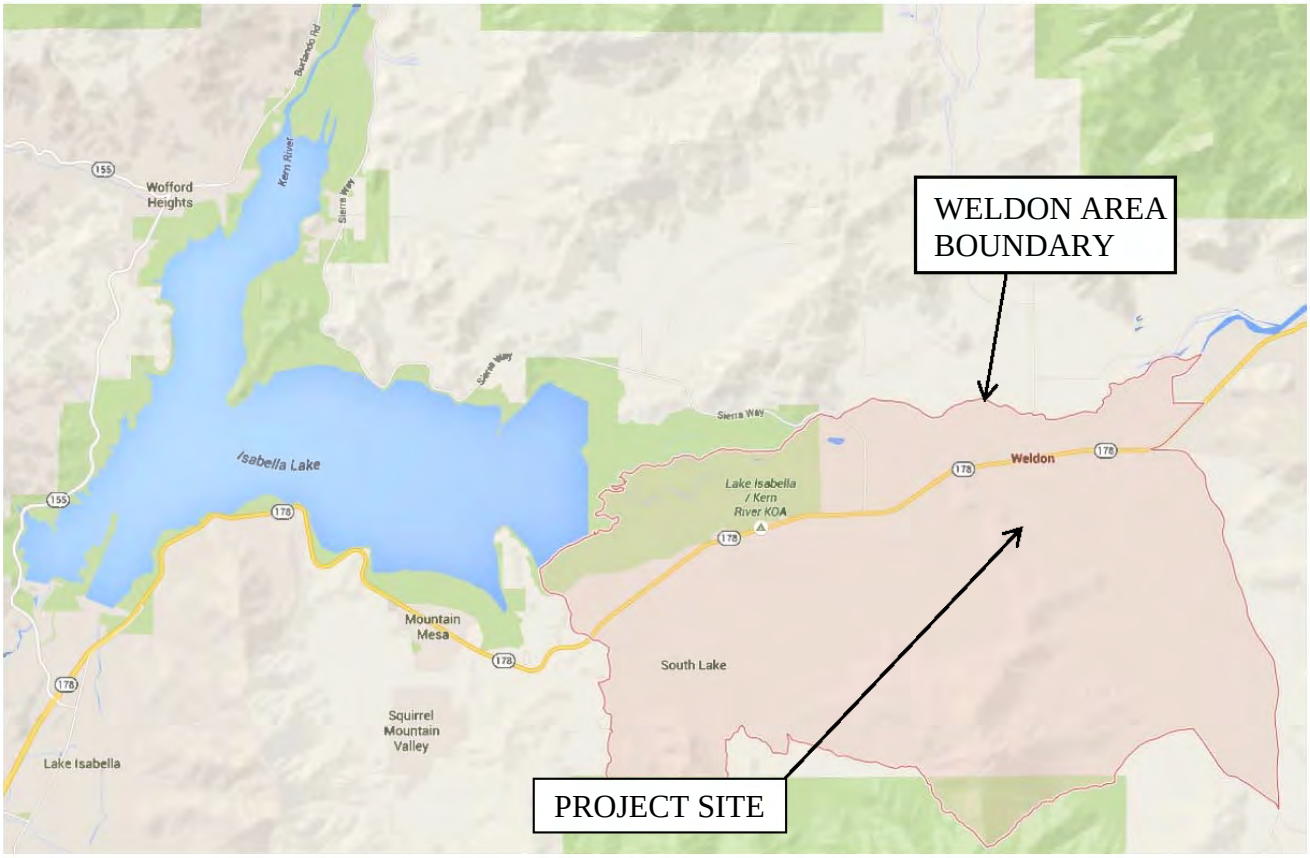

Figure 1

Vicinity Map – Weldon, California

II. EXECUTIVE SUMMARY

This preliminary engineering report considers and evaluates five project alternatives which are outlined below and discussed in greater detail herein.

1. Alternative No. 1 – No Project
2. Alternative No. 2 – System Consolidation Project with a 2 MG Storage Tank
3. Alternative No. 3 – System Consolidation Project with a 2 MG Storage Tank with a Dedicated Tank Fill Line and Gravity Supply
4. Alternative No. 4 – System Consolidation Project with two 1 MG Storage Tanks
5. Alternative No. 5 – System Consolidation Project with two 1 MG Storage Tanks with a Dedicated Tank Fill Line and Gravity Supply

Each of the project alternatives focused on a regional consolidation to serve Long Canyon Water Company, Rainbird Valley Mutual Water Company, Tradewinds Water Association, Bella Vista Mutual Water Company, Sierra Vista Restaurant, and the Lake Isabella K.O.A.; however, each alternative allows for future system expansion to potentially connect other existing small water companies within the area. Preliminary cost estimates to connect each of these potential existing water systems have been included in Appendix I, K, M, and O.

The regional water system infrastructure is proposed to connect to the existing water system of the Long Canyon Water Company, Rainbird Valley Mutual Water Company, Tradewinds Water Association, Bella Vista Mutual Water Company, the Sierra Vista Restaurant, and the Lake Isabella K.O.A. The regional water system infrastructure would replace the existing water system pipelines, valves, hydrants, and appurtenances for the Long Canyon Water Company, Rainbird Mutual Water Company, and Bella Vista water systems and would utilize the existing water system pipelines, valves, hydrants, and appurtenances for the Tradewinds Water Association system. The existing infrastructure of each water system has been evaluated primarily on the basis of the age of the system pipelines, valves, hydrants, and appurtenances and it is recommended that any system piping, valves, and appurtenances that are over 30 years old be replaced.

This project will result in the formation of a new regional water system, which will need time to accumulate funds in a reserve account for repairs and replacement as the water system ages. By replacing the older components of the existing infrastructure, the newly formed regional water system will have a new system that should not have a need for major repairs during the first several years of its operation. The approximate age of the infrastructure of each existing water system is shown in Table 1:

Table 1 – Age of Existing System Infrastructure

System Name	Age of Ex. Infrastructure (yrs)
Rainbird Valley MWC	**36**
Tradewinds WA	21
Bella Vista WC	**31**
Long Canyon WC	**45**

A few of the water systems have water supply wells that currently meet Drinking Water Standards such as Long Canyon Well No. 2 and Bella Vista Well No. 1 and No. 2. These wells are recommended to be maintained and connected to the regional water system; however, this must be agreed to by the project participants. It is recommended to avoid utilizing existing storage tanks, pumping plants, and electrical for the small water systems as inevitably these will fail or develop problems and require repairs or replacement. The recommendation would be to utilize new equipment that will have a useful life that corresponds to the completion

of the regional consolidation project and the beginning of the regional water service.

The project costs for each alternative are summarized in Table 2 below and include the estimated capital, annual O&M, present worth, and the estimated monthly water cost for the project participants. The estimated monthly water cost with additional customers from consolidation with the adjacent potential project participants is also shown.

Table 2 – Project Alternatives Cost Summary

	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Total Project Capital Cost:	$18,388,305.00	$18,387,030.00	$18,780,367.50	$19,874,955.00
Annual O&M Cost:	$291,802.50	$275,811.67	$292,301.25	$276,852.50
Net Present Worth:	$24,852,738.16	$24,497,210.98	$25,255,849.70	$26,008,194.03
Cost/Cust./Mo.:	$55.77	$52.72	$55.87	$52.92
Cost/Cust./Mo. w/Add'l Customers:	$47.68	$47.13	$47.74	$47.26

The evaluation of the five different project alternatives herein shows Project Alternative 3 to be the most cost effective option to consolidate the six project participant water systems into a single community water system; however, while Alternative 3 provides a system storage capacity that meets the minimum storage requirement, it only includes a single storage tank. Alternative 4 includes adequate storage capacity that meets the recommended storage capacity for the system while also providing two separate storage tanks. It is advantageous to have two separate storage tanks on each end of the water distribution system in the event of a major pipeline break or equipment failure that requires shutting down part of the system. Furthermore, Alternative 4 includes well head treatment for each new well for the removal of Iron and Manganese. Construction of these well head treatment systems may not be necessary and will depend on the final water quality results after completion of the construction of both new municipal wells. Based on this, our recommendation for this Project is to construct Alternative 4 with the caveat that treatment will not be installed if it is deemed not necessary.

III. WATER SYSTEM SUPPLY & DEMANDS

A. PROJECT PARTICIPANTS EXISTING SUPPLY & DEMAND

Current Project participants include:

1- Tradewinds Water Association
2- Rainbird Valley Mutual Water Company
3- Long Canyon Water Company
4- Bella Vista Mutual Water Company

5- Sierra Vista Restaurant
6- Lake Isabella K.O.A.

Existing Water System Supply

The Tradewinds Water Association, Long Canyon Water Company, Rainbird Valley Mutual Water Company, Bella Vista Mutual Water Company, Sierra Vista Restaurant, and the Lake Isabella K.O.A. all rely solely on groundwater as the source of water supply. Each water system currently has two wells, with the exception of the Lake Isabella K.O.A. and the Sierra Vista Restaurant. The K.O.A. and the Restaurant each have one well, which is problematic in the event the well is inoperable. Many of the existing water system wells have water quality issues and do not meet Drinking Water Standards. Complete water quality results for the past 10 years for each system can be found in Appendix A along with a summary table showing constituents of concern and recent MCL violations for each water system.

Existing Water System Demand

The Average Day Demand (ADD), Maximum Day Demand (MDD), and Peak Hour Demand (PHD) have been estimated based on the total annual water use for each of the water systems as shown in Table 3. The ADD, MDD, and PHD were each estimated in accordance with Section 64554 of the California Waterworks Standards (CWWS). The annual usage for each existing water system was divided by 365 to obtain the ADD. A peaking factor of 2.25 was used to estimate MDD, and a peaking factor of 2.0 was used to estimate the PHD. The Maximum Day Demand for 436 service connection is estimated at approximately 500-600 gpm per Figure 14 of the CWWS. The CWWS have been attached hereto as Appendix B for reference. A more detailed breakdown of the water system demands can be found in Appendix C. In addition, a map of the project area showing the Kern County zoning designations has been attached hereto as Appendix D.

Table 3 – Project Participants Water System Demand

System Name	System Population	Service Connections	Annual Water Use (afy)	ADD (gpm)	MDD (gpm)	PHD (gpm)
Tradewinds Water Association	470	236	70.8	43.9	98.8	197.5
Rainbird Valley Mutual Water Company	188	83	33.2	20.6	46.3	92.6
Long Canyon Water Company	197	67	10.8	6.7	15.1	30.1
Bella Vista Mutual Water Company	74	47	28.2	17.5	39.3	78.7
Sierra Vista Restaurant	Varies	2	7.1	4.4	9.8	19.7
Lake Isabella K.O.A.	Varies	1	8.3	5.1	11.6	23.1
Total:	**929**	**436**	**158.4**	**98.2**	**220.9**	**441.7**

System Supply Requirements (per Kern County Development Standards-KCDS)

The consolidated water system must be capable of supplying half of the peak hourly flow plus the required fire flow (1,721 gpm) for two hours. The fire flow requirement is 1,500 gpm for two hours per Section 205-3 of the KCDS for commercial developments. Commercial developments include the Post Office and multi-family zoning in the Long Canyon water system, commercial zoning in the Rainbird water system, and the K.O.A. and Sierra Vista Restaurant. In addition, 2/3 of this flow (1,147 gpm) must be maintained with the most critical well or pump inoperative. Also in accordance with KCDS the MDD (220.9 gpm) shall be met for three days from a combined source of wells and storage, and the ADD (98.2 gpm) must be maintained continuously from the well pumping only. The proposed project alternatives have been designed so that the new regional water system meets these Kern County Developments Standards. The available supply is based on the estimated well production for the two new wells to be drilled as part of the consolidation project. Based on data from the two test wells that were drilled in July of 2015, the estimated well capacity is approximately 400 gpm each. As previously mentioned, the ADD, MDD, and PHD were estimated in accordance with Section 64554 of the CWWS from the annual water usage provided for each existing water system. A summary of the water system supply requirements is shown in Table 4 below:

Table 4 – Water System Supply Requirements

System Supply Requirement		Flow Req't (gpm)	Supply Available	Sources	Storage Used (gal)
1	½ PHD + F.F for 2 Hours	1,721	1,721 gpm	Well No. 1, Well No. 2 + Storage	110,520
2	2/3 of Item 1 with One Well Inoperative	1,147	1,147 gpm	Well No. 1 + Storage	89,640
3	MDD (for Three Days)	220.9	800 gpm	Well No. 1 & No. 2	0
4	ADD (Continuous)	98.2	800 gpm	Well No. 1 & No. 2	0

B. POTENTIAL PROJECT PARTICIPANTS EXISTING SUPPLY & DEMAND

Potential Project participants include:

1- South Fork Elementary School
2- South Fork Women's Club
3- Weldon Methodist Church
4- Valley Estates P.O.A.
5- South Fork Middle School
6- Hillview Acres Mutual Water Company
7- Lakeview Ranchos Mutual Water Company

Existing Water Supply

All of the potential project participants listed above rely solely on groundwater as the source of supply for their respective water systems. Some of them including the Lakeview Ranchos Mutual Water Company are in violation of Drinking Water Standards with contaminants above the regulated MCL.

Existing Water System Demand

The ADD, MDD, and PHD have been estimated based on the total annual water use for each of the water systems in accordance with the CWWS as explained in the previous section for the project participants, and as shown in Table 5:

Table 5 – Potential Project Participants Water System Demand

System Name	System Population	Service Connections	Annual Water Use (afy)	ADD (gpm)	MDD (gpm)	PHD (gpm)
South Fork Elementary School	135	1	2.8	1.7	3.8	7.7
South Fork Women's Club	N/A	1	6.8	4.2	9.4	18.8
Weldon Methodist Church	N/A	1	5.2	3.2	7.3	14.6
Valley Estates P.O.A.	300	121	184.1	114.1	256.8	513.7
South Fork Middle School	135	1	2.2	1.3	3.0	6.0
Hillview Acres Mutual Water Company	25	47	14.7	9.1	20.5	41.1
Lakeview Ranchos Mutual Water Company	120	73	18.4	11.4	25.7	51.4
Total:	**715**	**245**	**234.2**	**145.2**	**326.6**	**653.2**

Water System Supply Requirements (per Kern County Development Standards)

In the event the water systems listed above elect to participate in the project and tie in to the proposed consolidated water system, the water system must be capable of supplying half of the peak hourly flow plus the required fire flow (2,047 gpm) for two hours. This is the demand for the project participants and potential project participants combined. The fire flow requirement for commercial developments is 1,500 gpm for two hours per KCDS. In addition, 2/3 of this flow (1,365 gpm) must be maintained for two hours with the most critical well or pump inoperative.

Also, in accordance with KCDS, the MDD (220.9 gpm + 326.6 gpm = 547.5 gpm) shall be met for three days from a combined source of wells and storage, and the ADD (98.2 gpm + 145.2 gpm = 243.4 gpm) must be maintained continuously from the well pumping only. As mentioned previously, the ADD, MDD, and PHD were estimated in accordance with Section 64554 of the CWWS from the annual water usage provided for each existing water system. A summary of the water system supply requirements is shown in Table 6:

Table 6 – Water System Supply Requirements

System Supply Requirement		Flow Req't (gpm)	Supply Available	Sources	Storage Used (gal)
1	½ PHD + F.F for 2 Hours	2,047	2,047	Well No. 1, Well No. 2 + Storage	149,640
2	2/3 of Item 1 with One Well Inoperative	1,365	1,365	Well No. 1 + Storage	115,800
3	MDD (for Three Days)	486.6	800	Well No. 1 & No. 2	0
4	ADD (Continuous)	243.4	800	Well No. 1 & No. 2	0

C. SUPPLY FROM NEW MUNICIPAL WATER WELLS

Based on the data from the drilling of the two casing hammer test wells, the new water well to be constructed at the Test Well #1 location is estimated to have a production rate of approximately 400 gpm, and the new water well to be constructed at the Test Well #2 location is estimated to have a production rate of approximately 400-600 gpm, see Appendix F.

IV. WATER SYSTEM STORAGE

The system storage requirements for the proposed consolidated water system have been calculated and are shown in Table 7. These requirements are based on historical usage for each of the existing water systems and Kern County Development Standards. The minimum storage volume for 436 service connections per Figure 15 of the CWWS is approximately 420,000 gallons. This is based on the CWWS philosophy of providing a minimum of one maximum day of storage, however due to the remote location of this water system and the mountainous geography additional storage for emergency needs is recommended. The primary emergency of concern is lost power from rain storms or power supply lines being destroyed by flood or fire and being out for an extended period of time. A more detailed breakdown of the water system storage requirements can be found in Appendix E.

Table 7 – Water Storage Requirements

Storage Requirement	Project Participants (gallons)	Potential Project Participants & Project Participants (gallons)
Fire Storage*	180,000	180,000
Operational Storage (MDD for One Day)	318,000	788,000
Emergency Storage (Three Days)	954,000	2,365,000
Recommended Storage:	**1,479,000**	**3,399,000**

*per Kern County Development Standards

The recommended storage for the project participants is approximately 1.5 million gallons net capacity. The project alternatives considered have been designed to meet the storage requirements shown above for the project participants. Project Alternatives 2 and 3 include a single 2 MG storage tank and Project Alternatives 4 and 5 include two 1 MG storage tanks. It is estimated that 2.0 million gallons of gross storage capacity will equate to approximately 1.5 million gallons of net storage capacity.

V. WATER QUALITY

Existing System Water Quality

Several of the existing project participant water systems have water quality issues where one or more of their water wells are either currently or have previously been in violation of primary Drinking Water Standards. Water quality results for the project participants are attached hereto in Appendix A. The most recent water quality results for the contaminants of concern for five of the existing project participant water systems is shown on Table 8 with current MCL violations highlighted in bold. Bella Vista does not have any water quality violations.

Table 8 – Project Participants Existing System Water Quality Violations

	Long Canyon Water Company		Rainbird Valley Mutual Water Company		Tradewinds Water Association		Sierra Vista Restaurant	Lake Isabella KOA
Contaminant (MCL)	**Well 1***	**Well 2**	**Well 1**	**Well 2**	**Well 2**	**Well 3**	**Well 1**	**Well 1**
Arsenic (10 ppb)	<2.0	<2.0	<2.0	2.1	<2.0	<2.0	**10****	**10****
Nitrate as N (10 ppm)	<0.44	0.86	2.4	**17**	1.5	2.2	**14**	**15**
Uranium (20 pCi/L)	**20.0**	18.0	**43**	**25**	16	**23**	N/A	N/A

*Standby Well

**Results from 1990

In addition to the violations listed above for five of the project participant water systems, the Lakeview Ranchos Mutual Water Company is also in violation of the MCL for arsenic. Furthermore, several of the potential project participants currently have only one well as their sole source of water supply which decreases the water system's reliability, including:

- Hillview Acres Mutual Water Company
- South Fork Elementary School
- South Fork Middle School
- Weldon Methodist Church
- South Fork Women's Club

Casing Hammer Test Well Water Quality

Two casing hammer test wells were drilled in mid-July 2015 to find suitable locations to construct new municipal water wells that meet Drinking Water Standards. During the drilling of the two test wells, samples were collected at selected depth intervals for water quality analysis. Abbreviated summaries of the depth sampling water quality results from the two casing hammer test wells are shown in Tables 9 and 10. Water quality results shown below in bold represent results that exceed the MCL. Shaded cells represent tested zones of the aquifer that will be within the proposed perforated interval or production zones.

Table 9 – Depth Sampling Results for Test Well #1

Cased Depth (ft)	Drilled Depth (ft)	Sample Type	Iron (ppm)	Manganese (ppm)	Nitrate as NO_3 (ppm)	Arsenic (ppb)	Hexavalent Chromium (ppb)	Gross Alpha (pCi/L)
55	58	Airlift	<0.03	**0.84**	0.4	<2	<0.2	2.3
155	158	Airlift	<0.03	**0.48**	2.3	<2	-	1.3
215	218	Airlift	<0.03	**0.88**	8.0	<2	-	6.0
274	277	Airlift	<0.03	0.026	**53**	<2	0.32	1.6
274	277	Pumped	<0.03	**0.2**	**53**	<2	<0.2	3.4

[1]Uranium tests were not conducted by the lab.

Table 10 – Depth Sampling Results for Test Well #2

Cased Depth (ft)	Drilled Depth (ft)	Sample Type	Iron (ppm)	Manganese (ppm)	Nitrate as NO_3 (ppm)	Arsenic (ppb)	Hexavalent Chromium (ppb)	Gross Alpha (pCi/L)
83	86	Airlift	<0.03	0.0025	4.4	3	0.3	**25**
100	103	Airlift	<0.03	0.0056	26	<2	0.9	**41**
100	103	Pumped	<0.03	0.02	27	<2	1.5	**40.0**
170	173	Airlift	<0.03	0.0043	14	<2	<0.2	9.4
214	220	Airlift	<0.03	0.0077	9.1	<2	0.4	13
214	220	Pumped	**0.730**	0.02	8.9	<2	<0.2	15
260	263	Airlift	<0.03	0.019	4.2	<2	0.3	**31**
295	298	Airlift	<0.03	**0.056**	5.2	<2	<0.2	**41**
295	298	Pumped	<0.03	0.02	5.3	<2	<0.2	**46**
344	347	Airlift	<0.03	0.049	3.0	<2	<0.2	**43**

[1]Uranium tests were not conducted by the lab.

Based on an evaluation of the groundwater quality results, a recommendation was made to construct a new municipal water well at each test well location.

All project alternatives propose to construct a 230-ft deep well at the Test Hole #1 location with a perforated interval from 100-ft to 220-ft. However, the well may

have Manganese above the MCL and would require treatment by oxidation/filtration. The deepest zone, Zone #4, has high Nitrate but it would be approximately 40-ft below the well depth and there is a cemented sand lense at about 268-ft to 274-ft that would retard the upward movement of that water.

All project alternatives also propose to construct a 250-ft deep well at the Test Hole #2 location with a perforated interval from 170-ft to 240-ft. The two shallow zones above this perforated interval have high gross alpha which is assume to equate to high Uranium, but there is a good clay layer (clay, silty clay, and silt) from about 120-ft to 170-ft. The deeper zones below 260-ft have high gross alpha as well which is assume to equate to high Uranium. However, there is a layer of cemented sands from 258-ft to 260-ft that would provide a barrier from the upward movement of that deeper water. There was a high iron concentration from 214-ft to 220-ft but this may blend down with the water from an approximate depth of 170-ft to 173-ft, otherwise oxidation/filtration may be necessary for iron removal.

A copy of the test well report has been attached hereto in Appendix F for reference.

After the two new municipal wells are constructed, the water quality for each well will be evaluated to determine whether treatment is required to meet the Secondary Standards for Iron and Manganese. Alternatives 3 and 5 allow for potential blending of the well water in the storage tanks prior to going to the distribution system while Alternatives 2 and 4 will require treatment. If treatment is required, then an oxidation/filtration treatment system would be installed at each well site as necessary. The proposed treatment vessels would be loaded with Katalox Light oxidation/filtration media in order to limit or eliminate chemical pretreatment as much as possible. The system would backwash automatically as necessary and discharge into an adjacent retention pond. Backwashing will be based on either a set timer or totalized volume treated and the system will be capable of operating in either mode.

The estimated capital cost to furnish and install a single 400 gpm Iron/Manganese removal water treatment system is $420,000. For more detail please see the attached copy of the capital estimate for the proposed Iron/Manganese treatment system as Appendix G.

VI. PROJECT ALTERNATIVES

The following project alternatives were considered to consolidate the existing Rainbird Valley Mutual Water Company, Tradewinds Water Association, Long Canyon Water Company, Bella Vista Mutual Water Company, Sierra Vista Restaurant, and Lake Isabella K.O.A. water systems:

Alternative 1 – No Project
Alternative 2 – System Consolidation Project with 2 MG Storage Tank

Alternative 3 – System Consolidation Project with a 2 MG Storage Tank with a Dedicated Tank Fill Line and Gravity Supply
Alternative 4 – System Consolidation Project with two 1 MG Storage Tanks
Alternative 5 – System Consolidation Project with two 1 MG Storage Tanks with a Dedicated Tank Fill Line and Gravity Supply

ALTERNATIVE 1 – No Project

Alternative 1 considers not implementing a project to consolidate the six water systems or construct new municipal water wells that meet Drinking Water Standards. In this alternative the six water systems would continue supplying water that does not meet Drinking Water Standards which would lead to continued MCL violations for several regulated contaminants and would put water system customers' health at risk. For this reason this alternative is considered not feasible.

ALTERNATIVE 2 – System Consolidation Project with a 2 MG Storage Tank

Alternative 2 considers consolidating the six Project Participant water systems into a single distribution system. The proposed project alternative is summarized as follows:

Alternative 2 includes the drilling, construction, and equipping of two new municipal water wells. Both wells will be equipped with a chemical feed pump for chlorination of the raw groundwater in order to maintain a free chlorine residual of ±0.5 ppm in the water system. Furthermore, the well equipping piping will be designed to facilitate the addition of a water treatment system for the removal of iron and manganese from the raw groundwater should treatment be necessary in order to meet the secondary MCL standards.

This alternative also includes the construction of ±33,150 LF of 12" C900 PVC piping to convey water from the two new wells to the 2 MG storage tank and to the six existing water systems. In addition, approximately 26,525 LF of 6" C900 PVC piping will be installed to replace the aging infrastructure of existing water systems that are more than 30 years old including the piping, valving, and appurtenances for the Long Canyon Water Company, Rainbird Mutual Water Company, and the Bella Vista Mutual Water Company water systems. This alternative utilizes Tradewinds Water Association's existing water distribution system with the exception of the existing storage tanks and booster station. These will not be incorporated as part of the new regional water system. This alternative includes the construction of a two million gallon welded steel AWWA D100 water storage tank and a booster station to pump water into the Bella Vista MWC system. This project is being proposed so that the six existing systems can disconnect and abandon the existing wells that have water quality violations from their water systems.

A map of the proposed project alternative is attached hereto in Appendix H.

The estimated cost for Alternative 2 includes:

- Drilling and equipping of two new water supply wells
- Abandonment of six existing wells that do not meet Drinking Water Standards
- Well head treatment for Fe & Mn removal at each of the well sites
- Construction of a two million gallon welded steel water storage tank
- Construction of ±33,150 LF of 12" DR14 C900 PVC Pipe
- Construction of ±26,525 LF of 6" DR14 C900 PVC Pipe
- New Distribution System for Rainbird M.W.C., Long Canyon W.C., Bella Vista MWC, and system tie-ins for Tradewinds W.A., the Sierra Vista Restaurant, and the Lake Isabella K.O.A.

The total capital cost for Alternative 2 is estimated to be $18,388,305. Non-construction costs for engineering and design, construction inspection, contract administration, and construction management are included. The itemized project estimate as well as estimates to connect potential project participants to the system have been attached hereto in Appendix I.

The annual operating and maintenance cost for Alternative 2 is estimated to be $291,802.50. A detailed breakdown of the analyzed operating costs can be found attached hereto in Appendix I.

ALTERNATIVE 3 – System Consolidation Project with a 2 MG Storage Tank and a Dedicated Tank Fill Line and Gravity Supply

Alternative 3 considers consolidating the six Project Participant water systems into a single distribution system. The proposed project alternative is summarized as follows:

Alternative 3 includes the drilling, construction, and equipping of two new municipal water wells. Both wells will be equipped with a chemical feed pump for chlorination of the raw groundwater in order to maintain a free chlorine residual of ±0.5 ppm in the water system. Furthermore, the well equipping piping will be designed to facilitate the addition of a water treatment system for the removal of iron and manganese from the raw groundwater should treatment be necessary in order to meet the secondary MCL standards. However, for this altarnative it is prposed to blend the water from the two new wells in the storage tank to reduce the concentrations of Iron and Manganese prior to conveyance to the distribution system.

This alternative also includes the construction of ±43,700 LF of 12" C900 PVC piping to convey water from the two new wells through a dedicated line to the 1 MG storage tank, and a gravity distribution system from the tank to the six existing water systems. In addition, approximately 26,525 LF of 6" C900 PVC piping will be installed to replace the aging infrastructure of existing water systems that are more than 30 years old including the piping, valving, and

appurtenances for the Long Canyon Water Company, Rainbird Mutual Water Company, and the Bella Vista Mutual Water Company water systems. This alternative utilizes Tradewinds Water Association's existing water distribution system with the exception of the existing storage tanks and booster station. These will not be incorporated as part of the new regional water system. This alternative includes the construction of a two million gallon welded steel AWWA D100 water storage tank and a booster station to pump water into the Bella Vista MWC system. This project is being proposed so that the six existing systems can disconnect and abandon the existing wells that have water quality violations from their water systems.

A map of the proposed project alternative is attached hereto in Appendix J.

The estimated cost for Alternative 3 includes:

- Drilling and equipping of two new water supply wells
- Abandonment of six existing wells that do not meet Drinking Water Standards
- Construction of a two million gallon welded steel water storage tank
- Construction of ±43,700 LF of 12" DR14 C900 PVC Pipe
- Construction of ±26,525 LF of 6" DR14 C900 PVC Pipe
- New Distribution System for Rainbird M.W.C., Long Canyon W.C., and system tie-ins for Tradewinds W.A., Bella Vista MWC, Sierra Vista Restaurant, and the Lake Isabella K.O.A.

The total capital cost for Alternative 3 is estimated to be $18,387,030.00. Non-construction costs for engineering and design, construction inspection, contract administration, and construction management are included. The itemized project estimate as well as estimates to connect potential project participants to the system have been attached hereto in Appendix K.

The annual operating and maintenance cost for Alternative 3 is estimated to be $275,811.67. A detailed breakdown of the analyzed operating costs can be found attached hereto in Appendix K.

ALTERNATIVE 4 – System Consolidation Project with Two 1 MG Storage Tanks

Alternative 4 considers consolidating the six Project Participant water systems into a single distribution system. The proposed project alternative is summarized as follows:

Alternative 4 includes the drilling, construction, and equipping of two new municipal water wells. Both wells will be equipped with a chemical feed pump for chlorination of the raw groundwater in order to maintain a free chlorine residual of ±0.5 ppm in the water system. Furthermore, the well equipping piping will be designed to facilitate the addition of a water treatment system for

the removal of iron and manganese from the raw groundwater should treatment be necessary in order to meet the secondary MCL standards.

This alternative also includes the construction of ±34,675 LF of 12" C900 PVC piping to convey water from the two new wells to the two 1 MG storage tanks and six existing water systems. In addition, approximately 26,525 LF of 6" C900 PVC piping will be installed to replace the aging infrastructure of existing water systems that are more than 30 years old including the piping, valving, and appurtenances for the Long Canyon Water Company, Rainbird Mutual Water Company, and the Bella Vista Mutual Water Company water systems. This alternative utilizes Tradewinds Water Association's existing water distribution system with the exception of the existing storage tanks and booster station. These will not be incorporated as part of the new regional water system. This alternative includes the construction of two one million gallon welded steel AWWA D100 water storage tanks and a booster station to pump water into the Bella Vista MWC system. This project is being proposed so that the six existing systems can disconnect the existing wells that have water quality violations from their water systems.

A map of the proposed project alternative is attached hereto as Appendix L.

The estimated cost for Alternative 4 includes:

- Drilling and equipping of two new water supply wells
- Abandonment of six existing wells that do not meet Drinking Water Standards
- Well head treatment for Fe & Mn removal at each of the well sites.
- Construction of two one million gallon welded steel water storage tanks
- Construction of ±34,675 LF of 12" DR14 C900 PVC Pipe
- Construction of ±26,525 LF of 6" DR14 C900 PVC Pipe
- New Distribution System for Rainbird M.W.C., Long Canyon W.C., and Bella Vista M.W.C., and system tie-ins for Tradewinds W.A., the Sierra Vista Restaurant, and the Lake Isabella K.O.A.

The total capital cost for Alternative 4 is estimated to be $18,780,367.50. Non-construction costs for engineering and design, construction inspection, contract administration, and construction management are included. The itemized project estimate as well as estimates to connect potential project participants to the system have been attached hereto in Appendix M.

The annual operating and maintenance cost for Alternative 4 is estimated to be $292,301.25. A detailed breakdown of the analyzed operating costs can be found attached hereto in Appendix M.

ALTERNATIVE 5 – System Consolidation Project with Two 1 MG Storage Tanks with a Dedicated Tank Fill Line and Gravity Supply

Alternative 5 considers consolidating the six Project Participant water systems into a single distribution system. The proposed project alternative is summarized as follows:

Alternative 5 includes the drilling, construction, and equipping of two new municipal water wells. Both wells will be equipped with a chemical feed pump for chlorination of the raw groundwater in order to maintain a free chlorine residual of ±0.5 ppm in the water system. Furthermore, the well equipping piping will be designed to facilitate the addition of a water treatment system for the removal of iron and manganese from the raw groundwater should treatment be necessary in order to meet the secondary MCL standards. However, for this alternative it is proposed to blend the water from the two new wells in the storage tank to reduce the concentrations of Iron and Manganese prior to conveyance to the distribution system.

This alternative also includes the construction of ±54,550 LF of 12" C900 PVC piping to convey water from the two new wells through a dedicated line to the two 1 MG welded steel storage tanks and a separate gravity distribution system from the two storage tanks to the six existing water systems. In addition, approximately 26,525 LF of 6" C900 PVC piping will be installed to replace the aging infrastructure of existing water systems that are more than 30 years old including the piping, valving, and appurtenances for the Long Canyon Water Company, Rainbird Mutual Water Company, and the Bella Vista Mutual Water Company water systems. This alternative utilizes Tradewinds Water Association's existing water distribution system with the exception of the existing storage tanks and booster station. These will not be incorporated as part of the new regional water system. This alternative includes the construction of two one million gallon welded steel AWWA D100 water storage tanks and a booster station to pump water into the Bella Vista MWC system. This project is being proposed so that the six existing systems can disconnect the existing wells that have water quality violations from their water systems.

A map of the proposed project alternative is attached hereto in Appendix N.

The estimated cost for Alternative 5 includes:

- Drilling and equipping of two new water supply wells
- Abandonment of six existing wells that do not meet Drinking Water Standards
- Construction of two one million gallon welded steel water storage tanks
- Construction of ±54,550 LF of 12" DR14 C900 PVC Pipe
- Construction of ±26,525 LF of 6" DR14 C900 PVC Pipe

- New Distribution System for Rainbird M.W.C., Long Canyon W.C., and Bella Vista M.W.C., and system tie-ins for Tradewinds W.A., the Sierra Vista Restaurant, and the Lake Isabella K.O.A.

The total capital cost for Alternative 5 is estimated to be $19,874,955.00. Non-construction costs for engineering and design, construction inspection, contract administration, and construction management are included. The itemized project estimate as well as estimates to connect potential project participants to the system have been attached hereto in Appendix O.

The annual operating and maintenance cost for Alternative 5 is estimated to be $276,852.50. A detailed breakdown of the analyzed operating costs can be found attached hereto in Appendix O.

DESIGN CRITERIA & COMPLIANCE ISSUES:

All the proposed Project Alternatives address the project need to consolidate the six water systems. The new wells at the two test well locations will be designed in accordance with County and State Standards and will serve to address water quality issues in the area.

New water mains have been sized to meet Kern County fire flow requirements and C900 PVC pipe has been chosen for the new water mains in accordance with California Waterworks Standards. The system Average Day Demand, Maximum Day Demand, and Peak Hourly Demand have been estimated per Kern County Development Standards and also in accordance with the California Waterworks Standards. All new hydrants will be the dry barrel type in accordance with Kern County Development Standards for elevations above 2,500'.

A hydraulic analysis of the regional water system has been performed using Haested Methods WaterCad V8 and is attached in Appendix Q. The hydraulic analysis illustrates the approximate pressure zones of the system and the associated pressure reducing stations for the recommended alternative (#4). The system ahs a normal operating pressure range of 40-80 psi per the California Waterworks Standards. The backbone system of piping along Highway 178 and Vista Grande is required to be a 12-inch pipeline in order to convey fire flows of 1,500 gpm.

Pipeline easements would be needed for any locations along the proposed alignments that are not in the existing County or State road rights-of-way; however, it is anticipated that the majority of the new proposed pipeline alignments will be within County or State road rights-of-way.

The anticipated permit requirements for the project will include County and State Encroachments permits for the installation of the new water services within the County and State rights-of-way, a County Franchise Permit, a State Franchise Permit, County of Kern Well Drilling Permits, and a County of Kern Building

Permit for the equipping of the new wells, the administration building, and construction of the new water storage tanks.

VII. PROJECT COST ANALYSIS

A twenty year present worth analysis was performed for the project alternatives using a 1.7% interest rate and a 2.24% annual inflation rate. The 1.7% interest rate is based on the most recent interest rate published by the State Water Resources Control Board Clean Water State Revolving Fund. The 2.24% inflation rate is an approximate average of the annual inflation rate for the past 20 years. The results of the analyses are summarized in Table 11 below and are attached are attached hereto in Appendix P.

Table 11 – 20 Year Present Worth Analysis

	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Total Project Capital Cost:	$18,388,305.00	$18,387,030.00	$18,780,367.50	$19,874,955.00
Annual O&M Cost:	$291,802.50	$275,811.67	$292,301.25	$276,852.50
Present Worth O&M:	$6,464,433.16	$6,110,180.98	$6,475,482.20	$6,133,239.03
Net Present Worth:	$24,852,738.16	**$24,497,210.98**	$25,255,849.70	$26,008,194.03
Estimated Cost/Customer/Month:	$55.77	**$52.72**	$55.87	$52.92

VIII. CONCLUSIONS

Alternative 3 is the most cost effective project alternative for the consolidation of the six water systems that have indicated a willingness to participate in the Project. This alternative provides the six existing system service areas with adequate system storage and supply.

However, while Alternative 3 provides a system storage capacity that meets the minimum storage requirement, it only includes a single storage tank. Alternative 4 includes adequate storage capacity that meets the recommended storage capacity for the system while also providing two separate storage tanks. It is advantageous to have two separate storage tanks on each end of the water distribution system in the event of a major pipeline break or equipment failure that requires shutting down part of the system. Furthermore, Alternative 4 includes well head treatment for each new well for the removal of Iron and Manganese. Construction of these well head treatment systems may not be necessary and will depend on the final water quality results after completion of the construction of both new municipal wells. Based on this, our recommendation for this Project is to construct Alternative 4 with the caveat that treatment will not be installed if it is deemed not necessary.

APPENDIX A

Existing System Water Quality Results

APPENDIX A

Existing System Water Quality Results

Weldon Regional Water Study								
	Project Participants	**Potential Project Participants**	**Number of Connections**	**Population**	**System Classification**	**Number of Wells**	**Water Quality Violation(s)**	**Comments**
1	Long Canyon Water Company		67	197	CWS	2	Uranium	Uranium above MCL in Well 1 (standy well) only.
2	Rainbird Valley Mutual Water Company		83	188	CWS	2	Uranium, Nitrate	MCL violations for both Wells.
3	Tradewinds Water Association		236	470	CWS	2	Uranium	
4	Bella Vista Mutual Water Company		47	74	CWS	2	None	
5	Sierra Vista Restaurant		2		TNC	1	Nitrate	
6	Lake Isabella K.O.A.		1		TNC	1	Nitrate	
7		Hillview Acres Mutual Water Company	47	25	CWS	1	Unknown	
8		Lakeview Ranchos Mutual Water Company	73	120	CWS	3	Arsenic	
9		South Fork Elementary School	1		NTNC	1	None	
10		Valley Estates P.O.A.	121	300	CWS	2	None	
11		South Fork Middle School	1		NTNC	1	Uranium	Last result above MCL from 2005 sampling.
12		Weldon Methodist Church	1		TNC	1	Unknown	
13		South Fork Women's Club	1		TNC	1	Nitrate	Last result above MCL from 2005 sampling.
		Totals	**681**	**1374**		**20**		

Bella Vista Mutual Water Company
PS ID# 1502653-001
Well 1 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
COLOR	3/22/2007	5	15	0	15	UNITS
COLOR	6/11/2012	0	15	0	15	UNITS
COLOR	9/1/2015	0	15	0	15	UNITS
ODOR THRESHOLD @ 60 C	3/22/2007	1	3	1	3	TON
ODOR THRESHOLD @ 60 C	6/11/2012	0	3	1	3	TON
ODOR THRESHOLD @ 60 C	9/1/2015	0	3	1	3	TON
SPECIFIC CONDUCTANCE	3/22/2007	620	1600	0	900	US
SPECIFIC CONDUCTANCE	6/11/2012	540	1600	0	900	US
SPECIFIC CONDUCTANCE	9/1/2015	560	1600	0	900	US
PH, LABORATORY	1/2/2007	7.9	0	0	0	
PH, LABORATORY	3/22/2007	7.8	0	0	0	
PH, LABORATORY	6/11/2012	8	0	0	0	
PH, LABORATORY	9/1/2015	7.6	0	0	0	
ALKALINITY (TOTAL) AS CACO3	1/2/2007	200	0	0	0	MG/L
ALKALINITY (TOTAL) AS CACO3	6/11/2012	160	0	0	0	MG/L
ALKALINITY (TOTAL) AS CACO3	9/1/2015	170	0	0	0	MG/L
BICARBONATE ALKALINITY	1/2/2007	240	0	0	0	MG/L
BICARBONATE ALKALINITY	6/11/2012	190	0	0	0	MG/L
BICARBONATE ALKALINITY	9/1/2015	210	0	0	0	MG/L
CARBONATE ALKALINITY	1/2/2007	1	0	0	0	MG/L
CARBONATE ALKALINITY	6/11/2012	0	0	0	0	MG/L
CARBONATE ALKALINITY	9/1/2015	0	0	0	0	MG/L
NITRATE (as N)	9/1/2015	3.6	10	0.4	5	mg/L
NITRITE (AS N)	6/11/2012	0	1	0.4	0.5	mg/L
NITRITE (AS N)	9/1/2015	0	1	0.4	0.5	mg/L
HARDNESS (TOTAL) AS CACO3	1/2/2007	190	0	0	0	MG/L
HARDNESS (TOTAL) AS CACO3	6/11/2012	160	0	0	0	MG/L
HARDNESS (TOTAL) AS CACO3	9/1/2015	180	0	0	0	MG/L
CALCIUM	1/2/2007	51	0	0	0	MG/L
CALCIUM	6/11/2012	44	0	0	0	MG/L
CALCIUM	9/1/2015	48	0	0	0	MG/L
MAGNESIUM	1/2/2007	15	0	0	0	MG/L
MAGNESIUM	6/11/2012	12	0	0	0	MG/L
MAGNESIUM	9/1/2015	14	0	0	0	MG/L
SODIUM	3/22/2007	64	0	0	0	MG/L
SODIUM	6/11/2012	51	0	0	0	MG/L
SODIUM	9/1/2015	51	0	0	0	MG/L
POTASSIUM	6/11/2012	4.2	0	0	0	MG/L
POTASSIUM	9/1/2015	5	0	0	0	MG/L
CHLORIDE	3/22/2007	39	500	0	250	MG/L
CHLORIDE	6/11/2012	28	500	0	250	MG/L
CHLORIDE	9/1/2015	28	500	0	250	MG/L
SULFATE	3/22/2007	49	500	0.5	250	MG/L
SULFATE	6/11/2012	53	500	0.5	250	MG/L
SULFATE	9/1/2015	60	500	0.5	250	MG/L
FLUORIDE (F) (NATURAL-SOURCE)	3/22/2007	0.39	2	0.1	2	MG/L

Bella Vista Mutual Water Company
PS ID# 1502653-001
Well 1 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
FLUORIDE (F) (NATURAL-SOURCE)	6/11/2012	0.27	2	0.1	2	MG/L
FLUORIDE (F) (NATURAL-SOURCE)	9/1/2015	0.22	2	0.1	2	MG/L
ARSENIC	3/22/2007	0	10	2	5	UG/L
ARSENIC	6/11/2012	0	10	2	5	UG/L
ARSENIC	9/1/2015	0	10	2	5	UG/L
BARIUM	3/22/2007	100	1000	100	1000	UG/L
BARIUM	6/11/2012	0	1000	100	1000	UG/L
BARIUM	9/1/2015	100	1000	100	1000	UG/L
BERYLLIUM	3/22/2007	0	4	1	4	UG/L
BERYLLIUM	6/11/2012	0	4	1	4	UG/L
BERYLLIUM	9/1/2015	0	4	1	4	UG/L
CADMIUM	3/22/2007	0	5	1	5	UG/L
CADMIUM	6/11/2012	0	5	1	5	UG/L
CADMIUM	9/1/2015	0	5	1	5	UG/L
CHROMIUM, HEXAVALENT	8/3/2014	0	10	1	10	UG/L
CHROMIUM (TOTAL)	3/22/2007	0	50	10	50	UG/L
CHROMIUM (TOTAL)	6/11/2012	0	50	10	50	UG/L
CHROMIUM (TOTAL)	9/1/2015	0	50	10	50	UG/L
COPPER	3/22/2007	0	1000	50	1000	UG/L
COPPER	6/11/2012	0	1000	50	1000	UG/L
COPPER	9/1/2015	0	1000	50	1000	UG/L
IRON	3/22/2007	0	300	100	300	UG/L
IRON	6/11/2012	0	300	100	300	UG/L
IRON	9/1/2015	0	300	100	300	UG/L
LEAD	6/11/2012	0	0	5	15	UG/L
LEAD	9/1/2015	0	0	5	15	UG/L
MANGANESE	3/22/2007	0	50	20	50	UG/L
MANGANESE	6/11/2012	0	50	20	50	UG/L
MANGANESE	9/1/2015	0	50	20	50	UG/L
THALLIUM	3/22/2007	0	2	1	2	UG/L
THALLIUM	6/11/2012	0	2	1	2	UG/L
THALLIUM	9/1/2015	0	2	1	2	UG/L
NICKEL	6/11/2012	0	100	10	100	UG/L
NICKEL	9/1/2015	0	100	10	100	UG/L
SILVER	3/22/2007	0	100	10	100	UG/L
SILVER	6/11/2012	0	100	10	100	UG/L
SILVER	9/1/2015	0	100	10	100	UG/L
ZINC	3/22/2007	0	5000	50	5000	UG/L
ZINC	6/11/2012	0	5000	50	5000	UG/L
ZINC	9/1/2015	0	5000	50	5000	UG/L
ANTIMONY	3/22/2007	0	6	6	6	UG/L
ANTIMONY	6/11/2012	0	6	6	6	UG/L
ANTIMONY	9/1/2015	0	6	6	6	UG/L
ALUMINUM	3/22/2007	0	1000	50	200	UG/L
ALUMINUM	6/11/2012	0	1000	50	200	UG/L
ALUMINUM	9/1/2015	0	1000	50	200	UG/L

Bella Vista Mutual Water Company
PS ID# 1502653-001
Well 1 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
SELENIUM	3/22/2007	0	50	5	50	UG/L
SELENIUM	6/11/2012	0	50	5	50	UG/L
SELENIUM	9/1/2015	0	50	5	50	UG/L
ETHYLBENZENE	7/2/2012	0	300	0.5	0.5	UG/L
1,1-DICHLOROETHYLENE	7/2/2012	0	6	0.5	0.5	UG/L
1,1,1-TRICHLOROETHANE	7/2/2012	0	200	0.5	0.5	UG/L
1,1,2-TRICHLOROETHANE	7/2/2012	0	5	0.5	0.5	UG/L
1,1,2,2-TETRACHLOROETHANE	7/2/2012	0	1	0.5	0.5	UG/L
1,2-DICHLOROETHANE	7/2/2012	0	0.5	0.5	0.5	UG/L
1,2-DICHLOROBENZENE	7/2/2012	0	600	0.5	0.5	UG/L
1,2-DICHLOROPROPANE	7/2/2012	0	5	0.5	0.5	UG/L
TRANS-1,2-DICHLOROETHYLENE	7/2/2012	0	10	0.5	0.5	UG/L
1,2,4-TRICHLOROBENZENE	7/2/2012	0	5	0.5	5	UG/L
1,3-DICHLOROPROPENE (TOTAL)	7/2/2012	0	0.5	0.5	0.5	UG/L
1,3-DICHLOROBENZENE	7/2/2012	0	0	0.5	600	UG/L
1,4-DICHLOROBENZENE	7/2/2012	0	5	0.5	0.5	UG/L
DICHLORODIFLUOROMETHANE (FREON 12)	7/2/2012	0	1000	0.5	1000	UG/L
NAPHTHALENE	7/2/2012	0	170	0.5	170	UG/L
FOAMING AGENTS (MBAS)	3/22/2007	0.05	0.5	0	0.5	MG/L
FOAMING AGENTS (MBAS)	6/11/2012	0	0.5	0	0.5	MG/L
FOAMING AGENTS (MBAS)	9/1/2015	0	0.5	0	0.5	MG/L
ATRAZINE	6/11/2012	0	1	0.5	1	UG/L
SIMAZINE	6/11/2012	0	4	1	1	UG/L
VINYL CHLORIDE	7/2/2012	0	0.5	0.5	0.5	UG/L
TRICHLOROETHYLENE	7/2/2012	0	5	0.5	0.5	UG/L
METHYL-TERT-BUTYL-ETHER (MTBE)	7/2/2012	0	13	3	3	UG/L
METHYL-TERT-BUTYL-ETHER (MTBE)	9/1/2015	0	13	3	3	UG/L
TOTAL DISSOLVED SOLIDS	3/22/2007	390	1000	0	500	MG/L
TOTAL DISSOLVED SOLIDS	6/11/2012	380	1000	0	500	MG/L
TOTAL DISSOLVED SOLIDS	9/1/2015	380	1000	0	500	MG/L
LANGELIER INDEX @ 60 C	6/11/2012	0.3	0	0	0	
LANGELIER INDEX @ 60 C	9/1/2015	0	0	0	0	
HYDROXIDE ALKALINITY	1/2/2007	1	0	0	0	MG/L
HYDROXIDE ALKALINITY	6/11/2012	0	0	0	0	MG/L
HYDROXIDE ALKALINITY	9/1/2015	0	0	0	0	MG/L
NITRATE (AS NO3)	3/22/2007	20	45	2	23	MG/L
NITRATE (AS NO3)	1/4/2012	29	45	2	23	MG/L
NITRATE (AS NO3)	6/11/2012	22	45	2	23	MG/L
NITRATE (AS NO3)	1/6/2014	22	45	2	23	MG/L
NITRATE (AS NO3)	9/1/2015	16	45	2	23	MG/L
MERCURY	3/22/2007	0	2	1	2	UG/L
MERCURY	6/11/2012	0	2	1	2	UG/L
MERCURY	9/1/2015	0	2	1	2	UG/L
TERT-BUTYL ALCOHOL (TBA)	7/2/2012	0	12	2	12	UG/L
CIS-1,2-DICHLOROETHYLENE	7/2/2012	0	6	0.5	0.5	UG/L
STYRENE	7/2/2012	0	100	0.5	0.5	UG/L

Bella Vista Mutual Water Company
PS ID# 1502653-001
Well 1 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
O-XYLENE	7/2/2012	0	0	0.5	0	UG/L
1,1-DICHLOROPROPENE	7/2/2012	0	0	0.5	0.5	UG/L
2,2-DICHLOROPROPANE	7/2/2012	0	0	0.5	0.5	UG/L
1,3-DICHLOROPROPANE	7/2/2012	0	0	0.5	0.5	UG/L
1,2,4-TRIMETHYLBENZENE	7/2/2012	0	330	0.5	330	UG/L
ISOPROPYLBENZENE	7/2/2012	0	770	0.5	770	UG/L
N-PROPYLBENZENE	7/2/2012	0	260	0.5	260	UG/L
1,3,5-TRIMETHYLBENZENE	7/2/2012	0	330	0.5	330	UG/L
SEC-BUTYLBENZENE	7/2/2012	0	260	0.5	0.5	UG/L
TERT-BUTYLBENZENE	7/2/2012	0	260	0.5	0.5	UG/L
1,1,1,2-TETRACHLOROETHANE	7/2/2012	0	0	0.5	0.5	UG/L
DIBROMOMETHANE	7/2/2012	0	0	0.5	0.5	UG/L
1,2,3-TRICHLOROBENZENE	7/2/2012	0	0	0.5	0.5	UG/L
ALACHLOR	6/11/2012	0	2	1	1	UG/L
XYLENES (TOTAL)	7/2/2012	0	1750	0	1750	UG/L
ACETONE	7/2/2012	0	0	0	0	UG/L
BROMOBENZENE	7/2/2012	0	0	0.5	0.5	UG/L
METHYL ETHYL KETONE	7/2/2012	0	0	5	0	UG/L
METHYL ISOBUTYL KETONE	7/2/2012	0	120	5	120	UG/L
TRICHLOROTRIFLUOROETHANE (FREON 113)	7/2/2012	0	1200	10	10	UG/L
ASBESTOS	6/11/2012	0	7	0.2	7	MFL
TURBIDITY, LABORATORY	3/22/2007	0.1	5	0.1	5	NTU
TURBIDITY, LABORATORY	6/11/2012	0.18	5	0.1	5	NTU
TURBIDITY, LABORATORY	9/1/2015	0	5	0.1	5	NTU
TOTAL TRIHALOMETHANES	7/2/2012	0	80	0	80	UG/L
AGGRSSIVE INDEX (CORROSIVITY)	1/2/2007	12	0	0	0	
AGGRSSIVE INDEX (CORROSIVITY)	6/11/2012	12	0	0	0	
AGGRSSIVE INDEX (CORROSIVITY)	9/1/2015	12	0	0	0	
2-CHLOROTOLUENE	7/2/2012	0	140	0.5	0.5	UG/L
4-CHLOROTOLUENE	7/2/2012	0	140	0.5	140	UG/L
N-BUTYLBENZENE	7/2/2012	0	260	0.5	70	UG/L
P-ISOPROPYLTOLUENE	7/2/2012	0	0	0	0	UG/L
BROMOCHLOROMETHANE	7/2/2012	0	0	0.5	0.5	UG/L
M,P-XYLENE	7/2/2012	0	0	0.5	0	UG/L
PERCHLORATE	6/11/2012	0	6	4	4	UG/L
PERCHLORATE	9/1/2015	0	6	4	4	UG/L
ETHYL-TERT-BUTYL ETHER	7/2/2012	0	0	3	0	UG/L
TERT-AMYL-METHYL ETHER	7/2/2012	0	0	3	0	UG/L
DIISOPROPYL ETHER	7/2/2012	0	0	3	0	UG/L
GROSS ALPHA MDA95	6/11/2012	1.09	3.001	0	0	PCI/L
RADIUM 228 MDA95	9/1/2015	0.39	1.001	0	0	PCI/L

Bella Vista Mutual Water Company
PS ID# 1502653-002
Well 2 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
COLOR	3/4/2013	0	15	0	15	UNITS
ODOR THRESHOLD @ 60 C	3/4/2013	0	3	1	3	TON
SPECIFIC CONDUCTANCE	10/7/2008	590	1600	0	900	US
SPECIFIC CONDUCTANCE	3/4/2013	560	1600	0	900	US
PH, LABORATORY	3/4/2013	8	0	0	0	
ALKALINITY (TOTAL) AS CACO3	3/4/2013	200	0	0	0	MG/L
BICARBONATE ALKALINITY	3/4/2013	250	0	0	0	MG/L
CARBONATE ALKALINITY	3/4/2013	0	0	0	0	MG/L
NITRITE (AS N)	3/4/2013	0	1	0.4	0.5	mg/L
HARDNESS (TOTAL) AS CACO3	3/4/2013	180	0	0	0	MG/L
CALCIUM	3/4/2013	46	0	0	0	MG/L
MAGNESIUM	3/4/2013	16	0	0	0	MG/L
SODIUM	3/4/2013	49	0	0	0	MG/L
POTASSIUM	3/4/2013	7.3	0	0	0	MG/L
CHLORIDE	3/4/2013	27	500	0	250	MG/L
SULFATE	3/4/2013	46	500	0.5	250	MG/L
FLUORIDE (F) (NATURAL-SOURCE)	3/4/2013	0.26	2	0.1	2	MG/L
ARSENIC	3/4/2013	0	10	2	5	UG/L
BARIUM	3/4/2013	0	1000	100	1000	UG/L
BERYLLIUM	3/4/2013	0	4	1	4	UG/L
CADMIUM	3/4/2013	0	5	1	5	UG/L
CHROMIUM, HEXAVALENT	8/3/2014	0	10	1	10	UG/L
CHROMIUM (TOTAL)	3/4/2013	0	50	10	50	UG/L
COPPER	3/4/2013	0	1000	50	1000	UG/L
IRON	10/7/2008	690	300	100	300	UG/L
IRON	4/7/2009	0	300	100	300	UG/L
IRON	3/4/2013	0	300	100	300	UG/L
LEAD	3/4/2013	0	0	5	15	UG/L
MANGANESE	10/7/2008	0	50	20	50	UG/L
MANGANESE	4/7/2009	0	50	20	50	UG/L
MANGANESE	3/4/2013	0	50	20	50	UG/L
THALLIUM	3/4/2013	0	2	1	2	UG/L
NICKEL	3/4/2013	0	100	10	100	UG/L
SILVER	3/4/2013	0	100	10	100	UG/L
ZINC	3/4/2013	0	5000	50	5000	UG/L
ANTIMONY	3/4/2013	0	6	6	6	UG/L
ALUMINUM	10/7/2008	450	1000	50	200	UG/L
ALUMINUM	4/7/2009	0	1000	50	200	UG/L
ALUMINUM	3/4/2013	0	1000	50	200	UG/L
SELENIUM	3/4/2013	0	50	5	50	UG/L
GROSS ALPHA	10/7/2008	4.9	15	3	5	PCI/L
GROSS ALPHA	4/7/2009	13	15	3	5	PCI/L
GROSS ALPHA	3/4/2013	7.18	15	3	5	PCI/L
GROSS ALPHA	9/2/2013	0	15	3	5	PCI/L
GROSS ALPHA COUNTING ERROR	10/7/2008	0.42	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	4/7/2009	0.64	0	0	0	PCI/L

Bella Vista Mutual Water Company
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Well 2 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
GROSS ALPHA COUNTING ERROR	3/4/2013	0.426	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	9/2/2013	0.22	0	0	0	PCI/L
RADIUM 226	4/7/2009	1	0	1	0	PCI/L
RADIUM 226 COUNTING ERROR	4/7/2009	0.422	0	0	0	PCI/L
RADIUM 228	4/7/2009	1	0	1	0	
RADIUM 228	3/4/2013	1	0	1	0	
RADIUM 228 COUNTING ERROR	4/7/2009	0.319	0	0	0	PCI/L
RADIUM 228 COUNTING ERROR	3/4/2013	0.439	0	0	0	PCI/L
URANIUM (PCI/L)	4/7/2009	5.2	20	1	20	PCI/L
URANIUM (PCI/L)	3/4/2013	5.2	20	1	20	PCI/L
URANIUM (PCI/L)	9/2/2013	2.6	20	1	20	PCI/L
BROMODICHLOROMETHANE (THM)	3/4/2013	0	0	1	0	UG/L
CARBON TETRACHLORIDE	3/4/2013	0	0.5	0.5	0.5	UG/L
BROMOFORM (THM)	3/4/2013	0	0	1	0	UG/L
DIBROMOCHLOROMETHANE (THM)	3/4/2013	0	0	1	0	UG/L
CHLOROFORM (THM)	3/4/2013	0	0	1	0	UG/L
TOLUENE	3/4/2013	0	150	0.5	0.5	UG/L
BENZENE	3/4/2013	0	1	0.5	0.5	UG/L
MONOCHLOROBENZENE	3/4/2013	0	70	0.5	0.5	UG/L
CHLOROETHANE	3/4/2013	0	0	0.5	0.5	UG/L
ETHYLBENZENE	3/4/2013	0	300	0.5	0.5	UG/L
HEXACHLOROBUTADIENE	3/4/2013	0	0	0.5	0.5	UG/L
BROMOMETHANE	3/4/2013	0	0	0.5	0.5	UG/L
CHLOROMETHANE	3/4/2013	0	0	0.5	0.5	UG/L
DICHLOROMETHANE	3/4/2013	0	5	0.5	0.5	UG/L
TETRACHLOROETHYLENE	3/4/2013	0	5	0.5	0.5	UG/L
TRICHLOROFLUOROMETHANE	3/4/2013	0	150	5	5	UG/L
1,1-DICHLOROETHANE	3/4/2013	0	5	0.5	0.5	UG/L
1,1-DICHLOROETHYLENE	3/4/2013	0	6	0.5	0.5	UG/L
1,1,1-TRICHLOROETHANE	3/4/2013	0	200	0.5	0.5	UG/L
1,1,2-TRICHLOROETHANE	3/4/2013	0	5	0.5	0.5	UG/L
1,1,2,2-TETRACHLOROETHANE	3/4/2013	0	1	0.5	0.5	UG/L
1,2-DICHLOROETHANE	3/4/2013	0	0.5	0.5	0.5	UG/L
1,2-DICHLOROBENZENE	3/4/2013	0	600	0.5	0.5	UG/L
1,2-DICHLOROPROPANE	3/4/2013	0	5	0.5	0.5	UG/L
TRANS-1,2-DICHLOROETHYLENE	3/4/2013	0	10	0.5	0.5	UG/L
1,2,4-TRICHLOROBENZENE	3/4/2013	0	5	0.5	5	UG/L
1,3-DICHLOROPROPENE (TOTAL)	3/4/2013	0	0.5	0.5	0.5	UG/L
1,3-DICHLOROBENZENE	3/4/2013	0	0	0.5	600	UG/L
1,4-DICHLOROBENZENE	3/4/2013	0	5	0.5	0.5	UG/L
DICHLORODIFLUOROMETHANE (FREON 12)	3/4/2013	0	1000	0.5	1000	UG/L
NAPHTHALENE	3/4/2013	0	170	0.5	170	UG/L
TRANS-1,3-DICHLOROPROPENE	3/4/2013	0	0.5	0.5	0	UG/L
CIS-1,3-DICHLOROPROPENE	3/4/2013	0	0.5	0.5	0.5	UG/L
FOAMING AGENTS (MBAS)	3/4/2013	0	0.5	0	0.5	MG/L
ATRAZINE	3/4/2013	0	1	0.5	1	UG/L

Bella Vista Mutual Water Company
PS ID# 1502653-002
Well 2 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
SIMAZINE	3/4/2013	0	4	1	1	UG/L
VINYL CHLORIDE	3/4/2013	0	0.5	0.5	0.5	UG/L
TRICHLOROETHYLENE	3/4/2013	0	5	0.5	0.5	UG/L
METHYL-TERT-BUTYL-ETHER (MTBE)	3/4/2013	0	13	3	3	UG/L
METHYL-TERT-BUTYL-ETHER (MTBE)	9/1/2015	0	13	3	3	UG/L
TOTAL DISSOLVED SOLIDS	3/4/2013	360	1000	0	500	MG/L
LANGELIER INDEX @ 60 C	3/4/2013	0.42	0	0	0	
HYDROXIDE ALKALINITY	3/4/2013	0	0	0	0	MG/L
NITRATE (AS NO3)	3/4/2013	18	45	2	23	MG/L
NITRATE (AS NO3)	9/2/2014	14	45	2	23	MG/L
NITRATE (AS NO3)	9/1/2015	16	45	2	23	MG/L
MERCURY	3/4/2013	0	2	1	2	UG/L
TERT-BUTYL ALCOHOL (TBA)	3/4/2013	0	12	2	12	UG/L
CIS-1,2-DICHLOROETHYLENE	3/4/2013	0	6	0.5	0.5	UG/L
STYRENE	3/4/2013	0	100	0.5	0.5	UG/L
O-XYLENE	3/4/2013	0	0	0.5	0	UG/L
1,1-DICHLOROPROPENE	3/4/2013	0	0	0.5	0.5	UG/L
2,2-DICHLOROPROPANE	3/4/2013	0	0	0.5	0.5	UG/L
1,3-DICHLOROPROPANE	3/4/2013	0	0	0.5	0.5	UG/L
1,2,4-TRIMETHYLBENZENE	3/4/2013	0	330	0.5	330	UG/L
ISOPROPYLBENZENE	3/4/2013	0	770	0.5	770	UG/L
N-PROPYLBENZENE	3/4/2013	0	260	0.5	260	UG/L
1,3,5-TRIMETHYLBENZENE	3/4/2013	0	330	0.5	330	UG/L
SEC-BUTYLBENZENE	3/4/2013	0	260	0.5	0.5	UG/L
TERT-BUTYLBENZENE	3/4/2013	0	260	0.5	0.5	UG/L
1,1,1,2-TETRACHLOROETHANE	3/4/2013	0	0	0.5	0.5	UG/L
DIBROMOMETHANE	3/4/2013	0	0	0.5	0.5	UG/L
1,2,3-TRICHLOROBENZENE	3/4/2013	0	0	0.5	0.5	UG/L
ALACHLOR	3/4/2013	0	2	1	1	UG/L
XYLENES (TOTAL)	3/4/2013	0	1750	0	1750	UG/L
ACETONE	3/4/2013	0	0	0	0	UG/L
BROMOBENZENE	3/4/2013	0	0	0.5	0.5	UG/L
METHYL ETHYL KETONE	3/4/2013	0	0	5	0	UG/L
METHYL ISOBUTYL KETONE	3/4/2013	0	120	5	120	UG/L
TRICHLOROTRIFLUOROETHANE (FREON 113)	3/4/2013	0	1200	10	10	UG/L
ASBESTOS	3/4/2013	0	7	0.2	7	MFL
TURBIDITY, LABORATORY	3/4/2013	0	5	0.1	5	NTU
TOTAL TRIHALOMETHANES	3/4/2013	0	80	0	80	UG/L
AGGRSSIVE INDEX (CORROSIVITY)	3/4/2013	12	0	0	0	
2-CHLOROTOLUENE	3/4/2013	0	140	0.5	0.5	UG/L
4-CHLOROTOLUENE	3/4/2013	0	140	0.5	140	UG/L
N-BUTYLBENZENE	3/4/2013	0	260	0.5	70	UG/L
P-ISOPROPYLTOLUENE	3/4/2013	0	0	0	0	UG/L
BROMOCHLOROMETHANE	3/4/2013	0	0	0.5	0.5	UG/L
M,P-XYLENE	3/4/2013	0	0	0.5	0	UG/L
PERCHLORATE	10/7/2008	0	6	4	4	UG/L

