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RG #3740 EG #1135 HG #448

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***WATER WELL COMPLETION REPORT***

**Fire Station #51 Test Well  
749 Burton Mesa Boulevard  
Lompoc, California**

**October 4, 2018**

## **TABLE OF CONTENTS**

### **Water Well Completion Report Fire Station #51 Test Well**

<b>1. INTRODUCTION.....</b>	<b>1</b>
<b>2. WELL SITING &amp; GEOLOGIC/HYDROLOGIC SUMMARY.....</b>	<b>2</b>
<b>3. TEST HOLE DRILLING.....</b>	<b>3</b>
<b>4. WELL COMPLETION AND DEVELOPMENT.....</b>	<b>4</b>
<b>5. PRELIMINARY TESTING (May 30-June 1, 2017).....</b>	<b>5</b>
5.1. STEP DRAWDOWN TEST (May 30, 2017) .....	5
5.2. CONSTANT DISCHARGE TEST (June 1, 2017) .....	6
5.3. HYDROLOGIC CALCULATIONS .....	7
5.4. WATER SAMPLE ANALYSIS RESULTS (Entire Well Bore).....	8
<b>6. INDIVIDUAL ZONE TESTING (July 13, 2017) .....</b>	<b>9</b>
6.1. TESTING TOOLS & PROCEDURE .....	9
6.2. WATER SAMPLE ANALYSIS RESULTS (Six Different Zones).....	9
<b>7. ZONE #6 ONLY TEST: 770'-810' (Nov. 6 THRU Nov. 9, 2017) .....</b>	<b>10</b>
<b>8. ENTIRE WELL 6 DAY TEST: 450' TO 810' (Jan. 3 THRU Jan. 9, 2018).....</b>	<b>11</b>
<b>9. CONCLUSIONS.....</b>	<b>11</b>



October 4, 2018

FILE:GR18Oct:FireStation#51WellReport

**Vandenberg Community Services District**  
**3745 Constellation Road**  
**Lompoc, California 93436**  
**Attn: Mr. Joe Barget, General Manager**

**Re: Water Well Completion Report**  
**Fire Station #51 Test Water Well Project**  
**Located in south-central portion of property**  
**749 Burton Mesa Boulevard**  
**Lompoc, California**  
**Assessor's Parcel Number 097-371-013**  
.....

Dear Mr. Barget:

## **1. INTRODUCTION**

Pursuant to your request, I herewith submit my WATER WELL COMPLETION REPORT for the recently completed 8<sup>5</sup>/<sub>8</sub>-inch diameter (OD), SDR 17, PVC cased test water well drilled in the south-central portion of the Santa Barbara County (SBC), old Fire Station property, located on the above described parcel east of Vandenberg Village, California. The new **Fire Station #51 Test Well** was drilled in order to gain hydrologic information of the underlying strata in order to assess this site for the drilling of a larger diameter production water well to be used as a domestic supply for Vandenberg Village Community Services District (VVCSD). I have shown the location of the new well on the two attached maps (see **WELL LOCATION MAP**, Figure 1 and **SITE MAP**, Figure 2).

The general well drilling location was determined based on review of the hydrologic conditions of the area. VVCSD has been considering the drilling of one or more new wells within their service area in order to replace three aging wells located within two existing well fields located within the small unnamed canyon on the east side of Highway 1, southeast of Vandenberg Village. Access for the drilling of new wells within the two existing VVCSD well fields (identified as Well Field #1 to the north and Well Field #3 to the south) is constrained. Other potential well sites outside of the two existing well fields were therefore analyzed. Several candidate drilling areas were identified based on hydrologic conditions, access, environmental constraints, and reasonable post well construction logistics, including availability of grid (PG&E) electrical power and proximity to the pipeline distribution system. Attempts to secure a well drilling site within the Burton Mesa Ecological Reserve (BMER), managed by the State of California Department of Fish and Wildlife (CDFW), was taking considerable time and expense. SBC Department of General Services granted a two-year license to VVCSD to drill a deep test well on the decommissioned SBC Fire Station #51 property to test the local aquifer for production potential and water quality. Because of the uncertainty regarding both potential future production capacity and water quality from the underlying aquifer, it was decided to drill and test a new small diameter test water well on this site prior to the drilling and completion of a much more expensive, large diameter stainless steel production water well. This report provides the details regarding the siting, construction, design, and multiple testing procedures conducted for this new deep test water well on the Fire Station #51 property.

## **2. WELL SITING & GEOLOGIC/HYDROLOGIC SUMMARY**

The existing VVCSD wells (within Well Field #1 and Well Field #3) and the new Fire Station #51 Test Well are all in an area underlain by strata identified as part of the **Lompoc Upland Groundwater Basin**. This Basin is composed mainly of layers of unconsolidated clay, silt, sand, and gravel identified as the Orcutt Formation, the Paso Robles Formation, and the Careaga Formation. Older, typically non-water bearing consolidated sediments underlie the Basin and are not considered good target aquifers for production of significant amounts of potable water.

The main water bearing rocks within the Lompoc Upland Groundwater Basin are the sand and gravel zones within the Paso Robles Formation and the massive fine to coarse grained sand within the Careaga Formation. The Paso Robles Formation sediments were deposited in a terrestrial (non-marine) stream and flood plain environment. The sandy portions of the Careaga Formation were deposited in a shallow marine or near shore environment similar to what is occurring now at places like Pismo Beach or Surf Beach. The strike (trend) of both of these strata are in a general east-west orientation. The layered to interbedded strata are inclined (dip) to the south at a gentle angle of approximately 3° to 8° in the area. The Basin clearly thins to the north and to the west where it “pinches out” against the underlying non-water bearing shale bedrock.

My new well siting recommendation was to stay “on-strike” (general east-west) orientation to the existing well field. Moving more than approximately ½ mile to the north (up dip) from the existing well field would place the proposed new well in an area where the Basin is getting too thin. The SBC Fire Station site is located relatively close, albeit slightly north of the trend of the aquifer between existing VVCSD wells and Mission Hills CSD wells located approximately 2 miles to the east. Production capacity and general water quality from all of these well fields is relatively good. The SBC Fire Station property also had good logistics for future development of multiple new production water wells, provided the proposed Test Well produced reasonable test results. The Fire Station #51 site has room for numerous new future water wells, is suited for development of a future VVCSD maintenance building and treatment infrastructure, has an existing water pipeline and easement from the site westward to the VVCSD Well Field #1, electric power, and other surface logistical advantages over other well sites within the BMER. After several meetings and discussion with you and your Board members, the District decided to pursue acquisition of the SBC Fire Station #51 property.

The final well site was reviewed and approved by you prior to the permitting and move on of the drilling equipment. Once the well site was approved, I prepared the required **WATER WELL DRILLING PERMIT APPLICATION** and **WELL LOCATION MAP** for the well project and submitted it to the Santa Barbara County, Department of Environmental Health Services (EHS) for processing. The Santa Barbara County Permit (WP# 0001924) was approved on March 23, 2017. I have included a copy of the approved well permit within the Appendix of this report.

### **3. TEST HOLE DRILLING**

The Drilling Contractor for this project was **Filipponi & Thompson Drilling Company** of Atascadero, California. The drilling equipment was moved to the site on May 4, 2017. The initial stage of the well project was to drill and set a section of Conductor Casing in order to stabilize the upper portion of the bore hole and act as the required sanitary seal. The 18-inch diameter by ¼-inch wall thickness, A-53 grade mild steel casing was set in a 28-inch diameter bore hole to a total depth of 52 feet. A 6-sack mix of cement and sand slurry was pumped into the annulus between the Conductor Casing and the bore hole. The concrete acts as the required sanitary seal per Santa Barbara County EHS Code. Approximately 5 cubic yards of concrete was pumped into place during this phase of the well construction process. Mr. Lloyd Simms, Santa Barbara County EHS staff was present and witnessed the placement of the sanitary seal.

After placement of the Conductor Casing, the sanitary seal was allowed to cure over the weekend prior to drilling. Drilling of the deep test hole was then initiated on May 8, 2017. The deep test hole was drilled using a 9<sup>7</sup>/<sub>8</sub>-inch diameter tri-cone bit utilizing standard mud rotary drilling techniques. Standard high grade bentonite drilling mud, long chain organic polymer additive (Drispac® SuperLo) and water were used as a drilling fluid for this project. The use of bentonite clay (and modest amounts of Drispac) within the drilling mud system was necessary in order to stabilize the bore hole during drilling and to aid in the removal of the drill cuttings from the test hole. Formational samples were collected and penetration rates recorded at 10-foot intervals from the ground surface to the total depth of the test hole to aid me in my determination of the final well depth and design. The test hole was drilled to a depth of 804 feet. The test hole was terminated based on the presence of significant quantities of water bearing sand and knowing that elsewhere in the Basin, the groundwater can contain hydrogen sulfide gas at deeper levels.

After completion of the test hole, a series of geophysical logs were run down the open bore hole to analyze the subsurface conditions. The logging tool was run down the bore hole to a total depth of 804 feet. The geophysical logs consisted of a Spontaneous Potential (SP) curve, a single point curve, and a short (16-inch) and long (64-inch) normal electrical resistivity curve. **Boredata** of Bakersfield, California ran the geophysical log. A copy of the geophysical log is included within the APPENDIX of this report. Review of the formational log and geophysical log indicated that the well penetrated into the top of the Careaga Formation at an approximate depth of 308 feet. The remainder of the lower portion of the bore hole penetrated mainly massive fine to medium grained sand with thin interbeds of fine gravel and clay. I also noted a thin zone (±510' to ±518') with fragments of fresh (unweathered) redwood chips within the fine to medium grained sand. The remainder of the lower portion of the bore hole was composed of massive sand. The test hole was deepened slightly (to a final depth of 840') after the running of the geophysical log in order to provide "over hole" for the placement of the casing string. That portion of the bore that was not logged with a geophysical tool is composed of fine grained sand and silt indicative of passing into the lower (Cebada) member of the Careaga Formation.



**WATER WELL COMPLETION REPORT: VVCSD Fire Station #51 Test Well, Lompoc, California  
October 4, 2018**

After review of the formational cuttings, penetration rate information, and the geophysical log, I recommended completion of the test well by placement of 8<sup>5</sup>/<sub>8</sub>-inch diameter, SDR 17 (thick wall), PVC casing. A well design was recommended based on the character and depth of the penetrated sediments and review of the geophysical log, in conjunction with maximizing well yield in this area within reasonable economic constraints. The final well completion specifications were then forwarded to the Drilling Contractor.

Based on the above information, I determined that the bore hole penetrated a thick sequence of water bearing materials, dominated by the Careaga Formation. Most of the lower portions of the well bore appeared to be water bearing with good permeability and the potential for high well yields. It is noteworthy that you can not predict detailed water quality by evaluation of the formational cuttings and geophysical log, especially at a resolution of parts per billion of dissolved solids. The formation log and geophysical log did, however, have similar characteristics as those from other VVCSD wells and the Mission Hills CSD wells. Based on review of the test hole and geophysical log, it was my opinion that completion of a new test well was justified. Prediction of final production flow rates from the new well could not be determined until after the well was completed and tested. Based on a discussion with you regarding the project, I recommended completion of the new test well to a total depth of 820 feet utilizing 8<sup>5</sup>/<sub>8</sub>-inch diameter PVC casing and high density well screen in order to maximize production from all the available water bearing zones. Three sections of well screen were placed within the well casing string separated by short sections of blank (non-perforated) casing. The well design allows for "zone testing" of three separate areas within the stratigraphic (formational) column that are separated by a thin clay layer. The two clay layers that segregate the better producing zones within the formation can be seen on the geophysical log and are located at a depth of 598' to 600' and from 712' to 715'.

#### **4. WELL COMPLETION AND DEVELOPMENT**

The initial 9<sup>7</sup>/<sub>8</sub>-inch diameter test hole was then reamed to a larger diameter for placement of the recommended well casing string. In this case, the test hole was reamed to a final diameter of 16 inches from the bottom of the Conductor Casing (52 feet) to a depth of 840 feet, providing for approximately 20 feet of so-called "overhole". After the bore hole was reamed to full size and depth, the drilling fluids were displaced with fresh water to a funnel viscosity slightly above that of water (approximately 26-27 seconds). A combination string of 8<sup>5</sup>/<sub>8</sub>-inch (OD) diameter, SDR 17 PVC blank casing and high efficiency PVC well screen was then inserted into the reamed bore hole to a total well completion depth of 820 feet. The well screen has six columns of high density, machine cut slots with an opening of 0.040 inches, providing a total open space of approximately 30.8 square inches per foot of perforated casing. An exact casing schedule and other details of the well construction process for the VVCSD Fire Station #51 Test Well is provided on the **WATER WELL SUMMARY SHEETS** and on the **WATER WELL DRILLERS REPORT** located in the APPENDIX.

After placement of the casing string, the annular space between the outside of the casing and the wall of the bore hole was then filled with a specially graded coarse sand gravel pack. The gravel pack consists of U.S. Standard Sieve Size #8 by #20 material (Lapis Lustre #3) purchased from CEMEX of Marina, California. This special gravel pack material is designed to reduce the potential for formational sand migration into the well casing during pumping, while maintaining good filter permeability. The gravel pack is composed of well sorted, sub-rounded to sub-angular silica rich (quartz rich) sand grains.

The well development process was initiated by running the drill pipe and jetting tool into the well casing and using high pressure compressed air to void the well bore of the residual fluids. Air jetting was continued until the fluid was relatively clear. After the well casing was relatively clear of residual drilling fluids, the contractor injected and swabbed into place approximately 5 gallons of a liquid clay dispersant (Baroid Aqua-Clear). The swabbing process with dispersant both mechanically agitates the annulus and chemically breaks down the residual drilling mud "wall cake" and aids in settling the gravel pack material into place. The well was then air jetted again to remove all remaining drilling fluids and clay dispersant. The drilling rig and other equipment were then removed from the site.

## **5. PRELIMINARY TESTING (May 30-June 1, 2017)**

After the well was fully developed using air and swabbing, Filipponi & Thompson Drilling installed a 60 horsepower (HP) submersible pump within the well bore at a depth of 441 feet below ground surface. Water level measurements during the test were taken by use of an electric wireline sounder. Water production rate was determined by use of a flow metering system. The test pumping procedure consisted of surging and pumping of the well to further develop the aquifer and to improve efficiency. After the well was fully developed, a **step drawdown test**, a 4-hour **constant discharge test**, and a subsequent 1-hour **recovery test** were conducted. Water samples were collected during these tests in order to assess the chemical makeup of the water and to determine if there were indications of organic compounds impacting the local aquifer. All of these preliminary tests were conducted in order to:

- ☐ further develop the aquifer;
- ☐ collect well test data;
- ☐ evaluate the hydrologic properties and potential productivity of the aquifer; and
- ☐ to collect a water sample for chemical analysis.

### **5.1. STEP DRAWDOWN TEST (May 30, 2017)**

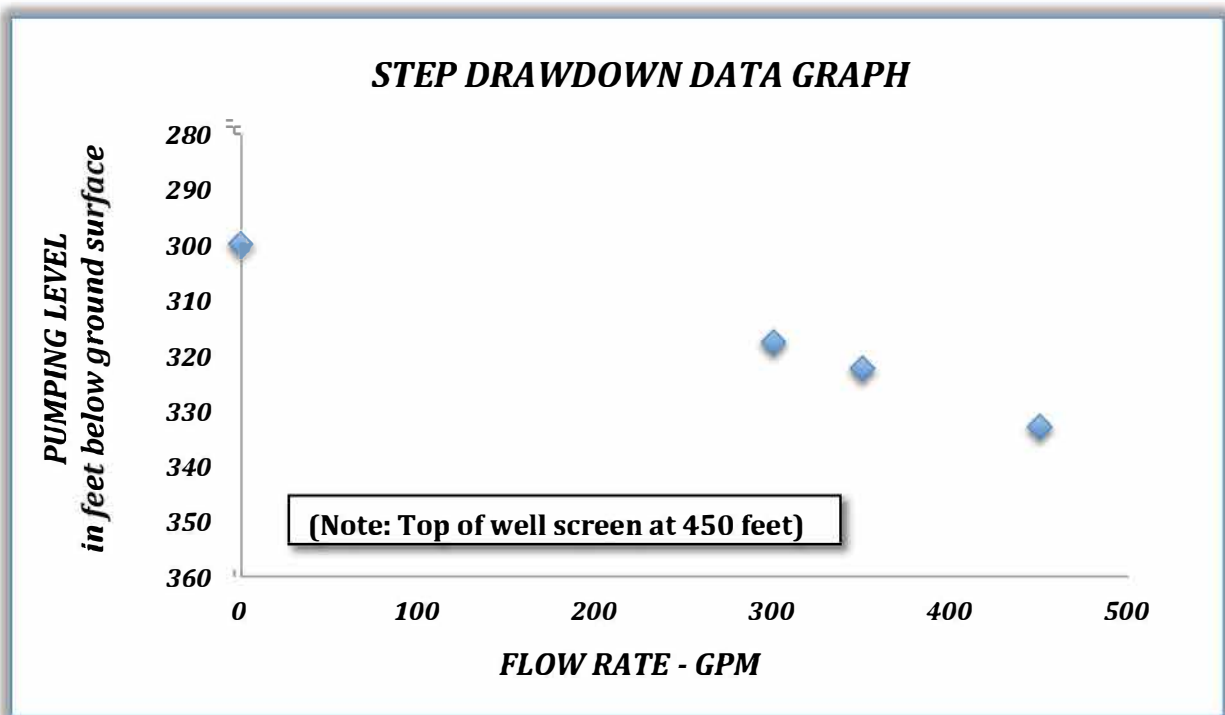
A step drawdown test was conducted on the well in order to gain insights into its production capacity. Three individual steps at various flow rates were conducted on the new test well at a constant flow rate of 300, 350, and 450 gpm for a period of approximately 30 minutes each. The test results are included in the table on the following page:

**TABLE 1: Step drawdown Test Data – Fire Station #51 Test Well (30 minutes each step)**

<b>FLOW RATE (GPM)</b>	<b>WATER LEVELS (feet)</b>	<b>DRAWDOWN (feet)</b>	<b>SPECIFIC CAPACITY (gpm/foot of drawdown)</b>
0	300.0	0	Static water level
300	317.8	17.8	16.8
350	322.5	22.5	15.6
450	330.0	33.0	13.6

I have plotted the above listed short duration test data onto a graph that illustrates the relationship between flow rates and pumping levels (see **CHART 1** below). You can observe from this chart that the relationship between pumping levels and drawdown appears to be semi-linear and relatively efficient at flow rates up to approximately  $\pm 450$  gpm, based on short term testing data. Based on review of this test data, I recommended that we conduct the 4-hour constant discharge test at a flow rate of 400 gpm.

**CHART 1: Step Drawdown Data Graph – VVCSD Fire Station #51 Test Well (30 minutes each step)**



## 5.2. CONSTANT DISCHARGE TEST (June 1, 2017)

After completion of the step-drawdown test, the well was allowed to “rest” overnight to allow for re-establishment of original static water level conditions. The static water level at the beginning of the constant discharge test was 300.0 feet below the top of the casing. The constant discharge test for the Fire Station #51 Test Well was run at a flow rate of 400 gpm. Pumping of the Fire Station #51 Test Well



caused water levels to drop fairly rapidly during the first few minutes of pumping. Pumping water levels then stabilized for most of the test. The final pumping level was located at a depth of 326.5 feet after 180 minutes (3 hours) and remained there (within 1 inch) for the duration of the 4-hour test. The pump test data is graphically presented on the **HYDROLOGIC CALCULATION GRAPH** included within the Appendix of this report (See Figure 4).

Based on a maximum pumping level of 326.5 feet, total drawdown is calculated to be 26.5 feet ( $326.5' - 300.0' = 26.5'$ ). The water from the Fire Station #51 Test Well was observed to be total clear almost immediately after the initial startup phase of the testing procedure. There was no indication of any gravel pack material, fine formational sand, or hydrogen sulfide ( $H_2S$ ) gas throughout the test. A water sample was collected during the test and sent for chemical analysis to **Fruit Growers Laboratory (FGL Environmental)** of Santa Paula, California. The results of these tests are discussed below.

After the 4-hour constant discharge test was completed, a 60-minute recovery test was conducted, whereby the rising water levels within the well were measured (see **RECOVERY TEST DATA SHEET** in the APPENDIX). The water level within the well bore recovered to within 0.6 feet of the original level within 60 minutes. Full recovery of the static water levels is predicted to have occurred within several more hours of recovery. I have graphically shown the recovery data on the **HYDROLOGIC CALCULATION GRAPH** (Figure 4) and the  **$t/t'$  RATIO vs. RESIDUAL DRAWDOWN GRAPH** (see Figure 5). The  $t/t'$  Ratio vs. Residual Drawdown Graph suggests that the local aquifer was not significantly impacted (dewatered) as a result of the short duration (4 hour) test pumping procedure because of the relationship between the recovery data and the "0 foot" intercept point. Some caution should, however, be exercised regarding dewatering impacts as a result of declining static and pumping water level conditions through prolonged periods of time and/or during drought cycles.

### **5.3. HYDROLOGIC CALCULATIONS**

Review and analysis of the test pumping data allows for calculations of various hydrologic parameters. The **transmissivity** (T) of the Fire Station #51 Test Well was calculated using the modified Theis equation ( $T = 264 \times Q/\Delta s$ ). The well has a calculated transmissivity in excess of 100,000 gallons per foot of available aquifer, where Q is the pumping rate and  $\Delta s$  is the change in drawdown per log cycle of time (see Figure 2). Transmissivity is a measurement of the relative permeability of a particular aquifer; in other words, the ability of permeable earth materials to pass fluids. The transmissivity figure for the subject well is considered to be very good for this area and is most likely due to the presence of thick sections of massive, well sorted medium grained sand within the Careaga Formation.

The **specific capacity** (Q/S) is constantly changing as the well draws down (S) under a constant pumping rate (Q). The specific capacity of the subject well is calculated to be approximately 15.1 gallons per minute per foot of drawdown after 4 hours of pumping at 400 gpm (400 gpm/26.5 feet of drawdown). A higher number means you can pump more water per incremental drop in pumping levels within the well. The specific capacity figure of 15.1 gpm/ft. drawdown is also considered good for this area. Higher



specific capacity figures would most likely occur by construction of a well with larger diameter casing with wire wrap well screen. Wire wrap screen has greater amounts of "open space" within the casing structure allowing for easier (less friction) water entry into the inside of the well casing.

Based on extrapolation of the above described constant discharge data, *theoretical* pumping levels can be predicted for longer periods of time and at differing flow rates. I have extended the drawdown curve to show where pumping levels may be after prolonged periods of time. Because the pumping water levels did not drop significantly during the short duration test, it can be assumed that they will be relatively steady through time. I have also shown the step-drawdown test data points on the Hydrologic Calculation Graph for reference. As an example, pumping the subject well at a flow rate of 450 gpm will produce only a modest amount of drawdown with an estimated pumping level of approximately 330 feet below ground surface under current hydrologic conditions.

It is noteworthy that the uppermost perforated interval for this well is located at a depth of 450 feet. Applying a specific capacity figure  $\pm 15$  gpm/ft. of drawdown to a theoretical large diameter production well at this site would therefore allow for pumping of such a well at a flow rate of in excess of 1,000 gpm. It is also noteworthy that the pumping of wells completed into the Careaga Formation at this high of a flow rate can induce the production of fine formational sand because of the fine grained nature of the aquifer. The key to sand free production from wells completed into the Careaga Formation is to maintain entrance velocities of the groundwater into the well bore at very slow speeds. This requires the placement of large diameter (stainless steel) casing with large amounts of open space within the screened interval of the casing string.

#### **5.4. WATER SAMPLE ANALYSIS RESULTS (Entire Well Bore)**

A series of water samples were collected by a representative of FGL Environmental on May 31, 2017 and sent for chemical analysis to their lab in Santa Paula, California. This sample series was collected from the well with the entire well screen being produced in an unrestricted manner (no zone segregation). The results of the full Title 22 (Inorganic and Organic) tests are included within the Appendix of this report. In summary, the well water has a relatively low total dissolved solids (TDS) content of 570 mg/L. The well water has elevated amounts of arsenic, iron, and manganese. There are federal and state SECONDARY drinking water standards for iron and manganese so the elevated levels of these two contaminants do not present a health risk for domestic use, although they sometimes impart a metallic taste to the water. There is, however, a federal and state PRIMARY drinking water standard for arsenic. The elevated amount of *arsenic (28 ug/L, parts per billion)* is above the Maximum Contaminant Level (MCL) of *10 ug/L* and would require treatment in order to meet potability standards (see FGL report in Appendix).

Testing of the water was also done for volatile organic compounds. The test results showed trace amounts of Bromoform, Chloroform, and Dibromochloromethane. All of the content levels of these constituents were below the Maximum Contaminant Level (MCL) for drinking water as established by the Environmental Protection Agency (EPA) and the State of California. Upon research, it was found that the

presence of these particular organic compounds within groundwater commonly occurs as a result of chemical reaction with chlorine that was used to disinfect the well shortly after its completion. Sampling and retesting of water samples from the well during further prolonged pumping showed Non-Detect (ND) for the above listed organic compounds (see Clinical Laboratory of San Bernardino report dated July 13, 2017). Because of the presence of elevated amounts of arsenic within the local groundwater, additional testing was done to determine if it is emanating from a particular zone of the stratigraphic column within the well bore.

## **6. INDIVIDUAL ZONE TESTING (July 13, 2017)**

### **6.1. TESTING TOOLS & PROCEDURE**

I prepared a set of zone testing specifications for this procedure and submitted them to Fisher Pump of Santa Maria, California so they could setup up the equipment. The equipment used for this procedure was a so-called double swab cup assembly, whereby two snug fitting, round rubber cups cut to approximately the same diameter of the inside of the PVC casing string were placed above and below a 3 horsepower (HP) electric submersible pump with a separation of approximately 3.5 feet between the cups. The double swab cup assembly was run into the well bore and placed at specific depths within the well bore in order to collect samples of the groundwater. The depth of placement of the sampling tool for each of the 6 zones that were tested is shown on the **WELL CONSTRUCTION PROFILE** (see Figure 3). All of these zone are lithologically composed mainly of fine to medium grained sand and were defined based on review of the formational cuttings and geophysical log.

### **6.2. WATER SAMPLE ANALYSIS RESULTS (Six Different Zones)**

Six different finite zones within the well casing were sampled. The depth of these zones were selected based on review of the formational log and the geophysical log. The zone tests were conducted across a broad depth range within the Careaga Formation aquifer. Two samples were collected within each of the three general water bearing zones that are separated by a thin clay layer as described in Section 3, Page 4 of this report. Groundwater was pumped within the six zones at a flow rate of  $\pm 30$  gpm for approximately 30 minutes each prior to collection of the water samples so that undiluted water was being sampled. The collected water was analyzed by **Clinical Laboratories of San Bernardino** for each of the constituents as shown on **TABLE 2** within the Appendix. In summary, the four volatile organic compounds that showed trace amounts within the original bulk water sample from the May 31, 2017 test (**Bromoform**, **Chloroform**, **Dibromochloromethane**, and **Total Trihalomethane**), were now **non-detect (ND)** within the zone testing (July 13, 2017) samples. Additional samples were collected and analyzed for **Specific Conductance**, **TDS**, **Iron**, **Manganese**, and **Arsenic**. While the Specific Conductance and TDS were relatively good, the well water did show elevated amounts of iron, manganese and arsenic within most of the zones. Iron content appears to increase with depth with a high reading of 4,400 ug/L within the deepest (781.5' – 785') zone. Manganese content is fairly consistent

within all six zones, with a range of  $\pm 140$  to 170 ug/L. Arsenic content was variable between 18 and 31 ug/L within all the zones except the deepest zone (781.5' – 785'), where it showed a reading of 4.3 ug/L.

## **7. ZONE #6 ONLY TEST: 770'-810' (Nov. 6 thru Nov. 9, 2017)**

As described in Section 6 above, the water quality testing program conducted on July 13, 2017 within the six separate defined areas of the subject well showed the presence of elevated amounts of arsenic within all the zones except the lowest, from 781.5' to 785' (see TABLE 2). After a discussion with VVCSD staff and with approval of the Board, the District decided to re-test the lower portions of the well bore, from 770' to 810' (the bottom of the well screen) to determine if the arsenic content would change after prolonged periods of pumping. A new zone testing tool was built by Fisher Pump and placed within the well bore. This tool had a single, snug fitting rubber swab cup placed at a depth of 770' with a 10 HP submersible pump placed below the packer.

This test was run continuously for approximately 3 days at a flow rate of 80 to 95 gpm under the supervision of VVCSD staff. Water level measurements were also taken during the test. The static water level at the beginning of the test was at a reported depth of 297.9'. Continuous pumping of the well for  $\pm 73$  hours produced a final pumping level of 303.5' for a total drawdown of 3.6'. This indicates a specific capacity figure of  $\pm 21.9$  gpm/foot of drawdown, slightly above that calculated during the July 13, 2017 test of the entire screened portion of the well. This implies that the efficiency of the well may still be improving slightly through time due to additional aquifer development, or that well efficiency is very good at relatively lower flow rates. It also indicates that the efficiency of the aquifer was not dramatically impacted by pumping from a relatively confined (40 foot) producing zone within the well bore (770' to 810').

Two sets of water samples were collected by VVCSD staff at  $\pm 6$  hour intervals during this 3 day test. These samples were sent for chemical analysis to Oilfield Environmental & Compliance, Incorporated and to Clinical Laboratory of San Bernardino of Lompoc, California for comparison. The two sets of test results are included within the Appendix. I have outlined the test pumping data and results of the water chemical analysis reports from this test on the attached Test Pump Data Sheet (see 770' to 810' Zone Test for Arsenic Content Data Sheet in Appendix). I have prepared a Zone Test Data Graph for these test results to illustrate the increase on arsenic content from the produced groundwater through time (see Figure 6 in the Appendix). The test results shows that the arsenic content from the deep portions of the well bore gradually increased over the 3 day period from a low of 5.6 ug/L recorded shortly after the start of the test, to a high of 150 ug/L after 3 days (4,376 minutes). The two testing laboratories had relatively similar results from their samplings. Pumping of the well was terminated after 3 days because the initial test results showed that the produced groundwater was well above the State and EPS Standard of 10 ug/L. The rising arsenic level is interpreted as showing that groundwater slowly migrates up and down the water column (aquifer) because of the massive, unconfined nature of the Careaga Formation.



**8. ENTIRE WELL 6 DAY TEST: 450' to 810'  
(Jan. 3 thru Jan 9, 2018)**

After completion and analysis of the 3 day, 770' to 810' zone test, the District requested that we conduct an additional test on the entire well for a longer period of time in order to determine if the arsenic content for the full thickness of the water column may change through time. We had Fisher Pump install a 10 HP submersible pump into the well bore at a depth of 385'. This long duration test was initiated on January 3 and continued until Jan 9, 2018 (six days) at a continuous flow rate of 85 to 95 gpm for a period of 6 days (8,640 minutes). Water samples were collected from the well by VVCSD staff every 6 hours throughout the test for a total of 13 samples. The samples were sent for chemical analysis to Oilfield Environmental & Compliance, Incorporated. A copy of the test results from the lab is included within the Appendix. I have plotted the test results onto an Entire Well (450' to 810') Zone Test Data Sheet for your review. I have also plotted the arsenic content results onto an Entire Well Zone Test Graph to visually see how the arsenic content changed through time (see Figure 7).

In summary, the arsenic content remained fairly constant from the start of the test for approximately 2 days of pumping at  $\pm 90$  gpm with a range of approximately 23 ug/L to 27 ug/L. This figure is consistent with the well test sample taken during the original (June 1, 2017) 4-hour constant discharge test for the entire screened section of the well at a higher flow rate of 400 gpm. Continued pumping of the well showed that the arsenic content of the produced groundwater gradually increased through time to a high reading of 34 ug/L after 6 days (8,640 minutes) of continuous pumping.

**9. CONCLUSIONS**

The Fire Station #51 Test Well produces groundwater mainly from the fine to medium grained sands from the Pliocene age Careaga Formation. These thick, uniform grained size (massive) sand layers accumulated in a shallow marine to near shore (non-marine) depositional environment similar to what can be seen in modern times along the Surf Beach and Pismo Beach coastal shorelines of the Central Coast. There are occasional layers of fine shell fragments found within the formational cuttings, indicative of intermittent shallow marine (sandy beach) origin. I also noted a thin (within a several foot thick) zone of fresh redwood chips located at a depth of 510', indicative of a terrestrial (sand dune type) depositional environment. This formation, and to a lesser extent the overlying Paso Robles Formation are the primary groundwater aquifers for the Lompoc Upland Groundwater Basin. My geologic and hydrologic knowledge of the area indicates that this well site is located in the west-central portions of the Basin. The Basin thins to the west and north where it unconformably laps onto the underlying, non-water bearing, shale bedrock including the Foxen, Sisquoc and Monterey Formations. The Basin thickens, is hydrologically connected to, and most likely provides a partial source of recharge to the Lompoc Plain Groundwater Basin located to the south.

This portion of the Basin has historically been a reliable source of groundwater to wells in the area for many decades. Groundwater levels (both static water level and pumping) and flow rates from this well

**WATER WELL COMPLETION REPORT: VVCS Fire Station #51 Test Well, Lompoc, California**  
**October 4, 2018**

and other wells in the area are relatively stable although they can, and will in the future, change somewhat through time as a result of the amount of pumpage (withdrawal for consumptive use) and recharge (replenishment mainly by percolation of rainfall and surface water runoff) that occurs during heavy rainfall periods. Declining static and pumping water levels are usually an indication of a decline in the water table during periods of prolonged drought and/or reduced well performance due to plugging of the well screen by encrustation or biofouling (commonly the buildup of iron bacteria).

A drop in the general water table due to drought conditions can be observed by review of observation well data. My review of several hydrographs from United States Geologic Survey (USGS) monitoring wells located in the vicinity of Vandenberg Village show that water levels have been relatively steady for many decades. These same hydrographs shows that the local aquifer has declined by approximately 10 feet in the past  $\pm 10$  to 12 years, indicative of the impact of the prolonged drought conditions we have been experiencing in recent years. However, review of longer term (many decade) hydrograph data suggests that the local aquifer responds favorably to heavy, multi-year rainfall cycles because of the high permeability characteristics of the local sandy aquifer and shallow subsurface earth materials. Considering that the water saturated portion of the Basin (below the top of the water table) is over 500 feet thick in this area, a 10 foot drop in the water table during a severe drought cycle does not appear to be significant in terms of aquifer reliability at this point in time. Continued monitoring of the local aquifer conditions (pumpage and water level data) will be important in gaining better hydrologic information regarding the long term condition of the Lompoc Upland Groundwater Basin.

The design of the Fire Station #51 Test Well was such that I purposefully placed the top of the well screen at a depth of 450' below ground surface, approximately 150 feet below the top of the existing static water table located at a depth of  $\pm 300'$ . This well design was meant to approximate the probable well design of a larger diameter well that could be drilled at this site in the future, provided water quality issues related to the presence of arsenic, iron, and manganese within the local groundwater can be economically addressed. The yield from the well is very good with a calculated specific capacity reading of  $\pm 15$  gpm/ft. drawdown at moderately high flow rates (400 gpm). Based on this preliminary calculation of well/aquifer efficiency, a larger diameter well at this site should **theoretically** be able to produce groundwater at a rate of 600 to 1,000 gpm or more, provided that it is designed and constructed properly. Larger diameter, stainless steel casing utilizing wire wrap well screen should have a somewhat higher specific capacity figure because of the ability to place well screen with an increased amount of "open space" within the perforated interval of the casing string. Some caution should be exercised regarding prediction of potential flow rates from a future new well in this area that produces groundwater from the Careaga Formation. As mentioned above, primary aquifer is composed of fine to medium grained, massive sand. Other wells in the area are known to produce formational sand and silt during pumping, especially at higher flow rates. High flow rates equate to high entrance velocities of the groundwater passing through the gravel pack and well screen from the aquifer into the inside of the well casing. This can cause the fine sand to be carried into the well bore by the groundwater during pumping. The potential for production

**WATER WELL COMPLETION REPORT: VVCSD Fire Station #51 Test Well, Lompoc, California  
October 4, 2018**

of formational sand can normally be mitigated by proper well and gravel pack design in most cases. This is usually done by reducing the slot size on the well screen and installing a finer sieve size (gradation) of gravel pack within the annulus. Fine slot size and finer gravel pack gradation will also create greater “friction” (lower permeability) in the flow pattern of water entering the well bore, thereby effectively reducing specific capacity and potential flow rates. In summary, it is always a trade off between designing a well with a large enough slot size and gravel pack gradation, while at the same time reducing the risk for production of fine formational sand during pumping. This concept is especially important for wells that produce groundwater from the Careaga Formation. It is noteworthy that the Fire Station #51 Test Well has a slot size of 0.040 inches and good quality gravel pack material with a U.S. Sieve Size gradation of #8 by #20 (so-called Lapis Lustre #3). This test well did not produce any significant amounts of fine formational sand or silt during pumping at relatively high flow rates.

