

State Water Resources Control Board

Division of Drinking Water

June 16, 2016

**Sanitary Survey Report
For
San Miguel Community Services District
San Luis Obispo County**

**State Water Resources Control Board
Division of Drinking Water
Southern California Field Operations Branch
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I. INTRODUCTION

Purpose of Report

The purpose of this report is to document the findings of the recent Sanitary Survey conducted at San Miguel Community Services District (SMCSD). Sanitary Surveys are required every three years, at a minimum, and cover eight different elements: Source, Treatment, Distribution System, Finished Water Storage, Pumps/Pump Facilities/Controls, Monitoring/Reporting/Data Verification, System Management and Operation, and Operator Compliance with State Requirements. Each element is comprised of several components. The water system needs to comply with all regulations pertaining to each element. If the Division of Drinking Water (DDW) identifies a significant deficiency in any element category during a Sanitary Survey, the water system will be required to correct the significant deficiency in a specified time frame.

System Description and Information

The SMCSD operates under a domestic water supply permit, permit number 05-06-03P-011, issued by the DDW on March 19, 2001; Permit Amendment (No. 4010010-PA-001) in 2007 and Permit Amendment (No. 4010010-PA-002) in 2011. The 2007 permit amendment was to add and operate the Terrace Well and the associated disinfection treatment facility; and to add and operate a new 630,000 gallon above ground steel reservoir. The Terrace Well was inactivated in 2008. In the 2011 permit amendment, CCSD reactivated the Terrace Well.

SMCSD is classified as a community water system. SMCSD is located in northern San Luis Obispo County along Highway 101. SMCSD provides potable water and other community services to the residents living in the San Miguel area. SMCSD serves single-family residential housing, commercial and institutional customers.

SMCSD operates three active wells, two domestic water storage reservoirs, one booster pump station and a distribution system. SMCSD serves 2,336 residential customers through 704 metered connections. SMCSD has a total of 744 active connections reported for 2014. Of the 744 active connections: 704 connections are for residential, 37 are for commercial or

institutional and three are for landscape irrigation. DDW database has a total number of 784 active connections. There are 10 inactive connections reported by SMCSD in 2014. There is no reported information regarding the number of transient and non-transient population served by SMCSD for 2014.

DDW previously conducted a Sanitary Survey of SMCSD on October 26, 2012. A Notice of Violation Letter was sent to SMCSD on July 10, 2014 for the water system’s failure to complete monitoring for the Stage II Disinfection By-Products Rule. DDW also sent a letter to SMCSD on April 15, 2014 to require it to take 10 lead and copper samples starting in the summer months of 2014 triennial sampling period.

Source of Information

All information included in this report is from DDW files, SMCSD personnel, and a site visit on May 19, 2016.

II. INVESTIGATION AND FINDINGS

II.a Element 1 – Sources

SMCSD has three active groundwater wells as its potable water sources. The active wells are Well 03, Well 04 and the Terrace Well. There are no sewer lines and sewage disposal facilities located within 50 and 100 feet of the wells, respectively. The water from wells is chlorinated before going into the storage reservoir and/or into the distribution system. All the wells draw their water from the Paso Robles Groundwater Formation within the Salinas Valley. SMCSD conducted the drinking water source assessment of its wells. Well 03 and 04’s assessments were completed back in July 2002. The assessment for the Terrace Well was completed in August 2007. The following table lists the top possible contaminating activities for the well.

Table 1: Possible Contaminating Activities		
Well	Physical Barrier Effectiveness	Possible Contaminating Activities (top ranked)
Well 03	Moderate	Sewage collection system, food processing, farm machinery repair, and railroads
Well 04	Moderate	Sewage collection system, wastewater treatment plant, food processing, surface water, and railroads
Terrace Well	Moderate	Low density septic systems, farm chemical distributor/application service, pesticide/fertilizer/petroleum storage and transfer area, agricultural/irrigation wells, irrigated and non-irrigated crops, and fertilizer/pesticide/herbicide application

Well 03

The well was constructed in 1952 with a depth of 300 feet. It is located in a residential area and is housed in a metal building with a concrete floor. The well site is surrounded by a fence. The well is equipped with a 12-inch steel casing. The well is sealed at the surface, but does not have an annular seal. The depth of the highest perforations is 85 feet. The well has no impervious clay layers above the highest perforations. Upon starting, the well pumps to waste for a few minutes. The pump-to-waste water goes into two storage tanks located outside the well housing. Water from the two pump-to-waste tanks overflows to the sewage system through an air gap. The well’s pump to waste pipe is screened. It has an electrical motor and a deep well turbine pump with a capacity of about 350 gallons per minute (gpm). SMCSD has an emergency generator as a backup power source at the well site. The generator is exercised monthly. The well also has a sand trap.