Bella Vista Mutual Water Company
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Well 2 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
PERCHLORATE	3/4/2013	0	6	4	4	UG/L
ETHYL-TERT-BUTYL ETHER	3/4/2013	0	0	3	0	UG/L
TERT-AMYL-METHYL ETHER	3/4/2013	0	0	3	0	UG/L
DIISOPROPYL ETHER	3/4/2013	0	0	3	0	UG/L
GROSS ALPHA MDA95	3/4/2013	1.16	3.001	0	0	PCI/L
GROSS ALPHA MDA95	9/2/2013	1.16	3.001	0	0	PCI/L

Lake Isabella KOA Campground
PS ID# 1500464-001
Well 1 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
NITRATE (as N)	1/13/2016	15	10	0.4	5	mg/L
NITRITE (AS N)	10/18/2011	50	1	0.4	0.5	mg/L
NITRITE (AS N)	7/16/2014	50	1	0.4	0.5	mg/L
NITRATE (AS NO3)	8/10/2006	29	45	2	23	MG/L
NITRATE (AS NO3)	10/3/2006	30	45	2	23	MG/L
NITRATE (AS NO3)	1/9/2007	20	45	2	23	MG/L
NITRATE (AS NO3)	4/18/2007	58	45	2	23	MG/L
NITRATE (AS NO3)	6/21/2007	44.3	45	2	23	MG/L
NITRATE (AS NO3)	10/24/2007	38.7	45	2	23	MG/L
NITRATE (AS NO3)	1/10/2008	44	45	2	23	MG/L
NITRATE (AS NO3)	4/8/2008	38	45	2	23	MG/L
NITRATE (AS NO3)	1/14/2009	55.4	45	2	23	MG/L
NITRATE (AS NO3)	4/2/2009	45.2	45	2	23	MG/L
NITRATE (AS NO3)	7/7/2009	67	45	2	23	MG/L
NITRATE (AS NO3)	10/14/2009	43	45	2	23	MG/L
NITRATE (AS NO3)	1/4/2010	47	45	2	23	MG/L
NITRATE (AS NO3)	4/6/2010	50	45	2	23	MG/L
NITRATE (AS NO3)	7/13/2010	55	45	2	23	MG/L
NITRATE (AS NO3)	1/19/2011	44	45	2	23	MG/L
NITRATE (AS NO3)	4/13/2011	51	45	2	23	MG/L
NITRATE (AS NO3)	7/5/2011	58	45	2	23	MG/L
NITRATE (AS NO3)	10/18/2011	59	45	2	23	MG/L
NITRATE (AS NO3)	1/3/2012	54	45	2	23	MG/L
NITRATE (AS NO3)	4/2/2012	57	45	2	23	MG/L
NITRATE (AS NO3)	7/2/2012	64	45	2	23	MG/L
NITRATE (AS NO3)	10/4/2012	62	45	2	23	MG/L
NITRATE (AS NO3)	1/7/2013	60	45	2	23	MG/L
NITRATE (AS NO3)	4/4/2013	61	45	2	23	MG/L
NITRATE (AS NO3)	7/17/2013	67	45	2	23	MG/L
NITRATE (AS NO3)	10/9/2013	62	45	2	23	MG/L
NITRATE (AS NO3)	4/16/2014	64	45	2	23	MG/L
NITRATE (AS NO3)	7/16/2014	67	45	2	23	MG/L
NITRATE (AS NO3)	12/15/2014	64	45	2	23	MG/L
NITRATE (AS NO3)	1/14/2015	66	45	2	23	MG/L
NITRATE (AS NO3)	4/8/2015	69	45	2	23	MG/L
NITRATE (AS NO3)	7/15/2015	69	45	2	23	MG/L
NITRATE (AS NO3)	10/14/2015	68	45	2	23	MG/L

Long Canyon Well No. 1
PS ID# 1500578-001
Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
COLOR	4/1/2009	3	15	0	15	UNITS
ODOR THRESHOLD @ 60 C	4/1/2009	0	3	1	3	TON
SPECIFIC CONDUCTANCE	4/1/2009	600	1600	0	900	US
PH, LABORATORY	4/1/2009	7.66	0	0	0	
ALKALINITY (TOTAL) AS CACO3	4/1/2009	250	0	0	0	MG/L
BICARBONATE ALKALINITY	4/1/2009	310	0	0	0	MG/L
CARBONATE ALKALINITY	4/1/2009	2.5	0	0	0	MG/L
NITRITE (AS N)	4/1/2009	50	1	0.4	0.5	mg/L
HARDNESS (TOTAL) AS CACO3	4/1/2009	220	0	0	0	MG/L
CALCIUM	4/1/2009	66	0	0	0	MG/L
MAGNESIUM	4/1/2009	13	0	0	0	MG/L
SODIUM	4/1/2009	62	0	0	0	MG/L
POTASSIUM	4/1/2009	3.2	0	0	0	MG/L
CHLORIDE	4/1/2009	19	500	0	250	MG/L
SULFATE	4/1/2009	42	500	0.5	250	MG/L
FLUORIDE (F) (NATURAL-SOURCE)	4/1/2009	0.53	2	0.1	2	MG/L
ARSENIC	4/1/2009	2	10	2	5	UG/L
BARIUM	4/1/2009	68	1000	100	1000	UG/L
BERYLLIUM	4/1/2009	1	4	1	4	UG/L
CADMIUM	4/1/2009	1	5	1	5	UG/L
CHROMIUM, HEXAVALENT	12/28/2014	0.2	10	1	10	UG/L
CHROMIUM (TOTAL)	4/1/2009	10	50	10	50	UG/L
COPPER	4/1/2009	10	1000	50	1000	UG/L
IRON	4/1/2009	180	300	100	300	UG/L
LEAD	4/1/2009	1	0	5	15	UG/L
MANGANESE	4/1/2009	13	50	20	50	UG/L
THALLIUM	4/1/2009	1	2	1	2	UG/L
NICKEL	4/1/2009	10	100	10	100	UG/L
SILVER	4/1/2009	10	100	10	100	UG/L
ZINC	4/1/2009	130	5000	50	5000	UG/L
ANTIMONY	4/1/2009	2	6	6	6	UG/L
ALUMINUM	4/1/2009	50	1000	50	200	UG/L
SELENIUM	4/1/2009	2	50	5	50	UG/L
GROSS ALPHA	7/12/2007	18.2	15	3	5	PCI/L
GROSS ALPHA	5/23/2008	20.4	15	3	5	PCI/L
GROSS ALPHA	5/23/2008	20.4	15	3	5	PCI/L
GROSS ALPHA COUNTING ERROR	7/12/2007	4.2	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	5/23/2008	1.44	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	5/23/2008	1.44	0	0	0	PCI/L
RADIUM 228	5/23/2008	0.8	0	1	0	
RADIUM 228 COUNTING ERROR	5/23/2008	0.36	0	0	0	PCI/L
URANIUM (PCI/L)	7/12/2007	23.9	20	1	20	PCI/L
URANIUM (PCI/L)	5/23/2008	20	20	1	20	PCI/L
URANIUM (PCI/L)	5/23/2008	20	20	1	20	PCI/L
FOAMING AGENTS (MBAS)	4/1/2009	0.2	0.5	0	0.5	MG/L
DIBROMOCHLOROPROPANE (DBCP)	4/1/2009	0.01	0.2	0.01	0.01	UG/L
TOTAL DISSOLVED SOLIDS	4/1/2009	400	1000	0	500	MG/L
HYDROXIDE ALKALINITY	4/1/2009	1.4	0	0	0	MG/L
NITRATE (AS NO3)	7/12/2007	17	45	2	23	MG/L
NITRATE (AS NO3)	4/1/2009	0.44	45	2	23	MG/L
MERCURY	4/1/2009	0.2	2	1	2	UG/L
ETHYLENE DIBROMIDE (EDB)	4/1/2009	0.01	0.05	0.02	0.02	UG/L
TURBIDITY, LABORATORY	4/1/2009	0.46	5	0.1	5	NTU
PERCHLORATE	4/1/2009	4	6	4	4	UG/L
GROSS ALPHA MDA95	5/23/2008	0.422	3.001	0	0	PCI/L

Long Canyon Well No. 1
PS ID# 1500578-001
Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
GROSS ALPHA MDA95	5/23/2008	0.422	3.001	0	0	PCI/L

Long Canyon Well No. 2
PS ID# 1500578-002
Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
COLOR	7/21/2011	10	15	0	15	UNITS
COLOR	8/19/2015	1	15	0	15	UNITS
ODOR THRESHOLD @ 60 C	7/21/2011	0	3	1	3	TON
ODOR THRESHOLD @ 60 C	8/19/2015	0	3	1	3	TON
SPECIFIC CONDUCTANCE	7/21/2011	614	1600	0	900	US
SPECIFIC CONDUCTANCE	8/19/2015	679	1600	0	900	US
PH, LABORATORY	7/21/2011	7.53	0	0	0	
PH, LABORATORY	8/19/2015	8.24	0	0	0	
ALKALINITY (TOTAL) AS CACO3	7/21/2011	240	0	0	0	MG/L
ALKALINITY (TOTAL) AS CACO3	8/19/2015	260	0	0	0	MG/L
BICARBONATE ALKALINITY	7/21/2011	290	0	0	0	MG/L
BICARBONATE ALKALINITY	8/19/2015	320	0	0	0	MG/L
CARBONATE ALKALINITY	7/21/2011	2.5	0	0	0	MG/L
CARBONATE ALKALINITY	8/19/2015	2.5	0	0	0	MG/L
NITRATE (as N)	8/19/2015	0.86	10	0.4	5	mg/L
NITRITE (AS N)	7/21/2011	50	1	0.4	0.5	mg/L
NITRITE (AS N)	8/19/2015	50	1	0.4	0.5	mg/L
HARDNESS (TOTAL) AS CACO3	7/21/2011	190	0	0	0	MG/L
HARDNESS (TOTAL) AS CACO3	8/19/2015	240	0	0	0	MG/L
CALCIUM	7/21/2011	60	0	0	0	MG/L
CALCIUM	8/19/2015	73	0	0	0	MG/L
MAGNESIUM	7/21/2011	11	0	0	0	MG/L
MAGNESIUM	8/19/2015	14	0	0	0	MG/L
SODIUM	7/21/2011	58	0	0	0	MG/L
SODIUM	8/19/2015	57	0	0	0	MG/L
POTASSIUM	7/21/2011	2.9	0	0	0	MG/L
POTASSIUM	8/19/2015	3.3	0	0	0	MG/L
CHLORIDE	7/21/2011	20	500	0	250	MG/L
CHLORIDE	8/19/2015	28	500	0	250	MG/L
SULFATE	7/21/2011	41	500	0.5	250	MG/L
SULFATE	8/19/2015	57	500	0.5	250	MG/L
FLUORIDE (F) (NATURAL-SOURCE)	7/21/2011	0.65	2	0.1	2	MG/L
FLUORIDE (F) (NATURAL-SOURCE)	8/19/2015	0.58	2	0.1	2	MG/L
ARSENIC	7/21/2011	2	10	2	5	UG/L
ARSENIC	8/19/2015	2	10	2	5	UG/L
BARIUM	7/21/2011	66	1000	100	1000	UG/L
BARIUM	8/19/2015	77	1000	100	1000	UG/L
BERYLLIUM	7/21/2011	1	4	1	4	UG/L
BERYLLIUM	8/19/2015	1	4	1	4	UG/L
CADMIUM	7/21/2011	1	5	1	5	UG/L
CADMIUM	8/19/2015	1	5	1	5	UG/L
CHROMIUM, HEXAVALENT	12/28/2014	0.2	10	1	10	UG/L
CHROMIUM (TOTAL)	7/21/2011	10	50	10	50	UG/L
CHROMIUM (TOTAL)	8/19/2015	10	50	10	50	UG/L
COPPER	7/21/2011	10	1000	50	1000	UG/L
COPPER	8/19/2015	10	1000	50	1000	UG/L
IRON	7/21/2011	88	300	100	300	UG/L

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IRON	8/19/2015	50	300	100	300	UG/L
LEAD	7/21/2011	1	0	5	15	UG/L
LEAD	8/19/2015	1	0	5	15	UG/L
MANGANESE	7/21/2011	37	50	20	50	UG/L
MANGANESE	8/19/2015	20	50	20	50	UG/L
THALLIUM	7/21/2011	1	2	1	2	UG/L
THALLIUM	8/19/2015	1	2	1	2	UG/L
NICKEL	7/21/2011	10	100	10	100	UG/L
NICKEL	8/19/2015	10	100	10	100	UG/L
SILVER	7/21/2011	10	100	10	100	UG/L
SILVER	8/19/2015	10	100	10	100	UG/L
ZINC	7/21/2011	50	5000	50	5000	UG/L
ZINC	8/19/2015	50	5000	50	5000	UG/L
ANTIMONY	7/21/2011	2	6	6	6	UG/L
ANTIMONY	8/19/2015	2	6	6	6	UG/L
ALUMINUM	7/21/2011	50	1000	50	200	UG/L
ALUMINUM	8/19/2015	50	1000	50	200	UG/L
SELENIUM	7/21/2011	2	50	5	50	UG/L
SELENIUM	8/19/2015	2	50	5	50	UG/L
GROSS ALPHA	7/18/2007	9.78	15	3	5	PCI/L
GROSS ALPHA	10/25/2007	9.31	15	3	5	PCI/L
GROSS ALPHA	5/23/2008	16	15	3	5	PCI/L
GROSS ALPHA	5/23/2008	16	15	3	5	PCI/L
GROSS ALPHA	8/11/2008	10.2	15	3	5	PCI/L
GROSS ALPHA	11/22/2008	6.8	15	3	5	PCI/L
GROSS ALPHA	8/24/2011	14.1	15	3	5	PCI/L
GROSS ALPHA	8/19/2015	12.5	15	3	5	PCI/L
GROSS ALPHA COUNTING ERROR	7/18/2007	2.8	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	10/25/2007	2.8	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	5/23/2008	1.3	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	5/23/2008	1.3	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	8/11/2008	1.28	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	11/22/2008	1.13	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	8/24/2011	2.24	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	8/19/2015	0.55	0	0	0	PCI/L
RADIUM 226	8/11/2008	0.16	0	1	0	PCI/L
RADIUM 226	11/22/2008	0.16	0	1	0	PCI/L
RADIUM 226 COUNTING ERROR	8/11/2008	0.15	0	0	0	PCI/L
RADIUM 226 COUNTING ERROR	11/22/2008	0.1	0	0	0	PCI/L
RADIUM 228	5/23/2008	0.58	0	1	0	
RADIUM 228	8/11/2008	0.58	0	1	0	
RADIUM 228	11/22/2008	0.38	0	1	0	
RADIUM 228 COUNTING ERROR	5/23/2008	0.37	0	0	0	PCI/L
RADIUM 228 COUNTING ERROR	8/11/2008	0.35	0	0	0	PCI/L
RADIUM 228 COUNTING ERROR	11/22/2008	0.29	0	0	0	PCI/L
COMBINED RA 226 + RA 228	8/11/2008	0.74	5	0	5	
COMBINED RA 226 + RA 228	11/22/2008	0.48	5	0	5	

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COMBINED RA 226 + RA 228 COUNTING ERROR	8/11/2008	0.36	0	0	0	PCI/L
COMBINED RA 226 + RA 228 COUNTING ERROR	11/22/2008	0.3	0	0	0	PCI/L
URANIUM (PCI/L)	5/23/2008	13	20	1	20	PCI/L
URANIUM (PCI/L)	5/23/2008	13	20	1	20	PCI/L
URANIUM (PCI/L)	8/11/2008	12	20	1	20	PCI/L
URANIUM (PCI/L)	11/22/2008	12	20	1	20	PCI/L
URANIUM (PCI/L)	8/24/2011	15	20	1	20	PCI/L
URANIUM (PCI/L)	8/19/2015	18	20	1	20	PCI/L
BROMODICHLOROMETHANE (THM)	8/24/2011	3	0	1	0	UG/L
CARBON TETRACHLORIDE	8/24/2011	0.5	0.5	0.5	0.5	UG/L
BROMOFORM (THM)	8/24/2011	0.5	0	1	0	UG/L
DIBROMOCHLOROMETHANE (THM)	8/24/2011	2.6	0	1	0	UG/L
CHLOROFORM (THM)	8/24/2011	2.4	0	1	0	UG/L
TOLUENE	8/24/2011	0.5	150	0.5	0.5	UG/L
BENZENE	8/24/2011	0.5	1	0.5	0.5	UG/L
MONOCHLOROBENZENE	8/24/2011	0.5	70	0.5	0.5	UG/L
CHLOROETHANE	8/24/2011	0.5	0	0.5	0.5	UG/L
ETHYLBENZENE	8/24/2011	0.5	300	0.5	0.5	UG/L
HEXACHLOROBUTADIENE	8/24/2011	0.5	0	0.5	0.5	UG/L
BROMOMETHANE	8/24/2011	0.5	0	0.5	0.5	UG/L
CHLOROMETHANE	8/24/2011	0.5	0	0.5	0.5	UG/L
DICHLOROMETHANE	8/24/2011	0.5	5	0.5	0.5	UG/L
TETRACHLOROETHYLENE	8/24/2011	0.5	5	0.5	0.5	UG/L
TRICHLOROFLUOROMETHANE	8/24/2011	0.5	150	5	5	UG/L
1,1-DICHLOROETHANE	8/24/2011	0.5	5	0.5	0.5	UG/L
1,1-DICHLOROETHYLENE	8/24/2011	0.5	6	0.5	0.5	UG/L
1,1,1-TRICHLOROETHANE	8/24/2011	0.5	200	0.5	0.5	UG/L
1,1,2-TRICHLOROETHANE	8/24/2011	0.5	5	0.5	0.5	UG/L
1,1,2,2-TETRACHLOROETHANE	8/24/2011	0.5	1	0.5	0.5	UG/L
1,2-DICHLOROETHANE	8/24/2011	0.5	0.5	0.5	0.5	UG/L
1,2-DICHLOROBENZENE	8/24/2011	0.5	600	0.5	0.5	UG/L
1,2-DICHLOROPROPANE	8/24/2011	0.5	5	0.5	0.5	UG/L
TRANS-1,2-DICHLOROETHYLENE	8/24/2011	0.5	10	0.5	0.5	UG/L
1,2,4-TRICHLOROBENZENE	8/24/2011	0.5	5	0.5	5	UG/L
1,3-DICHLOROPROPENE (TOTAL)	8/24/2011	0.5	0.5	0.5	0.5	UG/L
1,3-DICHLOROBENZENE	8/24/2011	0.5	0	0.5	600	UG/L
1,4-DICHLOROBENZENE	8/24/2011	0.5	5	0.5	0.5	UG/L
DICHLORODIFLUOROMETHANE (FREON 12)	8/24/2011	0.5	1000	0.5	1000	UG/L
NAPHTHALENE	8/24/2011	0.5	170	0.5	170	UG/L
TRANS-1,3-DICHLOROPROPENE	8/24/2011	0.5	0.5	0.5	0	UG/L
CIS-1,3-DICHLOROPROPENE	8/24/2011	0.5	0.5	0.5	0.5	UG/L
FOAMING AGENTS (MBAS)	7/21/2011	0.1	0.5	0	0.5	MG/L
FOAMING AGENTS (MBAS)	8/19/2015	0.1	0.5	0	0.5	MG/L
DIBROMOCHLOROPROPANE (DBCP)	7/21/2011	0.01	0.2	0.01	0.01	UG/L
ATRAZINE	8/19/2015	0.3	1	0.5	1	UG/L
SIMAZINE	8/19/2015	0.3	4	1	1	UG/L
VINYL CHLORIDE	8/24/2011	0.5	0.5	0.5	0.5	UG/L

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TRICHLOROETHYLENE	8/24/2011	0.5	5	0.5	0.5	UG/L
METHYL-TERT-BUTYL-ETHER (MTBE)	8/24/2011	0.5	13	3	3	UG/L
TOTAL DISSOLVED SOLIDS	7/21/2011	400	1000	0	500	MG/L
TOTAL DISSOLVED SOLIDS	8/19/2015	470	1000	0	500	MG/L
HYDROXIDE ALKALINITY	7/21/2011	1.4	0	0	0	MG/L
HYDROXIDE ALKALINITY	8/19/2015	1.4	0	0	0	MG/L
NITRATE (AS NO3)	7/18/2007	1	45	2	23	MG/L
NITRATE (AS NO3)	10/25/2007	3.2	45	2	23	MG/L
NITRATE (AS NO3)	7/21/2011	0.44	45	2	23	MG/L
NITRATE (AS NO3)	2/21/2013	0.44	45	2	23	MG/L
NITRATE (AS NO3)	6/9/2013	0.92	45	2	23	MG/L
MERCURY	7/21/2011	0.2	2	1	2	UG/L
MERCURY	8/19/2015	0.2	2	1	2	UG/L
TERT-BUTYL ALCOHOL (TBA)	8/24/2011	10	12	2	12	UG/L
CIS-1,2-DICHLOROETHYLENE	8/24/2011	0.5	6	0.5	0.5	UG/L
STYRENE	8/24/2011	0.5	100	0.5	0.5	UG/L
O-XYLENE	8/24/2011	0.5	0	0.5	0	UG/L
1,1-DICHLOROPROPENE	8/24/2011	0.5	0	0.5	0.5	UG/L
2,2-DICHLOROPROPANE	8/24/2011	0.5	0	0.5	0.5	UG/L
1,3-DICHLOROPROPANE	8/24/2011	0.5	0	0.5	0.5	UG/L
1,2,4-TRIMETHYLBENZENE	8/24/2011	0.5	330	0.5	330	UG/L
ISOPROPYLBENZENE	8/24/2011	0.5	770	0.5	770	UG/L
N-PROPYLBENZENE	8/24/2011	0.5	260	0.5	260	UG/L
1,3,5-TRIMETHYLBENZENE	8/24/2011	0.5	330	0.5	330	UG/L
SEC-BUTYLBENZENE	8/24/2011	0.5	260	0.5	0.5	UG/L
TERT-BUTYLBENZENE	8/24/2011	0.5	260	0.5	0.5	UG/L
1,2,3-TRICHLOROPROPANE (1,2,3,-TCP)	8/24/2011	1	0.005	0.005	0.005	UG/L
1,1,1,2-TETRACHLOROETHANE	8/24/2011	0.5	0	0.5	0.5	UG/L
DIBROMOMETHANE	8/24/2011	0.5	0	0.5	0.5	UG/L
1,2,3-TRICHLOROBENZENE	8/24/2011	0.5	0	0.5	0.5	UG/L
ETHYLENE DIBROMIDE (EDB)	7/21/2011	0.01	0.05	0.02	0.02	UG/L
ALACHLOR	8/19/2015	0.2	2	1	1	UG/L
XYLENES (TOTAL)	8/24/2011	1	1750	0	1750	UG/L
BROMOBENZENE	8/24/2011	0.5	0	0.5	0.5	UG/L
TRICHLOROTRIFLUOROETHANE (FREON 113)	8/24/2011	0.5	1200	10	10	UG/L
TURBIDITY, LABORATORY	7/21/2011	0.38	5	0.1	5	NTU
TURBIDITY, LABORATORY	8/19/2015	0.15	5	0.1	5	NTU
TOTAL TRIHALOMETHANES	8/24/2011	8	80	0	80	UG/L
2-CHLOROTOLUENE	8/24/2011	0.5	140	0.5	0.5	UG/L
4-CHLOROTOLUENE	8/24/2011	0.5	140	0.5	140	UG/L
N-BUTYLBENZENE	8/24/2011	0.5	260	0.5	70	UG/L
P-ISOPROPYLTOLUENE	8/24/2011	0.5	0	0	0	UG/L
BROMOCHLOROMETHANE	8/24/2011	0.5	0	0.5	0.5	UG/L
M,P-XYLENE	8/24/2011	0.5	0	0.5	0	UG/L
PERCHLORATE	7/21/2011	4	6	4	4	UG/L
ETHYL-TERT-BUTYL ETHER	8/24/2011	0.5	0	3	0	UG/L
TERT-AMYL-METHYL ETHER	8/24/2011	0.5	0	3	0	UG/L

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DIISOPROPYL ETHER	8/24/2011	0.5	0	3	0	UG/L
GROSS ALPHA MDA95	5/23/2008	0.422	3.001	0	0	PCI/L
GROSS ALPHA MDA95	5/23/2008	0.422	3.001	0	0	PCI/L
GROSS ALPHA MDA95	8/11/2008	0.343	3.001	0	0	PCI/L
GROSS ALPHA MDA95	11/22/2008	0.343	3.001	0	0	PCI/L
GROSS ALPHA MDA95	8/19/2015	0.758	3.001	0	0	PCI/L

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Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
COLOR	10/1/2014	1	15	0	15	UNITS
ODOR THRESHOLD @ 60 C	10/1/2014	0	3	1	3	TON
SPECIFIC CONDUCTANCE	2/13/2008	901	1600	0	900	US
SPECIFIC CONDUCTANCE	10/1/2014	1130	1600	0	900	US
PH, LABORATORY	10/1/2014	7.89	0	0	0	
ALKALINITY (TOTAL) AS CACO3	2/13/2008	230	0	0	0	MG/L
ALKALINITY (TOTAL) AS CACO3	4/22/2010	200	0	0	0	MG/L
ALKALINITY (TOTAL) AS CACO3	10/1/2014	220	0	0	0	MG/L
BICARBONATE ALKALINITY	1/30/2013	260	0	0	0	MG/L
BICARBONATE ALKALINITY	10/1/2014	270	0	0	0	MG/L
CARBONATE ALKALINITY	2/13/2008	5	0	0	0	MG/L
CARBONATE ALKALINITY	10/1/2014	5	0	0	0	MG/L
NITRATE (as N)	2/3/2016	2.4	10	0.4	5	mg/L
NITRITE (AS N)	10/1/2014	50	1	0.4	0.5	mg/L
HARDNESS (TOTAL) AS CACO3	2/13/2008	370	0	0	0	MG/L
HARDNESS (TOTAL) AS CACO3	10/1/2014	450	0	0	0	MG/L
CALCIUM	2/13/2008	120	0	0	0	MG/L
CALCIUM	10/1/2014	140	0	0	0	MG/L
MAGNESIUM	2/13/2008	19	0	0	0	MG/L
MAGNESIUM	10/1/2014	23	0	0	0	MG/L
SODIUM	2/13/2008	63	0	0	0	MG/L
SODIUM	10/1/2014	80	0	0	0	MG/L
POTASSIUM	10/1/2014	3.3	0	0	0	MG/L
CHLORIDE	10/1/2014	45	500	0	250	MG/L
SULFATE	10/1/2014	200	500	0.5	250	MG/L
FLUORIDE (F) (NATURAL-SOURCE)	10/1/2014	0.52	2	0.1	2	MG/L
ARSENIC	10/1/2014	2	10	2	5	UG/L
BARIUM	10/1/2014	140	1000	100	1000	UG/L
BERYLLIUM	10/1/2014	1	4	1	4	UG/L
CADMIUM	10/1/2014	1	5	1	5	UG/L
CHROMIUM, HEXAVALENT	10/1/2014	2.2	10	1	10	UG/L
CHROMIUM (TOTAL)	10/1/2014	10	50	10	50	UG/L
COPPER	10/1/2014	10	1000	50	1000	UG/L
IRON	10/1/2014	150	300	100	300	UG/L
LEAD	10/1/2014	1	0	5	15	UG/L
MANGANESE	10/1/2014	10	50	20	50	UG/L
THALLIUM	10/1/2014	1	2	1	2	UG/L
NICKEL	10/1/2014	10	100	10	100	UG/L
SILVER	10/1/2014	10	100	10	100	UG/L
ZINC	10/1/2014	120	5000	50	5000	UG/L
ANTIMONY	10/1/2014	2	6	6	6	UG/L
ALUMINUM	10/1/2014	50	1000	50	200	UG/L
SELENIUM	10/1/2014	2.2	50	5	50	UG/L
GROSS ALPHA	11/20/2008	19.4	15	3	5	PCI/L
GROSS ALPHA	11/4/2010	44.4	15	3	5	PCI/L
GROSS ALPHA	12/7/2011	50.8	15	3	5	PCI/L
GROSS ALPHA	2/1/2012	43.5	15	3	5	PCI/L
RADIUM 228	10/1/2014	1	0	1	0	
URANIUM (PCI/L)	11/20/2008	31	20	1	20	PCI/L
URANIUM (PCI/L)	12/7/2011	42	20	1	20	PCI/L
URANIUM (PCI/L)	7/10/2013	29	20	1	20	PCI/L
URANIUM (PCI/L)	11/26/2013	27	20	1	20	PCI/L
URANIUM (PCI/L)	5/7/2014	31	20	1	20	PCI/L
URANIUM (PCI/L)	7/1/2014	21	20	1	20	PCI/L
URANIUM (PCI/L)	11/5/2014	27	20	1	20	PCI/L
URANIUM (PCI/L)	2/4/2015	29	20	1	20	PCI/L

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URANIUM (PCI/L)	5/6/2015	37	20	1	20	PCI/L
URANIUM (PCI/L)	7/8/2015	34	20	1	20	PCI/L
URANIUM (PCI/L)	2/3/2016	43	20	1	20	PCI/L
BROMODICHLOROMETHANE (THM)	10/1/2014	0.5	0	1	0	UG/L
CARBON TETRACHLORIDE	10/1/2014	0.5	0.5	0.5	0.5	UG/L
BROMOFORM (THM)	10/1/2014	0.5	0	1	0	UG/L
DIBROMOCHLOROMETHANE (THM)	10/1/2014	0.5	0	1	0	UG/L
CHLOROFORM (THM)	10/1/2014	0.5	0	1	0	UG/L
TOLUENE	10/1/2014	0.5	150	0.5	0.5	UG/L
BENZENE	10/1/2014	0.5	1	0.5	0.5	UG/L
MONOCHLOROBENZENE	10/1/2014	0.5	70	0.5	0.5	UG/L
CHLOROETHANE	10/1/2014	0.5	0	0.5	0.5	UG/L
ETHYLBENZENE	10/1/2014	0.5	300	0.5	0.5	UG/L
HEXACHLOROBUTADIENE	10/1/2014	0.5	0	0.5	0.5	UG/L
BROMOMETHANE	10/1/2014	1	0	0.5	0.5	UG/L
CHLOROMETHANE	10/1/2014	0.5	0	0.5	0.5	UG/L
DICHLOROMETHANE	10/1/2014	0.5	5	0.5	0.5	UG/L
TETRACHLOROETHYLENE	10/1/2014	0.5	5	0.5	0.5	UG/L
TRICHLOROFLUOROMETHANE	10/1/2014	0.5	150	5	5	UG/L
1,1-DICHLOROETHANE	10/1/2014	0.5	5	0.5	0.5	UG/L
1,1-DICHLOROETHYLENE	10/1/2014	0.5	6	0.5	0.5	UG/L
1,1,1-TRICHLOROETHANE	10/1/2014	0.5	200	0.5	0.5	UG/L
1,1,2-TRICHLOROETHANE	10/1/2014	0.5	5	0.5	0.5	UG/L
1,1,2,2-TETRACHLOROETHANE	10/1/2014	0.5	1	0.5	0.5	UG/L
1,2-DICHLOROETHANE	10/1/2014	0.5	0.5	0.5	0.5	UG/L
1,2-DICHLOROBENZENE	10/1/2014	0.5	600	0.5	0.5	UG/L
1,2-DICHLOROPROPANE	10/1/2014	0.5	5	0.5	0.5	UG/L
TRANS-1,2-DICHLOROETHYLENE	10/1/2014	0.5	10	0.5	0.5	UG/L
1,2,4-TRICHLOROBENZENE	10/1/2014	0.5	5	0.5	5	UG/L
1,3-DICHLOROPROPENE (TOTAL)	1/30/2013	0.5	0.5	0.5	0.5	UG/L
1,3-DICHLOROPROPENE (TOTAL)	10/1/2014	0.5	0.5	0.5	0.5	UG/L
1,3-DICHLOROBENZENE	10/1/2014	0.5	0	0.5	600	UG/L
1,4-DICHLOROBENZENE	10/1/2014	0.5	5	0.5	0.5	UG/L
2-CHLOROETHYLVINYL ETHER	10/1/2014	10	0	0	0	UG/L
DICHLORODIFLUOROMETHANE (FREON 12)	10/1/2014	0.5	1000	0.5	1000	UG/L
NAPHTHALENE	10/1/2014	0.5	170	0.5	170	UG/L
FOAMING AGENTS (MBAS)	10/1/2014	0.1	0.5	0	0.5	MG/L
DIBROMOCHLOROPROPANE (DBCP)	4/11/2012	0.01	0.2	0.01	0.01	UG/L
ATRAZINE	10/1/2014	0.3	1	0.5	1	UG/L
SIMAZINE	10/1/2014	0.3	4	1	1	UG/L
VINYL CHLORIDE	10/1/2014	0.5	0.5	0.5	0.5	UG/L
TRICHLOROETHYLENE	10/1/2014	0.5	5	0.5	0.5	UG/L
METHYL-TERT-BUTYL-ETHER (MTBE)	2/13/2008	0.5	13	3	3	UG/L
METHYL-TERT-BUTYL-ETHER (MTBE)	10/1/2014	0.5	13	3	3	UG/L
TOTAL DISSOLVED SOLIDS	2/13/2008	620	1000	0	500	MG/L
TOTAL DISSOLVED SOLIDS	10/1/2014	790	1000	0	500	MG/L
HYDROXIDE ALKALINITY	2/13/2008	5	0	0	0	MG/L
HYDROXIDE ALKALINITY	10/1/2014	2.8	0	0	0	MG/L
NITRATE (AS NO3)	4/1/2008	49	45	2	23	MG/L
NITRATE (AS NO3)	8/28/2008	49	45	2	23	MG/L
NITRATE (AS NO3)	1/8/2009	35	45	2	23	MG/L
NITRATE (AS NO3)	12/21/2011	75	45	2	23	MG/L
NITRATE (AS NO3)	1/9/2013	62	45	2	23	MG/L
NITRATE (AS NO3)	7/10/2013	100	45	2	23	MG/L
NITRATE (AS NO3)	10/16/2013	110	45	2	23	MG/L
NITRATE (AS NO3)	5/7/2014	110	45	2	23	MG/L

Rainbird Valley Mutual Water Company
PS ID# 1500393-002
Well 1 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
NITRATE (AS NO3)	7/16/2014	8.7	45	2	23	MG/L
NITRATE (AS NO3)	10/1/2014	110	45	2	23	MG/L
NITRATE (AS NO3)	11/5/2014	86	45	2	23	MG/L
NITRATE (AS NO3)	2/4/2015	83	45	2	23	MG/L
NITRATE (AS NO3)	5/6/2015	99	45	2	23	MG/L
NITRATE (AS NO3)	7/8/2015	88	45	2	23	MG/L
MERCURY	10/1/2014	0.2	2	1	2	UG/L
TERT-BUTYL ALCOHOL (TBA)	10/1/2014	10	12	2	12	UG/L
CIS-1,2-DICHLOROETHYLENE	10/1/2014	0.5	6	0.5	0.5	UG/L
STYRENE	10/1/2014	0.5	100	0.5	0.5	UG/L
1,1-DICHLOROPROPENE	10/1/2014	0.5	0	0.5	0.5	UG/L
2,2-DICHLOROPROPANE	10/1/2014	0.5	0	0.5	0.5	UG/L
1,3-DICHLOROPROPANE	10/1/2014	0.5	0	0.5	0.5	UG/L
1,2,4-TRIMETHYLBENZENE	10/1/2014	0.5	330	0.5	330	UG/L
ISOPROPYLBENZENE	10/1/2014	0.5	770	0.5	770	UG/L
N-PROPYLBENZENE	10/1/2014	0.5	260	0.5	260	UG/L
1,3,5-TRIMETHYLBENZENE	10/1/2014	0.5	330	0.5	330	UG/L
SEC-BUTYLBENZENE	10/1/2014	0.5	260	0.5	0.5	UG/L
TERT-BUTYLBENZENE	10/1/2014	0.5	260	0.5	0.5	UG/L
1,2,3-TRICHLOROPROPANE (1,2,3,-TCP)	10/1/2014	1	0.005	0.005	0.005	UG/L
1,1,1,2-TETRACHLOROETHANE	10/1/2014	0.5	0	0.5	0.5	UG/L
DIBROMOMETHANE	10/1/2014	0.5	0	0.5	0.5	UG/L
1,2,3-TRICHLOROBENZENE	10/1/2014	0.5	0	0.5	0.5	UG/L
ETHYLENE DIBROMIDE (EDB)	4/11/2012	0.01	0.05	0.02	0.02	UG/L
XYLENES (TOTAL)	10/1/2014	1	1750	0	1750	UG/L
BROMOBENZENE	10/1/2014	0.5	0	0.5	0.5	UG/L
TRICHLOROTRIFLUOROETHANE (FREON 113)	10/1/2014	0.5	1200	10	10	UG/L
ASBESTOS	4/24/2010	0	7	0.2	7	MFL
TURBIDITY, LABORATORY	10/1/2014	1.5	5	0.1	5	NTU
TOTAL TRIHALOMETHANES	10/1/2014	2	80	0	80	UG/L
2-CHLOROTOLUENE	10/1/2014	0.5	140	0.5	0.5	UG/L
4-CHLOROTOLUENE	10/1/2014	0.5	140	0.5	140	UG/L
N-BUTYLBENZENE	10/1/2014	0.5	260	0.5	70	UG/L
P-ISOPROPYLTOLUENE	10/1/2014	0.5	0	0	0	UG/L
BROMOCHLOROMETHANE	10/1/2014	0.5	0	0.5	0.5	UG/L
PERCHLORATE	5/6/2008	4	6	4	4	UG/L
PERCHLORATE	6/3/2015	4	6	4	4	UG/L
ETHYL-TERT-BUTYL ETHER	10/1/2014	0.5	0	3	0	UG/L
TERT-AMYL-METHYL ETHER	10/1/2014	0.5	0	3	0	UG/L
GROSS ALPHA MDA95	11/20/2008	0.343	3.001	0	0	PCI/L

Rainbird Valley Mutual Water Company
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Well 2 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
COLOR	3/13/2007	4	15	0	15	UNITS
COLOR	4/22/2010	15	15	0	15	UNITS
ODOR THRESHOLD @ 60 C	3/13/2007	0	3	1	3	TON
ODOR THRESHOLD @ 60 C	4/22/2010	0	3	1	3	TON
SPECIFIC CONDUCTANCE	3/13/2007	823	1600	0	900	US
SPECIFIC CONDUCTANCE	4/22/2010	766	1600	0	900	US
PH, LABORATORY	3/13/2007	7.77	0	0	0	
PH, LABORATORY	4/22/2010	7.52	0	0	0	
ALKALINITY (TOTAL) AS CACO3	3/13/2007	260	0	0	0	MG/L
ALKALINITY (TOTAL) AS CACO3	4/22/2010	240	0	0	0	MG/L
BICARBONATE ALKALINITY	3/13/2007	320	0	0	0	MG/L
BICARBONATE ALKALINITY	4/22/2010	300	0	0	0	MG/L
CARBONATE ALKALINITY	3/13/2007	3	0	0	0	MG/L
CARBONATE ALKALINITY	4/22/2010	2.5	0	0	0	MG/L
NITRATE (as N)	11/4/2015	2.8	10	0.4	5	mg/L
NITRATE (as N)	2/3/2016	17	10	0.4	5	mg/L
NITRITE (AS N)	3/13/2007	50	1	0.4	0.5	mg/L
NITRITE (AS N)	4/22/2010	50	1	0.4	0.5	mg/L
HARDNESS (TOTAL) AS CACO3	3/13/2007	300	0	0	0	MG/L
HARDNESS (TOTAL) AS CACO3	4/22/2010	270	0	0	0	MG/L
CALCIUM	3/13/2007	93	0	0	0	MG/L
CALCIUM	4/22/2010	82	0	0	0	MG/L
MAGNESIUM	3/13/2007	17	0	0	0	MG/L
MAGNESIUM	4/22/2010	16	0	0	0	MG/L
SODIUM	3/13/2007	67	0	0	0	MG/L
SODIUM	4/22/2010	71	0	0	0	MG/L
POTASSIUM	3/13/2007	3.6	0	0	0	MG/L
POTASSIUM	4/22/2010	3.4	0	0	0	MG/L
CHLORIDE	3/13/2007	30	500	0	250	MG/L
CHLORIDE	4/22/2010	30	500	0	250	MG/L
SULFATE	3/13/2007	120	500	0.5	250	MG/L
SULFATE	4/22/2010	110	500	0.5	250	MG/L
FLUORIDE (F) (NATURAL-SOURCE)	3/13/2007	0.86	2	0.1	2	MG/L
FLUORIDE (F) (NATURAL-SOURCE)	4/22/2010	0.84	2	0.1	2	MG/L
ARSENIC	3/13/2007	3.1	10	2	5	UG/L
ARSENIC	4/22/2010	2.1	10	2	5	UG/L
BARIUM	3/13/2007	180	1000	100	1000	UG/L
BARIUM	4/22/2010	170	1000	100	1000	UG/L
BERYLLIUM	3/13/2007	1	4	1	4	UG/L
BERYLLIUM	4/22/2010	1	4	1	4	UG/L
CADMIUM	3/13/2007	1	5	1	5	UG/L
CADMIUM	4/22/2010	1	5	1	5	UG/L
CHROMIUM, HEXAVALENT	9/3/2014	0.57	10	1	10	UG/L
CHROMIUM (TOTAL)	3/13/2007	10	50	10	50	UG/L
CHROMIUM (TOTAL)	4/22/2010	10	50	10	50	UG/L
COPPER	3/13/2007	12	1000	50	1000	UG/L
COPPER	4/22/2010	10	1000	50	1000	UG/L
IRON	3/13/2007	480	300	100	300	UG/L
IRON	4/22/2010	520	300	100	300	UG/L
LEAD	3/13/2007	1.6	0	5	15	UG/L
LEAD	4/22/2010	1	0	5	15	UG/L
MANGANESE	3/13/2007	46	50	20	50	UG/L
MANGANESE	4/22/2010	39	50	20	50	UG/L
THALLIUM	3/13/2007	1	2	1	2	UG/L
THALLIUM	4/22/2010	1	2	1	2	UG/L

Rainbird Valley Mutual Water Company
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Well 2 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
NICKEL	3/13/2007	10	100	10	100	UG/L
NICKEL	4/22/2010	10	100	10	100	UG/L
SILVER	3/13/2007	10	100	10	100	UG/L
SILVER	4/22/2010	10	100	10	100	UG/L
ZINC	3/13/2007	50	5000	50	5000	UG/L
ZINC	4/22/2010	50	5000	50	5000	UG/L
ANTIMONY	3/13/2007	2	6	6	6	UG/L
ANTIMONY	4/22/2010	2	6	6	6	UG/L
ALUMINUM	3/13/2007	50	1000	50	200	UG/L
ALUMINUM	4/22/2010	50	1000	50	200	UG/L
SELENIUM	3/13/2007	2	50	5	50	UG/L
SELENIUM	4/22/2010	2	50	5	50	UG/L
GROSS ALPHA	11/20/2008	44.7	15	3	5	PCI/L
GROSS ALPHA	8/3/2011	58.3	15	3	5	PCI/L
GROSS ALPHA	5/9/2012	49.5	15	3	5	PCI/L
GROSS ALPHA	8/1/2012	46	15	3	5	PCI/L
URANIUM (PCI/L)	11/20/2008	60	20	1	20	PCI/L
URANIUM (PCI/L)	12/8/2009	48	20	1	20	PCI/L
URANIUM (PCI/L)	8/3/2011	36	20	1	20	PCI/L
URANIUM (PCI/L)	8/1/2012	41	20	1	20	PCI/L
URANIUM (PCI/L)	7/10/2013	29	20	1	20	PCI/L
URANIUM (PCI/L)	10/31/2013	29	20	1	20	PCI/L
URANIUM (PCI/L)	11/13/2013	29	20	1	20	PCI/L
URANIUM (PCI/L)	2/5/2014	20	20	1	20	PCI/L
URANIUM (PCI/L)	5/7/2014	34	20	1	20	PCI/L
URANIUM (PCI/L)	7/16/2014	30	20	1	20	PCI/L
URANIUM (PCI/L)	8/6/2014	38	20	1	20	PCI/L
URANIUM (PCI/L)	11/5/2014	22	20	1	20	PCI/L
URANIUM (PCI/L)	2/4/2015	34	20	1	20	PCI/L
URANIUM (PCI/L)	5/6/2015	42	20	1	20	PCI/L
URANIUM (PCI/L)	8/5/2015	16	20	1	20	PCI/L
URANIUM (PCI/L)	11/4/2015	45	20	1	20	PCI/L
URANIUM (PCI/L)	2/3/2016	25	20	1	20	PCI/L
BROMODICHLOROMETHANE (THM)	1/30/2013	0.5	0	1	0	UG/L
CARBON TETRACHLORIDE	1/30/2013	0.5	0.5	0.5	0.5	UG/L
BROMOFORM (THM)	1/30/2013	0.5	0	1	0	UG/L
DIBROMOCHLOROMETHANE (THM)	1/30/2013	0.5	0	1	0	UG/L
CHLOROFORM (THM)	1/30/2013	0.5	0	1	0	UG/L
TOLUENE	1/30/2013	0.5	150	0.5	0.5	UG/L
BENZENE	1/30/2013	0.5	1	0.5	0.5	UG/L
MONOCHLOROBENZENE	1/30/2013	0.5	70	0.5	0.5	UG/L
CHLOROETHANE	1/30/2013	0.5	0	0.5	0.5	UG/L
ETHYLBENZENE	1/30/2013	0.5	300	0.5	0.5	UG/L
HEXACHLOROBUTADIENE	1/30/2013	0.5	0	0.5	0.5	UG/L
BROMOMETHANE	1/30/2013	0.5	0	0.5	0.5	UG/L
CHLOROMETHANE	1/30/2013	0.5	0	0.5	0.5	UG/L
DICHLOROMETHANE	1/30/2013	0.5	5	0.5	0.5	UG/L
TETRACHLOROETHYLENE	1/30/2013	0.5	5	0.5	0.5	UG/L
TRICHLOROFLUOROMETHANE	1/30/2013	0.5	150	5	5	UG/L
1,1-DICHLOROETHANE	1/30/2013	0.5	5	0.5	0.5	UG/L
1,1-DICHLOROETHYLENE	1/30/2013	0.5	6	0.5	0.5	UG/L
1,1,1-TRICHLOROETHANE	1/30/2013	0.5	200	0.5	0.5	UG/L
1,1,2-TRICHLOROETHANE	1/30/2013	0.5	5	0.5	0.5	UG/L
1,1,2,2-TETRACHLOROETHANE	1/30/2013	0.5	1	0.5	0.5	UG/L
1,2-DICHLOROETHANE	1/30/2013	0.5	0.5	0.5	0.5	UG/L

Rainbird Valley Mutual Water Company
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Well 2 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
1,2-DICHLOROBENZENE	1/30/2013	0.5	600	0.5	0.5	UG/L
1,2-DICHLOROPROPANE	1/30/2013	0.5	5	0.5	0.5	UG/L
TRANS-1,2-DICHLOROETHYLENE	1/30/2013	0.5	10	0.5	0.5	UG/L
1,2,4-TRICHLOROBENZENE	1/30/2013	0.5	5	0.5	5	UG/L
1,3-DICHLOROPROPENE (TOTAL)	1/30/2013	0.5	0.5	0.5	0.5	UG/L
1,3-DICHLOROBENZENE	1/30/2013	0.5	0	0.5	600	UG/L
1,4-DICHLOROBENZENE	1/30/2013	0.5	5	0.5	0.5	UG/L
DICHLORODIFLUOROMETHANE (FREON 12)	1/30/2013	0.5	1000	0.5	1000	UG/L
NAPHTHALENE	1/30/2013	0.5	170	0.5	170	UG/L
TRANS-1,3-DICHLOROPROPENE	1/30/2013	0.5	0.5	0.5	0	UG/L
CIS-1,3-DICHLOROPROPENE	1/30/2013	0.5	0.5	0.5	0.5	UG/L
FOAMING AGENTS (MBAS)	3/13/2007	0.2	0.5	0	0.5	MG/L
FOAMING AGENTS (MBAS)	4/22/2010	0.2	0.5	0	0.5	MG/L
ATRAZINE	4/11/2012	0.3	1	0.5	1	UG/L
ATRAZINE	3/20/2013	0.3	1	0.5	1	UG/L
SIMAZINE	4/11/2012	0.3	4	1	1	UG/L
SIMAZINE	3/20/2013	0.3	4	1	1	UG/L
VINYL CHLORIDE	1/30/2013	0.5	0.5	0.5	0.5	UG/L
TRICHLOROETHYLENE	1/30/2013	0.5	5	0.5	0.5	UG/L
METHYL-TERT-BUTYL-ETHER (MTBE)	1/30/2013	0.5	13	3	3	UG/L
TOTAL DISSOLVED SOLIDS	3/13/2007	520	1000	0	500	MG/L
TOTAL DISSOLVED SOLIDS	4/22/2010	470	1000	0	500	MG/L
HYDROXIDE ALKALINITY	3/13/2007	1.6	0	0	0	MG/L
HYDROXIDE ALKALINITY	4/22/2010	1.4	0	0	0	MG/L
NITRATE (AS NO3)	12/19/2006	10	45	2	23	MG/L
NITRATE (AS NO3)	3/13/2007	3.1	45	2	23	MG/L
NITRATE (AS NO3)	5/20/2008	16	45	2	23	MG/L
NITRATE (AS NO3)	3/11/2010	15	45	2	23	MG/L
NITRATE (AS NO3)	4/22/2010	2.4	45	2	23	MG/L
NITRATE (AS NO3)	1/9/2013	3.9	45	2	23	MG/L
NITRATE (AS NO3)	10/31/2013	5.7	45	2	23	MG/L
NITRATE (AS NO3)	11/13/2013	5.8	45	2	23	MG/L
NITRATE (AS NO3)	2/5/2014	6.2	45	2	23	MG/L
NITRATE (AS NO3)	5/7/2014	8.4	45	2	23	MG/L
NITRATE (AS NO3)	7/16/2014	120	45	2	23	MG/L
NITRATE (AS NO3)	11/19/2014	7.7	45	2	23	MG/L
NITRATE (AS NO3)	2/4/2015	6.8	45	2	23	MG/L
NITRATE (AS NO3)	5/6/2015	7.8	45	2	23	MG/L
MERCURY	3/13/2007	0.2	2	1	2	UG/L
MERCURY	4/22/2010	0.2	2	1	2	UG/L
TERT-BUTYL ALCOHOL (TBA)	1/30/2013	10	12	2	12	UG/L
CIS-1,2-DICHLOROETHYLENE	1/30/2013	0.5	6	0.5	0.5	UG/L
STYRENE	1/30/2013	0.5	100	0.5	0.5	UG/L
O-XYLENE	1/30/2013	0.5	0	0.5	0	UG/L
1,1-DICHLOROPROPENE	1/30/2013	0.5	0	0.5	0.5	UG/L
2,2-DICHLOROPROPANE	1/30/2013	0.5	0	0.5	0.5	UG/L
1,3-DICHLOROPROPANE	1/30/2013	0.5	0	0.5	0.5	UG/L
1,2,4-TRIMETHYLBENZENE	1/30/2013	0.5	330	0.5	330	UG/L
ISOPROPYLBENZENE	1/30/2013	0.5	770	0.5	770	UG/L
N-PROPYLBENZENE	1/30/2013	0.5	260	0.5	260	UG/L
1,3,5-TRIMETHYLBENZENE	1/30/2013	0.5	330	0.5	330	UG/L
SEC-BUTYLBENZENE	1/30/2013	0.5	260	0.5	0.5	UG/L
TERT-BUTYLBENZENE	1/30/2013	0.5	260	0.5	0.5	UG/L
1,2,3-TRICHLOROPROPANE (1,2,3,-TCP)	10/25/2006	0.005	0.005	0.005	0.005	UG/L
1,2,3-TRICHLOROPROPANE (1,2,3,-TCP)	1/30/2013	1	0.005	0.005	0.005	UG/L

Rainbird Valley Mutual Water Company
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Well 2 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
1,1,1,2-TETRACHLOROETHANE	1/30/2013	0.5	0	0.5	0.5	UG/L
DIBROMOMETHANE	1/30/2013	0.5	0	0.5	0.5	UG/L
1,2,3-TRICHLOROBENZENE	1/30/2013	0.5	0	0.5	0.5	UG/L
ALACHLOR	3/20/2013	0.2	2	1	1	UG/L
XYLENES (TOTAL)	1/30/2013	1	1750	0	1750	UG/L
BROMOBENZENE	1/30/2013	0.5	0	0.5	0.5	UG/L
TRICHLOROTRIFLUOROETHANE (FREON 113)	1/30/2013	0.5	1200	10	10	UG/L
ASBESTOS	4/24/2010	0	7	0.2	7	MFL
TURBIDITY, LABORATORY	3/13/2007	2.9	5	0.1	5	NTU
TURBIDITY, LABORATORY	4/22/2010	0.1	5	0.1	5	NTU
TOTAL TRIHALOMETHANES	1/30/2013	2	80	0	80	UG/L
2-CHLOROTOLUENE	1/30/2013	0.5	140	0.5	0.5	UG/L
4-CHLOROTOLUENE	1/30/2013	0.5	140	0.5	140	UG/L
N-BUTYLBENZENE	1/30/2013	0.5	260	0.5	70	UG/L
P-ISOPROPYLTOLUENE	1/30/2013	0.5	0	0	0	UG/L
BROMOCHLOROMETHANE	1/30/2013	0.5	0	0.5	0.5	UG/L
M,P-XYLENE	1/30/2013	0.5	0	0.5	0	UG/L
PERCHLORATE	11/28/2007	4	6	4	4	UG/L
PERCHLORATE	5/6/2008	4	6	4	4	UG/L
PERCHLORATE	6/3/2015	4	6	4	4	UG/L
ETHYL-TERT-BUTYL ETHER	1/30/2013	0.5	0	3	0	UG/L
TERT-AMYL-METHYL ETHER	1/30/2013	0.5	0	3	0	UG/L
DIISOPROPYL ETHER	1/30/2013	0.5	0	3	0	UG/L
GROSS ALPHA MDA95	11/20/2008	0.343	3.001	0	0	PCI/L
GROSS ALPHA MDA95	5/9/2012	1.09	3.001	0	0	PCI/L
GROSS ALPHA MDA95	8/1/2012	1.16	3.001	0	0	PCI/L

Sierra Vista Restaurant
PS ID# 1502194-001
Well 1 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
NITRATE (as N)	9/21/2015	14	10	0.4	5	mg/L
NITRATE (as N)	12/29/2015	14	10	0.4	5	mg/L
NITRITE (AS N)	3/17/2014	50	1	0.4	0.5	mg/L
NITRATE (AS NO3)	3/9/2007	61	45	2	23	MG/L
NITRATE (AS NO3)	7/30/2007	64	45	2	23	MG/L
NITRATE (AS NO3)	1/15/2008	64	45	2	23	MG/L
NITRATE (AS NO3)	4/8/2008	68	45	2	23	MG/L
NITRATE (AS NO3)	7/14/2008	67	45	2	23	MG/L
NITRATE (AS NO3)	10/6/2008	69	45	2	23	MG/L
NITRATE (AS NO3)	1/13/2009	60	45	2	23	MG/L
NITRATE (AS NO3)	4/13/2009	72	45	2	23	MG/L
NITRATE (AS NO3)	8/17/2009	72	45	2	23	MG/L
NITRATE (AS NO3)	11/30/2009	72	45	2	23	MG/L
NITRATE (AS NO3)	3/1/2010	67	45	2	23	MG/L
NITRATE (AS NO3)	7/6/2010	71	45	2	23	MG/L
NITRATE (AS NO3)	10/25/2010	64	45	2	23	MG/L
NITRATE (AS NO3)	1/10/2011	62	45	2	23	MG/L
NITRATE (AS NO3)	8/8/2011	64	45	2	23	MG/L
NITRATE (AS NO3)	11/8/2011	58	45	2	23	MG/L
NITRATE (AS NO3)	2/27/2012	57	45	2	23	MG/L
NITRATE (AS NO3)	6/18/2012	54	45	2	23	MG/L
NITRATE (AS NO3)	11/5/2012	52	45	2	23	MG/L
NITRATE (AS NO3)	2/12/2013	54	45	2	23	MG/L
NITRATE (AS NO3)	9/9/2013	56	45	2	23	MG/L
NITRATE (AS NO3)	12/16/2013	54	45	2	23	MG/L
NITRATE (AS NO3)	3/3/2014	56	45	2	23	MG/L
NITRATE (AS NO3)	6/9/2014	55	45	2	23	MG/L
NITRATE (AS NO3)	9/22/2014	56	45	2	23	MG/L
NITRATE (AS NO3)	12/29/2014	56	45	2	23	MG/L
NITRATE (AS NO3)	3/23/2015	57	45	2	23	MG/L
NITRATE (AS NO3)	6/8/2015	59	45	2	23	MG/L

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Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
COLOR	4/22/2010	1	15	0	15	UNITS
COLOR	6/5/2013	1	15	0	15	UNITS
ODOR THRESHOLD @ 60 C	4/22/2010	0	3	1	3	TON
ODOR THRESHOLD @ 60 C	6/5/2013	0	3	1	3	TON
SPECIFIC CONDUCTANCE	4/22/2010	578	1600	0	900	US
SPECIFIC CONDUCTANCE	6/5/2013	608	1600	0	900	US
PH, LABORATORY	4/22/2010	7.51	0	0	0	
PH, LABORATORY	6/5/2013	7.62	0	0	0	
ALKALINITY (TOTAL) AS CACO3	4/22/2010	220	0	0	0	MG/L
ALKALINITY (TOTAL) AS CACO3	6/5/2013	220	0	0	0	MG/L
BICARBONATE ALKALINITY	4/22/2010	270	0	0	0	MG/L
BICARBONATE ALKALINITY	6/5/2013	270	0	0	0	MG/L
CARBONATE ALKALINITY	4/22/2010	2.5	0	0	0	MG/L
CARBONATE ALKALINITY	6/5/2013	2.5	0	0	0	MG/L
NITRATE (as N)	12/2/2015	1.5	10	0.4	5	mg/L
NITRITE (AS N)	4/22/2010	50	1	0.4	0.5	mg/L
NITRITE (AS N)	6/5/2013	50	1	0.4	0.5	mg/L
HARDNESS (TOTAL) AS CACO3	4/22/2010	180	0	0	0	MG/L
HARDNESS (TOTAL) AS CACO3	6/5/2013	190	0	0	0	MG/L
CALCIUM	4/22/2010	54	0	0	0	MG/L
CALCIUM	6/5/2013	57	0	0	0	MG/L
MAGNESIUM	4/22/2010	10	0	0	0	MG/L
MAGNESIUM	6/5/2013	11	0	0	0	MG/L
SODIUM	4/22/2010	54	0	0	0	MG/L
SODIUM	6/5/2013	49	0	0	0	MG/L
POTASSIUM	4/22/2010	2.6	0	0	0	MG/L
POTASSIUM	6/5/2013	3.3	0	0	0	MG/L
CHLORIDE	4/22/2010	20	500	0	250	MG/L
CHLORIDE	6/5/2013	25	500	0	250	MG/L
SULFATE	4/22/2010	41	500	0.5	250	MG/L
SULFATE	6/5/2013	43	500	0.5	250	MG/L
FLUORIDE (F) (NATURAL-SOURCE)	4/22/2010	0.66	2	0.1	2	MG/L
FLUORIDE (F) (NATURAL-SOURCE)	6/5/2013	0.44	2	0.1	2	MG/L
ARSENIC	4/22/2010	2	10	2	5	UG/L
ARSENIC	6/5/2013	2	10	2	5	UG/L
BARIUM	4/22/2010	41	1000	100	1000	UG/L
BARIUM	6/5/2013	53	1000	100	1000	UG/L
BERYLLIUM	4/22/2010	1	4	1	4	UG/L
BERYLLIUM	6/5/2013	1	4	1	4	UG/L
CADMIUM	4/22/2010	1	5	1	5	UG/L
CADMIUM	6/5/2013	1	5	1	5	UG/L
CHROMIUM, HEXAVALENT	9/10/2014	0.33	10	1	10	UG/L
CHROMIUM (TOTAL)	4/22/2010	10	50	10	50	UG/L
CHROMIUM (TOTAL)	6/5/2013	10	50	10	50	UG/L
COPPER	4/22/2010	10	1000	50	1000	UG/L
COPPER	6/5/2013	10	1000	50	1000	UG/L

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Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
IRON	4/22/2010	50	300	100	300	UG/L
IRON	6/5/2013	50	300	100	300	UG/L
LEAD	4/22/2010	1	0	5	15	UG/L
LEAD	6/5/2013	1	0	5	15	UG/L
MANGANESE	4/22/2010	10	50	20	50	UG/L
MANGANESE	6/5/2013	10	50	20	50	UG/L
THALLIUM	4/22/2010	1	2	1	2	UG/L
THALLIUM	6/5/2013	1	2	1	2	UG/L
NICKEL	4/22/2010	10	100	10	100	UG/L
NICKEL	6/5/2013	10	100	10	100	UG/L
SILVER	4/22/2010	10	100	10	100	UG/L
SILVER	6/5/2013	10	100	10	100	UG/L
ZINC	4/22/2010	210	5000	50	5000	UG/L
ZINC	6/5/2013	50	5000	50	5000	UG/L
ANTIMONY	4/22/2010	2	6	6	6	UG/L
ANTIMONY	6/5/2013	2	6	6	6	UG/L
ALUMINUM	4/22/2010	50	1000	50	200	UG/L
ALUMINUM	6/5/2013	50	1000	50	200	UG/L
SELENIUM	4/22/2010	2	50	5	50	UG/L
SELENIUM	6/5/2013	2	50	5	50	UG/L
GROSS ALPHA	5/7/2007	15.1	15	3	5	PCI/L
GROSS ALPHA	8/6/2007	15.6	15	3	5	PCI/L
GROSS ALPHA	5/20/2008	15.2	15	3	5	PCI/L
GROSS ALPHA	9/18/2008	13.1	15	3	5	PCI/L
GROSS ALPHA	3/23/2011	14.6	15	3	5	PCI/L
GROSS ALPHA	5/4/2011	13.2	15	3	5	PCI/L
GROSS ALPHA	8/10/2011	19.9	15	3	5	PCI/L
GROSS ALPHA	10/19/2011	15.2	15	3	5	PCI/L
GROSS ALPHA	12/7/2011	15	15	3	5	PCI/L
GROSS ALPHA	3/14/2012	13.1	15	3	5	PCI/L
GROSS ALPHA	6/13/2012	11.5	15	3	5	PCI/L
GROSS ALPHA	2/3/2016	21.4	15	3	5	PCI/L
GROSS ALPHA COUNTING ERROR	5/7/2007	3.1	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	8/6/2007	3.6	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	5/20/2008	1.37	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	9/18/2008	1.4	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	3/23/2011	0.54	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	5/4/2011	0.52	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	8/10/2011	0.44	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	3/14/2012	0.658	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	6/13/2012	0.539	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	2/3/2016	0.73	0	0	0	PCI/L
RADIUM 226	5/7/2007	0.13	0	1	0	PCI/L
RADIUM 226	11/16/2011	1	0	1	0	PCI/L
RADIUM 226	3/14/2012	1	0	1	0	PCI/L
RADIUM 226 COUNTING ERROR	5/7/2007	0.08	0	0	0	PCI/L