The main difficulty with the use of a new large diameter production water well at this site as a source of domestic use water is the presence of elevated amounts of arsenic that are above the federal and state MCL of 10 ug/L. The presence of elevated amounts of arsenic (and iron and manganese) within the local groundwater was not predicted before the siting and construction of the test well because this area is located “on trend” with a similar well design as other wells in the area that do not show high levels of arsenic. I do not have a reasonable explanation as to why this particular area has elevated amounts of arsenic within the groundwater. Individual zone testing of the well showed that the concentration of arsenic appears to be relatively evenly disbursed across the entire water column (18 ug/L to 32 ug/L) with the exception of the lower (Zone #6) located near the bottom of the well bore with a reading of 4.3 ug/L. Testing to determine if pumping of only this lower portion of the well (from 770’ to 810’) would allow for longer term production of groundwater with manageable amounts of arsenic did not prove favorable as the arsenic content gradually increased after several days of pumping (see test results in the Appendix).

Treatment for removal of arsenic within groundwater is a difficult process. You will have to research and consider the economic impact of these treatment options including initial installation of the treatment facility, long term operation and maintenance costs of the system, and handling and disposal of the residual brine water produced by the treatment process.

Depending on what you decide to do with the new Fire Station #51 Test Well, I recommend that you contact the USGS and allow them access to the well for measurement of water level data into the future. Collection and interpretation of long term water table elevation in this and other parts of the Lompoc Upland Groundwater Basin are critical to gaining insights into how the basin is responding to pumping and seasonal recharge.



**WATER WELL COMPLETION REPORT: VVCS Fire Station #51 Test Well, Lompoc, California  
October 4, 2018**

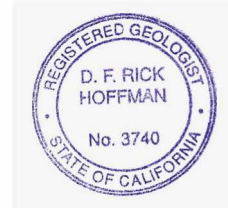
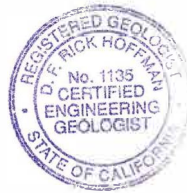
I trust this summary report and graphics provides you with the information needed for long term planning decisions regarding use of your new well. If I can be of further assistance to you regarding this report or other geologic or hydrologic concerns, please feel free to call upon me.

Sincerely,



---

Mr. Rick Hoffman  
Certified Engineering Geologist & Hydrogeologist  
State of California  
RG #3740 EG #1135 HG #448



enclosures



**APPENDIX**  
**WATER WELL COMPLETION REPORT**  
**VVCSD Fire Station #51 Test Well**  
**749 Burton Mesa Boulevard, Lompoc, California**

**LIST OF FIGURES and SUPPLEMENTAL INFORMATION**

**ORDER OF WORK**

**WATER WELL SUMMARY SHEETS**

**Figure 1 WELL LOCATION MAP**

**Figure 2 SITE MAP**

**WATER WELL DRILLING PERMIT**

Santa Barbara County  
Department of Environmental Health Services  
WP #0001924

**GEOPHYSICAL LOG**

Boredata  
Bakersfield, California

**WELL COMPLETION REPORT**

filed by Filipponi & Thompson Drilling Company  
State of California WCR2017-001500

**Figure 3 WELL CONSTRUCTION PROFILE with Zone Testing Data for Arsenic  
TEST PUMPING DATA (June 1, 2017 4-hour test at 400 gpm)  
Constant Discharge Test  
Recovery Test**

**Figure 4 HYDROLOGIC CALCULATION GRAPH (June 1, 2017 test)**

**Figure 5 t/t' RATIO vs. RESIDUAL DRAWDOWN GRAPH (June 1, 2017 test)  
WATER CHEMICAL ANALYSIS REPORT (Entire Well Title 22 Test)  
FGL Environmental (May 31, 2017 test results)**

**TABLE 2 ZONE TESTING SUMMARY (July 13, 2017 Six Individual Zones)**

**WATER CHEMICAL ANALYSIS REPORT (Individual Zone Test Results)  
Clinical Lab of San Bernardino (July 16, 2017 test results)**

**TEST PUMPING DATA (Nov. 6-9, 2017: 3 day zone test at  $\pm 90$  gpm)  
770' to 810' Zone Test Data Sheet with Arsenic test results**

**Figure 6 770' to 810' ZONE TEST DATA GRAPH (Nov. 6 thru Nov. 9, 2017 test)  
Clinical Lab of San Bernardino (Nov. 6-9, 2017 test results)  
OEC Lab (Nov. 6-9, 2017 test results)**

**TEST PUMPING DATA (Jan. 3-9, 2018: six day zone test at  $\pm 90$  gpm)  
Entire Well (450' to 810') Test Data Sheet w/Arsenic test results**

**Figure 7 Entire Well (450' to 810') TEST DATA GRAPH (Jan. 3 thru Jan. 9, 2017)  
OEC Lab (Jan. 3 thru Jan 9, 2017 test results)**

**APPENDIX**  
**WATER WELL COMPLETION REPORT**  
**VVCSD Fire Station #51 Test Well**  
**749 Burton Mesa Boulevard, Lompoc, California**

**ORDER OF WORK**

**Preliminary Hydrologic Investigation**

Burton Mesa Ecological Reserve Property: Hydrologic & Biologic Assessment  
Santa Barbara County: Fire Station #51: Hydrologic Assessment

**Test Well Construction**

Santa Barbara County EHS Well Permit Process; (see copy in Appendix)  
Drill 840' test hole: favorable formational cuttings, mainly Careaga Formation sands  
Run Geophysical Log: favorable indications of good production potential (see copy in Appendix)  
Set 8" diameter PVC casing string, Lapis #3 gravel pack to 820', develop by air & water jetting  
Well design allows for zone testing as required (see Figure 3)

**Preliminary Well Testing (June 1, 2017) (Filipponi & Thompson Drilling Company)**

Cleanup work, step-drawdown test, 4-hour constant discharge test & recovery test (see Figure 4 & 5)  
High Transmissivity:  $\pm 100,000$  gpd/ft. aquifer  
High Specific Capacity:  $\pm 15.1$  gpm/ft. drawdown

Water sampling:

Full Title 22 Testing: May 31, 2017 (see FGL Environmental Test Results)  
Water has high: iron, manganese, arsenic (28 ug/L), bromoform, chloroform & dibromomethane

**Zone Testing (July 13, 2017) (Fisher Pump)**

3 HP pump placed between 2 rubber swab cups lowered into well bore  
each zone pumped for  $\pm 1/2$  hr. prior to sampling (see WELL CONSTRUCTION PROFILE, Figure 3)  
Test Results summary graphic shown on TABLE 2  
The 3 volatile organic compounds from June 1, 2017 test showed "non-detect" during pumping  
High arsenic in all zones except Zone 6 from 781.5 to 785' (4.3 ug/L) (see Figure 3 & Table 2)

**Zone #6 Zone Testing over 3 days (Nov. 6<sup>th</sup> thru Nov. 9<sup>th</sup>, 2017) (Fisher Pump)**

80 to 95 gpm continuous pumping for 3 days, sampling at  $\pm 12$  hour intervals  
well sampling showed gradual increase in Arsenic content from 5.6 to 130 ug/L (see Figure 6)

**Entire Well (450' to 810') Testing over 6 days (Jan. 3<sup>rd</sup> thru Jan 9<sup>th</sup>, 2018) (Fisher Pump)**

85 to 95 gpm for 6 days, sampling at  $\pm 12$  hour intervals  
well sampling showed gradual increase in Ar content from 23 to 34 ug/L (see Figure 7)

**APPENDIX**  
**WATER WELL COMPLETION REPORT**  
**VVCSD Fire Station #51 Test Well**  
**749 Burton Mesa Boulevard, Lompoc, California**

**Well Owner:** Vandenberg Village Community Services District  
c/o Mr. Joe Barget, General Manager  
3745 Constellation Road  
Lompoc, California 93436-1495  
(805) 733-2475

**Well Location:** ±150 feet east of driveway entrance to Old Fire Station #51 property  
749 Burton Mesa Boulevard  
Lompoc, California  
Assessor's Parcel Number 097-371-013  
GPS Coordinates: N34° 41' 47.5" by W120° 26' 59" (Google Earth reading only)  
Surface Elevation: ±340 feet  
(see **WELL LOCATION MAP**, Figure 1)

**Well Drilling and  
Test Pumping**  
**Contractor:** Filipponi & Thompson Drilling Company  
Post Office Box 845  
Atascadero, California 93423  
contact: **Mr. Ned Thompson, Owner**  
(805) 466-1271

**Zone Testing**  
**Contractor:** Fisher Pump & Well Services  
2285 A Street  
Santa Maria, California 93455  
contact: **Mr. Scott Fisher, Owner**  
(805) 346-2422

**Engineering**  
**Geologist:** Rick Hoffman and Associates  
1149 Palomino Road  
Santa Barbara, California 93105  
contact: **Mr. Rick Hoffman**  
(805) 569-1911



**WATER WELL COMPLETION REPORT**  
**Fire Station #51 Test Well**  
**Burton Mesa Boulevard, Lompoc, California**

**Date of Well Completion:** May 11, 2017 (placement of sanitary seal)

**Total Depth of Completed Well:** 820 feet (see Water Well Drillers Report)

**Depth of Sanitary Seal:** 52 foot concrete sanitary seal, pumped into place (see Well Drillers Report)

**Size and Type of Well Casing:** 8 5/8 inch diameter (OD), SDR 17 PVC casing & high efficiency PVC well screen  
0' - 450' 8 5/8" diameter PVC blank well casing  
450' - 590' 8 5/8" diameter PVC well screen with 0.040" slots  
590' - 610' 8 5/8" diameter PVC blank well casing  
610' - 690' 8 5/8" diameter PVC well screen with 0.040" slots  
690' - 730' 8 5/8" diameter PVC blank well casing  
730' - 810' 8 5/8" diameter PVC well screen with 0.040" slots  
810' - 820' 8 5/8" diameter PVC blank well casing & bottom cap

**Size and Type of Gravel Pack:** U.S. Standard Sieve Size #8 x #20 (Lapis Lustre #3), CEMEX Company

**Test Pumping Results:**

**Date of Test Pumping:** June 1, 2017 Preliminary Testing Procedure

**Static Water Level:** 300.0 feet below ground surface

**Length of Test Pumping:** 4 hours

**Test Pump Flow Rate:** 400 gallons per minute (gpm)

**Specific Capacity:** 15.1 gallons per foot of drawdown  
after 400 minutes (see discussion in text)

**Transmissibility:** >100,000 gallons per day per foot of available  
aquifer (see discussion in text)

**Water Quality Analysis Results:** various test results from multiple contractors depending on type of analysis

**Results: initial (entire well) May 31, 2017 test**

**Total Dissolved Solids:** 570 parts per million (MCL 1,000 ppm)

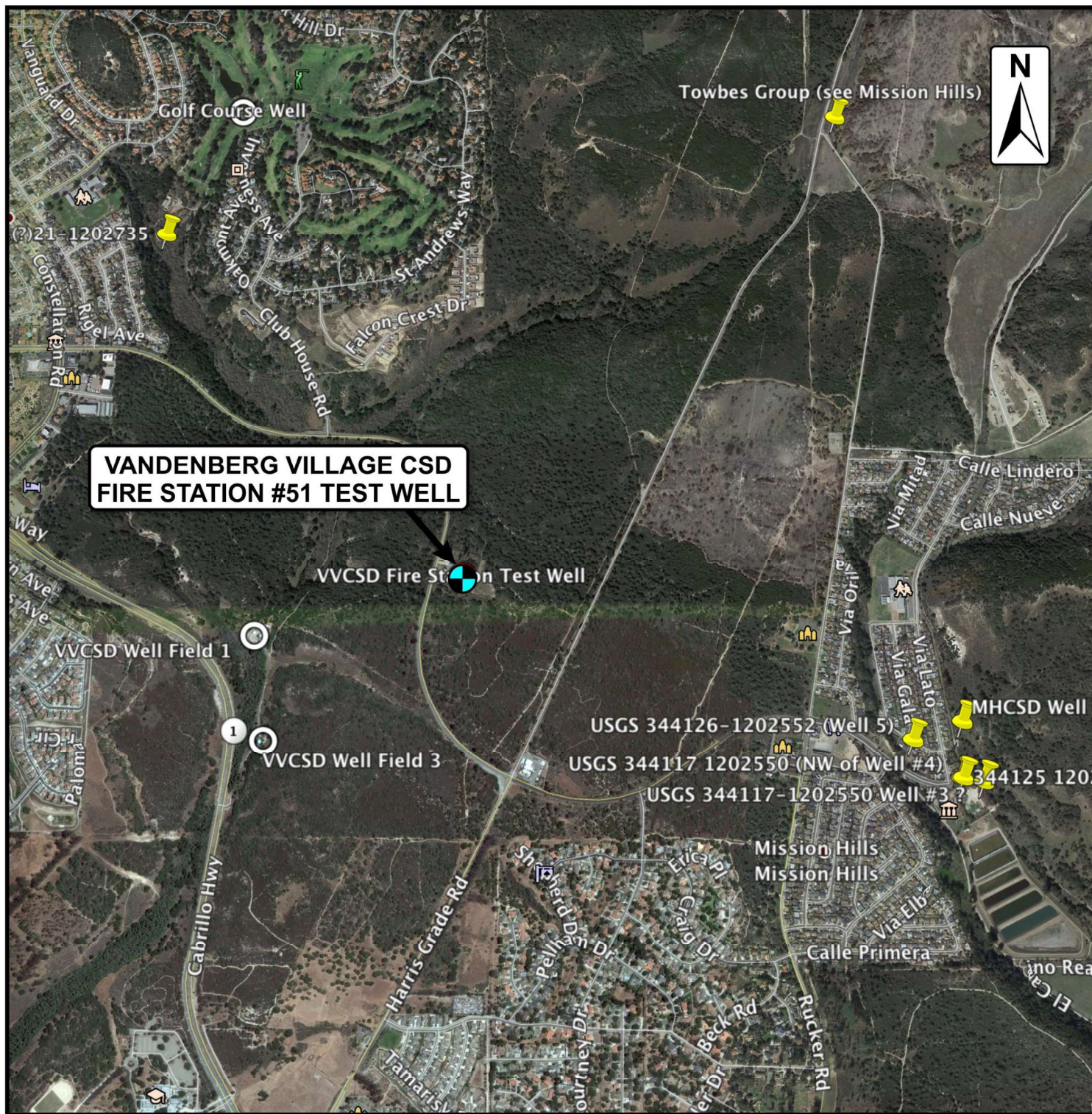
**Arsenic content:** 28 ug/L (MCL 10 ug/L)

**Iron content:** 600 ug/L (MCL 300 ug/L)

**Manganese content:** 150 ug/L (MCL 50 ug/L)

**Zone Testing Results:** (see Appendix)





**VANDENBERG VILLAGE CSD**  
Fire Station #51 Test Well

## WELL LOCATION MAP

**VANDENBERG VILLAGE CSD**  
Old Fire Station #51 Test Well  
749 Burton Mesa Blvd., Lompoc, California

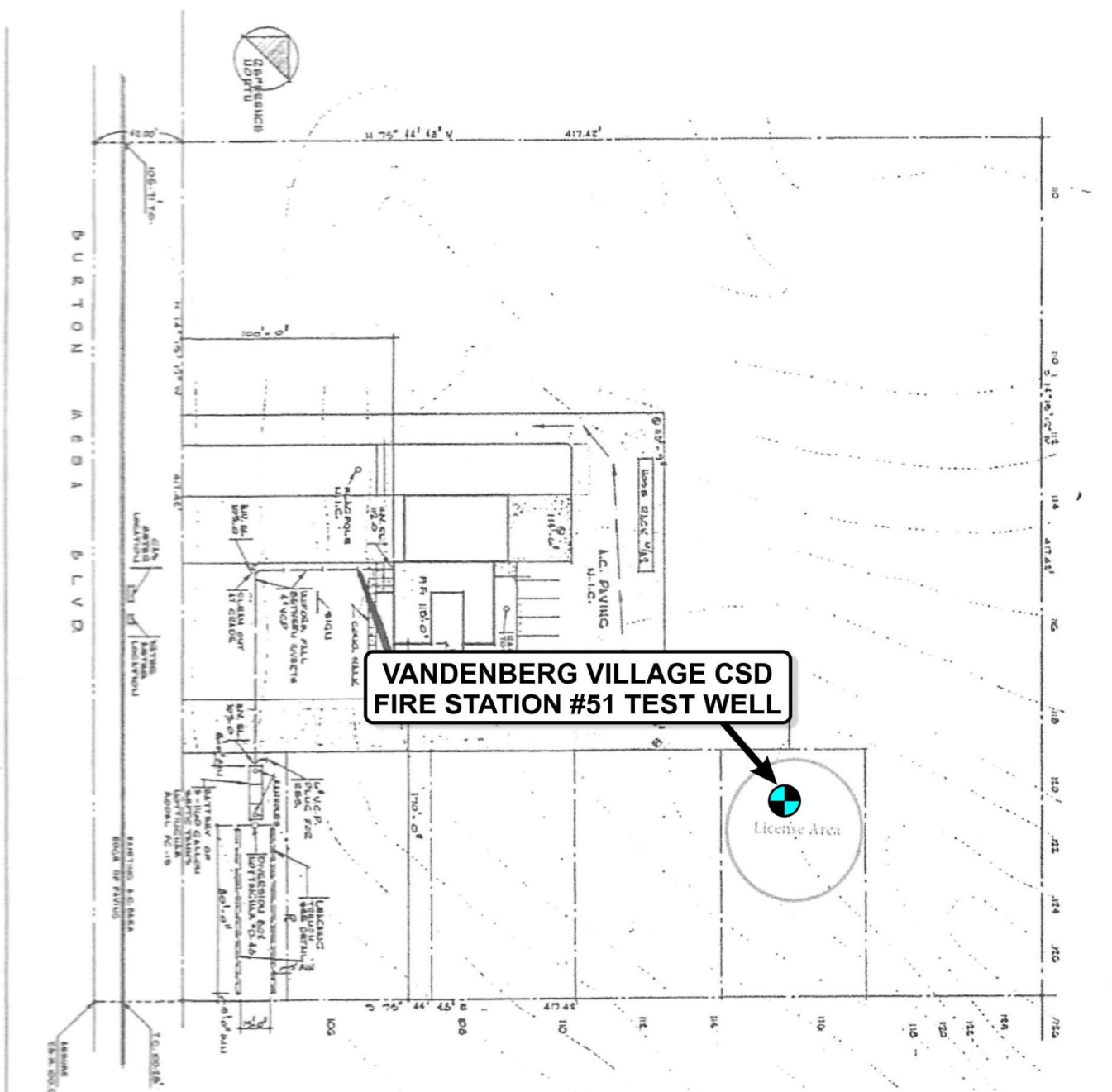
**Rick Hoffman and Associates**  
ENGINEERING GEOLOGISTS & HYDROGEOLOGISTS

1149 Palomino Road, Santa Barbara, CA 93105  
TEL. (805) 569-1911 MOBILE: (805) 895-2246  
Email: rickhoffman1@cox.net

**FIGURE**

**1**





**VANDENBERG VILLAGE CSD**  
**Fire Station #51 Test Well**

# SITE MAP

**VANDENBERG VILLAGE CSD**  
**Fire Station #51 Test Well**

**749 Burton Mesa Blvd., Lompoc, California**

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## FIGURE

2

# VCLSD Fire Station Test Well #1



**Environmental Health Services**  
225 Camino del Remedio, Santa Barbara, CA. 93110 ♦ (805) 681-4900  
2125 S. Centerpointe Pkwy., #333 ♦ Santa Maria, CA 93455-1340 ♦ (805) 346-8460

## WATER WELL PERMIT APPLICATION

**Type of Permit** (Please check the appropriate box below)

<input checked="" type="checkbox"/> Construction	\$740 (3 hrs.) *	[4669]	New or Replacement well.
<input type="checkbox"/> Modification	\$740 (3 hrs.) *	[4669]	Includes the deepening of a well, reperforation, sealing or replacement of well casing.
<input type="checkbox"/> Destruction	\$495 (2 hrs.) *	[4668]	Abandonment: The complete filling of a well.

FOR OFFICE USE ONLY

Rec'd Date: 3-23-17

Rec'd By: Vandenberg

WP # 0001924

District # 206

\* An hourly fee of \$136 will be added for those projects that require staff time in excess of that noted above. Final project approval will not be issued until all fees are paid.

**Required Attachments:** Plot plan indicating the location of the well with respect to the following items:

- |  |  |
|--|--|
| <input type="checkbox"/> Property lines.   | <input type="checkbox"/> Animal or fowl enclosure, pens, paddocks, stockyards within a 100 foot radius of proposed well site                                     |
| <input type="checkbox"/> Drainage pattern of the property.                             | <input type="checkbox"/> Sewage disposal systems or works carrying or containing sewage or industrial wastes within a 200 foot radius of the proposed well.      |
| <input type="checkbox"/> Access roads and easements (water, sewer, utility, roadway).  | <input type="checkbox"/> All perennial, seasonal, natural, or artificial water bodies or watercourses, including location of 100 year floodplain, if applicable. |
| <input type="checkbox"/> Existing and/or proposed structures.                          | <input type="checkbox"/> Also Required: the Supplemental Form on page 3, completed in full.  |
| <input type="checkbox"/> Existing wells within a 100 foot radius of the proposed well. |  |

### OWNER Info:

Well Owner Name (Required): County of Santa Barbara, Gen. S&F Dist. Primary Phone (805) 568-3070

Owner Mailing Address: 1105 Santa Barbara St., Santa Barbara, CA 93101 c/o Mr. Don Grady  
Street Number and Name City State / Zip Code

**Complete this section if APPLICANT is other than Well Owner**

Applicant/ Project Coordinator Name: Rick Hoffman, Geologist

Mailing Address: 1149 Palomino Road, Santa Barbara, California 93105  
Street Number and Name City State / Zip Code

Primary Phone: (805) 569-1911 Email: rickhoffman1@cox.net

### WELL Location Info:

Well Location Address: 749 Burton Mesa Blvd., Lompoc, CA 93436  
Street Number and Name City State / Zip Code

Cross Street (or other information defining the Well location, if applicable): Harris Grade Road 1/2 mile to southeast

Assessor's Parcel Number (APN): 0 9 7 - 3 7 1 - 0 1 3 Longitude: N34°41'47.5" Latitude: W120°26'59" Elevation: 340'

A. Is parcel located within the service area of a public water system? ☒ No ☒ Yes (Identify): Vandenberg Village CSD

A-1. If you answered Yes to question A.: Are you connected to the Public Water System (i.e., do you have a meter?) ☐ No ☒ Yes

A-2. If you answered No to the question A-1.: Is public water service available? ☐ No ☐ Yes

Proposed Depth <u>800</u> ft.	<b>Casing Information</b> Type: <input type="checkbox"/> Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other _____ Wall / Gauge <u>SDR 17</u> in. Diameter <u>8 5/8</u> in. Annular Seal Depth <u>50</u> ft. Additional Work Description: _____ _____ _____
Well Bore Diam. <u>16</u> in.	
<b>Sealing Material (Check)</b>	
<input type="checkbox"/> Neat Cement <input type="checkbox"/> Clay <input checked="" type="checkbox"/> Cement Grout <input type="checkbox"/> Concrete	

**Note:** A 50 ft. annular seal is required for all wells.



# LEGAL DECLARATION

## LICENSED CONTRACTOR DECLARATION

I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Sec. 7000), Division 3 of the Business and Professions Code (B&PC) as a well drilling contractor (C-57 license) and such license is in full force and effect.

Mr. Greg Filipponi on file Mar. 17, 2017  
Print Name of Driller Signature of Driller Date

Lic. No.: C57-432680 Primary Telephone 805-466-1271 Greg Filipponi cell  
Other Phone: 805-610-3341

Business Name: Filipponi & Thompson Drill Address P.O. Box 845, Atascadero, CA 93423

## (Complete A or B)

### A. WORKERS' COMPENSATION DECLARATION

I hereby affirm that (check the applicable box):

- ☐ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.
- ☐ I have and will maintain workers' compensation insurance, as provided for by Section 3700 of the Labor Code, for the performance of work for which this permit is issued. My insurance carrier and policy number are:

Carrier on file Policy No. \_\_\_\_\_

Applicant Signature \_\_\_\_\_ Date \_\_\_\_\_

### B. CERTIFICATION OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

I certify that in the performance of work for which this permit is issued, I shall not employ any person in a manner so as to become subject to the Workers' Compensation Laws of California.

Applicant Signature Rick Hoffman Date Mar. 17, 2017

**Notice to Applicant:** If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

When signed by the Environmental Health Specialist, this application shall be deemed a permit only for the work described and is not a "permit for development" as that term is used in the California Subdivision Map Act. Please note additional permits (e.g., electrical installation, waste discharge requirements, land use clearance, grading) may also be required from other agencies. THIS PERMIT SHALL EXPIRE upon completion of the task authorized or one year from date of issuance, whichever occurs first. No changes from the approved plan are permitted without prior written approval by Environmental Health Services. Final clearance will not be issued until all fees are paid and a copy of the drillers log is submitted to Environmental Health Services.

I hereby agree to comply with all regulations of the County of Santa Barbara pertaining to well construction, repair, modification, destruction and inactivation. The property owner, well driller, or agent will furnish Environmental Health Services a copy of a completed well log upon completion of well construction.

I certify that I have read this application and declare under penalty of perjury that the information contained herein is true, correct and complete. I hereby authorize representatives of Environmental Health Services to enter the premises for the purpose of inspecting the site and work described herein for compliance with county requirements.

**REQUIRED INSPECTIONS / FINAL CLEARANCE:** After permit approval, and prior to covering any components, an inspection must be scheduled directly with the approving Environmental Health Specialist at least two (2) business days in advance for:

- ✓ The sealing of the annular space on a well;
- ✓ The destruction of wells;
- ✓ Any operation stipulated on the permit to address special or unusual conditions.
- ✓ Receipt of driller's well log.

Signed Rick Hoffman Rick Hoffman Mar. 17, 2017  
Applicant (Print Name) Applicant's Signature Date

APPLICATION DISPOSITION: ☒ Approved ☐ Denied

Signed Deanna Talenico 3/23/17  
Environmental Health Specialist Date

## FOR DEPARTMENT USE ONLY

Fixed Fee Rec'd by: Velando Date: 3-22-17 Amt: \$ 740.5 Credit Card: ☒ Check/Receipt/Trans. No.: 1380 2074436

Date plans resubmitted (1) \_\_\_\_\_ (2) \_\_\_\_\_ (2) \_\_\_\_\_

Permit Conditions: Contact EHS at least 48 hrs prior to seal

Final Construction Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Final Clearance by: \_\_\_\_\_ Date: \_\_\_\_\_

☐ Copy Required at Assessor's Office ☐ Copy Required at Water District Office

# VVCSO Fire Station Test Well #1

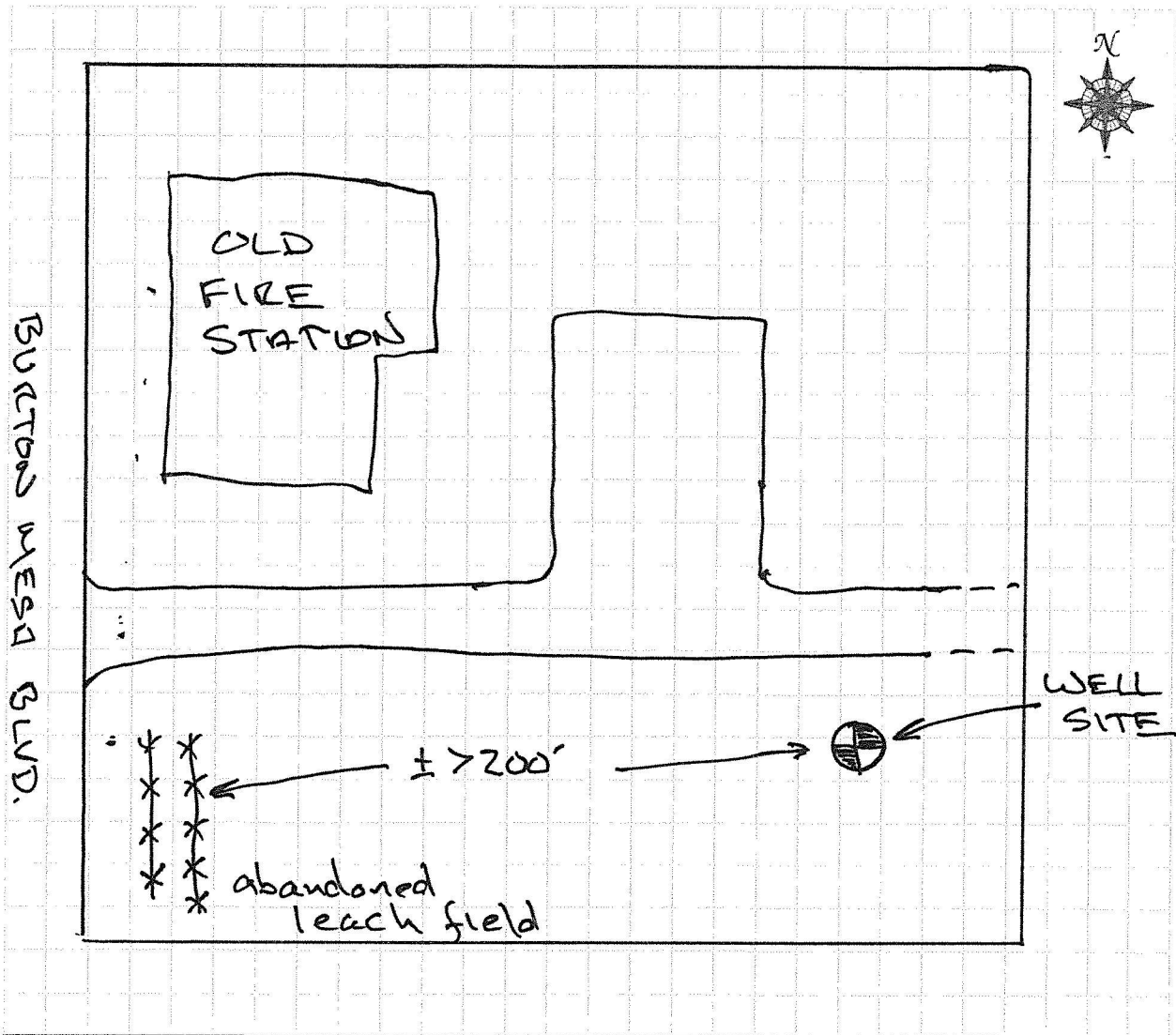
## Well Permit Application Plot Plan

(Scale 1/4" Block = 20 ft.)

Permit #:

APN: 097-371-013

Indicate below the exact location of the proposed well with respect to the following items within 200 ft. of the proposed well: property lines, access roads and easements; existing/proposed structures (surface and subsurface); existing wells; existing/proposed industrial, hazardous, solid waste systems, works or tanks; petroleum product system works or tanks; animal enclosures and/or animal waste storage areas; agricultural operations; watercourses, 100-yr. flood plain and drainage patterns of the property; and well site elevations. Show the actual distance between the proposed well and these items.



Dept. Use Only: Site Reviewed By: \_\_\_\_\_

Date: \_\_\_\_\_

☐ Sewer (Sanitary, Storm or Bldg.) – 50 ft.

☐ Septic Tanks and / or Leachlines – 100 ft.  
(include 100% expansion area)

☐ Seepage Pit / Drywell – 150 ft.  
(include 100% expansion area)

☐ Water Bodies / Courses – 50 ft.

☐ Underground Petroleum Product Storage Tanks – 100 ft

☐ Other: \_\_\_\_\_



**VANDENBERG VILLAGE CSD**  
**Old Fire Station #51 Test Well**

## WELL LOCATION MAP

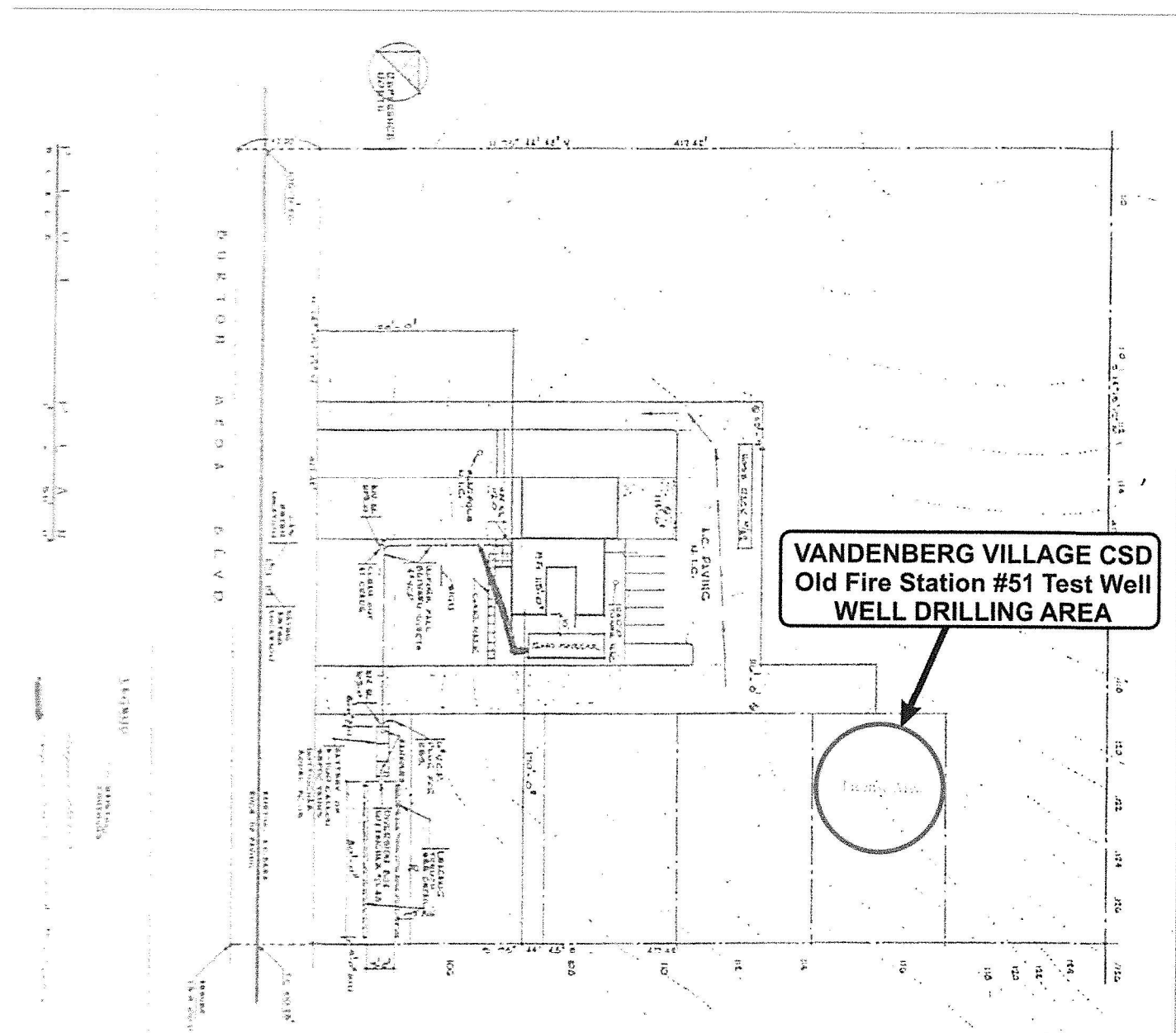
**VANDENBERG VILLAGE CSD**  
**Old Fire Station #51 Test Well**  
**749 Burton Mesa Blvd., Lompoc, California**

**Rick Hoffman and Associates**  
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**FIGURE**

**1**



**VANDENBERG VILLAGE CSD**  
**Old Fire Station #51 Test Well**

## SITE MAP

**VANDENBERG VILLAGE CSD**  
**Fire Station Test Well #1**  
**749 Burton Mesa Blvd., Lompoc, California**

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Email: rickhoffman1@cox.net

**FIGURE**

**2**





COUNTY OF SANTA BARBARA  
Environmental Health Services

X 2074436

Department

Date 3/23/17

Received from Rick Hoffman & Assoc. for: Conf SB/Gen Services

In Payment of Well Permit Application APN-097-371-013 for 749 Benton Mesa Blvd Lomp.

Seven Hundred forty and 100 Dollars \$ 740.00

Received original of the above numbered receipt

CREDIT CARD	
CASH	
CHECK	1380

*Valinda*  
AUTHORIZED SIGNATURE

SIGNATURE OF PAYOR

AC-147

RICK HOFFMAN & ASSOCIATES  
DON FREDERICK HOFFMAN  
GEORGETTE MARIE HOFFMAN

1380  
62-15/311  
150

18 Nov. 2017 Date

Pay to the Order of Santa Barbara County EHS \$ 740.00  
Seven hundred forty 00/100 Dollars



The Bank of New York Mellon  
1 Wall Street  
New York, NY 10286

Schwab One®

For VNCD Fire Station Well Rick Hoffman NP

⑆03⑆⑆00⑆57⑆ 7026⑆83⑆32⑆ 21380

Holland Clark

March 18, 2017

FILE:GF17Mar:SBPermitVVCSD

**Santa Barbara County  
Environmental Health Services  
2125 South Centerpointe Parkway  
Santa Maria, California 93455-1340**

**Attn: Ms. Deanna Talerico, Senior Environmental Health Specialist**

**Re: *Water Well Drilling Permit Application*  
*Proposed Vandenberg Village CSD Fire Station #51 Test Well Project*  
*749 Burton Mesa Road*  
*Lompoc, California*  
*Assessor's Parcel Number 097-371-013***

Dear Ms. Talerico:

I am herewith submitting a Water Well Drilling Permit Application, Well Location Map, and other supporting graphics for your review and approval. The new test well is to be located in the south-central portions of the above described parcel, in the unincorporated portion of the Santa Barbara County, California (see Figure 1). The Vandenberg Village Community Services District (VVCSD) has secured a license agreement from Santa Barbara County (Real Property Division) to drill and complete a Test Well on property they own that is now an abandoned fire station facility. The proposed Test Well #1 will be used to analyze the hydrologic conditions of this area for the eventual drilling of a larger production water well to serve the customers of the VVCSD at a later time. The proposed 8 inch diameter PVC well will be tested for both water quantity (flow capacity) and water quality. When the testing of the new well is completed, it will be securely capped and used in the future as a monitoring well.

There is a now abandoned leach field system located near the southwest corner of the parcel, approximately 200 feet (or more) from the proposed well site. No other nearby septic disposal systems or other potential sources of contamination are known to exist within 200 feet of the well site. F & T Drilling Company will be the Contractor for this project. The drilling contractor intends to move onto the new well site in the next 2 to 3 weeks. Please let me know if you wish to inspect the well site or if you can approve of it via review on Google Earth. I have sent along a paper copy of the Water Well Drilling Permit Application along with payment via US Mail, which you should receive in a few days.

March 18, 2017

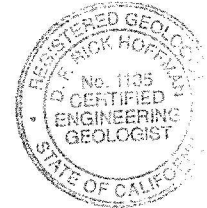
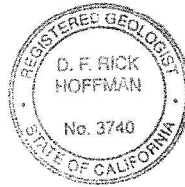
If you have any questions regarding these Well Permit Applications, please feel free to contact me. I look forward to seeing you soon.

Sincerely,

*Rick Hoffman*

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Mr. Rick Hoffman  
Certified Engineering Geologist & Hydrogeologist  
State of California  
RG #3740 EG #1135 HG #448



enclosures

cc: Mr. Joe Barget, District Manager, Vandenberg Village Community Services District



**ENVIRONMENTAL HEALTH SERVICES DIVISION  
 WELL PERMIT FIELD INVESTIGATION RECORD**

Well Permit Application Received: Date: 3/23/17 Well Permit Number: SR WP 1924

Owner \_\_\_\_\_ APN 097371013

Site Investigation by: D. Talenico Date: 3/23/17

Findings: (Check Applicable Boxes and Give Clearance)

- |   |  |
|---|--|
| <input type="checkbox"/> Overhead Powerlines _____                          | <input type="checkbox"/> Animal Enclosures _____ (100 Feet)          |
| <input type="checkbox"/> Sewer Lines _____ (> 50 feet)                      | <input type="checkbox"/> Creek/Watercourse _____ (100 yr Floodplain) |
| <input type="checkbox"/> Leachfield/Septic Tank <u>7200 ft</u> (> 100 feet) | <input type="checkbox"/> Petroleum Tank/Pipeline _____ (50 feet)     |
| <input type="checkbox"/> Cesspool/Drywell _____ (> 150 feet)                | <input type="checkbox"/> Other _____                                 |

Comments: old septic lines abandoned now, all over 200 ft from proposed well

**Construction Inspection Record:**

Date: \_\_\_\_\_ Driller: \_\_\_\_\_

Registered Professional: \_\_\_\_\_

☐ Destruction:

Casing Depth Below Grade: \_\_\_\_\_  
 Depth of Seal: \_\_\_\_\_

**Casing Information:**

Diameter: \_\_\_\_\_ ☐ Gage: \_\_\_\_\_

☐ Steel ☐ Standard linepipe ☐ Structural Steel

☐ ABS ☐ PVC ☐ Standard 14 NSF

☐ Other: \_\_\_\_\_

**Borehole:**

Total Depth of Well: \_\_\_\_\_

Annular Seal: \_\_\_\_\_  
 (20' Ag & SPWS; 50' > 5 conn. & commercial)

Well Bore Diameter: \_\_\_\_\_

Sealing Material: \_\_\_\_\_  
 (6 Sack concrete, neat cement, sand-cement, Bentonite, thermoset plastic concrete)

**Casing Schedule:**

**TYPE**

**Conductor Casing:**

0 ft.	-	=	Borehole:-
_____	-	=	Sealing Material: _____
_____	-	=	Conductor Casing: _____
_____	-	=	Depth: _____ Diameter: _____
_____	-	=	Capped: _____

Amount: \_\_\_\_\_

Method of Pour: ☐ Gravity or ☐ Pumper

Use of Tremie Pipe: ☐ Yes ☐ N/A  
 Required if wet or > 30 ft deep



# ELECTRIC - GAMMA RAY-TEMPERATURE LOG

Test Borehole

· Phone: (888) 908-5226 Fax: (661) 505-6561 · Web: www.boredata.com Email: ccorbell@boredata.com

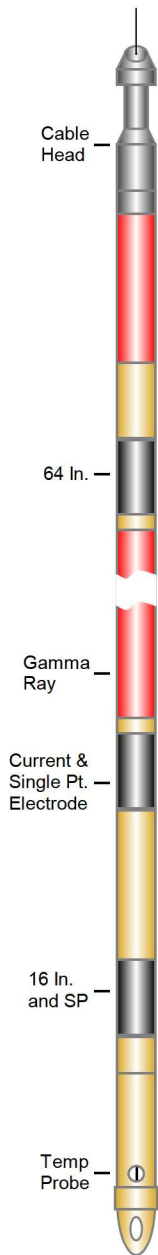
Filing No.	COMPANY <u>Filipponi and Thompson</u>	
	WELL <u>Vandenberg Village CSD Old Fire Station #51 Test Well</u>	
	FIELD <u>Lompoc</u>	
	STATE <u>California</u>	COUNTY <u>Santa Barbara</u>
Job No. 2336	LOCATION: <b>749 Burton Mesa Blvd</b> <b>APN: 097-371-013</b>	
	OTHER SERVICES: <b>None</b>	
SEC: _____ TWP: _____ RGE: _____ LAT.: <u>34.69669</u> LONG.: <u>-120.44993</u>		

Permanent Datum: Ground Level Elev.: \_\_\_\_\_ Ft. Elevs.: K.B. \_\_\_\_\_ Ft.  
 Log Measured From: Ground Level, 0 Ft. Above Perm. Datum D.F. \_\_\_\_\_ Ft.  
 Drilling Measured From: Kelly Bushing G.L. \_\_\_\_\_ Ft.

Run	<b>One</b>							
Date	<b>May 08, 2017</b>							
Depth-Driller	<b>803</b>	Ft		Ft		Ft	Ft	
Depth-Logger	<b>804</b>	Ft		Ft		Ft	Ft	
Top Logged Interval	<b>7</b>	Ft		Ft		Ft	Ft	
Btm Logged Interval	<b>804</b>	Ft		Ft		Ft	Ft	
Casing-Driller	<b>18</b>	In @	<b>52</b>	Ft	In @	Ft	In @	Ft
Casing - Logger In@Ft	<b>18</b>	In @	<b>52</b>	Ft	In @	Ft	In @	Ft
Bit Size	<b>9.875</b>	In @	<b>803</b>	Ft	In @	Ft	In @	Ft
Time On Bottom	<b>18:00</b>							
Type Fluid in Hole	<b>Bentonite</b>							
Density	Viscosity							
pH	Fluid Loss		ml		ml		ml	
Source of Sample	<b>Circ</b>							
Rm @ Mea. Temp	<b>10.2</b>	@	<b>75</b>	°F	@	°F	@	°F
Rmf @ Mea. Temp	<b>10.2</b>	@	<b>75</b>	°F	@	°F	@	°F
Rmc @ Mea. Temp		@		°F	@	°F	@	°F
Source Rmf	Rmc	<b>Meas</b>						
Rm @ BHT		@		°F	@	°F	@	°F
Time Since Circ.	<b>1.5</b>	Hr		Hr		Hr	Hr	
Max. Rec. Temp.	<b>82.3</b>	°F		°F		°F	°F	
Van No.	Location	<b>BD-1</b>	<b>VTU</b>					
Recorded By	<b>Craig Corbell</b>							
Witnessed By								

This Eagle Plot Heading Conforms To API RP 31A

# ELECTRIC - GAMMA RAY-TEMPERATURE LOG TOOL



## **SPONTANEOUS POTENTIAL LOGS:**

SP Logs record potentials or voltages developed between the borehole fluid and the surrounding formation and are representations of lithology and water quality. Recording of SP logs are limited to water-filled or mud-filled open holes.

## **NORMAL RESISTIVITY LOGS:**

Normal Resistivity Logs record the electrical resistivity of the borehole environment with lower resistivities indicative of clays and higher resistivities being sands and gravels. Normal resistivity logs are affected by bed thickness, Borehole diameter and borehole fluid.

## **SINGLE POINT RESISTIVITY LOGS:**

Single Point Resistivity Logs record the electrical resistance from points within the borehole to an electrical ground at land surface. Single-point resistance logs are useful in the determination of lithology, water quality, and location of fracture zones.

## **GAMMA RAY LOGS:**

Gamma Ray Logs record the amount of natural gamma radiation emitted by the rocks surrounding the borehole. The most significant naturally occurring sources of gamma radiation are potassium 40 and daughter products of the uranium and thorium decay series. Clay and shale bearing rocks commonly emit relatively high gamma radiation because they include weathering products of potassium feldspar and mica and tend to concentrate uranium and thorium by ion absorption and exchange.

## **TEMPERATURE LOGS:**

Temperature Logs record the water temperature in the borehole. Temperature logs are useful for delineating water-bearing zones and identifying vertical flow in the borehole between zones of differing hydraulic head penetrated by wells. Borehole flow between zones is indicated by temperature gradients that are less than the regional geothermal gradient.

## **ELECTRIC LOG SPECIFICATIONS:**

Diameter	1.73 Inches
Length	8.37 Feet
Weight	21.7 Lbs.
Max. Temp	158° F
Resist. Range	0 - 10,000 ohm-m
Gamma Ray	1.97 inches long x .98 inches diameter Scintillation crystal



## NOTICE

*All interpretations are opinions based on inferences from electrical and other measurements and we do not guarantee the accuracy or correctness of any verbal or written interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by one of our officers, agents or employees. These interpretations are also subject to our General Terms and Conditions as set out in our current Price Schedule.*

### REMARKS

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Filippini and Thompson  
Vandenberg Village CSD Old Fire Station #51 Test Well  
May 08, 2017

Mult. Pages  
2"/100'

DEPTHS  
(Feet)

< - S.P. (5 mV/div) S.P. + >

Gamma Ray(api)

# ELECTRIC - GAMMA RAY-TEMPERATURE LOG

100 64 Inch Normal (ohmm<sup>2</sup>/m) x10 1000

64 Inch Normal (ohmm<sup>2</sup>/m) 100

100 16 Inch Normal (ohmm<sup>2</sup>/m) x10 1000

16 Inch Normal (ohmm<sup>2</sup>/m) 100

Single Point(ohms)

Temperature (°F)

50'

100'

150'

200'

250'

300'

350'

400'

433'

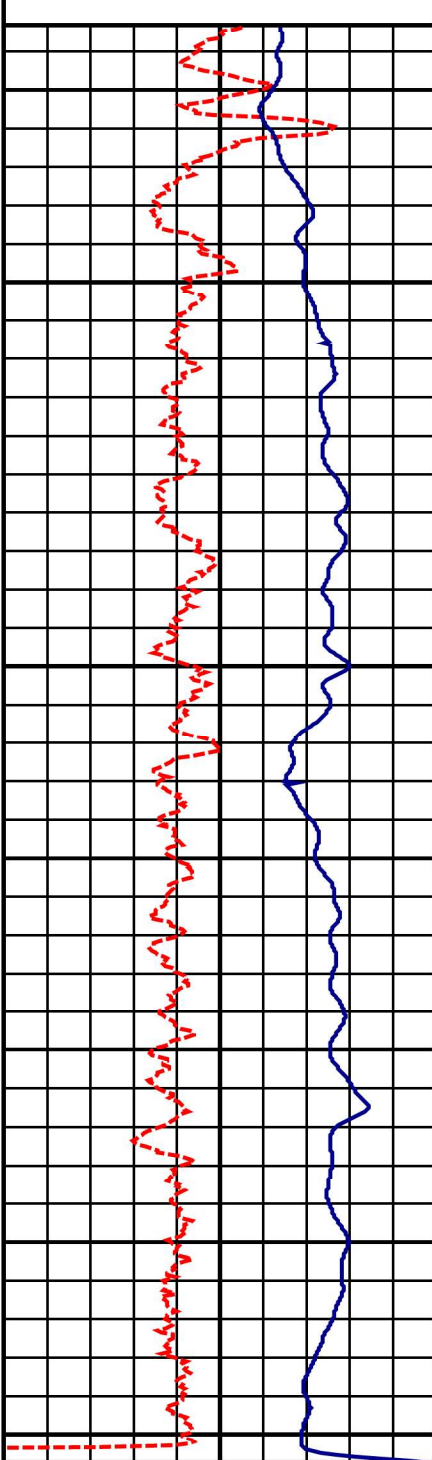
Filipponi and Thompson  
Vandenberg Village CSD Old Fire Station #51 Test Well  
May 08, 2017

Mult. Pages  
2"/100'

DEPTHS  
(Feet)

< - S.P. (5 mV/div) S.P. + >

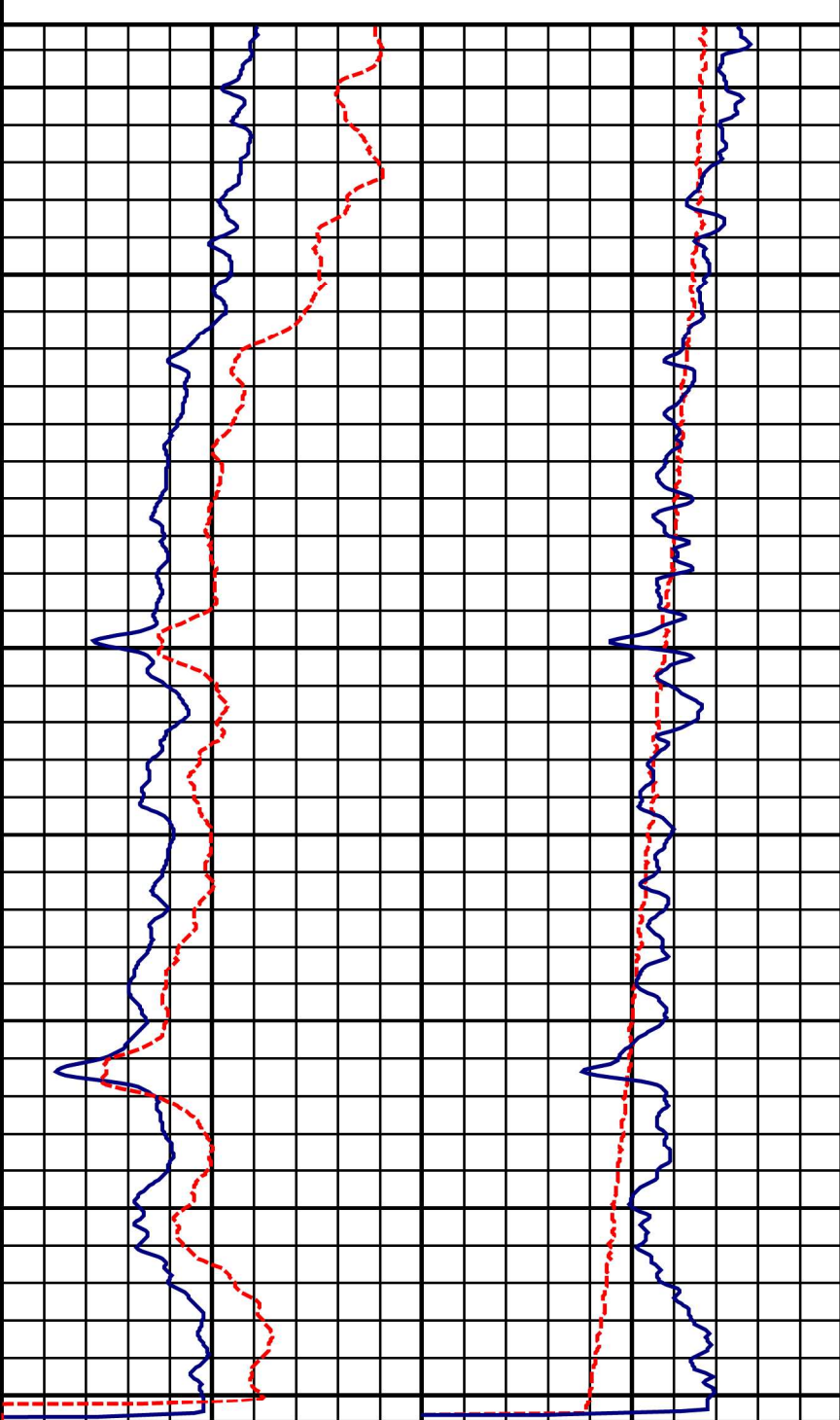
0 Gamma Ray(api) 150



Log Depth 806'

# ELECTRIC - GAMMA RAY-TEMPERATURE LOG

100 64 Inch Normal (ohmm<sup>2</sup>/m) x10 1000  
64 Inch Normal (ohmm<sup>2</sup>/m) 100  
100 16 Inch Normal (ohmm<sup>2</sup>/m) x10 1000  
16 Inch Normal (ohmm<sup>2</sup>/m) 100  
Single Point(ohms) 30  
Temperature (°F) 85





State of California  
**Well Completion Report**  
WCR Form Submitted 06/02/2017  
WCR2017-001500

Owner's Well Number \_\_\_\_\_ Date Work Began 05/04/2017 Date Work Ended 05/15/2017  
Local Permit Agency Santa Barbara County Environmental Health Services  
Secondary Permit Agency \_\_\_\_\_ Permit Number 0001924 Permit Date 03/23/2017

**Well Owner (must remain confidential pursuant to Water Code 13752)**

Name JOE BARGET VANDENBERG VILLAGE CSD  
Mailing Address 3757 CONSTILLATION ROAD  
City LOMPOC State CA Zip 93436

**Planned Use and Activity**

Activity New Well  
Planned Use Water Supply Domestic

**Well Location**

Address 749 BURTON MESA BLVD APN 097-371-013  
City LOMPOC Zip 93436 County Santa Barbara Township \_\_\_\_\_  
Latitude 34 41 47.5 N Longitude -120 25 59 W Range \_\_\_\_\_  
Deg. Min. Sec. Deg. Min. Sec. Section \_\_\_\_\_  
Dec. Lat. \_\_\_\_\_ Dec. Long. \_\_\_\_\_ Baseline Meridian \_\_\_\_\_  
Vertical Datum \_\_\_\_\_ Horizontal Datum WGS84 Ground Surface Elevation \_\_\_\_\_  
Location Accuracy \_\_\_\_\_ Location Determination Method \_\_\_\_\_ Elevation Accuracy \_\_\_\_\_  
Elevation Determination Method \_\_\_\_\_

**Borehole Information**

Orientation Vertical Specify \_\_\_\_\_  
Drilling Method Direct Rotary Drilling Fluid Bentonite  
Total Depth of Boring 840 Feet  
Total Depth of Completed Well 820 Feet

**Water Level and Yield of Completed Well**

Depth to first water \_\_\_\_\_ (Feet below surface)  
Depth to Static \_\_\_\_\_  
Water Level 297 (Feet) Date Measured 05/15/2017  
Estimated Yield\* 400 Test Type Air Lift  
Test Length 12 Total Drawdown \_\_\_\_\_ (Feet)  
\*May not be representative of a well's long term yield.

## Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	25	BROWN SAND
25	28	WHITE SANDY CLAY
28	105	LIGHT BROWN SAND WITH COURSE SANDS
105	108	GRAY CLAY
108	145	CHATTERING SAND WITH COURSE SAND AND SOME CLAY
145	173	GRAY CLAY WITH SAND
173	190	SAND AND GRAVEL
190	248	SANDY GRAY CLAY
248	308	SAND AND GRAVEL
308	310	CLAY
310	510	SAND WITH COARSE SANDS
510	512	FINE AND COARSE SANDS WITH REDWOOD
512	518	FINE AND COARSE SANDS
518	525	FINE AND COARSE SANDS WITH SILTY BROWN SHALE LAYERS
525	554	DARK GRAY SANDS
554	561	GRAY SANDS WITH SEA SHELLS
561	746	GRAY SANDS WITH SOME SMALL GRAVELS
746	812	GRAY SANDS WITH SOME COARSE SAND
812	817	SILTY BROWN CLAY
817	840	FINE GRAY SAND/ SILT

## Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specifications	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	52	Conductor or Fill Pipe	Low Carbon Steel	Grade: ASTM A53	0.25	18			
2	52	450	Blank	Other	N/A	0.25	18			PVC SDR 17
2	450	590	Screen	Other	N/A	0.25	18	Saw Cut	0.04	PVC 8 INCH SDR17
2	590	610	Blank	Other	N/A	0.25	18	Saw Cut		PVC 8 INCH SDR17
2	610	690	Screen	Other	N/A	0.25	18	Saw Cut	0.04	PVC 8 INCH SDR17
2	690	730	Blank	Other	N/A	0.25	18	Saw Cut		PVC 8 INCH SDR17
2	730	810	Screen	Other	N/A	0.25	18	Saw Cut	0.04	PVC 8 INCH SDR17
2	810	820	Blank	Other	N/A	0.25	18	Saw Cut		PVC 8 INCH SDR17

## Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	50	Cement	10.3 Sack Mix		
50	840	Other Fill	See description.	LAPIS #3	LAPIS #3

Other Observations:

## Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	52	28
52	840	16

## Certification Statement

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

Name FILIPPONI-THOMPSON DRILLING INC  
 Person, Firm or Corporation  
 P O BOX 845 ATASCADERO CA 93423  
 Address City State Zip  
 Signed *William Thompson* 06/02/2017 432680  
 C-57 Licensed Water Well Contractor Date Signed C-57 License Number



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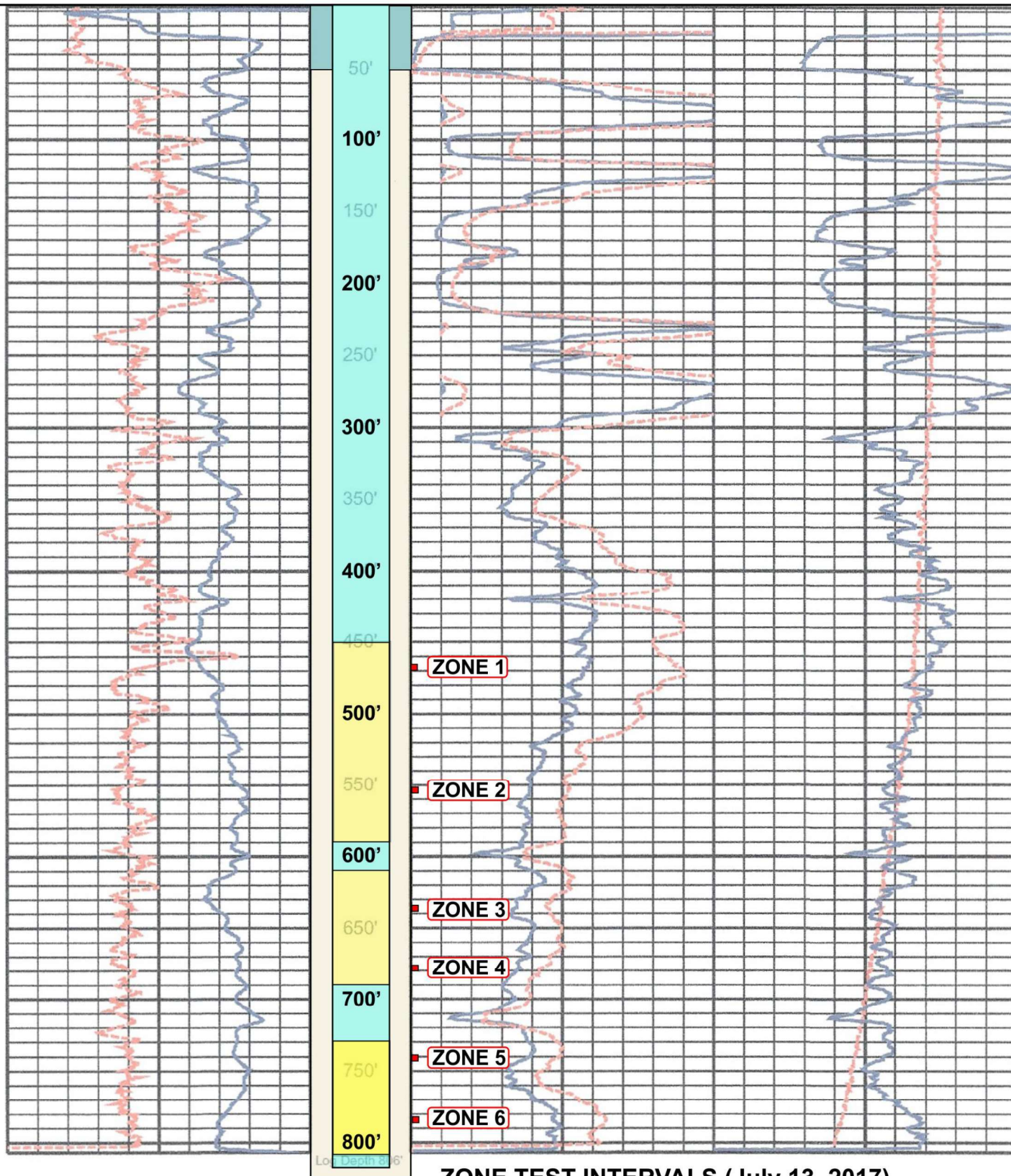
			N
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				W
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Longitude Deg/Min/Sec

APN:





### CASING LEGEND

- Concrete Sanitary Seal: 0' to 52'
- 8" SDR 17 PVC Blank Casing
- 8" SDR 17 PVC Well Screen w/0.040" slots
- 16" diameter Bore Hole: annulus filled with Lapis #3 from 50' to 830'

### ZONE TEST INTERVALS (July 13, 2017)

### ARSENIC CONTENT (ug/L)

ZONE 1: 466.5' to 470'	31 ug/L
ZONE 2: 551.5' to 554'	21 ug/L
ZONE 3: 634.5' TO 638'	24 ug/L
ZONE 4: 676.5' TO 680'	18 ug/L
ZONE 5: 739.5' to 743'	32 ug/L
ZONE 6: 781.5' to 785'	4.3 ug/L

## WELL CONSTRUCTION PROFILE

Vandenberg Village CSD - Fire Station Test Well Project  
749 Burton Mesa Blvd., Lompoc, California

**Rick Hoffman and Associates**  
ENGINEERING GEOLOGISTS & HYDROGEOLOGISTS

1149 Palomino Road, Santa Barbara, CA 93105  
TEL. (805) 569-1911 MOBILE: (805) 895-2246  
Email: rickhoffman1@cox.net

FIGURE

3

# **TEST PUMPING DATA**

**JUNE 1, 2017**

## Fire Station #51 Test Well

<b>WELL OWNER:</b>	Vandenberg Village CSD
<b>WELL NAME:</b>	Fire Station #51 Test Well
<b>DATE OF TEST PUMPING PROCEDURE:</b>	June 1, 2017
<b>DEPTH OF WELL:</b>	820 feet
<b>DEPTH OF PUMP SETTING:</b>	60 horsepower pump set at 441 feet
<b>YIELD METHOD:</b>	calibrated flow meter
<b>TECHNICIAN:</b>	F&T Drilling Company
<b>DATUM POINT:</b>	top of casing

DATE	TIME	TIME SINCE START (min.)	FLOW RATE (gpm)	WATER LEVEL below top of casing (feet)	DRAWDOWN (feet) (pumping level minus SWL)	REMARKS
6/1/17	9:30	0	0	300.0	0.0	static water level
	9:32	2	400	324.5	24.5	water clear, no odor or sediment
	9:34	4	400	324.8	24.8	
	9:36	6	400	325.1	25.1	
	9:38	8	400	325.2	25.2	
	9:40	10	400	325.2	25.2	
	9:45	15	400	325.4	25.4	
	9:50	20	400	325.5	25.5	
	9:55	25	400	325.6	25.6	
	10:00	30	400	325.7	25.7	
	10:05	35	400	325.8	25.8	
	10:10	40	400	325.9	25.9	
	10:15	45	400	326.0	26.0	
	10:20	50	400	326.0	26.0	
	10:25	55	400	326.0	26.0	
	10:30	60	400	326.0	26.0	
	10:45	75	400	326.1	26.1	
	11:00	90	400	326.1	26.1	
	11:15	105	400	326.2	26.2	
	11:30	120	400	326.2	26.2	
	11:45	135	400	326.3	26.3	
	12:00	150	400	326.2	26.2	
	12:15	165	400	326.4	26.4	
	12:30	180	400	326.5	26.5	water sample: Ar = 28 ug/L
	12:45	195	400	326.5	26.5	
	13:00	210	400	326.5	26.5	
	13:15	225	400	326.5	26.5	
	13:30	240	400	326.5	26.5	end of constant discharge test

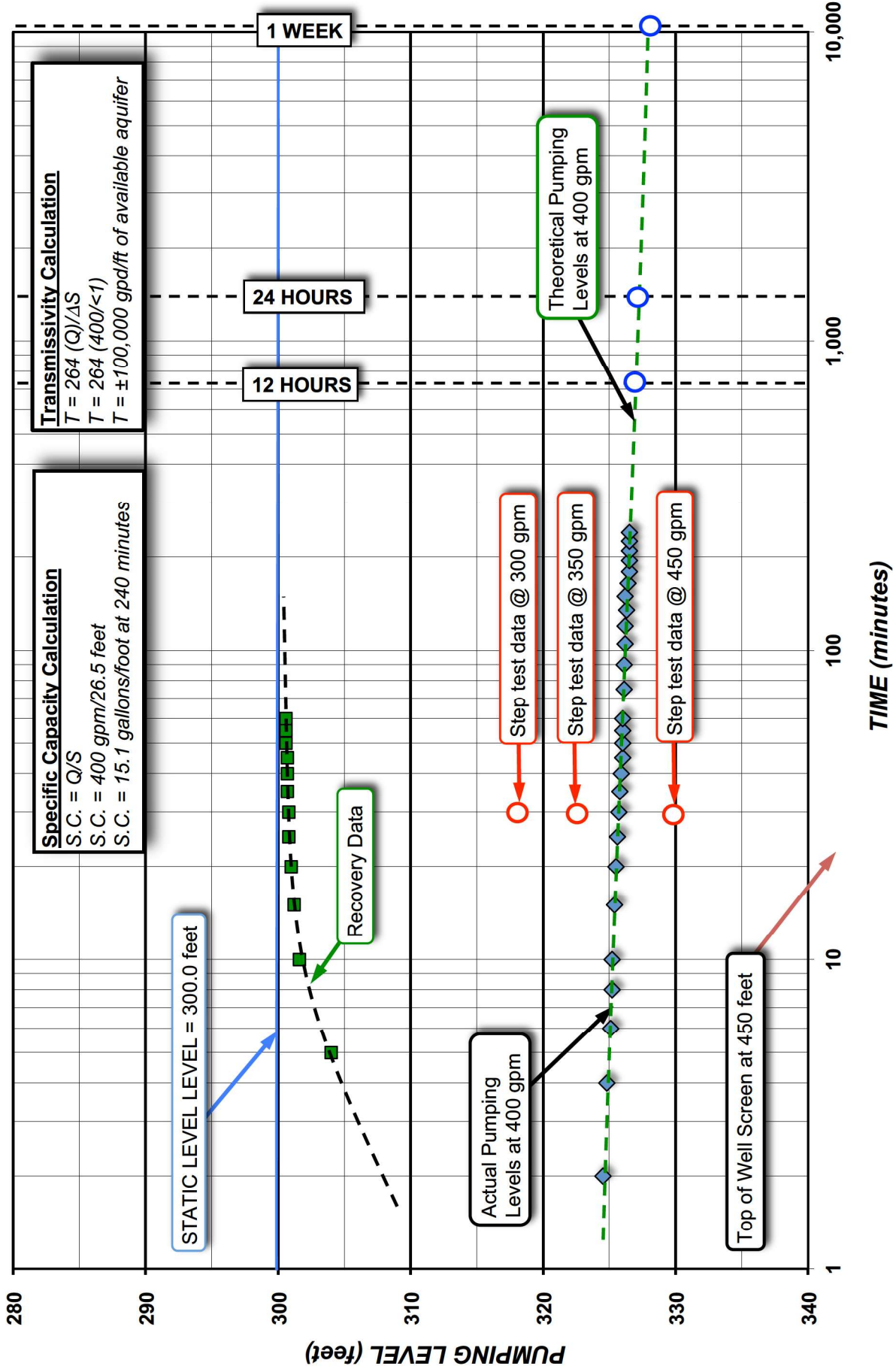


**RECOVERY TEST**  
**Vandenberg Village CSD**  
**Fire Station #51 Test Well**

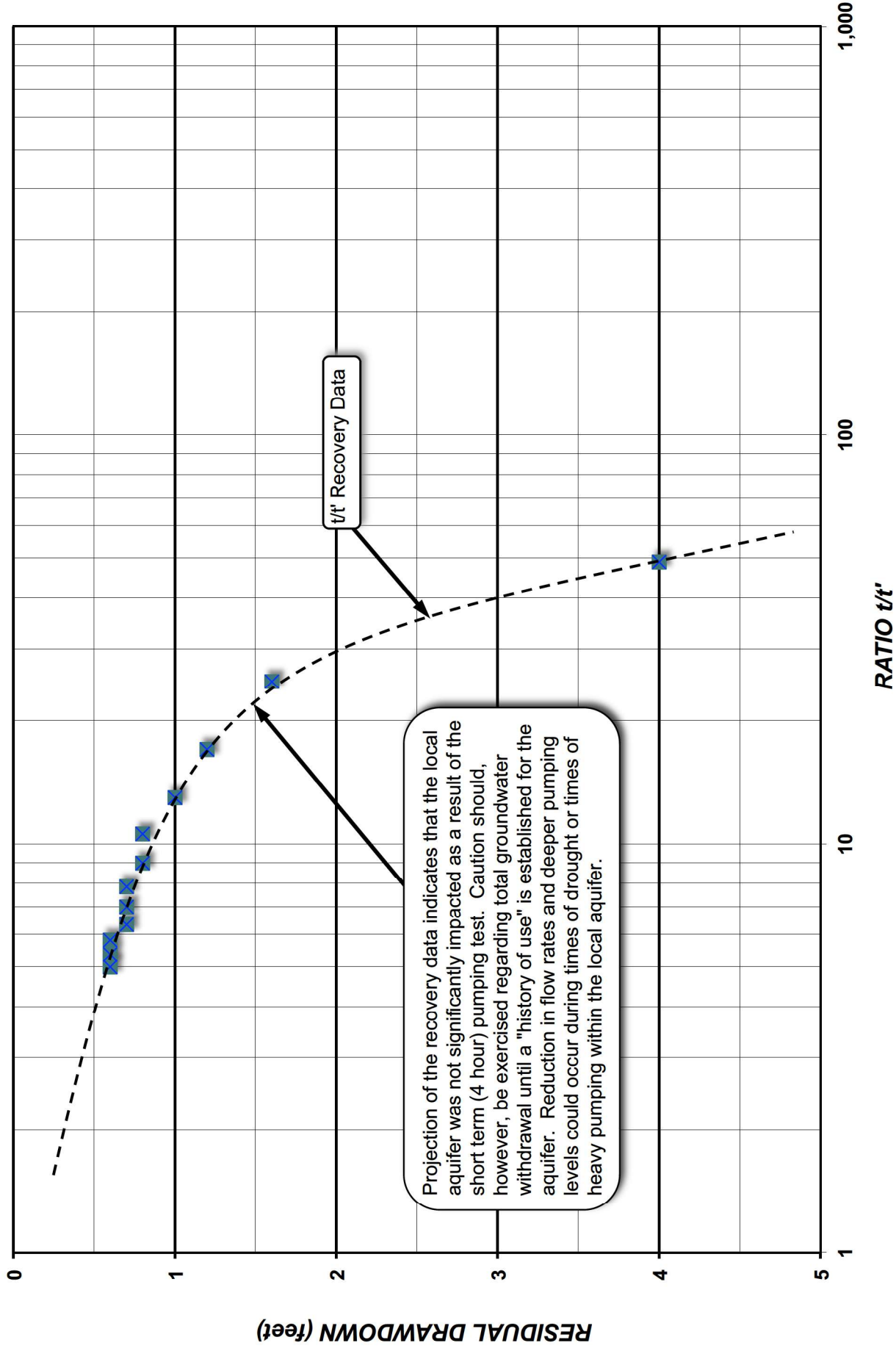
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# HYDROLOGIC CALCULATION GRAPH

Fire Station #51 Test Well



# **$t/t'$ RATIO vs. RESIDUAL DRAWDOWN GRAPH** **Fire Station #51 Test Well**





June 21, 2017

**Vandenberg Village CSD**  
 3757 Constellation Road  
 Lompoc, CA 93436

Lab ID : SP 1706534  
 Customer : 2-14885

### Laboratory Report

**Introduction:** This report package contains total of 33 pages divided into 3 sections:

Case Narrative	(4 pages)	: An overview of the work performed at FGL.
Sample Results	(8 pages)	: Results for each sample submitted.
Quality Control	(21 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
Travel Blank	05/31/2017	05/31/2017	SP 1706534-000	LBW
Old Fire Station Test Well	05/31/2017	05/31/2017	SP 1706534-001	GW

**Sampling and Receipt Information:** All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived on ice. All samples were prepared and analyzed within the method specified hold time. 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	06/01/2017:208120 All analysis quality controls are within established criteria.
	06/01/2017:206464 All preparation quality controls are within established criteria.
200.8	06/01/2017:208127 All analysis quality controls are within established criteria.
	06/01/2017:206457 All preparation quality controls are within established criteria, except: The following note applies to Aluminum, Selenium: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
245.1	06/02/2017:208134 All analysis quality controls are within established criteria.
	06/02/2017:206503 All preparation quality controls are within established criteria.