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Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
RADIUM 226 COUNTING ERROR	11/16/2011	0.137	0	0	0	PCI/L
RADIUM 226 COUNTING ERROR	3/14/2012	0.484	0	0	0	PCI/L
RADIUM 228	5/7/2007	0.94	0	1	0	
RADIUM 228	5/20/2008	0.05	0	1	0	
RADIUM 228	11/16/2011	1.59	0	1	0	
RADIUM 228	3/14/2012	2.88	0	1	0	
RADIUM 228 COUNTING ERROR	5/7/2007	0.28	0	0	0	PCI/L
RADIUM 228 COUNTING ERROR	5/20/2008	0.24	0	0	0	PCI/L
RADIUM 228 COUNTING ERROR	11/16/2011	0.568	0	0	0	PCI/L
RADIUM 228 COUNTING ERROR	3/14/2012	0.634	0	0	0	PCI/L
COMBINED RA 226 + RA 228	5/7/2007	1.07	5	0	5	
COMBINED RA 226 + RA 228 COUNTING ERROR	5/7/2007	0.36	0	0	0	PCI/L
URANIUM (PCI/L)	8/6/2007	26.8	20	1	20	PCI/L
URANIUM (PCI/L)	5/20/2008	17	20	1	20	PCI/L
URANIUM (PCI/L)	9/18/2008	21	20	1	20	PCI/L
URANIUM (PCI/L)	3/30/2009	10.005	20	1	20	PCI/L
URANIUM (PCI/L)	3/23/2011	16	20	1	20	PCI/L
URANIUM (PCI/L)	5/4/2011	17	20	1	20	PCI/L
URANIUM (PCI/L)	8/10/2011	16	20	1	20	PCI/L
URANIUM (PCI/L)	10/19/2011	14	20	1	20	PCI/L
URANIUM (PCI/L)	12/7/2011	15	20	1	20	PCI/L
URANIUM (PCI/L)	3/14/2012	17	20	1	20	PCI/L
URANIUM (PCI/L)	6/13/2012	15	20	1	20	PCI/L
URANIUM (PCI/L)	12/11/2013	14	20	1	20	PCI/L
URANIUM (PCI/L)	3/19/2014	15	20	1	20	PCI/L
URANIUM (PCI/L)	6/17/2014	17	20	1	20	PCI/L
URANIUM (PCI/L)	9/10/2014	13	20	1	20	PCI/L
URANIUM (PCI/L)	12/4/2014	14	20	1	20	PCI/L
URANIUM (PCI/L)	3/3/2015	15	20	1	20	PCI/L
URANIUM (PCI/L)	6/3/2015	14	20	1	20	PCI/L
URANIUM (PCI/L)	9/23/2015	17	20	1	20	PCI/L
URANIUM (PCI/L)	12/2/2015	18	20	1	20	PCI/L
URANIUM (PCI/L)	3/2/2016	16	20	1	20	PCI/L
BROMODICHLOROMETHANE (THM)	11/5/2013	0.5	0	1	0	UG/L
CARBON TETRACHLORIDE	11/5/2013	0.5	0.5	0.5	0.5	UG/L
BROMOFORM (THM)	11/5/2013	0.5	0	1	0	UG/L
DIBROMOCHLOROMETHANE (THM)	11/5/2013	0.5	0	1	0	UG/L
CHLOROFORM (THM)	11/5/2013	0.5	0	1	0	UG/L
TOLUENE	11/5/2013	0.5	150	0.5	0.5	UG/L
BENZENE	11/5/2013	0.5	1	0.5	0.5	UG/L
MONOCHLOROBENZENE	11/5/2013	0.5	70	0.5	0.5	UG/L
CHLOROETHANE	11/5/2013	0.5	0	0.5	0.5	UG/L
ETHYLBENZENE	11/5/2013	0.5	300	0.5	0.5	UG/L
HEXACHLOROBUTADIENE	11/5/2013	0.5	0	0.5	0.5	UG/L
BROMOMETHANE	11/5/2013	1	0	0.5	0.5	UG/L
CHLOROMETHANE	11/5/2013	0.5	0	0.5	0.5	UG/L

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DICHLOROMETHANE	11/5/2013	0.5	5	0.5	0.5	UG/L
TETRACHLOROETHYLENE	11/5/2013	0.5	5	0.5	0.5	UG/L
TRICHLOROFLUOROMETHANE	11/5/2013	0.5	150	5	5	UG/L
1,1-DICHLOROETHANE	11/5/2013	0.5	5	0.5	0.5	UG/L
1,1-DICHLOROETHYLENE	11/5/2013	0.5	6	0.5	0.5	UG/L
1,1,1-TRICHLOROETHANE	11/5/2013	0.5	200	0.5	0.5	UG/L
1,1,2-TRICHLOROETHANE	11/5/2013	0.5	5	0.5	0.5	UG/L
1,1,2,2-TETRACHLOROETHANE	11/5/2013	0.5	1	0.5	0.5	UG/L
1,2-DICHLOROETHANE	11/5/2013	0.5	0.5	0.5	0.5	UG/L
1,2-DICHLOROBENZENE	11/5/2013	0.5	600	0.5	0.5	UG/L
1,2-DICHLOROPROPANE	11/5/2013	0.5	5	0.5	0.5	UG/L
TRANS-1,2-DICHLOROETHYLENE	11/5/2013	0.5	10	0.5	0.5	UG/L
1,2,4-TRICHLOROBENZENE	11/5/2013	0.5	5	0.5	5	UG/L
1,3-DICHLOROPROPENE (TOTAL)	11/5/2013	0.5	0.5	0.5	0.5	UG/L
1,3-DICHLOROBENZENE	11/5/2013	0.5	0	0.5	600	UG/L
1,4-DICHLOROBENZENE	11/5/2013	0.5	5	0.5	0.5	UG/L
2-CHLOROETHYLVINYL ETHER	11/5/2013	10	0	0	0	UG/L
DICHLORODIFLUOROMETHANE (FREON 12)	11/5/2013	0.5	1000	0.5	1000	UG/L
NAPHTHALENE	11/5/2013	0.5	170	0.5	170	UG/L
FOAMING AGENTS (MBAS)	4/22/2010	0.1	0.5	0	0.5	MG/L
FOAMING AGENTS (MBAS)	6/5/2013	0.2	0.5	0	0.5	MG/L
ATRAZINE	6/5/2013	0.3	1	0.5	1	UG/L
SIMAZINE	6/5/2013	0.3	4	1	1	UG/L
VINYL CHLORIDE	11/5/2013	0.5	0.5	0.5	0.5	UG/L
TRICHLOROETHYLENE	11/5/2013	0.5	5	0.5	0.5	UG/L
METHYL-TERT-BUTYL-ETHER (MTBE)	11/5/2013	0.5	13	3	3	UG/L
TOTAL DISSOLVED SOLIDS	4/22/2010	360	1000	0	500	MG/L
TOTAL DISSOLVED SOLIDS	6/5/2013	380	1000	0	500	MG/L
HYDROXIDE ALKALINITY	4/22/2010	1.4	0	0	0	MG/L
HYDROXIDE ALKALINITY	6/5/2013	1.4	0	0	0	MG/L
NITRATE (AS NO3)	4/22/2010	3.7	45	2	23	MG/L
NITRATE (AS NO3)	5/1/2013	4.2	45	2	23	MG/L
NITRATE (AS NO3)	6/5/2013	3.9	45	2	23	MG/L
NITRATE (AS NO3)	12/17/2014	4.6	45	2	23	MG/L
MERCURY	4/22/2010	0.2	2	1	2	UG/L
MERCURY	6/5/2013	0.2	2	1	2	UG/L
TERT-BUTYL ALCOHOL (TBA)	11/5/2013	10	12	2	12	UG/L
CIS-1,2-DICHLOROETHYLENE	11/5/2013	0.5	6	0.5	0.5	UG/L
STYRENE	11/5/2013	0.5	100	0.5	0.5	UG/L
1,1-DICHLOROPROPENE	11/5/2013	0.5	0	0.5	0.5	UG/L
2,2-DICHLOROPROPANE	11/5/2013	0.5	0	0.5	0.5	UG/L
1,3-DICHLOROPROPANE	11/5/2013	0.5	0	0.5	0.5	UG/L
1,2,4-TRIMETHYLBENZENE	11/5/2013	0.5	330	0.5	330	UG/L
ISOPROPYLBENZENE	11/5/2013	0.5	770	0.5	770	UG/L
N-PROPYLBENZENE	11/5/2013	0.5	260	0.5	260	UG/L
1,3,5-TRIMETHYLBENZENE	11/5/2013	0.5	330	0.5	330	UG/L

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Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
SEC-BUTYLBENZENE	11/5/2013	0.5	260	0.5	0.5	UG/L
TERT-BUTYLBENZENE	11/5/2013	0.5	260	0.5	0.5	UG/L
1,2,3-TRICHLOROPROPANE (1,2,3,-TCP)	11/5/2013	1	0.005	0.005	0.005	UG/L
1,1,1,2-TETRACHLOROETHANE	11/5/2013	0.5	0	0.5	0.5	UG/L
DIBROMOMETHANE	11/5/2013	0.5	0	0.5	0.5	UG/L
1,2,3-TRICHLOROBENZENE	11/5/2013	0.5	0	0.5	0.5	UG/L
ALACHLOR	6/5/2013	0.2	2	1	1	UG/L
XYLENES (TOTAL)	11/5/2013	1	1750	0	1750	UG/L
BROMOBENZENE	11/5/2013	0.5	0	0.5	0.5	UG/L
TRICHLOROTRIFLUOROETHANE (FREON 113)	2/3/2016	0.5	1200	10	10	UG/L
ASBESTOS	11/5/2013	0	7	0.2	7	MFL
TURBIDITY, LABORATORY	4/22/2010	0.1	5	0.1	5	NTU
TURBIDITY, LABORATORY	6/5/2013	0.1	5	0.1	5	NTU
TOTAL TRIHALOMETHANES	11/5/2013	2	80	0	80	UG/L
2-CHLOROTOLUENE	11/5/2013	0.5	140	0.5	0.5	UG/L
4-CHLOROTOLUENE	11/5/2013	0.5	140	0.5	140	UG/L
N-BUTYLBENZENE	11/5/2013	0.5	260	0.5	70	UG/L
P-ISOPROPYLTOLUENE	11/5/2013	0.5	0	0	0	UG/L
BROMOCHLOROMETHANE	11/5/2013	0.5	0	0.5	0.5	UG/L
PERCHLORATE	11/28/2007	4	6	4	4	UG/L
PERCHLORATE	5/20/2008	4	6	4	4	UG/L
PERCHLORATE	11/5/2013	4	6	4	4	UG/L
ETHYL-TERT-BUTYL ETHER	11/5/2013	0.5	0	3	0	UG/L
TERT-AMYL-METHYL ETHER	11/5/2013	0.5	0	3	0	UG/L
GROSS ALPHA MDA95	5/20/2008	0.348	3.001	0	0	PCI/L
GROSS ALPHA MDA95	9/18/2008	0.343	3.001	0	0	PCI/L
GROSS ALPHA MDA95	3/14/2012	0.016	3.001	0	0	PCI/L
GROSS ALPHA MDA95	6/13/2012	1.09	3.001	0	0	PCI/L
GROSS ALPHA MDA95	2/3/2016	0.747	3.001	0	0	PCI/L

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Well 3 Water Quality Results

Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
COLOR	4/22/2010	1	15	0	15	UNITS
COLOR	6/5/2013	1	15	0	15	UNITS
ODOR THRESHOLD @ 60 C	4/22/2010	0	3	1	3	TON
ODOR THRESHOLD @ 60 C	6/5/2013	0	3	1	3	TON
SPECIFIC CONDUCTANCE	4/22/2010	528	1600	0	900	US
SPECIFIC CONDUCTANCE	6/5/2013	608	1600	0	900	US
PH, LABORATORY	4/22/2010	7.48	0	0	0	
PH, LABORATORY	6/5/2013	7.65	0	0	0	
ALKALINITY (TOTAL) AS CACO3	4/22/2010	180	0	0	0	MG/L
ALKALINITY (TOTAL) AS CACO3	6/5/2013	220	0	0	0	MG/L
BICARBONATE ALKALINITY	4/22/2010	230	0	0	0	MG/L
BICARBONATE ALKALINITY	6/5/2013	270	0	0	0	MG/L
CARBONATE ALKALINITY	4/22/2010	2.5	0	0	0	MG/L
CARBONATE ALKALINITY	6/5/2013	2.5	0	0	0	MG/L
NITRATE (as N)	12/2/2015	2.2	10	0.4	5	mg/L
NITRITE (AS N)	4/22/2010	50	1	0.4	0.5	mg/L
NITRITE (AS N)	6/5/2013	50	1	0.4	0.5	mg/L
HARDNESS (TOTAL) AS CACO3	4/22/2010	150	0	0	0	MG/L
HARDNESS (TOTAL) AS CACO3	6/5/2013	190	0	0	0	MG/L
CALCIUM	4/22/2010	45	0	0	0	MG/L
CALCIUM	6/5/2013	57	0	0	0	MG/L
MAGNESIUM	4/22/2010	9.4	0	0	0	MG/L
MAGNESIUM	6/5/2013	11	0	0	0	MG/L
SODIUM	4/22/2010	49	0	0	0	MG/L
SODIUM	6/5/2013	49	0	0	0	MG/L
POTASSIUM	4/22/2010	2.7	0	0	0	MG/L
POTASSIUM	6/5/2013	3.2	0	0	0	MG/L
CHLORIDE	4/22/2010	19	500	0	250	MG/L
CHLORIDE	6/5/2013	25	500	0	250	MG/L
SULFATE	4/22/2010	39	500	0.5	250	MG/L
SULFATE	6/5/2013	43	500	0.5	250	MG/L
FLUORIDE (F) (NATURAL-SOURCE)	4/22/2010	0.58	2	0.1	2	MG/L
FLUORIDE (F) (NATURAL-SOURCE)	6/5/2013	0.46	2	0.1	2	MG/L
ARSENIC	4/22/2010	2	10	2	5	UG/L
ARSENIC	6/5/2013	2	10	2	5	UG/L
BARIUM	4/22/2010	52	1000	100	1000	UG/L
BARIUM	6/5/2013	52	1000	100	1000	UG/L
BERYLLIUM	4/22/2010	1	4	1	4	UG/L
BERYLLIUM	6/5/2013	1	4	1	4	UG/L
CADMIUM	4/22/2010	1	5	1	5	UG/L
CADMIUM	6/5/2013	1	5	1	5	UG/L
CHROMIUM, HEXAVALENT	12/23/2014	0.22	10	1	10	UG/L
CHROMIUM (TOTAL)	4/22/2010	10	50	10	50	UG/L
CHROMIUM (TOTAL)	6/5/2013	10	50	10	50	UG/L
COPPER	4/22/2010	10	1000	50	1000	UG/L
COPPER	6/5/2013	10	1000	50	1000	UG/L

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Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
IRON	4/22/2010	50	300	100	300	UG/L
IRON	6/5/2013	50	300	100	300	UG/L
LEAD	4/22/2010	1	0	5	15	UG/L
LEAD	6/5/2013	1	0	5	15	UG/L
MANGANESE	4/22/2010	10	50	20	50	UG/L
MANGANESE	6/5/2013	10	50	20	50	UG/L
THALLIUM	4/22/2010	1	2	1	2	UG/L
THALLIUM	6/5/2013	1	2	1	2	UG/L
NICKEL	4/22/2010	10	100	10	100	UG/L
NICKEL	6/5/2013	10	100	10	100	UG/L
SILVER	4/22/2010	10	100	10	100	UG/L
SILVER	6/5/2013	10	100	10	100	UG/L
ZINC	4/22/2010	89	5000	50	5000	UG/L
ZINC	6/5/2013	50	5000	50	5000	UG/L
ANTIMONY	4/22/2010	2	6	6	6	UG/L
ANTIMONY	6/5/2013	2	6	6	6	UG/L
ALUMINUM	4/22/2010	50	1000	50	200	UG/L
ALUMINUM	6/5/2013	50	1000	50	200	UG/L
SELENIUM	4/22/2010	2	50	5	50	UG/L
SELENIUM	6/5/2013	2	50	5	50	UG/L
GROSS ALPHA	8/22/2007	21.5	15	3	5	PCI/L
GROSS ALPHA	5/20/2008	16	15	3	5	PCI/L
GROSS ALPHA	9/18/2008	18.3	15	3	5	PCI/L
GROSS ALPHA	3/23/2011	10.6	15	3	5	PCI/L
GROSS ALPHA	5/4/2011	10.6	15	3	5	PCI/L
GROSS ALPHA	8/10/2011	22.9	15	3	5	PCI/L
GROSS ALPHA	10/19/2011	24.3	15	3	5	PCI/L
GROSS ALPHA	12/7/2011	17.1	15	3	5	PCI/L
GROSS ALPHA	3/14/2012	15	15	3	5	PCI/L
GROSS ALPHA	6/13/2012	18.2	15	3	5	PCI/L
GROSS ALPHA	2/3/2016	14.3	15	3	5	PCI/L
GROSS ALPHA COUNTING ERROR	8/22/2007	4.1	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	5/20/2008	1.6	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	9/18/2008	1.58	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	3/23/2011	0.47	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	5/4/2011	0.47	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	8/10/2011	0.47	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	3/14/2012	0.725	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	6/13/2012	0.678	0	0	0	PCI/L
GROSS ALPHA COUNTING ERROR	2/3/2016	0.602	0	0	0	PCI/L
RADIUM 226	3/23/2011	1	0	1	0	PCI/L
RADIUM 226	11/16/2011	1	0	1	0	PCI/L
RADIUM 226	3/14/2012	1	0	1	0	PCI/L
RADIUM 226 COUNTING ERROR	3/23/2011	0.166	0	0	0	PCI/L
RADIUM 226 COUNTING ERROR	11/16/2011	0.202	0	0	0	PCI/L
RADIUM 226 COUNTING ERROR	3/14/2012	0.545	0	0	0	PCI/L

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Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
RADIUM 228	5/20/2008	0.52	0	1	0	
RADIUM 228	3/23/2011	1.81	0	1	0	
RADIUM 228	11/16/2011	1.06	0	1	0	
RADIUM 228	3/14/2012	1	0	1	0	
RADIUM 228 COUNTING ERROR	5/20/2008	0.27	0	0	0	PCI/L
RADIUM 228 COUNTING ERROR	3/23/2011	0.616	0	0	0	PCI/L
RADIUM 228 COUNTING ERROR	11/16/2011	0.5	0	0	0	PCI/L
RADIUM 228 COUNTING ERROR	3/14/2012	0.474	0	0	0	PCI/L
URANIUM (PCI/L)	8/22/2007	30.9	20	1	20	PCI/L
URANIUM (PCI/L)	5/20/2008	16	20	1	20	PCI/L
URANIUM (PCI/L)	9/18/2008	20	20	1	20	PCI/L
URANIUM (PCI/L)	3/30/2009	8.671	20	1	20	PCI/L
URANIUM (PCI/L)	3/23/2011	20	20	1	20	PCI/L
URANIUM (PCI/L)	5/4/2011	13	20	1	20	PCI/L
URANIUM (PCI/L)	8/10/2011	17	20	1	20	PCI/L
URANIUM (PCI/L)	10/19/2011	20	20	1	20	PCI/L
URANIUM (PCI/L)	12/7/2011	20	20	1	20	PCI/L
URANIUM (PCI/L)	3/14/2012	19	20	1	20	PCI/L
URANIUM (PCI/L)	6/13/2012	14	20	1	20	PCI/L
URANIUM (PCI/L)	12/11/2013	17	20	1	20	PCI/L
URANIUM (PCI/L)	3/12/2014	11	20	1	20	PCI/L
URANIUM (PCI/L)	6/17/2014	19	20	1	20	PCI/L
URANIUM (PCI/L)	12/4/2014	14	20	1	20	PCI/L
URANIUM (PCI/L)	3/3/2015	22	20	1	20	PCI/L
URANIUM (PCI/L)	6/3/2015	18	20	1	20	PCI/L
URANIUM (PCI/L)	9/23/2015	21	20	1	20	PCI/L
URANIUM (PCI/L)	12/2/2015	13	20	1	20	PCI/L
URANIUM (PCI/L)	3/2/2016	23	20	1	20	PCI/L
BROMODICHLOROMETHANE (THM)	11/5/2013	0.5	0	1	0	UG/L
CARBON TETRACHLORIDE	11/5/2013	0.5	0.5	0.5	0.5	UG/L
BROMOFORM (THM)	11/5/2013	0.5	0	1	0	UG/L
DIBROMOCHLOROMETHANE (THM)	11/5/2013	0.5	0	1	0	UG/L
CHLOROFORM (THM)	11/5/2013	0.5	0	1	0	UG/L
TOLUENE	11/5/2013	0.5	150	0.5	0.5	UG/L
BENZENE	11/5/2013	0.5	1	0.5	0.5	UG/L
MONOCHLOROBENZENE	11/5/2013	0.5	70	0.5	0.5	UG/L
CHLOROETHANE	11/5/2013	0.5	0	0.5	0.5	UG/L
ETHYLBENZENE	11/5/2013	0.5	300	0.5	0.5	UG/L
HEXACHLOROBUTADIENE	11/5/2013	0.5	0	0.5	0.5	UG/L
BROMOMETHANE	11/5/2013	1	0	0.5	0.5	UG/L
CHLOROMETHANE	11/5/2013	0.5	0	0.5	0.5	UG/L
DICHLOROMETHANE	11/5/2013	0.5	5	0.5	0.5	UG/L
TETRACHLOROETHYLENE	11/5/2013	0.5	5	0.5	0.5	UG/L
TRICHLOROFLUOROMETHANE	11/5/2013	0.5	150	5	5	UG/L
1,1-DICHLOROETHANE	11/5/2013	0.5	5	0.5	0.5	UG/L
1,1-DICHLOROETHYLENE	11/5/2013	0.5	6	0.5	0.5	UG/L

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Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
1,1,1-TRICHLOROETHANE	11/5/2013	0.5	200	0.5	0.5	UG/L
1,1,2-TRICHLOROETHANE	11/5/2013	0.5	5	0.5	0.5	UG/L
1,1,2,2-TETRACHLOROETHANE	11/5/2013	0.5	1	0.5	0.5	UG/L
1,2-DICHLOROETHANE	11/5/2013	0.5	0.5	0.5	0.5	UG/L
1,2-DICHLOROBENZENE	11/5/2013	0.5	600	0.5	0.5	UG/L
1,2-DICHLOROPROPANE	11/5/2013	0.5	5	0.5	0.5	UG/L
TRANS-1,2-DICHLOROETHYLENE	11/5/2013	0.5	10	0.5	0.5	UG/L
1,2,4-TRICHLOROBENZENE	11/5/2013	0.5	5	0.5	5	UG/L
1,3-DICHLOROPROPENE (TOTAL)	11/5/2013	0.5	0.5	0.5	0.5	UG/L
1,3-DICHLOROBENZENE	11/5/2013	0.5	0	0.5	600	UG/L
1,4-DICHLOROBENZENE	11/5/2013	0.5	5	0.5	0.5	UG/L
2-CHLOROETHYLVINYL ETHER	11/5/2013	10	0	0	0	UG/L
DICHLORODIFLUOROMETHANE (FREON 12)	11/5/2013	0.5	1000	0.5	1000	UG/L
NAPHTHALENE	11/5/2013	0.5	170	0.5	170	UG/L
FOAMING AGENTS (MBAS)	4/22/2010	0.1	0.5	0	0.5	MG/L
FOAMING AGENTS (MBAS)	6/5/2013	0.1	0.5	0	0.5	MG/L
ATRAZINE	6/5/2013	0.3	1	0.5	1	UG/L
SIMAZINE	6/5/2013	0.3	4	1	1	UG/L
VINYL CHLORIDE	11/5/2013	0.5	0.5	0.5	0.5	UG/L
TRICHLOROETHYLENE	11/5/2013	0.5	5	0.5	0.5	UG/L
METHYL-TERT-BUTYL-ETHER (MTBE)	11/5/2013	0.5	13	3	3	UG/L
METHYL-TERT-BUTYL-ETHER (MTBE)	2/3/2016	0.5	13	3	3	UG/L
TOTAL DISSOLVED SOLIDS	4/22/2010	280	1000	0	500	MG/L
TOTAL DISSOLVED SOLIDS	6/5/2013	400	1000	0	500	MG/L
HYDROXIDE ALKALINITY	4/22/2010	1.4	0	0	0	MG/L
HYDROXIDE ALKALINITY	6/5/2013	1.4	0	0	0	MG/L
NITRATE (AS NO3)	4/22/2010	13	45	2	23	MG/L
NITRATE (AS NO3)	5/1/2013	4.1	45	2	23	MG/L
NITRATE (AS NO3)	6/5/2013	4	45	2	23	MG/L
NITRATE (AS NO3)	12/17/2014	3.7	45	2	23	MG/L
MERCURY	4/22/2010	0.2	2	1	2	UG/L
MERCURY	6/5/2013	0.2	2	1	2	UG/L
TERT-BUTYL ALCOHOL (TBA)	11/5/2013	10	12	2	12	UG/L
CIS-1,2-DICHLOROETHYLENE	11/5/2013	0.5	6	0.5	0.5	UG/L
STYRENE	11/5/2013	0.5	100	0.5	0.5	UG/L
1,1-DICHLOROPROPENE	11/5/2013	0.5	0	0.5	0.5	UG/L
2,2-DICHLOROPROPANE	11/5/2013	0.5	0	0.5	0.5	UG/L
1,3-DICHLOROPROPANE	11/5/2013	0.5	0	0.5	0.5	UG/L
1,2,4-TRIMETHYLBENZENE	11/5/2013	0.5	330	0.5	330	UG/L
ISOPROPYLBENZENE	11/5/2013	0.5	770	0.5	770	UG/L
N-PROPYLBENZENE	11/5/2013	0.5	260	0.5	260	UG/L
1,3,5-TRIMETHYLBENZENE	11/5/2013	0.5	330	0.5	330	UG/L
SEC-BUTYLBENZENE	11/5/2013	0.5	260	0.5	0.5	UG/L
TERT-BUTYLBENZENE	11/5/2013	0.5	260	0.5	0.5	UG/L
1,2,3-TRICHLOROPROPANE (1,2,3,-TCP)	11/5/2013	1	0.005	0.005	0.005	UG/L
1,1,1,2-TETRACHLOROETHANE	11/5/2013	0.5	0	0.5	0.5	UG/L

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Group/Constituent Identification	Sampling Date	Result	MCL	DLR	Trigger	Unit
DIBROMOMETHANE	11/5/2013	0.5	0	0.5	0.5	UG/L
1,2,3-TRICHLOROBENZENE	11/5/2013	0.5	0	0.5	0.5	UG/L
ALACHLOR	6/5/2013	0.2	2	1	1	UG/L
XYLENES (TOTAL)	11/5/2013	1	1750	0	1750	UG/L
BROMOBENZENE	11/5/2013	0.5	0	0.5	0.5	UG/L
TRICHLOROTRIFLUOROETHANE (FREON 113)	2/3/2016	0.5	1200	10	10	UG/L
ASBESTOS	11/5/2013	0	7	0.2	7	MFL
TURBIDITY, LABORATORY	4/22/2010	0.12	5	0.1	5	NTU
TURBIDITY, LABORATORY	6/5/2013	0.15	5	0.1	5	NTU
TOTAL TRIHALOMETHANES	11/5/2013	2	80	0	80	UG/L
2-CHLOROTOLUENE	11/5/2013	0.5	140	0.5	0.5	UG/L
4-CHLOROTOLUENE	11/5/2013	0.5	140	0.5	140	UG/L
N-BUTYLBENZENE	11/5/2013	0.5	260	0.5	70	UG/L
P-ISOPROPYLTOLUENE	11/5/2013	0.5	0	0	0	UG/L
BROMOCHLOROMETHANE	11/5/2013	0.5	0	0.5	0.5	UG/L
PERCHLORATE	11/28/2007	4	6	4	4	UG/L
PERCHLORATE	5/20/2008	4	6	4	4	UG/L
PERCHLORATE	11/5/2013	4	6	4	4	UG/L
ETHYL-TERT-BUTYL ETHER	11/5/2013	0.5	0	3	0	UG/L
TERT-AMYL-METHYL ETHER	11/5/2013	0.5	0	3	0	UG/L
GROSS ALPHA MDA95	5/20/2008	0.11	3.001	0	0	PCI/L
GROSS ALPHA MDA95	9/18/2008	0.343	3.001	0	0	PCI/L
GROSS ALPHA MDA95	3/14/2012	0.016	3.001	0	0	PCI/L
GROSS ALPHA MDA95	6/13/2012	1.09	3.001	0	0	PCI/L
GROSS ALPHA MDA95	2/3/2016	0.747	3.001	0	0	PCI/L

APPENDIX B

California Waterworks Standards

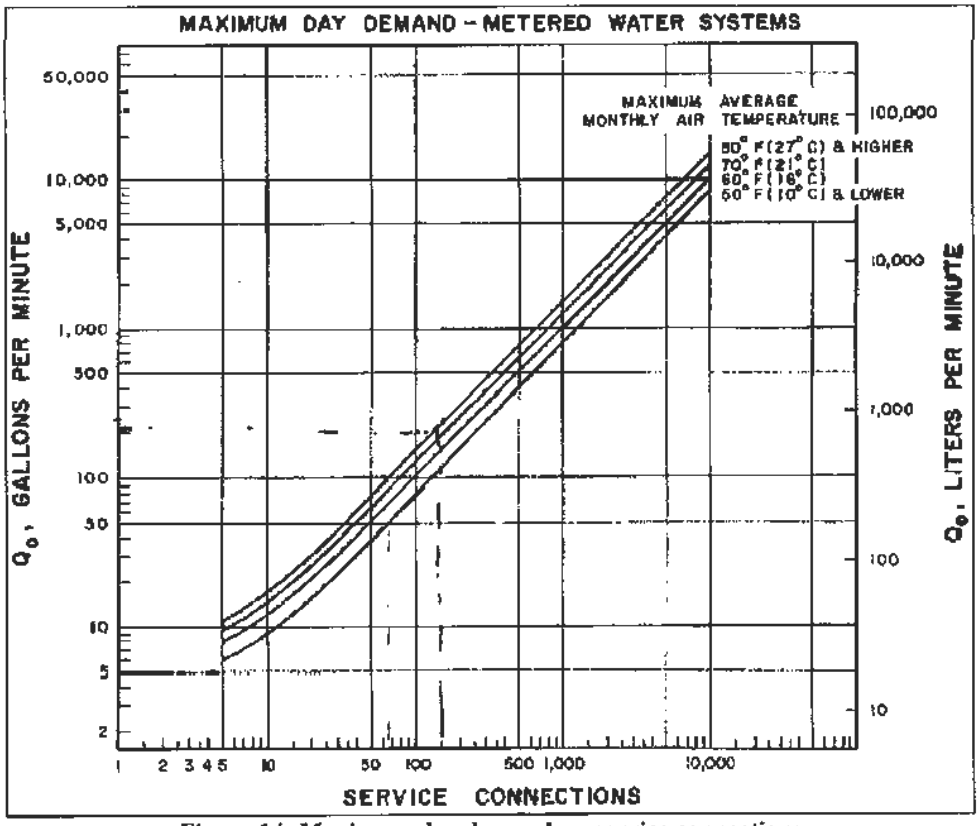


Figure 14: Maximum day demand vs. service connections

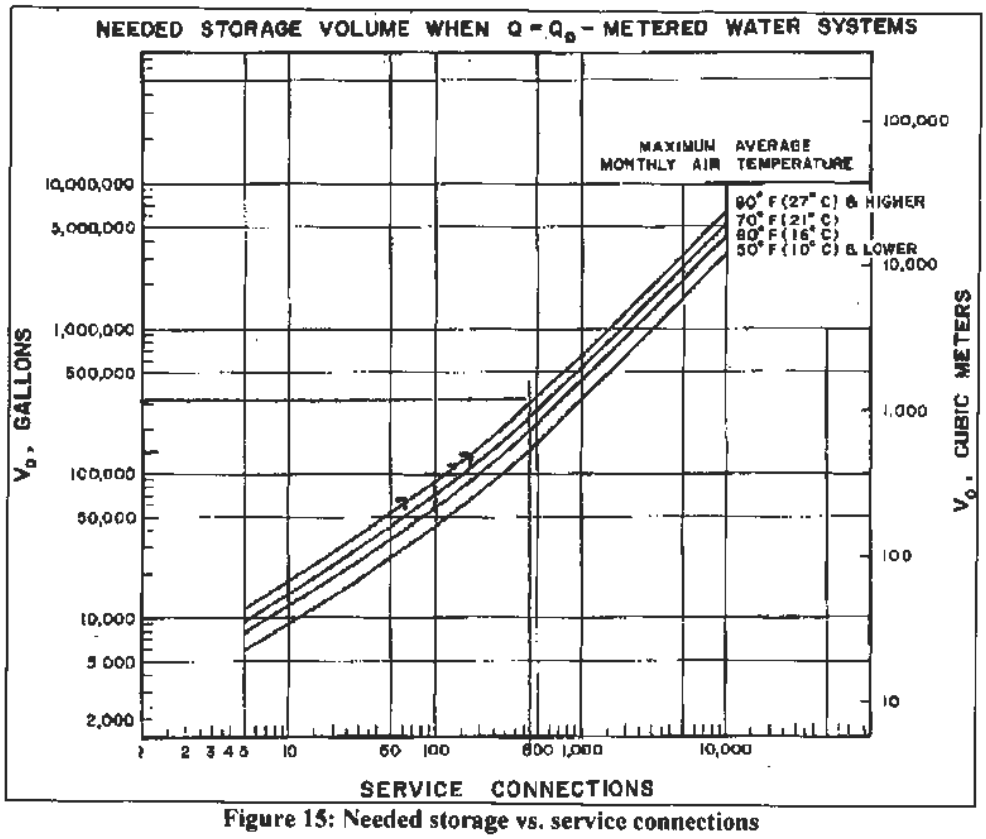


Figure 15: Needed storage vs. service connections

*FIGURES 14 AND 15 TAKEN FROM PREVIOUS VERSION OF THE CALIFORNIA WATERWORKS STANDARDS

California Code of Regulations
Title 22. Social Security
Division 4 – Environmental Health
CHAPTER 16 – CALIFORNIA WATERWORKS STANDARDS

ARTICLE 1. DEFINITIONS

Section 64551.10. Distribution Reservoir.

"Distribution reservoir" means any tank or other structure located within or connected to the distribution system and used to store treated/finished drinking water.

Section 64551.20. Distribution System.

"Distribution system" means all physical parts of the water system, including, but not limited to: Pipes, valves, pumping stations, storage tanks or reservoirs, and user service lines, that are located between the water treatment plant, or the source if there is no treatment, and the consumer's service connection.

Section 64551.30. Maximum Day Demand (MDD).

"Maximum day demand (MDD)" means the amount of water utilized by consumers during the highest day of use (midnight to midnight), excluding fire flow, as determined pursuant to Section 64554.

Section 64551.35. Peak Hour Demand (PHD).

"Peak hour demand (PHD)" means the amount of water utilized by consumers during the highest hour of use during the maximum day, excluding fire flow, as determined pursuant to Section 64554.

Section 64551.40. Source Capacity.

"Source capacity" means the total amount of water supply available, expressed as a flow, from all active sources permitted for use by the water system, including approved surface water, groundwater, and purchased water.

Section 64551.60. User Service Line.

"User service line" means the pipe, tubing, and fittings connecting a water main to an individual water meter or service connection.

Section 64551.70. Water Main.

"Water main" means any pipeline, except for user service lines, within the distribution system.

ARTICLE 1.5. WAIVERS AND ALTERNATIVES

Section 64551.100. Waivers and Alternatives.

(a) A water system that proposes to use an alternative to a requirement in this chapter shall:

(1) Demonstrate to the Department that the proposed alternative would provide at least the same level of protection to public health; and

(2) Obtain written approval from the Department prior to implementation of the alternative.

ARTICLE 2. PERMIT REQUIREMENTS

Section 64552. Initial Permit for Public Water System.

(a) Each public water system applying for an initial domestic public water system permit shall submit an application that includes:

(1) A map and description of the entire existing and proposed service area, showing:

(A) The location of each water source, as well as wells that are abandoned, out-of-service, destroyed, standby, or inactive (not physically connected to the water system), together with:

1. Any valid water rights owned by the system for surface water sources, including information on any limitations or restrictions of those rights;

2. For a groundwater aquifer, the groundwater levels and drawdown patterns;

3. Permits or approvals for groundwater extraction if pumping from an adjudicated groundwater basin;

4. Existing and planned source pumping capability and distribution storage capacity for the system as a whole and for each pressure zone;

5. The calculated sustained well yields of existing wells if groundwater sources are used;

6. Permits for any waters proposed for use to offset potable water demand; and

(B) Treatment facilities and pumping plants;

(C) Distribution system piping, pressure zones, hydropneumatic tanks, and reservoirs;

(D) Valves, sample taps, and other system appurtenances;

(E) Recycled water and sewage systems;

(F) Conveyance facilities;

(G) Any flood plains in the projected service area; and

(H) The 100 year flood or highest recorded flood level, whichever is higher.

(2) The population, and number and type of residential, commercial, agricultural, and industrial service connections, in the system's projected service area;

(3) Design drawings of proposed facilities drawn to scale, showing location, size, and construction material;

(4) As-built drawings of existing facilities, drawn to scale, showing location, size, construction materials, and year of installation of any water main or other facility that has already been constructed;

(5) The estimated MDD and PHD with the methods, assumptions, and calculations used for the estimations;

(6) A source water assessment and description of each source of water proposed for use to meet the estimated MDD and information demonstrating that the sources are

adequate to do so, such as, but not limited to, well pump tests, the capacities of all pumping facilities, and the hydraulic capacity of surface water treatment facilities,

(A) If the system plans to use surface water, the system shall demonstrate that it holds a valid water right to that amount of water including any allowable reductions or limitations on its availability, as stated in the water rights contract;

(B) If groundwater is to be used, the system shall demonstrate that the groundwater aquifer is sufficient, or in the case of adjudicated groundwater basins, that approval has been obtained to allow that amount of sustained withdrawal including any allowable reductions or limitations on its availability, as stated in the water rights contract;

(C) If purchased water is to be used, the system shall provide contracted amount and the hydraulic capacity at each turnout and any allowable reductions or limitations on its availability, as stated in the purchased water contract; and

(7) Information that demonstrates how the system proposes to reliably meet four hours of PHD using, but not limited to, available source capacity and distribution reservoirs.

(b) The information in subsection (a) shall be prepared by a professional civil engineer registered in the State of California with experience in water supply engineering.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116525, 116555 and 131051, Health and Safety Code.

Section 64554. New and Existing Source Capacity.

(a) At all times, a public water system's water source(s) shall have the capacity to meet the system's maximum day demand (MDD). MDD shall be determined pursuant to subsection (b).

(1) For systems with 1,000 or more service connections, the system shall be able to meet four hours of peak hourly demand (PHD) with source capacity, storage capacity, and/or emergency source connections.

(2) For systems with less than 1,000 service connections, the system shall have storage capacity equal to or greater than MDD, unless the system can demonstrate that it has an additional source of supply or has an emergency source connection that can meet the MDD requirement.

(3) Both the MDD and PHD requirements shall be met in the system as a whole and in each individual pressure zone.

(b) A system shall estimate MDD and PHD for the water system as a whole (total source capacity and number of service connections) and for each pressure zone within the system (total water supply available from the water sources and interzonal transfers directly supplying the zone and number of service connections within the zone), as follows:

(1) If daily water usage data are available, identify the day with the highest usage during the past ten years to obtain MDD; determine the average hourly flow during MDD and multiply by a peaking factor of at least 1.5 to obtain the PHD.

(2) If no daily water usage data are available and monthly water usage data are available:

(A) Identify the month with the highest water usage (maximum month) during at least the most recent ten years of operation or, if the system has been operating for less than ten years, during its period of operation;

(B) To calculate average daily usage during maximum month, divide the total water usage during the maximum month by the number of days in that month; and

(C) To calculate the MDD, multiply the average daily usage by a peaking factor that is a minimum of 1.5; and

(D) To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5.

(3) If only annual water usage data are available:

(A) Identify the year with the highest water usage during at least the most recent ten years of operation or, if the system has been operating for less than ten years, during its years of operation;

(B) To calculate the average daily use, divide the total annual water usage for the year with the highest use by 365 days; and

(C) To calculate the MDD, multiply the average daily usage by a peaking factor of 2.25.

(D) To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5.

(4) If no water usage data are available, utilize records from a system that is similar in size, elevation, climate, demography, residential property size, and metering to determine the average water usage per service connection. From the average water usage per service connection, calculate the average daily demand and follow the steps in paragraph (3) to calculate the MDD and PHD.

(c) Community water systems using only groundwater shall have a minimum of two approved sources before being granted an initial permit The system shall be capable of meeting MDD with the highest-capacity source off line.

(d) A public water system shall determine the total capacity of its groundwater sources by summing the capacity of its individual active sources. If a source is influenced by concurrent operation of another source, the total capacity shall be reduced to account for such influence. Where the capacity of a source varies seasonally, it shall be determined at the time of MDD.

(e) The capacity of a well shall be determined from pumping data existing prior to March 9, 2008 or in accordance with subsection (f) or (g). Prior to conducting a well capacity test pursuant to subsection (g), a system shall submit the information listed below to the Department for review and approval. For well capacity tests conducted pursuant to subsection (f), the information shall be submitted to the Department if requested by the Department.

(1) The name and qualifications of the person who will be conducting the test;

(2) The proposed test's pump discharge rate, based on the design rate determined during well development and/or a step-drawdown test.

(3) A copy of a United States Geological Survey 7 ½-minute topographic map of the site at a scale of 1:24,000 or larger (1 inch equals 2,000 feet or 1 inch equals less than 2,000 feet) or, if necessary, a site sketch at a scale providing more detail, that clearly indicates;

(A) The well discharge location(s) during the test, and

(B) The location of surface waters, water staff gauges, and other production wells within a radius of 1000 feet;

(4) A well construction drawing, geologic log, and electric log, if available;

(5) Dates of well completion and well development, if known;

(6) Specifications for the pump that will be used for the test and the depth at which it will draw water from the well;

(7) A description of the methods and equipment that will be used to measure and maintain a constant pumping rate;

(8) A description of the water level measurement method and measurement schedule;

(9) For wells located in or having an influence on the aquifer from which the new well will draw water, a description of the wells' operating schedules and the estimated amount of groundwater to be extracted, while the new well is tested and during normal operations prior to and after the new well is in operation;

(10) A description of the surface waters, water staff gauges, and production wells shown in (3)(B);

(11) A description of how the well discharge will be managed to ensure the discharge doesn't interfere with the test;

(12) A description of how the initial volume of water in the well's casing, or bore hole if there is no casing at the time, will be addressed to ensure it has no impact on the test results; and

(13) A written description of the aquifer's annual recharge.

(f) To determine the capacity of a well drilled in alluvial soils when there is no existing data to determine the capacity, a water system shall complete a constant discharge (pumping rate) well capacity test and determine the capacity as follows:

(1) Take an initial water level measurement (static water level) and then pump the well continuously for a minimum of eight hours, maintaining the pump discharge rate proposed in subsection (e)(2);

(2) While pumping the well, take measurements of the water level drawdown and pump discharge rates for a minimum of eight hours at a frequency no less than every hour;

(3) Plot the drawdown data versus the time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithm axis and the drawdown data on the vertical axis;

(4) Steady-state is indicated if the last four hours of drawdown measurements and the elapsed time yield a straight line in the plot developed pursuant to subsection (3). If steady-state is not achieved, the pump discharge rate shall be continued for a longer

period of time or adjusted, with paragraphs (2) and (3) above repeated, until steady-state is achieved.

(5) Discontinue pumping and take measurements of the water level drawdown no less frequently than every 15 minutes for the first two hours and every hour thereafter for at least six hours or until the test is complete; and

(6) To complete the test, the well shall demonstrate that, within a length of time not exceeding the duration of the pumping time of the well capacity test, the water level has recovered to within two feet of the static water level measured at the beginning of the test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent.

(7) The capacity of the well shall be the pump discharge rate determined by a completed test.

(g) The capacity of a well whose primary production is from a bedrock formation, such that the water produced is yielded by secondary permeability features (e.g. fractures or cracks), shall be determined pursuant to either paragraph (1) or (2) below.

(1) The public water system shall submit a report, for Department review and approval, proposing a well capacity based on well tests and the evaluation and management of the aquifer from which the well draws water. The report shall be prepared and signed by a California registered geologist with at least three years of experience with groundwater hydrology, a California licensed engineer with at least five years of experience with groundwater hydrology, or a California certified hydrogeologist. Acceptance of the proposed well capacity by the Department shall, at a minimum, be based on the Department's review and approval of the following information presented in the report in support of the proposed well capacity:

(A) The rationale for the selected well test method and the results;

(B) The geological environment of the well;

(C) The historical use of the aquifer;

(D) Data from monitoring of other local wells;

(E) A description of the health risks of contaminants identified in a Source Water Assessment, as defined in section 63000.84 of Title 22, and the likelihood of such contaminants being present in the well's discharge;

(F) Impacts on the quantity and quality of the groundwater;

(G) How adjustments were made to the estimated capacity based on drawdown, length of the well test, results of the wells test, discharge options, and seasonal variations and expected use of the well; and

(H) The well test(s) results and capacity analysis.

(2) During the months of August, September, or October, conduct either a 72-hour well capacity test or a 10-day well capacity test, and determine the well capacity using the following procedures:

(A) Procedures for a 72 hour well capacity test:

1. For the purpose of obtaining an accurate static water level value, at least twelve hours before initiating step 2., pump the well at the pump discharge rate proposed in subsection (e)(2) for no more than two hours, then discontinue pumping;

2. Measure and record the static water level and then pump the well continuously for a minimum of 72 hours starting at the pump discharge rate proposed in (e)(2);

3. Measure and record water drawdown levels and pump discharge rate:

a. Every thirty minutes during the first four hours of pumping,

b. Every hour for the next four hours, and

c. Every four hours thereafter until the water drawdown level is constant for at least the last four remaining measurements, and;

4. Plot the drawdown and pump discharge rate data versus time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithmic axis and the drawdown and pump discharge rate data on the vertical axis.

(B) Procedures for a 10 day well capacity test:

1. For the purpose of obtaining an accurate static water level value, at least twelve hours before initiating step 2., pump the well at the pump discharge rate proposed in subsection (e)(2) for no more than two hours, then discontinue pumping;

2. Measure and record the static water level and then pump the well continuously for a minimum of 10 days starting at the pump discharge rate proposed in (e)(2);

3. Measure and record water drawdown levels and pumping rate:

a. Every thirty minutes during the first four hours of pumping,

b. Every hour for the next four hours,

c. Every eight hours for the remainder of the first four days,

d. Every 24 hours for the next five days, and

e. Every four hours thereafter until the water drawdown level is constant for at least the last four remaining measurements, and;

4. Plot the drawdown and pump discharge rate data versus time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithmic axis and the drawdown and pump discharge rate data on the vertical axis.

(C) To complete either the 72-hour or 10-day well capacity test the well shall demonstrate that, within a length of time not exceeding the duration of the pumping time of the well capacity test, the water level has recovered to within two feet of the static water level measured at the beginning of the well capacity test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent. If the well recovery does not meet these criteria, the well capacity cannot be determined pursuant to subsection (g)(2) using the proposed pump rate. To demonstrate meeting the recovery criteria, the following water level data in the well shall be measured, recorded, and compared with the criteria:

1. Every 30 minutes during the first four hours after pumping stops,

2. Hourly for the next eight hours, and

3. Every 12 hours until either the water level in the well recovers to within two feet of the static water level measured at the beginning of the well capacity test or to a at least ninety-five percent of the total drawdown measured during the test, which ever occurs first.

(D) Following completion of a 72-hour or 10-day well capacity test, the well shall be assigned a capacity no more than:

1. For a 72-hour test, 25 percent of the pumping rate at the end of a completed test's pumping.

2. For a 10-day test, 50 percent of the pumping rate at the end a completed test's pumping.

(h) The public water system shall submit a report to the Department that includes all data and observations associated with a well capacity test conducted pursuant to subsection (f) or (g), as well as the estimated capacity determination methods and calculations. The data collected during pumping and recovery phases of the well capacity tests shall be submitted in an electronic spreadsheet format in both tabular and graphic files.

(i) An assigned well capacity may be revised by the Department if pumping data collected during normal operations indicates that the assigned well capacity was not representative of the actual well capacity.

(j) If directed by the Department to do so, based on adverse conditions that may lead or may have led to a regional aquifer's inability to meet a water system's demand on such an aquifer, the water system shall submit a report to the Department that includes regional aquifer recharge estimates and a water balance analysis. The report shall be prepared and signed by a California registered geologist with at least three years of experience with groundwater hydrology, a California licensed engineer with at least five years of experience with groundwater hydrology, or a California certified hydrogeologist.

(k) The source capacity of a surface water supply or a spring shall be the lowest anticipated daily yield based on adequately supported and documented data.

(l) The source capacity of a purchased water connection between two public water systems shall be included in the total source capacity of the purchaser if the purchaser has sufficient storage or standby source capacity to meet user requirements during reasonable foreseeable shutdowns by the supplier.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375**,** 116540, 116555 and 131051, Health and Safety Code.

Section 64556. Permit Amendments.

(a) An application for an amended domestic water supply permit shall be submitted to the Department prior to any of the following:

(1) Addition of a new distribution reservoir (100,000 gallon capacity or greater) to the distribution system;

(2) Modification or extension of an existing distribution system using an alternative to the requirements in this chapter;

(3) Modification of the water supply by:

A. Adding a new source;

B. Changing the status of an existing source (e.g., active to standby); or

C. Changing or altering a source, such that the quantity or quality of supply could be affected;

(4) Any addition or change in treatment, including:

A. Design capacity; or

B. Process;

(5) Expansion of the existing service area (by 20% or more of the number of service connections specified in the most recent permit or permit amendment);

(6) Consolidation with one or more other water systems;

(7) Change in regulatory jurisdiction;

(8) Change in type of public water system;

(9) Obtaining a water quality standard exemption from the Department;

(10) Obtaining a secondary standard waiver from the Department;

(11) Proposal for modifications of existing recreational uses on a water supply reservoir;

(12) Request for a hand washing exclusion by a transient noncommunity water system, pursuant to section 116282 of the Health and Safety Code; or

(13) Proposal for offsetting domestic water needs with an unapproved water supply.

(b) A water system shall submit an application to the Department if it has been notified by the Department that changes to the water system require an amended permit based on the Department's review of system operations, source type and capacity, geographical location, system size, and distribution system complexity.

(c) Except as set forth in subsections(a) and (b) any modifications or extensions to an existing distribution system may be made without applying for and receiving an amended domestic water supply permit provided the modifications comply with all of the requirements of this chapter.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535, 116550 and 131051, Health and Safety Code.

Section 64558. Source Capacity Planning Study.

(a) If directed by the Department to do so based on its determination that there is an existing or potential problem with the system's source capacity or a proposed expansion pursuant to section 64556(a)(5), a water system shall submit a Source Capacity Planning Study (Study) containing the following information:

(1) The anticipated growth of the water system over a projected period of at least ten years in terms of the population and number and type of residential, commercial, and industrial service connections to be served by the water system.

(2) Estimates of the amount of water needed to meet the total annual demand and the MDD over the projected ten-year growth period (projected system demand). Methods, assumptions, and calculations used to estimate the projected system demand shall be included.

(3) A map and description of the entire existing and proposed service area, showing:

(A) The location of each water source, including wells that are abandoned, out-of-service, destroyed, standby, or inactive;

1. Any valid water rights owned by the system for surface water sources, including information on any limitations or restrictions of those rights;

2. For a groundwater aquifer, the groundwater levels and drawdown patterns;

3. Permits or approvals for groundwater extraction if pumping from an adjudicated groundwater basin;

4. Existing and planned source pumping capability and distribution storage capacity for the system as a whole and for each pressure zone;

5. The calculated sustained well yields of existing wells if groundwater sources are used;

6. Permits, if required, for any waters proposed for use to offset potable water demand; and

7. A Source Water Assessment for each potable water source.

(B) Distribution system piping, pressure zones, hydropneumatic tanks, and reservoirs;

(C) Valves, sample taps, flow meters, unmetered service connections, and other system appurtenances;

(D) Conveyance facilities;

(E) Any flood plains in the projected service area; and

(F) The 100 year flood or highest recorded flood level, whichever is higher.

(b) If directed by the Department to do so based on its determination that a study is out of date, a water system shall update and submit the Study to the Department.

(c) Water systems that have submitted an Urban Water Management Plan to the Department of Water Resources pursuant to Water Code Part 2.6 commencing with section 10610, may submit a copy of that report in lieu of some or all of the requirements of subsection (a) to the extent such information is included in the plan.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116555 and 131051, Health and Safety Code.

RTICLE 3. WATER SOURCES

Section 64560. New Well Siting, Construction, and Permit Application.

(a) To receive a new or amended domestic water supply permit for a proposed well, the water system shall provide the following information to the Department in the technical report as part of its permit application:

(1) A source water assessment as defined in Section 63000.84 for the proposed site;

(2) Documentation demonstrating that a well site control zone with a 50-foot radius around the site can be established for protecting the source from vandalism, tampering, or other threats at the site by water system ownership, easement, zoning, lease, or an alternative approach approved by the Department based on its potential effectiveness in providing protection of the source from contamination;

(3) Design plans and specifications for the well; and

(4) Documentation required for compliance with the California Environmental Quality Act (CEQA).

(b) After the Department has provided written or oral approval of the initial permit amendment application and the water system has constructed the well, the water system shall submit the following additional materials for its permit application:

(1) A copy of the well construction permit if required by the county or local agency;

(2) Department of Water Resources well completion report;

(3) A copy of any pump tests required by the Department;

(4) Results of all required water quality analyses; and

(5) As-built plans.

(c) Each new public water supply well shall:

(1) As a minimum, be constructed in accordance with the community water system well requirements in California Department of Water Resources Bulletins 74-81 and 74-90, which are hereby incorporated by reference;

(2) Be constructed in accordance with American Water Works Association (AWWA) Standard A100-06 (Water Wells), which is hereby incorporated by reference;

(3) Be installed such that:

(A) All equipment is accessible for operation, maintenance, and removal;

(B) Protection is provided against flooding;

(C) The wellhead terminates a minimum of 18 inches above the finished grade;

(D) Wellhead and electrical controls are not installed in vaults;

(E) The well is equipped with:

1. Fittings and electrical connections to enable chlorination facilities to be readily installed;

2. A non-threaded down-turned sampling tap located on the discharge line between the wellhead and the check valve. Sampling taps used for obtaining samples for bacteriological analysis shall not have a screen, aerator, or other such appurtenance;

(F) Provisions are made to allow the well to be pumped to waste with a waste discharge line that is protected against backflow.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116530, 116535 and 131051, Health and Safety Code.

Section 64560.5. Well Destruction.
Destruction of a public drinking water supply well shall be in accordance with the California Department of Water Resources Bulletins 74-81 and 74-90.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

Section 64561. Source Flow Meters.
Each water system shall:

(a) Except for inactive sources, install a flow meter at a location between each water source and the entry point to the distribution system;

(b) Meter the quantity of water flow from each source, and record the total monthly production each month.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116555 and 131051, Health and Safety Code.

ARTICLE 4. MATERIALS AND INSTALLATION OF WATER MAINS AND APPURTENANCES

Section 64570. Materials and Installation.

(a) All newly installed water mains shall comply with the materials and installation standards of the American Water Works Association pursuant to tables 64570-A and 64570-B. The standards are hereby incorporated by reference.

Table 64570-A
Materials Standards for Water Mains

Type of Material	*Diameter of Main*	*Applicable Standard*
PVC	4 in. through 12 in.	C900-97
PVC	14 in. through 48 in.	C905-97
Polyethylene (HDPE)	4 in. through 63 in.	C906-99
Fiberglass	All sizes	C950-01
Ductile Iron	All sizes	C150/A21.50-02
Ductile Iron, Centrifugally cast	All sizes	C151/A21.51-02
Steel	6 inches and larger	C200-97
Copper	All sizes	C800-05
Concrete		
Reinforced steel-cylinder	All sizes	C300-04
Prestressed steel-cylinder	All sizes	C301-99, C304-99
Reinforced noncylinder	All sizes	C302-04
Bar wrapped/steel cylinder	All sizes	C303-02
PVC, Molecularly oriented polyvinyl chloride –	All sizes	C909-02

Table 64570-B

Installation Standards for Water Mains

Type of Installation	*Applicable Standard*
Steel Pipe-Design and Installation	M-11 (2004)
Ductile-Iron Water Mains and Their Appurtenances	C600-05
Underground Installation of PVC Pressure Pipe and Fittings	C605-05
Concrete Pressure Pipe	M9(1995)

(b) Water mains shall:

(1) Be installed below the frost line or be otherwise protected to prevent freezing; and

(2) Be protected against crushing under loads that could pass above the installation.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

Section 64572. Water Main Separation.

(a) New water mains and new supply lines shall not be installed in the same trench as, and shall be at least 10 feet horizontally from and one foot vertically above, any parallel pipeline conveying:

(1) Untreated sewage,

(2) Primary or secondary treated sewage,

(3) Disinfected secondary-2.2 recycled water (defined in section 60301.220),

(4) Disinfected secondary-23 recycled water (defined in section 60301.225), and

(5) Hazardous fluids such as fuels, industrial wastes, and wastewater sludge.

(b) New water mains and new supply lines shall be installed at least 4 feet horizontally from, and one foot vertically above, any parallel pipeline conveying:

(1) Disinfected tertiary recycled water (defined in section 60301.230), and

(2) Storm drainage.

(c) New supply lines conveying raw water to be treated for drinking purposes shall be installed at least 4 feet horizontally from, and one foot vertically below, any water main.

(d) If crossing a pipeline conveying a fluid listed in subsection (a) or (b), a new water main shall be constructed no less than 45-degrees to and at least one foot above that pipeline. No connection joints shall be made in the water main within eight horizontal feet of the fluid pipeline.

(e) The vertical separation specified in subsections (a), (b), and (c) is required only when the horizontal distance between a water main and pipeline is less than ten feet.

(f) New water mains shall not be installed within 100 horizontal feet of the nearest edge of any sanitary landfill, wastewater disposal pond, or hazardous waste disposal site, or within 25 horizontal feet of the nearest edge of any cesspool, septic tank, sewage leach field, seepage pit, underground hazardous material storage tank, or groundwater recharge project site.

(g) The minimum separation distances set forth in this section shall be measured from the nearest outside edge of each pipe barrel.

(h) With Department approval, newly installed water mains may be exempt from the separation distances in this section, except subsection (f), if the newly installed main is:

(1) less than 1320 linear feet,
(2) replacing an existing main, installed in the same location, and has a diameter no greater than six inches more than the diameter of the main it is replacing, and
(3) installed in a manner that minimizes the potential for contamination, including, but not limited to:
    (A) sleeving the newly installed main, or
    (B) utilizing upgraded piping material

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375 and 131051, Health and Safety Code.

Section 64573. Minimum Water Main Size for Community Water Systems.

Newly installed water mains in a community water system shall have a nominal diameter of at least four inches.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375 and 131051, Health and Safety Code.

Section 64575. Flushing.

(a) A flushing valve or blowoff shall be provided at the end of each +ly installed dead-end water main. Fire hydrants meeting the criteria of this section may be considered flushing valves.

(b) Flushing valves and blowoffs shall not discharge to a sanitary sewer without an air gap separation between the sewer and the valve or blowoff.

(c) The flushing velocity in the main shall not be less than 2.5 ft/s unless it is determined that conditions do not permit the required flow to be discharged to waste.

(d) Newly installed flushing valves and blowoffs shall be designed to maintain the minimum continuous flushing flows as indicated below to produce a minimum velocity of 2.5ft/s in commonly used sizes of pipe.

Table 64575-A. Minimum Flushing Flows for Different Size Water Mains.

Nominal Main Size *Diameter (inches)*	**Minimum Flushing Flow** *(gallons per minute)*
2	25
3	50
4	100
6	225
8	400
10	600
12	900
14	1200
16	1600

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

Section 64576. Air-Release, Air Vacuum, and Combination Valves.

Each new air-release, air vacuum, or combination valve, and any such valve installed to replace an existing valve shall be:

(a) Installed such that its vent opening is above grade, above the calculated 100-year flood water level, and, if recorded data are available, above the highest recorded water level;

(b) Readily accessible for inspection, maintenance and replacement;

(c) Constructed and designed to prevent exposure to rainwater or runoff, vandalism, and birds, insects, rodents, or other animals;

(d) Fitted with a downward-facing screened vent or a domed and screened cap; and

(e) Installed pursuant to American Water Works Association Standard C512-04 and Manual M51 (2001), which are hereby incorporated by reference.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

Section 64577. Isolation Valves.

As a minimum, isolation valves shall be installed on all new water mains within the distribution system as follows:

(a) No farther than 1,320 linear feet apart on all mains having a diameter of 12 inches or less.

(b) At each tee or crossing connection between mains that have a diameter of 12 inches or less, within 100 feet of the tee or crossing connection with the primary main.

(c) Between the water main and each fire hydrant served by the main.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

Section 64578. Water Main Valve Construction.

Newly installed valves constructed on water mains shall comply with the following:

(a) A valve box shall be installed over each buried valve stem to aid in locating and operating the valve.

(b) For valves buried in trenches greater than five feet below the finished grade, either a valve stem riser to permit the use of a normal key or a notation on valve records indicating that a long key will be required shall be provided.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

ARTICLE 5. DISINFECTION REQUIREMENTS

Section 64580. Disinfection of New or Repaired Mains.

Prior to use, newly installed water mains, or water mains that have been taken out of service for maintenance or repair, shall be disinfected and sampled for bacteriological quality in accordance with American Water Works Association Standard C651-05, which is hereby incorporated by reference. Samples from new mains shall be negative for coliform bacteria prior to the new main(s) being placed into service.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

Section 64582. Disinfection of Reservoirs.

A newly-installed distribution reservoir or distribution reservoir that has been taken out of service for repair or inspection shall be disinfected and sampled for bacteriological quality in accordance with the American Water Works Association Standard C652-02, which is hereby incorporated by reference. If the results of the bacteriological sampling are positive for coliform bacteria, the reservoir shall be resampled for bacteriological quality and the test results shall be submitted to the Department for review and approval before the reservoir is placed into service.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

Section 64583. Disinfection of Wells.

A new or repaired well, or a well that has not been in operation for more than three months shall be sampled for bacteriological quality prior to use. If the results of the bacteriological sampling are positive for coliform bacteria, the well shall be disinfected in accordance with the American Water Works Association C654-03, which is hereby incorporated by reference, and resampled for bacteriological quality and the test results shall be submitted to the Department for review and approval before the well is placed into service.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

ARTICLE 6. DISTRIBUTION RESERVOIRS

Section 64585. Design and Construction.

(a) Each distribution reservoir shall meet the following:

(1) Any reservoir coatings or linings shall be installed in accordance with manufacturer's instructions;

(2) Vents and other openings shall be constructed and designed to prevent the entry of rainwater or runoff, and birds, insects, rodents, or other animals;

(3) At least one sampling tap shall be available to enable representative sampling of the water in the reservoir that will be entering the distribution system; the tap shall be protected against freezing, if necessary; and

(4) A reservoir shall not be designed, constructed, or used for any activity that creates a contamination hazard.

(b) The water supplier shall submit to the Department for review the design drawings and specifications for each proposed distribution reservoir prior to its construction. Each new distribution reservoir shall be:

(1) If it is a tank, constructed in accordance with American Water Works Association (AWWA) standards, which are hereby incorporated by reference, as follows: AWWA D100-05 (Welded Carbon Steel Tanks for Water Storage), D102-03 (Coating Steel Water-Storage Tanks), D103-97 (Factory-Coated Bolted Steel Tanks for Water Storage), D110-04 (Wire-and Strand-Wound, Circular, Prestressed Concrete Water Tanks), and D120-02 (Thermosetting Fiberglass-Reinforced Plastic Tanks);

(2) Constructed of an impervious material that prevents the movement of water into or out of the reservoir;

(3) Covered with

(A) A rigid structural roof made of impervious material that prevents the movement of water or other liquids into or out of the reservoir; or

(B) A floating cover designed, constructed, and maintained in conformance with the AWWA California-Nevada Section's "Reservoir Floating Cover Guidelines" (April 1999), AWWA Manual M25 (2000), and AWWA D130-02 (Flexible-Membrane Materials for Potable Water Applications), which are hereby incorporated by reference.

(4) Equipped with at least one separate inlet and outlet (internal or external), and designed to minimize short-circuiting and stagnation of the water flow through the reservoir;

(5) Equipped with drainage facilities that allow the tank to be drained and all residual sediment removed, and an overflow device. The reservoir drainage facilities and overflow device shall not be connected directly to a sewer or storm drain and shall be free of cross-connections;

(6) Equipped with controls to maintain and monitor reservoir water levels;

(7) Equipped to prevent access by unauthorized persons;

(8) Designed to allow authorized access and adequate lighting of reservoir interior for inspections, cleaning or repair;

(9) Equipped with isolation valves, and designed and operated to allow continued distribution of water when the reservoir is removed from service. The isolation valves shall be located within 100 feet of the reservoir. For a reservoir used to

meet the disinfectant contact time requirements of chapter 17 (Surface Water Treatment), bypass lines shall be blind-flanged closed during normal operations;

(10) Designed and constructed to prevent the entry of surface runoff, subsurface flow, or drainage into the reservoir;

(11) Designed to prevent corrosion of the interior walls of the reservoir;

(12) For a subsurface reservoir,

(A) Protected against flooding (both reservoir and vents);

(B) Equipped with underdrain facilities to divert any water in proximity to the reservoir away from the reservoir;

(C) Sited a minimum of 50 feet horizontally from a sanitary sewer and 100 feet horizontally from any other waste facilities and any force main;

(D) Constructed so as to have the reservoir bottom located above the highest anticipated groundwater level, based on a site investigation that includes actual measurements of the groundwater level during peak rainfall periods; extraction wells shall not be used to influence the highest anticipated groundwater level;

(E) Provided with a minimum of two groundwater level monitoring wells drilled to a depth at least 20 feet below the reservoir bottom and sited within 100 feet and on opposite sides (upgradient and downgradient) of the reservoir; and

(F) If the roof is to be buried and have a function (e.g., recreation, landscape, parking) in addition to covering the reservoir:

1. Designed and constructed pursuant to AWWA D110-04 (Wire-Strand-Wound, Circular, Prestressed Concrete Water Tanks), which is hereby incorporated by reference;

2. Equipped with an impervious connection, such as a pvc waterstop, between the wall and buried roof; and

3. Watertight, sloped for drainage and coated with a damp proofing material.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

ARTICLE 7. ADDITIVES

Section 64590. Direct Additives.