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

### Organic QC

504	06/02/2017:206506 All preparation quality controls are within established criteria.
504.1	06/05/2017:208138 All analysis quality controls are within established criteria.
505	06/03/2017:208115 All analysis quality controls are within established criteria.
	06/02/2017:206406 All preparation quality controls are within established criteria.
507	06/07/2017:208349 All analysis quality controls are within established criteria.
	06/05/2017:206565 All preparation quality controls are within established criteria, except: The following note applies to Metribuzin: 410 Relative Percent Difference (RPD) not within Maximum Allowable Value (MAV). Data was accepted based on the LCS or CCV recovery.
515.3	06/08/2017:208448 All analysis quality controls are within established criteria.
	06/06/2017:206667 All preparation quality controls are within established criteria.
524.2	06/01/2017:208289 All analysis quality controls are within established criteria, except: The following note applies to 1,1,2,2-Tetrachloroethane, Trichlorotrifluoroethane F-113, 1,2,3-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenz: 360 CCV above Acceptance Range (AR). Samples which were non detect for this analyte were accepted.
	06/01/2017:206661 All preparation quality controls are within established criteria, except: The following note applies to Bromomethane (Methyl Bromide), Chloroethane (Ethyl Chloride), Vinyl Chloride, Freon-11: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
	The following note applies to Naphthalene: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
524MTCP	06/02/2017:208192 All analysis quality controls are within established criteria.
524M-TCP	06/02/2017:206561 All preparation quality controls are within established criteria.
531.1	06/08/2017:208517 All analysis quality controls are within established criteria.
	06/07/2017:206733 All preparation quality controls are within established criteria.
547	06/02/2017:208073 All analysis quality controls are within established criteria.
	06/02/2017:206474 All preparation quality controls are within established criteria.
548.1	06/09/2017:208479 All analysis quality controls are within established criteria.

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

### Organic QC

548.1	06/06/2017:206663 All preparation quality controls are within established criteria.
549	06/06/2017:206655 All preparation quality controls are within established criteria.
549.2	06/09/2017:208531 All analysis quality controls are within established criteria.
632	06/12/2017:208630 All analysis quality controls are within established criteria.
	06/02/2017:205153 All preparation quality controls are within established criteria, except: The following note applies to Diuron: 436 Blank Spike (BS) not within Acceptance Range (AR). Data was accepted based on the LCS or CCV recovery.

### Radio QC

900.0	06/06/2017:208378 All analysis quality controls are within established criteria.
	06/05/2017:206557 All preparation quality controls are within established criteria.
Ra - 05	06/13/2017:208747 All analysis quality controls are within established criteria.
	06/08/2017:206549 All preparation quality controls are within established criteria.

### Inorganic - Wet Chemistry QC

2120B	06/01/2017:208140 All analysis quality controls are within established criteria.
	06/01/2017:206526 All preparation quality controls are within established criteria.
2130B	06/01/2017:208106 All analysis quality controls are within established criteria.
	06/01/2017:206492 All preparation quality controls are within established criteria.
2150B	05/31/2017:206527 All preparation quality controls are within established criteria.
2320B	06/01/2017:208095 All analysis quality controls are within established criteria.
	06/01/2017:206428 All preparation quality controls are within established criteria, except: The following note applies to Bicarbonate: 440 Sample nonhomogeneity may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.



June 21, 2017  
Vandenberg Village CSD

Lab ID : SP 1706534  
Customer : 2-14885

**Inorganic - Wet Chemistry QC**

2510B	06/02/2017:208102 All analysis quality controls are within established criteria.
	06/02/2017:206486 All preparation quality controls are within established criteria.
2540CE	06/01/2017:206462 All preparation quality controls are within established criteria.
300.0	06/01/2017:208136 All analysis quality controls are within established criteria.
	06/01/2017:206519 All preparation quality controls are within established criteria.
314.0	06/08/2017:208451 All analysis quality controls are within established criteria.
	06/07/2017:206777 All preparation quality controls are within established criteria.
5540C	06/01/2017:208253 All analysis quality controls are within established criteria.
	06/01/2017:206610 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: 2017-06-21

June 21, 2017

Lab ID : SP 1706534-000  
Customer ID : 2-14885

**Vandenberg Village CSD**

3757 Constellation Road  
Lompoc, CA 93436

Sampled On : May 31, 2017-00:00  
Sampled By : Rick Hoffman  
Received On : May 31, 2017-16:00  
Matrix : Lab. Blank Water

Description : Travel Blank  
Project : Old Fire Station Test Well - Title 22

**Sample Result - Organic**

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
<b>EPA 504.1</b>								
1,3-Dibromopropane <sup>‡</sup>	94.1	70-130	%		504	06/02/17:206506	504.1	06/05/17:208138
DBCP	ND	0.01	ug/L		504	06/02/17:206506	504.1	06/05/17:208138
EDB	ND	0.02	ug/L		504	06/02/17:206506	504.1	06/05/17:208138
<b>SRL 524M-TCP</b>								
1,2,3-Trichloropropane	ND	0.005	ug/L		524M-TCP	06/02/17:206561	524MTCP	06/02/17:208192

ND=Non-Detected. PQL=Practical Quantitation Limit. <sup>‡</sup>Surrogate. \* PQL adjusted for dilution.

June 21, 2017

Lab ID : SP 1706534-001

Customer ID : 2-14885

**Vandenberg Village CSD**

3757 Constellation Road

Lompoc, CA 93436

Sampled On : May 31, 2017-12:30

Sampled By : Rick Hoffman

Received On : May 31, 2017-16:00

Matrix : Ground Water

Description : Old Fire Station Test Well

Project : Old Fire Station Test Well - Title 22

**Sample Result - Inorganic**

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
<b>General Mineral</b>								
Total Hardness as CaCO3	216	--	mg/L		200.7	06/01/17:206464	200.7	06/01/17:208120
Calcium	60	1	mg/L		200.7	06/01/17:206464	200.7	06/01/17:208120
Magnesium	16	1	mg/L		200.7	06/01/17:206464	200.7	06/01/17:208120
Potassium	3	1	mg/L		200.7	06/01/17:206464	200.7	06/01/17:208120
Sodium	76	1	mg/L		200.7	06/01/17:206464	200.7	06/01/17:208120
Total Cations	7.7	--	meq/L		200.7	06/01/17:206464	200.7	06/01/17:208120
Boron	0.1	0.1	mg/L		200.7	06/01/17:206464	200.7	06/01/17:208120
Copper	ND	10	ug/L		200.7	06/01/17:206464	200.7	06/01/17:208120
Iron	600	30	ug/L		200.7	06/01/17:206464	200.7	06/01/17:208120
Manganese	150	10	ug/L		200.7	06/01/17:206464	200.7	06/01/17:208120
Zinc	100	20	ug/L		200.7	06/01/17:206464	200.7	06/01/17:208120
SAR	2.3	--	--		200.7	06/01/17:206464	200.7	06/01/17:208120
Total Alkalinity (as CaCO3)	80	10	mg/L		2320B	06/01/17:206428	2320B	06/01/17:208095
Hydroxide as OH	ND	10	mg/L		2320B	06/01/17:206428	2320B	06/01/17:208095
Carbonate as CO3	ND	10	mg/L		2320B	06/01/17:206428	2320B	06/01/17:208095
Bicarbonate as HCO3	100	10	mg/L		2320B	06/01/17:206428	2320B	06/01/17:208095
Sulfate	141	0.5	mg/L		300.0	06/01/17:206519	300.0	06/01/17:208136
Chloride	115	2*	mg/L		300.0	06/01/17:206519	300.0	06/01/17:208136
Nitrate as NO3	1.8	0.5	mg/L		300.0	06/01/17:206519	300.0	06/01/17:208136
Nitrite as N	ND	0.2	mg/L		300.0	06/01/17:206519	300.0	06/01/17:208136
Nitrate + Nitrite as N	0.4	0.1	mg/L		300.0	06/01/17:206519	300.0	06/01/17:208136
Fluoride	0.2	0.1	mg/L		300.0	06/01/17:206519	300.0	06/01/17:208136
Total Anions	7.9	--	meq/L		2320B	06/01/17:206428	2320B	06/01/17:208095
pH (Field)	6.7	--	units		4500-H B	05/31/17:206413	4500HB	05/31/17:208249
Specific Conductance	830	1	umhos/cm		2510B	06/02/17:206486	2510B	06/02/17:208102
Total Dissolved Solids	570	20	mg/L		2540CE	06/01/17:206462	2540C	06/02/17:208061
MBAS Screen	Negative	0.1	mg/L		5540C	06/01/17:206610	5540C	06/01/17:208253
Aggressiveness Index	10.8	--	--		4500-H B	05/31/17:206413	4500HB	05/31/17:208249
Langelier Index (20°C)	-1.1	--	--		4500-H B	05/31/17:206413	4500HB	05/31/17:208249
Nitrate Nitrogen	0.4	--	mg/L		300.0	06/01/17:206519	300.0	06/01/17:208136
<b>Metals, Total</b>								
Aluminum	10	10	ug/L		200.8	06/01/17:206457	200.8	06/01/17:208127
Antimony	ND	1	ug/L		200.8	06/01/17:206457	200.8	06/01/17:208127
Arsenic	28	2	ug/L		200.8	06/01/17:206457	200.8	06/01/17:208127
Barium	30.4	0.2	ug/L		200.8	06/01/17:206457	200.8	06/01/17:208127



June 21, 2017  
Description : Old Fire Station Test Well

Lab ID : SP 1706534-001  
Customer ID : 2-14885

### Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
<b>Metals, Total</b>								
Beryllium	ND	1	ug/L		200.8	06/01/17:206457	200.8	06/01/17:208127
Cadmium	ND	0.2	ug/L		200.8	06/01/17:206457	200.8	06/01/17:208127
Chromium	4	1	ug/L		200.8	06/01/17:206457	200.8	06/01/17:208127
Lead	ND	0.5	ug/L		200.8	06/01/17:206457	200.8	06/01/17:208127
Mercury	ND	0.02	ug/L		245.1	06/02/17:206503	245.1	06/02/17:208134
Nickel	2	1	ug/L		200.8	06/01/17:206457	200.8	06/01/17:208127
Selenium	4	1	ug/L		200.8	06/01/17:206457	200.8	06/01/17:208127
Silver	ND	1	ug/L		200.8	06/01/17:206457	200.8	06/01/17:208127
Thallium	ND	0.2	ug/L		200.8	06/01/17:206457	200.8	06/01/17:208127
Vanadium	3	2	ug/L		200.8	06/01/17:206457	200.8	06/01/17:208127
<b>Wet Chemistry</b>								
Color	ND	5	units		2120B	06/01/17:206526	2120B	06/01/17:208140
Odor	ND	1	TON		2150B	05/31/17:206527	2150B	05/31/17:208141
Turbidity	3.0	0.1	NTU		2130B	06/01/17:206492	2130B	06/01/17:208106
Perchlorate	ND	2	ug/L		314.0	06/07/17:206777	314.0	06/08/17:208451

ND=Non-Detected. PQL=Practical Quantitation Limit. \* PQL adjusted for dilution.

June 21, 2017

Lab ID : SP 1706534-001  
Customer ID : 2-14885

**Vandenberg Village CSD**

3757 Constellation Road  
Lompoc, CA 93436

Sampled On : May 31, 2017-12:30  
Sampled By : Rick Hoffman  
Received On : May 31, 2017-16:00  
Matrix : Ground Water

Description : Old Fire Station Test Well  
Project : Old Fire Station Test Well - Title 22

**Sample Result - Organic**

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
<b>EPA 504.1</b>								
1,3-Dibromopropane <sup>‡</sup>	92.9	70-130	%		504	06/02/17:206506	504.1	06/05/17:208138
DBCP	ND	0.01	ug/L		504	06/02/17:206506	504.1	06/05/17:208138
EDB	ND	0.02	ug/L		504	06/02/17:206506	504.1	06/05/17:208138
<b>EPA 505</b>								
Tetrachloro-m-xylene <sup>‡</sup>	103	70-130	%		505	06/02/17:206406	505	06/03/17:208115
Alachlor	ND	0.2	ug/L		505	06/02/17:206406	505	06/03/17:208115
Aldrin	ND	0.075	ug/L		505	06/02/17:206406	505	06/03/17:208115
Chlordane	ND	0.1	ug/L		505	06/02/17:206406	505	06/03/17:208115
Dieldrin	ND	0.01	ug/L		505	06/02/17:206406	505	06/03/17:208115
Endrin	ND	0.01	ug/L		505	06/02/17:206406	505	06/03/17:208115
Heptachlor	ND	0.01	ug/L		505	06/02/17:206406	505	06/03/17:208115
Heptachlor Epoxide	ND	0.01	ug/L		505	06/02/17:206406	505	06/03/17:208115
Hexachlorobenzene	ND	0.01	ug/L		505	06/02/17:206406	505	06/03/17:208115
Hexachlorocyclopentadiene	ND	0.1	ug/L		505	06/02/17:206406	505	06/03/17:208115
Lindane (Gamma BHC)	ND	0.05	ug/L		505	06/02/17:206406	505	06/03/17:208115
Methoxychlor	ND	0.1	ug/L		505	06/02/17:206406	505	06/03/17:208115
Toxaphene	ND	0.5	ug/L		505	06/02/17:206406	505	06/03/17:208115
PCB 1016	ND	0.5	ug/L		505	06/02/17:206406	505	06/03/17:208115
PCB 1221	ND	0.5	ug/L		505	06/02/17:206406	505	06/03/17:208115
PCB 1232	ND	0.5	ug/L		505	06/02/17:206406	505	06/03/17:208115
PCB 1242	ND	0.5	ug/L		505	06/02/17:206406	505	06/03/17:208115
PCB 1248	ND	0.5	ug/L		505	06/02/17:206406	505	06/03/17:208115
PCB 1254	ND	0.5	ug/L		505	06/02/17:206406	505	06/03/17:208115
PCB 1260	ND	0.5	ug/L		505	06/02/17:206406	505	06/03/17:208115
<b>EPA 507</b>								
Triphenylphosphate <sup>‡</sup>	79.6	70-130	%		507	06/05/17:206565	507	06/07/17:208349
Alachlor	ND	1	ug/L		507	06/05/17:206565	507	06/07/17:208349
Atrazine	ND	0.5	ug/L		507	06/05/17:206565	507	06/07/17:208349
Bromacil	ND	2	ug/L		507	06/05/17:206565	507	06/07/17:208349
Butachlor	ND	0.38	ug/L		507	06/05/17:206565	507	06/07/17:208349
Diazinon	ND	2	ug/L		507	06/05/17:206565	507	06/07/17:208349
Dimethoate	ND	2	ug/L		507	06/05/17:206565	507	06/07/17:208349
Metolachlor	ND	1	ug/L		507	06/05/17:206565	507	06/07/17:208349
Metribuzin	ND	0.5	ug/L		507	06/05/17:206565	507	06/07/17:208349
Molinate	ND	2	ug/L		507	06/05/17:206565	507	06/07/17:208349

June 21, 2017  
Description : Old Fire Station Test Well

Lab ID : SP 1706534-001  
Customer ID : 2-14885

### Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
<b>EPA 507</b>								
Prometryne	ND	2	ug/L		507	06/05/17:206565	507	06/07/17:208349
Propachlor	ND	0.5	ug/L		507	06/05/17:206565	507	06/07/17:208349
Simazine	ND	0.5	ug/L		507	06/05/17:206565	507	06/07/17:208349
Thiobencarb	ND	1	ug/L		507	06/05/17:206565	507	06/07/17:208349
Cyanazine	ND	0.5	ug/L		507	06/05/17:206565	507	06/07/17:208349
<b>EPA 515</b>								
2,4-DCAA <sup>‡</sup>	88.9	70-130	%		515.3	06/06/17:206667	515.3	06/08/17:208448
Bentazon	ND	2	ug/L		515.3	06/06/17:206667	515.3	06/08/17:208448
2,4-D	ND	2	ug/L		515.3	06/06/17:206667	515.3	06/08/17:208448
Dalapon	ND	10	ug/L		515.3	06/06/17:206667	515.3	06/08/17:208448
Dicamba	ND	1	ug/L		515.3	06/06/17:206667	515.3	06/08/17:208448
Dinoseb	ND	1	ug/L		515.3	06/06/17:206667	515.3	06/08/17:208448
Pentachlorophenol	ND	0.2	ug/L		515.3	06/06/17:206667	515.3	06/08/17:208448
Picloram	ND	1	ug/L		515.3	06/06/17:206667	515.3	06/08/17:208448
2,4,5-TP (Silvex)	ND	1	ug/L		515.3	06/06/17:206667	515.3	06/08/17:208448
2,4,5-T	ND	1	ug/L		515.3	06/06/17:206667	515.3	06/08/17:208448
<b>EPA 524.2</b>								
4-Bromofluorobenzene <sup>‡</sup>	91.3	70-130	%		524.2	06/01/17:206661	524.2	06/01/17:208289
1,2-Dichlorobenzene-d4 <sup>‡</sup>	88.0	70-130	%		524.2	06/01/17:206661	524.2	06/01/17:208289
Benzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Bromobenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Bromochloromethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Bromodichloromethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Bromoform	1.1	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Bromomethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
n-Butylbenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
sec-Butylbenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
tert-Butylbenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Carbon Tetrachloride	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Chlorobenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Chloroethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Chloroform	0.8	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Chloromethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
2-Chlorotoluene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
4-Chlorotoluene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Dibromochloromethane	0.6	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Dibromomethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,2-Dichlorobenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289



June 21, 2017  
Description : Old Fire Station Test Well

Lab ID : SP 1706534-001  
Customer ID : 2-14885

### Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
<b>EPA 524.2</b>								
1,3-Dichlorobenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,4-Dichlorobenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Dichlorodifluoromethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,1-Dichloroethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,2-Dichloroethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,1-Dichloroethylene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
cis-1,2-Dichloroethylene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
trans-1,2-Dichloroethylene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,2-Dichloropropane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,3-Dichloropropane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Dichloromethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
2,2-Dichloropropane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,1-Dichloropropene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,3-Dichloropropene (Total)	ND	--	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
cis-1,3-Dichloropropene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
trans-1,3-Dichloropropene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Di-isopropyl ether (DIPE)	ND	3	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Ethyl Benzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Ethyl tert-Butyl Ether (ETBE)	ND	3	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Hexachlorobutadiene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Isopropylbenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
p-Isopropyltoluene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Methyl tert-Butyl Ether (MTBE)	ND	1	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Naphthalene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
n-Propylbenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Styrene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Tert-amyl-methyl Ether (TAME)	ND	3	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Tetrachloroethylene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Toluene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,2,3-Trichlorobenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,2,4-Trichlorobenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,1,1-Trichloroethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,1,2-Trichloroethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Trichloroethylene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Trichlorofluoromethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,1,2-Trichlorotrifluoroethane	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289

June 21, 2017  
Description : Old Fire Station Test Well

Lab ID : SP 1706534-001  
Customer ID : 2-14885

### Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
<b>EPA 524.2</b>								
1,2,4-Trimethylbenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
1,3,5-Trimethylbenzene	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Vinyl Chloride	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Xylenes (Total)	ND	--	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Xylenes m,p	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Xylenes o	ND	0.5	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
Total Trihalomethanes	2.5	--	ug/L		524.2	06/01/17:206661	524.2	06/01/17:208289
<b>EPA 531.1</b>								
Aldicarb	ND	3	ug/L		531.1	06/07/17:206733	531.1	06/08/17:208517
Aldicarb Sulfone	ND	2	ug/L		531.1	06/07/17:206733	531.1	06/08/17:208517
Aldicarb Sulfoxide	ND	3	ug/L		531.1	06/07/17:206733	531.1	06/08/17:208517
Carbaryl	ND	5	ug/L		531.1	06/07/17:206733	531.1	06/08/17:208517
Carbofuran	ND	5	ug/L		531.1	06/07/17:206733	531.1	06/08/17:208517
3-Hydroxycarbofuran	ND	3	ug/L		531.1	06/07/17:206733	531.1	06/08/17:208517
Methomyl	ND	2	ug/L		531.1	06/07/17:206733	531.1	06/08/17:208517
Oxamyl	ND	5	ug/L		531.1	06/07/17:206733	531.1	06/08/17:208517
<b>EPA 547</b>								
Glyphosate	ND	20	ug/L		547	06/02/17:206474	547	06/02/17:208073
<b>EPA 548.1</b>								
Endothall	ND	40	ug/L		548.1	06/06/17:206663	548.1	06/09/17:208479
<b>EPA 549</b>								
Diquat	ND	2	ug/L		549	06/06/17:206655	549.2	06/09/17:208531
<b>EPA 632</b>								
Diuron	ND	0.1	ug/L		632	06/02/17:205153	632	06/12/17:208630
<b>SRL 524M-TCP</b>								
1,2,3-Trichloropropane	ND	0.005	ug/L		524M-TCP	06/02/17:206561	524MTCP	06/02/17:208192

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. \* PQL adjusted for dilution.

June 21, 2017

Lab ID : SP 1706534-001  
Customer ID : 2-14885

**Vandenberg Village CSD**

3757 Constellation Road  
Lompoc, CA 93436

Sampled On : May 31, 2017-12:30  
Sampled By : Rick Hoffman  
Received On : May 31, 2017-16:00  
Matrix : Ground Water

Description : Old Fire Station Test Well  
Project : Old Fire Station Test Well - Title 22

**Sample Result - Radio**

Constituent	Result $\pm$ Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
<b>Radio Chemistry</b>								
Gross Alpha	1.48 $\pm$ 1.62	2.10	pCi/L		900.0	06/05/17-09:15 2P1706557	900.0	06/06/17-09:20 2A1708378
Ra 228	0.000 $\pm$ 0.261	0.192	pCi/L		Ra - 05	06/08/17-19:00 2P1706549	Ra - 05	06/13/17-19:30 2A1708747

ND=Non-Detected. PQL=Practical Quantitation Limit. \* 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.



June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Organic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Organic</b> 1,2-Dibromoethane(EDB)	504	06/02/17:206506SBL	Blank	ug/L		ND	<0.02	
			LCS	ug/L	0.2478	108 %	70-130	
			LCS	ug/L	0.2527	111 %	70-130	
			BS	ug/L	0.2556	105 %	70-130	
			BSD	ug/L	0.2522	108 %	70-130	
			BSRPD	ug/L	0.5920	1.7%	≤30	
			QMDL	ug/L	0.01840	60.7 %	60-140	
1,3-Dibromopropane	504	06/02/17:206506SBL	Blank	ug/L	0.5868	100 %	70-130	
			LCS	ug/L	0.5816	101 %	70-130	
			LCS	ug/L	0.5932	103 %	70-130	
			BS	ug/L	0.6000	104 %	70-130	
			BSD	ug/L	0.5920	97.4 %	70-130	
			BSRPD	ug/L	0.5920	7.7%	≤30	
			QMDL	ug/L	0.5437	101 %	70-130	
DBCP	504	06/02/17:206506SBL	Blank	ug/L		ND	<0.01	
			LCS	ug/L	0.2478	109 %	70-130	
			LCS	ug/L	0.2527	110 %	70-130	
			BS	ug/L	0.2556	102 %	70-130	
			BSD	ug/L	0.2522	102 %	70-130	
			BSRPD	ug/L	0.5920	1.6%	≤30	
			QMDL	ug/L	0.01840	102 %	60-140	
13DBP	504.1	06/05/17:208138SBL	CCV	ug/L	9.975	97.5 %	70-130	
			CCV	ug/L	7.481	108 %	70-130	
DBCP	504.1	06/05/17:208138SBL	CCV	ug/L	5.000	99.0 %	70-130	
			CCV	ug/L	2.000	102 %	70-130	
EDB	504.1	06/05/17:208138SBL	CCV	ug/L	5.000	103 %	70-130	
			CCV	ug/L	2.000	84.5 %	70-130	
Alachlor	505	06/02/17:206406SBL (SP 1706517-001)	Blank	ug/L		ND	<0.2	
			LCS	ug/L	5.898	99.0 %	84-135	
			MS	ug/L	6.011	115 %	73-137	
			MSD	ug/L	5.843	131 %	73-137	
	505	06/03/17:208115SBL	MSRPD	ug/L	1.170	10.3%	≤30	
			CCV	ug/L	150.0	97.7 %	70-130	
			CCV	ug/L	100.0	112 %	70-130	
Aldrin	505	06/02/17:206406SBL (SP 1706517-001)	Blank	ug/L		ND	<0.075	
			LCS	ug/L	0.5898	102 %	69-134	
			MS	ug/L	0.6011	97.6 %	21-166	
			MSD	ug/L	0.5843	99.8 %	21-166	
	505	06/03/17:208115SBL	MSRPD	ug/L	1.170	0.6%	≤30	
			CCV	ug/L	15.00	103 %	70-130	
			CCV	ug/L	10.00	99.2 %	70-130	
Chlordane	505	06/02/17:206406SBL	Blank	ug/L		ND	<0.1	
Dieldrin	505	06/02/17:206406SBL (SP 1706517-001)	Blank	ug/L		ND	<0.01	
			LCS	ug/L	0.5898	87.7 %	82-131	
			MS	ug/L	0.6011	86.7 %	66-141	
			MSD	ug/L	0.5843	91.5 %	66-141	
	505	06/03/17:208115SBL	MSRPD	ug/L	1.170	2.6%	≤30	
			CCV	ug/L	15.00	92.1 %	70-130	
			CCV	ug/L	10.00	87.1 %	70-130	
Endrin	505	06/02/17:206406SBL (SP 1706517-001)	Blank	ug/L		ND	<0.01	
			LCS	ug/L	0.5898	83.3 %	83-120	
			MS	ug/L	0.6011	86.1 %	58-134	
			MSD	ug/L	0.5843	92.5 %	58-134	
	505	06/03/17:208115SBL	MSRPD	ug/L	1.170	4.3%	≤30	
			CCV	ug/L	15.00	94.7 %	70-130	

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Organic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Organic</b>								
Endrin	505	06/03/17:208115SBL	CCV	ug/L	10.00	82.7 %	70-130	
Heptachlor	505	06/02/17:206406SBL (SP 1706517-001)	Blank	ug/L		ND	<0.01	
			LCS	ug/L	0.5898	94.3 %	71-131	
			MS	ug/L	0.6011	90.9 %	73-135	
			MSD	ug/L	0.5843	93.3 %	73-135	
			MSRPD	ug/L	1.170	0.2%	≤30	
Heptachlor Epoxide	505	06/03/17:208115SBL (SP 1706517-001)	CCV	ug/L	15.00	98.0 %	70-130	
			CCV	ug/L	10.00	93.4 %	70-130	
			Blank	ug/L		ND	<0.01	
			LCS	ug/L	0.5898	96.2 %	75-129	
			MS	ug/L	0.6011	92.0 %	65-134	
Hexachlorobenzene	505	06/02/17:206406SBL (SP 1706517-001)	MSD	ug/L	0.5843	96.4 %	65-134	
			MSRPD	ug/L	1.170	1.9%	≤30	
			CCV	ug/L	15.00	96.3 %	70-130	
			CCV	ug/L	10.00	94.6 %	70-130	
			Blank	ug/L		ND	<0.01	
Hexachlorocyclopentadiene	505	06/02/17:206406SBL (SP 1706517-001)	LCS	ug/L	0.5898	98.6 %	69-134	
			MS	ug/L	0.6011	96.1 %	71-136	
			MSD	ug/L	0.5843	98.6 %	71-136	
			MSRPD	ug/L	1.170	0.3%	≤30	
			CCV	ug/L	15.00	100 %	70-130	
Lindane	505	06/03/17:208115SBL (SP 1706517-001)	CCV	ug/L	10.00	97.2 %	70-130	
			Blank	ug/L		ND	<0.1	
			LCS	ug/L	0.5898	99.4 %	48-144	
			MS	ug/L	0.6011	96.8 %	60-152	
			MSD	ug/L	0.5843	99.4 %	60-152	
Methoxychlor	505	06/02/17:206406SBL (SP 1706517-001)	MSRPD	ug/L	1.170	0.2%	≤30	
			CCV	ug/L	15.00	104 %	70-130	
			CCV	ug/L	10.00	98.6 %	70-130	
			Blank	ug/L		ND	<0.05	
			LCS	ug/L	0.5898	122 %	76-131	
PCB 1016/1242 - 1	505	06/02/17:206406SBL (SP 1706517-001)	MS	ug/L	0.6011	119 %	72-132	
			MSD	ug/L	0.5843	127 %	72-132	
			MSRPD	ug/L	1.170	3.1%	≤30	
			CCV	ug/L	15.00	124 %	70-130	
			CCV	ug/L	10.00	121 %	70-130	
PCB 1221 - 1	505	06/02/17:206406SBL (SP 1706517-001)	Blank	ug/L		ND	<0.1	
			LCS	ug/L	2.949	88.6 %	73-137	
			MS	ug/L	3.006	90.4 %	59-145	
			MSD	ug/L	2.921	97.2 %	59-145	
			MSRPD	ug/L	1.170	4.4%	≤30	
PCB 1232 - 1	505	06/03/17:208115SBL	CCV	ug/L	75.00	99.3 %	70-130	
PCB 1242	505	06/03/17:208115SBL	CCV	ug/L	50.00	88.9 %	70-130	
PCB 1248 - 1	505	06/02/17:206406SBL	Blank	ug/L		ND	<0.5	
PCB 1254 - 1	505	06/02/17:206406SBL	Blank	ug/L		ND	<0.5	
PCB 1260 - 1	505	06/02/17:206406SBL	Blank	ug/L		ND	<0.5	
Tetrachloro-m-xylene	505	06/02/17:206406SBL (SP 1706517-001)	Blank	ug/L	1.157	95.5 %	70-130	
			LCS	ug/L	1.181	99.2 %	70-130	
			MS	ug/L	1.203	97.8 %	N/A	
			MSD	ug/L	1.170	100 %	N/A	

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

### Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Organic</b> Tetrachloro-m-xylene	505	06/02/17:206406SBL	MSRPD	ug/L	1.170	0.1%	≤30.0	
	505	06/03/17:208115SBL	CCV CCV	ug/L ug/L	30.03 20.02	104 % 95.9 %	70-130 70-130	
Toxaphene	505	06/02/17:206406SBL	Blank	ug/L		ND	<0.5	
Alachlor	507	06/05/17:206565caa	Blank	ug/L		ND	<1	
			LCS	ug/L	2.500	93.0 %	70-130	
			BS	ug/L	2.500	78.9 %	47-147	
			BSD	ug/L	2.500	81.4 %	47-147	
			BSRPD	ug/L	12.50	0.063	≤1	
	507	06/07/17:208349SG	CCV	ug/L	1000	95.2 %	80-120	
			CCV	ug/L	500.0	105 %	80-120	
Atrazine	507	06/05/17:206565caa	Blank	ug/L		ND	<0.5	
			LCS	ug/L	2.500	75.7 %	70-130	
			BS	ug/L	2.500	65.4 %	52-154	
			BSD	ug/L	2.500	76.4 %	52-154	
			BSRPD	ug/L	12.50	0.27	≤0.5	
	507	06/07/17:208349SG	CCV	ug/L	1000	85.6 %	80-120	
			CCV	ug/L	500.0	91.5 %	80-120	
Bromacil	507	06/05/17:206565caa	Blank	ug/L		ND	<2	
			LCS	ug/L	2.500	84.1 %	70-130	
			BS	ug/L	2.500	47.0 %	38-170	
			BSD	ug/L	2.500	84.0 %	38-170	
			BSRPD	ug/L	12.50	0.92	≤2	
	507	06/07/17:208349SG	CCV	ug/L	1000	94.4 %	80-120	
			CCV	ug/L	500.0	102 %	80-120	
Butachlor	507	06/05/17:206565caa	Blank	ug/L		ND	<0.38	
			LCS	ug/L	2.500	88.2 %	70-130	
			BS	ug/L	2.500	63.9 %	37-150	
			BSD	ug/L	2.500	75.3 %	37-150	
			BSRPD	ug/L	12.50	0.28	≤0.38	
	507	06/07/17:208349SG	CCV	ug/L	1000	86.9 %	80-120	
			CCV	ug/L	500.0	82.2 %	80-120	
Cyanazine	507	06/05/17:206565caa	Blank	ug/L		ND	<0.5	
			LCS	ug/L	2.500	83.1 %	70-130	
			RS	ug/L	2.500	69.8 %	41-152	
			BSD	ug/L	2.500	71.6 %	41-152	
			BSRPD	ug/L	12.50	0.045	≤0.5	
	507	06/07/17:208349SG	CCV	ug/L	1000	89.0 %	80-120	
			CCV	ug/L	500.0	106 %	80-120	
Diazinon	507	06/05/17:206565caa	Blank	ug/L		ND	<2	
			LCS	ug/L	2.500	108 %	70-130	
			BS	ug/L	2.500	98.0 %	56-128	
			BSD	ug/L	2.500	104 %	56-128	
			BSRPD	ug/L	12.50	0.15	≤2	
	507	06/07/17:208349SG	CCV	ug/L	1000	104 %	80-120	
			CCV	ug/L	500.0	95.2 %	80-120	
Dimethoate	507	06/05/17:206565caa	Blank	ug/L		ND	<2	
			LCS	ug/L	2.500	86.9 %	70-130	
			BS	ug/L	2.500	72.9 %	49-168	
			BSD	ug/L	2.500	76.3 %	49-168	
			BSRPD	ug/L	12.50	0.084	≤2	
	507	06/07/17:208349SG	CCV	ug/L	1000	108 %	80-120	
			CCV	ug/L	500.0	109 %	80-120	
EPN/Triphenylphosphate	507	06/05/17:206565caa	Blank	ug/L	12.50	76.3 %	70-130	



June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Organic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Organic</b> EPN/Triphenylphosphate	507	06/05/17:206565caa	LCS	ug/L	12.50	89.3 %	70-130	
			BS	ug/L	12.50	73.3 %	70-130	
			BSD	ug/L	12.50	87.5 %	70-130	
			BSRPD	ug/L	12.50	17.6%	≤30	
Metolachlor	507	06/05/17:206565caa	Blank	ug/L		ND	<1	
			LCS	ug/L	2.500	76.5 %	70-130	
			BS	ug/L	2.500	66.5 %	45-154	
			BSD	ug/L	2.500	78.4 %	45-154	
			BSRPD	ug/L	12.50	0.30	≤1	
	507	06/07/17:208349SG	CCV	ug/L	1000	90.5 %	80-120	
Metribuzin	507	06/05/17:206565caa	Blank	ug/L		ND	<0.5	410
			LCS	ug/L	2.500	85.8 %	70-130	
			BS	ug/L	2.500	75.5 %	30-169	
			BSD	ug/L	2.500	110 %	30-169	
			BSRPD	ug/L	12.50	0.85	≤0.5	
	507	06/07/17:208349SG	CCV	ug/L	1000	88.0 %	80-120	
Molinate	507	06/05/17:206565caa	Blank	ug/L		ND	<2	
			LCS	ug/L	2.500	95.4 %	70-130	
			BS	ug/L	2.500	83.5 %	19-191	
			BSD	ug/L	2.500	93.9 %	19-191	
			BSRPD	ug/L	12.50	0.26	≤2	
	507	06/07/17:208349SG	CCV	ug/L	1000	80.3 %	80-120	
Prometryne	507	06/05/17:206565caa	Blank	ug/L		ND	<2	
			LCS	ug/L	2.500	80.3 %	70-130	
			BS	ug/L	2.500	73.0 %	44-152	
			BSD	ug/L	2.500	77.8 %	44-152	
			BSRPD	ug/L	12.50	0.12	≤2	
	507	06/07/17:208349SG	CCV	ug/L	1000	91.5 %	80-120	
Propachlor	507	06/05/17:206565caa	Blank	ug/L		ND	<0.5	
			LCS	ug/L	2.500	99.4 %	70-130	
			BS	ug/L	2.500	85.9 %	36-179	
			BSD	ug/L	2.500	88.9 %	36-179	
			BSRPD	ug/L	12.50	0.075	≤0.5	
	507	06/07/17:208349SG	CCV	ug/L	1000	86.1 %	80-120	
Simazine	507	06/05/17:206565caa	Blank	ug/L		ND	<0.5	
			LCS	ug/L	2.500	84.7 %	70-130	
			BS	ug/L	2.500	69.9 %	49-167	
			BSD	ug/L	2.500	77.5 %	49-167	
			BSRPD	ug/L	12.50	0.19	≤0.5	
	507	06/07/17:208349SG	CCV	ug/L	1000	85.2 %	80-120	
Thiobencarb	507	06/05/17:206565caa	Blank	ug/L		ND	<1	
			LCS	ug/L	2.500	91.0 %	70-130	
			BS	ug/L	2.500	79.4 %	50-148	
			BSD	ug/L	2.500	83.3 %	50-148	
			BSRPD	ug/L	12.50	0.097	≤1	
	507	06/07/17:208349SG	CCV	ug/L	1000	94.7 %	80-120	
Triphenylphosphate	507	06/07/17:208349SG	CCV	ug/L	500.0	101 %	80-120	