No chemical or product shall be added to drinking water by a water supplier unless the chemical or product is certified as meeting the specifications of NSF International/American National Standard Institute (NSF/ANSI) 60-2005 (Drinking Water Treatment Chemicals—Health Effects), which is hereby incorporated by reference. Certification shall be from an ANSI accredited product certification organization whose certification system includes, as a minimum, the following criteria for ensuring the chemical or product meets NSF/ANSI Standard 60.

(a) Annual product testing,
(b) Annual facility inspections,
(c) Annual quality assurance and quality control review,
(d) Annual manufacturing practice reviews, and
(e) Annual chemical stock inspections.

NOTE: Authority cited: Section 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116550 and 131051, Health and Safety Code.

Section 64591. Indirect Additives.

(a) Except as provided in Section 64593 or where a more stringent statutory requirement exists, after March 9, 2008, a water system shall not use any chemical, material, lubricant, or product in the production, treatment or distribution of drinking water that will result in its contact with the drinking water including process media (carbon, sand), protective materials (coatings, linings, liners), joining and sealing materials (solvent cements, welding materials, gaskets, lubricating oils), pipes and related products (pipes, tanks, fittings), and mechanical devices used in treatment/transmission/distribution systems (valves, chlorinators, separation membranes) that has not been tested and certified as meeting the specifications of NSF International/American National Standard Institute (NSF/ANSI) 61-2005 / Addendum 1.0-2005 (Drinking Water System Components—Health Effects), which is hereby incorporated by reference. This requirement shall be met under testing conducted by a product certification organization accredited for this purpose by the American National Standards Institute.

(b) If a treatment chemical is generated on site,

(1) No equipment used in the generation process shall be in contact with a drinking water, or a chemical to be applied to drinking water, after March 9, 2008, unless the equipment has been tested and certified as meeting the specifications of NSF International/American National Standard Institute (NSF/ANSI) Standard 61-2005/Addendum 1.0-2005 (Drinking Water System Components—Health Effects). This requirement shall be met under testing conducted by a product certification organization accredited for this purpose by the American National Standards Institute; and

(2) No input chemical used in the generation process shall be in contact with a drinking water after March 9, 2008 unless the chemical meets the requirements of section 64590.

(c) Any chemical used to clean on-line or off-line drinking water treatment facilities that may subsequently come into contact with drinking water to be distributed to the public shall meet the requirements of section 64590.

(d) Any contract for the purchase of chemicals, materials, or products that was signed by a public water system and effective prior to March 9, 2008 shall be exempt from the provisions of subsections (a) and (b) until March 9, 2009.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

Section 64593. Use of Uncertified Chemicals, Materials or Products.

(a) A water supplier may use a chemical, material or product that has not been certified pursuant to sections 64590 or 64591 if the chemical, material or product is in the process of being tested and certified and there are no certified alternatives.

(b) Prior to use of an uncertified chemical, material or product, the water supplier shall provide the Department with an explanation of the need for the chemical, material or product; the date that the chemical, material or product was submitted for testing; the name of the accredited product certification organization conducting the testing; and a statement that certified alternatives are not available.

(c) Unless directed otherwise by the Department to ensure a pure and wholesome drinking water supply, a water supplier may use the following chemicals, materials, or products that have not been and are not in the process of being certified pursuant to section 64590 or 64591:

(1) a material or product previously approved by the Department for use or installation on or before March 9, 2008;

(2) a material or product constructed of components meeting the requirements of sections 64590 and 64591;

(3) chemical by-products necessary for meeting drinking water standards, such as sodium hypochlorite for disinfection, generated by chemicals certified pursuant to section 64590 or 64591; and

(4) atmospheric air and small parts, such as probes, sensors, wires, nuts, bolts, and tubing for which there are no certified alternatives.

NOTE: Authority cited: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535 and 131051~~40~~21, Health and Safety Code.

ARTICLE 8. DISTRIBUTION SYSTEM OPERATION

Section 64600. Water System Operations and Maintenance Plan.

(a) If directed by the Department to do so based on an identified deficiency in the system's operations, a water system shall develop and submit a Water System Operations and Maintenance Plan (Plan); the water system shall include those elements in the following list that are deemed by the Department to be relevant to the deficiency:

(1) The operations and maintenance schedule for each unit process for each treatment plant that treats an approved surface water;

(2) The operations and maintenance schedule for each groundwater source and unit process;

(3) The schedule and procedure for flushing dead end mains, and the procedures for disposal of the flushed water including dechlorination;

(4) The schedule for routine inspection of reservoirs, and the procedures for cleaning reservoirs;

(5) The schedule and procedures for inspecting, repairing, and replacing water mains;

(6) The plan and procedures for responding to water supply emergencies;

(7) The plan and procedures for responding to consumer complaints;

(8) The schedule and procedures for testing backflow prevention assemblies;

(9) The schedule and procedures for routine exercising of water main valves;

(10) The schedule and program for maintenance and calibration of source flow meters and other online instruments used to determine the quality or quantity of water;

(11) The qualifications and training of operating personnel;

(12) The program for control of biological organisms on the interior walls of water mains; and

(13) For an underground reservoir with a buried roof designed for a function in addition to covering the reservoir, a comprehensive routine inspection and monitoring plan to ensure that there is no contamination of the reservoir as a result of that additional function.

(b) Each water system that has prepared a Plan pursuant to subsection (a) shall operate in accordance with its Department-approved Plan.

(c) Each water system that has prepared a Plan pursuant to subsection (a) shall update the Plan at least once every five years and, in addition, following any change in the method of treatment or any other modification to the system requiring a change in the systems operations and maintenance.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

Section 64602. Minimum Pressure.

(a) Each distribution system shall be operated in a manner to assure that the minimum operating pressure in the water main at the user service line connection throughout the distribution system is not less than 20 pounds per square inch at all times.

(b) Each new distribution system that expands the existing system service connections by more than 20 percent or that may otherwise adversely affect the distribution system pressure shall be designed to provide a minimum operating pressure throughout the new distribution system of not less than 40 pounds per square inch at all times excluding fire flow.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116535, 116555 and 131051, Health and Safety Code.

Section 64604. Preparation and Maintenance of Records.

(a) Each public water system subject to this chapter shall prepare:

(1) "As built" plans, maps, and drawings of all new water system facilities including updated information for all existing facilities in the same location or connected to the new facilities. The plans, maps, and drawings shall be clear and legible and shall include the location, size, construction material, and year of installation of each new water main or other facility.

(2) A schematic drawing or map showing the location of each water source, treatment facility, pumping plant, reservoir, water main and isolation valve.

(b) The plans, drawings, and maps prepared pursuant to subsection (a) shall be updated as changes occur, and maintained until replaced or superseded by updated plans or drawings. The most current plans, drawings, and maps shall be available for Department review.

(c) Results of laboratory analyses of samples taken pursuant to sections 64580, 64582, and 64583, records of flushing of mains; and records of reservoir inspections and cleaning shall be maintained for at least three years.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116275, 116375, 116450, 116535 and 131051, Health and Safety Code.

APPENDIX C

Existing System Demand

Weldon Regional Consolidation Project - Water System Demand										
System Name	Annual Water Use (afy)	Average Day Demand (gpm)*	Maximum Day Demand (gpm)**	Peak Hourly Demand (gpm)***	Number of Connections	Population	Water Use Per Connection (gpd)	County Zoning	Fire Flow Requirement (gpm)	Water Use Per Capita (gpd)
Project Participants										
Tradewinds Water Association	70.8	43.9	98.8	197.5	236	470	268	E(1/2) MH; E (2 1/2) MH	500	134
Rainbird Valley MWC	33.2	20.6	46.3	92.6	83	188	357	CH; E(1/2) RS MH	500	158
Long Canyon Water Co.	10.8	6.7	15.1	30.1	67	197	144	MS(1/4); R-3 PD, C-2 PD	1,500	49
Sierra View Restaurant	7.1	4.4	9.8	19.7	2	N/A	3,151	CH	1,500	N/A
Lake Isabella K.O.A.	8.3	5.1	11.6	23.1	1	N/A	7,400	CH	1,500	N/A
Bella Vista MWC	28.2	17.5	39.3	78.7	47	74	536	E(2 1/2) RS MH; E(1) RS MH	500	340
Subtotal:	**158.4**	**98.2**	**220.9**	**441.7**	**436**	**929**				
Potential Project Participants										
South Fork Elementary School	2.8	1.7	3.8	7.7	1	135	2,464	A-1 MH	1,500	N/A
South Fork Women's Club	6.8	4.2	9.4	18.8	1	N/A	6,026	A-1	500	N/A
Weldon Methodist Church	5.2	3.2	7.3	14.6	1	N/A	4,660	A	500	N/A
Valley Estates P.O.A.	184.1	114.1	256.8	513.7	121	300	1,358	E(1/2) RS MH	500	548
South Fork Middle School	2.2	1.3	3.0	6.0	1	135	1,919	E(2 1/2)	1,500	N/A
Hillview Acres MWC	14.7	9.1	20.5	41.1	47	25	280	E(1/4) MH	500	526
Lakeview Ranchos MWC	18.4	11.4	25.7	51.4	73	120	225	A-1 MH	500	137
Subtotal:	**234.2**	**145.2**	**326.6**	**653.2**	**245**	**715**				
Total:	**392.5**	**243.3**	**547.5**	**1,094.9**	**681**	**1,644**				

***ADD estimated by dividing annual usage by 365 per CCR, Title 22, Division 4, Chapter 16, Article 2, Section 64554**
****Peaking factor of 2.25 used to estimate MDD per CCR, Title 22, Division 4, Chapter 16, Article 2, Section 64554**
*****Peaking factor of 2.0 used to estimate PHD per CCR, Title 22, Division 4, Chapter 16, Article 2, Section 64554 & Section 202-3.03 of the KCDS**

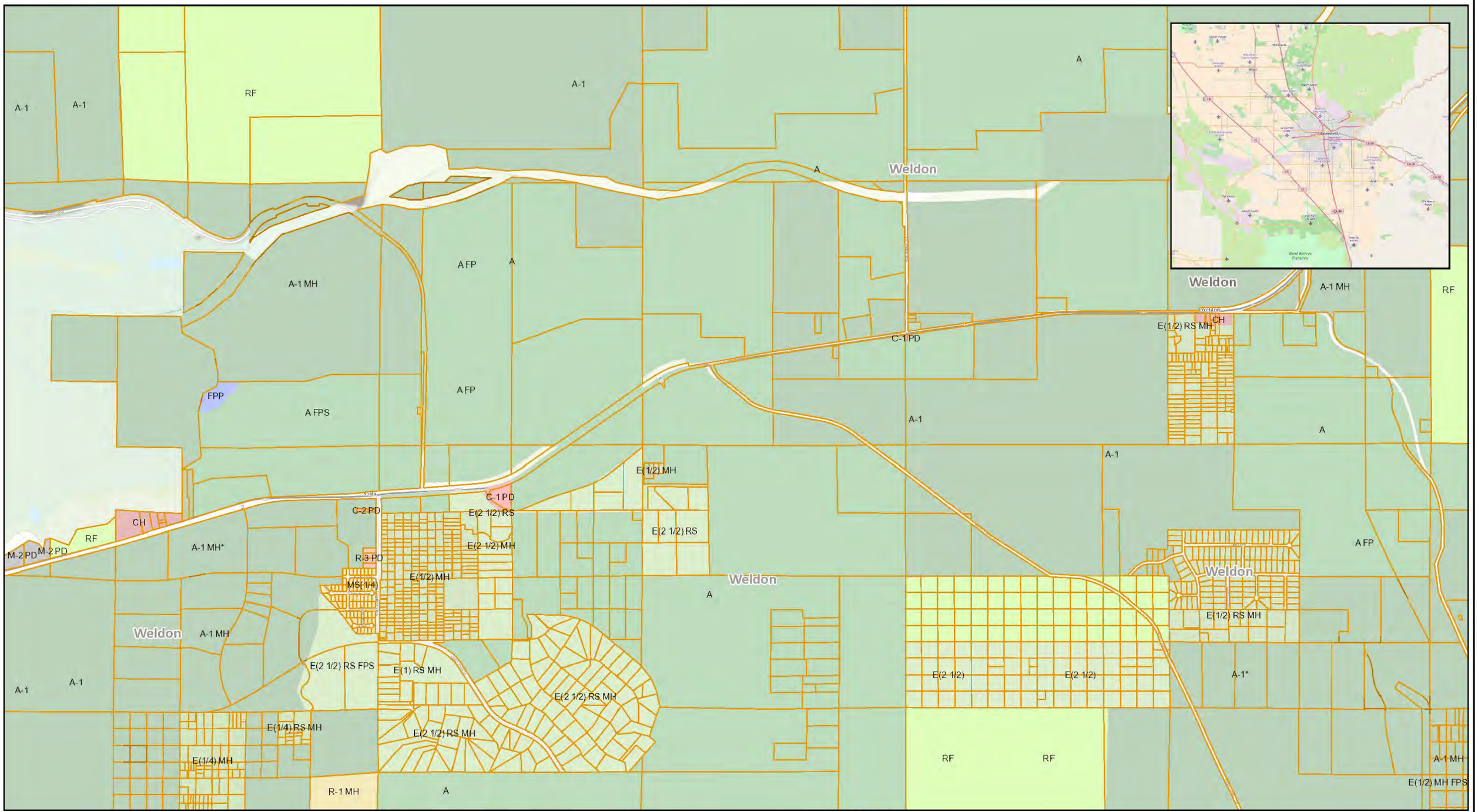
Kern County Zoning Definitions
A - Exclusive Agriculture
A-1 - Limited Agriculture
A-1 MH - Limited Agriculture, Mobilehome Combining
C-2 PD - General Commercial, Precise Development Combining
CH - Highway Commercial
E (2 1/2) - Estate 2.5 Acres
E(1/4) MH - Estate 0.25 Acres, Mobilehome Combining
E(1/2) MH - Estate 0.5 Acres, Mobilehome Combining
E(2 1/2) MH - Estate 0.5 Acres, Mobilehome Combining
E(1) RS MH - Estate 1 Acre, Residential Suburban Combining, Mobilehome Combining
E(1/2) RS MH - Estate .5 Acres, Residential Suburban Combining, Mobilehome Combining
E(2 1/2) RS MH - Estate 2.5 Acres, Residential Suburban Combining, Mobilehome Combining

APPENDIX D

Project Area Map with Kern County Zoning Designations

Kern County GIS

Generated by Kern County Web Map Service



0.84 0 0.42 0.84 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere

1: 26,500

APPENDIX E

System Storage Requirements

Weldon Regional Consolidation Project - Water System Storage Requirement									
System Name	Annual Water Use (afy)	Average Day Demand (gpm)*	Maximum Day Demand (gpm)**	Peak Hourly Demand (gpm)***	Requirement for Operational Demand Storage (gal)	Requirement for 3 Days of MDD Storage (gal)	Requirement for 5 Days of MDD Storage (gal)	System Service Area (acres)	Minimum Req. Storage per Acre (Gal/Acre)
Project Participants									
Tradewinds Water Association	70.8	43.9	98.8	197.5	142,204	426,613	711,021	204	697
Rainbird Valley MWC	33.2	20.6	46.3	92.6	66,683	200,050	333,417	65.4	1,020
Long Canyon Water Co.	10.8	6.7	15.1	30.1	21,692	65,076	108,461	30.3	716
Sierra View Restaurant	7.1	4.4	9.8	19.7	14,180	42,541	70,901	N/A	N/A
Lake Isabella K.O.A.	8.3	5.1	11.6	23.1	16,651	49,952	83,254	N/A	N/A
Bella Vista MWC	28.2	17.5	39.3	78.7	56,641	169,922	283,203	293	193
Subtotal:	**158.4**	**98.2**	**220.9**	**441.7**	**318,051**	**954,154**	**1,590,257**		
Potential Project Participants									
South Fork Elementary School	2.8	1.7	3.8	7.7	5,544	16,631	27,718	N/A	N/A
South Fork Women's Club	6.8	4.2	9.4	18.8	13,558	40,673	67,788	N/A	N/A
Weldon Methodist Church	5.2	3.2	7.3	14.6	10,485	31,454	52,423	N/A	N/A
Valley Estates P.O.A.	184.1	114.1	256.8	513.7	369,831	1,109,494	1,849,157	138	2,680
South Fork Middle School	2.2	1.3	3.0	6.0	4,318	12,955	21,592	N/A	N/A
Hillview Acres MWC	14.7	9.1	20.5	41.1	29,586	88,757	147,929	241	123
Lakeview Ranchos MWC	18.4	11.4	25.7	51.4	36,977	110,931	184,886	244	152
Subtotal:	**234.2**	**145.2**	**326.6**	**653.2**	**470,298**	**1,410,894**	**2,351,491**	**Average:**	**797**
Total:	**392.5**	**243.3**	**547.5**	**1,094.9**	**788,349**	**2,365,048**	**3,941,747**		

***ADD estimated by dividing annual usage by 365 per CCR, Title 22, Division 4, Chapter 16, Article 2, Section 64554**

****Peaking factor of 2.25 used to estimate MDD per CCR, Title 22, Division 4, Chapter 16, Article 2, Section 64554**

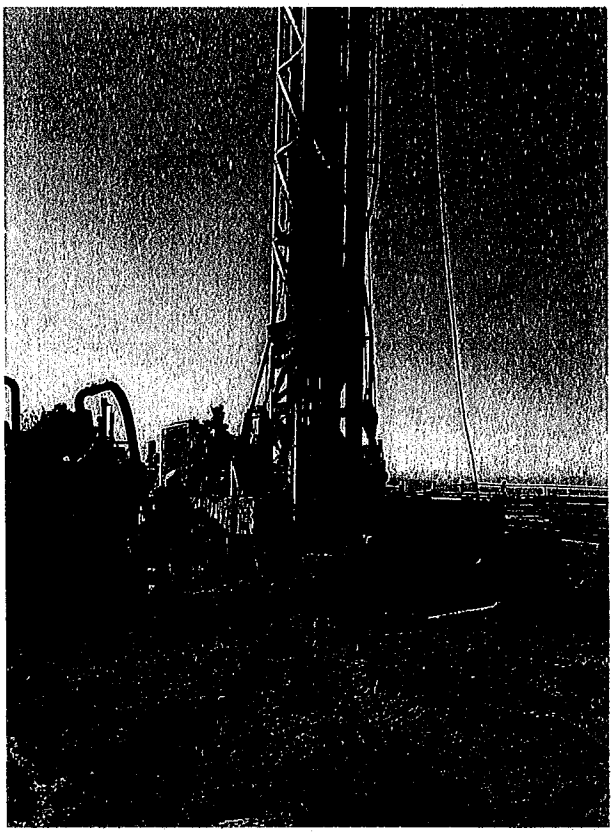
*****Peaking factor of 2.0 used to estimate PHD per CCR, Title 22, Division 4, Chapter 16, Article 2, Section 64554**

APPENDIX F

Long Canyon Test Well Study

LONG CANYON WATER COMPANY

TEST WELL REPORT



November 2015

DEE JASPAR & ASSOCIATES, INC.
CONSULTING CIVIL ENGINEERS
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BAKERSFIELD, CA 93308
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TECHNICAL MEMORANDUM

PREPARED FOR: State Water Boards
Drinking Water Program
4925 Commerce Drive, Suite 120
Bakersfield, CA 93309

PREPARED BY: Curtis M. Skaggs, P.E.
Dee Jaspar and Associates, Inc.
2730 Unicorn Road, Bldg A
Bakersfield, CA 93308

DATE: August 26th, 2015

SUBJECT: Long Canyon Water Company
Test Well Project

Test Holes - General

The Test Hole No. 1 was drilled on the Prince Property from July 21st through July 24th, 2015. The Test Hole No. 1 is located near the south side of Hwy 178 approximately 2,500-ft east of Sierra Way. The Test Hole No. 1 was drilled to a depth of 305-ft using the casing hammer drilling method. The depth to water was approximately 15-ft to 25-ft. Water samples were collected from four different depth intervals: 55-58-ft (Zone #1), 155-158-ft (Zone #2), 215-218-ft (Zone #3), and 274-277-ft (Zone #4).

The Test Hole No. 2 was drilled on the Hochman Property from July 13th through July 20th, 2015. The Test Hole No. 2 is located near the south side of Hwy 178 approximately 1,400-ft east of Fay Ranch Road. The Test Hole No. 2 was drilled to a depth of 347-ft using the casing hammer drilling method. The depth to water was approximately 13-ft to 15-ft. Water samples were collected from seven different depth intervals: 83-86-ft (Zone #1), 100-103-ft (Zone #2), 170-173-ft (Zone #3), 214-220-ft (Zone #4), 260-263-ft (Zone #5), 295-298-ft (Zone #6), and 344-347-ft (Zone #7).

Both of the test holes will be destroyed in accordance with the Kern County Well Drilling Permit requirements. The test holes will be scheduled for destruction upon approval of this Test Well Report by the State Water Board.

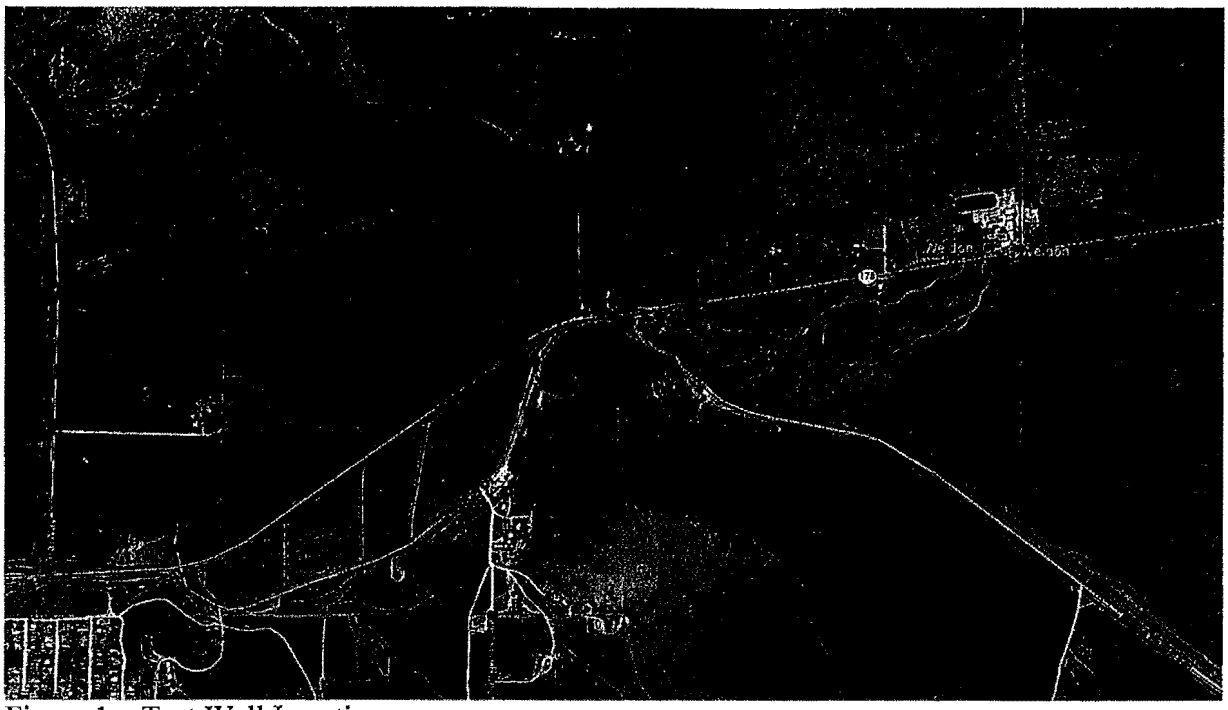


Figure 1 – Test Well Locations

Test Hole – Water Quality

Test Hole #1 had four different zones sampled as noted above. Manganese was above the maximum contaminant level (MCL) in all four samples and Nitrate was above the MCL in the deepest zone at 247-ft to 277-ft.

Test Hole #2 had seven different zones sampled as noted above. Iron was above the maximum contaminant level (MCL) in one sample which was at a depth of 214-ft to 220-ft while the Gross Alpha was above the MCL in the two shallow zones (83-ft to 86-ft and 100-ft to 103-ft) and in the three deepest zones (260-ft to 263-ft, 295-ft to 298-ft, and 344-ft to 347-ft).

Test Well – Conclusions

A municipal water well can be constructed at both test well sites.

It is recommended to construct a 230-ft deep well at the Test Hole #1 location with a perforated interval from 100-ft to 220-ft. This well is estimated to have a production rate of approximately 400 gpm. However the well will likely have Manganese above the MCL and would require treatment by oxidation/filtration. The deepest zone, Zone #4, has high Nitrate but it would be approximately 40-ft below the well depth and there is a cemented sand lense at about 268-ft to 274-ft that would retard the upward movement of that water.

It is recommended to construct a 250-ft deep well at the Test Hole #2 location with a perforated interval from 170-ft to 240-ft. This well is estimated to have a production rate of approximately 400-600 gpm. The two shallow zones above this perforated interval had high gross alpha but there is a good clay layer (clay, silty clay, and silt) from about 120-ft to 170-ft. The deeper zones below 260-ft had high gross alpha as well, however there is a layer of cemented sands from 258-ft to 260-ft that would provide a barrier from the upward movement of

that deeper water. There was a high iron concentration from 214-ft to 220-ft but this may blend down with the water from an approximate depth of 170-ft to 173-ft otherwise oxidation/filtration treatment may be necessary for iron removal.

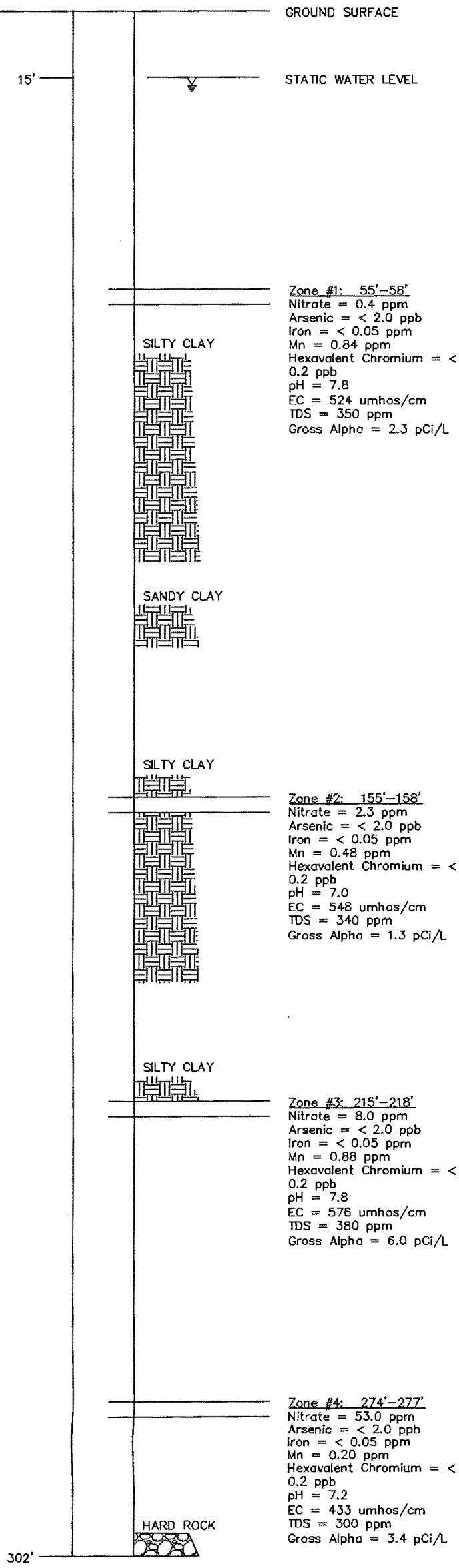
It is proposed to not design for iron and manganese removal at this stage and to wait until the well construction phase and final blended water quality is complete to determine if this will be necessary.

It is hereby requested that the State Water Board provide authorization to proceed with the preparation of the Preliminary Design Report based upon the above conclusions.

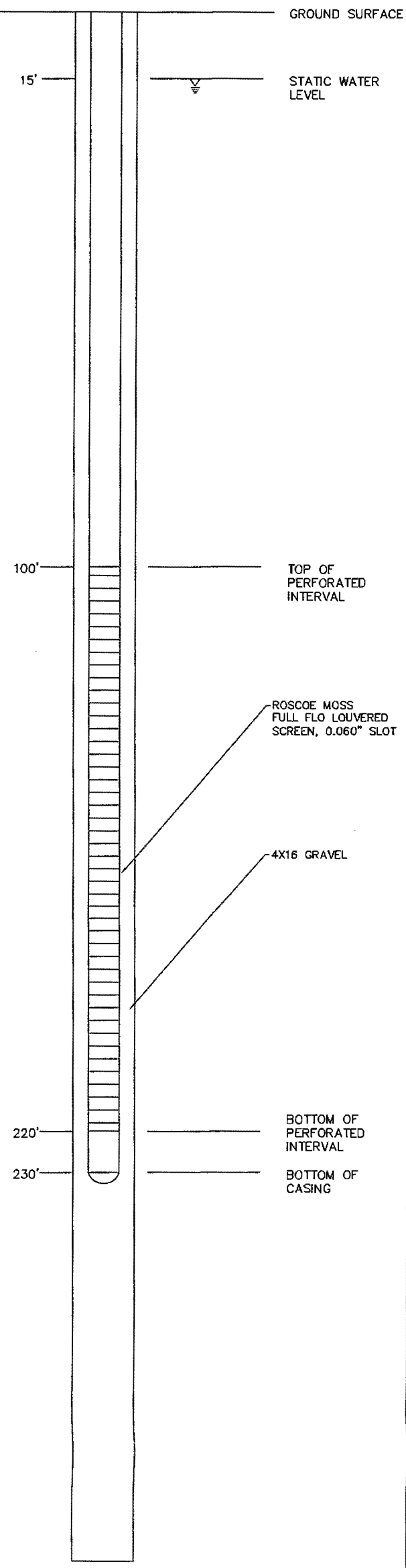
Attachments:
Well Construction Diagrams – Appendix A
Ken Schmidt Test Hole Report – Appendix B
Well Completion Reports – Appendix C
Water Quality Data – Appendix D

APPENDIX A

WELL DIAGRAMS



COMPLETED TEST WELL



RECOMMENDED PRODUCTION WELL

TEST WELL #1
PRINCE WELL SITE

TEST WELL #1
LONG CANYON WATER COMPANY
COUNTY OF KERN, CALIFORNIA

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639 N. MAIN STREET, #8
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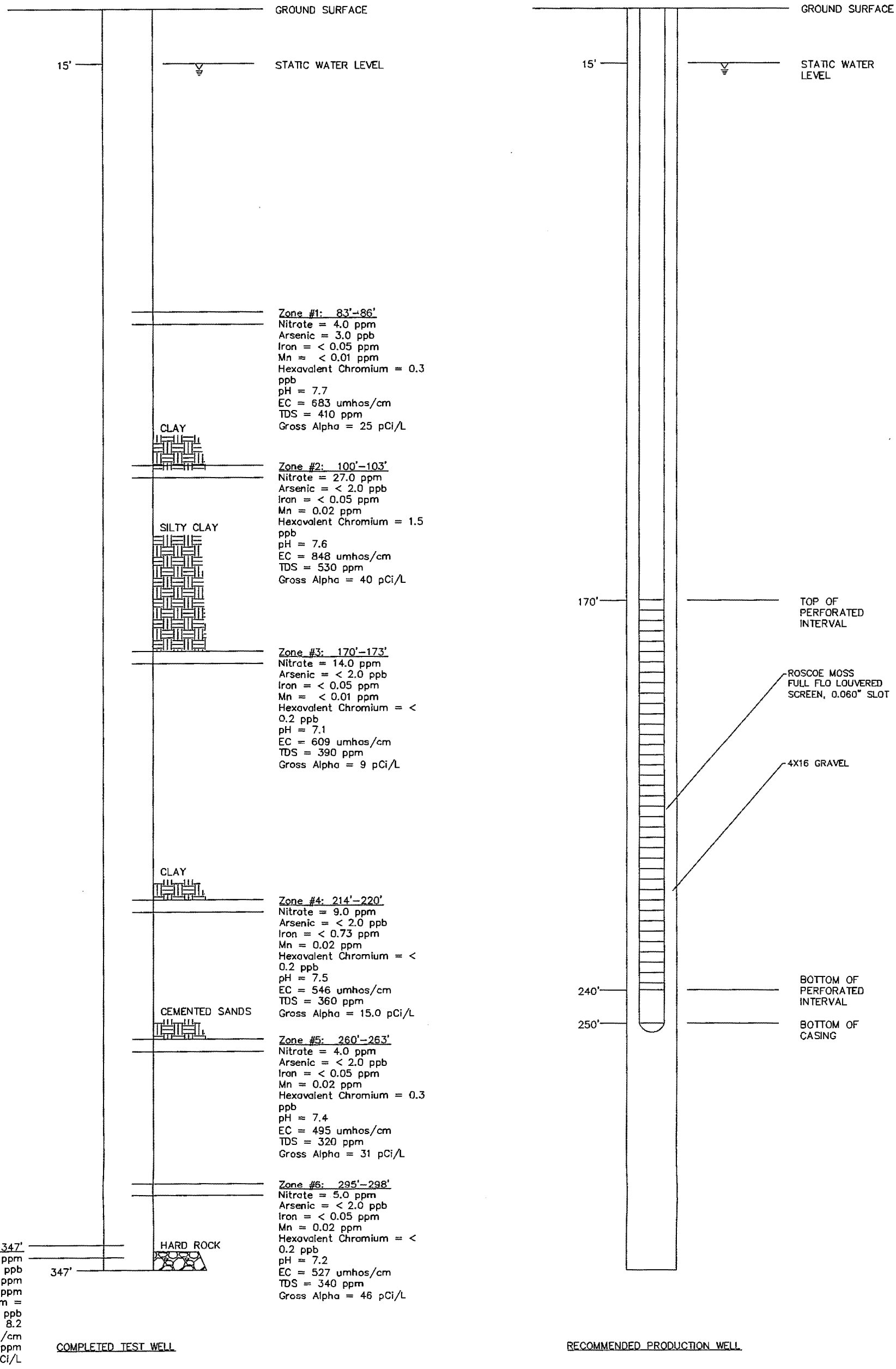
PHONE 559 791-9286
FAX 559 783-9275



TEST WELL #2
HOCHMAN WELL SITE

TEST WELL #2
LONG CANYON WATER COMPANY
COUNTY OF KERN, CALIFORNIA

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FAX 559 783-9275

APPENDIX B

TEST HOLE REPORT
KEN SCHMIDT & ASSOCIATES, INC.

KENNETH D. SCHMIDT AND ASSOCIATES
GROUNDWATER QUALITY CONSULTANTS
3701 PEGASUS DRIVE, SUITE 112
BAKERSFIELD, CALIFORNIA 93308
TELEPHONE (661) 392-1630

August 11, 2015

Mr. Curtis Skaggs
Dee Jaspar & Associates
2730 Unicorn Road, Bldg. A
Bakersfield, CA 93308

Re: Long Canyon WC TW-1

Dear Curtis:

During July 21-24, 2015, Johnson Drilling Co., Inc. of Reedley completed a test well by the casing hammer method to a depth of 305 feet. We logged the drill cuttings and a geologic log is attached. Alluvial deposits were encountered above a depth of 302 feet, where the hardrock was encountered. Except for a blue and brown silty clay, which was found from 27 to 54 feet in depth, the alluvial deposits were brown. Depth to water was about 15 to 25 feet at the time of drilling. Fine-grained layers that could function as confining beds were present in the following depth intervals:

65 to 101 feet	150 to 185 feet
110 to 125 feet	212 to 215 feet.

Water samples were collected from four different depth intervals for analyses of selected constituents. At one of these intervals (274 to 277 feet) a pumped sample was also collected for more comprehensive analyses. FGL Environmental of Santa Paula analyzed the samples for inorganic constituents and for alpha activity. BC Laboratories analyzed the samples for hexavalent chromium.

TDS concentrations ranged from 300 to 380 mg/l. Nitrate concentrations ranged from 0.4 to 53 mg/l. The highest nitrate concentration was in a sample from below a depth of 270 feet and exceeded the MCL of 45 mg/l. The nitrate concentrations in the samples from above a depth of 220 feet were 8 mg/l or less, well below

the MCL. Iron concentrations in all of the samples were less than 0.05 mg/l, well below the recommended MCL of 0.3 mg/l. Manganese concentrations in all of the sampled zones were greater than the recommended MCL of 0.05 mg/l. Arsenic concentrations in all of the samples were less than 2 ppb, well below the MCL of 10 ppb. Alpha activities in the samples ranged from 1.3 to 6.0 picocuries per liter, below the MCL of 15 picocuries per liter.

A supply well can be constructed at the site, but manganese treatment would need to be provided. Blank casing would be installed from the surface to 100 feet in depth and from 220 to 230 feet in depth. Perforated casing would be installed from 100 to 220 feet in depth. Based on sieve analyses selected drill cutting samples by Roscoe Moss Co., a slot size of 0.06-inch and gravel gradation of 4 X 16 are recommended. Such a well would tap about 50 feet of sand and gravel. The estimated short-term pumping rate for a properly constructed and developed well is about 700 gpm. However, because of the hardrock outcrops to the southwest of the site, boundary conditions could reduce the yield to about 400 gpm under long-term pumping.

Please call me if you have any questions.

Sincerely Yours,

Kenneth D. Schmidt

KDS/td

GEOLOGIC LOG FOR LONG CANYON W.C. TW-1

Depth (feet)	Description
0-12	Brown silty fine sand with some gravel
12-17	Brown fine to medium sand with some gravel
17-27	Brown sandy clay
27-54	Blue and brown-gray silty clay
54-55	Brown silty clay
55-65	Brown fine to coarse sand with some gravel
65-81	Brown clayey silt
81-95	Brown silty clay with some gravel
95-101	Brown sandy clay with some gravel
101-110	Brown coarse sand and gravel
110-125	Brown sandy clay with gravel
125-130	Brown clayey medium to coarse sand with gravel
130-140	Brown medium to coarse sand with gravel
140-150	Brown medium to coarse sand with gravel and clay
150-170	Brown sandy clay with gravel
170-185	Brown sandy silty clay with some gravel
185-190	Brown coarse sand with some gravel
190-200	Brown fine to coarse sand
200-212	Brown medium to coarse sand with gravel
212-215	Brown silty clay
215-220	Brown medium to coarse sand with gravel
220-230	Brown medium to coarse sand with clay
230-268	Brown medium to coarse sand with gravel
268-274	Brown cemented sand
274-280	Brown silty fine sand with some gravel
280-302	Brown fine to coarse sand with some gravel
302-305	Hard rock

DEPTH SAMPLING RESULTS FOR LONG CANYON WC TW-1
(JULY 2015)

Cased Depth (feet)	Drilled Depth (feet)	Sample Type	Nitrate (mg/L)	pH	Electrical Conductivity (µmhos/cm@25°C)	Total Dissolved Solids (mg/l) (@180°C)	Iron (mg/l)	Manganese (mg/l)	Arsenic (ppb)	Hexavalent Chromium (ppb)	Alpha Activity (pCi/l)
55	58	Airlift	0.4	7.8	524	350	<0.05	0.84	<2	<0.2	2.3
155	158	Airlift	2.3	7.0	548	340	<0.05	0.48	<2	<0.2	1.3
215	218	Airlift	8.0	7.8	576	380	<0.05	0.88	<2	<0.2	6.0
274	277	Airlift	53	7.6	434	300	<0.05	0.03	<2	0.3	1.6
274	277	Pumped	53	7.2	433	300	<0.05	0.20	<2	<0.2	3.4

Laboratory analyses by FGL Environmental of Santa Paula (inorganic, and alpha activity)and BC Laboratories, Inc. of Bakersfield (hexavalent chromium). Nitrate concentrations are reported as nitrate.

KENNETH D. SCHMIDT AND ASSOCIATES
GROUNDWATER QUALITY CONSULTANTS
3701 PEGASUS DRIVE, SUITE 112
BAKERSFIELD, CALIFORNIA 93308
TELEPHONE (661) 392-1630

August 21, 2015

Mr. Curtis Skaggs
Dee Jaspar & Associates
2730 Unicorn Road, Bldg. A
Bakersfield, CA 93308

Re: Long Canyon WC TW-2

Dear Curtis:

During July 13-20, 2015, Johnson Drilling Co., Inc. of Reedley completed a test well by the casing hammer method to a depth of 347 feet. We logged the drill cuttings and a geologic log is attached. The top of the hardrock was encountered at 344 feet in depth. Except for a blue and gray clay, from 28 to 53 feet, and a gray-brown clay, from 120 to 124 feet in depth, the alluvial deposits were brown. Below a depth of 80 feet, fine-grained layers that could be confining beds were present in the following depth intervals:

97 to 101 feet
120 to 170 feet
208 to 214 feet.

Depth to water was about 13 to 15 feet at the time of drilling. Water samples were collected from seven different depth intervals below a depth of 80 feet for analyses of selected constituents. At three of these intervals (100 to 103 feet, 214 to 220 feet, and 295 to 298 feet in depth), pumped samples were also collected for more comprehensive analyses. FGL Environmental of Santa Paula analyzed the samples for inorganic constituents and for alpha activity and uranium. BC Laboratories of Bakersfield analyzed the samples for hexavalent chromium.

The attached table summarizes the results of analyses. TDS concentrations ranged from 320 to 560 mg/l and were 390 mg/l or less in samples from below a depth of 170 feet. Nitrate concentrations ranged from 3 to 27 mg/l, and were less than 10 mg/l in samples from below a depth of 210 feet. Iron concentrations were less than the recommended MCL of 0.3 mg/l, except for one sample. An iron concentration of 0.73 mg/l, exceeding the recommended MCL of 0.3 mg/l, was in the pumped sample from 214 to 220 feet in depth. Manganese concentrations were 0.02 mg/l or

less except for two airlifted samples from below a depth of 295 feet. These higher concentrations ranged from 0.05 to 0.06 mg/l, compared to the MCL of 0.05 mg/l, but don't appear to be representative, when considering the result for the pumped sample from 295 to 298 feet in depth (0.02 mg/l). Arsenic concentrations were 3 ppb or less in all of the samples, well below the MCL.

Alpha activities in samples from above a depth of 105 feet ranged from 25 to 41 picocuries per liter, exceeding the MCL of 15 picocuries per liter. Alpha activities in samples between 170 and 220 feet in depth ranged from about 9 to 15 picocuries per liter. Uranium activities samples from this interval ranged from 8 to 15 picocuries per liter, less than the MCL of 20 picocuries per liter. Alpha activities in samples from below a depth of 260 feet ranged from 31 to 46 picocuries per liter, exceeding the MCL.

The fine-grained layers between 120 and 170 feet appear to separate overlying groundwater with higher alpha activities from underlying groundwater with lower alpha activities. However, there is no apparent confining bed that separates the base of the lower alpha activity groundwater above 240 feet in depth from deeper high alpha activity groundwater below a depth of 260 feet. The cemented deposits between 258 and 260 feet in depth could be responsible for the difference.

Strata between 170 and 240 feet could be tapped by a new well, but iron treatment could be necessary. Such a well would tap about 65 feet of coarse grained deposits and should yield at least about 600 to 700 gpm. Blank casing would be installed from the surface to 170 feet in depth and from 240 to 250 feet in depth. Ful-flow louvered casing would be installed from 170 to 240 feet in depth. I recommend not over pumping the well during development (i.e. limiting drawdowns to less than 50 feet), and collecting samples for alpha and uranium activity at the end of each step for the pump test.

Please call me if you have any questions.

Sincerely Yours,

Kenneth D. Schmidt

KDS/td

GEOLOGIC LOG FOR LONG CANYON W.C. TW-2

Depth (feet)	Description
0-11	Brown silty sandy clay
11-16	Brown silty fine to medium sand
16-28	Brown sandy clay
28-53	Blue and gray clay with fine sand
53-62	Gray fine sand with silt and clay
62-70	Brown silty fine sand
70-83	Brown fine to medium sand
83-97	Brown fine to coarse sand
97-101	Brown clay
101-110	Brown fine to medium sand with gravel
110-112	Brown clay
112-120	Brown medium to coarse sand with gravel
120-124	Gray-brown clay
124-132	Brown sandy clay
132-150	Brown clay
150-169	Brown silty clay
169-170	Brown silt
170-189	Brown fine to medium sand
189-208	Brown medium to coarse sand with some gravel
208-214	Brown clay
214-218	Brown medium to coarse sand with some gravel
218-240	Brown medium to coarse sand with gravel
240-255	Brown coarse sand with gravel
255-258	Brown cobbles and coarse sand
258-260	Brown cemented medium to coarse sand with gravel
260-265	Brown medium to coarse sand with gravel
265-280	Brown medium to coarse sand with some gravel
280-293	Brown gravel and coarse sand
293-295	Brown silty clay
295-300	Brown gravel and medium to coarse sand
300-310	Brown medium to coarse sand
310-320	Brown coarse sand with gavel
320-342	Brown medium to coarse sand
342-344	Brown clay with gravel
344-347	Hard rock

DEPTH SAMPLING RESULTS FOR LONG CANYON WC TW-2

(JULY 2015)

Cased Depth (feet)	Drilled Depth (feet)	Sample Type	Nitrate (mg/L)	pH	Electrical Conductivity (µmhos/cm@25°C)	Total Dissolved Solids (mg/l) (@180°C)	Iron (mg/l)	Manganese (mg/l)	Arsenic (ppb)	Hexavalent Chromium (ppb)	Alpha Activity (pCi/l)	Uranium Activity (pCi/l)
83	86	Airlift	4	7.7	683	410	<0.05	<0.01	3	0.3	25	-
100	103	Airlift	26	7.7	848	560	<0.05	<0.01	<2	0.9	41	-
		Pumped	27	7.6	848	530	<0.05	0.02	<2	1.5	40	-
170	173	Airlift	14	7.1	609	390	<0.05	<0.01	<2	<0.2	9	3.5
214	220	Airlift	9	7.4	538	350	<0.05	<0.01	<2	0.4	13	12
		Pumped	9	7.5	546	360	0.73	0.02	<2	<0.2	15	12
260	263	Airlift	4	7.4	495	320	<0.05	0.02	<2	0.3	31	-
295	298	Airlift	5	7.6	513	330	<0.05	0.06	<2	<0.2	41	-
		Pumped	5	7.2	527	340	<0.05	0.02	<2	<0.2	46	-
344	347	Airlift	3	8.2	649	390	<0.05	0.05	<2	<0.2	43	-

Laboratory analyses by FGL Rnvironmental of Santa Paula (inorganic, and alpha and uranium activities), and BC Laboratories, Inc. of Bakersfield (hexavalent chromium). Nitrate concentrations are reported as nitrate.

FIGURE 1-LOCATION OF TEST WELLS

APPENDIX C

WELL COMPLETION REPORTS

TRIPLICATE
Owner's Copy

Page 1 of 2

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. e0282067

DWR USE ONLY -- DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. TW1

Date Work Began 7/20/2015, Ended 7/27/2015

Local Permit Agency Kern Co Environmental Health

Permit No. WP16283 Permit Date 6/18/2015

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	12	Brown silty fine sand with some gravel
12	17	Brown fine to medium sand with some gravel
17	27	Brown sandy clay
27	54	Blue and brown-gray silty clay
54	55	Brown silty clay
55	65	Brown fine to coarse sand with some gravel
65	81	Brown clayey silt
81	95	Brown silty clay with some gravel
95	101	Brown sandy clay with some gravel
101	110	Brown coarse sand and gravel
110	125	Brown sandy clay with gravel
125	130	Brown clayey medium to coarse sand with gravel
130	140	Brown medium to coarse sand with gravel
140	150	Brown medium to coarse sand with gravel and clay
150	170	Brown sandy clay with gravel
170	185	Brown sandy silty clay with some gravel
185	190	Brown coarse sand with some gravel
190	200	Brown fine to coarse sand
200	212	Brown medium to coarse sand with gravel
212	215	Brown silty clay
215	220	Brown medium to coarse sand with gravel
220	230	Brown medium to coarse sand with clay
230	268	Brown medium to coarse sand with gravel
268	274	Brown cemented sand
274	280	Brown silty fine sand with some gravel
280	302	Brown fine to coarse sand wtih some gravel
302	305	Hard Rock
		Long Canyon Water Co. Test Well #1

TOTAL DEPTH OF BORING 305 (Feet)

TOTAL DEPTH OF COMPLETED WELL 305 (Feet)

WELL OWNER

Name Prince Family Trust

Mailing Address 7908 Calle Torcido

Bakersfield CA 93309

CITY STATE ZIP

WELL LOCATION

Address Highway 178

City Weldon CA 93283

County Kern

APN Book 426 Page 400 Parcel 06

Township 26 S Range 34 E Section 22

Latitude ___ DEG. ___ MIN. ___ SEC. ___ DEG. ___ MIN. ___ SEC.

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG"

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ___
TEST WELL ✓
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
+3	302	8-5/8"	✓				STEEL	8.125	.250	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME JOHNSON DRILLING COMPANY
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

23489 East Kings Canyon Reedley CA 93654-9760
ADDRESS CITY STATE ZIP

Signed ___ 09/03/15 245802
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

TRIPLICATE
Owner's Copy

Page 2 of 2

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. e0282067

DWR USE ONLY --- DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. TW1
Date Work Began 7/20/2015, Ended 7/27/2015
Local Permit Agency Kern Co Environmental Health
Permit No. WP16283 Permit Date 6/18/2015

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
	S of Hwy 178 N of Pauls Place Rd-Weldon

TOTAL DEPTH OF BORING 305 (Feet)
TOTAL DEPTH OF COMPLETED WELL 305 (Feet)

WELL OWNER

Name Prince Family Trust
Mailing Address 7908 Calle Torcido
Bakersfield CA 93309
CITY STATE ZIP

WELL LOCATION

Address Highway 178
City Weldon CA 93283
County Kern
APN Book 426 Page 400 Parcel 06
Township 26 S Range 34 E Section 22
Latitude ___ DEG. ___ MIN. ___ SEC. ___ DEG. ___ MIN. ___ SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ✓
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
+3 to 302	8-5/8"	✓				STEEL	8.125	.250	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME JOHNSON DRILLING COMPANY
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
23489 East Kings Canyon Reedley CA 93654-9760
ADDRESS CITY STATE ZIP
Signed ___ 09/03/15 245802
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

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TRIPLICATE
Owner's Copy

Page 1 of 2

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. e0282066

DWR USE ONLY --- DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. TW2
Date Work Began 7/13/2015, Ended 7/20/2015
Local Permit Agency Kern Co Environmental Health
Permit No. WP16282 Permit Date 6/18/2015

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL — HORIZONTAL — ANGLE — (SPECIFY)
DRILLING METHOD CASING HAMMER FLUID

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0 – 11	Brown silty sandy clay
11 – 16	Brown silty fine to medium sand
16 – 28	Brown sandy clay
28 – 53	Blue and gray clay with fine sand
53 – 62	Gray fine sand
62 – 70	Brown silty fine sand
70 – 83	Brown fine to medium sand
83 – 97	Brown fine to coarse sand
97 – 101	Brown clay
101 – 110	Brown fine to medium sand with gravel
110 – 112	Brown clay
112 – 120	Brown medium to coarse sand with gravel
120 – 124	Gray-brown clay
124 – 132	Brown sandy clay
132 – 150	Brown clay
150 – 169	Brown silty clay
169 – 170	Brown silt
170 – 189	Brown fine to medium sand
189 – 208	Brown medium to coarse sand with some gravel
208 – 214	Brown clay
214 – 218	Brown medium to coarse sand with some gravel
218 – 240	Brown medium to coarse sand with gravel
240 – 255	Brown coarse sand with gravel
255 – 258	Brown cobbles and coarse sand
258 – 260	Brown cemented medium to coarse sand with grave
260 – 265	Brown medium to coarse sand with gravel
265 – 280	Brown medium to coarse sand with some gravel
280 – 293	Brown gravel and coarse sand
293 – 295	Brown silty clay
295 – 300	Brown gravel and medium to coarse sand

TOTAL DEPTH OF BORING 347 (Feet)
TOTAL DEPTH OF COMPLETED WELL 347 (Feet)

WELL OWNER

Name Hochman Family Trust
Mailing Address 7908 Calle Torcido
Bakersfield CA 93309
CITY STATE ZIP

WELL LOCATION

Address Highway 178
City Weldon CA 93283
County Kern
APN Book 426 Page 032 Parcel 13
Township 26 S Range 34 E Section 13
Latitude DEG. MIN. SEC. DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
— Deepen
— Other (Specify)
— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)
WATER SUPPLY
— Domestic — Public
— Irrigation — Industrial
MONITORING —
TEST WELL ✓
CATHODIC PROTECTION —
HEAT EXCHANGE —
DIRECT PUSH —
INJECTION —
VAPOR EXTRACTION —
SPARGING —
REMEDIATION —
OTHER (SPECIFY) —

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER — (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL — (Ft.) & DATE MEASURED
ESTIMATED YIELD * — (GPM) & TEST TYPE
TEST LENGTH — (Hrs.) TOTAL DRAWDOWN — (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
+3 – 344	8-5/8"	✓				STEEL	8.125	.250	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

— Geologic Log
— Well Construction Diagram
— Geophysical Log(s)
— Soil/Water Chemical Analysis
— Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME JOHNSON DRILLING COMPANY
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
23489 East Kings Canyon Reedley CA 93654-9760
ADDRESS CITY STATE ZIP
Signed _____ 09/03/15 245802
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

TRIPLICATE
Owner's Copy

Page 2 of 2

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. e0282066

DWR USE ONLY --- DO NOT FILL IN

STATE WELL NO./ STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. TW2

Date Work Began 7/13/2015, Ended 7/20/2015

Local Permit Agency Kern Co Environmental Health

Permit No. WP16282 Permit Date 6/18/2015

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD CASING HAMMER FLUID ___

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
300	310	Brown medium to coarse sand
310	320	Brown coarse sand with gravel
320	342	Brown medium to coarse sand
342	344	Brown clay with gravel
344	347	Hard rock
		Long Canyon Water Co. Test Well #2
		S of Hwy 178 E of Fay Ranch Rd-Weldon

TOTAL DEPTH OF BORING 347 (Feet)

TOTAL DEPTH OF COMPLETED WELL 347 (Feet)

WELL OWNER

Name Hochman Family Trust

Mailing Address 7908 Calle Torcido

Bakersfield CA 93309

CITY STATE ZIP

WELL LOCATION

Address Highway 178

City Weldon CA 93283

County Kern

APN Book 426 Page 032 Parcel 13

Township 26 S Range 34 E Section 13

Latitude ___ DEG. ___ MIN. ___ SEC. ___ DEG. ___ MIN. ___ SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

___ MONITORING
✓ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
___ OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
+3	344	8-5/8"	✓				STEEL	8.125	.250	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME JOHNSON DRILLING COMPANY
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

23489 East Kings Canyon Reedley CA 93654-9760
ADDRESS CITY STATE ZIP

Signed ___ 09/03/15 245802
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

APPENDIX D

WATER QUALITY DATA

DEPTH SAMPLING RESULTS FOR LONG CANYON WC TW-1
(JULY 2015)

Cased Depth (feet)	Drilled Depth (feet)	Sample Type	Nitrate (mg/L)	pH	Electrical Conductivity (µmhos/cm@25°C)	Total Dissolved Solids (mg/l) (@180°C)	Iron (mg/l)	Manganese (mg/l)	Arsenic (ppb)	Hexavalent Chromium (ppb)	Alpha Activity (pci/l)
✓ 55	58	Airlift	0.4	7.8	524	350	<0.05	0.84	<2		2.3
✓ 155	158	Airlift	2.3	7.0	548	340	<0.05	0.48			1.3
✓ 215	218	Airlift	8.0	7.8	576	380	<0.05	0.88			6.0
✓ 274	277	Airlift	53	7.6	434	300	<0.05	0.03			1.6
✓ 274	277	Pumped	53		433	300	<0.05	0.20			3.4

Laboratory analyses by FGL Environmental of Santa Paula (inorganic and alpha activity) , APPL, Inc. of Clovis (trace organics), and BC Laboratories of Bakersfield (hexavalent chromium).

August 7, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542981-002
Customer ID : 4-16320

Sampled On : July 21, 2015-11:00
Sampled By : M.H.
Received On : July 23, 2015-11:15
Matrix : Ground Water

Description : TW-1 Airlift Csd:55' Dld:58'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L		200.8	07/24/15:208577	200.8	07/24/15:210964
Iron	ND	30	ug/L		200.7	07/24/15:208574	200.7	07/24/15:210839
Manganese	840	10	ug/L		200.7	07/24/15:208574	200.7	07/24/15:210839
Wet Chemistry[P:1]								
Chloride	17	1	mg/L		300.0	07/23/15:208618	300.0	07/23/15:211061
Specific Conductance	524	1	umhos/cm		2510B	07/24/15:208546	2510B	07/24/15:210792
Nitrate	0.4	0.4	mg/L		4500NO3F	07/24/15:208576	4500NO3F	07/24/15:210917
pH	7.8	--	units		4500-H B	07/24/15:208583	4500HB	07/24/15:210851
Solids, Total Dissolved (TDS)	350	20	mg/L		2540CE	07/23/15:208513	2540C	07/24/15:210796

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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August 7, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542981-002
Customer ID : 4-16320

Sampled On : July 21, 2015-11:00
Sampled By : M.H.
Received On : July 23, 2015-11:15
Matrix : Ground Water

Description : TW-1 Airlift Csd:55' Dld:58'
Project : Long Canyon WC

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Radio Chemistry[P:1]								
Gross Alpha	2.32 ± 1.80	1.64	pCi/L		900.0	07/24/15-07:30 2P1508542	900.0	07/29/15-08:00 2A1511167

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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Kenneth D. Schmidt & Associates, Inc.
3701 Pegasus Drive Suite 112
Suite 112
Bakersfield, CA 93308

Reported: 07/24/2015 10:44
Project: Long Canyon WC
Project Number: [none]
Project Manager: James Angell

Metals Analysis

BCL Sample ID: 1517843-02 | **Client Sample Name:** TW-1 Airlift 55, 7/21/2015 11:00:00AM, M. Hooker

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	ND	ug/L	0.20	0.055	EPA-218.6	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-218.6	07/22/15	07/22/15 23:26	BMW	IC-4	1	BYG1987

August 31, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1543003
Customer : 4-16320

Laboratory Report

Introduction: This report package contains total of 9 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(4 pages)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
TW-1 Airlift Csd:155' Dld:158'	07/22/2015	07/24/2015	VI 1543003-001	GW
TW-1 Airlift Csd:215' Dld:218'	07/23/2015	07/24/2015	VI 1543003-002	GW

Sampling and Receipt Information: All samples were received, prepared and analyzed within the method specified holding except those as listed in the table below. The holding time for pH is listed as immediate. Logistically this is very difficult to obtain. FGL policy is to analyze all samples requiring pH on the same day of receipt at the laboratory. If this presents any problem please call.

Lab ID	Analyte/Method	Required Holding Time	Actual Holding Time
VI 1543003-001	pH	15	2908.2 Minutes
VI 1543003-002	pH	15	7351.8 Minutes

All samples arrived at 2 °C. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

200.7	07/29/2015:211072 All analysis quality controls are within established criteria
	07/29/2015:208726 All preparation quality controls are within established criteria
200.8	08/07/2015:211583 All analysis quality controls are within established criteria

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August 31, 2015 Lab ID : VI 1543003
Dee Jaspar & Associates Customer : 4-16320

Inorganic - Metals QC

200.8	08/06/2015:209114 All preparation quality controls are within established criteria

Radio QC

900.0	07/30/2015:211293 All analysis quality controls are within established criteria
	07/28/2015:208670 All preparation quality controls are within established criteria

Inorganic - Wet Chemistry QC

2510B	07/27/2015:210913 All analysis quality controls are within established criteria
	07/27/2015:208633 All preparation quality controls are within established criteria
2540CE	07/24/2015:208569 All preparation quality controls are within established criteria
300.0	07/24/2015:210834 All analysis quality controls are within established criteria
	07/24/2015:208635 All preparation quality controls are within established criteria
4500-H B	07/24/2015:208583 All preparation quality controls are within established criteria
	07/28/2015:208690 All preparation quality controls are within established criteria
4500HB	07/24/2015:210851 All analysis quality controls are within established criteria
	07/28/2015:210982 All analysis quality controls are within established criteria

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2015-08-31

August 31, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1543003-001
Customer ID : 4-16320

Sampled On : July 22, 2015-16:00
Sampled By : Justin
Received On : July 24, 2015-11:00
Matrix : Ground Water

Description : TW-1 Airlift Csd:155' Dld:158'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L		200.8	08/06/15:209114	200.8	08/07/15:211583
Iron	ND	30	ug/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Manganese	480	10	ug/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Wet Chemistry[P:1]								
Chloride	19	1	mg/L		300.0	07/24/15:208635	300.0	07/24/15:210834
Specific Conductance	548	1	umhos/cm		2510B	07/27/15:208633	2510B	07/27/15:210913
Nitrate	2.3	0.5	mg/L		300.0	07/24/15:208635	300.0	07/24/15:210834
pH	7.0	--	units		4500-H B	07/24/15:208583	4500HB	07/24/15:210851
Total Dissolved Solids (TFR)	340	20	mg/L		2540CE	07/24/15:208569	2540C	07/27/15:210879

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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August 31, 2015

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Lab ID : VI 1543003-001
Customer ID : 4-16320

Sampled On : July 22, 2015-16:00
Sampled By : Justin
Received On : July 24, 2015-11:00
Matrix : Ground Water

Description : TW-1 Airlift Csd:155' Dld:158'
Project : Long Canyon WC

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry[P:1]								
Gross Alpha	1.30 ± 1.32	1.37	pCi/L		900.0	07/28/15-07:15 2P1508670	900.0	07/30/15-11:00 2A1511293

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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August 31, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1543003-002
Customer ID : 4-16320

Sampled On : July 23, 2015-11:00
Sampled By : Justin
Received On : July 24, 2015-11:00
Matrix : Ground Water

Description : TW-1 Airlift Csd:215' Dld:218'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L		200.8	08/06/15:209114	200.8	08/07/15:211583
Iron	ND	30	ug/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Manganese	880	10	ug/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Wet Chemistry[P:1]								
Chloride	23	1	mg/L		300.0	07/24/15:208635	300.0	07/24/15:210834
Specific Conductance	576	1	umhos/cm		2510B	07/27/15:208633	2510B	07/27/15:210913
Nitrate	8.0	0.5	mg/L		300.0	07/24/15:208635	300.0	07/24/15:210834
pH	7.8	--	units		4500-H B	07/28/15:208690	4500HB	07/28/15:210982
Total Dissolved Solids (TFR)	380	20	mg/L		2540CE	07/24/15:208569	2540C	07/27/15:210879

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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August 31, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
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Lab ID : VI 1543003-002
Customer ID : 4-16320

Sampled On : July 23, 2015-11:00
Sampled By : Justin
Received On : July 24, 2015-11:00
Matrix : Ground Water

Description : TW-1 Airlift Csd:215' Dld:218'
Project : Long Canyon WC

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Radio Chemistry[P:1]								
Gross Alpha	6.03 ± 1.79	1.09	pCi/L		900.0	07/28/15-07:15 2P1508670	900.0	07/30/15-13:00 2A1511293

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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August 31, 2015
Dee Jaspar & Associates

Lab ID : VI 1543003
Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Iron	200.7		MS	ug/L	4000	102 %	75-125	
		(SP 1508241-001)	MSD	ug/L	4000	109 %	75-125	
			MSRPD	ug/L	800.0	6.3%	≤20.0	
	200.7	07/29/15:211072AC	CCV	ppm	5.000	99.2 %	90-110	
			CCB	ppm		-0.00006	0.03	
			CCV	ppm	5.000	101 %	90-110	
			CCB	ppm		0.00009	0.03	
Manganese	200.7		MS	ug/L	800.0	97.9 %	75-125	
		(SP 1508241-001)	MSD	ug/L	800.0	104 %	75-125	
			MSRPD	ug/L	800.0	5.6%	≤20.0	
	200.7	07/29/15:211072AC	CCV	ppm	1.000	95.6 %	90-110	
			CCB	ppm		0.00002	0.01	
			CCV	ppm	1.000	97.7 %	90-110	
			CCB	ppm		0.000004	0.01	
Arsenic	200.8		MS	ug/L	5.000	106 %	75-125	
		(VI 1543036-001)	MSD	ug/L	5.000	83.3 %	75-125	
			MSRPD	ug/L	5.000	1.2	≤2	
	200.8	08/07/15:211583AC	CCV	ppb	120.0	99.9 %	90-110	
			CCB	ppb		0.56	2	
			CCV	ppb	120.0	101 %	90-110	
			CCB	ppb		-0.43	2	
			CCV	ppb	120.0	101 %	90-110	
			CCB	ppb		-0.24	2	
Wet Chem								
Conductivity	2510B	07/27/15:210913JMG	ICB	umhos/cm		0.07	1	
			CCV	umhos/cm	999.0	101 %	95-105	
			CCV	umhos/cm	999.0	100 %	95-105	
E. C.	2510B	07/27/15:208633jmg	Blank	umhos/cm		ND	<1	
		(VI 1542997-006)	Dup	umhos/cm		0.09%	5	
Total Dissolved Solids (TFR)	2540CE	07/24/15:208569CTL	Blank	mg/L		9.8	20	
			LCS	mg/L	999.1	99.4 %	90-110	
		(SP 1508187-003)	Dup	mg/L		0.9%	5	
Chloride	300.0		MS	mg/L	500.0	101 %	85-121	
		(STK1538045-001)	MSD	mg/L	500.0	101 %	85-121	
			MSRPD	mg/L	100.0	0.2%	≤19	
			Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	90.9 %	90-110	
			MS	mg/L	500.0	110 %	85-121	
		(VIM15D208A-023)	MSD	mg/L	500.0	108 %	85-121	
			MSRPD	mg/L	100.0	1.5%	≤19	
	300.0	07/24/15:210834KD	ICV	ppm	25.00	92.3 %	90-110	
			ICB	ppm		0.05	1	
			CCB	ppm		0.07	1	
			CCV	PPM	25.00	0.0 %	90-110	
			CCB	ppm		0.09	1	
			CCV	ppm	25.00	91.2 %	90-110	
			CCB	ppm		0.06	1	
			CCV	ppm	25.00	93.4 %	90-110	
Nitrate	300.0		MS	mg/L	400.0	100 %	85-119	
		(STK1538045-001)	MSD	mg/L	400.0	99.8 %	85-119	
			MSRPD	mg/L	100.0	0.2%	≤19	
			Blank	mg/L		ND	<0.5	
			LCS	mg/L	20.00	90.2 %	90-110	
			MS	mg/L	400.0	96.7 %	85-119	
		(VIM15D208A-023)	MSD	mg/L	400.0	94.7 %	85-119	

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August 31, 2015 Lab ID : VI 1543003
Dee Jaspar & Associates Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Nitrate	300.0	07/24/15:208635MCA	MSRPD	mg/L	100.0	2.0%	≤19	
	300.0	07/24/15:210834KD	ICV	ppm	20.00	90.5 %	90-110	
			ICB	ppm		0.000	0.5	
			CCB	ppm		0.000	0.5	
			CCV	PPM	20.00	0.0 %	90-110	
			CCB	ppm		0.000	0.5	
			CCV	ppm	20.00	90.5 %	90-110	
			CCB	ppm		0.000	0.5	
			CCV	ppm	20.00	92.6 %	90-110	
pH	4500-H B	(VI 1542911-002)	Dup	units		0.0%	4.80	
	4500-H B	(STK1538050-001)	Dup	units		0.3%	4.80	
	4500HB	07/24/15:210851JMG	CCV	units	8.000	101 %	95-105	
			CCV	units	8.000	101 %	95-105	
	4500HB	07/28/15:210982JMG	CCV	units	8.000	101 %	95-105	
			CCV	units	8.000	101 %	95-105	

Definition

ICV	: Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
ICB	: Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
Dup	: Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

August 31, 2015 Lab ID : VI 1543003
Dee Jaspar & Associates Customer : 4-16320

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	07/30/15:211293caa	CCV	cpm	8889	40.4 %	38 - 46	
			CCB	cpm		0.100	0.14	
Gross Alpha	900.0	07/28/15:208670caa	Blank	pCi/L		1.12	3	
			LCS	pCi/L	180.6	88.4 %	75-125	
			MS	pCi/L	180.6	113 %	60-140	
		(SP 1507965-001)	MSD	pCi/L	180.6	90.0 %	60-140	
			MSRPD	pCi/L	180.6	21.9%	≤30	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

August 7, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1543036
Customer : 4-16320

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(2 pages)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
TW-1 Airlift Csd:274' Dld:277'	07/24/2015	07/28/2015	VI 1543036-001	GW

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding except those as listed in the table below. The holding time for pH is listed as immediate. Logistically this is very difficult to obtain. FGL policy is to analyze all samples requiring pH on the same day of receipt at the laboratory. If this presents any problem please call.

Lab ID	Analyte/Method	Required Holding Time	Actual Holding Time
VI 1543036-001	pH	15	7381.2 Minutes

All samples arrived at 5 °C. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

200.7	07/29/2015:211072 All analysis quality controls are within established criteria.
	07/29/2015:208726 All preparation quality controls are within established criteria.
200.8	08/06/2015:211519 All analysis quality controls are within established criteria.
	08/06/2015:209114 All preparation quality controls are within established criteria.

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August 7, 2015
Dee Jaspar & Associates

Lab ID : VI 1543036
Customer : 4-16320

Radio QC

900.0	07/30/2015:211178 All analysis quality controls are within established criteria.
	07/29/2015:208702 All preparation quality controls are within established criteria.

Inorganic - Wet Chemistry QC

2510B	07/29/2015:211008 All analysis quality controls are within established criteria.
	07/29/2015:208709 All preparation quality controls are within established criteria.
2540CE	07/29/2015:208730 All preparation quality controls are within established criteria.
300.0	07/29/2015:211020 All analysis quality controls are within established criteria.
	07/28/2015:208721 All preparation quality controls are within established criteria, except: The following note applies to Chloride: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
4500-H B	07/29/2015:208745 All preparation quality controls are within established criteria.
4500HB	07/29/2015:211045 All analysis quality controls are within established criteria.
4500NO3F	07/29/2015:211109 All analysis quality controls are within established criteria.
	07/29/2015:208731 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2015-08-07

August 7, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1543036-001
Customer ID : 4-16320

Sampled On : July 24, 2015-11:30
Sampled By : Justin
Received On : July 28, 2015-11:30
Matrix : Ground Water

Description : TW-1 Airlift Csd:274' Dld:277'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L		200.8	08/06/15:209114	200.8	08/06/15:211519
Iron	ND	30	ug/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Manganese	25.9	0.5	ug/L		200.8	08/06/15:209114	200.8	08/06/15:211519
Wet Chemistry[P:1]								
Chloride	30	1	mg/L		300.0	07/28/15:208721	300.0	07/29/15:211020
Specific Conductance	434	1	umhos/cm		2510B	07/29/15:208709	2510B	07/29/15:211008
Nitrate	53.4	0.4	mg/L		4500NO3F	07/29/15:208731	4500NO3F	07/29/15:211109
pH	7.6	--	units		4500-H B	07/29/15:208745	4500HB	07/29/15:211045
Solids, Total Dissolved (TDS)	300	20	mg/L		2540CE	07/29/15:208730	2540C	07/30/15:211079

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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August 7, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1543036-001
Customer ID : 4-16320

Sampled On : July 24, 2015-11:30
Sampled By : Justin
Received On : July 28, 2015-11:30
Matrix : Ground Water

Description : TW-1 Airlift Csd:274' Dld:277'
Project : Long Canyon WC

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry[P:1]								
Gross Alpha	1.60 ± 0.956	1.01	pCi/L		900.0	07/29/15-08:00 2P1508702	900.0	07/30/15-18:00 2A1511178

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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August 11, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1543035
Customer : 4-16320

Laboratory Report

Introduction: This report package contains total of 8 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(2 pages)	: Results for each sample submitted.
Quality Control	(4 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
TW-1 Pumped Csd:274' Dld:277'	07/24/2015	07/28/2015	VI 1543035-001	GW

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding except those as listed in the table below. The holding time for pH is listed as immediate. Logistically this is very difficult to obtain. FGL policy is to analyze all samples requiring pH on the same day of receipt at the laboratory. If this presents any problem please call.

Lab ID	Analyte/Method	Required Holding Time	Actual Holding Time
VI 1543035-001	Nitrate	48	97.67 Hours
VI 1543035-001	Nitrate Nitrogen	48	97.67 Hours
VI 1543035-001	pH	15	20445 Minutes

All samples arrived at 5 °C. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

200.7	07/29/2015:211072 All analysis quality controls are within established criteria.
	07/30/2015:211155 All analysis quality controls are within established criteria.
	07/29/2015:208726 All preparation quality controls are within established criteria.

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August 11, 2015 Lab ID : VI 1543035
Dee Jaspar & Associates Customer : 4-16320

Inorganic - Metals QC

200.8	08/06/2015:211519 All analysis quality controls are within established criteria.
	08/06/2015:209114 All preparation quality controls are within established criteria.

Radio QC

900.0	07/30/2015:211178 All analysis quality controls are within established criteria.
	07/29/2015:208702 All preparation quality controls are within established criteria.

Inorganic - Wet Chemistry QC

2320B	07/30/2015:211152 All analysis quality controls are within established criteria.
	07/30/2015:208828 All preparation quality controls are within established criteria.
2510B	07/29/2015:211008 All analysis quality controls are within established criteria.
	07/29/2015:208709 All preparation quality controls are within established criteria.
2540CE	07/29/2015:208730 All preparation quality controls are within established criteria.
300.0	07/29/2015:211020 All analysis quality controls are within established criteria.
	07/28/2015:208721 All preparation quality controls are within established criteria, except: The following note applies to Chloride, Nitrate, Sulfate: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
4500-H B	08/07/2015:209180 All preparation quality controls are within established criteria.
4500HB	08/07/2015:211580 All analysis quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2015-08-11

August 11, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1543035-001
Customer ID : 4-16320

Sampled On : July 24, 2015-11:30
Sampled By : Justin
Received On : July 28, 2015-11:30
Matrix : Ground Water

Description : TW-1 Pumped Csd:274' Dld:277'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Irrigation Suit[P:1]								
Total Hardness as CaCO3	119	--	mg/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Calcium	33	1	mg/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Magnesium	9	1	mg/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Potassium	5	1	mg/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Sodium	32	1	mg/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Total Cations	3.9	--	meq/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Boron	0.1	0.1	mg/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Copper	ND	10	ug/L		200.7	07/29/15:208726	200.7	07/30/15:211155
Iron	ND	30	ug/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Manganese	200	10	ug/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Zinc	ND	20	ug/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Gypsum Requirement	0.03	--	Tons/AF		200.7	07/29/15:208726	200.7	07/29/15:211072
SAR	1.3	--	--		200.7	07/29/15:208726	200.7	07/29/15:211072
Total Alkalinity	60	10	mg/L		2320B	07/30/15:208828	2320B	07/30/15:211152
Hydroxide	ND	10	mg/L		2320B	07/30/15:208828	2320B	07/30/15:211152
Carbonate	ND	10	mg/L		2320B	07/30/15:208828	2320B	07/30/15:211152
Bicarbonate	70	10	mg/L		2320B	07/30/15:208828	2320B	07/30/15:211152
Sulfate	31	2	mg/L		300.0	07/28/15:208721	300.0	07/29/15:211020
Chloride	29	1	mg/L		300.0	07/28/15:208721	300.0	07/29/15:211020
Nitrate	53.3	0.5	mg/L		300.0	07/28/15:208721	300.0	07/29/15:211020
Nitrate Nitrogen	12.0	0.1	mg/L		300.0	07/28/15:208721	300.0	07/29/15:211020
Fluoride	0.5	0.1	mg/L		300.0	07/28/15:208721	300.0	07/29/15:211020
Total Anions	3.5	--	meq/L		2320B	07/30/15:208828	2320B	07/30/15:211152
pH	7.2	--	units		4500-H B	08/07/15:209180	4500HB	08/07/15:211580
E. C.	433	1	umhos/cm		2510B	07/29/15:208709	2510B	07/29/15:211008
TDS by Summation	263	--	mg/L		200.7	07/29/15:208726	200.7	07/29/15:211072
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L		200.8	08/06/15:209114	200.8	08/06/15:211519
Wet Chemistry[P:1]								
Solids, Total Dissolved (TDS)	300	20	mg/L		2540CE	07/29/15:208730	2540C	07/30/15:211079

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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August 11, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1543035-001
Customer ID : 4-16320

Sampled On : July 24, 2015-11:30
Sampled By : Justin
Received On : July 28, 2015-11:30
Matrix : Ground Water

Description : TW-1 Pumped Csd:274' Dld:277'
Project : Long Canyon WC

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Radio Chemistry[P:1]								
Gross Alpha	3.42 ± 1.27	1.05	pCi/L		900.0	07/29/15-08:00 2P1508702	900.0	07/30/15-16:00 2A1511178

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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Analytical Chemists

August 10, 2015

Dee Jaspar & Associates
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Lab ID : VI 1543035-001
Customer ID : 4-16320

Sampled On : July 24, 2015
Sampled By : Justin
Received On : July 28, 2015
Matrix : Ground Water

Description : TW-1 Pumped Csd:274' Dld:277'
Project : Long Canyon WC

General Irrigation Suitability Analysis

Test Description	Result				Graphical Results Presentation				
Cations	mg/L	Meq/L	% Meq	Lbs/AF	Good	Possible Problem	Moderate Problem	Increasing Problem	Severe Problem
Calcium	33	1.6	42	90	**				
Magnesium	9	0.74	19	24	**				
Potassium	5	0.13	3	14	**				
Sodium	32	1.4	36	87					
Anions									
Carbonate	< 10	0	0	0					
Bicarbonate	70	1.1	33	190	**				
Sulfate	31	0.65	18	84	**				
Chloride	29	0.82	23	79					
Nitrate	53.3	0.86	25	140					
Nitrate Nitrogen	12.0			33					
Fluoride	0.5	0.026	1	1					
Minor Elements									
Boron	0.10			0.27					
Copper	< 0.01			0.00					
Iron	< 0.03			0.00					
Manganese	0.20			0.54					
Zinc	< 0.02			0.00					
TDS by Summation	263			720					
Other									
pH	7.2			units					
E. C.	0.433			dS/m					
SAR	1.3								
Crop Suitability									
No Amendments	Good								
With Amendments	Good								
Amendments									
Gypsum Requirement	0.03			Tons/AF					
Sulfuric Acid (98%)	4.2			oz/1000Gal	Or 10 oz/1000Gal of urea Sulfuric Acid (15/49).				
Leaching Requirement	3.2			%					

Good Problem

Note: Color coded bar graphs have been used to provide you with 'AT-A-GLANCE' interpretations.

** Used in various calculations; mg/L = Milligrams Per Liter (ppm) meq/L = Milliequivalents Per Liter

August 10, 2015

Dee Jaspar & Associates

Lab ID : VI 1543035-001
Customer ID : 4-16320
Description : TW-1 Pumped Csd:274' Dld:277'

Micro Irrigation System Plugging Hazard

Test Description	Result		Graphical Results Presentation (Slight / Moderate / Severe)
Chemical			
Manganese	0.2	mg/L	
Iron	< 0.03	mg/L	
TDS by Summation	263	mg/L	
No Amendments			
pH	7.2	units	
Alkalinity (As CaCO3)	60	mg/L	
Total Hardness	119	mg/L	
With Amendments			
Alkalinity (As CaCO3)	12	mg/L	
Total Hardness	12	mg/L	
pH	5.4 - 6.7	units	

Good Problem

Note: Color coded bar graphs have been used to provide you with 'AT-A-GLANCE' interpretations.

Water Amendments Application Notes:

The Amendments recommended on the previous pages include:

Gypsum:

This should be applied at least once a year to the irrigated soil surface area. Gypsum can also be applied in smaller quantities in the irrigation water. Apply the smaller (bracketed) amount of gypsum when also applying the recommended amount of Sulfuric Acid and the larger amount when applying only Gypsum.

Sulfuric Acid:

These products should be applied as needed to prevent emitter plugging in micro irrigation systems and/or as a soil amendment to adjust soil pH to improve nutrient availability and to facilitate leaching of salts. Please exercise caution when using this material as excesses may be harmful to the system and/or the plants being irrigated. The reported Acid requirement is intended to remove approximately 80 % of the alkalinity. The final pH should range from 5.4 to 6.7. We recommend a field pH determination to confirm that the pH you designate is being achieved. This application is based upon the use of a 98% Sulfuric Acid product. The application of Urea Sulfuric Acid is based upon the use of a product that contains 15% Urea (1.89 lbs Nitrogen), 49% Sulfuric Acid and has a specific gravity of 1.52 at 68 °F.

Guidelines for the above interpretations are sourced from USDA & U.C. Cooperative Extension Service publications. Please contact us if you have any questions.

FRUIT GROWERS LABORATORY, INC.

Scott Bucy

Scott Bucy, Director of Ag. Services

SB1:KDM

Kenneth D. Schmidt & Associates, Inc.
3701 Pegasus Drive Suite 112
Suite 112
Bakersfield, CA 93308

Reported: 07/31/2015 11:59
Project: Long Canyon WC
Project Number: [none]
Project Manager: James Angell

Metals Analysis

BCL Sample ID: 1518221-01 | **Client Sample Name:** TW- Airlift 274, 7/24/2015 11:30:00AM, Justin

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	0.32	ug/L	0.20	0.055	EPA-218.6	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-218.6	07/24/15	07/24/15 22:23	BMW	IC-4	1	BYG2166

Kenneth D. Schmidt & Associates, Inc.
3701 Pegasus Drive Suite 112
Suite 112
Bakersfield, CA 93308

Reported: 07/31/2015 11:59
Project: Long Canyon WC
Project Number: [none]
Project Manager: James Angell

Metals Analysis

BCL Sample ID: 1518220-01 | **Client Sample Name:** TW- Pumped 274, 7/24/2015 2:30:00PM, Justin

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	ND	ug/L	0.20	0.055	EPA-218.6	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-218.6	07/24/15	07/24/15 22:12	BMW	IC-4	1	BYG2168

DEPTH SAMPLING RESULTS FOR LONG CANYON WC TW-2
(JULY 2015)

Cased Depth (feet)	Drilled Depth (feet)	Sample Type	Nitrate (mg/L)	pH	Electrical Conductivity (µmhos/cm@25°C)	Total Dissolved Solids (mg/l) (@180°C)	Iron (mg/l)	Manganese (mg/l)	Arsenic (ppb)	Hexavalent Chromium (ppb)	Alpha Activity (pci/l)
83	86	Airlift	4.4	7.7	683	410	<0.05	<0.01	3	0.3	25
100	103	Airlift	26	7.7	848	560	<0.05	<0.01	<2	0.9	41
		Pumped	27	7.6	848	530	<0.05	0.02	<2	1.5	40.0
170	173	Airlift	14	7.1	609	390	<0.05	<0.01	<2	<0.2	9.4
214	220	Airlift	9.1	7.4	538	350	<0.05	<0.01	<2	0.4	13
		Pumped	8.9	7.5	546	360	0.73	0.02	<2	<0.2	15
260	263	Airlift	4.2	7.4	495	320	<0.05	0.02	<2	0.3	31
295	298	Airlift	5.2	7.6	513	330	<0.05	0.06	<2	<0.2	41
		Pumped	5.3	7.2	527	340	<0.05	0.02	<2	<0.2	46
344	347	Airlift	3.0	8.2	649	390	<0.05	0.05	<2	<0.2	43

Laboratory analyses by FGL Environmental of Santa Paula (inorganic and alpha activity) , and BC Laboratories of Bakersfield (hexavalent chromium).

July 22, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542870
Customer : 4-16320

Laboratory Report

Introduction: This report package contains total of 9 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(4 pages)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
TW-2 Airlift Csd:83' Dld:86'	07/14/2015	07/16/2015	VI 1542870-001	GW
TW-2 Airlift Csd:100' Dld:103'	07/14/2015	07/16/2015	VI 1542870-002	GW

Sampling and Receipt Information: All samples were received, prepared and analyzed within the method specified holding except those as listed in the table below. The holding time for pH is listed as immediate. Logistically this is very difficult to obtain. FGL policy is to analyze all samples requiring pH on the same day of receipt at the laboratory. If this presents any problem please call.

Lab ID	Analyte/Method	Required Holding Time	Actual Holding Time
VI 1542870-001	pH	15	3562.8 Minutes
VI 1542870-002	pH	15	3948 Minutes

All samples arrived at 5 °C. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

200.7	07/17/2015:210501 All analysis quality controls are within established criteria
	07/17/2015:208265 All preparation quality controls are within established criteria
200.8	07/20/2015:210562 All analysis quality controls are within established criteria

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July 22, 2015 Lab ID : VI 1542870
Dee Jaspar & Associates Customer : 4-16320

Inorganic - Metals QC

200.8	07/19/2015:208235 All preparation quality controls are within established criteria

Radio QC

900.0	07/20/2015:210641 All analysis quality controls are within established criteria
	07/20/2015:210642 All analysis quality controls are within established criteria
	07/17/2015:208259 All preparation quality controls are within established criteria

Inorganic - Wet Chemistry QC

2510B	07/17/2015:210438 All analysis quality controls are within established criteria
	07/17/2015:208258 All preparation quality controls are within established criteria
2540CE	07/16/2015:208223 All preparation quality controls are within established criteria
300.0	07/17/2015:210468 All analysis quality controls are within established criteria
	07/16/2015:208287 All preparation quality controls are within established criteria
4500-H B	07/17/2015:208280 All preparation quality controls are within established criteria
4500HB	07/17/2015:210452 All analysis quality controls are within established criteria
4500NO3F	07/16/2015:210420 All analysis quality controls are within established criteria
	07/16/2015:208234 All preparation quality controls are within established criteria

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S. Title: Laboratory Director Date: 2015-07-22

July 22, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542870-001
Customer ID : 4-16320

Sampled On : July 14, 2015-22:30
Sampled By : M.H.
Received On : July 16, 2015-12:00
Matrix : Ground Water

Description : TW-2 Airlift Csd:83' Dld:86'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Metals, Diss[P:1]								
Arsenic	3	2	ug/L		200.8	07/19/15:208235	200.8	07/20/15:210562
Iron	ND	30	ug/L		200.7	07/17/15:208265	200.7	07/17/15:210501
Manganese	2.5	0.5	ug/L		200.8	07/19/15:208235	200.8	07/20/15:210562
Wet Chemistry[P:1]								
Chloride	20	1	mg/L		300.0	07/16/15:208287	300.0	07/17/15:210468
Specific Conductance	683	1	umhos/cm		2510B	07/17/15:208258	2510B	07/17/15:210438
Nitrate	4.4	0.4	mg/L		4500NO3F	07/16/15:208234	4500NO3F	07/16/15:210420
pH	7.7	--	units		4500-H B	07/17/15:208280	4500HB	07/17/15:210452
Solids, Total Dissolved (TDS)	410	20	mg/L		2540CE	07/16/15:208223	2540C	07/17/15:210439

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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July 22, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542870-001
Customer ID : 4-16320

Sampled On : July 14, 2015-22:30
Sampled By : M.H.
Received On : July 16, 2015-12:00
Matrix : Ground Water

Description : TW-2 Airlift Csd:83' Dld:86'
Project : Long Canyon WC

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry[P:1]								
Gross Alpha	25.4 ± 3.63	1.18	pCi/L		900.0	07/17/15-07:55 2P1508259	900.0	07/20/15-17:00 2A1510641

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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July 22, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542870-002
Customer ID : 4-16320

Sampled On : July 14, 2015-16:05
Sampled By : M.H.
Received On : July 16, 2015-12:00
Matrix : Ground Water

Description : TW-2 Airlift Csd:100' Dld:103'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L		200.8	07/19/15:208235	200.8	07/20/15:210562
Iron	ND	30	ug/L		200.7	07/17/15:208265	200.7	07/17/15:210501
Manganese	5.6	0.5	ug/L		200.8	07/19/15:208235	200.8	07/20/15:210562
Wet Chemistry[P:1]								
Chloride	34	1	mg/L		300.0	07/16/15:208287	300.0	07/17/15:210468
Specific Conductance	848	1	umhos/cm		2510B	07/17/15:208258	2510B	07/17/15:210438
Nitrate	25.6	0.4	mg/L		4500NO3F	07/16/15:208234	4500NO3F	07/16/15:210420
pH	7.7	--	units		4500-H B	07/17/15:208280	4500HB	07/17/15:210452
Solids, Total Dissolved (TDS)	560	20	mg/L		2540CE	07/16/15:208223	2540C	07/17/15:210439

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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July 22, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542870-002
Customer ID : 4-16320

Sampled On : July 14, 2015-16:05
Sampled By : M.H.
Received On : July 16, 2015-12:00
Matrix : Ground Water

Description : TW-2 Airlift Csd:100' Dld:103'
Project : Long Canyon WC

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry[P:1]								
Gross Alpha	41.1 ± 4.59	1.40	pCi/L		900.0	07/17/15-07:55 2P1508259	900.0	07/20/15-16:00 2A1510642

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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July 22, 2015 Lab ID : VI 1542870

Dee Jaspar & Associates Customer : 4-16320

Quality Control - Inorganic

Definition	
ICV	: Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
ICB	: Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
Dup	: Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

July 22, 2015
Dee Jaspar & Associates

Lab ID : VI 1542870
Customer : 4-16320

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	07/20/15:210641caa	CCV	cpm	8896	41.8 %	38 - 46	
			CCB	cpm		0.100	0.14	
	900.0	07/20/15:210642caa	CCV	cpm	8896	41.1 %	37 - 45	
			CCB	cpm		0.0800	0.18	
Gross Alpha	900.0	07/17/15:208259caa	Blank	pCi/L		0.32	3	
			LCS	pCi/L	180.6	102 %	75-125	
			MS	pCi/L	180.6	108 %	60-140	
		(SP 1507661-001)	MSD	pCi/L	180.6	90.5 %	60-140	
			MSRPD	pCi/L	180.6	16.3%	≤30	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

154287O

5-day RUSH

RUSH

FGL ENVIRONMENTAL

853 Corporation Street
Santa Paula, CA 93060
805-392-2000

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
Bakersfield, CA 93308
Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
Dee Jaspar & Assoc, Inc.
2730 Unicorn Rd., Bldg.A
Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

CHAIN OF CUSTODY/WATER ANALYSIS RECORD

Project: Long Canyon WC

Sampled by: M Hooker

RUSH

Analysis Requested: See Attached List (5-day Rush) (Low detection limit for As ≤2ppb, please call Jim with lab #.

	Sample ID	Date	Time	Number of Containers
(1)	TW-2 Airlift Cased: 83' Drilled: 86'	7/14/15	10:30am	4
(2)	TW-2 Airlift Cased: 100' Drilled: 103'	7/14/15	4:05pm	4
	TW-3 Airlift Cased: Drilled:			

COURIER: Fed EX

RECEIPT NUMBER: 8082 2047 6495

RELINQUISHED BY: Matt Hook	DATE/TIME 7/15/15 @ 9:00am
RECEIVED BY:	DATE/TIME 7/15/15 @ 9:00AM
RELINQUISHED BY:	DATE/TIME 7/15/15 @ 3:45P
RECEIVED BY:	DATE/TIME 7/16/15 1200

8082 2047 6495 FedEx 5°C

154870

FGL ENVIRONMENTAL

853 Corporation Street
Santa Paula, CA 93061
805-392-2000

RUSH

WATER ANALYSIS REQUEST

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
Bakersfield, CA 93308
Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
Dee Jaspar & Assoc, Inc.
2730 Unicorn Rd., Bldg.A
Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

Project: Long Canyon WC

NOTE: Please filter with 0.45 micron filter for metals and alpha activity, and acidify for metals. Non-Potable water for gross alpha.

NO_3 X

Electrical Conductivity X

pH X

Total Dissolved Solids (@ 180°) X

Chloride X

Fe X (Dissolved)

Mn X (Dissolved)

As X (Dissolved)

Gross Alpha X

Note: only analyze for U if alpha activity is > MCL of alpha activity

RUSH

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: 1
2. Shipper tracking numbers 808220476495
3. Were samples received in a chilled condition?
   Temps: 5 / _____ / _____ / _____ / _____ / _____ / _____
4. Surface water (SWTR) bact samples: A sample that has a temperature upon reciept of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? **Yes** No N/A
6. Verify sample date, time, sampler **Yes** No N/A
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes **No**
8. Were sample custody seals intact? Yes No **N/A**

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? **Yes** No
2. Did bottle labels correspond with the client's ID's? **Yes** No
3. Were all bottles requiring sample preservation properly preserved? **Yes** No N/A **FGL**
   [Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? Yes No **N/A**
5. Were all analyses within holding times at time of reciept? Yes **No**
6. Have rush or project due dates been checked and accepted? **Yes** No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By **Shawn Peck** Digitally signed by Shawn Peck Title: Sample Receiving Date: 07/17/2015-15:58:51

Discrepency Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
   Initiated By: srp Date: 2015-07-16
   Problem: **-2 N03 spilled in shipment**
   Resolution: **Wet chem will split/preserve. Nitrate still received within H/T**
2. Person Contacted: _____ Phone Number: _____
   Initiated By: srp Date: 2015-07-16
   Problem: **pH received past holding time**
   Resolution: **Jim Angell is aware of this**

(4016320)
Dee Jaspar & Associates, Inc.
VI 1542870
SRP-07/17/2015-15:58:51

ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

July 29,2015

Dee Jaqar & Associates
2730 Unicorn Rd. Bldg A
Bakersfild, CA 93308

Lab ID : VI 1542871-001
Customer ID : 4-16320

Sampled On : July 14, 2015
Sampled By : M.H.
Received On : July 16, 2015
Matrix : Ground Water

Description : TW-2 Pumped Csd:100' Dld:103'
Project : Long Canyon WC

General Irrigation Suitability Analysis

Test Description	Result				Graphical Results Presentation				
Cations	mg/L	Meq/L	% Meq	Lbs/AF	Good	Possible Problem	Moderate Problem	Increasing Problem	Severe Problem
Calcium	90	4.5	55	240	**				
Magnesium	16	1.3	16	44	**				
Potassium	3	0.077	1	8	**				
Sodium	53	2.3	28	140					
Anions									
Carbonate	< 10	0	0	0					
Bicarbonate	300	4.9	57	820	**				
Sulfate	107	2.2	26	290	**				
Chloride	36	1	12	98					
Nitrate	26.5	0.43	5	72					
Nitrate Nitrogen	6.0			16					
Fluoride	0.7	0.037	0	2					
Minor Elements									
Boron	0.30			0.82					
Copper	< 0.01			0.00					
Iron	< 0.03			0.00					
Manganese	0.020			0.054					
Zinc	< 0.02			0.00					
TDS by Summation	632			1700					
Other									
pH	7.5			units					
E. C.	0.848			dS/m					
SAR	1.4								
Crop Suitability									
No Amendments	Fairly		Good						
With Amendments	Good								
Amendments									
Gypsum Requirement	0.2			Tons/AF					
Sulfuric Acid (98%)	17			oz/1000Gal	Or 42 oz/1000Gal of urea Sulfuric Acid (15/49).				
Leaching Requirement	6.4			%					

Good Problem

Note: Color coded bar graphs have been used to provide you with 'AT-A-GLANCE' interpretations.

** Used in various calculations; mg/L = Milligrams Per Liter (ppm) meq/L = Milliequivalents Per Liter

July 29, 2015

Dee Jaspar & Associates

Lab ID : VI 1542871-001
Customer ID : 4-16320
Description : TW-2 Pumped Csd:100' Dld:103'

Micro Irrigation System Plugging Hazard

Test Description	Result		Graphical Results Presentation
			Slight / Moderate / Severe
Chemical			
Manganese	0.02	mg/L	
Iron	< 0.03	mg/L	
TDS by Summation	632	mg/L	
No Amendments			
pH	7.5	units	
Alkalinity (As CaCO3)	250	mg/L	
Total Hardness	290	mg/L	
With Amendments			
Alkalinity (As CaCO3)	50	mg/L	
Total Hardness	50	mg/L	
pH	5.4 - 6.7	units	

Good Problem

Note: Color coded bar graphs have been used to provide you with 'AT-A-GLANCE' interpretations.

Water Amendments Application Notes:

The Amendments recommended on the previous pages include:

Gypsum:

This should be applied at least once a year to the irrigated soil surface area. Gypsum can also be applied in smaller quantities in the irrigation water. Apply the smaller (bracketed) amount of gypsum when also applying the recommended amount of Sulfuric Acid and the larger amount when applying only Gypsum.

Sulfuric Acid:

These products should be applied as needed to prevent emitter plugging in micro irrigation systems and/or as a soil amendment to adjust soil pH to improve nutrient availability and to facilitate leaching of salts. Please exercise caution when using this material as excesses may be harmful to the system and/or the plants being irrigated. The reported Acid requirement is intended to remove approximately 80 % of the alkalinity. The final pH should range from 5.4 to 6.7. We recommend a field pH determination to confirm that the pH you designate is being achieved. This application is based upon the use of a 98% Sulfuric Acid product. The application of Urea Sulfuric Acid is based upon the use of a product that contains 15% Urea (1.89 lbs Nitrogen), 49% Sulfuric Acid and has a specific gravity of 1.52 at 68 °F.

Guidelines for the above interpretations are sourced from USDA & U.C. Cooperative Extension Service publications. Please contact us if you have any questions.

FRUIT GROWERS LABORATORY, INC.

Scott Bucy

Scott Bucy, Director of Ag. Services

SB1:KDM

July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542904
Customer : 4-16320

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(2 pages)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
TW-2 Airlift Csd:170' Drl:173'	07/15/2015	07/17/2015	VI 1542904-001	W

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding except those as listed in the table below. The holding time for pH is listed as immediate. Logistically this is very difficult to obtain. FGL policy is to analyze all samples requiring pH on the same day of receipt at the laboratory. If this presents any problem please call.

Lab ID	Analyte/Method	Required Holding Time	Actual Holding Time
VI 1542904-001	pH	15	8779.8 Minutes

All samples arrived at 4 °C. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

200.7	07/23/2015:210784 All analysis quality controls are within established criteria
	07/23/2015:208502 All preparation quality controls are within established criteria
200.8	07/23/2015:210782 All analysis quality controls are within established criteria
	07/23/2015:208515 All preparation quality controls are within established criteria

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July 24, 2015 Lab ID : VI 1542904
Dee Jaspar & Associates Customer : 4-16320

Radio QC

900.0	07/22/2015:210738 All analysis quality controls are within established criteria
	07/21/2015:208361 All preparation quality controls are within established criteria

Inorganic - Wet Chemistry QC

2510B	07/21/2015:210583 All analysis quality controls are within established criteria
	07/21/2015:208378 All preparation quality controls are within established criteria
2540CE	07/20/2015:208321 All preparation quality controls are within established criteria
300.0	07/17/2015:210534 All analysis quality controls are within established criteria
	07/17/2015:208342 All preparation quality controls are within established criteria
4500-H B	07/21/2015:208407 All preparation quality controls are within established criteria
4500HB	07/21/2015:210605 All analysis quality controls are within established criteria

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **David Terz, B.A., M.B.A.** Digitally signed by David Terz, B.A., M.B.A.
Title: QA Director
Date: 2015-07-24

July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542904-001
Customer ID : 4-16320

Sampled On : July 15, 2015-14:20
Sampled By : M. Hooker
Received On : July 17, 2015-11:00
Matrix : Water

Description : TW-2 Airlift Csd:170' Drl:173'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Iron	ND	30	ug/L		200.7	07/23/15:208502	200.7	07/23/15:210784
Manganese	4.3	0.5	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Wet Chemistry[P:1]								
Chloride	22	1	mg/L		300.0	07/17/15:208342	300.0	07/17/15:210534
Specific Conductance	609	1	umhos/cm		2510B	07/21/15:208378	2510B	07/21/15:210583
Nitrate	13.7	0.5	mg/L		300.0	07/17/15:208342	300.0	07/17/15:210534
pH	7.1	--	units		4500-H B	07/21/15:208407	4500HB	07/21/15:210605
Solids, Total Dissolved (TDS)	390	20	mg/L		2540CE	07/20/15:208321	2540C	07/21/15:210578

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542904-001
Customer ID : 4-16320

Sampled On : July 15, 2015-14:20
Sampled By : M. Hooker
Received On : July 17, 2015-11:00
Matrix : Water

Description : TW-2 Airlift Csd:170' Drl:173'
Project : Long Canyon WC

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry[P:1]								
Gross Alpha	9.42 ± 1.99	0.995	pCi/L	15/5	900.0	07/21/15-07:00 2P1508361	900.0	07/22/15-15:00 2A1510738

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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July 24, 2015
Dee Jaspar & Associates

Lab ID : VI 1542904
Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Iron	200.7		MS	ug/L	4000	104 %	75-125	
		(VI 1542920-001)	MSD	ug/L	4000	113 %	75-125	
			MSRPD	ug/L	800.0	8.2%	≤20.0	
	200.7	07/23/15:210784AC	CCV	ppm	5.000	103 %	90-110	
			CCB	ppm		0.0096	0.03	
			CCV	ppm	5.000	103 %	90-110	
			CCB	ppm		0.0063	0.03	
Arsenic	200.8		MS	ug/L	5.000	94.8 %	75-125	
		(CH 1575660-001)	MSD	ug/L	5.000	105 %	75-125	
			MSRPD	ug/L	5.000	0.52	≤2	
	200.8	07/23/15:210782AC	CCV	ppb	120.0	93.4 %	90-110	
			CCB	ppb		0.18	2	
			CCV	ppb	120.0	91.6 %	90-110	
			CCB	ppb		0.22	2	
Manganese	200.8		MS	ug/L	5.000	94.6 %	75-125	
		(CH 1575660-001)	MSD	ug/L	5.000	105 %	75-125	
			MSRPD	ug/L	5.000	9.0%	≤20	
	200.8	07/23/15:210782AC	CCV	ppb	120.0	97.2 %	90-110	
			CCB	ppb		0.104	0.5	
			CCV	ppb	120.0	95.0 %	90-110	
			CCB	ppb		0.162	0.5	
Wet Chem								
Conductivity	2510B	07/21/15:210583JMG	ICB	umhos/cm		0.07	1	
			CCV	umhos/cm	999.0	99.1 %	95-105	
			CCV	umhos/cm	999.0	100 %	95-105	
E. C.	2510B	07/21/15:208378JMG	Blank	umhos/cm		ND	<1	
		(VI 1542897-001)	Dup	umhos/cm		0.0%	5	
Solids, Total Dissolved	2540CE	07/20/15:208321CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	999.1	102 %	90-110	
		(STK1537799-001)	Dup	mg/L		0.6%	5	
Chloride	300.0		MS	mg/L	500.0	101 %	85-121	
		(VI 1542903-001)	MSD	mg/L	500.0	101 %	85-121	
			MSRPD	mg/L	100.0	0.3%	≤19	
			Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	95.7 %	90-110	
			MS	mg/L	500.0	100 %	85-121	
		(STK1537733-001)	MSD	mg/L	500.0	99.6 %	85-121	
			MSRPD	mg/L	100.0	0.4%	≤19	
	300.0	07/17/15:210534MCA	ICV	ppm	25.00	95.1 %	90-110	
			ICB	ppm		0.03	1	
			CCB	ppm		0.01	1	
			CCV	ppm	25.00	97.0 %	90-110	
Nitrate	300.0		MS	mg/L	400.0	99.1 %	85-119	
		(VI 1542903-001)	MSD	mg/L	400.0	99.7 %	85-119	
			MSRPD	mg/L	100.0	0.5%	≤19	
			Blank	mg/L		ND	<0.5	
			LCS	mg/L	20.00	95.4 %	90-110	
			MS	mg/L	400.0	98.4 %	85-119	
		(STK1537733-001)	MSD	mg/L	400.0	98.0 %	85-119	
			MSRPD	mg/L	100.0	0.5%	≤19	
	300.0	07/17/15:210534MCA	ICV	ppm	20.00	95.0 %	90-110	
			ICB	ppm		0.000	0.5	
			CCB	ppm		0.043	0.5	
			CCV	ppm	20.00	96.6 %	90-110	
pH	4500-H B	(SP 1508021-001)	Dup	units		0.3%	4.80	

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July 24, 2015
Dee Jaspar & Associates

Lab ID : VI 1542904
Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
pH	4500HB	07/21/15:210605JMG	CCV	units	8.000	101 %	95-105	
			CCV	units	8.000	101 %	95-105	

Definition

ICV	: Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
ICB	: Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
Dup	: Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

July 24, 2015 Lab ID : VI 1542904

Dee Jaspar & Associates Customer : 4-16320

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	07/22/15:210738caa	CCV	cpm	8895	40.6 %	39 - 48	
			CCB	cpm		0.10	0.2	
Gross Alpha	900.0	07/21/15:208361elc	Blank	pCi/L		0.04	3	
			LCS	pCi/L	180.6	94.3 %	75-125	
			MS	pCi/L	180.6	132 %	60-140	
		(SP 1507679-001)	MSD	pCi/L	180.6	124 %	60-140	
			MSRPD	pCi/L	180.6	6.2%	≤30	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

1542904

5-day RUSH

RUSH

FGL ENVIRONMENTAL
853 Corporation Street
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805-392-2000

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
Bakersfield, CA 93308
Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
Dee Jaspar & Assoc, Inc.
2730 Unicorn Rd., Bldg.A
Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

CHAIN OF CUSTODY/WATER ANALYSIS RECORD

Project: Long Canyon WC

Sampled by: M Hooker

Analysis Requested: See Attached List (5-day Rush) (Low detection limit for As ≤2ppb, please call Jim with lab #.

Sample ID	Date	Time	Number of Containers
TW-#2 Airlift Cased: 170' Drilled: 173'	7/15/15	2:20pm	4
TW-# Airlift Cased: _____ Drilled: _____			
TW-3 Airlift Cased: _____ Drilled: _____			

COURIER: Fed EX

RECEIPT NUMBER: 808220476484

RELINQUISHED BY: Matt Hall	DATE/TIME 7/16/15 8:30a
RECEIVED BY: Angell	DATE/TIME 7/16/15 8:30AM
RELINQUISHED BY: Angell	DATE/TIME 7/16/15 3:30PM
RECEIVED BY:	DATE/TIME

FedEX

7/17 1100

FGL ENVIRONMENTAL

853 Corporation Street
Santa Paula, CA 93061
805-392-2000

WATER ANALYSIS REQUEST

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
Bakersfield, CA 93308
Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
Dee Jaspar & Assoc, Inc.
2730 Unicorn Rd., Bldg.A
Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

Project: Long Canyon WC

NOTE: Please filter with 0.45 micron filter for metals and alpha activity, and acidify for metals. Non-Potable water for gross alpha.

NO_3 X

Electrical Conductivity X

pH X

Total Dissolved Solids (@ 180°) X

Chloride X

Fe X (Dissolved)

Mn X (Dissolved)

As X (Dissolved)

Gross Alpha X

Note: only analyze for U if alpha activity is > MCL of alpha activity

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: 1
2. Shipper tracking numbers _____
3. Were samples received in a chilled condition?
   Temps: 4 / _____ / _____ / _____ / _____ / _____ / _____
4. Surface water (SWTR) bact samples: A sample that has a temperature upon reciept of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? **Yes** No N/A
6. Verify sample date, time, sampler **Yes** No N/A
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) **Yes** No
8. Were sample custody seals intact? Yes No **N/A**

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? **Yes** No
2. Did bottle labels correspond with the client's ID's? **Yes** No
3. Were all bottles requiring sample preservation properly preserved? **Yes** No N/A **FGL**
   [Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? Yes No **N/A**
5. Were all analyses within holding times at time of reciept? **Yes** No
6. Have rush or project due dates been checked and accepted? **Yes** No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By **Nicole Parson** Digitally signed by Nicole Parson Title: Sample Receiving Date: 07/17/2015-11:46:35

Discrepency Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
   Initiated By: _____ Date: _____
   Problem:

   Resolution:

2. Person Contacted: _____ Phone Number: _____
   Initiated By: _____ Date: _____
   Problem:

   Resolution:

(4016320)
Dee Jaspar & Associates, Inc.
VI 1542904
NMP-07/17/2015-11:46:35

July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542903
Customer : 4-16320

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(2 pages)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
TW-2 Airlift Csd:214' Drl:220'	07/16/2015	07/17/2015	VI 1542903-001	W

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding except those as listed in the table below. The holding time for pH is listed as immediate. Logistically this is very difficult to obtain. FGL policy is to analyze all samples requiring pH on the same day of receipt at the laboratory. If this presents any problem please call.

Lab ID	Analyte/Method	Required Holding Time	Actual Holding Time
VI 1542903-001	pH	15	7675.2 Minutes

All samples arrived at 4 °C. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

200.7	07/23/2015:210784 All analysis quality controls are within established criteria
	07/23/2015:208502 All preparation quality controls are within established criteria
200.8	07/23/2015:210782 All analysis quality controls are within established criteria
	07/23/2015:208515 All preparation quality controls are within established criteria

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July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542903-001
Customer ID : 4-16320

Sampled On : July 16, 2015-08:45
Sampled By : Justin
Received On : July 17, 2015-11:00
Matrix : Water

Description : TW-2 Airlift Csd:214' Drl:220'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Iron	ND	30	ug/L		200.7	07/23/15:208502	200.7	07/23/15:210784
Manganese	7.7	0.5	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Wet Chemistry[P:1]								
Chloride	17	1	mg/L		300.0	07/17/15:208342	300.0	07/17/15:210534
Specific Conductance	538	1	umhos/cm		2510B	07/21/15:208378	2510B	07/21/15:210583
Nitrate	9.1	0.5	mg/L		300.0	07/17/15:208342	300.0	07/17/15:210534
pH	7.4	--	units		4500-H B	07/21/15:208407	4500HB	07/21/15:210605
Solids, Total Dissolved (TDS)	350	20	mg/L		2540CE	07/20/15:208321	2540C	07/21/15:210578

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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July 24, 2015 Lab ID : VI 1542903
Dee Jaspar & Associates Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Iron	200.7		MS	ug/L	4000	104 %	75-125	
		(VI 1542920-001)	MSD	ug/L	4000	113 %	75-125	
			MSRPD	ug/L	800.0	8.2%	≤20.0	
	200.7	07/23/15:210784AC	CCV	ppm	5.000	103 %	90-110	
			CCB	ppm		0.0096	0.03	
			CCV	ppm	5.000	103 %	90-110	
			CCB	ppm		0.0063	0.03	
Arsenic	200.8		MS	ug/L	5.000	94.8 %	75-125	
		(CH 1575660-001)	MSD	ug/L	5.000	105 %	75-125	
			MSRPD	ug/L	5.000	0.52	≤2	
	200.8	07/23/15:210782AC	CCV	ppb	120.0	93.1 %	90-110	
			CCB	ppb		0.14	2	
			CCV	ppb	120.0	93.7 %	90-110	
			CCB	ppb		0.16	2	
Manganese	200.8		MS	ug/L	5.000	94.6 %	75-125	
		(CH 1575660-001)	MSD	ug/L	5.000	105 %	75-125	
			MSRPD	ug/L	5.000	9.0%	≤20	
	200.8	07/23/15:210782AC	CCV	ppb	120.0	96.2 %	90-110	
			CCB	ppb		0.090	0.5	
			CCV	ppb	120.0	96.4 %	90-110	
			CCB	ppb		0.110	0.5	
Wet Chem								
Conductivity	2510B	07/21/15:210583JMG	ICB	umhos/cm		0.07	1	
			CCV	umhos/cm	999.0	99.1 %	95-105	
			CCV	umhos/cm	999.0	100 %	95-105	
E. C.	2510B	07/21/15:208378JMG	Blank	umhos/cm		ND	<1	
		(VI 1542897-001)	Dup	umhos/cm		0.0%	5	
Solids, Total Dissolved	2540CE	07/20/15:208321CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	999.1	102 %	90-110	
		(STK1537799-001)	Dup	mg/L		0.6%	5	
Chloride	300.0		MS	mg/L	500.0	101 %	85-121	
		(VI 1542903-001)	MSD	mg/L	500.0	101 %	85-121	
			MSRPD	mg/L	100.0	0.3%	≤19	
			Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	95.7 %	90-110	
			MS	mg/L	500.0	100 %	85-121	
		(STK1537733-001)	MSD	mg/L	500.0	99.6 %	85-121	
			MSRPD	mg/L	100.0	0.4%	≤19	
	300.0	07/17/15:210534MCA	CCB	ppm		0.01	1	
			CCV	ppm	25.00	97.0 %	90-110	
			CCB	ppm		0.08	1	
			CCV	ppm	25.00	97.6 %	90-110	
Nitrate	300.0		MS	mg/L	400.0	99.1 %	85-119	
		(VI 1542903-001)	MSD	mg/L	400.0	99.7 %	85-119	
			MSRPD	mg/L	100.0	0.5%	≤19	
			Blank	mg/L		ND	<0.5	
			LCS	mg/L	20.00	95.4 %	90-110	
			MS	mg/L	400.0	98.4 %	85-119	
		(STK1537733-001)	MSD	mg/L	400.0	98.0 %	85-119	
			MSRPD	mg/L	100.0	0.5%	≤19	
	300.0	07/17/15:210534MCA	CCB	ppm		0.043	0.5	
			CCV	ppm	20.00	96.6 %	90-110	
			CCB	ppm		0.050	0.5	
			CCV	ppm	20.00	97.3 %	90-110	
pH	4500-H B	(SP 1508021-001)	Dup	units		0.3%	4.80	

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July 24, 2015
Dee Jaspar & Associates

Lab ID : VI 1542903
Customer : 4-16320

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	07/22/15:210738caa	CCV	cpm	8895	40.6 %	39 - 48	
			CCB	cpm		0.10	0.2	
Gross Alpha	900.0	07/21/15:208361elc	Blank	pCi/L		0.04	3	
			LCS	pCi/L	180.6	94.3 %	75-125	
			MS	pCi/L	180.6	132 %	60-140	
		(SP 1507679-001)	MSD	pCi/L	180.6	124 %	60-140	
			MSRPD	pCi/L	180.6	6.2%	≤30	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

FGL ENVIRONMENTAL

853 Corporation Street
Santa Paula, CA 93061
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WATER ANALYSIS REQUEST

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
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Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

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2730 Unicorn Rd., Bldg.A
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Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

Project: Long Canyon WC

NOTE: Please filter with 0.45 micron filter for metals and alpha activity, and acidify for metals. Non-Potable water for gross alpha.

NO_3 X

Electrical Conductivity X

pH X

Total Dissolved Solids (@ 180°) X

Chloride X

Fe X (Dissolved)

Mn X (Dissolved)

As X (Dissolved)

Gross Alpha X

Note: only analyze for U if alpha activity is > MCL of alpha activity

July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542902
Customer : 4-16320

Laboratory Report

Introduction: This report package contains total of 8 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(2 pages)	: Results for each sample submitted.
Quality Control	(4 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
TW-2 Pump Csd:214' Drl:220'	07/16/2015	07/17/2015	VI 1542902-001	DW

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding except those as listed in the table below. The holding time for pH is listed as immediate. Logistically this is very difficult to obtain. FGL policy is to analyze all samples requiring pH on the same day of receipt at the laboratory. If this presents any problem please call.

Lab ID	Analyte/Method	Required Holding Time	Actual Holding Time
VI 1542902-001	pH	15	10255.2 Minutes

All samples arrived at 4 °C. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

200.7	07/20/2015:210661 All analysis quality controls are within established criteria.
	07/20/2015:208328 All preparation quality controls are within established criteria, except: The following note applies to Boron, Copper, Iron, Potassium, Magnesium, Manganese, Zinc: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. The following note applies to Boron, Calcium, Copper, Iron, Potassium, Magnesium, Manganese, Sodium, Zinc: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

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July 24, 2015

Lab ID : VI 1542902-001
Customer ID : 4-16320

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Sampled On : July 16, 2015-11:15
Sampled By : Jim Angell
Received On : July 17, 2015-11:00
Matrix : Drinking Water

Description : TW-2 Pump Csd:214' Drl:220'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Irrigation Suit[P:1]								
Total Hardness as CaCO3	176	--	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Calcium	54	1	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Magnesium	10	1	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Potassium	2	1	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Sodium	37	1	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Total Cations	5.2	--	meq/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Boron	0.2	0.1	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Copper	ND	10	ug/L	1000[2]	200.7	07/20/15:208328	200.7	07/20/15:210661
Iron	730	30	ug/L	300[2]	200.7	07/20/15:208328	200.7	07/20/15:210661
Manganese	20	10	ug/L	50[2]	200.7	07/20/15:208328	200.7	07/20/15:210661
Zinc	30	20	ug/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Gypsum Requirement	0.09	--	Tons/AF		200.7	07/20/15:208328	200.7	07/20/15:210661
SAR	1.2	--	--		200.7	07/20/15:208328	200.7	07/20/15:210661
Total Alkalinity	130	10	mg/L		2320B	07/20/15:208311	2320B	07/20/15:210585
Hydroxide	ND	10	mg/L		2320B	07/20/15:208311	2320B	07/20/15:210585
Carbonate	ND	10	mg/L		2320B	07/20/15:208311	2320B	07/20/15:210585
Bicarbonate	160	10	mg/L		2320B	07/20/15:208311	2320B	07/20/15:210585
Sulfate	60	2	mg/L	500[2]	300.0	07/17/15:208342	300.0	07/18/15:210534
Chloride	17	1	mg/L	500[2]	300.0	07/17/15:208342	300.0	07/18/15:210534
Nitrate	8.9	0.5	mg/L	45	300.0	07/17/15:208342	300.0	07/18/15:210534
Nitrate Nitrogen	2.0	0.1	mg/L	10	300.0	07/17/15:208342	300.0	07/18/15:210534
Fluoride	1.1	0.1	mg/L	2	300.0	07/17/15:208342	300.0	07/18/15:210534
Total Anions	4.6	--	meq/L		2320B	07/20/15:208311	2320B	07/20/15:210585
pH	7.5	--	units		4500-H B	07/23/15:208501	4500HB	07/23/15:210745
E. C.	546	1	umhos/cm	1600[2]	2510B	07/21/15:208378	2510B	07/21/15:210583
TDS by Summation	350	--	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L	10	200.8	07/23/15:208515	200.8	07/23/15:210782
Wet Chemistry[P:1]								
Solids, Total Dissolved (TDS)	360	20	mg/L	1000[2]	2540CE	07/22/15:208457	2540C	07/23/15:210719

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.
MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.

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CA ELAP Certification No. 2810

July 24, 2015
Dee Jaspar & Associates

Lab ID : VI 1542902
Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Boron	200.7		MS	mg/L	4.000	101 %	75-125	
		(SP 1508013-001)	MSD	mg/L	4.000	-10.2 %	75-125	435
			MSRPD	mg/L	4000	194%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	5.000	94.6 %	90-110	
			CCB	ppm		-0.0003	0.1	
			CCV	ppm	5.000	90.7 %	90-110	
			CCB	ppm		-0.0009	0.1	
Calcium	200.7		MS	mg/L	12.00	101 %	75-125	
		(SP 1508013-001)	MSD	mg/L	12.00	-675 %	<¼	
			MSRPD	mg/L	4000	194%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	25.00	101 %	90-110	
			CCB	ppm		0.001	1	
			CCV	ppm	25.00	93.2 %	90-110	
			CCB	ppm		-0.03	1	
Copper	200.7		MS	ug/L	800.0	103 %	75-125	
		(SP 1508013-001)	MSD	ug/L	800.0	3.4 %	75-125	435
			MSRPD	ug/L	4000	187%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	1.000	101 %	90-110	
			CCB	ppm		-0.0003	0.01	
			CCV	ppm	1.000	95.7 %	90-110	
			CCB	ppm		-0.0005	0.01	
Iron	200.7		MS	ug/L	4000	102 %	75-125	
		(SP 1508013-001)	MSD	ug/L	4000	-6.4 %	75-125	435
			MSRPD	ug/L	4000	190%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	5.000	103 %	90-110	
			CCB	ppm		0.00007	0.03	
			CCV	ppm	5.000	98.3 %	90-110	
			CCB	ppm		0.0001	0.03	
Magnesium	200.7		MS	mg/L	12.00	96.3 %	75-125	
		(SP 1508013-001)	MSD	mg/L	12.00	-230 %	75-125	435
			MSRPD	mg/L	4000	194%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	25.00	99.9 %	90-110	
			CCB	ppm		-0.008	1	
			CCV	ppm	25.00	93.2 %	90-110	
			CCB	ppm		-0.01	1	
Manganese	200.7		MS	ug/L	800.0	102 %	75-125	
		(SP 1508013-001)	MSD	ug/L	800.0	-6.8 %	75-125	435
			MSRPD	ug/L	4000	190%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	1.000	102 %	90-110	
			CCB	ppm		-0.00002	0.01	
			CCV	ppm	1.000	98.3 %	90-110	
			CCB	ppm		-0.00001	0.01	
Potassium	200.7		MS	mg/L	12.00	104 %	75-125	
		(SP 1508013-001)	MSD	mg/L	12.00	-29.5 %	75-125	435
			MSRPD	mg/L	4000	176%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	25.00	101 %	90-110	
			CCB	ppm		0.33	1	
			CCV	ppm	25.00	94.0 %	90-110	
			CCB	ppm		0.02	1	
Sodium	200.7		MS	mg/L	12.00	97.6 %	75-125	
		(SP 1508013-001)	MSD	mg/L	12.00	-722 %	<¼	
			MSRPD	mg/L	4000	194%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	25.00	100 %	90-110	
			CCB	ppm		0.75	1	
			CCV	ppm	25.00	94.5 %	90-110	

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CA ELAP Certification No. 2810

July 24, 2015 Lab ID : VI 1542902

Dee Jaspar & Associates Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Nitrate	300.0	07/18/15:210534MCA	CCV	ppm	20.00	96.5 %	90-110	
			CCB	ppm		0.098	0.5	
			CCV	ppm	20.00	98.2 %	90-110	
Sulfate	300.0	07/17/15:208342MCA	Blank	mg/L		ND	<2.0	
			LCS	mg/L	50.00	95.4 %	90-110	
			MS	mg/L	1000	99.4 %	82-124	
		(VI 1542902-001)	MSD	mg/L	1000	100 %	82-124	
			MSRPD	mg/L	100.0	0.8%	≤23	
	300.0	07/18/15:210534MCA	CCB	ppm		0.06	2	
			CCV	ppm	50.00	93.0 %	90-110	
			CCB	ppm		1.0	2	
			CCV	ppm	50.00	95.7 %	90-110	
pH	4500-H B	(STK1537802-001)	Dup	units		0.4%	4.80	
	4500HB	07/23/15:210745JMG	CCV	units	8.000	99.9 %	95-105	
			CCV	units	8.000	101 %	95-105	

Definition

ICB	: Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
Dup	: Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
<¼	: High Sample Background - Spike concentration was less than one forth of the sample concentration.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Explanation

435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
440	: Sample nonhomogeneity may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542902-001
Customer ID : 4-16320

Sampled On : July 16, 2015
Sampled By : Jim Angell
Received On : July 17, 2015
Matrix : Drinking Water

Description : TW-2 Pump Csd:214' Drl:220'
Project : Long Canyon WC

General Irrigation Suitability Analysis

Test Description	Result				Graphical Results Presentation				
Cations	mg/L	Meq/L	% Meq	Lbs/AF	Good	Possible Problem	Moderate Problem	Increasing Problem	Severe Problem
Calcium	54	2.7	52	150	**				
Magnesium	10	0.82	16	27	**				
Potassium	2	0.051	1	5	**				
Sodium	37	1.6	31	100					
Anions									
Carbonate	< 10	0	0	0					
Bicarbonate	160	2.6	58	440	**				
Sulfate	60	1.2	27	160	**				
Chloride	17	0.48	11	46					
Nitrate	8.9	0.14	3	24					
Nitrate Nitrogen	2.0			5					
Fluoride	1.1	0.058	1	3					
Minor Elements									
Boron	0.20			0.54					
Copper	< 0.01			0.00					
Iron	0.73			2.0					
Manganese	0.020			0.054					
Zinc	0.030			0.082					
TDS by Summation	350			950					
Other									
pH	7.5			units					
E. C.	0.546			dS/m					
SAR	1.2								
Crop Suitability									
No Amendments	Fairly		Good						
With Amendments	Good								
Amendments									
Gypsum Requirement	0.09			Tons/AF					
Sulfuric Acid (98%)	9.1			oz/1000Gal	Or 22 oz/1000Gal of urea Sulfuric Acid (15/49).				
Leaching Requirement	4.1			%					

Good ▬▬▬▬▬▬▬▬▬▬ Problem

Note: Color coded bar graphs have been used to provide you with 'AT-A-GLANCE' interpretations.

** Used in various calculations; mg/L = Milligrams Per Liter (ppm) meq/L = Milliequivalents Per Liter

1542902

RUSH

FGL ENVIRONMENTAL

853 Corporation Street
Santa Paula, CA 93061
805-392-2000

5-day Rush

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
Bakersfield, CA 93308
Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
Dee Jaspar & Assoc, Inc.
2730 Unicorn Rd., Bldg.A
Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

CHAIN OF CUSTODY/WATER ANALYSIS RECORD

Project: Long Canyon WC

Sampled by: J. Angell

Analysis Requested: See Attached List (5-day Rush) (Low detection limit for As ≤2ppb), and Irrigation Suitability (Normal Turn-around) analysis, please call Jim with lab #.

Sample ID	Date	Time	Number of Containers
TW-2 Pumped Cased: 214' Drilled: 220'	7/16/15	11:15A	4
TW- Pumped Cased: _____ Drilled: _____			
TW- Pumped Cased: _____ Drilled: _____			

COURIER: Fed Ex

RECEIPT NUMBER: 8082 2047 6484

RELINQUISHED BY: Angell	DATE/TIME 7/16/15 @ 3:30 pm
RECEIVED BY: FedEx	DATE/TIME
RELINQUISHED BY:	DATE/TIME 7/17 1100
RECEIVED BY:	DATE/TIME

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: 1
2. Shipper tracking numbers _____
3. Were samples received in a chilled condition?
   Temps: 4 / _____ / _____ / _____ / _____ / _____ / _____
4. Surface water (SWTR) bact samples: A sample that has a temperature upon reciept of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? **Yes** No N/A
6. Verify sample date, time, sampler **Yes** No N/A
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) **Yes** No
8. Were sample custody seals intact? Yes No **N/A**

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? **Yes** No
2. Did bottle labels correspond with the client's ID's? **Yes** No
3. Were all bottles requiring sample preservation properly preserved? **Yes** No N/A FGL
   [Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? Yes No **N/A**
5. Were all analyses within holding times at time of reciept? **Yes** No
6. Have rush or project due dates been checked and accepted? **Yes** No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By **Nicole Parson** Digitally signed by Nicole Parson Title: Sample Receiving Date: 07/17/2015-11:46:05

Discrepency Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
   Initiated By: _____ Date: _____
   Problem:

   Resolution:

2. Person Contacted: _____ Phone Number: _____
   Initiated By: _____ Date: _____
   Problem:

   Resolution:

(4016320)
Dee Jaspar & Associates, Inc.
VI 1542902
NMP-07/17/2015-11:46:05

July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542920
Customer : 4-16320

Laboratory Report

Introduction: This report package contains total of 9 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(4 pages)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
TW-2 Airlft Csd:260' Drl:263'	07/17/2015	07/20/2015	VI 1542920-001	GW
TW-2 Airlft Csd:295' Drl:298'	07/17/2015	07/20/2015	VI 1542920-002	GW

Sampling and Receipt Information: All samples were received, prepared and analyzed within the method specified holding except those as listed in the table below. The holding time for pH is listed as immediate. Logistically this is very difficult to obtain. FGL policy is to analyze all samples requiring pH on the same day of receipt at the laboratory. If this presents any problem please call.