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Organic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Organic</b>								
Triphenylphosphate	507	06/07/17:208349SG	CCV	ug/L	2500	112 %	80-120	
2,4,5-T	515.3	06/08/17:208448SG	CCV	ug/L	40.00	103 %	70-130	
			CCV	ug/L	80.00	113 %	70-130	
2,4,5-TP (Silvex)	515.3	06/06/17:206667SG  (SP 1706517-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	4.000	83.2 %	70-130	
			MS	ug/L	4.000	87.2 %	70-130	
			MSD	ug/L	4.000	88.6 %	70-130	
			MSRPD	ug/L	20.00	0.057	≤1	
	515.3	06/08/17:208448SG	CCV	ug/L	40.00	87.5 %	70-130	
			CCV	ug/L	80.00	102 %	70-130	
2,4,5-Trichlorophenoxyacetic A	515.3	06/06/17:206667SG  (SP 1706517-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	4.000	113 %	70-130	
			MS	ug/L	4.000	109 %	70-130	
			MSD	ug/L	4.000	111 %	70-130	
			MSRPD	ug/L	20.00	0.082	≤1	
2,4-D	515.3	06/06/17:206667SG  (SP 1706517-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	8.000	98.7 %	70-130	
			MS	ug/L	8.000	97.4 %	70-130	
			MSD	ug/L	8.000	94.1 %	70-130	
			MSRPD	ug/L	20.00	0.27	≤2	
	515.3	06/08/17:208448SG	CCV	ug/L	80.00	91.7 %	70-130	
			CCV	ug/L	160.0	100 %	70-130	
2,4-DCAA	515.3	06/06/17:206667SG  (SP 1706517-001)	Blank	ug/L	20.00	87.1 %	70-130	
			LCS	ug/L	20.00	120 %	70-130	
			MS	ug/L	20.00	102 %	N/A	
			MSD	ug/L	20.00	117 %	N/A	
			MSRPD	ug/L	20.00	13.6%	≤30.	
	515.3	06/08/17:208448SG	CCV	ug/L	200.0	121 %	70-130	
			CCV	ug/L	400.0	104 %	70-130	
Bentazon	515.3	06/06/17:206667SG  (SP 1706517-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	8.000	117 %	70-130	
			MS	ug/L	8.000	109 %	70-130	
			MSD	ug/L	8.000	97.1 %	70-130	
			MSRPD	ug/L	20.00	0.95	≤2	
	515.3	06/08/17:208448SG	CCV	ug/L	80.00	95.2 %	70-130	
			CCV	ug/L	160.0	116 %	70-130	
Dalapon	515.3	06/06/17:206667SG  (SP 1706517-001)	Blank	ug/L		2.3	10	
			LCS	ug/L	52.00	130 %	70-130	
			MS	ug/L	52.00	98.7 %	70-130	
			MSD	ug/L	52.00	91.2 %	70-130	
			MSRPD	ug/L	20.00	7.6%	≤30.0	
	515.3	06/08/17:208448SG	CCV	ug/L	520.0	121 %	70-130	
			CCV	ug/L	1040	88.8 %	70-130	
Dicamba	515.3	06/06/17:206667SG  (SP 1706517-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	4.000	95.7 %	70-130	
			MS	ug/L	4.000	88.9 %	70-130	
			MSD	ug/L	4.000	99.4 %	70-130	
			MSRPD	ug/L	20.00	0.42	≤1	
	515.3	06/08/17:208448SG	CCV	ug/L	40.00	105 %	70-130	
			CCV	ug/L	80.00	93.6 %	70-130	
Dinoseb	515.3	06/06/17:206667SG  (SP 1706517-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	8.000	96.7 %	70-130	
			MS	ug/L	8.000	90.5 %	70-130	
			MSD	ug/L	8.000	96.1 %	70-130	

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Organic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Organic</b> Dinoseb	515.3	06/06/17:206667SG	MSRPD	ug/L	20.00	6.0%	≤30.0	
	515.3	06/08/17:208448SG	CCV CCV	ug/L ug/L	80.00 160.0	90.8 % 102 %	70-130 70-130	
Pentachlorophenol	515.3	06/06/17:206667SG  (SP 1706517-001)	Blank	ug/L		ND	<0.2	
			LCS	ug/L	4.000	105 %	70-130	
			MS	ug/L	4.000	94.5 %	70-130	
			MSD	ug/L	4.000	101 %	70-130	
	515.3	06/08/17:208448SG	MSRPD	ug/L	20.00	6.4%	≤30.0	
			CCV CCV	ug/L ug/L	40.00 80.00	102 % 100 %	70-130 70-130	
Picloram	515.3	06/06/17:206667SG  (SP 1706517-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	4.000	113 %	70-130	
			MS	ug/L	4.000	101 %	70-130	
			MSD	ug/L	4.000	98.0 %	70-130	
	515.3	06/08/17:208448SG	MSRPD	ug/L	20.00	0.11	<1	
			CCV CCV	ug/L ug/L	40.00 80.00	105 % 105 %	70-130 70-130	
1,1,1,2-Tetrachloroethane	524.2	06/01/17:206661VRG  (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	115 %	12-178	
			MSD	ug/L	10.00	127 %	12-178	
			MSRPD	ug/L	10.00	9.8%	≤39	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	119 %	70-130	
			CCV	ug/L	10.00	105 %	70-130	
1,1,1-Trichloroethane(TCA)	524.2	06/01/17:206661VRG  (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	135 %	9-176	
			MSD	ug/L	10.00	144 %	9-176	
			MSRPD	ug/L	10.00	6.3%	≤33	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	112 %	70-130	
			CCV	ug/L	10.00	138 %	70-130	
1,1,2,2-Tetrachloroethane	524.2	06/01/17:206661VRG  (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	119 %	23-180	
			MSD	ug/L	10.00	136 %	23-180	
			MSRPD	ug/L	10.00	13.7%	≤34	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	138 %	70-130	360
			CCV	ug/L	10.00	107 %	70-130	
1,1,2-Trichloroethane	524.2	06/01/17:206661VRG  (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	110 %	25-173	
			MSD	ug/L	10.00	116 %	25-173	
			MSRPD	ug/L	10.00	5.5%	≤29	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	117 %	70-130	
			CCV	ug/L	10.00	107 %	70-130	
1,1-Dichloroethane	524.2	06/01/17:206661VRG  (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	114 %	15-161	
			MSD	ug/L	10.00	122 %	15-161	
			MSRPD	ug/L	10.00	6.1%	≤36	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	107 %	70-130	
			CCV	ug/L	10.00	107 %	70-130	
1,1-Dichloroethylene	524.2	06/01/17:206661VRG  (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	82.8 %	0-162	
			MSD	ug/L	10.00	86.6 %	0-162	
			MSRPD	ug/L	10.00	4.4%	≤33	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	70.4 %	70-130	
			CCV	ug/L	10.00	70.4 %	70-130	
1,1-Dichloropropene	524.2	06/01/17:206661VRG  (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	115 %	0-171	
			MSD	ug/L	10.00	124 %	0-171	
			MSRPD	ug/L	10.00	7.7%	≤31	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	93.9 %	70-130	
			CCV	ug/L	10.00	93.9 %	70-130	
1,2,3-Trichlorobenzene	524.2	06/01/17:206661VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	100 %	14-181	



June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Organic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Organic</b>								
1,2,3-Trichlorobenzene	524.2	(SP 1706515-001)	MSD	ug/L	10.00	140 %	14-181	
			MSRPD	ug/L	10.00	33.1%	≤34	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	137 %	70-130	360
1,2,4-Trichlorobenzene	524.2	06/01/17:206661VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	88.9 %	10-180	
		(SP 1706515-001)	MSD	ug/L	10.00	122 %	10-180	
			MSRPD	ug/L	10.00	31.3%	≤32	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	114 %	70-130	
1,2,4-Trimethylbenzene	524.2	06/01/17:206661VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	117 %	2-192	
		(SP 1706515-001)	MSD	ug/L	10.00	140 %	2-192	
			MSRPD	ug/L	10.00	17.8%	≤39	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	129 %	70-130	
1,2-Dichlorobenzene	524.2	06/01/17:206661VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	117 %	13-191	
		(SP 1706515-001)	MSD	ug/L	10.00	143 %	13-191	
			MSRPD	ug/L	10.00	19.7%	≤35	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	131 %	70-130	360
1,2-Dichlorobenzene-d4	524.2	06/01/17:206661VRG	Blank	ug/L	10.00	95.9 %	70-130	
			MS	ug/L	10.00	103 %	70-130	
		(SP 1706515-001)	MSD	ug/L	10.00	121 %	70-130	
			MSRPD	ug/L	10.00	15.3%	≤20	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	121 %	70-130	
1,2-Dichloroethane (EDC)	524.2	06/01/17:206661VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	112 %	18-162	
		(SP 1706515-001)	MSD	ug/L	10.00	122 %	18-162	
			MSRPD	ug/L	10.00	9.1%	≤33	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	117 %	70-130	
1,2-Dichloropropane	524.2	06/01/17:206661VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	114 %	10-163	
		(SP 1706515-001)	MSD	ug/L	10.00	120 %	10-163	
			MSRPD	ug/L	10.00	5.9%	≤34	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	112 %	70-130	
1,3,5-Trimethylbenzene	524.2	06/01/17:206661VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	123 %	0-210	
		(SP 1706515-001)	MSD	ug/L	10.00	142 %	0-210	
			MSRPD	ug/L	10.00	14.3%	≤40	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	121 %	70-130	
1,3-Dichlorobenzene	524.2	06/01/17:206661VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	120 %	17-182	
		(SP 1706515-001)	MSD	ug/L	10.00	137 %	17-182	
			MSRPD	ug/L	10.00	13.3%	≤39	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	126 %	70-130	
1,3-Dichloropropane	524.2	06/01/17:206661VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	111 %	0-178	
		(SP 1706515-001)	MSD	ug/L	10.00	120 %	0-178	
			MSRPD	ug/L	10.00	7.6%	≤29	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	121 %	70-130	
1,4-Dichlorobenzene	524.2	06/01/17:206661VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	127 %	19-183	
		(SP 1706515-001)	MSD	ug/L	10.00	146 %	19-183	
			MSRPD	ug/L	10.00	14.3%	<37	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	139 %	70-130	360
2,2-Dichloropropane	524.2	06/01/17:206661VRG	Blank	ug/L		ND	<0.5	

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Organic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Organic</b> 2,2-Dichloropropane	524.2	(SP 1706515-001)	MS	ug/L	10.00	129 %	0-288	
			MSD	ug/L	10.00	138 %	0-288	
			MSRPD	ug/L	10.00	6.9%	<33	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	108 %	70-130	
2-Chlorotoluene	524.2	(SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	123 %	17-180	
			MSD	ug/L	10.00	141 %	17-180	
			MSRPD	ug/L	10.00	13.2%	<38	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	123 %	70-130	
4-Bromofluorobenzene	524.2	(SP 1706515-001)	Blank	ug/L	10.00	96.8 %	70-130	
			MS	ug/L	10.00	112 %	70-130	
			MSD	ug/L	10.00	115 %	70-130	
			MSRPD	ug/L	10.00	2.5%	<30	
4-Bromofluorobenzene (BFB)	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	117 %	70-130	
4-Chlorotoluene	524.2	(SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	126 %	11-177	
			MSD	ug/L	10.00	146 %	11-177	
			MSRPD	ug/L	10.00	14.7%	<41	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	129 %	70-130	
Benzene	524.2	(SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	109 %	12-158	
			MSD	ug/L	10.00	117 %	12-158	
			MSRPD	ug/L	10.00	7.0%	<36	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	102 %	70-130	
Bromobenzene	524.2	(SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	113 %	23-177	
			MSD	ug/L	10.00	127 %	23-177	
			MSRPD	ug/L	10.00	11.5%	<40	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	119 %	70-130	
Bromochloromethane	524.2	(SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	105 %	4-186	
			MSD	ug/L	10.00	115 %	4-186	
			MSRPD	ug/L	10.00	8.6%	<30	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	111 %	70-130	
Bromodichloromethane	524.2	(SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	131 %	11-164	
			MSD	ug/L	10.00	139 %	11-164	
			MSRPD	ug/L	10.00	6.3%	<34	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	129 %	70-130	
Bromoform	524.2	(SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	116 %	0-235	
			MSD	ug/L	10.00	128 %	0-235	
			MSRPD	ug/L	10.00	9.7%	<39	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	113 %	70-130	
Bromomethane (Methyl Bromide)	524.2	(SP 1706515-001)	Blank	ug/L		ND	<0.5	435
			MS	ug/L	10.00	222 %	0-196	435
			MSD	ug/L	10.00	246 %	0-196	
			MSRPD	ug/L	10.00	10.3%	<40	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	135 %	70-130	360
Carbon Tetrachloride	524.2	(SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	132 %	5-175	
			MSD	ug/L	10.00	139 %	5-175	
			MSRPD	ug/L	10.00	5.2%	<32	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	105 %	70-130	

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Organic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Organic</b> Chlorobenzene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank MS MSD MSRPD	ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00	ND 111 % 120 % 7.6%	<0.5 14-175 14-175 ≤35	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	110 %	70-130	
Chloroethane (Ethyl Chloride)	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank MS MSD MSRPD	ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00	ND 258 % 290 % 11.6%	<0.5 0-184 0-184 ≤40	435 435
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	148 %	70-130	360
Chloroform	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank MS MSD MSRPD	ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00	ND 130 % 139 % 7.0%	<0.5 15-163 15-163 ≤36	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	124 %	70-130	
Chloromethane(Methyl Chloride)	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank MS MSD MSRPD	ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00	ND 181 % 207 % 13.3%	<0.5 0-224 0-224 ≤39	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	112 %	70-130	
cis-1,2-Dichloroethylene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank MS MSD MSRPD	ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00	ND 113 % 117 % 3.2%	<0.5 16-172 16-172 ≤34	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	106 %	70-130	
cis-1,3-Dichloropropene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank MS MSD MSRPD	ug/L ug/L ug/L ug/L	9.550 9.550 10.00 10.00	ND 118 % 121 % 2.1%	<0.5 5-158 5-158 ≤38	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	111 %	70-130	
Dibromochloromethane	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank MS MSD MSRPD	ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00	ND 108 % 113 % 4.9%	<0.5 1-180 1-180 ≤34	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	109 %	70-130	
Dibromomethane	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank MS MSD MSRPD	ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00	ND 106 % 114 % 6.9%	<0.5 11-168 11-168 ≤28	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	116 %	70-130	
Dichlorodifluoromethane	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank MS MSD MSRPD	ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00	ND 152 % 177 % 15.2%	<0.5 0-334 0-334 ≤39	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	101 %	70-130	
Dichloromethane	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank MS MSD MSRPD	ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00	ND 103 % 109 % 5.9%	<0.5 20-157 20-157 ≤36	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	122 %	70-130	
Ethyl tert-Butyl Ether	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank MS MSD MSRPD	ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00	ND 123 % 130 % 0.69	<3 11-165 11-165 ≤3	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	122 %	70-130	



June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Organic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Organic</b> Ethylbenzene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	112 %	9-174	
			MSD	ug/L	10.00	123 %	9-174	
			MSRPD	ug/L	10.00	9.8%	≤37	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	103 %	70-130	
Freon-11	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	229 %	0-232	
			MSD	ug/L	10.00	247 %	0-232	
			MSRPD	ug/L	10.00	7.5%	≤35	435
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	115 %	70-130	
Hexachlorobutadiene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	114 %	14-200	
			MSD	ug/L	10.00	144 %	14-200	
			MSRPD	ug/L	10.00	23.3%	≤40	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	115 %	70-130	
Isopropyl Ether	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<3	
			MS	ug/L	10.00	136 %	8-165	
			MSD	ug/L	10.00	144 %	8-165	
			MSRPD	ug/L	10.00	0.76	≤3	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	133 %	70-130	360
Isopropylbenzene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	111 %	4-159	
			MSD	ug/L	10.00	126 %	4-159	
			MSRPD	ug/L	10.00	12.8%	≤37	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	102 %	70-130	
Methyl tert-Butyl Ether	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	110 %	70-130	
Methyl tert-Butyl Ether (MTBE)	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<1.0	
			MS	ug/L	10.00	105 %	11-168	
			MSD	ug/L	10.00	117 %	11-168	
			MSRPD	ug/L	10.00	10.7%	≤29	
Methylene Chloride	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	106 %	70-130	
Naphthalene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	85.9 %	0-189	
			MSD	ug/L	10.00	122 %	0-189	
			MSRPD	ug/L	10.00	34.7%	≤32	435
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	121 %	70-130	
n-Butylbenzene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	125 %	4-186	
			MSD	ug/L	10.00	154 %	4-186	
			MSRPD	ug/L	10.00	20.8%	≤37	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	120 %	70-130	
n-Propylbenzene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	125 %	0-174	
			MSD	ug/L	10.00	143 %	0-174	
			MSRPD	ug/L	10.00	13.5%	≤37	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	116 %	70-130	
p-Isopropyltoluene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	123 %	0-193	
			MSD	ug/L	10.00	147 %	0-193	
			MSRPD	ug/L	10.00	18.1%	≤40	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	117 %	70-130	
sec-Butylbenzene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	126 %	0-177	
			MSD	ug/L	10.00	150 %	0-177	
			MSRPD	ug/L	10.00	17.3%	≤40	

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Organic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Organic</b>								
sec-Butylbenzene	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	117 %	70-130	
Styrene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	109 %	0-198	
			MSD	ug/L	10.00	124 %	0-198	
			MSRPD	ug/L	10.00	12.6%	≤37	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	124 %	70-130	
TAME	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<3	
			MS	ug/L	10.00	120 %	15-162	
			MSD	ug/L	10.00	131 %	15-162	
			MSRPD	ug/L	10.00	1.1	≤3	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	124 %	70-130	
tert-Butylbenzene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	118 %	9-179	
			MSD	ug/L	10.00	138 %	9-179	
			MSRPD	ug/L	10.00	15.5%	≤38	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	109 %	30-130	
Tetrachloroethylene (PCE)	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	113 %	14-186	
			MSD	ug/L	10.00	121 %	14-186	
			MSRPD	ug/L	10.00	6.5%	≤33	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	97.0 %	70-130	
Toluene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	110 %	3-174	
			MSD	ug/L	10.00	118 %	3-174	
			MSRPD	ug/L	10.00	6.9%	≤37	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	102 %	30-130	
trans-1,2-Dichloroethylene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	99.2 %	5-165	
			MSD	ug/L	10.00	105 %	5-165	
			MSRPD	ug/L	10.00	5.2%	≤40	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	89.0 %	70-130	
trans-1,3-Dichloropropene	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	9.200	115 %	0-169	
			MSD	ug/L	9.200	123 %	0-169	
			MSRPD	ug/L	10.00	7.4%	≤31	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	114 %	70-130	
Trichloroethylene (TCE)	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	116 %	11-167	
			MSD	ug/L	10.00	121 %	11-167	
			MSRPD	ug/L	10.00	4.6%	≤35	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	102 %	70-130	
Trichlorofluoromethane F-11	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	96.0 %	70-130	
Trichlorotrifluoroethane F-113	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	111 %	0-183	
			MSD	ug/L	10.00	115 %	0-183	
			MSRPD	ug/L	10.00	3.5%	≤33	
	524.2	06/01/17:208289VRG	CCV	ug/L	5.000	165 %	70-130	360
Vinyl Chloride	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	226 %	0-208	435
			MSD	ug/L	10.00	246 %	0-208	435
			MSRPD	ug/L	10.00	8.3%	≤40	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	114 %	30-130	
Xylenes m,p	524.2	06/01/17:206661VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	20.00	120 %	0-193	

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Organic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Organic</b> Xylenes m,p	524.2	(SP 1706515-001)	MSD MSRPD	ug/L ug/L	20.00 10.00	132 % 9.6%	0-193 ≤37	
	524.2	06/01/17:208289VRG	CCV	ug/L	20.00	114 %	70-130	
Xylenes o	524.2	06/01/17:206661VRG (SP 1706515-001)	Blank MS MSD MSRPD	ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00	ND 113 % 127 % 11.5%	<0.5 0-188 0-188 ≤36	
	524.2	06/01/17:208289VRG	CCV	ug/L	10.00	112 %	70-130	
	524MTCP	06/02/17:208192VRG	CCV CCV CCV	ng/L ng/L ng/L	20.00 20.00 20.00	91.0 % 99.3 % 96.6 %	80-120 80-120 80-120	
	524M-TCP	06/02/17:206561VRG (SP 1706534-001)	Blank LCS MS MSD MSRPD	ng/L ng/L ng/L ng/L ng/L	20.00 20.00 20.00 20.00 20.00	ND 95.1 % 101 % 106 % 0.94	<5 80-120 80-120 80-120 ≤5	
3-Hydroxycarbofuran	531.1	06/07/17:206733SG (CH 1773783-001)	Blank LCS MS MSD MSRPD	ug/L ug/L ug/L ug/L ug/L	20.00 20.00 20.00 20.00 20.00	ND 103 % 102 % 95.8 % 6.1%	<3 80-120 65-135 65-135 ≤16.8	
	531.1	06/08/17:208517SG	CCV CCV	ug/L ug/L	20.00 10.00	104 % 101 %	80-120 80-120	
	531.1	06/07/17:206733SG (CH 1773783-001)	Blank LCS MS MSD MSRPD	ug/L ug/L ug/L ug/L ug/L	20.00 20.00 20.00 20.00 20.00	ND 99.0 % 97.8 % 100 % 2.7%	<3 80-120 65-135 65-135 ≤11.2	
	531.1	06/08/17:208517SG	CCV CCV	ug/L ug/L	20.00 10.00	112 % 80.6 %	80-120 80-120	
Aldicarb Sulfone	531.1	06/08/17:208517SG	CCV CCV	ug/L ug/L	20.00 10.00	95.9 % 95.5 %	80-120 80-120	
Aldicarb Sulfone/Sulfoxide	531.1	06/07/17:206733SG (CH 1773783-001) (CH 1773783-001)	Blank Blank LCS LCS MS MS MSD MSD MSRPD MSRPD	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00	ND ND 93.0 % 95.2 % 81.2 % 86.9 % 83.4 % 77.2 % 4.1 % 5.0%	<3 <2 80-120 80-120 65-135 65-135 65-135 65-135 ≤13.8 ≤7.28	
	531.1	06/08/17:208517SG	CCV CCV	ug/L ug/L	20.00 10.00	87.6 % 86.4 %	80-120 80-120	
	531.1	06/08/17:208517SG	CCV CCV	ug/L ug/L	20.00 10.00	101 % 97.1 %	80-120 80-120	
	531.1	06/07/17:206733SG (CH 1773783-001)	Blank LCS MS MSD MSRPD	ug/L ug/L ug/L ug/L ug/L	20.00 20.00 20.00 20.00 20.00	ND 99.2 % 99.9 % 103 % 0.55	<5 80-120 65-135 65-135 ≤5	
	531.1	06/07/17:206733SG	Blank LCS MS	ug/L ug/L ug/L	20.00 20.00 20.00	ND 100 % 96.2 %	<5 80-120 65-135	
	531.1	06/07/17:206733SG	Blank LCS MS	ug/L ug/L ug/L	20.00 20.00 20.00	ND 100 % 96.2 %	<5 80-120 65-135	
	531.1	06/07/17:206733SG	Blank LCS MS	ug/L ug/L ug/L	20.00 20.00 20.00	ND 100 % 96.2 %	<5 80-120 65-135	
	531.1	06/07/17:206733SG	Blank LCS MS	ug/L ug/L ug/L	20.00 20.00 20.00	ND 100 % 96.2 %	<5 80-120 65-135	
	531.1	06/07/17:206733SG	Blank LCS MS	ug/L ug/L ug/L	20.00 20.00 20.00	ND 100 % 96.2 %	<5 80-120 65-135	
	531.1	06/07/17:206733SG	Blank LCS MS	ug/L ug/L ug/L	20.00 20.00 20.00	ND 100 % 96.2 %	<5 80-120 65-135	



June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

### Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Carbofuran	531.1	(CH 1773783-001)	MSD MSRPD	ug/L ug/L	20.00 20.00	98.0 % 0.37	65-135 ≤5	
	531.1	06/08/17:208517SG	CCV CCV	ug/L ug/L	20.00 10.00	116 % 97.9 %	80-120 80-120	
Methomyl	531.1	06/07/17:206733SG  (CH 1773783-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	20.00	98.9 %	80-120	
			MS	ug/L	20.00	96.4 %	65-135	
			MSD MSRPD	ug/L ug/L	20.00 20.00	97.0 % 0.6%	65-135 ≤53.1	
	531.1	06/08/17:208517SG	CCV CCV	ug/L ug/L	20.00 10.00	101 % 99.5 %	80-120 80-120	
	Oxamyl	531.1	06/07/17:206733SG  (CH 1773783-001)	Blank	ug/L		ND	<5
LCS				ug/L	20.00	96.8 %	80-120	
MS				ug/L	20.00	90.5 %	65-135	
MSD MSRPD				ug/L ug/L	20.00 20.00	90.6 % 0.030	65-135 ≤5	
	531.1	06/08/17:208517SG	CCV CCV	ug/L ug/L	20.00 10.00	99.6 % 99.8 %	80-120 80-120	
	Glyphosate	547	06/02/17:206474SG  (VI 1742124-001)	Blank	ug/L		ND	<20
LCS				ug/L	200.0	95.2 %	71-129	
MS				ug/L	200.0	99.4 %	56-139	
MSD MSRPD				ug/L ug/L	200.0 200.0	104 % 4.6%	56-139 ≤15	
	547	06/02/17:208073SG	CCV CCV	ug/L ug/L	100.0 200.0	104 % 101 %	80-120 80-120	
	Endothall	548.1	06/06/17:206663SG  (SP 1706534-001)	Blank	ug/L		ND	<40
LCS				ug/L	133.3	49.6 %	30-96	
MS				ug/L	133.3	34.9 %	15-87	
MSD MSRPD				ug/L ug/L	133.3 133.3	33.2 % 2.3	15-87 ≤40	
	548.1	06/09/17:208479SG	CCV CCV	ug/L ug/L	1000 2500	95.1 % 107 %	70-130 70-130	
	Diquat Dibromide	549	06/06/17:206655SG  (VI 1742333-001)	Blank	ug/L		ND	<2
LCS				ug/L	20.00	56.0 %	34-114	
MS				ug/L	20.00	53.5 %	0-86	
MSD MSRPD				ug/L ug/L	20.00 20.00	48.4 % 10.1%	0-86 ≤13	
	549.2	06/09/17:208531SG	CCV CCV	ug/L ug/L	500.0 1000	115 % 95.0 %	80-120 80-120	
	Diuron	632	06/02/17:205153caa	Blank	ug/L		ND	<0.1
LCS				ug/L	1.000	70.1 %	53-105	
BS				ug/L	1.000	48.9 %	53-105	
BSD BSRPD				ug/L ug/L	1.000 1.000	58.4 % 17.8%	53-105 ≤51	
	632	06/12/17:208630SG	CCV CCV	ug/L ug/L	1000 500.0	98.8 % 96.3 %	90-110 90-110	
	<b>Definition</b> CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration 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.							

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
Customer : 2-14885

### Quality Control - Organic

Definition	
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS 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.
Explanation	
360	: CCV above Acceptance Range (AR). Samples which were non detect for this analyte were accepted.
410	: Relative Percent Difference (RPD) not within Maximum Allowable Value (MAV). Data was accepted based on the LCS or CCV recovery.
435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
436	: Blank Spike (BS) not within Acceptance Range (AR). Data was accepted based on the LCS or CCV recovery.

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Inorganic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Metals</b> Boron	200.7	(SP 1706534-001)	MS	mg/L	4.000	110 %	75-125	
			MSD	mg/L	4.000	100 %	75-125	
			MSRPD	mg/L	4000	9.1%	≤20.0	
	200.7	06/01/17:208120AC	CCV	ppm	5.000	101 %	90-110	
Calcium	200.7	(SP 1706534-001)	CCB	ppm		0.013	0.1	
			CCV	ppm	5.000	101 %	90-110	
			CCB	ppm		0.018	0.1	
	200.7	06/01/17:208120AC	MS	mg/L	12.00	95.6 %	75-125	
Copper	200.7	(SP 1706534-001)	MSD	mg/L	12.00	87.4 %	75-125	
			MSRPD	mg/L	4000	1.4%	≤20.0	
			CCV	ppm	25.00	102 %	90-110	
	200.7	06/01/17:208120AC	CCB	ppm		-0.008	1	
Iron	200.7	(SP 1706534-001)	CCV	ppm	25.00	102 %	90-110	
			CCB	ppm		-0.005	1	
			CCV	ppm	25.00	102 %	90-110	
	200.7	06/01/17:208120AC	CCB	ppm		-0.005	1	
Magnesium	200.7	(SP 1706534-001)	MS	ug/L	800.0	110 %	75-125	
			MSD	ug/L	800.0	99.8 %	75-125	
			MSRPD	ug/L	4000	9.7%	≤20.0	
	200.7	06/01/17:208120AC	CCV	ppm	1.000	100 %	90-110	
Manganese	200.7	(SP 1706534-001)	CCB	ppm		0.0004	0.01	
			CCV	ppm	1.000	101 %	90-110	
			CCB	ppm		0.0002	0.01	
	200.7	06/01/17:208120AC	MS	ug/L	4000	107 %	75-125	
Potassium	200.7	(SP 1706534-001)	MSD	ug/L	4000	99.4 %	75-125	
			MSRPD	ug/L	4000	6.2%	≤20.0	
			CCV	ppm	5.000	102 %	90-110	
	200.7	06/01/17:208120AC	CCB	ppm		0.0023	0.03	
Sodium	200.7	(SP 1706534-001)	CCV	ppm	5.000	103 %	90-110	
			CCB	ppm		0.0053	0.03	
			MS	mg/L	12.00	106 %	75-125	
	200.7	06/01/17:208120AC	MSD	mg/L	12.00	95.9 %	75-125	
Sulfur	200.7	(SP 1706534-001)	MSRPD	mg/L	4000	4.1%	≤20.0	
			CCV	ppm	25.00	99.4 %	90-110	
			CCB	ppm		0.0003	1	
	200.7	06/01/17:208120AC	CCV	ppm	25.00	100 %	90-110	
Zinc	200.7	(SP 1706534-001)	CCB	ppm		0.002	1	
			MS	ug/L	800.0	110 %	75-125	
			MSD	ug/L	800.0	99.5 %	75-125	
	200.7	06/01/17:208120AC	MSRPD	ug/L	4000	8.8%	≤20.0	
Chloride	200.7	(SP 1706534-001)	CCV	ppm	1.000	101 %	90-110	
			CCB	ppm		0.00009	0.01	
			CCV	ppm	1.000	102 %	90-110	
	200.7	06/01/17:208120AC	CCB	ppm		0.00009	0.01	
Nitrate	200.7	(SP 1706534-001)	MS	mg/L	12.00	112 %	75-125	
			MSD	mg/L	12.00	101 %	75-125	
			MSRPD	mg/L	4000	7.7%	≤20.0	
	200.7	06/01/17:208120AC	CCV	ppm	25.00	98.7 %	90-110	
Ammonia	200.7	(SP 1706534-001)	CCB	ppm		0.09	1	
			CCV	ppm	25.00	99.8 %	90-110	
			CCB	ppm		0.08	1	
	200.7	06/01/17:208120AC	MS	mg/L	12.00	101 %	75-125	
Nitrite	200.7	(SP 1706534-001)	MSD	mg/L	12.00	91.1 %	75-125	
			MSRPD	mg/L	4000	1.3%	≤20.0	
			CCV	ppm	25.00	99.2 %	90-110	
	200.7	06/01/17:208120AC	CCB	ppm		0.44	1	
Total Hardness	200.7	(SP 1706534-001)	CCV	ppm	25.00	100 %	90-110	
			CCB	ppm				
			CCV	ppm	25.00			
	200.7	06/01/17:208120AC	CCB	ppm				



June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Inorganic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Metals</b>								
Sodium	200.7	06/01/17:208120AC	CCB	ppm		0.41	1	
Zinc	200.7	(SP 1706534-001)	MS	ug/L	800.0	114 %	75-125	
			MSD	ug/L	800.0	104 %	75-125	
			MSRPD	ug/L	4000	8.2%	≤20.0	
	200.7	06/01/17:208120AC	CCV	ppm	1.000	104 %	90-110	
Aluminum	200.8	(SP 1706534-001)	CCB	ppm		0.0011	0.02	
			CCV	ppm	1.000	104 %	90-110	
			CCB	ppm		0.0018	0.02	
	200.8	06/01/17:208127AC	MS	ug/L	5.000	93.8 %	75-125	435
	200.8	(SP 1706534-001)	MSD	ug/L	5.000	139 %	75-125	
			MSRPD	ug/L	5.000	2.2	≤10	
			ICV	ppb	50.00	105 %	90-110	
Antimony	200.8	(SP 1706534-001)	ICB	ppb		0.06	10	
			CCV	ppb	50.00	106 %	90-110	
			CCB	ppb		0.1	10	
	200.8	06/01/17:208127AC	MS	ug/L	5.000	109 %	75-125	
	200.8	(SP 1706534-001)	MSD	ug/L	5.000	121 %	75-125	
			MSRPD	ug/L	5.000	10.1%	≤20	
			ICV	ppb	50.00	98.1 %	90-110	
	200.8	06/01/17:208127AC	ICB	ppb		0.12	1	
Arsenic	200.8	(SP 1706534-001)	CCV	ppb	50.00	92.6 %	90-110	
			CCB	ppb		0.05	1	
			MS	ug/L	5.000	131 %	<¼	
	200.8	06/01/17:208127AC	MSD	ug/L	5.000	158 %	<¼	
	200.8	(SP 1706534-001)	MSRPD	ug/L	5.000	3.9%	≤20	
			ICV	ppb	50.00	100 %	90-110	
			ICB	ppb		0.04	2	
	200.8	06/01/17:208127AC	CCV	ppb	50.00	93.3 %	90-110	
Barium	200.8	(SP 1706534-001)	CCB	ppb		0.02	2	
			MS	ug/L	5.000	101 %	75-125	
			MSD	ug/L	5.000	148 %	<¼	
	200.8	06/01/17:208127AC	MSRPD	ug/L	5.000	6.3%	≤20	
	200.8	(SP 1706534-001)	ICV	ppb	50.00	97.7 %	90-110	
			ICB	ppb		0.008	0.2	
			CCV	ppb	50.00	95.5 %	90-110	
	200.8	06/01/17:208127AC	CCB	ppb		0.013	0.2	
Beryllium	200.8	(SP 1706534-001)	MS	ug/L	5.000	97.2 %	75-125	
			MSD	ug/L	5.000	107 %	75-125	
			MSRPD	ug/L	5.000	9.8%	≤20	
	200.8	06/01/17:208127AC	ICV	ppb	50.00	95.8 %	90-110	
	200.8	(SP 1706534-001)	ICB	ppb		0.018	0.2	
			CCV	ppb	50.00	101 %	90-110	
			CCB	ppb		0.001	0.2	
	200.8	06/01/17:208127AC	MS	ug/L	5.000	105 %	75-125	
Cadmium	200.8	(SP 1706534-001)	MSD	ug/L	5.000	119 %	75-125	
			MSRPD	ug/L	5.000	11.9%	≤20	
			ICV	ppb	50.00	101 %	90-110	
	200.8	06/01/17:208127AC	ICB	ppb		0.002	0.2	
	200.8	(SP 1706534-001)	CCV	ppb	50.00	95.9 %	90-110	
			CCB	ppb		0.001	0.2	
			MS	ug/L	5.000	118 %	75-125	
	200.8	06/01/17:208127AC	MSD	ug/L	5.000	125 %	75-125	
Chromium	200.8	(SP 1706534-001)	MSRPD	ug/L	5.000	3.0%	≤20	
			ICV	ppb	50.00	98.0 %	90-110	