Lab ID	Analyte/Method	Required Holding Time	Actual Holding Time
VI 1542920-001	Nitrate	48	79.5 Hours
VI 1542920-001	pH	15	6310.2 Minutes
VI 1542920-002	Nitrate	48	77 Hours
VI 1542920-002	pH	15	6160.2 Minutes

All samples arrived at 3 °C. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

200.7	07/23/2015:210784 All analysis quality controls are within established criteria
	07/23/2015:208502 All preparation quality controls are within established criteria

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July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542920-001
Customer ID : 4-16320

Sampled On : July 17, 2015-07:30
Sampled By : M.H.
Received On : July 20, 2015-11:30
Matrix : Ground Water

Description : TW-2 Airlft Csd:260' Drl:263'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Iron	ND	30	ug/L		200.7	07/23/15:208502	200.7	07/23/15:210784
Manganese	19.0	0.5	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Wet Chemistry[P:1]								
Chloride	14	1	mg/L		300.0	07/20/15:208379	300.0	07/20/15:210593
Specific Conductance	495	1	umhos/cm		2510B	07/21/15:208378	2510B	07/21/15:210583
Nitrate	4.2	0.5	mg/L		300.0	07/20/15:208379	300.0	07/20/15:210593
pH	7.4	--	units		4500-H B	07/21/15:208407	4500HB	07/21/15:210605
Solids, Total Dissolved (TDS)	320	20	mg/L		2540CE	07/21/15:208397	2540C	07/22/15:210646

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542920-002
Customer ID : 4-16320

Sampled On : July 17, 2015-10:00
Sampled By : M.H.
Received On : July 20, 2015-11:30
Matrix : Ground Water

Description : TW-2 Airlft Csd:295' Drl:298'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Metals, Diss[P,1]								
Arsenic	ND	2	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Iron	ND	30	ug/L		200.7	07/23/15:208502	200.7	07/23/15:210784
Manganese	55.9	0.5	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Wet Chemistry[P,1]								
Chloride	20	1	mg/L		300.0	07/20/15:208379	300.0	07/20/15:210593
Specific Conductance	513	1	umhos/cm		2510B	07/21/15:208378	2510B	07/21/15:210583
Nitrate	5.2	0.5	mg/L		300.0	07/20/15:208379	300.0	07/20/15:210593
pH	7.6	--	units		4500-H B	07/21/15:208407	4500HB	07/21/15:210605
Solids, Total Dissolved (TDS)	330	20	mg/L		2540CE	07/21/15:208397	2540C	07/22/15:210646

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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July 24, 2015 Lab ID : VI 1542920
Dee Jaspar & Associates Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Iron	200.7		MS	ug/L	4000	104 %	75-125	
		(VI 1542920-001)	MSD	ug/L	4000	113 %	75-125	
			MSRPD	ug/L	800.0	8.2%	≤20.0	
	200.7	07/23/15:210784AC	CCV	ppm	5.000	103 %	90-110	
			CCB	ppm		0.0096	0.03	
			CCV	ppm	5.000	103 %	90-110	
			CCB	ppm		0.0063	0.03	
Arsenic	200.8		MS	ug/L	5.000	94.8 %	75-125	
		(CH 1575660-001)	MSD	ug/L	5.000	105 %	75-125	
			MSRPD	ug/L	5.000	0.52	≤2	
	200.8	07/23/15:210782AC	CCV	ppb	120.0	93.1 %	90-110	
			CCB	ppb		0.14	2	
			CCV	ppb	120.0	93.7 %	90-110	
			CCB	ppb		0.16	2	
Manganese	200.8		MS	ug/L	5.000	94.6 %	75-125	
		(CH 1575660-001)	MSD	ug/L	5.000	105 %	75-125	
			MSRPD	ug/L	5.000	9.0%	≤20	
	200.8	07/23/15:210782AC	CCV	ppb	120.0	96.2 %	90-110	
			CCB	ppb		0.090	0.5	
			CCV	ppb	120.0	96.4 %	90-110	
			CCB	ppb		0.110	0.5	
Wet Chem								
Conductivity	2510B	07/21/15:210583JMG	ICB	umhos/cm		0.07	1	
			CCV	umhos/cm	999.0	100 %	95-105	
			CCV	umhos/cm	999.0	99.6 %	95-105	
E. C.	2510B	07/21/15:208378JMG	Blank	umhos/cm		ND	<1	
		(VI 1542911-003)	Dup	umhos/cm		0.2%	5	
Solids, Total Dissolved	2540CE	07/21/15:208397CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	999.1	101 %	90-110	
		(STK1537787-001)	Dup	mg/L		1.6%	5	
Chloride	300.0		MS	mg/L	500.0	97.8 %	85-121	
		(VI 1542765-001)	MSD	mg/L	500.0	97.4 %	85-121	
			MSRPD	mg/L	100.0	0.3%	≤19	
			Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	93.6 %	90-110	
			MS	mg/L	500.0	96.9 %	85-121	
		(VI 1542820-001)	MSD	mg/L	500.0	97.8 %	85-121	
			MSRPD	mg/L	100.0	0.9%	≤19	
	300.0	07/20/15:210593KD	ICV	ppm	25.00	92.5 %	90-110	
			ICB	ppm		0.02	1	
			CCB	ppm		0.02	1	
			CCV	PPM	25.00	0.0 %	90-110	
			CCV	ppm	25.00	94.2 %	90-110	
			CCB	ppm		0.00	1	
			CCV	PPM	25.00	0.0 %	90-110	
Nitrate	300.0		MS	mg/L	400.0	96.5 %	85-119	
		(VI 1542765-001)	MSD	mg/L	400.0	96.2 %	85-119	
			MSRPD	mg/L	100.0	0.3%	≤19	
			Blank	mg/L		ND	<0.5	
			LCS	mg/L	20.00	92.7 %	90-110	
			MS	mg/L	400.0	95.9 %	85-119	
		(VI 1542820-001)	MSD	mg/L	400.0	96.9 %	85-119	
			MSRPD	mg/L	100.0	1.0%	≤19	
	300.0	07/20/15:210593KD	ICV	ppm	20.00	91.8 %	90-110	
			ICB	ppm		0.000	0.5	

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July 24, 2015
Dee Jaspar & Associates

Lab ID : VI 1542920
Customer : 4-16320

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	07/23/15:210736caa	CCV	cpm	8895	41.1 %	37 - 45	
			CCB	cpm		0.0800	0.18	
	900.0	07/23/15:210739caa	CCV	cpm	8895	40.5 %	38 - 46	
			CCB	cpm		0.100	0.14	
Gross Alpha	900.0	07/21/15:208361elc	Blank	pCi/L		0.04	3	
			LCS	pCi/L	180.6	94.3 %	75-125	
			MS	pCi/L	180.6	132 %	60-140	
		(SP 1507679-001)	MSD	pCi/L	180.6	124 %	60-140	
			MSRPD	pCi/L	180.6	6.2%	≤30	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

1542904

5-day RUSH

RUSH

FGL ENVIRONMENTAL
853 Corporation Street
Santa Paula, CA 93061
805-392-2000

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
Bakersfield, CA 93308
Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
Dee Jaspar & Assoc, Inc.
2730 Unicorn Rd., Bldg.A
Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

CHAIN OF CUSTODY/WATER ANALYSIS RECORD

Project: Long Canyon WC

Sampled by: M Hooker

Analysis Requested: See Attached List (5-day Rush) (Low detection limit for As ≤2ppb, please call Jim with lab #.

Sample ID	Date	Time	Number of Containers
TW-12 Airlift Cased: 170' Drilled: 173'	7/15/15	2:20pm	4
TW-8 Airlift Cased: _____ Drilled: _____			
TW-3 Airlift Cased: _____ Drilled: _____			

COURIER: Fed EX

RECEIPT NUMBER: 808220476484

RELINQUISHED BY:	DATE/TIME
Mark Hall	7/16/15 8:30a
RECEIVED BY: Angell	DATE/TIME 7/16/15 8:30AM
RELINQUISHED BY: Angell	DATE/TIME 7/16/15 3:30 PM
RECEIVED BY:	DATE/TIME

FedEx

7/17 1100

FGL ENVIRONMENTAL

853 Corporation Street
Santa Paula, CA 93061
805-392-2000

WATER ANALYSIS REQUEST

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
Bakersfield, CA 93308
Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
Dee Jaspar & Assoc, Inc.
2730 Unicorn Rd., Bldg.A
Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

Project: Long Canyon WC

NOTE: Please filter with 0.45 micron filter for metals and alpha activity, and acidify for metals. Non-Potable water for gross alpha.

- NO_3 X
- Electrical Conductivity X
- pH X
- Total Dissolved Solids (@ 180°) X
- Chloride X
- Fe X (Dissolved)
- Mn X (Dissolved)
- As X (Dissolved)
- Gross Alpha X

Note: only analyze for U if alpha activity is > MCL of alpha activity

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: 1
2. Shipper tracking numbers _____
3. Were samples received in a chilled condition?
   Temps: 4 / _____ / _____ / _____ / _____ / _____ / _____
4. Surface water (SWTR) bact samples: A sample that has a temperature upon reciept of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? **Yes** No N/A
6. Verify sample date, time, sampler **Yes** No N/A
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) **Yes** No
8. Were sample custody seals intact? Yes No **N/A**

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? **Yes** No
2. Did bottle labels correspond with the client's ID's? **Yes** No
3. Were all bottles requiring sample preservation properly preserved? **Yes** No N/A **FGL**
   [Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? Yes No **N/A**
5. Were all analyses within holding times at time of reciept? **Yes** No
6. Have rush or project due dates been checked and accepted? **Yes** No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by: Reviewed and Approved By **Nicole Parson** Digitally signed by Nicole Parson Title: Sample Receiving Date: 07/17/2015-11:46:35

Discrepency Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
   Initiated By: _____ Date: _____
   Problem:

   Resolution:

2. Person Contacted: _____ Phone Number: _____
   Initiated By: _____ Date: _____
   Problem:

   Resolution:

(4016320)
Dee Jaspar & Associates, Inc.
VI 1542904
NMP-07/17/2015-11:46:35

July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542903
Customer : 4-16320

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(2 pages)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
TW-2 Airlift Csd:214' Drl:220'	07/16/2015	07/17/2015	VI 1542903-001	W

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding except those as listed in the table below. The holding time for pH is listed as immediate. Logistically this is very difficult to obtain. FGL policy is to analyze all samples requiring pH on the same day of receipt at the laboratory. If this presents any problem please call.

Lab ID	Analyte/Method	Required Holding Time	Actual Holding Time
VI 1542903-001	pH	15	7675.2 Minutes

All samples arrived at 4 °C. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

200.7	07/23/2015:210784 All analysis quality controls are within established criteria
	07/23/2015:208502 All preparation quality controls are within established criteria
200.8	07/23/2015:210782 All analysis quality controls are within established criteria
	07/23/2015:208515 All preparation quality controls are within established criteria

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July 24, 2015 Lab ID : VI 1542903
Dee Jaspar & Associates Customer : 4-16320

Radio QC

900.0	07/22/2015:210738 All analysis quality controls are within established criteria
	07/21/2015:208361 All preparation quality controls are within established criteria

Inorganic - Wet Chemistry QC

2510B	07/21/2015:210583 All analysis quality controls are within established criteria
	07/21/2015:208378 All preparation quality controls are within established criteria
2540CE	07/20/2015:208321 All preparation quality controls are within established criteria
300.0	07/17/2015:210534 All analysis quality controls are within established criteria
	07/17/2015:208342 All preparation quality controls are within established criteria
4500-H B	07/21/2015:208407 All preparation quality controls are within established criteria
4500HB	07/21/2015:210605 All analysis quality controls are within established criteria

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **David Terz, B.A., M.B.A.** Digitally signed by David Terz, B.A., M.B.A.
Title: QA Director
Date: 2015-07-24

July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542903-001
Customer ID : 4-16320

Sampled On : July 16, 2015-08:45
Sampled By : Justin
Received On : July 17, 2015-11:00
Matrix : Water

Description : TW-2 Airlift Csd:214' Drl:220'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Iron	ND	30	ug/L		200.7	07/23/15:208502	200.7	07/23/15:210784
Manganese	7.7	0.5	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Wet Chemistry[P:1]								
Chloride	17	1	mg/L		300.0	07/17/15:208342	300.0	07/17/15:210534
Specific Conductance	538	1	umhos/cm		2510B	07/21/15:208378	2510B	07/21/15:210583
Nitrate	9.1	0.5	mg/L		300.0	07/17/15:208342	300.0	07/17/15:210534
pH	7.4	--	units		4500-H B	07/21/15:208407	4500HB	07/21/15:210605
Solids, Total Dissolved (TDS)	350	20	mg/L		2540CE	07/20/15:208321	2540C	07/21/15:210578

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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July 24, 2015

Lab ID : VI 1542903-001
Customer ID : 4-16320

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Sampled On : July 16, 2015-08:45
Sampled By : Justin
Received On : July 17, 2015-11:00
Matrix : Water

Description : TW-2 Airlift Csd:214' Drl:220'
Project : Long Canyon WC

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Radio Chemistry[P:1]								
Gross Alpha	13.4 ± 2.37	1.02	pCi/L	15/5	900.0	07/21/15-07:00 2P1508361	900.0	07/22/15-13:00 2A1510738

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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July 24, 2015 Lab ID : VI 1542903
Dee Jaspar & Associates Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Iron	200.7		MS	ug/L	4000	104 %	75-125	
		(VI 1542920-001)	MSD	ug/L	4000	113 %	75-125	
			MSRPD	ug/L	800.0	8.2%	≤20.0	
	200.7	07/23/15:210784AC	CCV	ppm	5.000	103 %	90-110	
			CCB	ppm		0.0096	0.03	
			CCV	ppm	5.000	103 %	90-110	
			CCB	ppm		0.0063	0.03	
Arsenic	200.8		MS	ug/L	5.000	94.8 %	75-125	
		(CH 1575660-001)	MSD	ug/L	5.000	105 %	75-125	
			MSRPD	ug/L	5.000	0.52	≤2	
	200.8	07/23/15:210782AC	CCV	ppb	120.0	93.1 %	90-110	
			CCB	ppb		0.14	2	
			CCV	ppb	120.0	93.7 %	90-110	
			CCB	ppb		0.16	2	
Manganese	200.8		MS	ug/L	5.000	94.6 %	75-125	
		(CH 1575660-001)	MSD	ug/L	5.000	105 %	75-125	
			MSRPD	ug/L	5.000	9.0%	≤20	
	200.8	07/23/15:210782AC	CCV	ppb	120.0	96.2 %	90-110	
			CCB	ppb		0.090	0.5	
			CCV	ppb	120.0	96.4 %	90-110	
			CCB	ppb		0.110	0.5	
Wet Chem								
Conductivity	2510B	07/21/15:210583JMG	ICB	umhos/cm		0.07	1	
			CCV	umhos/cm	999.0	99.1 %	95-105	
			CCV	umhos/cm	999.0	100 %	95-105	
E. C.	2510B	07/21/15:208378JMG	Blank	umhos/cm		ND	<1	
		(VI 1542897-001)	Dup	umhos/cm		0.0%	5	
Solids, Total Dissolved	2540CE	07/20/15:208321CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	999.1	102 %	90-110	
		(STK1537799-001)	Dup	mg/L		0.6%	5	
Chloride	300.0		MS	mg/L	500.0	101 %	85-121	
		(VI 1542903-001)	MSD	mg/L	500.0	101 %	85-121	
			MSRPD	mg/L	100.0	0.3%	≤19	
			Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	95.7 %	90-110	
			MS	mg/L	500.0	100 %	85-121	
		(STK1537733-001)	MSD	mg/L	500.0	99.6 %	85-121	
			MSRPD	mg/L	100.0	0.4%	≤19	
	300.0	07/17/15:210534MCA	CCB	ppm		0.01	1	
			CCV	ppm	25.00	97.0 %	90-110	
			CCB	ppm		0.08	1	
			CCV	ppm	25.00	97.6 %	90-110	
Nitrate	300.0		MS	mg/L	400.0	99.1 %	85-119	
		(VI 1542903-001)	MSD	mg/L	400.0	99.7 %	85-119	
			MSRPD	mg/L	100.0	0.5%	≤19	
			Blank	mg/L		ND	<0.5	
			LCS	mg/L	20.00	95.4 %	90-110	
			MS	mg/L	400.0	98.4 %	85-119	
		(STK1537733-001)	MSD	mg/L	400.0	98.0 %	85-119	
			MSRPD	mg/L	100.0	0.5%	≤19	
	300.0	07/17/15:210534MCA	CCB	ppm		0.043	0.5	
			CCV	ppm	20.00	96.6 %	90-110	
			CCB	ppm		0.050	0.5	
			CCV	ppm	20.00	97.3 %	90-110	
pH	4500-H B	(SP 1508021-001)	Dup	units		0.3%	4.80	

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July 24, 2015 Lab ID : VI 1542903
Dee Jaspar & Associates Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
pH	4500HB	07/21/15:210605JMG	CCV	units	8.000	101 %	95-105	
			CCV	units	8.000	101 %	95-105	

Definition

ICB	: Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
Dup	: Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

July 24, 2015 Lab ID : VI 1542903

Dee Jaspar & Associates Customer : 4-16320

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	07/22/15:210738caa	CCV	cpm	8895	40.6 %	39 - 48	
			CCB	cpm		0.10	0.2	
Gross Alpha	900.0	07/21/15:208361elc	Blank	pCi/L		0.04	3	
			LCS	pCi/L	180.6	94.3 %	75-125	
			MS	pCi/L	180.6	132 %	60-140	
		(SP 1507679-001)	MSD	pCi/L	180.6	124 %	60-140	
			MSRPD	pCi/L	180.6	6.2%	≤30	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

1542913

5-day Rush

RUSH

FGL ENVIRONMENTAL
853 Corporation Street
Santa Paula, CA 93061
805-392-2000

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
Bakersfield, CA 93308
Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
Dee Jaspar & Assoc, Inc.
2730 Unicorn Rd., Bldg.A
Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

CHAIN OF CUSTODY/WATER ANALYSIS RECORD

Project: Long Canyon WC

Sampled by: Justin

Analysis Requested: See Attached List (5-day Rush) (Low detection limit for As ≤2ppb, please call Jim with lab #.

Sample ID	Date	Time	Number of Containers
TW-2 Airlift Cased: 214' Drilled: 225'	7/16/15	8:45A	4
TW- Airlift Cased: _____ Drilled: _____			
TW- Airlift Cased: _____ Drilled: _____			

COURIER: Fed EX

RECEIPT NUMBER: 8082 2047 6484

RELINQUISHED BY:	DATE/TIME 7/16/15 @ 3:30pm
RECEIVED BY:	DATE/TIME
RELINQUISHED BY: Fed Ex	DATE/TIME
RECEIVED BY:	DATE/TIME 7/17 1100

FGL ENVIRONMENTAL

853 Corporation Street
Santa Paula, CA 93061
805-392-2000

WATER ANALYSIS REQUEST

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
Bakersfield, CA 93308
Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
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2730 Unicorn Rd., Bldg.A
Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

Project: Long Canyon WC

NOTE: Please filter with 0.45 micron filter for metals and alpha activity, and acidify for metals. Non-Potable water for gross alpha.

NO_3 X

Electrical Conductivity X

pH X

Total Dissolved Solids (@ 180°) X

Chloride X

Fe X (Dissolved)

Mn X (Dissolved)

As X (Dissolved)

Gross Alpha X

Note: only analyze for U if alpha activity is > MCL of alpha activity

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: 1
2. Shipper tracking numbers _____
3. Were samples received in a chilled condition?
   Temps: 4 / _____ / _____ / _____ / _____ / _____ / _____
4. Surface water (SWTR) bact samples: A sample that has a temperature upon reciept of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? **Yes** No N/A
6. Verify sample date, time, sampler **Yes** No N/A
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) **Yes** No
8. Were sample custody seals intact? Yes No **N/A**

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? **Yes** No
2. Did bottle labels correspond with the client's ID's? **Yes** No
3. Were all bottles requiring sample preservation properly preserved? **Yes** No N/A FGL
   [Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? Yes No **N/A**
5. Were all analyses within holding times at time of reciept? **Yes** No
6. Have rush or project due dates been checked and accepted? **Yes** No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By **Nicole Parson** Digitally signed by Nicole Parson Title: Sample Receiving Date: 07/17/2015-11:46:21

Discrepency Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
   Initiated By: _____ Date: _____
   Problem:

   Resolution:

2. Person Contacted: _____ Phone Number: _____
   Initiated By: _____ Date: _____
   Problem:

   Resolution:

(4016320)
Dee Jaspar & Associates, Inc.
VI 1542903
NMP-07/17/2015-11:46:21

July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542902
Customer : 4-16320

Laboratory Report

Introduction: This report package contains total of 8 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(2 pages)	: Results for each sample submitted.
Quality Control	(4 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
TW-2 Pump Csd:214' Drl:220'	07/16/2015	07/17/2015	VI 1542902-001	DW

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding except those as listed in the table below. The holding time for pH is listed as immediate. Logistically this is very difficult to obtain. FGL policy is to analyze all samples requiring pH on the same day of receipt at the laboratory. If this presents any problem please call.

Lab ID	Analyte/Method	Required Holding Time	Actual Holding Time
VI 1542902-001	pH	15	10255.2 Minutes

All samples arrived at 4 °C. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

200.7	07/20/2015:210661 All analysis quality controls are within established criteria.
	07/20/2015:208328 All preparation quality controls are within established criteria, except: The following note applies to Boron, Copper, Iron, Potassium, Magnesium, Manganese, Zinc: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. The following note applies to Boron, Calcium, Copper, Iron, Potassium, Magnesium, Manganese, Sodium, Zinc: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

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CA ELAP Certification No. 2810

July 24, 2015
Dee Jaspar & Associates

Lab ID : VI 1542902
Customer : 4-16320

Inorganic - Metals QC

200.8	07/23/2015:210782 All analysis quality controls are within established criteria.
	07/23/2015:208515 All preparation quality controls are within established criteria.

Radio QC

900.0	07/22/2015:210738 All analysis quality controls are within established criteria.
	07/21/2015:208361 All preparation quality controls are within established criteria.

Inorganic - Wet Chemistry QC

2320B	07/20/2015:210585 All analysis quality controls are within established criteria.
	07/20/2015:208311 All preparation quality controls are within established criteria.
2510B	07/21/2015:210583 All analysis quality controls are within established criteria.
	07/21/2015:208378 All preparation quality controls are within established criteria.
2540CE	07/22/2015:208457 All preparation quality controls are within established criteria, except: The following note applies to Solids, Total Dissolved: 440 Sample nonhomogeneity may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
300.0	07/18/2015:210534 All analysis quality controls are within established criteria.
	07/17/2015:208342 All preparation quality controls are within established criteria.
4500-H B	07/23/2015:208501 All preparation quality controls are within established criteria.
4500HB	07/23/2015:210745 All analysis quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **David Terz, B.A., M.B.A.** Digitally signed by David Terz, B.A., M.B.A.
Title: QA Director
Date: 2015-07-24

July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542902-001
Customer ID : 4-16320

Sampled On : July 16, 2015-11:15
Sampled By : Jim Angell
Received On : July 17, 2015-11:00
Matrix : Drinking Water

Description : TW-2 Pump Csd:214' Drl:220'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	MCL/AL	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Irrigation Suit[P:1]								
Total Hardness as CaCO3	176	--	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Calcium	54	1	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Magnesium	10	1	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Potassium	2	1	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Sodium	37	1	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Total Cations	5.2	--	meq/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Boron	0.2	0.1	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Copper	ND	10	ug/L	1000[2]	200.7	07/20/15:208328	200.7	07/20/15:210661
Iron	730	30	ug/L	300[2]	200.7	07/20/15:208328	200.7	07/20/15:210661
Manganese	20	10	ug/L	50[2]	200.7	07/20/15:208328	200.7	07/20/15:210661
Zinc	30	20	ug/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Gypsum Requirement	0.09	--	Tons/AF		200.7	07/20/15:208328	200.7	07/20/15:210661
SAR	1.2	--	--		200.7	07/20/15:208328	200.7	07/20/15:210661
Total Alkalinity	130	10	mg/L		2320B	07/20/15:208311	2320B	07/20/15:210585
Hydroxide	ND	10	mg/L		2320B	07/20/15:208311	2320B	07/20/15:210585
Carbonate	ND	10	mg/L		2320B	07/20/15:208311	2320B	07/20/15:210585
Bicarbonate	160	10	mg/L		2320B	07/20/15:208311	2320B	07/20/15:210585
Sulfate	60	2	mg/L	500[2]	300.0	07/17/15:208342	300.0	07/18/15:210534
Chloride	17	1	mg/L	500[2]	300.0	07/17/15:208342	300.0	07/18/15:210534
Nitrate	8.9	0.5	mg/L	45	300.0	07/17/15:208342	300.0	07/18/15:210534
Nitrate Nitrogen	2.0	0.1	mg/L	10	300.0	07/17/15:208342	300.0	07/18/15:210534
Fluoride	1.1	0.1	mg/L	2	300.0	07/17/15:208342	300.0	07/18/15:210534
Total Anions	4.6	--	meq/L		2320B	07/20/15:208311	2320B	07/20/15:210585
pH	7.5	--	units		4500-H B	07/23/15:208501	4500HB	07/23/15:210745
E. C.	546	1	umhos/cm	1600[2]	2510B	07/21/15:208378	2510B	07/21/15:210583
TDS by Summation	350	--	mg/L		200.7	07/20/15:208328	200.7	07/20/15:210661
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L	10	200.8	07/23/15:208515	200.8	07/23/15:210782
Wet Chemistry[P:1]								
Solids, Total Dissolved (TDS)	360	20	mg/L	1000[2]	2540CE	07/22/15:208457	2540C	07/23/15:210719

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.
MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.

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July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542902-001
Customer ID : 4-16320

Sampled On : July 16, 2015-11:15
Sampled By : Jim Angell
Received On : July 17, 2015-11:00
Matrix : Drinking Water

Description : TW-2 Pump Csd:214' Drl:220'
Project : Long Canyon WC

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry[P:1]								
Gross Alpha	15.1 ± 2.51	1.02	pCi/L		900.0	07/21/15-07:00 2P1508361	900.0	07/22/15-11:00 2A1510738

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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July 24, 2015 Lab ID : VI 1542902
Dee Jaspar & Associates Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Boron	200.7	(SP 1508013-001)	MS	mg/L	4.000	101 %	75-125	
			MSD	mg/L	4.000	-10.2 %	75-125	435
			MSRPD	mg/L	4000	194%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	5.000	94.6 %	90-110	
			CCB	ppm		-0.0003	0.1	
			CCV	ppm	5.000	90.7 %	90-110	
			CCB	ppm		-0.0009	0.1	
Calcium	200.7	(SP 1508013-001)	MS	mg/L	12.00	101 %	75-125	
			MSD	mg/L	12.00	-675 %	<¼	
			MSRPD	mg/L	4000	194%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	25.00	101 %	90-110	
			CCB	ppm		0.001	1	
			CCV	ppm	25.00	93.2 %	90-110	
			CCB	ppm		-0.03	1	
Copper	200.7	(SP 1508013-001)	MS	ug/L	800.0	103 %	75-125	
			MSD	ug/L	800.0	3.4 %	75-125	435
			MSRPD	ug/L	4000	187%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	1.000	101 %	90-110	
			CCB	ppm		-0.0003	0.01	
			CCV	ppm	1.000	95.7 %	90-110	
			CCB	ppm		-0.0005	0.01	
Iron	200.7	(SP 1508013-001)	MS	ug/L	4000	102 %	75-125	
			MSD	ug/L	4000	-6.4 %	75-125	435
			MSRPD	ug/L	4000	190%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	5.000	103 %	90-110	
			CCB	ppm		0.00007	0.03	
			CCV	ppm	5.000	98.3 %	90-110	
			CCB	ppm		0.0001	0.03	
Magnesium	200.7	(SP 1508013-001)	MS	mg/L	12.00	96.3 %	75-125	
			MSD	mg/L	12.00	-230 %	75-125	435
			MSRPD	mg/L	4000	194%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	25.00	99.9 %	90-110	
			CCB	ppm		-0.008	1	
			CCV	ppm	25.00	93.2 %	90-110	
			CCB	ppm		-0.01	1	
Manganese	200.7	(SP 1508013-001)	MS	ug/L	800.0	102 %	75-125	
			MSD	ug/L	800.0	-6.8 %	75-125	435
			MSRPD	ug/L	4000	190%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	1.000	102 %	90-110	
			CCB	ppm		-0.00002	0.01	
			CCV	ppm	1.000	98.3 %	90-110	
			CCB	ppm		-0.00001	0.01	
Potassium	200.7	(SP 1508013-001)	MS	mg/L	12.00	104 %	75-125	
			MSD	mg/L	12.00	-29.5 %	75-125	435
			MSRPD	mg/L	4000	176%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	25.00	101 %	90-110	
			CCB	ppm		0.33	1	
			CCV	ppm	25.00	94.0 %	90-110	
			CCB	ppm		0.02	1	
Sodium	200.7	(SP 1508013-001)	MS	mg/L	12.00	97.6 %	75-125	
			MSD	mg/L	12.00	-722 %	<¼	
			MSRPD	mg/L	4000	194%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	25.00	100 %	90-110	
			CCB	ppm		0.75	1	
			CCV	ppm	25.00	94.5 %	90-110	

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July 24, 2015 Lab ID : VI 1542902
Dee Jaspar & Associates Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Sodium	200.7	07/20/15:210661AC	CCB	ppm		-0.0006	1	
Zinc	200.7		MS	ug/L	800.0	98.6 %	75-125	
		(SP 1508013-001)	MSD	ug/L	800.0	21.8 %	75-125	435
			MSRPD	ug/L	4000	125%	≤20.0	435
	200.7	07/20/15:210661AC	CCV	ppm	1.000	103 %	90-110	
			CCB	ppm		0.0004	0.02	
			CCV	ppm	1.000	100 %	90-110	
			CCB	ppm		0.0001	0.02	
Arsenic	200.8		MS	ug/L	5.000	94.8 %	75-125	
		(CH 1575660-001)	MSD	ug/L	5.000	105 %	75-125	
			MSRPD	ug/L	5.000	0.52	≤2	
	200.8	07/23/15:210782AC	CCV	ppb	120.0	93.1 %	90-110	
			CCB	ppb		0.14	2	
			CCV	ppb	120.0	93.7 %	90-110	
			CCB	ppb		0.16	2	
Wet Chem								
Alkalinity (as CaCO3)	2320B	(VI 1542900-004)	Dup	mg/L		3.5	10	
	2320B	07/20/15:210585AMB	CCV	mg/L	234.9	95.6 %	90-110	
			CCV	mg/L	234.9	89.8 %	90-110	
Bicarbonate	2320B	(VI 1542900-004)	Dup	mg/L		4.4	10	
Carbonate	2320B	(VI 1542900-004)	Dup	mg/L		0.0	10	
Hydroxide	2320B	(VI 1542900-004)	Dup	mg/L		0.0	10	
Conductivity	2510B	07/21/15:210583JMG	ICB	umhos/cm		0.07	1	
			CCV	umhos/cm	999.0	99.1 %	95-105	
			CCV	umhos/cm	999.0	100 %	95-105	
E. C.	2510B	07/21/15:208378JMG	Blank	umhos/cm		ND	<1	
		(VI 1542897-001)	Dup	umhos/cm		0.0%	5	
Solids, Total Dissolved	2540CE	07/22/15:208457CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	999.1	100 %	90-110	
		(CC 1582537-001)	Dup	mg/L		13.2%	5	440
Chloride	300.0	07/17/15:208342MCA	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	98.0 %	90-110	
			MS	mg/L	500.0	103 %	85-121	
		(VI 1542902-001)	MSD	mg/L	500.0	103 %	85-121	
			MSRPD	mg/L	100.0	0.8%	≤19	
	300.0	07/18/15:210534MCA	CCB	ppm		0.004	1	
			CCV	ppm	25.00	96.7 %	90-110	
			CCB	ppm		0.00	1	
			CCV	ppm	25.00	98.2 %	90-110	
Fluoride	300.0	07/17/15:208342MCA	Blank	mg/L		ND	<0.1	
			LCS	mg/L	2.500	102 %	90-110	
			MS	mg/L	50.00	104 %	87-120	
		(VI 1542902-001)	MSD	mg/L	50.00	106 %	87-120	
			MSRPD	mg/L	100.0	1.3%	≤16	
	300.0	07/18/15:210534MCA	CCB	ppm		0.000	0.1	
			CCV	ppm	2.500	100 %	90-110	
			CCB	ppm		0.030	0.1	
			CCV	ppm	2.500	103 %	90-110	
Nitrate	300.0	07/17/15:208342MCA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	20.00	97.7 %	90-110	
			MS	mg/L	400.0	101 %	85-119	
		(VI 1542902-001)	MSD	mg/L	400.0	102 %	85-119	
			MSRPD	mg/L	100.0	0.6%	≤19	
	300.0	07/18/15:210534MCA	CCB	ppm		0.000	0.5	

July 24, 2015 Lab ID : VI 1542902
Dee Jaspar & Associates Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Nitrate	300.0	07/18/15:210534MCA	CCV	ppm	20.00	96.5 %	90-110	
			CCB	ppm		0.098	0.5	
			CCV	ppm	20.00	98.2 %	90-110	
Sulfate	300.0	07/17/15:208342MCA	Blank	mg/L		ND	<2.0	
			LCS	mg/L	50.00	95.4 %	90-110	
			MS	mg/L	1000	99.4 %	82-124	
		(VI 1542902-001)	MSD	mg/L	1000	100 %	82-124	
			MSRPD	mg/L	100.0	0.8%	≤23	
	300.0	07/18/15:210534MCA	CCB	ppm		0.06	2	
			CCV	ppm	50.00	93.0 %	90-110	
			CCB	ppm		1.0	2	
			CCV	ppm	50.00	95.7 %	90-110	
pH	4500-H B	(STK1537802-001)	Dup	units		0.4%	4.80	
	4500HB	07/23/15:210745JMG	CCV	units	8.000	99.9 %	95-105	
			CCV	units	8.000	101 %	95-105	

Definition

ICB	: Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
Dup	: Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
<¼	: High Sample Background - Spike concentration was less than one forth of the sample concentration.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Explanation

435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
440	: Sample nonhomogeneity may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

July 24, 2015
Dee Jaspar & Associates

Lab ID : VI 1542902
Customer : 4-16320

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	07/22/15:210738caa	CCV	cpm	8895	40.6 %	39 - 48	
			CCB	cpm		0.10	0.2	
Gross Alpha	900.0	07/21/15:208361elc	Blank	pCi/L		0.04	3	
			LCS	pCi/L	180.6	94.3 %	75-125	
			MS	pCi/L	180.6	132 %	60-140	
		(SP 1507679-001)	MSD	pCi/L	180.6	124 %	60-140	
			MSRPD	pCi/L	180.6	6.2%	≤30	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

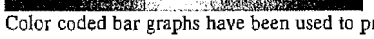
Lab ID : VI 1542902-001
Customer ID : 4-16320

Sampled On : July 16, 2015
Sampled By : Jim Angell
Received On : July 17, 2015
Matrix : Drinking Water

Description : TW-2 Pump Csd:214' Drl:220'
Project : Long Canyon WC

General Irrigation Suitability Analysis

Test Description	Result				Graphical Results Presentation				
Cations	mg/L	Meq/L	% Meq	Lbs/AF	Good	Possible Problem	Moderate Problem	Increasing Problem	Severe Problem
Calcium	54	2.7	52	150	**				
Magnesium	10	0.82	16	27	**				
Potassium	2	0.051	1	5	**				
Sodium	37	1.6	31	100					
Anions									
Carbonate	< 10	0	0	0					
Bicarbonate	160	2.6	58	440	**				
Sulfate	60	1.2	27	160	**				
Chloride	17	0.48	11	46					
Nitrate	8.9	0.14	3	24					
Nitrate Nitrogen	2.0			5					
Fluoride	1.1	0.058	1	3					
Minor Elements									
Boron	0.20			0.54					
Copper	< 0.01			0.00					
Iron	0.73			2.0					
Manganese	0.020			0.054					
Zinc	0.030			0.082					
TDS by Summation	350			950					
Other									
pH	7.5			units					
E. C.	0.546			dS/m					
SAR	1.2								
Crop Suitability									
No Amendments	Fairly		Good						
With Amendments	Good								
Amendments									
Gypsum Requirement	0.09			Tons/AF					
Sulfuric Acid (98%)	9.1			oz/1000Gal	Or 22 oz/1000Gal of urea Sulfuric Acid (15/49).				
Leaching Requirement	4.1			%					

Good  Problem

Note: Color coded bar graphs have been used to provide you with 'AT-A-GLANCE' interpretations.

** Used in various calculations; mg/L = Milligrams Per Liter (ppm) meq/L = Milliequivalents Per Liter

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July 24, 2015

Dee Jaspar & Associates

Lab ID : VI 1542902-001
Customer ID : 4-16320
Description : TW-2 Pump Csd:214' Drl:220'

Micro Irrigation System Plugging Hazard

Test Description	Result		Graphical Results Presentation		
			Slight	Moderate	Severe
Chemical					
Manganese	0.02	mg/L			
Iron	0.73	mg/L			
TDS by Summation	350	mg/L			
No Amendments					
pH	7.5	units			
Alkalinity (As CaCO3)	130	mg/L			
Total Hardness	176	mg/L			
With Amendments					
Alkalinity (As CaCO3)	26	mg/L			
Total Hardness	26	mg/L			
pH	5.4 - 6.7	units			

Good Problem

Note: Color coded bar graphs have been used to provide you with 'AT-A-GLANCE' interpretations.

Water Amendments Application Notes:

The Amendments recommended on the previous pages include:

Gypsum:

This should be applied at least once a year to the irrigated soil surface area. Gypsum can also be applied in smaller quantities in the irrigation water. Apply the smaller (bracketed) amount of gypsum when also applying the recommended amount of Sulfuric Acid and the larger amount when applying only Gypsum.

Sulfuric Acid:

These products should be applied as needed to prevent emitter plugging in micro irrigation systems and/or as a soil amendment to adjust soil pH to improve nutrient availability and to facilitate leaching of salts. Please exercise caution when using this material as excesses may be harmful to the system and/or the plants being irrigated. The reported Acid requirement is intended to remove approximately 80 % of the alkalinity. The final pH should range from 5.4 to 6.7. We recommend a field pH determination to confirm that the pH you designate is being achieved. This application is based upon the use of a 98% Sulfuric Acid product. The application of Urea Sulfuric Acid is based upon the use of a product that contains 15% Urea (1.89 lbs Nitrogen), 49% Sulfuric Acid and has a specific gravity of 1.52 at 68 °F.

Guidelines for the above interpretations are sourced from USDA & U.C. Cooperative Extension Service publications. Please contact us if you have any questions.

FRUIT GROWERS LABORATORY, INC.

Scott Bucy

Scott Bucy, Director of Ag. Services

SB1:DMB

1542902

RUSH

FGL ENVIRONMENTAL

853 Corporation Street
Santa Paula, CA 93061
805-392-2000

5-day Rush

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
Bakersfield, CA 93308
Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
Dee Jaspar & Assoc, Inc.
2730 Unicorn Rd., Bldg.A
Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

CHAIN OF CUSTODY/WATER ANALYSIS RECORD

Project: Long Canyon WC

Sampled by: J. Angell

Analysis Requested: See Attached List (5-day Rush) (Low detection limit for As ≤2ppb), and Irrigation Suitability (Normal Turn-around) analysis, please call Jim with lab #.

Sample ID	Date	Time	Number of Containers
TW-2 Pumped Cased: 214' Drilled: 220'	7/16/15	11:15A	4
TW- Pumped Cased: _____ Drilled: _____			
TW- Pumped Cased: _____ Drilled: _____			

COURIER: FedEx

RECEIPT NUMBER: 8082 2047 6484

RELINQUISHED BY: [signature]	DATE/TIME 7/16/15 @ 3:30 pm
RECEIVED BY: FedEx	DATE/TIME
RELINQUISHED BY: [signature]	DATE/TIME 7/17 1100
RECEIVED BY:	DATE/TIME

FGL ENVIRONMENTAL

853 Corporation Street
Santa Paula, CA 93061
805-392-2000

WATER ANALYSIS REQUEST

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
Bakersfield, CA 93308
Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
Dee Jaspar & Assoc, Inc.
2730 Unicorn Rd., Bldg.A
Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

Project: Long Canyon WC

NOTE: Please filter with 0.45 micron filter for metals and alpha activity, and acidify for metals. Non-Potable water for gross alpha.

NO_3 X

Electrical Conductivity X

pH X

Total Dissolved Solids (@ 180°) X

Chloride X

Fe X (Dissolved)

Mn X (Dissolved)

As X (Dissolved)

Gross Alpha X

Note: only analyze for U if alpha activity is > MCL of alpha activity

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: 1
2. Shipper tracking numbers _____
3. Were samples received in a chilled condition?
   Temps: 4 / _____ / _____ / _____ / _____ / _____ / _____
4. Surface water (SWTR) bact samples: A sample that has a temperature upon reciept of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? **Yes** No N/A
6. Verify sample date, time, sampler **Yes** No N/A
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) **Yes** No
8. Were sample custody seals intact? Yes No **N/A**

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? **Yes** No
2. Did bottle labels correspond with the client's ID's? **Yes** No
3. Were all bottles requiring sample preservation properly preserved? **Yes** No N/A FGL
   [Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? Yes No **N/A**
5. Were all analyses within holding times at time of reciept? **Yes** No
6. Have rush or project due dates been checked and accepted? **Yes** No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By **Nicole Parson** Digitally signed by Nicole Parson Title: Sample Receiving Date: 07/17/2015-11:46:05

Discrepency Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
   Initiated By: _____ Date: _____
   Problem:

   Resolution:

2. Person Contacted: _____ Phone Number: _____
   Initiated By: _____ Date: _____
   Problem:

   Resolution:

(4016320)
Dee Jaspar & Associates, Inc.
VI 1542902
NMP-07/17/2015-11:46:05

July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542920
Customer : 4-16320

Laboratory Report

Introduction: This report package contains total of 9 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(4 pages)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
TW-2 Airlft Csd:260' Drl:263'	07/17/2015	07/20/2015	VI 1542920-001	GW
TW-2 Airlft Csd:295' Drl:298'	07/17/2015	07/20/2015	VI 1542920-002	GW

Sampling and Receipt Information: All samples were received, prepared and analyzed within the method specified holding except those as listed in the table below. The holding time for pH is listed as immediate. Logistically this is very difficult to obtain. FGL policy is to analyze all samples requiring pH on the same day of receipt at the laboratory. If this presents any problem please call.

Lab ID	Analyte/Method	Required Holding Time	Actual Holding Time
VI 1542920-001	Nitrate	48	79.5 Hours
VI 1542920-001	pH	15	6310.2 Minutes
VI 1542920-002	Nitrate	48	77 Hours
VI 1542920-002	pH	15	6160.2 Minutes

All samples arrived at 3 °C. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

200.7	07/23/2015:210784 All analysis quality controls are within established criteria
	07/23/2015:208502 All preparation quality controls are within established criteria

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Dee Jaspar & Associates

Lab ID : VI 1542920
Customer : 4-16320

Inorganic - Metals QC

200.8	07/23/2015:210782 All analysis quality controls are within established criteria
	07/23/2015:208515 All preparation quality controls are within established criteria

Radio QC

900.0	07/23/2015:210736 All analysis quality controls are within established criteria
	07/23/2015:210739 All analysis quality controls are within established criteria
	07/21/2015:208361 All preparation quality controls are within established criteria

Inorganic - Wet Chemistry QC

2510B	07/21/2015:210583 All analysis quality controls are within established criteria
	07/21/2015:208378 All preparation quality controls are within established criteria
2540CE	07/21/2015:208397 All preparation quality controls are within established criteria
300.0	07/20/2015:210593 All analysis quality controls are within established criteria
	07/20/2015:208379 All preparation quality controls are within established criteria
4500-H B	07/21/2015:208407 All preparation quality controls are within established criteria
4500HB	07/21/2015:210605 All analysis quality controls are within established criteria

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **David Terz, B.A., M.B.A.** Digitally signed by David Terz, B.A., M.B.A.
Title: QA Director
Date: 2015-07-24

July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542920-001
Customer ID : 4-16320

Sampled On : July 17, 2015-07:30
Sampled By : M.H.
Received On : July 20, 2015-11:30
Matrix : Ground Water

Description : TW-2 Airlft Csd:260' Drl:263'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Iron	ND	30	ug/L		200.7	07/23/15:208502	200.7	07/23/15:210784
Manganese	19.0	0.5	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Wet Chemistry[P:1]								
Chloride	14	1	mg/L		300.0	07/20/15:208379	300.0	07/20/15:210593
Specific Conductance	495	1	umhos/cm		2510B	07/21/15:208378	2510B	07/21/15:210583
Nitrate	4.2	0.5	mg/L		300.0	07/20/15:208379	300.0	07/20/15:210593
pH	7.4	--	units		4500-H B	07/21/15:208407	4500HB	07/21/15:210605
Solids, Total Dissolved (TDS)	320	20	mg/L		2540CE	07/21/15:208397	2540C	07/22/15:210646

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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July 24, 2015

Lab ID : VI 1542920-001
Customer ID : 4-16320

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Sampled On : July 17, 2015-07:30
Sampled By : M.H.
Received On : July 20, 2015-11:30
Matrix : Ground Water

Description : TW-2 Airlft Csd:260' Drl:263'
Project : Long Canyon WC

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry[P:1]								
Gross Alpha	30.9 ± 3.59	1.14	pCi/L		900.0	07/21/15-07:00 2P1508361	900.0	07/23/15-08:00 2A1510736

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542920-002
Customer ID : 4-16320

Sampled On : July 17, 2015-10:00
Sampled By : M.H.
Received On : July 20, 2015-11:30
Matrix : Ground Water

Description : TW-2 Airlft Csd:295' Drl:298'
Project : Long Canyon WC

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Metals, Diss[P:1]								
Arsenic	ND	2	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Iron	ND	30	ug/L		200.7	07/23/15:208502	200.7	07/23/15:210784
Manganese	55.9	0.5	ug/L		200.8	07/23/15:208515	200.8	07/23/15:210782
Wet Chemistry[P:1]								
Chloride	20	1	mg/L		300.0	07/20/15:208379	300.0	07/20/15:210593
Specific Conductance	513	1	umhos/cm		2510B	07/21/15:208378	2510B	07/21/15:210583
Nitrate	5.2	0.5	mg/L		300.0	07/20/15:208379	300.0	07/20/15:210593
pH	7.6	--	units		4500-H B	07/21/15:208407	4500HB	07/21/15:210605
Solids, Total Dissolved (TDS)	330	20	mg/L		2540CE	07/21/15:208397	2540C	07/22/15:210646

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A ‡Surrogate. * PQL adjusted for dilution.

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July 24, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542920-002
Customer ID : 4-16320

Sampled On : July 17, 2015-10:00
Sampled By : M.H.
Received On : July 20, 2015-11:30
Matrix : Ground Water

Description : TW-2 Airlft Csd:295' Drl:298'
Project : Long Canyon WC

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry[P:1]								
Gross Alpha	40.8 ± 4.55	1.17	pCi/L		900.0	07/21/15-07:00 2P1508361	900.0	07/23/15-09:00 2A1510739

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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July 24, 2015
Dee Jaspar & Associates

Lab ID : VI 1542920
Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Iron	200.7		MS	ug/L	4000	104 %	75-125	
		(VI 1542920-001)	MSD	ug/L	4000	113 %	75-125	
			MSRPD	ug/L	800.0	8.2%	≤20.0	
	200.7	07/23/15:210784AC	CCV	ppm	5.000	103 %	90-110	
			CCB	ppm		0.0096	0.03	
			CCV	ppm	5.000	103 %	90-110	
			CCB	ppm		0.0063	0.03	
Arsenic	200.8		MS	ug/L	5.000	94.8 %	75-125	
		(CH 1575660-001)	MSD	ug/L	5.000	105 %	75-125	
			MSRPD	ug/L	5.000	0.52	≤2	
	200.8	07/23/15:210782AC	CCV	ppb	120.0	93.1 %	90-110	
			CCB	ppb		0.14	2	
			CCV	ppb	120.0	93.7 %	90-110	
			CCB	ppb		0.16	2	
Manganese	200.8		MS	ug/L	5.000	94.6 %	75-125	
		(CH 1575660-001)	MSD	ug/L	5.000	105 %	75-125	
			MSRPD	ug/L	5.000	9.0%	≤20	
	200.8	07/23/15:210782AC	CCV	ppb	120.0	96.2 %	90-110	
			CCB	ppb		0.090	0.5	
			CCV	ppb	120.0	96.4 %	90-110	
			CCB	ppb		0.110	0.5	
Wet Chem								
Conductivity	2510B	07/21/15:210583JMG	ICB	umhos/cm		0.07	1	
			CCV	umhos/cm	999.0	100 %	95-105	
			CCV	umhos/cm	999.0	99.6 %	95-105	
E. C.	2510B	07/21/15:208378JMG	Blank	umhos/cm		ND	<1	
		(VI 1542911-003)	Dup	umhos/cm		0.2%	5	
Solids, Total Dissolved	2540CE	07/21/15:208397CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	999.1	101 %	90-110	
		(STK1537787-001)	Dup	mg/L		1.6%	5	
Chloride	300.0		MS	mg/L	500.0	97.8 %	85-121	
		(VI 1542765-001)	MSD	mg/L	500.0	97.4 %	85-121	
			MSRPD	mg/L	100.0	0.3%	≤19	
			Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	93.6 %	90-110	
			MS	mg/L	500.0	96.9 %	85-121	
		(VI 1542820-001)	MSD	mg/L	500.0	97.8 %	85-121	
			MSRPD	mg/L	100.0	0.9%	≤19	
	300.0	07/20/15:210593KD	ICV	ppm	25.00	92.5 %	90-110	
			ICB	ppm		0.02	1	
			CCB	ppm		0.02	1	
			CCV	PPM	25.00	0.0 %	90-110	
			CCV	ppm	25.00	94.2 %	90-110	
			CCB	ppm		0.00	1	
			CCV	PPM	25.00	0.0 %	90-110	
Nitrate	300.0		MS	mg/L	400.0	96.5 %	85-119	
		(VI 1542765-001)	MSD	mg/L	400.0	96.2 %	85-119	
			MSRPD	mg/L	100.0	0.3%	≤19	
			Blank	mg/L		ND	<0.5	
			LCS	mg/L	20.00	92.7 %	90-110	
			MS	mg/L	400.0	95.9 %	85-119	
		(VI 1542820-001)	MSD	mg/L	400.0	96.9 %	85-119	
			MSRPD	mg/L	100.0	1.0%	≤19	
	300.0	07/20/15:210593KD	ICV	ppm	20.00	91.8 %	90-110	
			ICB	ppm		0.000	0.5	

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July 24, 2015 Lab ID : VI 1542920

Dee Jaspar & Associates Customer : 4-16320

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Nitrate	300.0	07/20/15:210593KD	CCB	ppm		0.000	0.5	
			CCV	PPM	20.00	0.0 %	90-110	
			CCV	ppm	20.00	93.4 %	90-110	
			CCB	ppm		0.000	0.5	
			CCV	PPM	20.00	0.0 %	90-110	
pH	4500-H B	(SP 1508021-001)	Dup	units		0.3%	4.80	
	4500HB	07/21/15:210605JMG	CCV	units	8.000	101 %	95-105	
			CCV	units	8.000	101 %	95-105	

Definition

ICV	: Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
ICB	: Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
Dup	: Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

July 24, 2015
Dee Jaspar & Associates

Lab ID : VI 1542920
Customer : 4-16320

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	07/23/15:210736caa	CCV	cpm	8895	41.1 %	37 - 45	
			CCB	cpm		0.0800	0.18	
	900.0	07/23/15:210739caa	CCV	cpm	8895	40.5 %	38 - 46	
			CCB	cpm		0.100	0.14	
Gross Alpha	900.0	07/21/15:208361elc	Blank	pCi/L		0.04	3	
			LCS	pCi/L	180.6	94.3 %	75-125	
			MS	pCi/L	180.6	132 %	60-140	
		(SP 1507679-001)	MSD	pCi/L	180.6	124 %	60-140	
			MSRPD	pCi/L	180.6	6.2%	≤30	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

1542920

RUSH

FGL ENVIRONMENTAL

853 Corporation Street
Santa Paula, CA 93061
805-392-2000

5-day Rush

RUSH

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
Bakersfield, CA 93308
Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
Dee Jaspar & Assoc, Inc.
2730 Unicorn Rd., Bldg.A
Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

CHAIN OF CUSTODY/WATER ANALYSIS RECORD

Project: Long Canyon WC

Sampled by: M Hooker

Analysis Requested: See Attached List (5-day Rush) (Low detection limit for As ≤2ppb, please call Jim with lab #.

Sample ID	Date	Time	Number of Containers
TW-3 2" Airlift Cased: 260 Drilled: 263	7/17/15	7:30am	4
TW-4 2" Airlift Cased: 295 Drilled: 298	7/17/15	10:00am	4
TW-5 Airlift Cased: _____ Drilled: _____			

COURIER: _____

RECEIPT NUMBER: 5082 7047 0473

RELINQUISHED BY:	DATE/TIME
[signature]	7/17/15 4:00pm
RECEIVED BY: [signature]	DATE/TIME 7/17/15 @ 4:00pm
RELINQUISHED BY: [signature]	DATE/TIME 7/18/15 @ 1:00pm
RECEIVED BY: [signature]	DATE/TIME 7/20/15 1150

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3°C

XCOM 542870

5H29720

5-day Rush

FGL ENVIRONMENTAL

853 Corporation Street
Santa Paula, CA 93061
805-392-2000

RUSH WATER ANALYSIS REQUEST

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
Bakersfield, CA 93308
Attn: James Angell
Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
Dee Jaspar & Assoc, Inc.
2730 Unicorn Rd., Bldg.A
Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

Project: Long Canyon WC

NOTE: Please filter with 0.45 micron filter for metals and alpha activity, and acidify for metals. Non-Potable water for gross alpha.

NO_3 X

Electrical Conductivity X

pH X

Total Dissolved Solids (@ 180°) X

Chloride X

Fe X (Dissolved)

Mn X (Dissolved)

As X (Dissolved)

Gross Alpha X

Note: only analyze for U if alpha activity is > MCL of alpha activity

RUSH

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: 1
2. Shipper tracking numbers 808220476473
3. Were samples received in a chilled condition?
   Temps: 3 / _____ / _____ / _____ / _____ / _____ / _____
4. Surface water (SWTR) bact samples: A sample that has a temperature upon reciept of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? **Yes** No N/A
6. Verify sample date, time, sampler **Yes** No N/A
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) **Yes** No
8. Were sample custody seals intact? Yes No **N/A**

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? **Yes** No
2. Did bottle labels correspond with the client's ID's? **Yes** No
3. Were all bottles requiring sample preservation properly preserved? **Yes** No N/A **FGL**
   [Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? Yes No **N/A**
5. Were all analyses within holding times at time of reciept? Yes **No**
6. Have rush or project due dates been checked and accepted? **Yes** No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By **Shawn Peck** Digitally signed by Shawn Peck Title: Sample Receiving Date: 07/20/2015-14:02:27

Discrepency Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
   Initiated By: srp Date: 2015-07-20
   Problem: **pH received past holding time**

   Resolution: **Jim Angell is aware of this**

2. Person Contacted: _____ Phone Number: _____
   Initiated By: _____ Date: _____
   Problem:

   Resolution:

(4016320)
Dee Jaspar & Associates, Inc.
VI 1542920
SRP-07/20/2015-14:02:27

August 11, 2015

Dee Jaspar & Associates
2730 Unicorn Rd. Bldg A
Bakersfield, CA 93308

Lab ID : VI 1542919-001
Customer ID : 4-16320

Sampled On : July 17, 2015
Sampled By : M.H.
Received On : July 20, 2015
Matrix : Ground Water

Description : TW-2 Pumped Csd:295' Drl:298'
Project : Long Canyon WC

General Irrigation Suitability Analysis

Test Description	Result				Graphical Results Presentation				
Cations	mg/L	Meq/L	% Meq	Lbs/AF	Good	Possible Problem	Moderate Problem	Increasing Problem	Severe Problem
Calcium	50	2.5	47	140	**				
Magnesium	11	0.91	17	30	**				
Potassium	3	0.077	1	8	**				
Sodium	42	1.8	34	110					
Anions									
Carbonate	< 10	0	0	0					
Bicarbonate	230	3.8	68	630	**				
Sulfate	53	1.1	20	140	**				
Chloride	19	0.54	10	52					
Nitrate	5.3	0.085	2	14					
Nitrate Nitrogen	1.2			3					
Fluoride	1.0	0.053	1	3					
Minor Elements									
Boron	0.20			0.54					
Copper	< 0.01			0.00					
Iron	< 0.03			0.00					
Manganese	0.020			0.054					
Zinc	< 0.02			0.00					
TDS by Summation	414			1100					
Other									
pH	7.2			units					
E. C.	0.527			dS/m					
SAR	1.4								
Crop Suitability									
No Amendments	Good								
With Amendments	Good								
Amendments									
Gypsum Requirement	0.3			Tons/AF					
Sulfuric Acid (98%)	13			oz/1000Gal	Or 32 oz/1000Gal of urea Sulfuric Acid (15/49).				
Leaching Requirement	3.9			%					

Good Problem

Note: Color coded bar graphs have been used to provide you with 'AT-A-GLANCE' interpretations.

** Used in various calculations; mg/L = Milligrams Per Liter (ppm) meq/L = Milliequivalents Per Liter

August 11, 2015

Dee Jaspar & Associates

Lab ID : VI 1542919-001
Customer ID : 4-16320
Description : TW-2 Pumped Csd:295' Drl:298'

Micro Irrigation System Plugging Hazard

Test Description	Result		Graphical Results Presentation		
			Slight	Moderate	Severe
Chemical					
Manganese	0.02	mg/L			
Iron	< 0.03	mg/L			
TDS by Summation	414	mg/L			
No Amendments					
pH	7.2	units			
Alkalinity (As CaCO3)	190	mg/L			
Total Hardness	170	mg/L			
With Amendments					
Alkalinity (As CaCO3)	38	mg/L			
Total Hardness	38	mg/L			
pH	5.4 - 6.7	units			

Good Problem

Note: Color coded bar graphs have been used to provide you with 'AT-A-GLANCE' interpretations.

Water Amendments Application Notes:

The Amendments recommended on the previous pages include:

Gypsum:

This should be applied at least once a year to the irrigated soil surface area. Gypsum can also be applied in smaller quantities in the irrigation water. Apply the smaller (bracketed) amount of gypsum when also applying the recommended amount of Sulfuric Acid and the larger amount when applying only Gypsum.

Sulfuric Acid:

These products should be applied as needed to prevent emitter plugging in micro irrigation systems and/or as a soil amendment to adjust soil pH to improve nutrient availability and to facilitate leaching of salts. Please exercise caution when using this material as excesses may be harmful to the system and/or the plants being irrigated. The reported Acid requirement is intended to remove approximately 80 % of the alkalinity. The final pH should range from 5.4 to 6.7. We recommend a field pH determination to confirm that the pH you designate is being achieved. This application is based upon the use of a 98% Sulfuric Acid product. The application of Urea Sulfuric Acid is based upon the use of a product that contains 15% Urea (1.89 lbs Nitrogen), 49% Sulfuric Acid and has a specific gravity of 1.52 at 68 °F.

Guidelines for the above interpretations are sourced from USDA & U.C. Cooperative Extension Service publications. Please contact us if you have any questions.

FRUIT GROWERS LABORATORY, INC.

Scott Bucy

Scott Bucy, Director of Ag. Services

SB1:KDM

1542919 RUSH

RUSH

5-day RUSH

FGL ENVIRONMENTAL
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Santa Paula, CA 93061
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Analyses to:
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Bakersfield, CA 93308
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Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

Invoice to:
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Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

CHAIN OF CUSTODY/WATER ANALYSIS RECORD

Project: Long Canyon WC

Sampled by: M Wash

Analysis Requested: See Attached List (5-day Rush) (Low detection limit for As ≤2ppb), and Irrigation Suitability (Normal Turn-around) analysis, please call Jim with lab #.

Sample ID	Date	Time	Number of Containers
TW-~~#~~2 Pumped Cased: 295 Drilled: 298	7/17/15	12:45pm	4
TW-~~#~~2 Pumped Cased: _____ Drilled: _____			
TW-~~#~~ Pumped Cased: _____ Drilled: _____			

COURIER: _____

RECEIPT NUMBER: 4085 2047 6473

RELINQUISHED BY: [signature]	DATE/TIME 7/17/15 4:00pm
RECEIVED BY: [signature]	DATE/TIME 7/17/15 @ 4:00 pm
RELINQUISHED BY: [signature]	DATE/TIME 7/18/15 @ 1:00 pm
RECEIVED BY: [signature]	DATE/TIME 7/18/15 1130

FedEx 3°C

From 1542871

FGL ENVIRONMENTAL

RUSH

853 Corporation Street
Santa Paula, CA 93061
805-392-2000

WATER ANALYSIS REQUEST

K429919

Analyses to:
Kenneth D. Schmidt and Assoc.
3701 Pegasus Drive, Suite 112
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Phone: 661-392-1630
Email: kdschmidt@bak.rr.com

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Bakersfield, CA 93308
Attn: Curtis Skaggs
Phone: 661-393-4796
Email: cskaggs@djacivil.com

Project: Long Canyon WC

NOTE: Please filter with 0.45 micron filter for metals and alpha activity, and acidify for metals. Non-Potable water for gross alpha.