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Inorganic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Metals</b>								
Chromium	200.8	06/01/17:208127AC	ICB	ppb		0.003	1	
			CCV	ppb	50.00	92.8 %	90-110	
			CCB	ppb		0.004	1	
Lead	200.8	(SP 1706534-001)	MS	ug/L	5.000	108 %	75-125	
			MSD	ug/L	5.000	119 %	75-125	
			MSRPD	ug/L	5.000	9.0%	≤20	
	200.8	06/01/17:208127AC	ICV	ppb	50.00	95.5 %	90-110	
			ICB	ppb		0.005	0.5	
			CCV	ppb	50.00	91.8 %	90-110	
Nickel	200.8	(SP 1706534-001)	CCB	ppb		0.003	0.5	
			MS	ug/L	5.000	106 %	75-125	
			MSD	ug/L	5.000	117 %	75-125	
	200.8	06/01/17:208127AC	MSRPD	ug/L	5.000	7.2%	≤20	
			ICV	ppb	50.00	97.9 %	90-110	
			ICB	ppb		-0.01	1	
Selenium	200.8	(SP 1706534-001)	CCV	ppb	50.00	92.5 %	90-110	
			CCB	ppb		-0.007	1	
			MS	ug/L	5.000	122 %	75-125	435
	200.8	06/01/17:208127AC	MSD	ug/L	5.000	133 %	75-125	
			MSRPD	ug/L	5.000	5.5%	≤20	
			ICV	ppb	50.00	102 %	90-110	
Silver	200.8	(SP 1706534-001)	ICB	ppb		0.21	1	
			CCV	ppb	50.00	96.6 %	90-110	
			CCB	ppb		0.1	1	
	200.8	06/01/17:208127AC	MS	ug/L	5.000	91.2 %	75-125	
			MSD	ug/L	5.000	104 %	75-125	
			MSRPD	ug/L	5.000	0.62	≤1	
Thallium	200.8	(SP 1706534-001)	ICV	ppb	50.00	100 %	90-110	
			ICB	ppb		0.0080	0.25	
			CCV	ppb	50.00	105 %	90-110	
	200.8	06/01/17:208127AC	CCB	ppb		0.0070	0.25	
			MS	ug/L	5.000	111 %	75-125	
			MSD	ug/L	5.000	122 %	75-125	
Vanadium	200.8	(SP 1706534-001)	MSRPD	ug/L	5.000	10.0%	≤20	
			ICV	ppb	50.00	98.3 %	90-110	
			ICB	ppb		0.002	0.2	
	200.8	06/01/17:208127AC	CCV	ppb	50.00	93.9 %	90-110	
			CCB	ppb		0.002	0.2	
			MS	ug/L	5.000	114 %	75-125	
Mercury	245.1	(SP 1706534-001)	MSD	ug/L	5.000	123 %	75-125	
			MSRPD	ug/L	5.000	0.44	≤2	
			ICV	ppb	50.00	97.8 %	90-110	
			ICB	ppb		0.01	2	
	245.1	06/02/17:206503AC	CCV	ppb	50.00	92.3 %	90-110	
			CCB	ppb		0.01	2	
			MS	ug/L	0.2000	93.6 %	85-115	
			MSD	ug/L	0.2000	93.6 %	75-125	
	245.1	(STK1736042-002)	MSRPD	ug/L	0.2000	92.0 %	75-125	
			MSRPD	ug/L	0.2000	1.6%	≤20	
			CCV	ppt	200.0	97.2 %	90-110	
			CCB	ppt		1.8	20	
	245.1	06/02/17:208134AC	CCV	ppt	200.0	99.3 %	90-110	
			CCB	ppt		-0.8	20	

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

**Quality Control - Inorganic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Wet Chem</b>								
Color	2120B	(SP 1706544-001)	Dup	units		0.0	5	
	2120B	06/01/17:208140jmg	CCB CCV	units units	10.00	0.00 100 %	5.0 90-110	
Turbidity	2130B	(SP 1706534-001)	Dup	NTU		0.7%	20	
	2130B	06/01/17:208106jba	CCV	NTU	10.00	109 %	90-110	
			CCB	NTU		0.090	0.1	
			CCV	NTU	10.00	109 %	90-110	
			CCB	NTU		0.093	0.1	
Odor	2150B	(CC 1781917-001)	Dup	TON		0.0	1	
Alkalinity (as CaCO <sub>3</sub> )	2320B	(STK1736579-001)	Dup	mg/L		8.1	10	
	2320B	06/01/17:208095AMB	CCV	mg/L	234.9	95.5 %	90-110	
			CCV	mg/L	234.9	102 %	90-110	
Bicarbonate	2320B	(STK1736579-001)	Dup	mg/L		19.6%	10	440
Carbonate	2320B	(STK1736579-001)	Dup	mg/L		0.0	10	
Hydroxide	2320B	(STK1736579-001)	Dup	mg/L		0.0	10	
Conductivity	2510B	06/02/17:208102JMG	ICB	umhos/cm		0.07	1	
			ICV	umhos/cm	999.0	100 %	95-105	
			CCV	umhos/cm	999.0	101 %	95-105	
E. C.	2510B	06/02/17:206486jmg	Blank	umhos/cm		ND	<1	
		(CC 1781949-001)	Dup	umhos/cm		0.0%	5	
Total Dissolved Solids (TFR)	2540CE	06/01/17:206462CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	997.8	99.4 %	90-110	
		(STK1736604-001)	Dup	mg/L		1.9%	5	
		(STK1736603-002)	Dup	mg/L		2.2%	5	
Chloride	300.0	06/01/17:206519MCA  (VI 1742026-004)  (STK1735679-007)	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	108 %	90-110	
			MS	mg/L	50.00	104 %	85-121	
			MSD	mg/L	50.00	105 %	85-121	
			MSRPD	mg/L	10.00	1.1%	<19	
			MS	mg/L	50.00	99.2 %	85-121	
			MSD	mg/L	50.00	100 %	85-121	
			MSRPD	mg/L	10.00	1.0%	<19	
	300.0	06/01/17:208136MCA	ICB	mg/L		0.00	1	
			ICV	mg/L	25.00	106 %	90-110	
			CCB	mg/L		0.12	1	
			CCV	mg/L	25.00	106 %	90-110	
Fluoride	300.0	06/01/17:206519MCA  (VI 1742026-004)  (STK1735679-007)	Blank	mg/L		ND	<0.1	
			LCS	mg/L	2.500	109 %	90-110	
			MS	mg/L	5.000	105 %	87-120	
			MSD	mg/L	5.000	106 %	87-120	
			MSRPD	mg/L	10.00	1.4%	≤16	
			MS	mg/L	5.000	104 %	87-120	
			MSD	mg/L	5.000	105 %	87-120	
			MSRPD	mg/L	10.00	1.1%	≤16	
	300.0	06/01/17:208136MCA	ICB	mg/L		0.000	0.1	
			ICV	mg/L	2.500	108 %	90-110	
Nitrate	300.0	06/01/17:206519MCA  (VI 1742026-004)	CCB	mg/L		0.000	0.1	
			CCV	mg/L	2.500	108 %	90-110	
			Blank	mg/L		ND	<0.5	
			LCS	mg/L	20.00	110 %	90-110	
			MS	mg/L	40.00	106 %	85-119	
			MSD	mg/L	40.00	107 %	85-119	
			MSRPD	mg/L	10.00	1.2%	≤19	
			MS	mg/L	40.00	105 %	85-119	



June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

### Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem Nitrate	300.0	(STK1735679-007)	MSD	mg/L	40.00	106 %	85-119	
			MSRPD	mg/L	10.00	1.1%	≤19	
	300.0	06/01/17:208136MCA	ICB	mg/L		0.000	0.5	
			ICV	mg/L	20.00	108 %	90-110	
			CCB	mg/L		0.000	0.5	
			CCV	mg/L	20.00	108 %	90-110	
Nitrite	300.0	06/01/17:206519MCA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	15.00	108 %	90-110	
			MS	mg/L	30.00	104 %	74-126	
		(VI 1742026-004)	MSD	mg/L	30.00	106 %	74-126	
			MSRPD	mg/L	10.00	1.3%	≤20	
			MS	mg/L	30.00	104 %	74-126	
		(STK1735679-007)	MSD	mg/L	30.00	106 %	74-126	
			MSRPD	mg/L	10.00	1.2%	≤20	
	300.0	06/01/17:208136MCA	ICB	mg/L		0.000	0.5	
			ICV	mg/L	15.00	107 %	90-110	
		CCB	mg/L		0.000	0.5		
		CCV	mg/L	15.00	108 %	90-110		
Sulfate	300.0	06/01/17:206519MCA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	109 %	90-110	
			MS	mg/L	100.0	105 %	82-124	
		(VI 1742026-004)	MSD	mg/L	100.0	106 %	82-124	
			MSRPD	mg/L	10.00	1.4%	≤23	
			MS	mg/L	100.0	100 %	82-124	
		(STK1735679-007)	MSD	mg/L	100.0	101 %	82-124	
			MSRPD	mg/L	10.00	1.1%	≤23	
	300.0	06/01/17:208136MCA	ICB	mg/L		0.095	0.5	
			ICV	mg/L	50.00	107 %	90-110	
		CCB	mg/L		0.266	0.5		
		CCV	mg/L	50.00	108 %	90-110		
Perchlorate	314.0	06/07/17:206777MCA	Blank	ug/L		ND	<2	
			LCS	ug/L	25.00	99.9 %	85-115	
			MS	ug/L	25.00	88.2 %	80-120	
		(SP 1706534-001)	MSD	ug/L	25.00	94.1 %	80-120	
			MSRPD	ug/L	25.00	6.5%	≤15	
	314.0	06/08/17:208451MCA	CCB	ppb		0.00	2.0	
		CCV	ppb	10.00	99.1 %	85-115		
		CCB	ppb		0.00	2.0		
		CCV	ppb	10.00	99.7 %	85-115		
MBAS	5540C	06/01/17:208253AMM	CCB	mg/L		0.000	0.1	
			CCV	mg/L	10.00	100 %	99-101	
MBAS Screen	5540C		MS	mg/L	10.00	100 %	90-110	
		(CC 1781918-002)	MSD	mg/L	10.00	100 %	90-110	
			MSRPD	mg/L	10.00	0.0	≤0.1	
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 analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								

June 21, 2017  
Vandenberg Village CSD

Lab ID : SP 1706534  
Customer : 2-14885

### Quality Control - Inorganic

Definition	
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.
<1/4	: 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.

June 21, 2017  
**Vandenberg Village CSD**

Lab ID : SP 1706534  
 Customer : 2-14885

### Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Radio</b>								
Alpha	900.0	06/06/17:208378aat	CCV CCB	cpm cpm	8391	39.2 % 0.0600	35-47 0.17	
Gross Alpha	900.0	06/05/17:206557aat  (SP 1706610-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 108.2 108.2 108.2 108.2	 0.32 84.4 % 63.6 % 73.9 % 14.9%	 3 75-125 60-140 60-140 ≤30	
Beta	Ra - 05	06/13/17:208747emv	CCV CCB	cpm cpm	8763	88.2 % 0.4600	84-94 0.51	
Ra 228	Ra - 05	06/08/17:206549emv	RgBlk LRS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 37.65 37.65 37.65 37.65	 0.11 87.7 % 96.9 % 103 % 5.7%	 3 65-108 75-125 75-125 ≤25	
<b>Definition</b> 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. RgBlk : Method Reagent Blank - Prepared to correct for any reagent contributions to sample result. LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery. LRS : Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations. 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 analyte. The recoveries are an indication of how that sample matrix affects analyte recovery. BS : Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery. BSD : Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery. MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis. BSRPD : BS/BSD Relative Percent Difference (RPD) - The BS 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.								



June 20, 2017

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc, CA 93436

**Subject: Subcontract Analysis for FGL Lab No. SP 1706534**

Enclosed please find results for the following sample(s) which were received by FGL.

- Sub Organic-EPA 525

Please note that this analysis was performed by Eurofins Eaton Analytical, Inc. (ELAP Certified Laboratory)

Thank you for using FGL Environmental.

Sincerely,

**Cindy Aguirre**



Digitally signed by Cindy Aguirre  
Title: Customer Service Rep  
Date: 2017-06-20

Enclosure

**Corporate Offices & Laboratory**

853 Corporation Street  
Santa Paula, CA 93060  
TEL: (805)392-2000  
Env FAX: (805)525-4172 / Ag FAX: (805)392-2063  
CA ELAP Certification No. 1573

**Office & Laboratory**

2500 Stagecoach Road  
Stockton, CA 95215  
TEL: (209)942-0182  
FAX: (209)942-0423  
CA ELAP Certification No. 1563

**Office & Laboratory**

563 E. Lindo Avenue  
Chico, CA 95926  
TEL: (530)343-5818  
FAX: (530)343-3807  
CA ELAP Certification No. 2670

**Office & Laboratory**

3442 Empresa Drive, Suite D  
San Luis Obispo, CA 93401  
TEL: (805)783-2940  
FAX: (805)783-2912  
CA ELAP Certification No. 2775

**Office & Laboratory**

9415 W. Goshen Avenue  
Visalia, CA 93291  
TEL: (559)734-9473  
FAX: (559)734-8435  
CA ELAP Certification No. 2810

750 Royal Oaks Drive, Suite 100  
Monrovia, California 91016-3629  
Tel: (626) 386-1100  
Fax: (866) 988-3757  
1 800 566 LABS (1 800 566 5227)

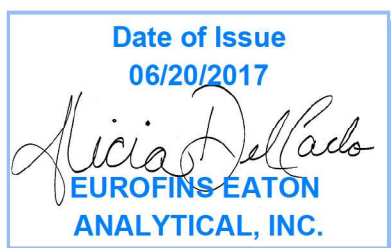


AT-1807

## Laboratory Report

for

FGL Environmental, Inc.  
853 Corporation Street  
Santa Paula, CA 93060  
Attention: Cindy Aguirre  
Fax: 805-525-4172



MP6E: Alicia Del Carlo  
Project Manager

Report: 663939  
Project: DRINKING  
Group: ORGANICS - EPA 500's

\* Accredited in accordance with TNi 2009 and ISO/IEC 17025:2005.

\* Laboratory certifies that the test results meet all **TNi 2009 and ISO/IEC 17025:2005** requirements unless noted under the individual analysis.

\* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.

\* Test results relate only to the sample(s) tested.

## STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	Mississippi	Certified
Arizona	AZ0778	Montana	Cert 0035
Arkansas	Certified	Nebraska	Certified
California-Monrovia-ELAP	2813	Nevada	CA00006-2016
California-Colton- ELAP	2812	New Hampshire *	2959
California-Folsom- ELAP	2820	New Jersey *	CA 008
California-Fresno- ELAP	2966	New Mexico	Certified
Colorado	Certified	New York *	11320
Connecticut	PH-0107	North Carolina	06701
Delaware	CA 006	North Dakota	R-009
Florida *	E871024	Oregon (Primary AB) *	ORELAP 4034
Georgia	947	Pennsylvania *	68-565
Guam	16-003r	Puerto Rico	Certified
Hawaii	Certified	Rhode Island	LAO00326
Idaho	Certified	South Carolina	87016
Illinois *	200033	South Dakota	Certified
Indiana	C-CA-01	Tennessee	TN02839
Kansas *	E-10268	Texas *	T104704230-15-9
Kentucky	90107	Utah *	CA000062016-10
Louisiana *	LA16003	Vermont	VT0114
Maine	CA0006	Virginia *	460260
Maryland	224	Washington	C838
Commonwealth of Northern Marianas Is.	MP0004	Wyoming	Certified
Massachusetts	M-CA006	EPA Region 5	Certified
Michigan	9906	Los Angeles County Sanitation Districts	10264

\* NELAP/TNI Recognized Accreditation Bodies



ISO 17025 Accredited Method List

The tests listed below are accredited and meet the requirements of ISO 17025 as verified by the ANSI-ASQ National Accreditation Board/ANAB.

Refer to Certificate and scope of accreditation (AT 1807) found at: <http://www.eatonanalytical.com>

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environmental (Drinking Water)	Environmental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 II		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
Bicarbonate Alkalinity as HCO3	SM 2320B	x	x	x
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D	x		x
Chlorine -Total/Free/ Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cryptosporidium	EPA 1623	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DCBP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Giardia	EPA 1623	x		x
Glyphosate	EPA 547	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environmental (Drinking Water)	Environmental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	CDC Legionella	x		x
Mercury	EPA 245.1	x	x	x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
NDMA	EPA 521	x		x
NDMA	TQ In house method based on EPA 521 (2425)	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphate	SM 4500P E			x
Ortho Phosphorous	SM 4500P E	x		
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Semi-VOC	EPA 625		x	x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-S <sup>2-</sup> D		x	
Sulfite	SM 4500-SO <sup>3</sup> B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure SM 9223	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2/EPA 524.3	x		x
VOC	EPA 624		x	x
VOC	EPA SW 846 8260	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x

## Acknowledgement of Samples Received

Addr: **FGL Environmental, Inc.**  
853 Corporation Street  
Santa Paula, CA 93060

Client ID: FGL  
Folder #: 663939  
Project: DRINKING (SP 1706534)  
Sample Group: ORGANICS - EPA 500's

Attn: Cindy Aguirre  
Phone: 805-392-2012

Project Manager: Alicia Del Carlo  
Phone: 559-797-1931  
Sampler: Rick Hoffman

The following samples were received from you on **June 02, 2017 at 1226**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical, Inc..

Sample #	Sample ID	Sample Date
<u>201706020341</u>	TRAVEL BLANK - Hold	05/31/2017 0000
	@525_FGL_SHORT TBC	
<u>201706020342</u>	Old Fire Station Test Well	05/31/2017 1230
	@525_FGL_SHORT	

### Test Description

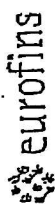
@525\_FGL\_SHORT -- Semivolatiles by GCMS

@525\_FGL\_SHORT TBC -- Semivolatiles by GCMS

99 39324

Page 5 of 13 pages





Eaton Analytical

# INTERNAL CHAIN OF CUSTODY RECORD

EEA Folder Number:

663939

SAMPLE TEMP RECEIVED:

56.9A

IR Gun ID =

56.9A

(Observation =

1.8

°C) (Corr.Factor

-0.2

°C) (Final =

1.6

°C)

SAMPLES REC'D DAY OF COLLECTION?

TYPE OF ICE: Real

Synthetic

No Ice

CONDITION OF ICE: Frozen

Partially Frozen

Thawed

N/A

METHOD OF SHIPMENT: Pick-Up / Walk-In / FedEx / UPS / DHL / Area Fast / Top Line / Other:

ON TRAC

DCS

Compliance Acceptance Criteria:

1) Chemistry: >0, ≤ 6°C, not frozen (NELAP) (If received after 24 hrs of sample collection)

2) Microbiology, Distribution: < 10°C, not frozen (can be ≥ 10°C if received on ice the same day as sample collection, within 8 hours)

3) Microbiology, Surface Water: < 10°C (If received after 2 hours of sample collection)

If out of temperature range for both Chemistry and Microbiology samples and temperature does not confirm, then measure the temperature of each quadrant and record each temperature of the quadrants

4) UCMR3: 524.3: (Observation =

°C) (Corr.Factor =

°C) (Final =

°C)

°C) (Corr.Factor =

°C) (Final =

°C)

522: (Observation =

°C) (Corr.Factor =

°C) (Final =

°C)

°C) (Corr.Factor =

°C) (Final =

°C)

LT2: Giardia/Cryptosporidium: < 20 °C, not frozen (received after 8 hours of sample collection)

E. Coli: < 10°C, not frozen (If received after 2 hours of sample collection)

Giardia/Crypto: (Observation =

°C) (Corr.Factor =

°C) (Final =

°C)

°C) (Corr.Factor =

°C) (Final =

°C)

E. Coli: (Observation =

°C) (Corr.Factor =

°C) (Final =

°C)

°C) (Corr.Factor =

°C) (Final =

°C)

6) Dioxin (1613 or 2,3,7,8 TCDD): must be between 0-4 °C, not frozen (If received after 24 hrs of sample collection)

Notes: If sampler are out of temperature range, let the ASMR know. ASMR will determine whether to proceed with analysis or not.

SIGNATURE

PRINT NAME

COMPANY TITLE

Eurofins Eaton Analytical

DATE

TIME

1224



800-322-5555 www.gso.com

**Ship From**

FRUIT GROWERS LABORATORY, INC.  
BRANDON QUELL  
853 CORPORATION ST  
SANTA PAULA, CA 93060

**Tracking #: 536344675**

**PDS**



**Ship To**

EUROFINS EATON ANALYTICAL  
ATTN: MONICA VANNATTA  
750 ROYAL OAKS DRIVE STE#100  
MONROVIA, CA 91016

**NWK**  
**MONROVIA**

**E**

**COD: \$0.00**

**Weight: 36 lb(s)**

**Reference:**

SP1706534-6/1/17-BQ

**Delivery Instructions:**

**D91006A**



**Signature Type: REQUIRED**

67616510

Print Date: 6/1/2017 4:18 PM

**LABEL INSTRUCTIONS:**

**Do not copy or reprint this label for additional shipments - each package must have a unique barcode.**

Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer. Securely attach this label to your package, do not cover the barcode.

Tel: (626) 386-1100  
Fax: (626) 988-3757  
1 800 566 LABS (1 800 566 5227)

**Laboratory Comments**

**Report:** 663939  
**Project:** DRINKING (SP 1706534)  
**Group:** ORGANICS - EPA 500's

FGL Environmental, Inc.  
Cindy Aguirre  
853 Corporation Street  
Santa Paula, CA 93060

---

**Flags Legend:**

LK - The associated blank spike recovery was above method acceptance limits. This target analyte was not detected in the sample.



Tel: (626) 386-1100  
Fax: (626) 988-3757  
1 800 566 LABS (1 800 566 5227)

**Laboratory Hits**

**Report:** 663939  
**Project:** DRINKING (SP 1706534)  
**Group:** ORGANICS - EPA 500's

**FGL Environmental, Inc.**  
Cindy Aguirre  
853 Corporation Street  
Santa Paula, CA 93060

Samples Received on:  
06/02/2017 1226

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
----------	---------	-----------	--------	-------------	-------	-----

Tel: (626) 386-1100  
Fax: (866) 988-3757  
1 800 566 LABS (1 800 566 5227)

## Laboratory Data

**Report:** 663939  
**Project:** DRINKING (SP 1706534)  
**Group:** ORGANICS - EPA 500's

**FGL Environmental, Inc.**  
Cindy Aguirre  
853 Corporation Street  
Santa Paula, CA 93060

Samples Received on:  
06/02/2017 1226

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
<u>Old Fire Station Test Well (201706020342)</u>						Sampled on 05/31/2017 1230			
EPA 525.2 - Semivolatiles by GCMS									
06/12/17	06/16/17	4:35	1002226	1003631	(EPA 525.2) Benzo(a)pyrene	ND	ug/L	0.02	1
06/12/17	06/16/17	4:35	1002226	1003631	(EPA 525.2) Di-(2-Ethylhexyl)adipate	ND (LK)	ug/L	0.6	1
06/12/17	06/16/17	4:35	1002226	1003631	(EPA 525.2) Di(2-Ethylhexyl)phthalate	ND	ug/L	0.6	1
06/12/17	06/16/17	4:35	1002226	1003631	(EPA 525.2) 1,3-Dimethyl-2-nitrobenzene	83	%		1
06/12/17	06/16/17	4:35	1002226	1003631	(EPA 525.2) Acenaphthene-d10	81	%		1
06/12/17	06/16/17	4:35	1002226	1003631	(EPA 525.2) Chrysene-d12	82	%		1
06/12/17	06/16/17	4:35	1002226	1003631	(EPA 525.2) Perylene-d12	88	%		1
06/12/17	06/16/17	4:35	1002226	1003631	(EPA 525.2) Phenanthrene-d10	80	%		1

Tel: (626) 386-1100  
Fax: (866) 988-3757  
1 800 566 LABS (1 800 566 5227)

**Laboratory QC Summary**

**Report:** 663939  
**Project:** DRINKING (SP 1706534)  
**Group:** ORGANICS - EPA 500's

FGL Environmental, Inc.

---

**Semivolatiles by GCMS**

**Prep Batch: 1002226   Analytical Batch: 1003631**

201706020341	TRAVEL BLANK - Hold
201706020342	Old Fire Station Test Well

**Analysis Date: 06/16/2017**

Analyzed by: JWC  
Analyzed by: JWC



Tel: (626) 386-1100  
Fax: (866) 988-3757  
1 800 566 LABS (1 800 566 5227)

Report: 663939  
Project: DRINKING (SP 1706534)  
Group: ORGANICS - EPA 500's

FGL Environmental, Inc.

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
<b>Semivolatiles by GCMS by EPA 525.2</b>									
<b>Prep Batch: 1002226 Analytical Batch: 1003631</b>					<b>Analysis Date: 06/15/2017</b>				
LCS1	1,3-Dimethyl-2-nitrobenzene (S)			93.6	%	94	(70-130)		
LCS2	1,3-Dimethyl-2-nitrobenzene (S)			93.7	%	94	(70-130)		
MBLK	1,3-Dimethyl-2-nitrobenzene (S)			90.0	%	90	(70-130)		
MRL_CHK	1,3-Dimethyl-2-nitrobenzene (S)			88.5	%	89	(70-130)		
MS_201706011232	1,3-Dimethyl-2-nitrobenzene (S)			92.2	%	92	(70-130)		
LCS1	Acenaphthene-d10 (I)			92.1	%	92	(50-150)		
LCS2	Acenaphthene-d10 (I)			87.7	%	88	(50-150)		
MBLK	Acenaphthene-d10 (I)			93.7	%	94	(50-150)		
MRL_CHK	Acenaphthene-d10 (I)			83.4	%	83	(50-150)		
MS_201706011232	Acenaphthene-d10 (I)			105	%	105	(50-150)		
LCS1	Benzo(a)pyrene		2	2.21	ug/L	111	(70-130)		
LCS2	Benzo(a)pyrene		2	2.18	ug/L	109	(70-130)	20	1.4
MBLK	Benzo(a)pyrene			<0.01	ug/L				
MRL_CHK	Benzo(a)pyrene		0.02	0.0190	ug/L	95	(50-150)		
MS_201706011232	Benzo(a)pyrene	ND	2	2.03	ug/L	101	(70-130)		
LCS1	Chrysene-d12 (I)			99.7	%	100	(50-150)		
LCS2	Chrysene-d12 (I)			92.3	%	92	(50-150)		
MBLK	Chrysene-d12 (I)			96.8	%	97	(50-150)		
MRL_CHK	Chrysene-d12 (I)			81.2	%	81	(50-150)		
MS_201706011232	Chrysene-d12 (I)			105	%	105	(50-150)		
LCS1	Di-(2-Ethylhexyl)adipate		2	2.62	ug/L	<u>131</u>	(70-130)		
LCS2	Di-(2-Ethylhexyl)adipate		2	2.58	ug/L	129	(70-130)	20	1.5
MBLK	Di-(2-Ethylhexyl)adipate			<0.15	ug/L				
MRL_CHK	Di-(2-Ethylhexyl)adipate		0.3	0.302	ug/L	101	(50-150)		
MS_201706011232	Di-(2-Ethylhexyl)adipate	ND	2	2.23	ug/L	111	(70-130)		
LCS1	Di(2-Ethylhexyl)phthalate		2	2.30	ug/L	115	(70-130)		
LCS2	Di(2-Ethylhexyl)phthalate		2	2.32	ug/L	116	(70-130)	20	0.43
MBLK	Di(2-Ethylhexyl)phthalate			<0.15	ug/L				
MRL_CHK	Di(2-Ethylhexyl)phthalate		0.6	0.689	ug/L	115	(50-150)		
MS_201706011232	Di(2-Ethylhexyl)phthalate	ND	2	2.01	ug/L	100	(70-130)		
LCS1	Perylene-d12 (S)			101	%	101	(70-130)		
LCS2	Perylene-d12 (S)			98.9	%	99	(70-130)		
MBLK	Perylene-d12 (S)			82.3	%	82	(70-130)		
MRL_CHK	Perylene-d12 (S)			80.3	%	80	(70-130)		
MS_201706011232	Perylene-d12 (S)			94.8	%	95	(70-130)		

Spike recovery is already corrected for native results.

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.

Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

RPD not calculated for LCS2 when different a concentration than LCS1 is used.

RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).

(S) - Indicates surrogate compound.

(I) - Indicates internal standard compound.

Tel: (626) 386-1100  
Fax: (626) 988-3757  
1 800 566 LABS (1 800 566 5227)

**Report:** 663939  
**Project:** DRINKING (SP 1706534)  
**Group:** ORGANICS - EPA 500's

FGL Environmental, Inc.

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS1	Phenanthrene-d10 (I)			94.2	%	94	(50-150)		
LCS2	Phenanthrene-d10 (I)			86.4	%	86	(50-150)		
MBLK	Phenanthrene-d10 (I)			91.6	%	92	(50-150)		
MRL_CHK	Phenanthrene-d10 (I)			84.4	%	84	(50-150)		
MS_201706011232	Phenanthrene-d10 (I)			104	%	104	(50-150)		

Spike recovery is already corrected for native results.

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.

Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

RPD not calculated for LCS2 when different a concentration than LCS1 is used.

RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).

(S) - Indicates surrogate compound.

(I) - Indicates internal standard compound.

June 26, 2017

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc, CA 93436

**Subject: Subcontract Analysis for FGL Lab No. SP 1706534**

Enclosed please find results for the following sample(s) which were received by FGL.

- Subcontracted - Dioxin, 2,3,7,8 - TCDD by EPA 1613

Please note that this analysis was performed by Vista Analytical Laboratory

Thank you for using FGL Environmental.

Sincerely,

**Cindy Aguirre**  Digitally signed by Cindy Aguirre  
Title: Customer Service Rep  
Date: 2017-06-26

Enclosure





June 24, 2017

**Vista Work Order No. 1700685**

Ms. Cindy Aguirre  
FGL Environmental, Inc.  
853 Corporation St.  
Santa Paula, CA 93060-3005

Dear Ms. Aguirre,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on June 02, 2017. This sample set was analyzed on a standard turn-around time, under your Project Name 'SP 1706534 - (2-14885)'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at [mmaier@vista-analytical.com](mailto:mmaier@vista-analytical.com).

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier  
Laboratory Director



*Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.*

**Vista Work Order No. 1700685****Case Narrative****Sample Condition on Receipt:**

One groundwater sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

**Analytical Notes:****EPA Method 1613**

This sample was extracted and analyzed for 2,3,7,8-TCDD by EPA Method 1613 using a ZB-5MS GC column.

**Holding Times**

The sample was extracted and analyzed within the method hold times.

**Quality Control**

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

## TABLE OF CONTENTS

Case Narrative.....	1
Table of Contents.....	3
Sample Inventory.....	4
Analytical Results.....	5
Qualifiers.....	9
Certifications.....	10
Sample Receipt.....	13



# Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1700685-01	Old Fire Station Test Well	31-May-17 12:30	02-Jun-17 10:36	Amber Glass NM Bottle, 1L

## **ANALYTICAL RESULTS**

Sample ID: Method Blank				EPA Method 1613B				
Matrix:	Aqueous	QC Batch:	B7F0062	Lab Sample:	B7F0062-BLK1			
Sample Size:	1.00 L	Date Extracted:	15-Jun-2017 7:48	Date Analyzed :	23-Jun-17 04:19 Column: ZB-5MS			
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.792			IS	13C-2,3,7,8-TCDD	95.1	31 - 137
					CRS	37Cl-2,3,7,8-TCDD	103	42 - 164

DL - Sample specific estimated detection limit  
 LCL-UCL- Lower control limit - upper control limit

EMPC - Estimated maximum possible concentration

Sample ID: OPR		EPA Method 1613B			
Matrix: Sample Size:	Aqueous 1.00 L	QC Batch: Date Extracted:	B7F0062 15-Jun-2017 7:48	Lab Sample: Date Analyzed:	B7F0062-BS1 23-Jun-17 01:59 Column: ZB-5MS
Analyte	Amt Found (pg/L)	Spike Amt	%R	Limits	Labeled Standard
2,3,7,8-TCDD	179	200	89.7	73 - 146	IS 13C-2,3,7,8-TCDD
					CRS 37Cl-2,3,7,8-TCDD

LCL-UCL - Lower control limit - upper control limit

LCL-UCL

25 - 141

37 - 158



Sample ID: Old Fire Station Test Well					EPA Method 1613B			
Client Data		Sample Data		Laboratory Data				
Name:	FGL Environmental, Inc.	Matrix:	Groundwater	Lab Sample:	1700685-01	Date Received:	02-Jun-2017	10:36
Project:	SP 1706534 - (2-14885)	Sample Size:	0.996 L	QC Batch:	B7F0062	Date Extracted:	15-Jun-2017	7:48
Date Collected:	31-May-2017 12:30			Date Analyzed :	23-Jun-17 06:38	Column:	ZB-5MS	
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	1.45			IS 13C-2,3,7,8-TCDD	92.5	31 - 137	
					CRS 37Cl-2,3,7,8-TCDD	101	42 - 164	
DL - Sample specific estimated detection limit								
EMPC - Estimated maximum possible concentration								
LCL-UCL - Lower control limit - upper control limit								

## **DATA QUALIFIERS & ABBREVIATIONS**

<b>B</b>	<b>This compound was also detected in the method blank.</b>
<b>D</b>	<b>Dilution</b>
<b>E</b>	<b>The associated compound concentration exceeded the calibration range of the instrument.</b>
<b>H</b>	<b>Recovery and/or RPD was outside laboratory acceptance limits.</b>
<b>I</b>	<b>Chemical Interference</b>
<b>J</b>	<b>The amount detected is below the Reporting Limit/LOQ.</b>
<b>M</b>	<b>Estimated Maximum Possible Concentration. (CA Region 2 projects only)</b>
<b>*</b>	<b>See Cover Letter</b>
<b>Conc.</b>	<b>Concentration</b>
<b>NA</b>	<b>Not applicable</b>
<b>ND</b>	<b>Not Detected</b>
<b>TEQ</b>	<b>Toxic Equivalency</b>

**Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.**

## CERTIFICATIONS

<b>Accrediting Authority</b>	<b>Certificate Number</b>
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
Nevada Division of Environmental Protection	CA004132017-1
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

*Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.*

## NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	Method
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	Method
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	Method
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B



Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

## Subcontract to

-0.5°C

[illegible]

# Sample Log-in Checklist

 Vista Work Order #: 1700685 TAT 21

<b>Samples Arrival:</b>	<b>Date/Time</b> 6/2/17 1036	<b>Initials:</b> SR	<b>Location:</b> WR-2
			<b>Shelf/Rack:</b> N/A
<b>Logged In:</b>	<b>Date/Time</b> 06/03/17 0814	<b>Initials:</b> MAM	<b>Location:</b> WR-2
			<b>Shelf/Rack:</b> B2
<b>Delivered By:</b>	FedEx	UPS	On Trac
		<u>GSO</u>	DHL
		Hand Delivered	Other
<b>Preservation:</b>	<u>Ice</u>	Blue Ice	Dry Ice
			None
<b>Temp °C:</b> 0.2 (uncorrected)	<b>Time:</b> 1041		<b>Thermometer ID:</b> DT-3
<b>Temp °C:</b> -0.5 (corrected)	<b>Probe used:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		

	YES	NO	NA
Adequate Sample Volume Received? <u>1 Liter each</u>	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	✓		
Trk # <u>536344701</u>	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Preservation Documented:	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Trizma	None
	Yes	<u>No</u>	NA
Shipping Container	Vista	<u>Client</u>	Retain
		<u>Return</u>	Dispose

Comments:

## Subcontract to

[illegible]



# Sample Log-in Checklist

Vista Work Order #:

1700685

TAT

Std

<b>Samples Arrival:</b>	<b>Date/Time</b> 6/14/17 1040	<b>Initials:</b> WWS	<b>Location:</b> WR-2 <b>Shelf/Rack:</b> N/3
<b>Logged In:</b>	<b>Date/Time</b> 06/14/17 1104	<b>Initials:</b> WWS	<b>Location:</b> WR-2 <b>Shelf/Rack:</b> B2
<b>Delivered By:</b>	FedEx	UPS	On Trac
	<u>GSO</u>	DHL	Hand Delivered
<b>Other</b>			
<b>Preservation:</b>	<u>Ice</u>	Blue Ice	Dry Ice
	None		
<b>Temp °C:</b> 1.7 (uncorrected)	<b>Time:</b> 1042		<b>Thermometer ID:</b> IR-1
<b>Temp °C:</b> 1.9 (corrected)	<b>Probe used:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

		YES	NO	NA
Adequate Sample Volume Received? 1 Liter		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?				✓
Shipping Documentation Present?		✓		
Airbill	Trk # 536485398	✓		
Sample Container Intact?		✓		
Sample Custody Seals Intact?				✓
Chain of Custody / Sample Documentation Present?		✓		
COC Anomaly/Sample Acceptance Form completed?			✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				✓
<b>Preservation Documented:</b>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Trizma	None	Yes
		No	NA	
<b>Shipping Container</b>	Vista	<u>Client</u>	Retain	<u>Return</u>
				Dispose

Comments:

Back up volume

June 15, 2017

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc, CA 93436

**Subject: Subcontract Analysis for FGL Lab No. SP 1706534**

Enclosed please find results for the following sample(s) which were received by FGL.

- Subcontracted - Asbestos

Please note that this analysis was performed by LA Testing

Thank you for using FGL Environmental.