NO_3 X

Electrical Conductivity X

pH X

Total Dissolved Solids (@ 180°) X

Chloride X

Fe X (Dissolved)

Mn X (Dissolved)

As X (Dissolved)

Gross Alpha X

Note: only analyze for U if alpha activity is > MCL of alpha activity

RUSH

APPENDIX G

Cost Estimate for Iron/Manganese Water Treatment System

Weldon Regional Consolidation Water Project - Alternative No. 2				
Iron/Manganese Removal Treatment System (400 gpm Service Flow Rate)				
Engineer's Estimate				
Item Description	**Quantity**	**Unit**	**Unit Cost**	**Extended Cost**
96" Dia. x 60"H Filter Vessel (250 psi Rating)	3	EA	$60,000.00	$180,000.00
Furnish & Install Katalox Light Media	375	CF	$120.00	$45,000.00
16'x44' Concrete Pad	18	CY	$1,000.00	$18,000.00
6" EPLC Fabricated Steel Header Piping	200	LF	$250.00	$50,000.00
6" Butterfly Valve w/EMO	12	EA	$6,000.00	$72,000.00
6" Mag Meter	3	EA	$5,000.00	$15,000.00
6" Check Valve	1	EA	$2,000.00	$2,000.00
SS ARI Valves	3	EA	$3,000.00	$9,000.00
CMU Treatment System Building	1	LS	$100,000.00	$100,000.00
Pipe Supports	12	EA	$1,000.00	$12,000.00
Electrical & Controls	1	LS	$50,000.00	$50,000.00
			Subtotal:	$553,000.00
			Engineering Design & Construction Management:	$41,475.00
			20% Contingency:	$110,600.00
			Total:	$705,075.00

APPENDIX H

Project Alternative 2 System Layout Map

SCALE 1"=1,000'

0 1,000' 2,000' 4,000'

DISTRIBUTION SYSTEM PIPING
±33,150 LF OF 12"ø DR14 C900 PVC

NEW 6"ø DR14 C900 DISTRIBUTION SYSTEM PIPING & APPURTENANCES (±6,200 LF)

TEST/PRODUCTION WELL NO. 2
Q=±400 GPM
(EL.=±2,660')

PROPOSED 2MG TANK SITE
HGL=±2,920'

TEST/PRODUCTION WELL NO. 1
Q=±400 GPM
(EL.=±2,635')

TRADEWIND WATER ASSOCIATION
(EL.=±2,650'-2,870')

SIERRA VIEW RESTAURANT & KOA CAMPGROUND
(EL.=±2,625')

RAINBIRD VALLEY MUTUAL WATER COMPANY
(EL.=±2,660'-2,700')

LONG CANYON WATER COMPANY
(EL.=±2,680'-2,770')

LONG CANYON WATER COMPANY (FUTURE)

BELLA VISTA MUTUAL WATER COMPANY (FUTURE)

8" GRAVITY SYSTEM TIE-IN LOCATION & PRV

6" PRESSURE LINE SYSTEM TIE-IN LOCATION & PRV

NEW 6" DR14 C900 DISTRIBUTION SYSTEM PIPING & APPURTENANCES (±3,925 LF)

6" PRESSURE MAIN TO TRADEWINDS PRESSURE DISTRIBUTION SYSTEM (±2,725 LF)

BELLA VISTA 30K GAL TANK & BOOSTER STATION
HGL=±2,880'

BELLA VISTA MUTUAL WATER COMPANY
(EL.=±2,885'-3,215')

NEW 6" DR14 C900 DISTRIBUTION SYSTEM PIPING & APPURTENANCES (±13,675 LF)

HWY. 178

FAY RANCH ROAD

South Fork Valley

Weldon

Bella Vista

Piute

SIERRA WAY

KELSO VALLEY RD

CHAPMAN RD

STICKMAN RD

MILE HI DR

MAVERICK AVE

VAIL LN

BUCK RD

WINDMILL LN

BULL RUN RD

GOLD RUN RD

BROOKS RD

PIONEER RD

AMY RD

IBASS AVE

TINGI AVE

ALTERNATIVE NO. 2 LAYOUT
SCALE 1"=1,000'

REV.	DATE	DESCRIPTION	BY
1			
2			
3			
4			
5			
6			
7			

DEE JASPAR & ASSOCIATES, INC.
CIVIL ENGINEERS
[illegible]

PRELIMINARY SYSTEM LAYOUT

WELDON REGIONAL CONSOLIDATION PROJECT

WELDON REGIONAL WATER PROJECT
KERN COUNTY, CALIFORNIA

DRAWN	KRW
CHECKED	CMS
DATE	12/21/2015
SCALE	1"=1,000'
FILE	
JOB NO.	
SHEET	1
OF	1 SHEETS

S:\WELDON REGIONAL WATER PROJECT\DRAWINGS\FEASIBILITY SYSTEM LAYOUT-ALT 2.DWG 4/21/2016 10:58 AM

APPENDIX I

Project Alternative 2 Capital and O&M Cost Estimates

Weldon Regional Consolidation Water Project

Project Alternative #2

Engineer's Estimate

Item No.	Item Description	Quantity	Unit	Unit Cost	Extended Cost
1	Mobilization/Demobilization/Cleanup	1	LS	$350,000.00	$350,000.00
2	Potholing of Existing Utilities	1	LS	$75,000.00	$75,000.00
3	Permitting with KCBID & Caltrans	1	LS	$20,000.00	$20,000.00
4	Traffic Control	1	LS	$100,000.00	$100,000.00
5	Kern County Potable Water Pipeline Franchise Permit	1	LS	$5,000.00	$5,000.00
6	Caltrans Potable Water Pipeline Pipeline Franchise Permit	1	LS	$10,000.00	$10,000.00
				Subtotal:	$560,000.00
	Construct New Well at Test Well #1 Location				
7	36" Conductor Casing	50	LF	$1,000.00	$50,000.00
8	18" Pilot Hole Construction	250	LF	$150.00	$37,500.00
9	Ream Pilot Hole to 28"	250	LF	$150.00	$37,500.00
10	16" I.D. X 5/16" COR-TEN Blank Casing	110	LF	$300.00	$33,000.00
11	16" I.D. X 5/16" COR-TEN Perforated Casing	120	LF	$400.00	$48,000.00
12	4" Gravel Feed Tube	105	LF	$30.00	$3,150.00
13	2" Sounding Tube	100	LF	$25.00	$2,500.00
14	Gravel Envelope (4x16 Colorado Silica Sand)	130	LF	$100.00	$13,000.00
15	Cement Seal	50	LF	$110.00	$5,500.00
16	Swabbing and Airlifting Development	60	HRS	$500.00	$30,000.00
17	Pumping and Surging Development	48	HRS	$450.00	$21,600.00
18	Production Testing	24	HRS	$450.00	$10,800.00
19	Well Video	1	LS	$3,000.00	$3,000.00
				Subtotal:	$295,550.00
	Construct New Well at Test Well #2 Location				
20	36" Conductor Casing	50	LF	$1,000.00	$50,000.00
21	18" Pilot Hole Construction	270	LF	$150.00	$40,500.00
22	Ream Pilot Hole to 28"	270	LF	$150.00	$40,500.00
23	16" I.D. X 5/16" COR-TEN Blank Casing	180	LF	$300.00	$54,000.00
24	16" I.D. X 5/16" COR-TEN Perforated Casing	70	LF	$400.00	$28,000.00
25	4" Gravel Feed Tube	175	LF	$30.00	$5,250.00
26	2" Sounding Tube	170	LF	$25.00	$4,250.00
27	Gravel Envelope (4x16 Colorado Silica Sand)	80	LF	$100.00	$8,000.00
28	Cement Seal	50	LF	$110.00	$5,500.00
29	Swabbing and Airlifting Development	60	HRS	$500.00	$30,000.00
30	Pumping and Surging Development	48	HRS	$450.00	$21,600.00
31	Production Testing	24	HRS	$450.00	$10,800.00
32	Well Video	1	LS	$3,000.00	$3,000.00
				Subtotal:	$301,400.00
	Well Equipping & Discharge Piping at Test Well #1 Location				
33	Well Site Grading and Earthwork	1	EA	$60,000.00	$60,000.00
34	Well Site Agg. Base Ground Cover	300	TON	$75.00	$22,500.00
35	Deep Well Pump Concrete Foundation	1	EA	$15,000.00	$15,000.00
36	Furnish & Install 400 gpm Pump w/100 HP Motor	1	EA	$50,000.00	$50,000.00
37	Furnish & Install 36" Dia. RCP Dry Well	1	EA	$17,500.00	$17,500.00
38	FBE Steel Well Discharge Piping & Appurtenances	1	EA	$45,000.00	$45,000.00
39	Well Building Enclosures	1	EA	$40,000.00	$40,000.00
40	1,500 Gallon Hydropneumatic Tank & Concrete Footings	1	EA	$65,000.00	$65,000.00
41	275 Gallon Chlorine Storage Tank and Feed Pump	1	EA	$10,000.00	$10,000.00
42	FRP Chemical Storage Building & Concrete Foundation	1	EA	$50,000.00	$50,000.00
43	Administration Building	1	LS	$150,000.00	$150,000.00
44	Electrical Switchgear Foundation & Shade Structure	1	EA	$30,000.00	$30,000.00
45	Electrical and Controls including Site Lighting and SCADA	1	EA	$200,000.00	$200,000.00
46	Electric Utility Costs	1	EA	$50,000.00	$50,000.00
47	System Painting	1	EA	$10,000.00	$10,000.00
48	Site Fencing w/Two Double Drive Gates	600	LF	$35.00	$21,000.00
49	Well Head Treatment System for Fe/Mn Removal	1	LS	$553,000.00	$553,000.00
50	Pipe Insulation w/Heat Trace	1	EA	$15,000.00	$15,000.00
				Subtotal:	$1,404,000.00
	Well Equipping & Discharge Piping at Test Well #2 Location				
51	Well Site Grading and Earthwork	1	EA	$60,000.00	$60,000.00
52	Well Site Agg. Base Ground Cover	300	TON	$75.00	$22,500.00
53	Deep Well Pump Concrete Foundation	1	EA	$15,000.00	$15,000.00
54	Furnish & Install 400 gpm Pump w/100 HP Motor	1	EA	$50,000.00	$50,000.00
55	Furnish & Install 36" Dia. RCP Dry Well	1	EA	$17,500.00	$17,500.00
56	FBE Steel Well Discharge Piping & Appurtenances	1	EA	$45,000.00	$45,000.00
57	Well Building Enclosures	1	EA	$40,000.00	$40,000.00
58	1,500 Gallon Hydropneumatic Tank & Concrete Footings	1	EA	$65,000.00	$65,000.00
59	275 Gallon Chlorine Storage Tank and Feed Pump	1	EA	$10,000.00	$10,000.00
60	FRP Chemical Storage Building & Concrete Foundation	1	EA	$50,000.00	$50,000.00
61	Electrical Switchgear Foundation & Shade Structure	1	EA	$30,000.00	$30,000.00
62	Electrical and Controls including Site Lighting and SCADA	1	EA	$200,000.00	$200,000.00
63	Electric Utility Costs	1	EA	$50,000.00	$50,000.00
64	System Painting	1	EA	$10,000.00	$10,000.00
65	Site Fencing w/Two Double Drive Gates	600	LF	$35.00	$21,000.00
66	Well Head Treatment System for Fe/Mn Removal	1	LS	$553,000.00	$553,000.00
67	Pipe Insulation w/Heat Trace	1	EA	$15,000.00	$15,000.00
				Subtotal:	$1,254,000.00
	2 MG Kelso Valley Road Storage Tank Site				
68	Tank Site and Access Road Grading	7,500	CY	$30.00	$225,000.00
69	Gravel Rock Ground Cover for Access Road & Tank Site	1,000	TON	$75.00	$75,000.00
70	2MG Welded Steel Storage Tank & Concrete Ringwall Fdn	1	LS	$2,000,000.00	$2,000,000.00
71	Site Electrical/SCADA	1	LS	$250,000.00	$250,000.00
72	Electric Utility Costs	1	LS	$40,000.00	$40,000.00
73	Site Fencing w/Two Double Drive Gates	800	LF	$35.00	$28,000.00
74	Site Painting	1	LS	$10,000.00	$10,000.00
75	Tank Site Property Acquisition	1	LS	$50,000.00	$50,000.00
				Subtotal:	$2,678,000.00
	Bella Vista Drive Booster Station				
76	Booster Station Site and Access Road Grading	2,000	CY	$30.00	$60,000.00
77	Gravel Rock Ground Cover for Access Road & Tank Site	500	TON	$75.00	$37,500.00
78	Booster Station	1	LS	$400,000.00	$400,000.00
79	1,500 Gallon Hydropneumatic Tank w/Footings	1	LS	$75,000.00	$75,000.00
80	30k Gal AWWA D103 Storage Tank w/Concrete Ringwall Ftg.	1	LS	$75,000.00	$75,000.00
81	Site Electrical	1	LS	$250,000.00	$250,000.00
82	Electric Utility Costs	1	LS	$40,000.00	$40,000.00
83	Site Fencing w/Two Double Drive Gates	800	LF	$35.00	$28,000.00
84	Site Painting	1	LS	$10,000.00	$10,000.00
85	Booster Station Site Property Acquisition	1	LS	$40,000.00	$40,000.00
				Subtotal:	$1,015,500.00

Weldon Regional Consolidation Water Project

Project Alternative #2

Engineer's Estimate

Item No.	Item Description	Quantity	Unit	Unit Cost	Extended Cost
	Distribution System Piping				
86	Furnish & Install 12" DR14 C900 PVC Pipe	33,150	LF	$100.00	$3,315,000.00
87	Furnish & Install 12" Gate Valve	10	EA	$4,000.00	$40,000.00
88	Furnish & Install Dry Barrel Fire Hydrant Assembly	1	EA	$5,500.00	$5,500.00
89	Remote Read Meter Equipment w/One Year Technical Support	1	LS	$12,500.00	$12,500.00
				Subtotal:	$3,373,000.00
	Sierra View Restaurant & KOA Campground Tie-In				
90	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
91	Furnish & Install Dry Barrel Fire Hydrant Assembly	2	EA	$5,500.00	$11,000.00
92	Furnish & Install 2" Long Meter Service	2	EA	$4,750.00	$9,500.00
93	24" O.D. Steel Cased Crossing under Hwy 178	100	LF	$500.00	$50,000.00
94	Well Abandonment per KCEHS Standards	2	EA	$30,000.00	$60,000.00
				Subtotal:	$210,500.00
	Bella Vista Water System Improvements				
95	Furnish & Install 6" DR14 C900 PVC Pipe	13,675	LF	$60.00	$820,500.00
96	Furnish & Install Dry Barrel Fire Hydrant Assembly	15	EA	$5,500.00	$82,500.00
97	Furnish & Install 6" Gate Valve	22	EA	$2,500.00	$55,000.00
98	Furnish & Install 1" Long Meter Service	47	EA	$2,000.00	$94,000.00
99	Pressure Reducing Valve & Precast Vault	2	EA	$40,000.00	$80,000.00
				Subtotal:	$1,132,000.00
	Rainbird Water System Improvements				
100	Furnish & Install 6" DR14 C900 PVC Pipe	6,200	LF	$60.00	$372,000.00
101	Furnish & Install Dry Barrel Fire Hydrant Assembly	13	EA	$5,500.00	$71,500.00
102	Furnish & Install 6" Gate Valve	9	EA	$2,500.00	$22,500.00
103	Pressure Reducing Valve & Precast Vault	1	EA	$40,000.00	$40,000.00
104	Furnish & Install 1" Long Meter Service	83	EA	$2,000.00	$166,000.00
100	Well Abandonment per KCEHS Standards	2	EA	$30,000.00	$60,000.00
				Subtotal:	$732,000.00
	Long Canyon Water System Improvements				
101	Furnish & Install 6" DR14 C900 PVC Pipe	3,925	LF	$70.00	$274,750.00
102	Furnish & Install Dry Barrel Fire Hydrant Assembly	6	EA	$5,500.00	$33,000.00
103	Furnish & Install 6" Gate Valve	10	EA	$2,500.00	$25,000.00
104	Pressure Reducing Valve & Precast Vault	2	EA	$40,000.00	$80,000.00
105	Furnish & Install 1" Long Meter Service	67	EA	$2,000.00	$134,000.00
106	Well Abandonment per KCEHS Standards	1	EA	$30,000.00	$30,000.00
				Subtotal:	$576,750.00
	Tradewinds Water Association Tie-In				
107	Furnish & Install 6" DR14 C900 PVC Pipe	2,725	LF	$60.00	$163,500.00
108	System Tie-In and Pressure Reducing Valve	4	EA	$40,000.00	$160,000.00
109	Furnish & Install 1" Meter	236	EA	$1,000.00	$236,000.00
110	Existing Tradewinds USDA Loan	1	LS	$300,000.00	$300,000.00
111	Well Abandonment per KCEHS Standards	1	EA	$30,000.00	$30,000.00
				Subtotal:	$889,500.00
				Subtotal:	$14,422,200.00
				Contract Administration, & Construction Management:	$1,081,665.00
				20% Contingency:	$2,884,440.00
				Total:	**$18,388,305.00**

*Existing wells to be abandoned in accordance with KCEHS Standards with Cement Sand Slurry

**Tradewinds existing water system infrastructure shall remain and shall be incorporated into the new regional water system

***Bella Vista's wells to remain for possible use as standby wells for the new regional water system

Cost Estimates to Tie-In Potential Project Participants to Consolidated Water System

	Valley Estates P.O.A. Tie-In				
1	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	2,750	LF	$100.00	$275,000.00
				Subtotal:	$355,000.00
				25% Contingency:	$88,750.00
				Total:	**$443,750.00**
	South Fork Middle School Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	1	EA	$40,000.00	$40,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	1,500	LF	$100.00	$150,000.00
				Subtotal:	$190,000.00
				25% Contingency:	$47,500.00
				Total:	**$237,500.00**
	Weldon Methodist Church Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	1	EA	$40,000.00	$40,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	175	LF	$100.00	$17,500.00
3	24" O.D. Steel Cased Crossing under Hwy 178	100	LF	$500.00	$50,000.00
				Subtotal:	$107,500.00
				25% Contingency:	$26,875.00
				Total:	**$134,375.00**
	South Fork Women's Club/South Fork Elementary School Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	475	LF	$100.00	$47,500.00
3	24" O.D. Steel Cased Crossing under Hwy 178	100	LF	$500.00	$50,000.00
				Subtotal:	$177,500.00
				25% Contingency:	$44,375.00
				Total:	**$221,875.00**
	Hillview Acres MWC Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	6,250	LF	$100.00	$625,000.00
				Subtotal:	$705,000.00
				25% Contingency:	$176,250.00
				Total:	**$881,250.00**
	Lakeview Ranchos MWC Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	3	EA	$40,000.00	$120,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	2,600	LF	$100.00	$260,000.00
				Subtotal:	$380,000.00
				25% Contingency:	$95,000.00
				Total:	**$475,000.00**

Total Cost to Tie In All Surrounding Water Systems: **$2,393,750.00**

CAPITAL IMPROVEMENT PLAN (CIP) for Project Alternative 2

Date: 2/23/2016

System ID No.:

System Name: Weldon Consolidated Water Company

Service Connections: 436

*Enter information only in YELLOW shaded cells

QTY	COMPONENT			UNIT COST	INSTALLED COST	AVG LIFE, YEARS	ANNUAL RESERVE	MONTHLY RESERVE	MONTHLY RESERVE PER CUSTOMER
2	Drilled Well, 16", steel casing	Depth:	275	1100	605000	60	10083.33	840.28	1.93
2	Wellhead Electrical Controls			100000	200000	40	5000.00	416.67	0.96
2	Well Pump, 100 HP			50000	100000	15	6666.67	555.56	1.27
3	Pressure Tank	Gallons:	1500	40.0	180000	60	3000.00	250.00	0.57
3	Storage Tank, Plastic	Gallons:	275	20.0	16500	10	1650.00	137.50	0.32
1	Storage Tank, Steel	Gallons:	2,000,000	0.6	1200000	60	20000.00	1666.67	3.82
1	Storage Tank, Steel	Gallons:	30,000	0.6	18000	50	360.00	30.00	0.07
2	Well Discharge Flow Meter, 8"			3500	7000	30	233.33	19.44	0.04
2	Hypochlorinator w/ Tank & Pump, Complete			3500	7000	10	700.00	58.33	0.13
33,150	Pipe w/ sand bedding, 12" (Enter linear feet for quantity)			55	1823250	100	18232.50	1519.38	3.48
26,525	Pipe w/ sand bedding, 6" (Enter linear feet for quantity)			40	1061000	100	10610.00	884.17	2.03
2	Well head Treatment System for Fe/Mn Removal			325000	650000	50	13000.00	1083.33	2.48
37	Standpipe Hydrant, 2-1/2"			5000	185000	50	3700.00	308.33	0.71
436	Customer Meter w/ Box & Shutoff, Complete			500	218000	25	8720.00	726.67	1.67
10	Distribution Valve, 12"			2000	20000	50	400.00	33.33	0.08
41	Distribution Valve, 6"			1500	61500	50	1230.00	102.50	0.24
30	Air & Vacuum Relief Valve, Typical			500	15000	20	750.00	62.50	0.14
9	Pressure Reducing Valve			10000	90000	20	4500.00	375.00	0.86
1	SCADA Upgrades			50000	50000	30	1666.67	138.89	0.32
1	Painting/Coating Upgrades			200000	200000	50	4000.00	333.33	0.76
	SUBTOTAL Existing CIP Costs				$6,707,250.00		$114,502.50	$9,541.88	$21.89

Report Prepared by (Title): _____ Date: _____

NOTE: Installed costs are averages and include all materials and contracted labor and equipment.

NOTES:

FIVE YEAR BUDGET PROJECTION - PROJECT ALTERNATIVE 2

INSTRUCTIONS: Yellow-shaded cells are for data entry; all other cells are locked except line item descriptions which can be changed if needed. Years 2 through 5 will be compounded automatically by the inflation factor in Cell G6.

System Name: Weldon Consolidated Water Company

Inflation Factor (%): 3.0

System ID Number:

LINE		EXPENSES AND SOURCE OF FUNDS	2016	2017	2018	2019	2020
1		**OPERATIONS AND MAINTENANCE (O&M) EXPENSES**					
2		Salaries and Benefits	50,000.00	51,500.00	53,045.00	54,636.35	56,275.44
3		Contract Operation and Maintenance	6,000.00	6,180.00	6,365.40	6,556.36	6,753.05
4		Power and Other Utilities	30,000.00	30,900.00	31,827.00	32,781.81	33,765.26
5		Fees Regulatory	5,000.00	5,150.00	5,304.50	5,463.64	5,627.54
6		NaClO Chemical Supply	5,000.00	5,150.00	5,304.50	5,463.64	5,627.54
7		Coliform Monitoring	3,500.00	3,605.00	3,713.15	3,824.54	3,939.28
8		Chemical Monitoring	7,500.00	7,725.00	7,956.75	8,195.45	8,441.32
9		Wellhead Treatment for Fe/Mn Removal	11,500.00	11,845.00	12,200.35	12,566.36	12,943.35
10		Transportation	2,000.00	2,060.00	2,121.80	2,185.45	2,251.02
11		Materials, Supplies, and Parts	5,000.00	5,150.00	5,304.50	5,463.64	5,627.54
12		Office Supplies	4,000.00	4,120.00	4,243.60	4,370.91	4,502.04
12		Miscellaneous	4,000.00	4,120.00	4,243.60	4,370.91	4,502.04
14		**Total O&M Expenses:**	133,500.00	137,505.00	141,630.15	145,879.05	150,255.43
16		**GENERAL AND ADMINISTRATIVE EXPENSES**					
17		Engineering and Professional Services	10,000.00	10,300.00	10,609.00	10,927.27	11,255.09
18		Depreciation and Amortization	0.00	0.00	0.00	0.00	0.00
19		Insurance	10,000.00	10,300.00	10,609.00	10,927.27	11,255.09
20		Existing Contribution to CIP (From CIP)	114,502.50	117,937.58	121,475.70	125,119.97	128,873.57
21		O&M Reserve	2,500.00	2,575.00	2,652.25	2,731.82	2,813.77
22		Other Reserves	2,000.00	2,060.00	2,121.80	2,185.45	2,251.02
23		Miscellaneous	100.00	103.00	106.09	109.27	112.55
26	**	Debt Service	19,200.00	19,200.00	19,200.00	19,200.00	19,200.00
27		**Total General and Administrative Expenses:**	158,302.50	162,475.58	166,773.84	171,201.06	175,761.09
28		**TOTAL EXPENSES (Line 14+ Line 27):**	291,802.50	299,980.58	308,403.99	317,080.11	326,016.52
30		**REVENUES RECEIVED**					
31		Cash Revenues (Water Rates)	291,802.50	299,980.58	308,403.99	317,080.11	326,016.52
32	**	Depreciation Reserves	0.00	0.00	0.00	0.00	0.00
33	**	Fees and Services	0.00	0.00	0.00	0.00	0.00
34	**	Hookup Charges	0.00	0.00	0.00	0.00	0.00
35	**	Withdrawal from CIP or Other Reserves	0.00	0.00	0.00	0.00	0.00
36	**	Other Fund Sources: Interest, Etc.	0.00	0.00	0.00	0.00	0.00
37	**	Grants	0.00	0.00	0.00	0.00	0.00
38	**	SRF Loan	0.00	0.00	0.00	0.00	0.00
39	**	Business Loans	0.00	0.00	0.00	0.00	0.00
40		**TOTAL REVENUE (Lines 31 through 39):**	291,802.50	299,980.58	308,403.99	317,080.11	326,016.52
41		**NET LOSS OR GAIN:**	0.00	0.00	0.00	0.00	0.00

Report Prepared by (Name and Title): _____ Date: _____

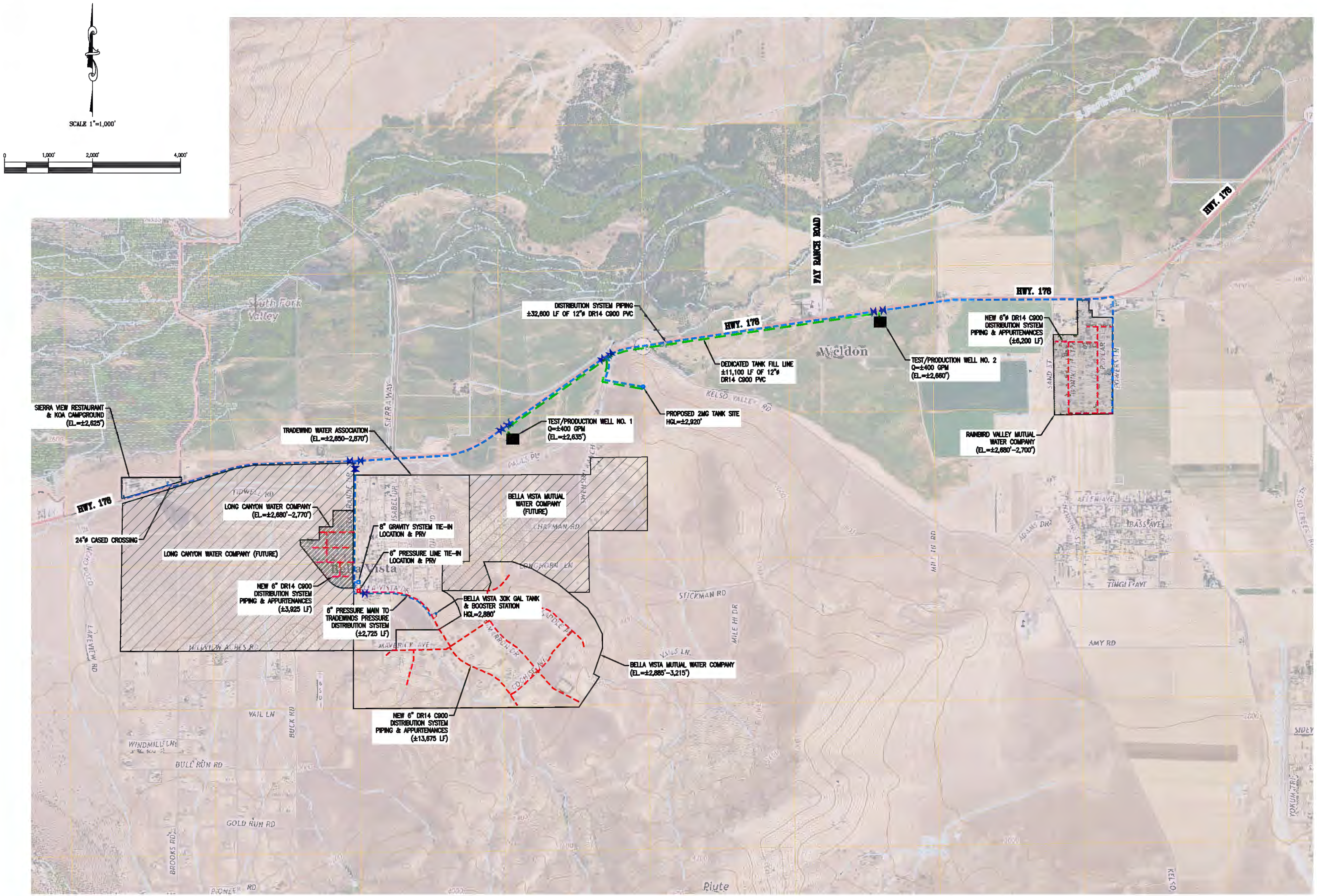
(** Inflation factor not applied to future year projections)

	2016	2017	2018	2019	2020
Number of Customers:	436	436	436	436	436
Average Monthly Revenue Needed Per Customer:	55.77	57.34	58.95	60.60	62.31

(total expenses ÷ # of customers ÷ 12)

APPENDIX J

Project Alternative 3 System Layout Map



SCALE 1"=1,000'
0
1,000'
2,000'
4,000'
HWY. 178
FAY RANCH ROAD
South Fork Valley
Weldon
DISTRIBUTION SYSTEM PIPING ±32,600 LF OF 12"ø DR14 C900 PVC
DEDICATED TANK FILL LINE ±11,100 LF OF 12"ø DR14 C900 PVC
TEST/PRODUCTION WELL NO. 2 Q=±400 GPM (EL.=±2,660')
NEW 6"ø DR14 C900 DISTRIBUTION SYSTEM PIPING & APPURTENANCES (±6,200 LF)
RAINBIRD VALLEY MUTUAL WATER COMPANY (EL.=±2,680'-2,700')
PROPOSED 2MG TANK SITE HGL=±2,920'
TEST/PRODUCTION WELL NO. 1 Q=±400 GPM (EL.=±2,635')
TRADEWIND WATER ASSOCIATION (EL.=±2,650-2,670')
SIERRA VIEW RESTAURANT & KOA CAMPGROUND (EL.=±2,625')
24"ø CASED CROSSING
LONG CANYON WATER COMPANY (EL.=±2,680'-2,770')
LONG CANYON WATER COMPANY (FUTURE)
8" GRAVITY SYSTEM TIE-IN LOCATION & PRV
6" PRESSURE LINE TIE-IN LOCATION & PRV
BELLA VISTA MUTUAL WATER COMPANY (FUTURE)
Bella Vista
NEW 6" DR14 C900 DISTRIBUTION SYSTEM PIPING & APPURTENANCES (±3,925 LF)
6" PRESSURE MAIN TO TRADEWINDS PRESSURE DISTRIBUTION SYSTEM (±2,725 LF)
BELLA VISTA 30K GAL TANK & BOOSTER STATION HGL=2,880'
BELLA VISTA MUTUAL WATER COMPANY (EL.=±2,885'-3,215')
NEW 6" DR14 C900 DISTRIBUTION SYSTEM PIPING & APPURTENANCES (±13,675 LF)
KELSO VALLEY RD
SIERRA WAY
CHAPMAN RD
STICKMAN RD
AMY RD
VAIL LN
WINDMILL LN
BULL RUN RD
GOLD RUN RD
BUCK RD
LAKEVIEW RD
BROOKS RD
MILE HI DR
HILLVIEW ACRES RD
Riute

ALTERNATIVE NO. 3 LAYOUT
SCALE 1"=1,000'

REV.	DATE	DESCRIPTION	BY
1			
2			
3			
4			
5			
6			
7			

DEE JASPAR & ASSOCIATES, INC.
CIVIL • ENGINEERS

PRELIMINARY SYSTEM LAYOUT

WELDON REGIONAL CONSOLIDATION PROJECT

WELDON REGIONAL WATER PROJECT
KERN COUNTY, CALIFORNIA

DRAWN KRW
CHECKED CMS
DATE 12/21/2015
SCALE 1"=1,000'
FILE
JOB NO.
SHEET 1 OF 1 SHEETS

FEASIBILITY SYSTEM LAYOUT-ALT 3.DWG 4/21/2016 10:58 AM

APPENDIX K

Project Alternative 3 Capital and O&M Cost Estimates

Weldon Regional Consolidation Water Project

Project Alternative #3

Engineer's Estimate

Item No.	Item Description	Quantity	Unit	Unit Cost	Extended Cost
1	Mobilization/Demobilization/Cleanup	1	LS	$400,000.00	$400,000.00
2	Potholing of Existing Utilities	1	LS	$75,000.00	$75,000.00
3	Permitting with KCBID & State	1	LS	$20,000.00	$20,000.00
4	Traffic Control	1	LS	$100,000.00	$100,000.00
5	Kern County Potable Water Pipeline Franchise Permit	1	LS	$5,000.00	$5,000.00
6	Caltrans Potable Water Pipeline Pipeline Franchise Permit	1	LS	$10,000.00	$10,000.00
				Subtotal:	$610,000.00
	Construct New Well at Test Well #1 Location				
7	36" Conductor Casing	50	LF	$1,000.00	$50,000.00
8	18" Pilot Hole Construction	250	LF	$150.00	$37,500.00
9	Ream Pilot Hole to 28"	250	LF	$150.00	$37,500.00
10	16" I.D. X 5/16" COR-TEN Blank Casing	110	LF	$300.00	$33,000.00
11	16" I.D. X 5/16" COR-TEN Perforated Casing	120	LF	$400.00	$48,000.00
12	4" Gravel Feed Tube	105	LF	$30.00	$3,150.00
13	2" Sounding Tube	100	LF	$25.00	$2,500.00
14	Gravel Envelope (4x16 Colorado Silica Sand)	130	LF	$100.00	$13,000.00
15	Cement Seal	50	LF	$110.00	$5,500.00
16	Swabbing and Airlifting Development	60	HRS	$500.00	$30,000.00
17	Pumping and Surging Development	48	HRS	$450.00	$21,600.00
18	Production Testing	24	HRS	$450.00	$10,800.00
19	Well Video	1	LS	$3,000.00	$3,000.00
				Subtotal:	$295,550.00
	Construct New Well at Test Well #2 Location				
20	36" Conductor Casing	50	LF	$1,000.00	$50,000.00
21	18" Pilot Hole Construction	270	LF	$150.00	$40,500.00
22	Ream Pilot Hole to 28"	270	LF	$150.00	$40,500.00
23	16" I.D. X 5/16" COR-TEN Blank Casing	180	LF	$300.00	$54,000.00
24	16" I.D. X 5/16" COR-TEN Perforated Casing	70	LF	$400.00	$28,000.00
25	4" Gravel Feed Tube	175	LF	$30.00	$5,250.00
26	2" Sounding Tube	170	LF	$25.00	$4,250.00
27	Gravel Envelope (4x16 Colorado Silica Sand)	80	LF	$100.00	$8,000.00
28	Cement Seal	50	LF	$110.00	$5,500.00
29	Swabbing and Airlifting Development	60	HRS	$500.00	$30,000.00
30	Pumping and Surging Development	48	HRS	$450.00	$21,600.00
31	Production Testing	24	HRS	$450.00	$10,800.00
32	Well Video	1	LS	$3,000.00	$3,000.00
				Subtotal:	$301,400.00
	Well Equipping & Discharge Piping at Test Well #1 Location				
33	Well Site Grading and Earthwork	1	EA	$60,000.00	$60,000.00
34	Well Site Agg. Base Ground Cover	300	TON	$75.00	$22,500.00
35	Deep Well Pump Concrete Foundation	1	EA	$15,000.00	$15,000.00
36	Furnish & Install 400 gpm Pump w/100 HP Motor	1	EA	$50,000.00	$50,000.00
37	Furnish & Install 36" Dia. RCP Dry Well	1	EA	$17,500.00	$17,500.00
38	FBE Steel Well Discharge Piping & Appurtenances	1	EA	$45,000.00	$45,000.00
39	Well Building Enclosures	1	EA	$40,000.00	$40,000.00
40	1,500 Gallon Hydropneumatic Tank & Concrete Footings	1	EA	$65,000.00	$65,000.00
41	275 Gallon Chlorine Storage Tank and Feed Pump	1	EA	$10,000.00	$10,000.00
42	FRP Chemical Storage Building & Concrete Foundation	1	EA	$50,000.00	$50,000.00
43	Administration Building	1	LS	$150,000.00	$150,000.00
44	Electrical Switchgear Foundation & Shade Structure	1	EA	$30,000.00	$30,000.00
45	Electrical and Controls including Site Lighting and SCADA	1	EA	$200,000.00	$200,000.00
46	Electric Utility Costs	1	EA	$50,000.00	$50,000.00
47	System Painting	1	EA	$10,000.00	$10,000.00
48	Site Fencing w/Two Double Drive Gates	600	LF	$35.00	$21,000.00
49	Pipe Insulation w/Heat Trace	1	EA	$15,000.00	$15,000.00
				Subtotal:	$851,000.00
	Well Equipping & Discharge Piping at Test Well #2 Location				
50	Well Site Grading and Earthwork	1	EA	$60,000.00	$60,000.00
51	Well Site Agg. Base Ground Cover	300	TON	$75.00	$22,500.00
52	Deep Well Pump Concrete Foundation	1	EA	$15,000.00	$15,000.00
53	Furnish & Install 400 gpm Pump w/100 HP Motor	1	EA	$50,000.00	$50,000.00
54	Furnish & Install 36" Dia. RCP Dry Well	1	EA	$17,500.00	$17,500.00
55	FBE Steel Well Discharge Piping & Appurtenances	1	EA	$45,000.00	$45,000.00
56	Well Building Enclosures	1	EA	$40,000.00	$40,000.00
57	1,500 Gallon Hydropneumatic Tank & Concrete Footings	1	EA	$65,000.00	$65,000.00
58	275 Gallon Chlorine Storage Tank and Feed Pump	1	EA	$10,000.00	$10,000.00
59	FRP Chemical Storage Building & Concrete Foundation	1	EA	$50,000.00	$50,000.00
60	Electrical Switchgear Foundation & Shade Structure	1	EA	$30,000.00	$30,000.00
61	Electrical and Controls including Site Lighting and SCADA	1	EA	$200,000.00	$200,000.00
62	Electric Utility Costs	1	EA	$50,000.00	$50,000.00
63	System Painting	1	EA	$10,000.00	$10,000.00
64	Site Fencing w/Two Double Drive Gates	600	LF	$35.00	$21,000.00
65	Pipe Insulation w/Heat Trace	1	EA	$15,000.00	$15,000.00
				Subtotal:	$701,000.00
	2 MG Kelso Valley Road Storage Tank Site				
50	Tank Site and Access Road Grading	7,500	CY	$30.00	$225,000.00
51	Gravel Rock Ground Cover for Access Road and Tank Site	1000	TON	$75.00	$75,000.00
52	2 MG Welded Steel Storage Tank & Concrete Ringwall Fdn	1	LS	$2,000,000.00	$2,000,000.00
53	Site Electrical/SCADA	1	LS	$250,000.00	$250,000.00
54	Electric Utility Costs	1	LS	$40,000.00	$40,000.00
55	Site Fencing w/Two Double Drive Gates	800	LF	$35.00	$28,000.00
56	Site Painting	1	LS	$10,000.00	$10,000.00
57	Tank Site Property Acquisition	1	LS	$50,000.00	$50,000.00
				Subtotal:	$2,678,000.00
	Bella Vista Drive Booster Station				
58	Tank Site and Access Road Grading	2,000	CY	$30.00	$60,000.00
59	Gravel Rock Ground Cover for Access Road and Tank Site	500	TON	$75.00	$37,500.00
60	Booster Station	1	LS	$400,000.00	$400,000.00
61	1,500 Gallon Hydropneumatic Tank w/Footings	1	LS	$75,000.00	$75,000.00
62	30k Gal AWWA D103 Storage Tank w/Concrete Ringwall Ftg.	1	LS	$75,000.00	$75,000.00
63	Site Electrical	1	LS	$250,000.00	$250,000.00
64	Electric Utility Costs	1	LS	$40,000.00	$40,000.00
65	Site Fencing w/Two Double Drive Gates	800	LF	$35.00	$28,000.00
66	Site Painting	1	LS	$10,000.00	$10,000.00
67	Booster Station Site Property Acquisition	1	LS	$40,000.00	$40,000.00
				Subtotal:	$1,015,500.00

Weldon Regional Consolidation Water Project

Project Alternative #3

Engineer's Estimate

Item No.	Item Description	Quantity	Unit	Unit Cost	Extended Cost
	Dedicated Fill Line to Storage Tank				
68	Furnish & Install 12" DR14 C900 PVC Pipe	11,100	LF	$100.00	$1,110,000.00
				Subtotal:	$1,110,000.00
	Distribution System Piping				
69	Furnish & Install 12" DR14 C900 PVC Pipe	32,600	LF	$100.00	$3,260,000.00
70	Furnish & Install 12" Gate Valve	10	EA	$4,000.00	$40,000.00
71	Furnish & Install Dry Barrel Fire Hydrant Assembly	1	EA	$5,500.00	$5,500.00
72	Remote Read Meter Equipment w/One Year Technical Support	1	LS	$12,500.00	$12,500.00
				Subtotal:	$3,318,000.00
	Sierra View Restaurant & KOA Campground Tie-In				
73	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
74	Furnish & Install Dry Barrel Fire Hydrant Assembly	2	EA	$5,500.00	$11,000.00
75	Furnish & Install 2" Long Meter Service	2	EA	$4,750.00	$9,500.00
74	24" O.D. Steel Cased Crossing under Hwy 178	100	LF	$500.00	$50,000.00
75	Well Abandonment per KCEHS Standards	2	EA	$30,000.00	$60,000.00
				Subtotal:	$210,500.00
	Bella Vista Water System Improvements				
76	Furnish & Install 6" DR14 C900 PVC Pipe	13,675	LF	$60.00	$820,500.00
77	Furnish & Install Dry Barrel Fire Hydrant Assembly	15	EA	$5,500.00	$82,500.00
78	Furnish & Install 6" Gate Valve	22	EA	$2,500.00	$55,000.00
79	Furnish & Install 1" Long Meter Service	47	EA	$2,000.00	$94,000.00
80	Pressure Reducing Valve & Precast Vault	2	EA	$40,000.00	$80,000.00
				Subtotal:	$1,132,000.00
	Rainbird Water System Improvements				
81	Furnish & Install 6" DR14 C900 PVC Pipe	6,200	LF	$60.00	$372,000.00
82	Furnish & Install Dry Barrel Fire Hydrant Assembly	13	EA	$5,500.00	$71,500.00
83	Furnish & Install 6" Gate Valve	9	EA	$2,500.00	$22,500.00
84	Pressure Reducing Valve & Precast Vault	1	EA	$40,000.00	$40,000.00
85	Furnish & Install 1" Long Meter Service	83	EA	$2,000.00	$166,000.00
86	Well Abandonment per KCEHS Standards	2	EA	$30,000.00	$60,000.00
				Subtotal:	$732,000.00
	Long Canyon Water System Improvements				
87	Furnish & Install 6" DR14 C900 PVC Pipe	3,925	LF	$70.00	$274,750.00
88	Furnish & Install Dry Barrel Fire Hydrant Assembly	6	EA	$5,500.00	$33,000.00
89	Furnish & Install 6" Gate Valve	10	EA	$2,500.00	$25,000.00
90	Pressure Reducing Valve & Precast Vault	2	EA	$40,000.00	$80,000.00
91	Furnish & Install 1" Long Meter Service	67	EA	$2,000.00	$134,000.00
92	Well Abandonment per KCEHS Standards	1	EA	$30,000.00	$30,000.00
				Subtotal:	$576,750.00
	Tradewinds Water Association Tie-In				
93	Furnish & Install 6" DR14 C900 PVC Pipe	2,725	LF	$60.00	$163,500.00
94	System Tie-In and Pressure Reducing Valve	4	EA	$40,000.00	$160,000.00
95	Furnish & Install 1" Meter	236	EA	$1,000.00	$236,000.00
96	Existing Tradewinds USDA Loan	1	LS	$300,000.00	$300,000.00
97	Well Abandonment per KCEHS Standards	1	EA	$30,000.00	$30,000.00
				Subtotal:	$889,500.00
				Subtotal:	$14,421,200.00
	Contract Administration, & Construction Management:				$1,081,590.00
				20% Contingency:	$2,884,240.00
				Total:	**$18,387,030.00**

*Existing wells to be abandoned in accordance with KCEHS Standards with Cement Sand Slurry

**Tradewinds existing water system infrastructure shall remain and shall be incorporated into the new regional water system

***Bella Vista's existing wells to remain for possible use as standby wells for the new regional water system

	Cost Estimates to Tie-In Potential Project Participants to Consolidated Water System				
	Valley Estates P.O.A. Tie-In				
1	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	2,750	LF	$100.00	$275,000.00
				Subtotal:	$355,000.00
				25% Contingency:	$88,750.00
				Total:	**$443,750.00**
	South Fork Middle School Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	1	EA	$40,000.00	$40,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	1,500	LF	$100.00	$150,000.00
				Subtotal:	$190,000.00
				25% Contingency:	$47,500.00
				Total:	**$237,500.00**
	Weldon Methodist Church Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	1	EA	$40,000.00	$40,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	175	LF	$100.00	$17,500.00
3	24" O.D. Steel Cased Crossing under Hwy 178	100	LF	$500.00	$50,000.00
				Subtotal:	$107,500.00
				25% Contingency:	$26,875.00
				Total:	**$134,375.00**
	South Fork Women's Club/South Fork Elementary School Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	475	LF	$100.00	$47,500.00
3	24" O.D. Steel Cased Crossing under Hwy 178	100	LF	$500.00	$50,000.00
				Subtotal:	$177,500.00
				25% Contingency:	$44,375.00
				Total:	**$221,875.00**
	Hillview Acres MWC Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	6,250	LF	$100.00	$625,000.00
				Subtotal:	$705,000.00
				25% Contingency:	$176,250.00
				Total:	**$881,250.00**
	Lakeview Ranchos MWC Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	3	EA	$40,000.00	$120,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	2,600	LF	$100.00	$260,000.00
				Subtotal:	$380,000.00
				25% Contingency:	$95,000.00
				Total:	**$475,000.00**

Total Cost to Tie In All Surrounding Water Systems: **$2,393,750.00**

CAPITAL IMPROVEMENT PLAN (CIP) for Project Alternative 3

Date: 4/13/2016

System ID No.:

System Name: Weldon Consolidated Water Company

Service Connections: 436

*Enter information only in YELLOW shaded cells

QTY	COMPONENT			UNIT COST	INSTALLED COST	AVG LIFE, YEARS	ANNUAL RESERVE	MONTHLY RESERVE	MONTHLY RESERVE PER CUSTOMER
2	Drilled Well, 16", steel casing	Depth:	275	1100	605000	60	10083.33	840.28	1.93
2	Wellhead Electrical Controls			100000	200000	40	5000.00	416.67	0.96
2	Well Pump, 100 HP			50000	100000	15	6666.67	555.56	1.27
3	Pressure Tank	Gallons:	1500	40.0	180000	60	3000.00	250.00	0.57
3	Storage Tank, Plastic	Gallons:	275	20.0	16500	10	1650.00	137.50	0.32
1	Storage Tank, Steel	Gallons:	2,000,000	0.6	1200000	60	20000.00	1666.67	3.82
1	Storage Tank, Steel	Gallons:	30,000	0.6	18000	50	360.00	30.00	0.07
2	Well Discharge Flow Meter, 8"			3500	7000	30	233.33	19.44	0.04
2	Hypochlorinator w/ Tank & Pump, Complete			3500	7000	10	700.00	58.33	0.13
43,700	Pipe w/ sand bedding, 12" (Enter linear feet for quantity)			55	2403500	100	24035.00	2002.92	4.59
26,525	Pipe w/ sand bedding, 6" (Enter linear feet for quantity)			40	1061000	100	10610.00	884.17	2.03
37	Standpipe Hydrant, 2-1/2"			5000	185000	50	3700.00	308.33	0.71
436	Customer Meter w/ Box & Shutoff, Complete			500	218000	25	8720.00	726.67	1.67
10	Distribution Valve, 12"			2200	22000	50	440.00	36.67	0.08
41	Distribution Valve, 6"			1500	61500	50	1230.00	102.50	0.24
30	Air & Vacuum Relief Valve, Typical			500	15000	20	750.00	62.50	0.14
9	Pressure Reducing Valve			10000	90000	20	4500.00	375.00	0.86
1	SCADA Upgrades			50000	50000	30	1666.67	138.89	0.32
1	Painting/Coating Upgrades			200000	200000	30	6666.67	555.56	1.27
	SUBTOTAL Existing CIP Costs				$6,639,500.00		$110,011.67	$9,167.64	$21.03

Report Prepared by (Title): _____ Date: _____

NOTE: Installed costs are averages and include all materials and contracted labor and equipment.

NOTES:

FIVE YEAR BUDGET PROJECTION - PROJECT ALTERNATIVE 3

INSTRUCTIONS: Yellow-shaded cells are for data entry; all other cells are locked except line item descriptions which can be changed if needed. Years 2 through 5 will be compounded automatically by the inflation factor in Cell G6.

System Name: Weldon Consolidated Water Company

Inflation Factor (%): 3.0

System ID Number:

LINE		EXPENSES AND SOURCE OF FUNDS	2016	2017	2018	2019	2020
1		**OPERATIONS AND MAINTENANCE (O&M) EXPENSES**					
2		Salaries and Benefits	50,000.00	51,500.00	53,045.00	54,636.35	56,275.44
3		Contract Operation and Maintenance	6,000.00	6,180.00	6,365.40	6,556.36	6,753.05
4		Power and Other Utilities	30,000.00	30,900.00	31,827.00	32,781.81	33,765.26
5		Fees Regulatory	5,000.00	5,150.00	5,304.50	5,463.64	5,627.54
6		Treatment Chemicals	5,000.00	5,150.00	5,304.50	5,463.64	5,627.54
7		Coliform Monitoring	3,500.00	3,605.00	3,713.15	3,824.54	3,939.28
8		Chemical Monitoring	7,500.00	7,725.00	7,956.75	8,195.45	8,441.32
9		Transportation	2,000.00	2,060.00	2,121.80	2,185.45	2,251.02
10		Materials, Supplies, and Parts	5,000.00	5,150.00	5,304.50	5,463.64	5,627.54
11		Office Supplies	4,000.00	4,120.00	4,243.60	4,370.91	4,502.04
12		Miscellaneous	4,000.00	4,120.00	4,243.60	4,370.91	4,502.04
14		**Total O&M Expenses:**	122,000.00	125,660.00	129,429.80	133,312.69	137,312.07
16		**GENERAL AND ADMINISTRATIVE EXPENSES**					
17		Engineering and Professional Services	10,000.00	10,300.00	10,609.00	10,927.27	11,255.09
18		Depreciation and Amortization	0.00	0.00	0.00	0.00	0.00
19		Insurance	10,000.00	10,300.00	10,609.00	10,927.27	11,255.09
20		Existing Contribution to CIP (From CIP)	110,011.67	113,312.02	116,711.38	120,212.72	123,819.10
21		O&M Reserve	2,500.00	2,575.00	2,652.25	2,731.82	2,813.77
22		Other Reserves	2,000.00	2,060.00	2,121.80	2,185.45	2,251.02
23		Miscellaneous	100.00	103.00	106.09	109.27	112.55
26	**	Debt Service	19,200.00	19,200.00	19,200.00	19,200.00	19,200.00
27		**Total General and Administrative Expenses:**	153,811.67	157,850.02	162,009.52	166,293.80	170,706.62
28		**TOTAL EXPENSES (Line 14+ Line 27):**	275,811.67	283,510.02	291,439.32	299,606.50	308,018.69
30		**REVENUES RECEIVED**					
31		Cash Revenues (Water Rates)	275,811.67	283,510.02	291,439.32	299,606.50	308,018.69
32	**	Depreciation Reserves	0.00	0.00	0.00	0.00	0.00
33	**	Fees and Services	0.00	0.00	0.00	0.00	0.00
34	**	Hookup Charges	0.00	0.00	0.00	0.00	0.00
35	**	Withdrawal from CIP or Other Reserves	0.00	0.00	0.00	0.00	0.00
36	**	Other Fund Sources: Interest, Etc.	0.00	0.00	0.00	0.00	0.00
37	**	Grants	0.00	0.00	0.00	0.00	0.00
38	**	SRF Loan	0.00	0.00	0.00	0.00	0.00
39	**	Business Loans	0.00	0.00	0.00	0.00	0.00
40		**TOTAL REVENUE (Lines 31 through 39):**	275,811.67	283,510.02	291,439.32	299,606.50	308,018.69
41		**NET LOSS OR GAIN:**	0.00	0.00	0.00	0.00	0.00

Report Prepared by (Name and Title): _____ Date: _____

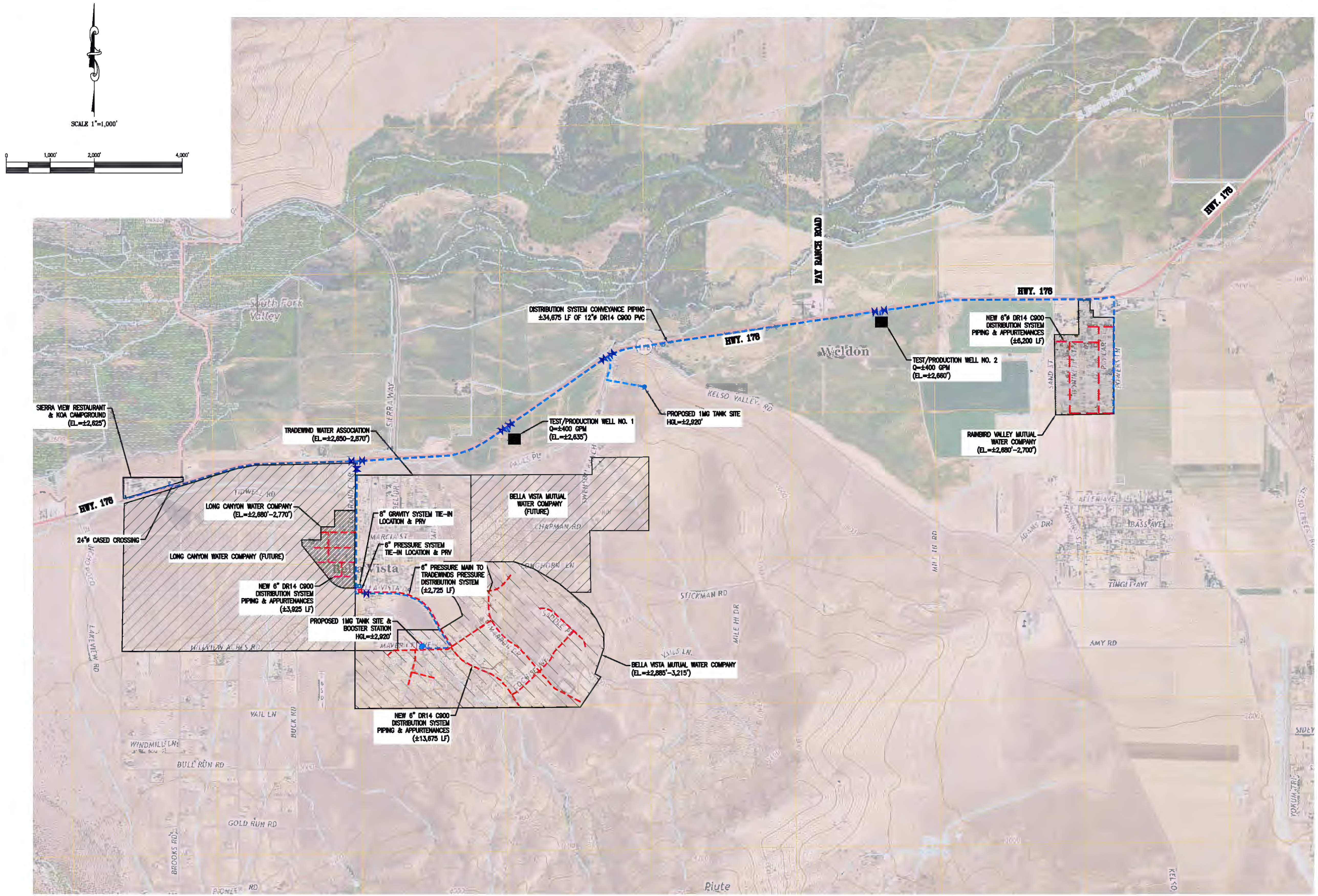
(** Inflation factor not applied to future year projections)

	2016	2017	2018	2019	2020
Number of Customers:	436	436	436	436	436
Average Monthly Revenue Needed Per Customer:	52.72	54.19	55.70	57.26	58.87

(total expenses ÷ # of customers ÷ 12)

APPENDIX L

Project Alternative 4 System Layout Map



SCALE 1"=1,000'
0
1,000'
2,000'
4,000'
SIERRA VIEW RESTAURANT & KOA CAMPGROUND (EL.=±2,625')
TRADEWIND WATER ASSOCIATION (EL.=±2,650-2,670')
DISTRIBUTION SYSTEM CONVEYANCE PIPING ±34,675 LF OF 12"ø DR14 C900 PVC
HWY. 178
FAY RANCH ROAD
Weldon
South Fork Valley
SIERRA WAY
KELSO VALLEY RD
NEW 6"ø DR14 C900 DISTRIBUTION SYSTEM PIPING & APPURTENANCES (±6,200 LF)
TEST/PRODUCTION WELL NO. 2 Q=±400 GPM (EL.=±2,660')
TEST/PRODUCTION WELL NO. 1 Q=±400 GPM (EL.=±2,635')
PROPOSED 1MG TANK SITE HGL=±2,920'
RAINBIRD VALLEY MUTUAL WATER COMPANY (EL.=±2,680'-2,700')
LONG CANYON WATER COMPANY (EL.=±2,680'-2,770')
8" GRAVITY SYSTEM TIE-IN LOCATION & PRV
6" PRESSURE SYSTEM TIE-IN LOCATION & PRV
BELLA VISTA MUTUAL WATER COMPANY (FUTURE)
24"ø CASED CROSSING
LONG CANYON WATER COMPANY (FUTURE)
Bella Vista
NEW 6" DR14 C900 DISTRIBUTION SYSTEM PIPING & APPURTENANCES (±3,925 LF)
6" PRESSURE MAIN TO TRADEWINDS PRESSURE DISTRIBUTION SYSTEM (±2,725 LF)
PROPOSED 1MG TANK SITE & BOOSTER STATION HGL=±2,920'
BELLA VISTA MUTUAL WATER COMPANY (EL.=±2,885'-3,215')
NEW 6" DR14 C900 DISTRIBUTION SYSTEM PIPING & APPURTENANCES (±13,675 LF)
CHAPMAN RD
STICKMAN RD
MILE HI DR
AMY RD
LAKEVIEW RD
VAIL LN
BUCK RD
WINDMILL LN
BULL RUN RD
GOLD RUN RD
Piute

ALTERNATIVE NO. 4 LAYOUT

SCALE 1"=1,000'

REV.	DATE	DESCRIPTION	BY
1			
2			
3			
4			
5			
6			
7			

DEE JASPAR & ASSOCIATES, INC.
CIVIL • ENGINEERS

PRELIMINARY SYSTEM LAYOUT

WELDON REGIONAL CONSOLIDATION PROJECT

WELDON REGIONAL WATER PROJECT
KERN COUNTY, CALIFORNIA

DRAWN	KRW
CHECKED	CMS
DATE	12/21/2015
SCALE	1"=1,000'
FILE	
JOB NO.	
SHEET	1
OF 1 SHEETS	

LAYOUT-ALT 4.DWG 4/21/2016 5:31 PM

APPENDIX M

Project Alternative 4 Capital and O&M Cost Estimates

Weldon Regional Consolidation Water Project

Project Alternative #4

Engineer's Estimate

Item No.	Item Description	Quantity	Unit	Unit Cost	Extended Cost
1	Mobilization/Demobilization/Cleanup	1	LS	$400,000.00	$400,000.00
2	Potholing of Existing Utilities	1	LS	$75,000.00	$75,000.00
3	Permitting with KCBID & State	1	LS	$20,000.00	$20,000.00
4	Traffic Control	1	LS	$100,000.00	$100,000.00
5	Kern County Potable Water Pipeline Franchise Permit	1	LS	$5,000.00	$5,000.00
6	Caltrans Potable Water Pipeline Pipeline Franchise Permit	1	LS	$10,000.00	$10,000.00
				Subtotal:	$610,000.00
	Construct New Well at Test Well #1 Location				
7	36" Conductor Casing	50	LF	$1,000.00	$50,000.00
8	18" Pilot Hole Construction	250	LF	$150.00	$37,500.00
9	Ream Pilot Hole to 28"	250	LF	$150.00	$37,500.00
10	16" I.D. X 5/16" COR-TEN Blank Casing	110	LF	$300.00	$33,000.00
11	16" I.D. X 5/16" COR-TEN Perforated Casing	120	LF	$400.00	$48,000.00
12	4" Gravel Feed Tube	105	LF	$30.00	$3,150.00
13	2" Sounding Tube	100	LF	$25.00	$2,500.00
14	Gravel Envelope (4x16 Colorado Silica Sand)	130	LF	$100.00	$13,000.00
15	Cement Seal	50	LF	$110.00	$5,500.00
16	Swabbing and Airlifting Development	60	HRS	$500.00	$30,000.00
17	Pumping and Surging Development	48	HRS	$450.00	$21,600.00
18	Production Testing	24	HRS	$450.00	$10,800.00
19	Well Video	1	LS	$3,000.00	$3,000.00
				Subtotal:	$295,550.00
	Construct New Well at Test Well #2 Location				
20	36" Conductor Casing	50	LF	$1,000.00	$50,000.00
21	18" Pilot Hole Construction	270	LF	$150.00	$40,500.00
22	Ream Pilot Hole to 28"	270	LF	$150.00	$40,500.00
23	16" I.D. X 5/16" COR-TEN Blank Casing	180	LF	$300.00	$54,000.00
24	16" I.D. X 5/16" COR-TEN Perforated Casing	70	LF	$400.00	$28,000.00
25	4" Gravel Feed Tube	175	LF	$30.00	$5,250.00
26	2" Sounding Tube	170	LF	$25.00	$4,250.00
27	Gravel Envelope (4x16 Colorado Silica Sand)	80	LF	$100.00	$8,000.00
28	Cement Seal	50	LF	$110.00	$5,500.00
29	Swabbing and Airlifting Development	60	HRS	$500.00	$30,000.00
30	Pumping and Surging Development	48	HRS	$450.00	$21,600.00
31	Production Testing	24	HRS	$450.00	$10,800.00
32	Well Video	1	LS	$3,000.00	$3,000.00
				Subtotal:	$301,400.00
	Well Equipping & Discharge Piping at Test Well #1 Location				
33	Well Site Grading and Earthwork	1	EA	$60,000.00	$60,000.00
34	Well Site Agg. Base Ground Cover	300	TON	$75.00	$22,500.00
35	Deep Well Pump Concrete Foundation	1	EA	$15,000.00	$15,000.00
36	Furnish & Install 400 gpm Pump w/100 HP Motor	1	EA	$50,000.00	$50,000.00
37	Furnish & Install 36" Dia. RCP Dry Well	1	EA	$17,500.00	$17,500.00
38	FBE Steel Well Discharge Piping & Appurtenances	1	EA	$45,000.00	$45,000.00
39	Well Building Enclosures	1	EA	$40,000.00	$40,000.00
40	1,500 Gallon Hydropneumatic Tank & Concrete Footings	1	EA	$65,000.00	$65,000.00
41	275 Gallon Chlorine Storage Tank and Feed Pump	1	EA	$10,000.00	$10,000.00
42	FRP Chemical Storage Building & Concrete Foundation	1	EA	$50,000.00	$50,000.00
43	Administration Building	1	EA	$150,000.00	$150,000.00
44	Electrical Switchgear Foundation & Shade Structure	1	EA	$30,000.00	$30,000.00
45	Electrical and Controls including Site Lighting and SCADA	1	EA	$200,000.00	$200,000.00
46	Electric Utility Costs	1	EA	$50,000.00	$50,000.00
47	System Painting	1	EA	$10,000.00	$10,000.00
48	Site Fencing w/Two Double Drive Gates	600	LF	$35.00	$21,000.00
49	Well Head Treatment System for Fe/Mn Removal	1	LS	$553,000.00	$553,000.00
50	Pipe Insulation w/Heat Trace	1	EA	$15,000.00	$15,000.00
				Subtotal:	$1,404,000.00
	Well Equipping & Discharge Piping at Test Well #2 Location				
51	Well Site Grading and Earthwork	1	EA	$60,000.00	$60,000.00
52	Well Site Agg. Base Ground Cover	300	TON	$75.00	$22,500.00
53	Deep Well Pump Concrete Foundation	1	EA	$15,000.00	$15,000.00
54	Furnish & Install 400 gpm Pump w/100 HP Motor	1	EA	$50,000.00	$50,000.00
55	Furnish & Install 36" Dia. RCP Dry Well	1	EA	$17,500.00	$17,500.00
56	FBE Steel Well Discharge Piping & Appurtenances	1	EA	$45,000.00	$45,000.00
57	Well Building Enclosures	1	EA	$40,000.00	$40,000.00
58	1,500 Gallon Hydropneumatic Tank & Concrete Footings	1	EA	$65,000.00	$65,000.00
59	275 Gallon Chlorine Storage Tank and Feed Pump	1	EA	$10,000.00	$10,000.00
60	FRP Chemical Storage Building & Concrete Foundation	1	EA	$50,000.00	$50,000.00
61	Electrical Switchgear Foundation & Shade Structure	1	EA	$30,000.00	$30,000.00
62	Electrical and Controls including Site Lighting and SCADA	1	EA	$200,000.00	$200,000.00
63	Electric Utility Costs	1	EA	$50,000.00	$50,000.00
64	System Painting	1	EA	$10,000.00	$10,000.00
65	Site Fencing w/Two Double Drive Gates	600	LF	$35.00	$21,000.00
66	Well Head Treatment System for Fe/Mn Removal	1	LS	$553,000.00	$553,000.00
67	Pipe Insulation w/Heat Trace	1	EA	$15,000.00	$15,000.00
				Subtotal:	$1,254,000.00
	1 MG Kelso Valley Road Storage Tank Site				
68	Tank Site and Access Road Grading	7,500	CY	$30.00	$225,000.00
69	Gravel Rock Ground Cover for Access Road & Tank Site	1,000	TON	$75.00	$75,000.00
70	1 MG Welded Steel Storage Tank & Concrete Ringwall Fdn	1	LS	$1,000,000.00	$1,000,000.00
71	Site Electrical/SCADA	1	LS	$250,000.00	$250,000.00
72	Electric Utility Costs	1	LS	$40,000.00	$40,000.00
73	Site Fencing w/Two Double Drive Gates	800	LF	$35.00	$28,000.00
74	Site Painting	1	LS	$10,000.00	$10,000.00
75	Tank Site Property Acquisition	1	LS	$50,000.00	$50,000.00
				Subtotal:	$1,678,000.00
	1 MG Bella Vista Storage Tank Site & Booster Station				
76	Tank Site and Access Road Grading	4,000	CY	$30.00	$120,000.00
77	Gravel Rock Ground Cover for Access Road & Tank Site	700	TON	$75.00	$52,500.00
78	1 MG Welded Steel Storage Tank & Concrete Ringwall Fdn	1	LS	$1,000,000.00	$1,000,000.00
79	Booster Station	1	LS	$400,000.00	$400,000.00
80	Chemical Storage Building	1	LS	$50,000.00	$50,000.00
81	1,500 Gallon Hydropneumatic Tank & Concrete Footings	1	LS	$75,000.00	$75,000.00
82	Site Electrical/SCADA	1	LS	$300,000.00	$300,000.00
83	Electric Utility Costs	1	LS	$25,000.00	$25,000.00
84	System Painting	1	LS	$12,500.00	$12,500.00
85	Tank Site Property Acquisition	1	LS	$50,000.00	$50,000.00
86	Pipe Insulation w/Heat Trace	1	LS	$15,000.00	$15,000.00
				Subtotal:	$2,100,000.00

Weldon Regional Consolidation Water Project

Project Alternative #4

Engineer's Estimate

Item No.	Item Description	Quantity	Unit	Unit Cost	Extended Cost
	Distribution System Piping				
87	Furnish & Install 12" DR14 C900 PVC Pipe	34,675	LF	$100.00	$3,467,500.00
88	Furnish & Install Dry Barrel Fire Hydrant Assembly	1	EA	$5,500.00	$5,500.00
89	Furnish & Install 12" Gate Valve	10	EA	$4,000.00	$40,000.00
90	Remote Read Meter Equipment w/One Year Technical Support	1	LS	$12,500.00	$12,500.00
				Subtotal:	$3,525,500.00
	Sierra View Restaurant & KOA Campground Tie-In				
91	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
92	Furnish & Install Dry Barrel Fire Hydrant Assembly	2	EA	$5,500.00	$11,000.00
93	Furnish & Install 2" Long Meter Service	2	EA	$4,750.00	$9,500.00
94	24" O.D. Steel Cased Crossing under Hwy 178	100	LF	$500.00	$50,000.00
95	Well Abandonment per KCEHS Standards	2	EA	$30,000.00	$60,000.00
				Subtotal:	$210,500.00
	Bella Vista Water System Improvements				
96	Furnish & Install 6" DR14 C900 PVC Pipe	13,675	LF	$60.00	$820,500.00
97	Furnish & Install Dry Barrel Fire Hydrant Assembly	15	EA	$5,500.00	$82,500.00
98	Furnish & Install 6" Gate Valve	22	EA	$3,000.00	$66,000.00
99	Furnish & Install 1" Long Meter Service	47	EA	$2,000.00	$94,000.00
100	Pressure Reducing Valve & Precast Vault	2	EA	$40,000.00	$80,000.00
				Subtotal:	$1,143,000.00
	Rainbird Water System Improvements				
101	Furnish & Install 6" DR14 C900 PVC Pipe	6,200	LF	$60.00	$372,000.00
102	Furnish & Install Dry Barrel Fire Hydrant Assembly	13	EA	$5,500.00	$71,500.00
103	Furnish & Install 6" Gate Valve	9	EA	$3,000.00	$27,000.00
104	Pressure Reducing Valve & Precast Vault	1	EA	$40,000.00	$40,000.00
105	Furnish & Install 1" Long Meter Service	83	EA	$2,000.00	$166,000.00
106	Well Abandonment per KCEHS Standards	2	EA	$30,000.00	$60,000.00
				Subtotal:	$736,500.00
	Long Canyon Water System Improvements				
107	Furnish & Install 6" DR14 C900 PVC Pipe	3,925	LF	$70.00	$274,750.00
108	Furnish & Install Dry Barrel Fire Hydrant Assembly	6	EA	$5,500.00	$33,000.00
109	Furnish & Install 6" Gate Valve	10	EA	$3,000.00	$30,000.00
110	Pressure Reducing Valve & Precast Vault	2	EA	$40,000.00	$80,000.00
111	Furnish & Install 1" Long Meter Service	67	EA	$2,000.00	$134,000.00
112	Well Abandonment per KCEHS Standards	1	EA	$30,000.00	$30,000.00
				Subtotal:	$581,750.00
	Tradewinds Water System Tie-in				
113	Furnish & Install 6" DR14 C900 PVC Pipe	2,725	LF	$60.00	$163,500.00
114	System Tie-In and Pressure Reducing Valve	4	EA	$40,000.00	$160,000.00
115	Furnish & Install 1" Meter	236	EA	$1,000.00	$236,000.00
116	Existing Tradewinds USDA Loan	1	LS	$300,000.00	$300,000.00
117	Well Abandonment per KCEHS Standards	1	EA	$30,000.00	$30,000.00
				Subtotal:	$889,500.00
				Subtotal:	$14,729,700.00
				Design, Contract Administration, & Construction Management:	$1,104,727.50
				20% Contingency:	$2,945,940.00
				Total:	**$18,780,367.50**

*Existing wells to be abandoned in accordance with KCEHS Standards with Cement Sand Slurry

**Tradewinds existing water system infrastructure underground piping shall remain and shall be incorporated into the new regional water system

***Bella Vista's existing wells to remain for possible use as standby wells for the new regional water system

Cost Estimates to Tie-In Potential Project Participants to Consolidated Water System

	Valley Estates P.O.A. Tie-In				
1	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	2,750	LF	$100.00	$275,000.00
				Subtotal:	$355,000.00
				25% Contingency:	$88,750.00
				Total:	**$443,750.00**
	South Fork Middle School Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	1	EA	$40,000.00	$40,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	1,500	LF	$100.00	$150,000.00
				Subtotal:	$190,000.00
				25% Contingency:	$47,500.00
				Total:	**$237,500.00**
	Weldon Methodist Church Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	1	EA	$40,000.00	$40,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	175	LF	$100.00	$17,500.00
3	24" O.D. Steel Cased Crossing under Hwy 178	100	LF	$500.00	$50,000.00
				Subtotal:	$107,500.00
				25% Contingency:	$26,875.00
				Total:	**$134,375.00**
	South Fork Women's Club/South Fork Elementary School Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	475	LF	$100.00	$47,500.00
3	24" O.D. Steel Cased Crossing under Hwy 178	100	LF	$500.00	$50,000.00
				Subtotal:	$177,500.00
				25% Contingency:	$44,375.00
				Total:	**$221,875.00**
	Hillview Acres MWC Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	6,250	LF	$100.00	$625,000.00
				Subtotal:	$705,000.00
				25% Contingency:	$176,250.00
				Total:	**$881,250.00**
	Lakeview Ranchos MWC Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	3	EA	$40,000.00	$120,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	2,600	LF	$100.00	$260,000.00
				Subtotal:	$380,000.00
				25% Contingency:	$95,000.00
				Total:	**$475,000.00**

Total Cost to Tie In All Surrounding Water Systems: **$2,393,750.00**

CAPITAL IMPROVEMENT PLAN (CIP) for Project Alternative 4

Date: 4/12/2016

System ID No.:

System Name: Weldon Consolidated Water Company

Service Connections: 436

*Enter information only in YELLOW shaded cells

QTY	COMPONENT			UNIT COST	INSTALLED COST	AVG LIFE, YEARS	ANNUAL RESERVE	MONTHLY RESERVE	MONTHLY RESERVE PER CUSTOMER
2	Drilled Well, 16", steel casing	Depth:	275	1100	605000	60	10083.33	840.28	1.93
2	Wellhead Electrical Controls			100000	200000	40	5000.00	416.67	0.96
2	Well Pump, 100 HP			50000	100000	15	6666.67	555.56	1.27
3	Pressure Tank	Gallons:	1500	40.0	180000	60	3000.00	250.00	0.57
3	Storage Tank, Plastic	Gallons:	275	20.0	16500	10	1650.00	137.50	0.32
2	Storage Tank, Steel	Gallons:	1,000,000	0.6	1200000	60	20000.00	1666.67	3.82
2	Well Discharge Flow Meter, 8"			3500	7000	30	233.33	19.44	0.04
2	Hypochlorinator w/ Tank & Pump, Complete			3500	7000	10	700.00	58.33	0.13
34,675	Pipe w/ sand bedding, 12" (Enter linear feet for quantity)			55	1907125	100	19071.25	1589.27	3.65
26,525	Pipe w/ sand bedding, 8" (Enter linear feet for quantity)			40	1061000	100	10610.00	884.17	2.03
2	Well Head Treatment System for Fe/Mn Removal			325000	650000	50	13000.00	1083.33	2.48
37	Standpipe Hydrant, 2-1/2"			5000	185000	50	3700.00	308.33	0.71
436	Customer Meter w/ Box & Shutoff, Complete			500	218000	25	8720.00	726.67	1.67
10	Distribution Valve, 12"			2200	22000	50	440.00	36.67	0.08
41	Distribution Valve, 6"			1500	61500	50	1230.00	102.50	0.24
30	Air & Vacuum Relief Valve, Typical			500	15000	20	750.00	62.50	0.14
9	Pressure Reducing Valve			10000	90000	20	4500.00	375.00	0.86
1	SCADA Upgrades			50000	50000	30	1666.67	138.89	0.32
1	Painting/Coating Upgrades			200000	200000	50	4000.00	333.33	0.76
	SUBTOTAL Existing CIP Costs				$6,775,125.00		$115,021.25	$9,585.10	$21.98

Report Prepared by (Title): _____ Date: _____

NOTE: Installed costs are averages and include all materials and contracted labor and equipment.