Sincerely,

**Cindy Aguirre**  Digitally signed by Cindy Aguirre  
Title: Customer Service Rep  
Date: 2017-06-15

Enclosure



# LA Testing

520 Mission Street South Pasadena, CA 91030  
Phone/Fax: (323) 254-9960 / (323) 254-9982  
<http://www.LATesting.com> / [pasadenalab@latesting.com](mailto:pasadenalab@latesting.com)

LA Testing Order ID: 321713078  
Customer ID: FGLE25  
Customer PO:  
Project ID:

**Attn:** Cindy Aguirre  
FGL Environmental  
853 Corporation St  
Santa Paula, CA 93060

**Phone:** (805) 392-2024  
**Fax:**  
**Collected:** 05/31/2017  
**Received:** 06/01/2017  
**Analyzed:** 06/14/2017


**Proj:** SP 1706534 - (2-14885)

## Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm <sup>2</sup> )	Area Analyzed (mm <sup>2</sup> )	ASBESTOS				
					Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration MFL (million fibers per liter)	Confidence Limits
1 321713078-0001	6/1/2017 02:10 PM	30	1288	0.2227	None Detected	ND	0.19	<0.19	0.00 - 0.71

Analyst(s)

Sherrie Ahmad (1)

  
Jerry Drapala Ph.D, Laboratory Manager  
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 06/15/2017 10:29:32

Sample collection and containers provided by the client, acceptable bottle blank level is defined as  $\leq 0.01$  MFL > 10µm. ND=None Detected. This report relates only to those items tested. This report may not be reproduced, except in full, without written permission by LA Testing. Samples received in good condition unless otherwise noted.

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283



Page 1 Of 1







## Subcontract to

[illegible]

[illegible]



<b>Client:</b> Fruit Growers Laboratory, Inc. <b>Address:</b> FGL Environmental, Inc. 853 Corporation St. Santa Paula, CA 93060-3005  <b>Phone:</b> <b>Fax:</b> <b>Contact Person:</b> <b>Project Name:</b> SP 1706534 - (2-14885) <b>Purchase Order Number:</b>																					
<b>Sampler(s)</b> Rick Hoffman  <b>Compositor Setup Date:</b> ____ / ____ / ____ <b>Time:</b> ____ / ____  <b>Lab Number:</b>																					
Samp Num	Location Description	Date Sampled	Time Sampled																		
1	Old Fire Station Test Well	05/31/17	12:30	G	GW	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacit Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacit Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Subcontracted - Asbestos-Drinking Water 32oz(P)											
<b>Remarks:</b>				Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:	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: ROI / 6 / \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt 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 receipt? ☒ 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

**Inez Covarrubias**



Digitally signed by Inez Covarrubias  
Title: Sample Receiving  
Date: 06/01/2017-09:27:20

### Discrepancy 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: \_\_\_\_\_

(2014885)  
**Vandenberg Village CSD**  
**SP 1706534**  
IV/SP-06/01/2017-09:27:20

# **INDIVIDUAL ZONE TESTING SUMMARY**

**July 13, 2017**

# VANDENBERG VILLAGE CSD

## Fire Station #51 Test Well - Zone Testing Summary - July 13, 2017 Analysis

	Specific Conductance	TDS (total dissolved solids)	Iron	Manganese	Arsenic	Bromoform	Chloroform	Dibromo-chloromethane	Total Trihalomethanes
MCL (maximum contaminant levels)	1600 umhos/cm	1000 mg/L	300 ug/L	50 ug/L	10 ug/L	100 ug/L	100 ug/L	100 ug/L	100 ug/L
ZONE INTERVAL									
Whole Screened Section: 450' - 810' (May 31, 2017 sample)	830	570	600	150	28	1.1	0.8	0.6	2.5
ZONE 1: 466.5' - 470' (July 13, 2017 sample)	800	430	770	150	31				
ZONE 2: 551.5' - 554'					21	ND	ND	ND	ND
ZONE 3: 634.5' - 638'	810	470	1300	170	24				
ZONE 4: 676.5' - 680'					18	ND	ND	ND	ND
ZONE 5: 739.5' - 743'	800	420	4400	140	32				
ZONE 6: 781.5' - 785'					4.3	ND	ND	ND	ND
ND = non detect									



# Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017



## Vandenberg Village CSD

3757 Constellation  
Lompoc CA, 93436

Project: Routine

Sub Project: Test Well Zone Testing

Project Manager: Water Quality Supervisor

Work Order: 17G1382

Received: 07/16/17 00:00

Reported: 08/03/17

## Zone 6

17G1382-01 (Water)

Sample Date: 07/13/17 11:21

Sampler: Jeff Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
---------	--------	--------	------------	-----	-------	----------	----------	-------	-----------

### Metals

Arsenic (As)	SM3113-B	4.3	4.0	10	ug/L	07/31/17	08/02/17	1731018	
--------------	----------	-----	-----	----	------	----------	----------	---------	--

### Trihalomethanes Analyses

Bromodichloromethane	EPA 524.2	ND	1.0		ug/L	07/20/17	07/20/17	1729143	
Bromoform	EPA 524.2	ND	1.0		ug/L	07/20/17	07/20/17	1729143	
Chloroform (Trichloromethane)	EPA 524.2	ND	1.0		ug/L	07/20/17	07/20/17	1729143	
Dibromochloromethane	EPA 524.2	ND	1.0		ug/L	07/20/17	07/20/17	1729143	
Total Trihalomethanes (TTHM)	EPA 524.2	ND	1.0	80	ug/L	07/20/17	07/20/17	1729143	
Surrogate: Bromofluorobenzene	EPA 524.2	85 %				07/20/17	07/20/17	1729143	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	84 %				07/20/17	07/20/17	1729143	

### Haloacetic Acids Analyses

Dibromoacetic Acid	EPA 552.2	ND	1.0		ug/L	07/24/17	07/25/17	1730003	
Dichloroacetic Acid	EPA 552.2	ND	1.0		ug/L	07/24/17	07/25/17	1730003	
Monobromoacetic Acid	EPA 552.2	ND	1.0		ug/L	07/24/17	07/25/17	1730003	
Monochloroacetic Acid	EPA 552.2	ND	2.0		ug/L	07/24/17	07/25/17	1730003	
Trichloroacetic Acid	EPA 552.2	ND	1.0		ug/L	07/24/17	07/25/17	1730003	
Total Haloacetic Acids (HAA5)	EPA 552.2	ND	1.0	60	ug/L	07/24/17	07/25/17	1730003	
Surrogate: 2,3-Dibromopropionic Acid	EPA 552.2	93 %				07/24/17	07/25/17	1730003	

# Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017



## Vandenberg Village CSD

3757 Constellation  
Lompoc CA, 93436

Project: Routine

Sub Project: Test Well Zone Testing

Project Manager: Water Quality Supervisor

Work Order: 17G1382

Received: 07/16/17 00:00

Reported: 08/03/17

## Zone 5

17G1382-02 (Water)

Sample Date: 07/13/17 12:05

Sampler: Jeff Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
---------	--------	--------	------------	-----	-------	----------	----------	-------	-----------

### General Chemical Analyses

Alkalinity, Total (as CaCO <sub>3</sub> )	SM 2320 B	86	5.0		mg/L	07/26/17	07/26/17	1729014	
Bicarbonate (HCO <sub>3</sub> )	SM 2320 B	110	5.0		mg/L	07/26/17	07/26/17	1729014	
Carbonate (CO <sub>3</sub> )	SM 2320B	ND	5.0		mg/L	07/26/17	07/26/17	1729014	
Chloride (Cl)	EPA 300.0	110	1.0	500	mg/L	07/14/17	07/16/17	1728198	
Cyanide (CN)	SM4500CNF	ND	100	150	ug/L	07/20/17	07/20/17	1729134	
Specific Conductance (E.C.)	SM 2510B	800	2.0	1600	umhos/cm	07/26/17	07/26/17	1729014	
Fluoride (F)	EPA 300.0	0.18	0.10	2	mg/L	07/14/17	07/16/17	1728198	
Hydroxide (OH)	SM 2320B	ND	5.0		mg/L	07/26/17	07/26/17	1729014	
MBAS (LAS Mole. Wt 340.0)	SM 5540C	ND	0.10	0.5	mg/L	07/18/17	07/19/17	1729075	HT-06
Nitrate as N (NO <sub>3</sub> -N)	EPA 300.0	0.59	0.40	10	mg/L	07/16/17	07/16/17	1728198	HT-06
Nitrate + Nitrite (as N)	EPA 300.0	0.59	0.40	10	mg/L	07/16/17	07/16/17	1728198	HT-06
Nitrite as N (NO <sub>2</sub> -N)	EPA 300.0	ND	0.40	1	mg/L	07/16/17	07/16/17	1728198	HT-06
Perchlorate (ClO <sub>4</sub> )	EPA 314.0	ND	4.0	6	ug/L	07/26/17	07/26/17	1730128	
pH (Lab)	SM 4500HB	6.8			pH Units	07/17/17	07/17/17	1729014	
Sulfate (SO <sub>4</sub> )	EPA 300.0	110	0.50	500	mg/L	07/14/17	07/16/17	1728198	
Total Filterable Residue/TDS	SM 2540C	420	5.0	1000	mg/L	07/20/17	07/21/17	1729136	

### Metals

Aluminum (Al)	EPA 200.7	530	50	200	ug/L	07/25/17	07/25/17	1730045	
Antimony (Sb)	SM3113-B	ND	6.0	6	ug/L	07/26/17	07/28/17	1730109	
Arsenic (As)	SM3113-B	22	4.0	10	ug/L	07/31/17	08/02/17	1731018	
Barium (Ba)	EPA 200.7	ND	100	1000	ug/L	07/25/17	07/25/17	1730045	
Beryllium (Be)	EPA 200.7	ND	1.0	4	ug/L	07/24/17	07/24/17	1730024	
Boron (B)	EPA 200.7	140	100		ug/L	07/25/17	07/25/17	1730045	
Cadmium (Cd)	EPA 200.7	ND	1.0	5	ug/L	07/24/17	07/24/17	1730024	
Calcium (Ca)	EPA 200.7	59	1.0		mg/L	07/25/17	07/26/17	1730072	
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	07/13/17	07/17/17	1728168	
Chromium (Total Cr)	EPA 200.7	ND	10	50	ug/L	07/24/17	07/24/17	1730024	
Copper (Cu)	EPA 200.7	ND	50	1000	ug/L	07/25/17	07/25/17	1730045	
Iron (Fe)	EPA 200.7	4400	100	300	ug/L	07/25/17	07/25/17	1730045	
Lead (Pb)	SM3113-B	ND	5.0		ug/L	07/31/17	07/31/17	1731019	
Magnesium (Mg)	EPA 200.7	17	1.0		mg/L	07/25/17	07/26/17	1730072	
Manganese (Mn)	EPA 200.7	140	20	50	ug/L	07/25/17	07/25/17	1730045	
Mercury (Hg)	EPA 245.1	ND	1.0	2	ug/L	07/20/17	07/24/17	1729138	
Nickel (Ni)	EPA 200.7	ND	10	100	ug/L	07/24/17	07/24/17	1730024	
Potassium (K)	EPA 200.7	3.5	1.0		mg/L	07/25/17	07/26/17	1730072	
Selenium (Se)	SM3113-B	ND	5.0	50	ug/L	08/01/17	08/01/17	1731050	
Silver (Ag)	EPA 200.7	ND	10	100	ug/L	07/24/17	07/24/17	1730024	
Sodium (Na)	EPA 200.7	79	1.0		mg/L	07/25/17	07/26/17	1730072	
Thallium (Tl)	EPA 200.9	ND	1.0	2	ug/L	07/28/17	07/28/17	1730166	

# Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017



## Vandenberg Village CSD

3757 Constellation  
Lompoc CA, 93436

Project: Routine

Sub Project: Test Well Zone Testing

Project Manager: Water Quality Supervisor

Work Order: 17G1382

Received: 07/16/17 00:00

Reported: 08/03/17

### Zone 5

17G1382-02 (Water)

Sample Date: 07/13/17 12:05

Sampler: Jeff Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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#### Metals

Vanadium (V)	EPA 200.9	3.6	3.0		ug/L	07/25/17	07/26/17	1730037	
Zinc (Zn)	EPA 200.7	ND	50	5000	ug/L	07/25/17	07/25/17	1730045	

#### Anion / Cation Balance

Hardness, Total (as CaCO3)	Calculated	220			mg/L	07/25/17	07/26/17	[CALC]	
Total Anions	Calculated	7.2			meq/L	07/25/17	07/26/17	[CALC]	
Total Cations	Calculated	7.88			meq/L	07/25/17	07/26/17	[CALC]	
% difference	Calculated	8.9				07/25/17	07/26/17	[CALC]	

### Zone 4

17G1382-03 (Water)

Sample Date: 07/13/17 12:49

Sampler: Jeff Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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#### Metals

Arsenic (As)	SM3113-B	18	4.0	10	ug/L	07/31/17	08/02/17	1731018	
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#### Trihalomethanes Analyses

Bromodichloromethane	EPA 524.2	ND	1.0		ug/L	07/20/17	07/20/17	1729143	
Bromoform	EPA 524.2	ND	1.0		ug/L	07/20/17	07/20/17	1729143	
Chloroform (Trichloromethane)	EPA 524.2	ND	1.0		ug/L	07/20/17	07/20/17	1729143	
Dibromochloromethane	EPA 524.2	ND	1.0		ug/L	07/20/17	07/20/17	1729143	
Total Trihalomethanes (TTHM)	EPA 524.2	ND	1.0	80	ug/L	07/20/17	07/20/17	1729143	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	122 %				07/20/17	07/20/17	1729143	
Surrogate: Bromofluorobenzene	EPA 524.2	81 %				07/20/17	07/20/17	1729143	

#### Haloacetic Acids Analyses

Dibromoacetic Acid	EPA 552.2	ND	1.0		ug/L	07/24/17	07/25/17	1730003	
Dichloroacetic Acid	EPA 552.2	ND	1.0		ug/L	07/24/17	07/25/17	1730003	
Monobromoacetic Acid	EPA 552.2	ND	1.0		ug/L	07/24/17	07/25/17	1730003	
Monochloroacetic Acid	EPA 552.2	ND	2.0		ug/L	07/24/17	07/25/17	1730003	
Trichloroacetic Acid	EPA 552.2	ND	1.0		ug/L	07/24/17	07/25/17	1730003	
Total Haloacetic Acids (HAA5)	EPA 552.2	ND	1.0	60	ug/L	07/24/17	07/25/17	1730003	
Surrogate: 2,3-Dibromopropionic Acid	EPA 552.2	95 %				07/24/17	07/25/17	1730003	



# Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017



## Vandenberg Village CSD

3757 Constellation  
Lompoc CA, 93436

Project: Routine

Sub Project: Test Well Zone Testing

Project Manager: Water Quality Supervisor

Work Order: 17G1382

Received: 07/16/17 00:00

Reported: 08/03/17

## Zone 3

17G1382-04 (Water)

Sample Date: 07/13/17 13:35

Sampler: Jeff Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
<b>General Chemical Analyses</b>									
Alkalinity, Total (as CaCO <sub>3</sub> )	SM 2320 B	79	5.0		mg/L	07/26/17	07/26/17	1729014	
Bicarbonate (HCO <sub>3</sub> )	SM 2320 B	97	5.0		mg/L	07/26/17	07/26/17	1729014	
Carbonate (CO <sub>3</sub> )	SM 2320B	ND	5.0		mg/L	07/26/17	07/26/17	1729014	
Chloride (Cl)	EPA 300.0	110	1.0	500	mg/L	07/14/17	07/16/17	1728198	
Cyanide (CN)	SM4500CNF	ND	100	150	ug/L	07/20/17	07/20/17	1729134	
Specific Conductance (E.C.)	SM 2510B	810	2.0	1600	umhos/cm	07/26/17	07/26/17	1729014	
Fluoride (F)	EPA 300.0	0.18	0.10	2	mg/L	07/14/17	07/16/17	1728198	
Hydroxide (OH)	SM 2320B	ND	5.0		mg/L	07/26/17	07/26/17	1729014	
MBAS (LAS Mole. Wt 340.0)	SM 5540C	ND	0.10	0.5	mg/L	07/18/17	07/19/17	1729075	HT-06
Nitrate as N (NO <sub>3</sub> -N)	EPA 300.0	0.46	0.40	10	mg/L	07/16/17	07/16/17	1728198	HT-06
Nitrate + Nitrite (as N)	EPA 300.0	0.46	0.40	10	mg/L	07/16/17	07/16/17	1728198	HT-06
Nitrite as N (NO <sub>2</sub> -N)	EPA 300.0	ND	0.40	1	mg/L	07/16/17	07/16/17	1728198	HT-06
Perchlorate (ClO <sub>4</sub> )	EPA 314.0	ND	4.0	6	ug/L	07/26/17	07/26/17	1730128	
pH (Lab)	SM 4500HB	6.7			pH Units	07/17/17	07/17/17	1729014	
Sulfate (SO <sub>4</sub> )	EPA 300.0	130	0.50	500	mg/L	07/14/17	07/16/17	1728198	
Total Filterable Residue/TDS	SM 2540C	470	5.0	1000	mg/L	07/20/17	07/21/17	1729136	
<b>Metals</b>									
Aluminum (Al)	EPA 200.7	190	50	200	ug/L	07/25/17	07/25/17	1730045	
Antimony (Sb)	SM3113-B	ND	6.0	6	ug/L	07/26/17	07/28/17	1730109	
Arsenic (As)	SM3113-B	24	4.0	10	ug/L	07/31/17	08/02/17	1731018	
Barium (Ba)	EPA 200.7	ND	100	1000	ug/L	07/25/17	07/25/17	1730045	
Beryllium (Be)	EPA 200.7	ND	1.0	4	ug/L	07/24/17	07/24/17	1730024	
Boron (B)	EPA 200.7	160	100		ug/L	07/25/17	07/25/17	1730045	
Cadmium (Cd)	EPA 200.7	ND	1.0	5	ug/L	07/24/17	07/24/17	1730024	
Calcium (Ca)	EPA 200.7	60	1.0		mg/L	07/25/17	07/26/17	1730072	
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	07/13/17	07/17/17	1728168	
Chromium (Total Cr)	EPA 200.7	ND	10	50	ug/L	07/24/17	07/24/17	1730024	
Copper (Cu)	EPA 200.7	ND	50	1000	ug/L	07/25/17	07/25/17	1730045	
Iron (Fe)	EPA 200.7	1300	100	300	ug/L	07/25/17	07/25/17	1730045	
Lead (Pb)	SM3113-B	ND	5.0		ug/L	07/31/17	07/31/17	1731019	
Magnesium (Mg)	EPA 200.7	17	1.0		mg/L	07/25/17	07/26/17	1730072	
Manganese (Mn)	EPA 200.7	170	20	50	ug/L	07/25/17	07/25/17	1730045	
Mercury (Hg)	EPA 245.1	ND	1.0	2	ug/L	07/20/17	07/24/17	1729138	
Nickel (Ni)	EPA 200.7	ND	10	100	ug/L	07/24/17	07/24/17	1730024	
Potassium (K)	EPA 200.7	3.5	1.0		mg/L	07/25/17	07/26/17	1730072	
Selenium (Se)	SM3113-B	ND	5.0	50	ug/L	08/01/17	08/01/17	1731050	
Silver (Ag)	EPA 200.7	ND	10	100	ug/L	07/24/17	07/24/17	1730024	
Sodium (Na)	EPA 200.7	80	1.0		mg/L	07/25/17	07/26/17	1730072	
Thallium (Tl)	EPA 200.9	ND	1.0	2	ug/L	07/28/17	07/28/17	1730166	



# Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017



## Vandenberg Village CSD

3757 Constellation  
Lompoc CA, 93436

Project: Routine

Sub Project: Test Well Zone Testing

Project Manager: Water Quality Supervisor

Work Order: 17G1382

Received: 07/16/17 00:00

Reported: 08/03/17

### Zone 3

17G1382-04 (Water)

Sample Date: 07/13/17 13:35

Sampler: Jeff Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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#### Metals

Vanadium (V)	EPA 200.9	ND	3.0		ug/L	07/25/17	07/26/17	1730037	
Zinc (Zn)	EPA 200.7	ND	50	5000	ug/L	07/25/17	07/25/17	1730045	

#### Anion / Cation Balance

Hardness, Total (as CaCO <sub>3</sub> )	Calculated	220			mg/L	07/25/17	07/26/17	[CALC]	
Total Anions	Calculated	7.41			meq/L	07/25/17	07/26/17	[CALC]	
Total Cations	Calculated	7.97			meq/L	07/25/17	07/26/17	[CALC]	
% difference	Calculated	7.3				07/25/17	07/26/17	[CALC]	

### Zone 2

17G1382-05 (Water)

Sample Date: 07/13/17 14:23

Sampler: Jeff Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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#### Metals

Arsenic (As)	SM3113-B	21	4.0	10	ug/L	07/31/17	08/02/17	1731018	
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#### Trihalomethanes Analyses

Bromodichloromethane	EPA 524.2	ND	1.0		ug/L	07/20/17	07/20/17	1729143	
Bromoform	EPA 524.2	ND	1.0		ug/L	07/20/17	07/20/17	1729143	
Chloroform (Trichloromethane)	EPA 524.2	ND	1.0		ug/L	07/20/17	07/20/17	1729143	
Dibromochloromethane	EPA 524.2	ND	1.0		ug/L	07/20/17	07/20/17	1729143	
Total Trihalomethanes (TTHM)	EPA 524.2	ND	1.0	80	ug/L	07/20/17	07/20/17	1729143	
Surrogate: Bromofluorobenzene	EPA 524.2	75 %				07/20/17	07/20/17	1729143	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	80 %				07/20/17	07/20/17	1729143	

#### Haloacetic Acids Analyses

Dibromoacetic Acid	EPA 552.2	ND	1.0		ug/L	07/24/17	07/25/17	1730003	
Dichloroacetic Acid	EPA 552.2	ND	1.0		ug/L	07/24/17	07/25/17	1730003	
Monobromoacetic Acid	EPA 552.2	ND	1.0		ug/L	07/24/17	07/25/17	1730003	
Monochloroacetic Acid	EPA 552.2	ND	2.0		ug/L	07/24/17	07/25/17	1730003	
Trichloroacetic Acid	EPA 552.2	ND	1.0		ug/L	07/24/17	07/25/17	1730003	
Total Haloacetic Acids (HAA5)	EPA 552.2	ND	1.0	60	ug/L	07/24/17	07/25/17	1730003	
Surrogate: 2,3-Dibromopropionic Acid	EPA 552.2	96 %				07/24/17	07/25/17	1730003	

# Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017



## Vandenberg Village CSD

3757 Constellation  
Lompoc CA, 93436

Project: Routine

Sub Project: Test Well Zone Testing

Project Manager: Water Quality Supervisor

Work Order: 17G1382

Received: 07/16/17 00:00

Reported: 08/03/17

## Zone 1

17G1382-06 (Water)

Sample Date: 07/13/17 15:16

Sampler: Jeff Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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## General Chemical Analyses

Alkalinity, Total (as CaCO <sub>3</sub> )	SM 2320 B	77	5.0		mg/L	07/26/17	07/26/17	1729014	
Bicarbonate (HCO <sub>3</sub> )	SM 2320 B	94	5.0		mg/L	07/26/17	07/26/17	1729014	
Carbonate (CO <sub>3</sub> )	SM 2320B	ND	5.0		mg/L	07/26/17	07/26/17	1729014	
Chloride (Cl)	FPA 300.0	120	1.0	500	mg/L	07/14/17	07/16/17	1728198	
Cyanide (CN)	SM4500CNF	ND	100	150	ug/L	07/20/17	07/20/17	1729134	
Specific Conductance (E.C.)	SM 2510B	800	2.0	1600	umhos/cm	07/26/17	07/26/17	1729014	
Fluoride (F)	EPA 300.0	0.18	0.10	2	mg/L	07/14/17	07/16/17	1728198	
Hydroxide (OH)	SM 2320B	ND	5.0		mg/L	07/26/17	07/26/17	1729014	
MBAS (LAS Mole. Wt 340.0)	SM 5540C	ND	0.10	0.5	mg/L	07/18/17	07/19/17	1729075	HT-06
Nitrate as N (NO <sub>3</sub> -N)	EPA 300.0	ND	0.40	10	mg/L	07/16/17	07/16/17	1728198	HT-06
Nitrate + Nitrite (as N)	EPA 300.0	ND	0.40	10	mg/L	07/16/17	07/16/17	1728198	HT-06
Nitrite as N (NO <sub>2</sub> -N)	EPA 300.0	ND	0.40	1	mg/L	07/16/17	07/16/17	1728198	HT-06
Perchlorate (ClO <sub>4</sub> )	EPA 314.0	ND	4.0	6	ug/L	07/26/17	07/26/17	1730128	
pH (Lab)	SM 4500HB	6.7			pH Units	07/17/17	07/17/17	1729014	
Sulfate (SO <sub>4</sub> )	EPA 300.0	130	0.50	500	mg/L	07/14/17	07/16/17	1728198	
Total Filterable Residue/TDS	SM 2540C	430	5.0	1000	mg/L	07/20/17	07/21/17	1729136	

## Metals

Aluminum (Al)	EPA 200.7	150	50	200	ug/L	07/25/17	07/25/17	1730045	
Antimony (Sb)	SM3113-B	ND	6.0	6	ug/L	07/26/17	07/28/17	1730109	
Arsenic (As)	SM3113-B	31	4.0	10	ug/L	07/31/17	08/02/17	1731018	
Barium (Ba)	EPA 200.7	ND	100	1000	ug/L	07/25/17	07/25/17	1730045	
Beryllium (Be)	EPA 200.7	ND	1.0	4	ug/L	07/24/17	07/24/17	1730024	
Boron (B)	EPA 200.7	150	100		ug/L	07/25/17	07/25/17	1730045	
Cadmium (Cd)	EPA 200.7	ND	1.0	5	ug/L	07/24/17	07/24/17	1730024	
Calcium (Ca)	EPA 200.7	59	1.0		mg/L	07/25/17	07/26/17	1730072	
Chromium (+6)	EPA 218.6	ND	1.0	10	ug/L	07/13/17	07/17/17	1728168	
Chromium (Total Cr)	EPA 200.7	ND	10	50	ug/L	07/24/17	07/24/17	1730024	
Copper (Cu)	EPA 200.7	ND	50	1000	ug/L	07/25/17	07/25/17	1730045	
Iron (Fe)	EPA 200.7	770	100	300	ug/L	07/25/17	07/25/17	1730045	
Lead (Pb)	SM3113-B	ND	5.0		ug/L	07/31/17	07/31/17	1731019	
Magnesium (Mg)	EPA 200.7	18	1.0		mg/L	07/25/17	07/26/17	1730072	
Manganese (Mn)	EPA 200.7	150	20	50	ug/L	07/25/17	07/25/17	1730045	
Mercury (Hg)	EPA 245.1	ND	1.0	2	ug/L	07/20/17	07/24/17	1729138	
Nickel (Ni)	EPA 200.7	ND	10	100	ug/L	07/24/17	07/24/17	1730024	
Potassium (K)	EPA 200.7	3.6	1.0		mg/L	07/25/17	07/26/17	1730072	
Selenium (Se)	SM3113-B	ND	5.0	50	ug/L	08/01/17	08/01/17	1731050	
Silver (Ag)	EPA 200.7	ND	10	100	ug/L	07/24/17	07/24/17	1730024	
Sodium (Na)	EPA 200.7	79	1.0		mg/L	07/25/17	07/26/17	1730072	
Thallium (Tl)	EPA 200.9	ND	1.0	2	ug/L	07/28/17	07/28/17	1730166	

# Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017

**Vandenberg Village CSD**

3757 Constellation  
Lompoc CA, 93436

Project: Routine

Sub Project: Test Well Zone Testing

Project Manager: Water Quality Supervisor

Work Order: 17G1382

Received: 07/16/17 00:00

Reported: 08/03/17

**Zone 1****17G1382-06 (Water)****Sample Date:** 07/13/17 15:16**Sampler:** Jeff Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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**Metals**

Vanadium (V)	EPA 200.9	ND	3.0		ug/L	07/25/17	07/26/17	1730037	
Zinc (Zn)	EPA 200.7	ND	50	5000	ug/L	07/25/17	07/25/17	1730045	

**Anion / Cation Balance**

<b>Hardness, Total (as CaCO<sub>3</sub>)</b>	Calculated	<b>220</b>			mg/L	07/25/17	07/26/17	[CALC]	
<b>Total Anions</b>	Calculated	<b>7.64</b>			meq/L	07/25/17	07/26/17	[CALC]	
<b>Total Cations</b>	Calculated	<b>7.96</b>			meq/L	07/25/17	07/26/17	[CALC]	
<b>% difference</b>	Calculated	<b>4.1</b>				07/25/17	07/26/17	[CALC]	

HT-06 Sample was received and analyzed outside of recommended hold time.

pH (Lab) was analyzed ASAP but received and analyzed past the 15 minute hold time.

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

**21881 Barton Road Grand Terrace CA 92313 909 825-7693 / 516-A N 8th St. Lompoc CA 93436 805 737-7300**

Page        of



# ***Clinical Laboratory of San Bernardino II***

*Client:* **Vandenberg Village**  
**3757 Constellation Rd.**  
**Lompoc, CA 93436**

*Contact:* **Mike Garner**  
*Phone:* **(805) 733-2475**  
*Email:* **Vandenberg Village Group**  
*System No.* **4210017**

*Project:* **General Physical**

*Sampler:* **Jeff Cole**  
*Date Sampled:* **July 13, 2017**  
*Date/Time Setup:* **July 13, 2017 @ 16:50**  
*Date/Time Read:* **July 13, 2017 @ 16:50**  
*Date Reported:* **July 13, 2017**

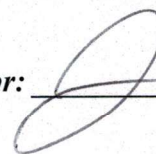
## **Results**

<i>Laboratory ID</i>	<i>Sample Time</i>	<i>Sample Location</i>	<i>Field pH</i>	<i>Field Temp ( C )</i>	<i>Color SM 2120B ( CU )</i>	<i>Odor EPA 140.1 ( TON )</i>	<i>Turbidity EPA 180.1 ( NTU )</i>
		Test Well Zone 5	6.39	68	15	1	9.28
		Test Well Zone 3	6.36	68	10	2	5.50
		Test Well Zone 1	6.29	69	5	2	3.95

### Sample Types

1 = routine  
2 = repeat  
3 = replacement  
4 = special  
W = well  
D = distribution

*Laboratory Director:* \_\_\_\_\_



# Clinical Laboratory of San Bernardino II

## GENERAL PHYSICAL REPORT

Certification #1678

516A North 8<sup>th</sup> Street

Lompoc, Ca 93436

<b>Purveyor</b> <u>VANDENBERG VILLAGE CSD</u> <b>Sampler</b> <u>JEFF COLE</u> <b>Street Address</b> <u>3757 CONSTELLATION RD Lompoc CA 93436</u> <b>Date- Time Sampled</b> <u>7-13-17</u> <b>Date-Time submitted to Lab</b> <u>7-13-17</u>							
Ref	Sample Location	pH	Temp	Time	Color	Odor	Turbidity
1	TEST WELL ZONE 5	6.39	68°				
2	TEST WELL ZONE 3	6.36	68°				
3	TEST WELL ZONE 1	6.29	69°				
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

**Date Completed** 7/13/17 1650 **Analyst** JD  
**Approved Lab Director** \_\_\_\_\_ **Date Approved** \_\_\_\_\_

Analysis are performed in accordance with the Standard Methods of Water /Wastewater(20<sup>th</sup> Ed)  
**Relinquished By** JEFF COLE **Company** WVCS **Date-Time** 7-13-17 **Recd** \_\_\_\_\_ **Time** 335  
**Relinquished By** \_\_\_\_\_ **Company** \_\_\_\_\_ **Date-Time** 7-13-17 **Recd** CLSB **Time** 7/13/17

1540

# **TEST PUMPING DATA**

**Nov. 6 thru Nov. 9, 2017**

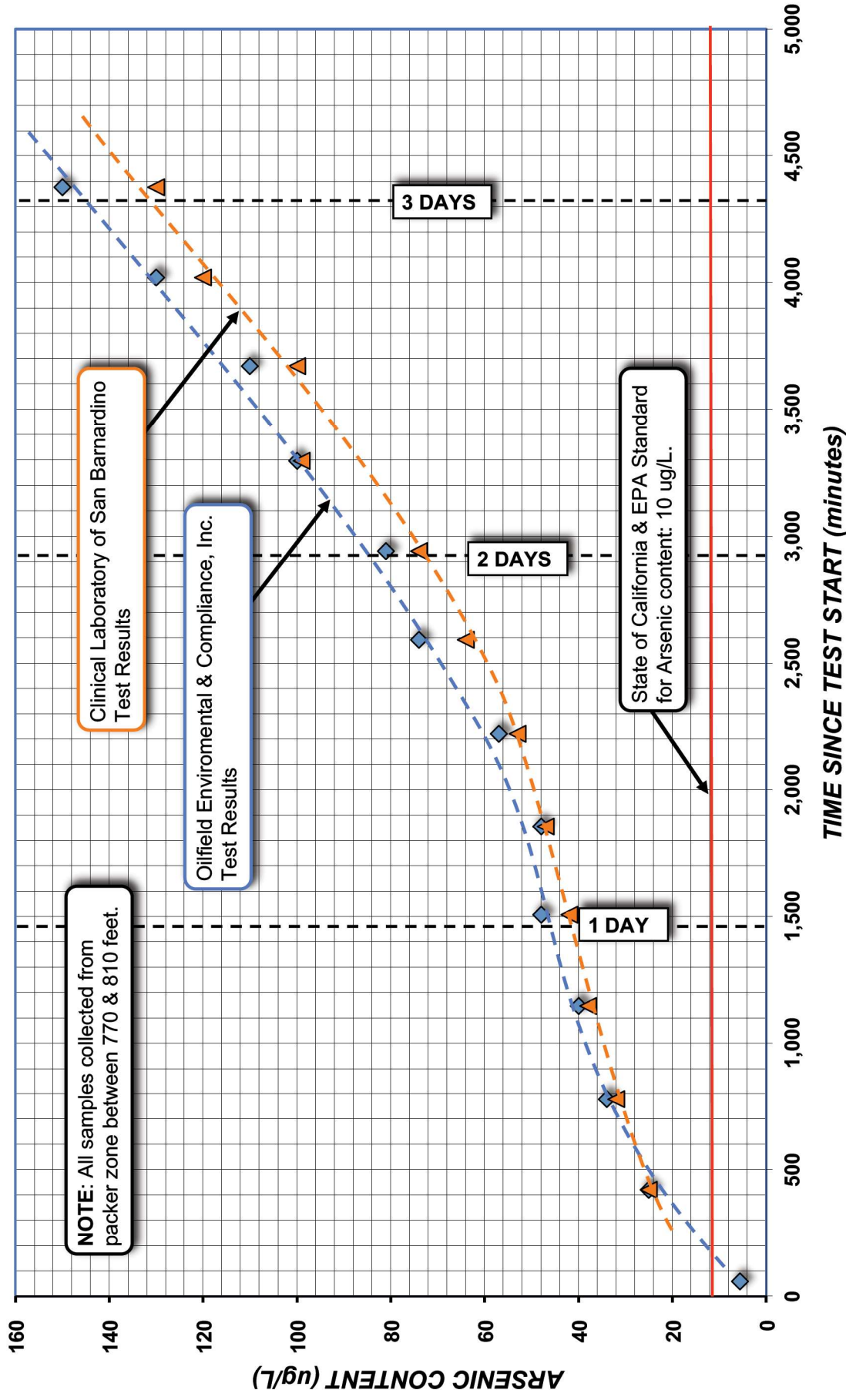
**Vandenberg Village CSD - Fire Station #51 Test Well**  
**770' to 810' Zone Test Data Sheet**  
**Arsenic Content: Nov. 6th thru Nov. 9th, 2017**

<b>WELL OWNER:</b>	Vandenberg Village CSD
<b>WELL NAME:</b>	Fire Station #51 Test Well
<b>DATE OF TEST PUMPING PROCEDURE:</b>	Nov. 6th thru Nov. 9, 2017
<b>DEPTH OF WELL:</b>	820 feet
<b>ZONE TEST INTERVAL (below packer)</b>	770 to 810 feet
<b>FLOW RATE DURING TEST</b>	80 to 95 gpm
<b>TECHNICIAN:</b>	Vandenberg Village CSD staff
<b>DATUM POINT:</b>	top of casing

DATE	TIME	TIME SINCE START (min.)	ZONE TEST #	CLINICAL LABORATORY OF SAN BERNARDINO TEST DATA	OILFIELD ENVIRONMENTAL & COMPLIANCE TEST DATA
				ARSENIC CONTENT (ug/L) parts per billion	ARSENIC CONTENT (ug/L) parts per billion
11/6/17	8:00 AM	0		no sample	no sample
11/6/17	9:00 AM	60	1	no sample	5.6
11/6/17	3:00 PM	420	2	25	25
11/7/17	8:58 PM	778	3	32	34
11/7/17	3:07 AM	1147	4	38	40
11/7/17	9:05 AM	1505	5	42	48
11/7/17	2:53 PM	1853	6	47	48
11/8/17	9:00 PM	2220	7	53	57
11/8/17	3:10 AM	2590	8	64	74
11/8/17	9:00 AM	2940	9	74	81
11/8/17	2:55 PM	3295	10	99	100
11/9/17	9:10 PM	3670	11	100	110
11/9/17	3:00 AM	4020	12	120	130
1/0/00	8:56 AM	4376	13	130	150