NOTES:

FIVE YEAR BUDGET PROJECTION - PROJECT ALTERNATIVE 4

INSTRUCTIONS: Yellow-shaded cells are for data entry; all other cells are locked except line item descriptions which can be changed if needed. Years 2 through 5 will be compounded automatically by the inflation factor in Cell G6.

System Name: Weldon Consolidated Water Company

Inflation Factor (%): 3.0

System ID Number:

LINE		EXPENSES AND SOURCE OF FUNDS	2016	2017	2018	2019	2020
1		**OPERATIONS AND MAINTENANCE (O&M) EXPENSES**					
2		Salaries and Benefits	50,000.00	51,500.00	53,045.00	54,636.35	56,275.44
3		Contract Operation and Maintenance	6,000.00	6,180.00	6,365.40	6,556.36	6,753.05
4		Power and Other Utilities	30,000.00	30,900.00	31,827.00	32,781.81	33,765.26
5		Fees Regulatory	5,000.00	5,150.00	5,304.50	5,463.64	5,627.54
6		Treatment Chemicals	5,000.00	5,150.00	5,304.50	5,463.64	5,627.54
7		Coliform Monitoring	3,500.00	3,605.00	3,713.15	3,824.54	3,939.28
8		Chemical Monitoring	7,500.00	7,725.00	7,956.75	8,195.45	8,441.32
9		Wellhead Treatment for Fe/Mn Removal	11,500.00	11,845.00	12,200.35	12,566.36	12,943.35
10		Transportation	2,000.00	2,060.00	2,121.80	2,185.45	2,251.02
11		Materials, Supplies, and Parts	5,000.00	5,150.00	5,304.50	5,463.64	5,627.54
12		Office Supplies	4,000.00	4,120.00	4,243.60	4,370.91	4,502.04
12		Miscellaneous	4,000.00	4,120.00	4,243.60	4,370.91	4,502.04
14		**Total O&M Expenses:**	133,500.00	137,505.00	141,630.15	145,879.05	150,255.43
16		**GENERAL AND ADMINISTRATIVE EXPENSES**					
17		Engineering and Professional Services	10,000.00	10,300.00	10,609.00	10,927.27	11,255.09
18		Depreciation and Amortization	0.00	0.00	0.00	0.00	0.00
19		Insurance	10,000.00	10,300.00	10,609.00	10,927.27	11,255.09
20		Existing Contribution to CIP (From CIP)	115,021.25	118,471.89	122,026.04	125,686.83	129,457.43
21		O&M Reserve	2,500.00	2,575.00	2,652.25	2,731.82	2,813.77
22		Other Reserves	2,000.00	2,060.00	2,121.80	2,185.45	2,251.02
23		Miscellaneous	100.00	103.00	106.09	109.27	112.55
26	**	Debt Service	19,200.00	19,200.00	19,200.00	19,200.00	19,200.00
27		**Total General and Administrative Expenses:**	158,821.25	163,009.89	167,324.18	171,767.91	176,344.95
28		**TOTAL EXPENSES (Line 14+ Line 27):**	292,321.25	300,514.89	308,954.33	317,646.96	326,600.37
30		**REVENUES RECEIVED**					
31		Cash Revenues (Water Rates)	292,321.25	300,514.89	308,954.33	317,646.96	326,600.37
32	**	Depreciation Reserves	0.00	0.00	0.00	0.00	0.00
33	**	Fees and Services	0.00	0.00	0.00	0.00	0.00
34	**	Hookup Charges	0.00	0.00	0.00	0.00	0.00
35	**	Withdrawal from CIP or Other Reserves	0.00	0.00	0.00	0.00	0.00
36	**	Other Fund Sources: Interest, Etc.	0.00	0.00	0.00	0.00	0.00
37	**	Grants	0.00	0.00	0.00	0.00	0.00
38	**	SRF Loan	0.00	0.00	0.00	0.00	0.00
39	**	Business Loans	0.00	0.00	0.00	0.00	0.00
40		**TOTAL REVENUE (Lines 31 through 39):**	292,321.25	300,514.89	308,954.33	317,646.96	326,600.37
41		**NET LOSS OR GAIN:**	0.00	0.00	0.00	0.00	0.00

Report Prepared by (Name and Title): _____ Date: _____

(** Inflation factor not applied to future year projections)

	2016	2017	2018	2019	2020
Number of Customers:	436	436	436	436	436
Average Monthly Revenue Needed Per Customer:	55.87	57.44	59.05	60.71	62.42

(total expenses ÷ # of customers ÷ 12)

APPENDIX N

Project Alternative 5 System Layout Map

SCALE 1"=1,000'

0 1,000' 2,000' 4,000'

DISTRIBUTION SYSTEM PIPING ±33,500 LF OF 12"ø DR14 C900 PVC

DEDICATED TANK FILL LINE ±21,050 LF OF 12"ø DR14 C900 PVC

TEST/PRODUCTION WELL NO. 2 Q=±400 GPM (EL.=±2,660')

NEW 6"ø DR14 C900 DISTRIBUTION SYSTEM PIPING & APPURTENANCES (±6,200 LF)

PROPOSED 1MG TANK SITE HGL=±2,920'

TEST/PRODUCTION WELL NO. 1 Q=±400 GPM (EL.=±2,635')

TRADEWIND WATER ASSOCIATION (EL.=±2,650-2,870')

RAINBIRD VALLEY MUTUAL WATER COMPANY (EL.=±2,660'-2,700')

SIERRA VIEW RESTAURANT & KOA CAMPGROUND (EL.=±2,625')

SYSTEM TIE-IN LOCATION (TYP.)

LONG CANYON WATER COMPANY (EL.=±2,680'-2,770')

BELLA VISTA MUTUAL WATER COMPANY (FUTURE)

8" GRAVITY SYSTEM TIE-IN LOCATION & PRV

24"ø CASED CROSSING

LONG CANYON WATER COMPANY (FUTURE)

6" PRESSURE SYSTEM TIE-IN LOCATION & PRV

NEW 6" DR14 C900 DISTRIBUTION SYSTEM PIPING & APPURTENANCES (±3,925 LF)

PROPOSED 1MG TANK SITE & BOOSTER STATION HGL=±2,920'

BELLA VISTA MUTUAL WATER COMPANY (EL.=±2,885'-3,215')

NEW 6" DR14 C900 DISTRIBUTION SYSTEM PIPING & APPURTENANCES (±13,675 LF)

HWY. 178

FAY RANCH ROAD

Weldon

South Fork Valley

Piute

ALTERNATIVE NO. 5 LAYOUT
SCALE 1"=1,000'

REV.	DATE	DESCRIPTION	BY
1			
2			
3			
4			
5			
6			
7			

DEE JASPAR & ASSOCIATES, INC.
CIVIL ENGINEERS
BAKERSFIELD, CALIFORNIA
PHONE
FAX
SAN LUIS OBISPO, CALIFORNIA
PHONE
FAX
555 N. MAIN STREET, #B
PORTERVILLE, CALIFORNIA 93257

PRELIMINARY SYSTEM LAYOUT

WELDON REGIONAL CONSOLIDATION PROJECT

WELDON REGIONAL WATER PROJECT
KERN COUNTY, CALIFORNIA

DRAWN	KRW
CHECKED	CMS
DATE	12/21/2015
SCALE	1"=1,000'
FILE	
JOB NO.	
SHEET	1
OF	1 SHEETS

S:\WELDON REGIONAL WATER PROJECT\DRAWINGS\FEASIBILITY SYSTEM LAYOUT-ALT 5.DWG 4/21/2016 10:58 AM

APPENDIX O

Project Alternative 5 Capital and O&M Cost Estimates

Weldon Regional Consolidation Water Project

Project Alternative #5

Engineer's Estimate

Item No.	Item Description	Quantity	Unit	Unit Cost	Extended Cost
1	Mobilization/Demobilization/Cleanup	1	LS	$400,000.00	$400,000.00
2	Potholing of Existing Utilities	1	LS	$75,000.00	$75,000.00
3	Permitting with KCBID & State	1	LS	$20,000.00	$20,000.00
4	Traffic Control	1	LS	$100,000.00	$100,000.00
5	Kern County Potable Water Pipeline Franchise Permit	1	LS	$2,500.00	$2,500.00
6	Caltrans Potable Water Pipeline Pipeline Franchise Permit	1	LS	$10,000.00	$10,000.00
				Subtotal:	$607,500.00
	Construct New Well at Test Well #1 Location				
7	36" Conductor Casing	50	LF	$1,000.00	$50,000.00
8	18" Pilot Hole Construction	250	LF	$150.00	$37,500.00
9	Ream Pilot Hole to 28"	250	LF	$150.00	$37,500.00
10	16" I.D. X 5/16" COR-TEN Blank Casing	110	LF	$300.00	$33,000.00
11	16" I.D. X 5/16" COR-TEN Perforated Casing	120	LF	$400.00	$48,000.00
12	4" Gravel Feed Tube	105	LF	$30.00	$3,150.00
13	2" Sounding Tube	100	LF	$25.00	$2,500.00
14	Gravel Envelope (4x16 Colorado Silica Sand)	130	LF	$100.00	$13,000.00
15	Cement Seal	50	LF	$110.00	$5,500.00
16	Swabbing and Airlifting Development	60	HRS	$500.00	$30,000.00
17	Pumping and Surging Development	48	HRS	$450.00	$21,600.00
18	Production Testing	24	HRS	$450.00	$10,800.00
19	Well Video	1	LS	$3,000.00	$3,000.00
				Subtotal:	$295,550.00
	Construct New Well at Test Well #2 Location				
20	36" Conductor Casing	50	LF	$1,000.00	$50,000.00
21	18" Pilot Hole Construction	270	LF	$150.00	$40,500.00
22	Ream Pilot Hole to 28"	270	LF	$150.00	$40,500.00
23	16" I.D. X 5/16" COR-TEN Blank Casing	180	LF	$300.00	$54,000.00
24	16" I.D. X 5/16" COR-TEN Perforated Casing	70	LF	$400.00	$28,000.00
25	4" Gravel Feed Tube	175	LF	$30.00	$5,250.00
26	2" Sounding Tube	170	LF	$25.00	$4,250.00
27	Gravel Envelope (4x16 Colorado Silica Sand)	80	LF	$100.00	$8,000.00
28	Cement Seal	50	LF	$110.00	$5,500.00
29	Swabbing and Airlifting Development	60	HRS	$500.00	$30,000.00
30	Pumping and Surging Development	48	HRS	$450.00	$21,600.00
31	Production Testing	24	HRS	$450.00	$10,800.00
32	Well Video	1	LS	$3,000.00	$3,000.00
				Subtotal:	$301,400.00
	Well Equipping & Discharge Piping at Test Well #1 Location				
33	Well Site Grading and Earthwork	1	LS	$60,000.00	$60,000.00
34	Well Site Agg. Base Ground Cover	300	TON	$75.00	$22,500.00
35	Deep Well Pump Concrete Foundation	1	EA	$15,000.00	$15,000.00
36	Furnish & Install 400 gpm Pump w/100 HP Motor	1	EA	$50,000.00	$50,000.00
37	Furnish & Install 36" Dia. RCP Dry Well	1	EA	$17,500.00	$17,500.00
38	FBE Steel Well Discharge Piping & Appurtenances	1	EA	$45,000.00	$45,000.00
39	Well Building Enclosures	1	EA	$40,000.00	$40,000.00
40	1,500 Gallon Hydropneumatic Tank & Concrete Footings	1	EA	$65,000.00	$65,000.00
41	275 Gallon Chlorine Storage Tank and Feed Pump	1	EA	$10,000.00	$10,000.00
42	FRP Chemical Storage Building & Concrete Foundation	1	EA	$50,000.00	$50,000.00
43	Administration Building	1	LS	$150,000.00	$150,000.00
44	Electrical Switchgear Foundation & Shade Structure	1	EA	$30,000.00	$30,000.00
45	Electrical and Controls including Site Lighting and SCADA	1	EA	$200,000.00	$200,000.00
46	Electric Utility Costs	1	EA	$50,000.00	$50,000.00
47	System Painting	1	EA	$10,000.00	$10,000.00
48	Site Fencing w/Two Double Drive Gates	600	LF	$35.00	$21,000.00
49	Pipe Insulation w/Heat Trace	1	LS	$15,000.00	$15,000.00
				Subtotal:	$851,000.00
	Well Equipping & Discharge Piping at Test Well #2 Location				
50	Well Site Grading and Earthwork	1	LS	$60,000.00	$60,000.00
51	Well Site Agg. Base Ground Cover	300	TON	$75.00	$22,500.00
52	Deep Well Pump Concrete Foundation	1	EA	$15,000.00	$15,000.00
53	Furnish & Install 400 gpm Pump w/100 HP Motor	1	EA	$50,000.00	$50,000.00
54	Furnish & Install 36" Dia. RCP Dry Well	1	EA	$17,500.00	$17,500.00
55	FBE Steel Well Discharge Piping & Appurtenances	1	EA	$45,000.00	$45,000.00
56	Well Building Enclosures	1	EA	$40,000.00	$40,000.00
57	1,500 Gallon Hydropneumatic Tank & Concrete Footings	1	EA	$65,000.00	$65,000.00
58	275 Gallon Chlorine Storage Tank and Feed Pump	1	EA	$10,000.00	$10,000.00
59	FRP Chemical Storage Building & Concrete Foundation	1	EA	$50,000.00	$50,000.00
60	Electrical Switchgear Foundation & Shade Structure	1	EA	$30,000.00	$30,000.00
61	Electrical and Controls including Site Lighting and SCADA	1	EA	$200,000.00	$200,000.00
62	Electric Utility Costs	1	EA	$50,000.00	$50,000.00
63	System Painting	1	EA	$10,000.00	$10,000.00
64	Site Fencing w/Two Double Drive Gates	600	LF	$35.00	$21,000.00
65	Pipe Insulation w/Heat Trace	1	LS	$15,000.00	$15,000.00
				Subtotal:	$701,000.00
	Dedicated Fill Line to Storage Tanks				
50	Furnish & Install 12" DR14 C900 PVC Pipe	21,050	LF	$100.00	$2,105,000.00
				Subtotal:	$2,105,000.00
	1 MG Kelso Valley Road Storage Tank Site				
51	Tank Site and Access Road Grading	7,500	CY	$30.00	$225,000.00
52	Gravel Rock Ground Cover for Access Road and Tank Site	1,000	TON	$75.00	$75,000.00
53	1 MG Welded Steel Storage Tank & Concrete Ringwall Fdn	1	LS	$1,000,000.00	$1,000,000.00
54	Site Electrical/SCADA	1	LS	$250,000.00	$250,000.00
55	Electric Utility Costs	1	LS	$40,000.00	$40,000.00
56	Site Fencing w/Two Double Drive Gates	800	LF	$35.00	$28,000.00
57	Site Painting	1	LS	$10,000.00	$10,000.00
58	Tank Site Property Acquisition	1	LS	$50,000.00	$50,000.00
				Subtotal:	$1,678,000.00
	1 MG Bella Vista Storage Tank & Booster Station Site				
59	Tank Site and Access Road Grading	4,000	CY	$30.00	$120,000.00
60	Gravel Rock Ground Cover for Access Road and Tank Site	700	TON	$75.00	$52,500.00
61	1 MG Welded Steel Storage Tank & Concrete Ringwall Fdn	1	LS	$1,000,000.00	$1,000,000.00
62	1,250 GPM Booster Station	1	LS	$400,000.00	$400,000.00
63	Chemical Storage Building	1	LS	$50,000.00	$50,000.00
64	1,500 Gallon Hydropneumatic Tank & Concrete Footings	1	LS	$75,000.00	$75,000.00
65	Site Electrical/SCADA	1	LS	$300,000.00	$300,000.00
66	Electric Utility Costs	1	LS	$25,000.00	$25,000.00
67	System Painting	1	LS	$12,500.00	$12,500.00
68	Tank Site Property Acquisition	1	LS	$50,000.00	$50,000.00
69	Pipe Insulation w/Heat Trace	1	LS	$15,000.00	$15,000.00
				Subtotal:	$2,100,000.00

Weldon Regional Consolidation Water Project

Project Alternative #5

Engineer's Estimate

Item No.	Item Description	Quantity	Unit	Unit Cost	Extended Cost
	Distribution System Piping				
70	Furnish & Install 12" DR14 C900 PVC Pipe	33,500	LF	$100.00	$3,350,000.00
71	Furnish & Install Dry Barrel Fire Hydrant Assembly	1	EA	$5,500.00	$5,500.00
72	Furnish & Install 12" Gate Valve	10	EA	$4,000.00	$40,000.00
73	Remote Meter Read Equipment w/One Year Technical Support	1	LS	$12,500.00	$12,500.00
				Subtotal:	$3,408,000.00
	Sierra View Restaurant & KOA Campground System Tie-In				
74	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
75	Furnish & Install Dry Barrel Fire Hydrant Assembly	2	EA	$5,500.00	$11,000.00
76	Furnish & Install 2" Long Meter Service	2	EA	$4,750.00	$9,500.00
77	24" O.D. Steel Cased Crossing under Hwy 178	100	LF	$500.00	$50,000.00
78	Well Abandonment per KCEHS Standards	2	EA	$30,000.00	$60,000.00
				Subtotal:	$210,500.00
	Bella Vista Water System Improvements				
79	Furnish & Install 6" DR14 C900 PVC Pipe	13,675	LF	$60.00	$820,500.00
80	Furnish & Install Dry Barrel Fire Hydrant Assembly	15	EA	$5,500.00	$82,500.00
81	Furnish & Install 6" Gate Valve	22	EA	$2,500.00	$55,000.00
82	Furnish & Install 1" Long Meter Service	47	EA	$2,000.00	$94,000.00
83	Pressure Reducing Valve & Precast Vault	2	EA	$40,000.00	$80,000.00
				Subtotal:	$1,132,000.00
	Rainbird Water System Improvements				
84	Furnish & Install 6" DR14 C900 PVC Pipe	6,200	LF	$60.00	$372,000.00
85	Furnish & Install Dry Barrel Fire Hydrant Assembly	13	EA	$5,500.00	$71,500.00
86	Furnish & Install 6" Gate Valve	9	EA	$2,500.00	$22,500.00
87	Pressure Reducing Valve & Precast Vault	1	EA	$40,000.00	$40,000.00
88	Furnish & Install 1" Long Meter Service	83	EA	$2,000.00	$166,000.00
89	Well Abandonment per KCEHS Standards	2	EA	$30,000.00	$60,000.00
				Subtotal:	$732,000.00
	Long Canyon Water System Improvements				
90	Furnish & Install 6" DR14 C900 PVC Pipe	3,925	LF	$70.00	$274,750.00
91	Furnish & Install Dry Barrel Fire Hydrant Assembly	6	EA	$5,500.00	$33,000.00
92	Furnish & Install 6" Gate Valve	10	EA	$2,500.00	$25,000.00
93	Pressure Reducing Valve & Precast Vault	2	EA	$40,000.00	$80,000.00
94	Furnish & Install 1" Long Meter Service	67	EA	$2,000.00	$134,000.00
95	Well Abandonment per KCEHS Standards	1	EA	$30,000.00	$30,000.00
				Subtotal:	$576,750.00
	Tradewinds Water Association Tie-In				
96	Furnish & Install 6" DR14 C900 PVC Pipe	2,725	LF	$60.00	$163,500.00
97	System Tie-In and Pressure Reducing Valve	4	EA	$40,000.00	$160,000.00
98	Furnish & Install 1" Meter	236	EA	$1,000.00	$236,000.00
99	Existing Tradewinds USDA Loan	1	LS	$300,000.00	$300,000.00
100	Well Abandonment per KCEHS Standards	1	EA	$30,000.00	$30,000.00
				Subtotal:	$889,500.00
				Subtotal:	$15,588,200.00
				Design, Contract Administration, & Construction Management:	$1,169,115.00
				20% Contingency:	$3,117,640.00
				Total:	**$19,874,955.00**

*Existing wells to be abandoned in accordance with KCEHS Standards with Cement Sand Slurry

**Tradewinds existing water system infrastructure underground piping shall remain and shall be incorporated into the new regional water system

***Bella Vista's existing wells to remain for possible use as standby wells for the new regional water system

Cost Estimates to Tie-In Potential Project Participants to Consolidated Water System

	Valley Estates P.O.A. Tie-In				
1	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	2,750	LF	$100.00	$275,000.00
				Subtotal:	$355,000.00
				25% Contingency:	$88,750.00
				Total:	**$443,750.00**
	South Fork Middle School Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	1	EA	$40,000.00	$40,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	1,500	LF	$100.00	$150,000.00
				Subtotal:	$190,000.00
				25% Contingency:	$47,500.00
				Total:	**$237,500.00**
	Weldon Methodist Church Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	1	EA	$40,000.00	$40,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	175	LF	$100.00	$17,500.00
3	24" O.D. Steel Cased Crossing under Hwy 178	100	LF	$500.00	$50,000.00
				Subtotal:	$107,500.00
				25% Contingency:	$26,875.00
				Total:	**$134,375.00**
	South Fork Women's Club/South Fork Elementary School Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	475	LF	$100.00	$47,500.00
3	24" O.D. Steel Cased Crossing under Hwy 178	100	LF	$500.00	$50,000.00
				Subtotal:	$177,500.00
				25% Contingency:	$44,375.00
				Total:	**$221,875.00**
	Hillview Acres MWC Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	2	EA	$40,000.00	$80,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	6,250	LF	$100.00	$625,000.00
				Subtotal:	$705,000.00
				25% Contingency:	$176,250.00
				Total:	**$881,250.00**
	Lakeview Ranchos MWC Supply Line & Tie-In				
1	System Tie-In and Pressure Reducing Valve	3	EA	$40,000.00	$120,000.00
2	Furnish & Install 12" DR14 C900 PVC Pipe	2,600	LF	$100.00	$260,000.00
				Subtotal:	$380,000.00
				25% Contingency:	$95,000.00
				Total:	**$475,000.00**

Total Cost to Tie In All Surrounding Water Systems: **$2,393,750.00**

CAPITAL IMPROVEMENT PLAN (CIP) for Project Alternative 5

Date: 4/13/2016

System ID No.:

System Name: Weldon Consolidated Water Company

Service Connections: 436

*Enter information only in YELLOW shaded cells

QTY	COMPONENT			UNIT COST	INSTALLED COST	AVG LIFE, YEARS	ANNUAL RESERVE	MONTHLY RESERVE	MONTHLY RESERVE PER CUSTOMER
2	Drilled Well, 16", steel casing	Depth:	275	1100	605000	60	10083.33	840.28	1.93
2	Wellhead Electrical Controls			100000	200000	40	5000.00	416.67	0.96
2	Well Pump, 100 HP			50000	100000	15	6666.67	555.56	1.27
3	Pressure Tank	Gallons:	1500	40.0	180000	60	3000.00	250.00	0.57
3	Storage Tank, Plastic	Gallons:	275	20.0	16500	10	1650.00	137.50	0.32
2	Storage Tank, Steel	Gallons:	1,000,000	0.6	1200000	60	20000.00	1666.67	3.82
2	Well Discharge Flow Meter, 8"			3500	7000	30	233.33	19.44	0.04
2	Hypochlorinator w/ Tank & Pump, Complete			3500	7000	10	700.00	58.33	0.13
54,550	Pipe w/ sand bedding, 12" (Enter linear feet for quantity)			55	3000250	100	30002.50	2500.21	5.73
26,525	Pipe w/ sand bedding, 6" (Enter linear feet for quantity)			40	1061000	100	10610.00	884.17	2.03
18	Standpipe Hydrant, 2-1/2"			5000	90000	50	1800.00	150.00	0.34
436	Customer Meter w/ Box & Shutoff, Complete			500	218000	25	8720.00	726.67	1.67
10	Distribution Valve, 12"			2200	22000	50	440.00	36.67	0.08
41	Distribution Valve, 8"			1500	61500	50	1230.00	102.50	0.24
30	Air & Vacuum Relief Valve, Typical			500	15000	20	750.00	62.50	0.14
9	Pressure Reducing Valve			10000	90000	20	4500.00	375.00	0.86
1	SCADA Upgrades			50000	50000	30	1666.67	138.89	0.32
1	Painting/Coating Upgrades			200000	200000	50	4000.00	333.33	0.76
	SUBTOTAL Existing CIP Costs				$7,123,250.00		$111,052.50	$9,254.38	$21.23

Report Prepared by (Title): _____ Date: _____

NOTE: Installed costs are averages and include all materials and contracted labor and equipment.

NOTES:

FIVE YEAR BUDGET PROJECTION - PROJECT ALTERNATIVE 5

INSTRUCTIONS: Yellow-shaded cells are for data entry; all other cells are locked except line item descriptions which can be changed if needed. Years 2 through 5 will be compounded automatically by the inflation factor in Cell G6.

System Name: Weldon Consolidated Water Company

Inflation Factor (%): 3.0

System ID Number:

LINE		EXPENSES AND SOURCE OF FUNDS	2016	2017	2018	2019	2020
1		**OPERATIONS AND MAINTENANCE (O&M) EXPENSES**					
2		Salaries and Benefits	50,000.00	51,500.00	53,045.00	54,636.35	56,275.44
3		Contract Operation and Maintenance	6,000.00	6,180.00	6,365.40	6,556.36	6,753.05
4		Power and Other Utilities	30,000.00	30,900.00	31,827.00	32,781.81	33,765.26
5		Fees Regulatory	5,000.00	5,150.00	5,304.50	5,463.64	5,627.54
6		Treatment Chemicals	5,000.00	5,150.00	5,304.50	5,463.64	5,627.54
7		Coliform Monitoring	3,500.00	3,605.00	3,713.15	3,824.54	3,939.28
8		Chemical Monitoring	7,500.00	7,725.00	7,956.75	8,195.45	8,441.32
9		Transportation	2,000.00	2,060.00	2,121.80	2,185.45	2,251.02
10		Materials, Supplies, and Parts	5,000.00	5,150.00	5,304.50	5,463.64	5,627.54
11		Office Supplies	4,000.00	4,120.00	4,243.60	4,370.91	4,502.04
12		Miscellaneous	4,000.00	4,120.00	4,243.60	4,370.91	4,502.04
14		**Total O&M Expenses:**	122,000.00	125,660.00	129,429.80	133,312.69	137,312.07
16		**GENERAL AND ADMINISTRATIVE EXPENSES**					
17		Engineering and Professional Services	10,000.00	10,300.00	10,609.00	10,927.27	11,255.09
18		Depreciation and Amortization	0.00	0.00	0.00	0.00	0.00
19		Insurance	10,000.00	10,300.00	10,609.00	10,927.27	11,255.09
20		Existing Contribution to CIP (From CIP)	111,052.50	114,384.08	117,815.60	121,350.07	124,990.57
21		O&M Reserve	2,500.00	2,575.00	2,652.25	2,731.82	2,813.77
22		Other Reserves	2,000.00	2,060.00	2,121.80	2,185.45	2,251.02
23		Miscellaneous	100.00	103.00	106.09	109.27	112.55
26	**	Debt Service	19,200.00	19,200.00	19,200.00	19,200.00	19,200.00
27		**Total General and Administrative Expenses:**	154,852.50	158,922.08	163,113.74	167,431.15	171,878.08
28		**TOTAL EXPENSES (Line 14+ Line 27):**	276,852.50	284,582.08	292,543.54	300,743.84	309,190.16
30		**REVENUES RECEIVED**					
31		Cash Revenues (Water Rates)	276,852.50	284,582.08	292,543.54	300,743.84	309,190.16
32	**	Depreciation Reserves	0.00	0.00	0.00	0.00	0.00
33	**	Fees and Services	0.00	0.00	0.00	0.00	0.00
34	**	Hookup Charges	0.00	0.00	0.00	0.00	0.00
35	**	Withdrawal from CIP or Other Reserves	0.00	0.00	0.00	0.00	0.00
36	**	Other Fund Sources: Interest, Etc.	0.00	0.00	0.00	0.00	0.00
37	**	Grants	0.00	0.00	0.00	0.00	0.00
38	**	SRF Loan	0.00	0.00	0.00	0.00	0.00
39	**	Business Loans	0.00	0.00	0.00	0.00	0.00
40		**TOTAL REVENUE (Lines 31 through 39):**	276,852.50	284,582.08	292,543.54	300,743.84	309,190.16
41		**NET LOSS OR GAIN:**	0.00	0.00	0.00	0.00	0.00

Report Prepared by (Name and Title): _____ Date: _____

(** Inflation factor not applied to future year projections)

	2016	2017	2018	2019	2020
Number of Customers:	436	436	436	436	436
Average Monthly Revenue Needed Per Customer:	52.92	54.39	55.91	57.48	59.10

(total expenses ÷ # of customers ÷ 12)

APPENDIX P

Project Alternative Present Worth Analyses

Weldon Regional Consolidation Project

Alternative 2 - Consolidation Project with a 2 MG Storage Tank

Capital Cost	Annual O&M Cost Yr 0	Annual O&M Cost Yr 1	Annual O&M Cost Yr 2	Annual O&M Cost Yr 3	Annual O&M Cost Yr 4	Annual O&M Cost Yr 5	Annual O&M Cost Yr 6	Annual O&M Cost Yr 7	Annual O&M Cost Yr 8	Annual O&M Cost Yr 9	Annual O&M Cost Yr 10	Annual O&M Cost Yr 11	Annual O&M Cost Yr 12	Annual O&M Cost Yr 13	Annual O&M Cost Yr 14	Annual O&M Cost Yr 15	Annual O&M Cost Yr 16	Annual O&M Cost Yr 17	Annual O&M Cost Yr 18	Annual O&M Cost Yr 19	Annual O&M Cost Yr 20
$18,388,305.00	$291,802.50	$298,338.88	$305,021.67	$311,854.15	$318,839.69	$325,981.69	$333,283.68	$340,749.24	$348,382.02	$356,185.78	$364,164.34	$372,321.62	$380,661.63	$389,188.45	$397,906.27	$406,819.37	$415,932.12	$425,249.00	$434,774.58	$444,513.53	$454,470.63
Year:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Annual Payment:	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91	$1,092,274.91
Total Annual Costs:	$1,384,077.41	$1,390,613.79	$1,397,296.58	$1,404,129.07	$1,411,114.60	$1,418,256.61	$1,425,558.60	$1,433,024.15	$1,440,656.94	$1,448,460.69	$1,456,439.25	$1,464,596.54	$1,472,936.54	$1,481,463.36	$1,490,181.18	$1,499,094.28	$1,508,207.04	$1,517,523.92	$1,527,049.49	$1,536,788.44	$1,546,745.55
*$/1000 gallon:	$26.81734	$26.94399	$27.07347	$27.20586	$27.34120	$27.47958	$27.62107	$27.76572	$27.91360	$28.06481	$28.21940	$28.37745	$28.53904	$28.70425	$28.87317	$29.04586	$29.22243	$29.40295	$29.58751	$29.77621	$29.96914
*$/ccf:	$20.05937	$20.15410	$20.25096	$20.34998	$20.45122	$20.55473	$20.66056	$20.76875	$20.87938	$20.99248	$21.10811	$21.22633	$21.34720	$21.47078	$21.59713	$21.72631	$21.85838	$21.99341	$22.13146	$22.27261	$22.41691
Avg. Monthly Costs:	$115,339.78	$115,884.48	$116,441.38	$117,010.76	$117,592.88	$118,188.05	$118,796.55	$119,418.68	$120,054.74	$120,705.06	$121,369.94	$122,049.71	$122,744.71	$123,455.28	$124,181.77	$124,924.52	$125,683.92	$126,460.33	$127,254.12	$128,065.70	$128,895.46
Avg. Monthly O&M Costs:	$24,316.88	$24,861.57	$25,418.47	$25,987.85	$26,569.97	$27,165.14	$27,773.64	$28,395.77	$29,031.84	$29,682.15	$30,347.03	$31,026.80	$31,721.80	$32,432.37	$33,158.86	$33,901.61	$34,661.01	$35,437.42	$36,231.21	$37,042.79	$37,872.55
O&M Cost per connection per month:	$55.77	$57.02	$58.30	$59.61	$60.94	$62.31	$63.70	$65.13	$66.59	$68.08	$69.60	$71.16	$72.76	$74.39	$76.05	$77.76	$79.50	$81.28	$83.10	$84.96	$86.86
Present Worth of Op. Costs:	$291,802.50	$293,351.89	$294,909.51	$296,475.41	$298,049.61	$299,632.18	$301,223.14	$302,822.56	$304,430.47	$306,046.91	$307,671.94	$309,305.59	$310,947.93	$312,598.98	$314,258.79	$315,927.42	$317,604.92	$319,291.31	$320,986.66	$322,691.02	$324,404.42
Total Present Worth of Operating Costs:	$6,464,433.16																				
Total Present Worth Op. + Cap. Costs:	$24,852,738.16																				

Annual Operating and Maintenance Costs based on 158.4 acre-feet of pumped water

$/1000 Gallon and $/ccf based on estimate annual well production of 158.4 acre-feet of delivered watered

Estimated Annual Water Use: 158.4

Annual Operating and Maintenance Cost for includes cost for electricity, chlorine, water quality monitoring, capital improvement, and general and administrative

Annual Operating and Maintenance Costs increased at 3% per year for inflation

O&M Cost per connection based on an estimated 436 connections for Long Canyon Water Company, Rainbird Valley MWC, Tradewinds Water Association, Bella Vista MWC, Sierra Vista Restaurant, and the Lake Isabella K.O.A.

Number of Customers: 436

Loan Duration:	20	(years)
Loan Interest Rate:	1.70%	(based on most recent posted Interest Rate from CWSRF website)
Inflation Rate:	2.24%	(based on 20 yr average)

Weldon Regional Consolidation Project

Alternative 3 - Consolidation Project with one 2 MG Storage Tank

Capital Cost	Annual O&M Cost Yr 0	Annual O&M Cost Yr 1	Annual O&M Cost Yr 2	Annual O&M Cost Yr 3	Annual O&M Cost Yr 4	Annual O&M Cost Yr 5	Annual O&M Cost Yr 6	Annual O&M Cost Yr 7	Annual O&M Cost Yr 8	Annual O&M Cost Yr 9	Annual O&M Cost Yr 10	Annual O&M Cost Yr 11	Annual O&M Cost Yr 12	Annual O&M Cost Yr 13	Annual O&M Cost Yr 14	Annual O&M Cost Yr 15	Annual O&M Cost Yr 16	Annual O&M Cost Yr 17	Annual O&M Cost Yr 18	Annual O&M Cost Yr 19	Annual O&M Cost Yr 20
$18,387,030.00	$275,811.67	$281,989.85	$288,306.42	$294,764.48	$301,367.21	$308,117.83	$315,019.67	$322,076.11	$329,290.62	$336,666.73	$344,208.06	$351,918.32	$359,801.30	$367,860.84	$376,100.93	$384,525.59	$393,138.96	$401,945.27	$410,948.85	$420,154.10	$429,565.55
Year:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Annual Payment:	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18	$1,092,199.18
Total Annual Costs:	$1,368,010.85	$1,374,189.03	$1,380,505.60	$1,386,963.66	$1,393,566.39	$1,400,317.01	$1,407,218.85	$1,414,275.29	$1,421,489.80	$1,428,865.91	$1,436,407.24	$1,444,117.50	$1,452,000.47	$1,460,060.02	$1,468,300.11	$1,476,724.77	$1,485,338.14	$1,494,144.45	$1,503,148.03	$1,512,353.28	$1,521,764.73
*$/1000 gallon:	$26.50604	$26.62575	$26.74814	$26.87327	$27.00120	$27.13199	$27.26572	$27.40244	$27.54223	$27.68515	$27.83126	$27.98066	$28.13339	$28.28955	$28.44921	$28.61244	$28.77933	$28.94996	$29.12441	$29.30277	$29.48512
*$/ccf:	$19.82652	$19.91606	$20.00761	$20.10120	$20.19690	$20.29473	$20.39476	$20.49703	$20.60159	$20.70849	$20.81779	$20.92953	$21.04378	$21.16058	$21.28001	$21.40211	$21.52694	$21.65457	$21.78506	$21.91847	$22.05487
Avg. Monthly Costs:	$114,000.90	$114,515.75	$115,042.13	$115,580.31	$116,130.53	$116,693.08	$117,268.24	$117,856.27	$118,457.48	$119,072.16	$119,700.60	$120,343.13	$121,000.04	$121,671.67	$122,358.34	$123,060.40	$123,778.18	$124,512.04	$125,262.34	$126,029.44	$126,813.73
Avg. Monthly O&M Costs:	$22,984.31	$23,499.15	$24,025.54	$24,563.71	$25,113.93	$25,676.49	$26,251.64	$26,839.68	$27,440.88	$28,055.56	$28,684.01	$29,326.53	$29,983.44	$30,655.07	$31,341.74	$32,043.80	$32,761.58	$33,495.44	$34,245.74	$35,012.84	$35,797.13
O&M Cost per connection per month:	$52.72	$53.90	$55.10	$56.34	$57.60	$58.89	$60.21	$61.56	$62.94	$64.35	$65.79	$67.26	$68.77	$70.31	$71.88	$73.49	$75.14	$76.82	$78.55	$80.30	$82.10
Present Worth of O&M Costs:	$275,811.67	$277,276.15	$278,748.42	$280,228.50	$281,716.44	$283,212.27	$284,716.06	$286,227.82	$287,747.62	$289,275.48	$290,811.46	$292,355.59	$293,907.92	$295,468.49	$297,037.35	$298,614.54	$300,200.10	$301,794.09	$303,396.53	$305,007.49	$306,627.00
Total Present Worth of Operating Costs:	$6,110,180.98																				
Total Present Worth Op. + Capital Costs:	$24,497,210.98																				

Annual Operating and Maintenance Costs based on 158.4 acre-feet of pumped water

$/1000 Gallon and $/ccf based on estimate annual well production of 158.4 acre-feet of delivered watered

Estimated Annual Water Use (acre-feet):158.4

Annual Operating and Maintenance Cost for includes cost for electricity, chlorine, water quality monitoring, capital improvement, and general and administrative

Annual Operating and Maintenance Costs increased at 3% per year for inflation

O&M Cost per connection based on an estimated 436 connections for Long Canyon Water Company, Rainbird Valley MWC, Tradewinds Water Association, Bella Vista MWC, Sierra Vista Restaurant, and the Lake Isabella K.O.A.

Number of Customers: 436

Loan Duration:	20	(years)
Loan Interest Rate:	1.70%	(based on most recent posted Interest Rate from CWSRF website)
Inflation Rate:	2.24%	(based on 20 yr average)

Weldon Regional Consolidation Project

Alternative 4 - Consolidation Project with two 1 MG Storage Tanks

Capital Cost	Annual O&M Cost Yr 0	Annual O&M Cost Yr 1	Annual O&M Cost Yr 2	Annual O&M Cost Yr 3	Annual O&M Cost Yr 4	Annual O&M Cost Yr 5	Annual O&M Cost Yr 6	Annual O&M Cost Yr 7	Annual O&M Cost Yr 8	Annual O&M Cost Yr 9	Annual O&M Cost Yr 10	Annual O&M Cost Yr 11	Annual O&M Cost Yr 12	Annual O&M Cost Yr 13	Annual O&M Cost Yr 14	Annual O&M Cost Yr 15	Annual O&M Cost Yr 16	Annual O&M Cost Yr 17	Annual O&M Cost Yr 18	Annual O&M Cost Yr 19	Annual O&M Cost Yr 20
$18,780,367.50	$292,321.25	$298,869.25	$305,563.92	$312,408.55	$319,406.50	$326,561.21	$333,876.18	$341,355.00	$349,001.36	$356,818.99	$364,811.73	$372,983.51	$381,338.34	$389,880.32	$398,613.64	$407,542.59	$416,671.54	$426,004.98	$435,547.50	$445,303.76	$455,278.56
Years:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Annual Payment:	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63	$1,115,563.63
Total Annual Costs:	$1,407,884.88	$1,414,432.88	$1,421,127.55	$1,427,972.18	$1,434,970.13	$1,442,124.84	$1,449,439.81	$1,456,918.63	$1,464,564.99	$1,472,382.62	$1,480,375.36	$1,488,547.15	$1,496,901.98	$1,505,443.95	$1,514,177.27	$1,523,106.22	$1,532,235.17	$1,541,568.62	$1,551,111.13	$1,560,867.39	$1,570,842.20
*$/1000 gallon:	$27.27863	$27.40550	$27.53521	$27.66783	$27.80342	$27.94205	$28.08378	$28.22869	$28.37684	$28.52831	$28.68317	$28.84151	$29.00339	$29.16889	$29.33811	$29.51111	$29.68799	$29.86883	$30.05372	$30.24276	$30.43602
*$/ccf:	$20.40441	$20.49931	$20.59634	$20.69554	$20.79696	$20.90065	$21.00667	$21.11506	$21.22587	$21.33918	$21.45501	$21.57345	$21.69453	$21.81833	$21.94490	$22.07431	$22.20662	$22.34188	$22.48018	$22.62158	$22.76615
Avg. Monthly Costs:	$117,323.74	$117,869.41	$118,427.30	$118,997.68	$119,580.84	$120,177.07	$120,786.65	$121,409.89	$122,047.08	$122,698.55	$123,364.61	$124,045.60	$124,741.83	$125,453.66	$126,181.44	$126,925.52	$127,686.26	$128,464.05	$129,259.26	$130,072.28	$130,903.52
Avg. Monthly O&M Costs:	$24,360.10	$24,905.77	$25,463.66	$26,034.05	$26,617.21	$27,213.43	$27,823.01	$28,446.25	$29,083.45	$29,734.92	$30,400.98	$31,081.96	$31,778.20	$32,490.03	$33,217.80	$33,961.88	$34,722.63	$35,500.42	$36,295.62	$37,108.65	$37,939.88
O&M Cost per connection per month:	$55.87	$57.12	$58.40	$59.71	$61.05	$62.42	$63.81	$65.24	$66.71	$68.20	$69.73	$71.29	$72.89	$74.52	$76.19	$77.89	$79.64	$81.42	$83.25	$85.11	$87.02
Present Worth of Op. Costs:	$292,321.25	$293,873.40	$295,433.79	$297,002.46	$298,579.47	$300,164.84	$301,758.64	$303,360.90	$304,971.66	$306,590.98	$308,218.90	$309,855.46	$311,500.71	$313,154.70	$314,817.47	$316,489.06	$318,169.54	$319,858.93	$321,557.30	$323,264.68	$324,981.13
Total Present Worth of Operating Costs:	$6,475,925.27																				
Total Present Worth Op. + Cap. Costs:	$25,256,292.77																				

Annual Operating and Maintenance Costs based on 158.4 acre-feet of pumped water

$/1000 Gallon and $/ccf based on estimate annual well production of 158.4 acre-feet of delivered watered

Estimated Annual Water Use (acre-feet): 158.4

Annual Operating and Maintenance Cost for includes cost for electricity, chlorine, water quality monitoring, capital improvement, and general and administrative

Annual Operating and Maintenance Costs increased at 3% per year for inflation

O&M Cost per connection based on an estimated 436 connections for Long Canyon Water Company, Rainbird Valley MWC, Tradewinds Water Association, Bella Vista MWC, Sierra Vista Restaurant, and the Lake Isabella KOA

Number of Customers: 436

Loan Duration:	20	(years)
Loan Interest Rate:	1.70%	(based on most recent posted Interest Rate from CWSRF website)
Inflation Rate:	2.24%	(based on 20 yr average)

Weldon Regional Consolidation Project

Alternative 5 - Consolidation Project with two 1 MG Storage Tanks

Capital Cost	Annual O&M Cost Yr 0	Annual O&M Cost Yr 1	Annual O&M Cost Yr 2	Annual O&M Cost Yr 3	Annual O&M Cost Yr 4	Annual O&M Cost Yr 5	Annual O&M Cost Yr 6	Annual O&M Cost Yr 7	Annual O&M Cost Yr 8	Annual O&M Cost Yr 9	Annual O&M Cost Yr 10	Annual O&M Cost Yr 11	Annual O&M Cost Yr 12	Annual O&M Cost Yr 13	Annual O&M Cost Yr 14	Annual O&M Cost Yr 15	Annual O&M Cost Yr 16	Annual O&M Cost Yr 17	Annual O&M Cost Yr 18	Annual O&M Cost Yr 19	Annual O&M Cost Yr 20
$19,874,955.00	$276,852.50	$283,054.00	$289,394.41	$295,876.84	$302,504.48	$309,280.58	$316,208.47	$323,291.54	$330,533.27	$337,937.21	$345,507.01	$353,246.36	$361,159.08	$369,249.04	$377,520.22	$385,976.68	$394,622.55	$403,462.10	$412,499.65	$421,739.64	$431,186.61
Years:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Annual Payment:	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70	$1,180,582.70
Total Annual Costs:	$1,457,435.20	$1,463,636.70	$1,469,977.11	$1,476,459.54	$1,483,087.18	$1,489,863.28	$1,496,791.17	$1,503,874.24	$1,511,115.97	$1,518,519.91	$1,526,089.71	$1,533,829.06	$1,541,741.78	$1,549,831.74	$1,558,102.92	$1,566,559.38	$1,575,205.25	$1,584,044.80	$1,593,082.35	$1,602,322.34	$1,611,769.31
*$/1000 gallon:	$28.23869	$28.35885	$28.48170	$28.60730	$28.73572	$28.86701	$29.00124	$29.13848	$29.27879	$29.42225	$29.56892	$29.71887	$29.87219	$30.02893	$30.18919	$30.35304	$30.52056	$30.69183	$30.86694	$31.04597	$31.22901
*$/ccf:	$21.12254	$21.21242	$21.30431	$21.39826	$21.49432	$21.59252	$21.69293	$21.79558	$21.90054	$22.00784	$22.11755	$22.22972	$22.34439	$22.46164	$22.58152	$22.70407	$22.82938	$22.95749	$23.08847	$23.22239	$23.35930
Avg. Monthly Costs:	$121,452.93	$121,969.72	$122,498.09	$123,038.30	$123,590.60	$124,155.27	$124,732.60	$125,322.85	$125,926.33	$126,543.33	$127,174.14	$127,819.09	$128,478.48	$129,152.65	$129,841.91	$130,546.61	$131,267.10	$132,003.73	$132,756.86	$133,526.86	$134,314.11
Avg. Monthly O&M Costs:	$23,071.04	$23,587.83	$24,116.20	$24,656.40	$25,208.71	$25,773.38	$26,350.71	$26,940.96	$27,544.44	$28,161.43	$28,792.25	$29,437.20	$30,096.59	$30,770.75	$31,460.02	$32,164.72	$32,885.21	$33,621.84	$34,374.97	$35,144.97	$35,932.22
O&M Cost per connection per month:	$52.92	$54.10	$55.31	$56.55	$57.82	$59.11	$60.44	$61.79	$63.18	$64.59	$66.04	$67.52	$69.03	$70.58	$72.16	$73.77	$75.42	$77.11	$78.84	$80.61	$82.41
Present Worth of Op. Costs:	$276,852.50	$278,322.51	$279,800.33	$281,286.00	$282,779.55	$284,281.04	$285,790.49	$287,307.96	$288,833.49	$290,367.12	$291,908.89	$293,458.85	$295,017.04	$296,583.50	$298,158.28	$299,741.43	$301,332.97	$302,932.97	$304,541.46	$306,158.50	$307,784.12
Total Present Worth of Operating Costs:	$6,133,239.03																				
Total Present Worth Op. + Cap. Costs:	$26,008,194.03																				

Annual Operating and Maintenance Costs based on 158.4 acre-feet of pumped water

$/1000 Gallon and $/ccf based on estimate annual well production of 158.4 acre-feet of delivered watered

Estimated Annual Water Use (acre-feet): 158.4

Annual Operating and Maintenance Cost for includes cost for electricity, chlorine, water quality monitoring, capital improvement, and general and administrative

Annual Operating and Maintenance Costs increased at 3% per year for inflation

O&M Cost per connection based on an estimated 436 connections for Long Canyon Water Company, Rainbird Valley MWC, Tradewinds Water Association, Bella Vista MWC, Sierra Vista Restaurant, and the Lake Isabella K.O.A.

Number of Customers: 436

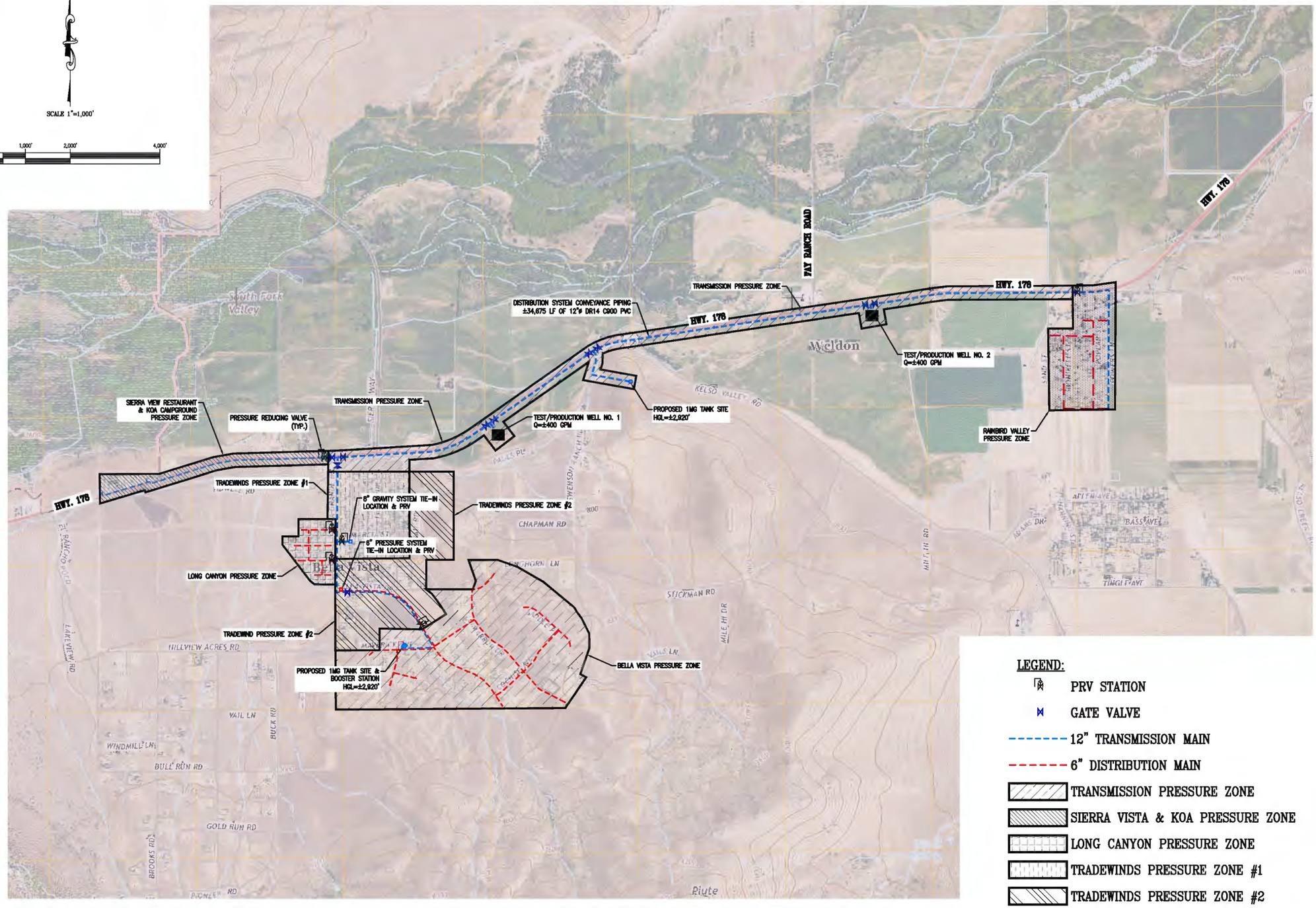
Loan Duration:	20	(yrs)
Loan Interest Rate:	1.70%	(based on most recent posted Interest Rate from CWSRF website)
Inflation Rate:	2.24%	(based on the running 20 yr average)

APPENDIX Q

Hydraulic Analysis Report

SCALE 1"=1,000'

0 1,000' 2,000' 4,000'



PRESSURE ZONE MAP
SCALE 1"=1,000'

LEGEND:

- PRV STATION
- GATE VALVE
- 12" TRANSMISSION MAIN
- 6" DISTRIBUTION MAIN
- TRANSMISSION PRESSURE ZONE
- SIERRA VISTA & KOA PRESSURE ZONE
- LONG CANYON PRESSURE ZONE
- TRADEWINDS PRESSURE ZONE #1
- TRADEWINDS PRESSURE ZONE #2
- BELLA VISTA PRESSURE ZONE
- RAINBIRD PRESSURE ZONE

REV.	DATE	DESCRIPTION	BY
1			
2			
3			
4			
5			
6			
7			

DEE JASPAR & ASSOCIATES, INC.
CIVIL ENGINEERS
EDWARDS AIR FORCE BASE
826 N MAIN STREET, #B
PORTERVILLE, CALIFORNIA 93257
PHONE (661) 784-1900
FAX (661) 784-1901

WATER SYSTEM HYDRAULIC MODEL

WELDON REGIONAL CONSOLIDATION PROJECT

WELDON REGIONAL WATER PROJECT
KERN COUNTY, CALIFORNIA

DRAWN	KRW
CHECKED	CMS
DATE	12/21/2015
SCALE	1"=1,000'
FILE	
JOB NO.	
SHEET	1
OF	1 SHEETS

S:\WELDON REGIONAL WATER PROJECT\DRAWINGS\FEASIBILITY SYSTEM LAYOUT-PRESSURE ZONE MAP.DWG 4/22/2016 8:33 AM

Rainbird Valley Mutual Water Co.
Pk Hr Municipal Demand

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
66	J-19	2,699.00	<None>	9	2,837.15	60
71	J-21	2,698.00	<None>	9	2,837.15	60
60	J-16	2,695.00	<None>	9	2,837.23	62
54	J-13	2,693.00	<None>	9	2,837.56	63
56	J-14	2,692.00	<None>	9	2,837.35	63
68	J-20	2,691.00	<None>	9	2,837.15	63
58	J-15	2,690.00	<None>	9	2,837.34	64
62	J-17	2,689.00	<None>	9	2,837.17	64
64	J-18	2,688.00	<None>	9	2,837.16	65

Long Canyon Water Company
Pk Hr Municipal Demand

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
161	J-63	2,758.00	<None>	3	2,851.94	41
157	J-61	2,751.00	<None>	3	2,851.94	44
159	J-62	2,740.00	<None>	3	2,851.94	48
154	J-60	2,731.00	<None>	3	2,851.94	52
146	J-56	2,721.00	<None>	3	2,851.96	57
150	J-58	2,718.00	<None>	3	2,851.95	58
152	J-59	2,714.00	<None>	3	2,851.95	60
144	J-55	2,705.00	<None>	3	2,851.97	64
148	J-57	2,697.00	<None>	3	2,851.96	67
140	J-53	2,688.00	<None>	3	2,852.00	71
142	J-54	2,684.00	<None>	3	2,852.00	73

Tradewinds Water System
Pk Hr Municipal Demand - Lower Half

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
161	J-63	2,758.00	<None>	3	2,851.94	41
157	J-61	2,751.00	<None>	3	2,851.94	44
171	J-68	2,754.00	<None>	7	2,863.80	48
159	J-62	2,740.00	<None>	3	2,851.94	48
167	J-66	2,746.00	<None>	7	2,863.83	51
154	J-60	2,731.00	<None>	3	2,851.94	52
165	J-65	2,739.00	<None>	7	2,863.87	54
146	J-56	2,721.00	<None>	3	2,851.96	57
150	J-58	2,718.00	<None>	3	2,851.95	58
152	J-59	2,714.00	<None>	3	2,851.95	60
163	J-64	2,723.00	<None>	7	2,863.97	61
144	J-55	2,705.00	<None>	3	2,851.97	64
148	J-57	2,697.00	<None>	3	2,851.96	67
140	J-53	2,688.00	<None>	3	2,852.00	71
142	J-54	2,684.00	<None>	3	2,852.00	73
173	J-69	2,690.00	<None>	7	2,863.80	75
175	J-70	2,675.00	<None>	7	2,863.80	82
181	J-73	2,666.00	<None>	7	2,863.82	86
179	J-72	2,665.00	<None>	7	2,863.81	86
183	J-74	2,665.00	<None>	7	2,863.85	86
177	J-71	2,659.00	<None>	7	2,863.80	89
185	J-75	2,657.00	<None>	7	2,863.86	90

Tradewinds Water System
Pk Hr Municipal Demand-Upper Half

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
243	J-93	2,839.00	<None>	7	2,926.53	38
218	J-86	2,837.00	<None>	7	2,926.53	39
216	J-85	2,830.00	<None>	7	2,926.54	42
214	J-84	2,822.00	<None>	7	2,926.55	45
212	J-83	2,811.00	<None>	7	2,926.60	50
241	J-92	2,800.00	<None>	0	2,926.53	55
203	J-81	2,799.00	<None>	7	2,926.53	55
201	J-80	2,795.00	<None>	7	2,926.54	57
210	J-82	2,795.00	<None>	7	2,926.58	57
199	J-79	2,781.00	<None>	7	2,926.55	63
197	J-78	2,779.00	<None>	7	2,926.57	64
195	J-77	2,764.00	<None>	7	2,926.57	70
316	J-105	2,755.28	<None>	0	2,926.54	74
312	J-104	2,749.50	<None>	0	2,926.54	77
308	J-103	2,747.06	<None>	0	2,926.55	78
304	J-102	2,740.48	<None>	0	2,926.56	81
301	J-101	2,724.32	<None>	0	2,926.56	88

½ Pk Hr plus 1,500gpm Fire Flow
12"ø Backbone Pipeline

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
30	J-1	2,636.00	<None>	1,521	2,716.69	35
31	J-2	2,633.00	<None>	17	2,722.03	39
34	J-3	2,627.00	<None>	0	2,733.04	46

½ Pk Hr plus 1,500 gpm Fire Flow
10"ø Backbone Pipeline

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
30	J-1	2,636.00	<None>	1,521	2,675.76	17
31	J-2	2,633.00	<None>	17	2,688.74	24
34	J-3	2,627.00	<None>	0	2,715.50	38