Vandenberg Village CSD - Fire Station #51 Test Well  
 770' to 810' Zone Test Data Graph  
 Arsenic Content: Nov. 6th thur Nov. 9th, 2017



# Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017

**Vandenberg Village CSD**

3757 Constellation  
Lompoc CA, 93436

Project: Routine

Sub Project: VVCSD Test Well

Project Manager: Water Quality Supervisor

Work Order: 17K0980

Received: 11/10/17 09:07

Reported: 11/28/17

**Test Well 2****17K0980-01 (Water)****Sample Date:** 11/06/17 15:00**Sampler:** Jeffrey Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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**Metals**

Arsenic (As)	SM3113-B	25	2.0	10	ug/L	11/28/17	11/28/17	1748034	
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**Test Well 3****17K0980-02 (Water)****Sample Date:** 11/06/17 20:58**Sampler:** Jeffrey Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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**Metals**

Arsenic (As)	SM3113-B	32	2.0	10	ug/L	11/28/17	11/28/17	1748034	
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**Test Well 4****17K0980-03 (Water)****Sample Date:** 11/07/17 3:04**Sampler:** Jeffrey Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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**Metals**

Arsenic (As)	SM3113-B	38	2.0	10	ug/L	11/28/17	11/28/17	1748034	
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**Test Well 5****17K0980-04 (Water)****Sample Date:** 11/07/17 9:05**Sampler:** Jeffrey Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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**Metals**

Arsenic (As)	SM3113-B	42	2.0	10	ug/L	11/28/17	11/28/17	1748034	
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**Test Well 6****17K0980-05 (Water)****Sample Date:** 11/07/17 14:53**Sampler:** Jeffrey Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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**Metals**

Arsenic (As)	SM3113-B	47	4.0	10	ug/L	11/28/17	11/28/17	1748034	
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**Test Well 7****17K0980-06 (Water)****Sample Date:** 11/07/17 21:00**Sampler:** Jeffrey Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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**Metals**

Arsenic (As)	SM3113-B	53	4.0	10	ug/L	11/28/17	11/28/17	1748034	
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Gregory Nelson  
Project Manager

# Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017

**Vandenberg Village CSD**

3757 Constellation  
Lompoc CA, 93436

Project: Routine

Sub Project: VVCSD Test Well

Project Manager: Water Quality Supervisor

Work Order: 17K0980

Received: 11/10/17 09:07

Reported: 11/28/17

**Test Well 8****17K0980-07 (Water)****Sample Date:** 11/08/17 3:10**Sampler:** Jeffrey Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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**Metals**

Arsenic (As)	SM3113-B	64	4.0	10	ug/L	11/28/17	11/28/17	1748034	
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**Test Well 9****17K0980-08 (Water)****Sample Date:** 11/08/17 9:00**Sampler:** Jeffrey Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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**Metals**

Arsenic (As)	SM3113-B	74	4.0	10	ug/L	11/28/17	11/28/17	1748034	
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**Test Well 10****17K0980-09 (Water)****Sample Date:** 11/08/17 14:55**Sampler:** Jeffrey Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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**Metals**

Arsenic (As)	SM3113-B	99	4.0	10	ug/L	11/28/17	11/28/17	1748034	
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**Test Well 11****17K0980-10 (Water)****Sample Date:** 11/08/17 21:00**Sampler:** Jeffrey Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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**Metals**

Arsenic (As)	SM3113-B	100	10	10	ug/L	11/28/17	11/28/17	1748034	
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**Test Well 12****17K0980-11 (Water)****Sample Date:** 11/09/17 3:00**Sampler:** Jeffrey Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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**Metals**

Arsenic (As)	SM3113-B	120	10	10	ug/L	11/28/17	11/28/17	1748034	
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**Test Well 13****17K0980-12 (Water)****Sample Date:** 11/09/17 8:56**Sampler:** Jeffrey Cole

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
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**Metals**

Arsenic (As)	SM3113-B	130	10	10	ug/L	11/28/17	11/28/17	1748034	
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ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson  
Project Manager

0-0-812

17K0980

**Clinical Lab of San Bernardino, Inc.** Chain of Custody  
21881 Barton Road Grand Terrace CA 92313 909 825-7693 / 516-A N 8th St. Lompoc CA 93436 805 737-7300

<b>Client</b> VANDENBERG VILLAGE CSD Address: 3757 CONSTELLATION RD Lompoc, CA 93436 Client Contact: MIKE GARNER Phone No.: 805 733 2475 FAX No.: 805 733 2109 System No.: 420017 Project: VUCSD TEST WELL Sampled By: Jeffery S. COLE Comments:		<b>Destination Laboratory</b> <input type="checkbox"/> Clinical Grand Terrace / ELAP 1088 <input type="checkbox"/> Clinical Lompoc / ELAP 1678 <input type="checkbox"/> Other:		<b>Analysis Requested</b>										<b>Turn Around Time (TAT)</b>									
<b>Container ID</b>		<b>Matrix</b>		<b>Sample Type</b>		<b>No. of Preserved Cont.</b>										<b>Comments</b>							
						<b>Total Containers</b>																	
<b>Date</b>		<b>Time</b>		<b>Sample Identification</b>		<b>Unpreserved</b>		<b>Na2S2O3</b>		<b>NH4Cl</b>		<b>C6H8O6</b>		<b>HNO3</b>		<b>HCl</b>		<b>NaOH</b>		<b>Na2SO3</b>		<b>ZnC4H6O4</b>	
11-6-17	1500	TEST WELL 2																					
11-6-17	2050	TEST WELL 3																					
11-7-17	0301	TEST WELL 4																					
11-7-17	0905	TEST WELL 5																					
11-7-17	1453	TEST WELL 6																					
11-7-17	2100	TEST WELL 7																					
11-8-17	0310	TEST WELL 8																					
11-8-17	0900	TEST WELL 9																					
11-8-17	1455	TEST WELL 10																					
11-8-17	2100	TEST WELL 11																					
11-9-17	0300	TEST WELL 12																					
11-9-17	0850	TEST WELL 13																					
Matrix: DW - Drinking Water GW - Ground Water SW - Surface Water W - Water WW - Wastewater SWR - Stormwater Runoff S - Sludge O - Other																							
Use for Bacteria Samples / Sample Type: 1-Routine 2-Repeat 3-Replacement 4-Special D-Distribution W-Well TAT: (10) Ten Day (5) Five Day Rush (2) Two Day Rush																							
<b>Relinquished By (Sign)</b>		<b>Print Name / Company</b>		<b>Date / Time</b>		<b>Received By (Sign)</b>		<b>Print Name / Company</b>															
Jeffery S. Cole		JEFF COLE VUCSD		11-9-17 0830		M. Madsen		M. Madsen		CLSB# 11/9/17 9:55													
M. Madsen		M. MADSEN CLSB#		11/9/17 9:55		Janetle Hernandez		Janetle Hernandez		J. A. CLSB													
				11/10 9:07																			
(Lab Use Only) Lompoc Lab Receipt Temp.: 7 °C																							
Shipped Via: <input type="checkbox"/> Fed Ex <input type="checkbox"/> Golden State Overnight <input type="checkbox"/> UPS <input type="checkbox"/> On Trac <input type="checkbox"/> USPS <input type="checkbox"/> Other																							
Condition: <input type="checkbox"/> On Wet Ice <input checked="" type="checkbox"/> On Blu Ice <input type="checkbox"/> Intact <input type="checkbox"/> Custody Seals <input type="checkbox"/> Samples / COC Checked By: Work Order Logged By: Clinical Lab Receipt Temp.: 2.3 °C																							
Receipt Comments:																							





# Oilfield Environmental & Compliance, Inc.

Mike Garner  
Vandenberg Village CSD  
3757 Constellation Road  
Lompoc, CA 93436

Report: November 7, 2017 13:12

Work Order: 1704078

Project: Well Monitoring  
Number: VVCSD Test Well

Dear Client:

Enclosed is an analytical report for the above referenced project. The samples included in this report were received on November 06, 2017 09:42 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Manual, applicable standard operating procedures, and other related documentation. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

---

Elizabeth Minemann, Project Manager

[eminemann@oecusa.com](mailto:eminemann@oecusa.com)



# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD Test Well  
Project Manager: Mike Garner

**Reported:**  
11/07/2017 13:12

## SAMPLE SUMMARY

Sample ID	Laboratory ID	Client Matrix	Lab Matrix	Date Sampled	Date Received
Test Well 1	1704078-01	Water	Water	11/06/17 08:51	11/06/17 09:42

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD Test Well  
Project Manager: Mike Garner

**Reported:**  
11/07/2017 13:12

## ANALYTICAL REPORT FOR SAMPLES

**1704078-01 (Water)**

**Test Well 1**

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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### Metals by EPA 200 Series Methods

Arsenic	5.6	2.0	ug/L	1	B7K0133	11/06/17	11/06/17	EPA 200.8	
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*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD Test Well  
Project Manager: Mike Garner

**Reported:**  
11/07/2017 13:12

## Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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### Batch B7K0133 - EPA 200.8 Preparation: EPA 200.8 11/06/17 11:07

#### Blank (B7K0133-BLK1)

Arsenic ND 2.0 ug/L Analyzed: 11/06/17 16:04

#### LCS (B7K0133-BS1)

Arsenic 133 2.0 ug/L 125 106 85-115 Analyzed: 11/06/17 16:07

#### LCS Dup (B7K0133-BS1)

Arsenic 134 2.0 ug/L 125 107 85-115 1.06 20 Analyzed: 11/06/17 16:10

#### Duplicate (B7K0133-DUP1)

Arsenic ND 2.0 ug/L ND 20 Source: 1704007-01 Analyzed: 11/06/17 16:27

#### Matrix Spike (B7K0133-MS1)

Arsenic 155 2.0 ug/L 125 ND 124 70-130 Source: 1704007-01 Analyzed: 11/06/17 16:13

#### Matrix Spike Dup (B7K0133-MSD1)

Arsenic 143 2.0 ug/L 125 ND 114 70-130 7.83 20 Source: 1704007-01 Analyzed: 11/06/17 16:15

#### Post Spike (B7K0133-PS1)

Arsenic 138 ug/L 125 1.01 109 75-125 Source: 1704007-01 Analyzed: 11/06/17 16:18

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD Test Well  
Project Manager: Mike Garner

**Reported:**  
11/07/2017 13:12

## Notes and Definitions

RL      Reporting Limit (Quantitation Limit)  
ND      Analyte NOT DETECTED at or above the reporting limit  
RPD     Relative Percent Difference

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*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





COC RECEIVED DATETIME: 11/06/17 @ 0942

WORK ORDER: 1764078

LOGIN DATE/TIME: 11/06/17 @ 1110

TEMPERATURE: 19.2 °C SAMPLE RECEIPT

**Acceptable Range:** 0°C to 6°C [see exception notes below]

REFRIGERATOR(S):

3

SAMPLE TRANSPORT		SAMPLE RECEIPT, CONDITION, PRESERVATION		(*) PROBLEM CHAIN REQUIRED		YES	NO	N/A	(**) OEC PRES. ID
<input type="checkbox"/>	OEC Courier/Sampler	<input type="checkbox"/>	Samples Received on Ice Within Temperature Range [Acceptable]	<input type="checkbox"/>	Completed COC(s) Received With Samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	Delivery (Other than OEC)	<input checked="" type="checkbox"/>	Samples Received Outside Temperature Range [Acceptable]	<input type="checkbox"/>	Correct Container(s)/Preserve for Analysis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	After-Hours Outside Drop-Off [Brought Inside]	<input checked="" type="checkbox"/>	Direct from Field, <del>enter</del>	<input type="checkbox"/>	Container(s) Intact and in Good Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	Initials/Date/Time: _____	<input type="checkbox"/>	Ambient: Air or Filter Matrix	<input type="checkbox"/>	Container Label(s) Consistent with COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	Shipment	<input type="checkbox"/>	Received Ambient, Placed on Ice for Transport	<input checked="" type="checkbox"/>	OEC Preservation Added **	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	Tracking #: _____	<input type="checkbox"/>	Sample Temperature Acceptable for Analysis Requested	<input type="checkbox"/>	Sample Quantity Sufficient & Appropriate	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
CUSTODY SEALS		<input type="checkbox"/>	Samples Received Outside Temperature Range [Exception] v	<input type="checkbox"/>	VOA Containers Free of Headspace	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Comments below or Problem Chain
		<input type="checkbox"/>	Insufficient Ice or Unknown Cause	<input type="checkbox"/>	Tedlar Bag(s) Free of Condensation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	Excessive Free Liquid in Sample Bags or Cooler	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input checked="" type="checkbox"/>	None Present	<input type="checkbox"/>	* or <input type="checkbox"/> (Comments)	Expedited PM Notification [Init/Date/Time]: _____			
Cooler(s): <input type="checkbox"/> Present, Intact <input type="checkbox"/> Present, Not Intact <input type="checkbox"/> None									
Sample(s): <input type="checkbox"/> Present, Intact <input type="checkbox"/> Present, Not Intact <input type="checkbox"/> None									

[illegible]

Rev 08/09/2017

RECEIPT REVIEWED BY: 

page of





# Oilfield Environmental & Compliance, Inc.

Mike Garner  
Vandenberg Village CSD  
3757 Constellation Road  
Lompoc, CA 93436

Report: November 7, 2017 16:37

Work Order: 1704103

Project: Well Monitoring  
Number: VVCSD TEST WELL

Dear Client:

Enclosed is an analytical report for the above referenced project. The samples included in this report were received on November 07, 2017 09:50 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Manual, applicable standard operating procedures, and other related documentation. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

---

Elizabeth Minemann, Project Manager

[eminemann@oecusa.com](mailto:eminemann@oecusa.com)





# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD TEST WELL  
Project Manager: Mike Garner

**Reported:**  
11/07/2017 16:37

## SAMPLE SUMMARY

Sample ID	Laboratory ID	Client Matrix	Lab Matrix	Date Sampled	Date Received
TEST WELL 2	1704103-01	Water	Water	11/06/17 15:00	11/07/17 09:50
TEST WELL 3	1704103-02	Water	Water	11/06/17 20:59	11/07/17 09:50
TEST WELL 4	1704103-03	Water	Water	11/07/17 03:04	11/07/17 09:50
TEST WELL 5	1704103-04	Water	Water	11/07/17 09:05	11/07/17 09:50

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD TEST WELL  
Project Manager: Mike Garner

**Reported:**  
11/07/2017 16:37

## ANALYTICAL REPORT FOR SAMPLES

### 1704103-01 (Water)

#### TEST WELL 2

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	25	2.0	ug/L	1	B7K0133	11/07/17	11/07/17	EPA 200.8	
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### 1704103-02 (Water)

#### TEST WELL 3

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	34	2.0	ug/L	1	B7K0133	11/07/17	11/07/17	EPA 200.8	
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### 1704103-03 (Water)

#### TEST WELL 4

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	40	2.0	ug/L	1	B7K0133	11/07/17	11/07/17	EPA 200.8	
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### 1704103-04 (Water)

#### TEST WELL 5

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	48	2.0	ug/L	1	B7K0133	11/07/17	11/07/17	EPA 200.8	
---------	----	-----	------	---	---------	----------	----------	-----------	--

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD TEST WELL  
Project Manager: Mike Garner

**Reported:**  
11/07/2017 16:37

## Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7K0133 - EPA 200.8** Preparation: EPA 200.8 11/06/17 11:07

### Blank (B7K0133-BLK1)

Arsenic ND 2.0 ug/L Analyzed: 11/06/17 16:04

### LCS (B7K0133-BS1)

Arsenic 133 2.0 ug/L 125 106 85-115 Analyzed: 11/06/17 16:07

### LCS Dup (B7K0133-BS1)

Arsenic 134 2.0 ug/L 125 107 85-115 1.06 20 Analyzed: 11/06/17 16:10

### Duplicate (B7K0133-DUP1)

Arsenic ND 2.0 ug/L ND 20 Source: 1704007-01 Analyzed: 11/06/17 16:27

### Matrix Spike (B7K0133-MS1)

Arsenic 155 2.0 ug/L 125 ND 124 70-130 Source: 1704007-01 Analyzed: 11/06/17 16:13

### Matrix Spike Dup (B7K0133-MSD1)

Arsenic 143 2.0 ug/L 125 ND 114 70-130 7.83 20 Source: 1704007-01 Analyzed: 11/06/17 16:15

### Post Spike (B7K0133-PS1)

Arsenic 138 ug/L 125 1.01 109 75-125 Source: 1704007-01 Analyzed: 11/06/17 16:18

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD TEST WELL  
Project Manager: Mike Garner

**Reported:**  
11/07/2017 16:37

## Notes and Definitions

RL      Reporting Limit (Quantitation Limit)  
ND      Analyte NOT DETECTED at or above the reporting limit  
RPD     Relative Percent Difference

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Phone: (661) 762-9143

Page 1 of 1

Page 6 of 7







# Oilfield Environmental & Compliance, Inc.

Mike Garner  
Vandenberg Village CSD  
3757 Constellation Road  
Lompoc, CA 93436

Report: November 9, 2017 11:06

Work Order: 1704129

Project: Well Monitoring  
Number: VVCSD TEST WELL - SBCO STA51

Dear Client:

Enclosed is an analytical report for the above referenced project. The samples included in this report were received on November 08, 2017 09:47 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Manual, applicable standard operating procedures, and other related documentation. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

---

Meredith Sprister, Project Manager

[msprister@oecusa.com](mailto:msprister@oecusa.com)



# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD TEST WELL - SBCO STA51  
Project Manager: Mike Garner

**Reported:**  
11/09/2017 11:06

## SAMPLE SUMMARY

Sample ID	Laboratory ID	Client Matrix	Lab Matrix	Date Sampled	Date Received
TEST WELL 6	1704129-01	Water	Water	11/07/17 14:53	11/08/17 09:47
TEST WELL 7	1704129-02	Water	Water	11/07/17 21:00	11/08/17 09:47
TEST WELL 8	1704129-03	Water	Water	11/08/17 03:10	11/08/17 09:47
TEST WELL 9	1704129-04	Water	Water	11/08/17 09:00	11/08/17 09:47

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD TEST WELL - SBCO STA51  
Project Manager: Mike Garner

**Reported:**  
11/09/2017 11:06

## ANALYTICAL REPORT FOR SAMPLES

### 1704129-01 (Water)

#### TEST WELL 6

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	48	2.0	ug/L	1	B7K0219	11/08/17	11/08/17	EPA 200.8	
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### 1704129-02 (Water)

#### TEST WELL 7

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	57	2.0	ug/L	1	B7K0219	11/08/17	11/08/17	EPA 200.8	
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### 1704129-03 (Water)

#### TEST WELL 8

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	74	2.0	ug/L	1	B7K0219	11/08/17	11/08/17	EPA 200.8	
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### 1704129-04 (Water)

#### TEST WELL 9

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	81	2.0	ug/L	1	B7K0219	11/08/17	11/08/17	EPA 200.8	
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# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD TEST WELL - SBCO STA51  
Project Manager: Mike Garner

**Reported:**  
11/09/2017 11:06

## Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7K0219 - EPA 200.8** Preparation: EPA 200.8 11/08/17 10:40

### Blank (B7K0219-BLK1)

Arsenic ND 2.0 ug/L Analyzed: 11/08/17 16:29

### LCS (B7K0219-BS1)

Arsenic 140 2.0 ug/L 125 112 85-115 Analyzed: 11/08/17 16:36

### LCS Dup (B7K0219-BS1)

Arsenic 125 2.0 ug/L 125 100 85-115 11.1 20 Analyzed: 11/08/17 16:38

### Duplicate (B7K0219-DUP1)

Arsenic ND 2.0 ug/L ND 20 Source: 1704099-01 Analyzed: 11/08/17 17:05

### Matrix Spike (B7K0219-MS1)

Arsenic 138 2.0 ug/L 125 ND 110 70-130 Source: 1704099-01 Analyzed: 11/08/17 16:40

### Matrix Spike Dup (B7K0219-MSD1)

Arsenic 137 2.0 ug/L 125 ND 109 70-130 0.921 20 Source: 1704099-01 Analyzed: 11/08/17 16:42

### Post Spike (B7K0219-PS1)

Arsenic 127 ug/L 125 1.48 100 75-125 Source: 1704099-01 Analyzed: 11/08/17 16:45

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD TEST WELL - SBCO STA51  
Project Manager: Mike Garner

**Reported:**  
11/09/2017 11:06

## Notes and Definitions

RL       Reporting Limit (Quantitation Limit)  
ND       Analyte NOT DETECTED at or above the reporting limit  
RPD      Relative Percent Difference

---

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

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TEL: (805) 922-4772  
FAX: (805) 925-3376



# Oilfield Environmental and Compliance

307 Roemer Way Suite 300, Santa Maria, CA 93454  
Phone: (805) 922-4772 Fax: (805) 925-3376 www.oecusa.com

101 Adkisson Way, Taft, CA 93268  
Phone: (661) 762-9143

## CHAIN OF CUSTODY

Page 1 of 1

Company: <b>VANDERBILT VILLAGE CSD</b>		Project Name#: <b>NVCSD TEST WELL</b>	
Address: <b>3757 CONSTELLATION RD.</b>		Site: <b>SP3 CO STASI</b>	
City/State/ZIP: <b>Lompoc CA 93436</b>		Analysis Requested	
Phone: <b>805 733 2475</b> Fax: <b>805 733 2109</b> E-mail: <b>W.GARNER@NVCSD.ORG</b>		Special Instructions:	
Report To: <b>MIKE GARNER</b> Sampler: <b>JEFF COLE</b>			
Report Format(s): <b>FAX-<input checked="" type="checkbox"/> PDF (std)-<input type="checkbox"/> Col/LUFT EDF-<input type="checkbox"/> EDD-<input type="checkbox"/></b>			
Turnaround Time: <b>10 Days-<input type="checkbox"/> 5 Days (std)-<input type="checkbox"/> 3 Days-<input type="checkbox"/> 2 Days-<input type="checkbox"/> 1 Day-<input checked="" type="checkbox"/> ASAP-<input type="checkbox"/></b>			
NOTE: Samples received after 4:00PM will be considered as received the next business day			
OEC Sample ID	Date/Time Sampled	Matrix** (see key)	# of Cont.
1701129	11-7-17 1453	GW	1
1701129	11-7-17 2100	GW	1
1701129	11-8-17 0310	GW	1
1701129	11-8-17 0900	GW	1
Client Sample ID			
TEST WELL 6			
TEST WELL 7			
TEST WELL 8			
TEST WELL 9			
Matrix Key:			
A = air / vapor			
AQ = aqueous			
DW = drinking water			
F = filter			
GW = ground water			
P = product / oil			
PW = product water			
S = solid / sediment			
SW = surface water			
WP = wipe			
WW = waste water			
Relinquished By: <i>[Signature]</i>		Date: <b>11-8-17</b> Time: <b>0947</b>	
Received By: <i>[Signature]</i>		Date: <b>11/08/17</b> Time: <b>0947</b>	
Relinquished By:		Date: Time:	
Received By:		Date: Time:	
Relinquished By:		Date: Time:	
Received By:		Date: Time:	
Comments/PO#:			
LEL @ 19.7°C			







# Oilfield Environmental & Compliance, Inc.

Mike Garner  
Vandenberg Village CSD  
3757 Constellation Road  
Lompoc, CA 93436

Report: November 10, 2017 13:58

Work Order: 1704160

Project: Well Monitoring  
Number: VVCSD TESTWELL - SBCO STA51

Dear Client:

Enclosed is an analytical report for the above referenced project. The samples included in this report were received on November 09, 2017 10:35 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Manual, applicable standard operating procedures, and other related documentation. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

---

Meredith Sprister, Project Manager

[msprister@oecusa.com](mailto:msprister@oecusa.com)



# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD TESTWELL - SBCO STA51  
Project Manager: Mike Garner

**Reported:**  
11/10/2017 13:58

## SAMPLE SUMMARY

Sample ID	Laboratory ID	Client Matrix	Lab Matrix	Date Sampled	Date Received
TEST WELL 10	1704160-01	Water	Water	11/08/17 14:55	11/09/17 10:35
TEST WELL 11	1704160-02	Water	Water	11/08/17 21:00	11/09/17 10:35
TEST WELL 12	1704160-03	Water	Water	11/09/17 03:00	11/09/17 10:35
TEST WELL 13	1704160-04	Water	Water	11/09/17 08:56	11/09/17 10:35

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD TESTWELL - SBCO STA51  
Project Manager: Mike Garner

**Reported:**  
11/10/2017 13:58

## ANALYTICAL REPORT FOR SAMPLES

### 1704160-01 (Water)

#### TEST WELL 10

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	100	2.0	ug/L	1	B7K0257	11/09/17	11/09/17	EPA 200.8	
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### 1704160-02 (Water)

#### TEST WELL 11

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	110	2.0	ug/L	1	B7K0257	11/09/17	11/09/17	EPA 200.8	
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### 1704160-03 (Water)

#### TEST WELL 12

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	130	2.0	ug/L	1	B7K0257	11/09/17	11/09/17	EPA 200.8	
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### 1704160-04 (Water)

#### TEST WELL 13

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	150	2.0	ug/L	1	B7K0257	11/09/17	11/09/17	EPA 200.8	
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# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD TESTWELL - SBCO STA51  
Project Manager: Mike Garner

**Reported:**  
11/10/2017 13:58

## Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7K0257 - EPA 200.8** Preparation: EPA 200.8 11/09/17 11:07

### Blank (B7K0257-BLK1)

Arsenic ND 2.0 ug/L Analyzed: 11/09/17 13:58

### LCS (B7K0257-BS1)

Arsenic 116 2.0 ug/L 125 92.8 85-115 Analyzed: 11/09/17 14:00

### LCS Dup (B7K0257-BSD1)

Arsenic 123 2.0 ug/L 125 98.0 85-115 5.42 20 Analyzed: 11/09/17 14:03

### Duplicate (B7K0257-DUP1)

Arsenic 107 2.0 ug/L 102 5.11 20 Analyzed: 11/09/17 14:16

### Matrix Spike (B7K0257-MS1)

Arsenic 256 2.0 ug/L 125 102 124 70-130 Analyzed: 11/09/17 14:05

### Post Spike (B7K0257-PS1)

Arsenic 254 ug/L 125 101 122 75-125 Analyzed: 11/09/17 14:09

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: Well Monitoring  
Project Number: VVCSD TESTWELL - SBCO STA51  
Project Manager: Mike Garner

**Reported:**  
11/10/2017 13:58

## Notes and Definitions

RL Reporting Limit (Quantitation Limit)  
ND Analyte NOT DETECTED at or above the reporting limit  
RPD Relative Percent Difference

---

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

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FAX: (805) 925-3376

[illegible]

CLIENT: **VCS**

CLIENT: VCSO  
COC RECEIVED DATE/TIME: 11/09/17 1033

COC RECEIVED DATETIME: 11/09/17 1035

WORK ORDER: 1704160

LOGIN DATE/TIME: 11/09/17

TEMPERATURE: 14.7 °C SAMPLE RECEIPT

**Acceptable Range: 0°C to 6°C [see exception notes below]**

REFRIGERATOR(S):

## SAMPLE TRANSPORT

- ☐ QEC Courier/Sampler  
☒ Delivery (Other than QEC)  
☐ After-Hours Outside Drop-Off (Brought Inside)

Initials/Date/Time: \_\_\_\_\_

Carrier: Shipment:

Tracking #:

## CUSTODY SEALS

- |            | Cooler(s):                               | <input type="checkbox"/> Present, Intact     | <input type="checkbox"/> Present, Not Intact | <input type="checkbox"/> None |
|------------|--|--|--|-------------------------------|
| Sample(s): | <input type="checkbox"/> Present, Intact | <input type="checkbox"/> Present, Not Intact | <input type="checkbox"/> None                |                               |

## CONTAINERS, COC CHANGES, AND/OR CORRECTIONS

[illegible]

Rev 08/09/2017

RECEIPT LOGIN BY: 4

RECEIPT REVIEWED BY:

5

□ **2000**

—



# **TEST PUMPING DATA**

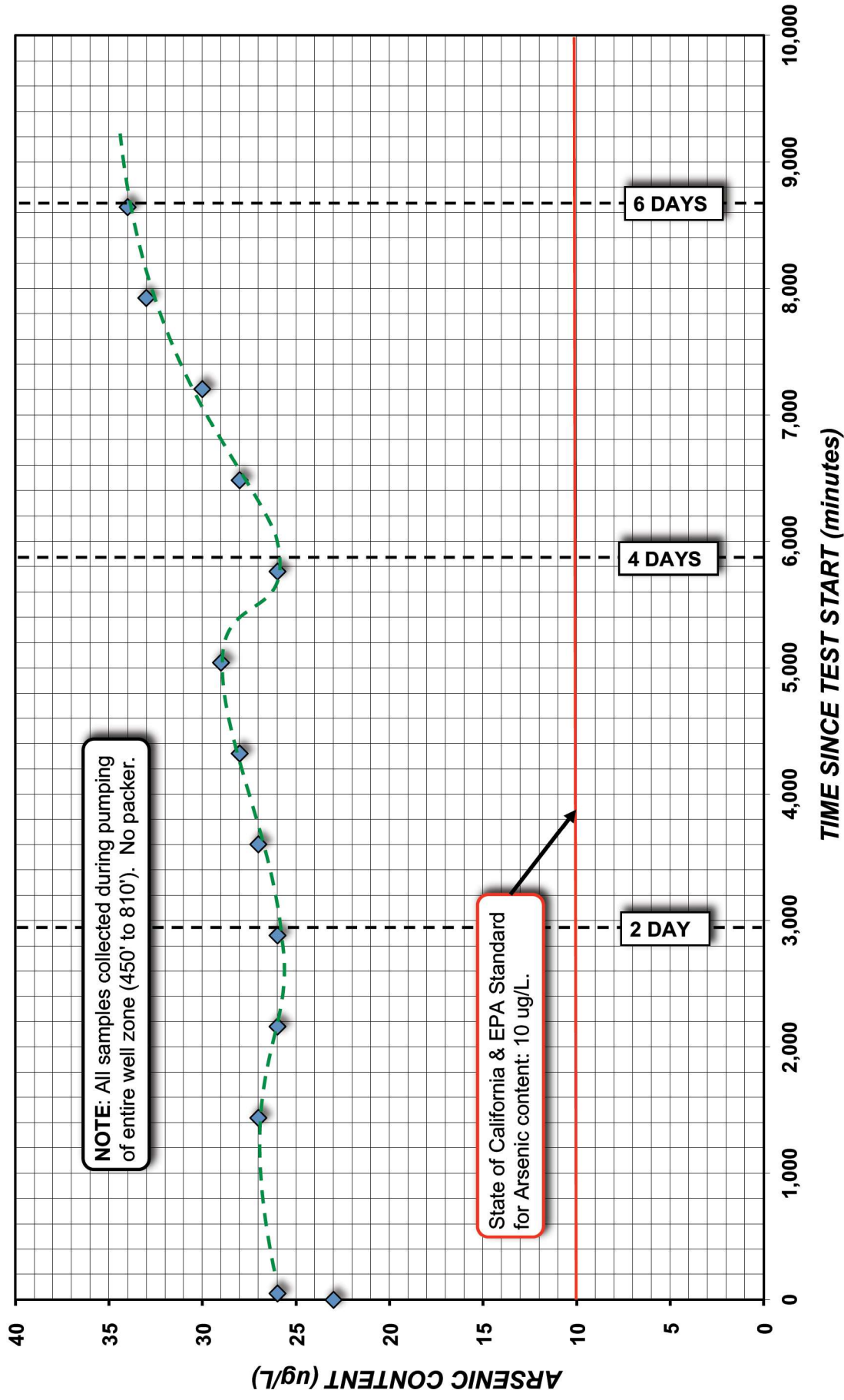
**Jan. 3 thru Jan. 9, 2018**

**Vandenberg Village CSD - Fire Station #51 Test Well**  
**Entire Well (450' to 810') Zone Test for**  
**Arsenic Content: Jan 3rd thur Jan 9th, 2018**

<b>WELL OWNER:</b>	Vandenberg Village CSD
<b>WELL NAME:</b>	Fire Station #51 Test Well
<b>DATE OF TEST PUMPING PROCEDURE:</b>	Jan 3rd - Jan 9th Entire Well Test (450' - 810')
<b>DEPTH OF WELL:</b>	820 feet
<b>DEPTH OF PUMP SETTING:</b>	10 horsepower pump set at 385 feet
<b>PACKER INTERVAL:</b>	none
<b>FLOW RATE DURING 3 DAY TEST:</b>	85 to 95 gpm
<b>TECHNICIAN:</b>	Vandenberg Village CSD staff
<b>DATUM POINT:</b>	top of casing

DATE	TIME	TIME SINCE START (min.)	ZONE TEST #	ARSENIC CONTENT ug/L (parts per billion)
1/3/18	8:00 AM	0	1	23
1/3/18	8:51 AM	51	2	26
1/4/18	8:00 AM	1440	3	27
1/4/18	8:00 PM	2160	4	26
1/5/18	8:00 AM	2880	5	26
1/5/18	8:00 PM	3600	6	27
1/6/18	8:00 AM	4320	7	28
1/6/18	8:00 PM	5040	8	29
1/7/18	8:00 AM	5760	9	26
1/7/18	8:00 PM	6480	10	28
1/8/18	8:00 AM	7200	11	30
1/8/18	8:00 PM	7920	12	33
1/9/18	8:00 AM	8640	13	34

**Vandenberg Village CSD - Fire Station #51 Test Well**  
**Entire Well (450' to 810') Zone Test Graph:**  
**Arsenic Content: Nov. 6th thur Nov. 9th, 2017**





# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: VVCSD Test Well  
Project Number: SBCO STA 51  
Project Manager: Mike Garner

Reported:  
01/08/2018 09:22

## ANALYTICAL REPORT FOR SAMPLES

### 1800260-01 (Water)

1-385

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	23	2.0	ug/L	1	B8A0083	01/04/18	01/05/18	EPA 200.8	
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### 1800260-02 (Water)

2-385

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	26	2.0	ug/L	1	B8A0083	01/04/18	01/05/18	EPA 200.8	
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### 1800260-03 (Water)

3-385

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	27	2.0	ug/L	1	B8A0083	01/04/18	01/05/18	EPA 200.8	
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FAX: (805) 925-3376





# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: VVCSD Test Well  
Project Number: SBCO STA 51  
Project Manager: Mike Garner

Reported:  
01/08/2018 09:15

## ANALYTICAL REPORT FOR SAMPLES

### 1800271-01 (Water)

4-385

1/4/18 8 pm

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	26	2.0	ug/L	1	B8A0083	01/05/18	01/05/18	EPA 200.8	
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### 1800271-02 (Water)

5-385

1/5/18 8 am

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	26	2.0	ug/L	1	B8A0083	01/05/18	01/05/18	EPA 200.8	
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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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TEL: (805) 922-4772  
FAX: (805) 925-3376



# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: VVCSD Test Well  
Project Number: SBCO STA 51  
Project Manager: Mike Garner

Reported:  
01/09/2018 08:59

## ANALYTICAL REPORT FOR SAMPLES

### 1800283-01 (Water)

6-385

1/5/18 8 pm

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	27	2.0	ug/L	1	B8A0130	01/08/18	01/08/18	EPA 200.8	
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### 1800283-02 (Water)

7-385

1/6/18 8 am

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	28	2.0	ug/L	1	B8A0130	01/08/18	01/08/18	EPA 200.8	
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### 1800283-03 (Water)

8-385

1/6/18 8 pm

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	29	2.0	ug/L	1	B8A0130	01/08/18	01/08/18	EPA 200.8	
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### 1800283-04 (Water)

9-385

1/7/18 8 am

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	26	2.0	ug/L	1	B8A0130	01/08/18	01/08/18	EPA 200.8	
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### 1800283-05 (Water)

10-385

1/7/18 8 pm

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	28	2.0	ug/L	1	B8A0130	01/08/18	01/08/18	EPA 200.8	
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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

307 Roemer Way, Suite 300, Santa Maria, CA 934

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# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: VVCSD Test Well  
Project Number: SBCO STA 51  
Project Manager: Mike Garner

**Reported:**  
01/09/2018 08:59

**1800283-06 (Water)**

**11-385**

1/8/18 8 am

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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## Metals by EPA 200 Series Methods

Arsenic	30	2.0	ug/L	1	B8A0130	01/08/18	01/08/18	EPA 200.8	
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# Oilfield Environmental & Compliance, Inc.

Vandenberg Village CSD  
3757 Constellation Road  
Lompoc CA, 93436

Project: VVCSD Test Well  
Project Number: SBCO STA 51  
Project Manager: Mike Garner

**Reported:**  
01/10/2018 15:54

## ANALYTICAL REPORT FOR SAMPLES

### 1800299-01 (Water)

12-385

1/8/18 8pm

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	33	2.0	ug/L	1	B8A0175	01/09/18	01/10/18	EPA 200.8	
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### 1800299-02 (Water)

13-385

1/9/18 8am

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Metals by EPA 200 Series Methods

Arsenic	34	2.0	ug/L	1	B8A0175	01/09/18	01/10/18	EPA 200.8	
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