Well 04

Well 04 was constructed in 1990 with a depth of 360 feet. It is located in a residential area. The well head is not housed; but the discharge piping, chlorination system and monitoring equipment are housed in a metal building with a concrete floor. The sodium hypochlorite solution is stored in a 350 gallon tank in a metal housing outside of the metal building. The well site is fenced. A 12-inch sewer line is located about 150 feet from the well. The well has a 12-inch steel casing. It is surface sealed with an annular seal of 100 feet. The well's air release valve is screened. The well's highest perforations begin at 162 feet below the surface. There are nine different clay layers located above the highest perforations. The clay layers are located at 34 feet (2 feet thick brown clay), 49 feet (9 feet thick brown clay), 70 feet (9 feet thick brown clay with some sand), 83 feet (30 feet thick brown clay with fine sand), 125 feet (19 feet thick brown clay with fine sand), 145 feet (2 feet thick brown clay with fine sand), 148 feet (5 thick brown clay with fine sand), 155 feet (2 thick brown clay with fine sand), and 158 feet (5 thick brown clay with fine sand). The well has a submersible pump powered by an electric motor which is capable of producing 630 gpm.

Terrace Well

The well was constructed in 2005 with a depth of 800 feet. It is located in a residential neighborhood. The well is equipped with a 12-inch stainless steel casing. It is surface sealed with a cement grout annular seal of 300 feet. The well is housed and its well site is fenced. The well's air release valve is screened. The depth to the highest perforation is 350 feet. There are four clay layers above the highest perforations. The clay layers are located below the surface at 90 feet (15 feet thick), 125 feet (50 feet thick), 205 feet (55 feet thick), and 270 feet (75 feet thick). The well has a Goulds submersible pump powered by an electric motor which is capable of producing 300 gpm. The well has the ability to connect to a backup power generator. The well pumps to waste when starting up. The pump to waste water goes into the tank located at the well site. The water from the tank overflows to a sump located outside the well housing.

The Terrace well was first permitted in 2007 through Permit Amendment No. 4010010-PA-001. It was later put on inactive status in 2008 due to arsenic and nitrate levels exceeding MCLs. The well was re-activated in 2011 through Permit Amendment No. 4010010-PA-002. The 2012 Sanitary Survey determined that SMCSO is required to take weekly arsenic and nitrate samples from the well due to arsenic levels consistently exceeded the maximum contaminant level (MCL) and the nitrate had exceeded the MCL in the past.

Source Name	PS Code	Well Yield (gpm)	Highest Perforations (ft)	Pump Type	Pump Capacity (gpm)
Well 03	4010010-004	350	485	deep well turbine	350
Well 04	4010010-005	630	162	submersible	630
Terrace Well	4010010-009	300	350	Goulds submersible	300

Note: ft = feet

Year	Maximum Month Demand		Annual Water Demand (MG)
	Month	Volume (MG)	
2012	August	12.8	108.1
2013	August	19.12	121.78
2014	July	10.9	95.8

Year	Maximum Month Demand		Annual Water Demand (MG)
	Month	Volume (MG)	
2015	July	9.1	86.6

*MG – million gallons.

SMCSD did not report any maximum day demand data from 2012 to 2014. The capacity of the three active wells is 1,280 gpm or 1,843,200 gallons per day or just over 1.8 MG. The potable water reservoir can store up to 680,000 gallons of water. Using the maximum monthly demand from July 2013, SMCSD's maximum day demand is calculated by $19.12 \text{ MG} / 31 \times 1.5 = 0.925 \text{ MG}$ or 925,000 gallons. SMCSD's wells are capable of meeting the maximum day demand, but its storage reservoirs' storage capacity is below that of the maximum day demand. SMCSD has not reported that its day demand exceeded the source and/or the reservoir storage capacity.

II.b Element 2 – Treatment

SMCSD provides precautionary chlorination for its well water using a 12.5 percent sodium hypochlorite solution. Each well has its own chlorinator on the well site for the injection of chlorine into the potable water leaving the well sites. The chlorinators each have a capacity of 12 gallons per day. The sodium hypochlorite solution is contained in a plastic drum.

The chlorination systems are housed to prevent vandalism. The well water is chlorinated inline before entering the storage reservoir and/or the distribution system. The chlorination systems are equipped with low chlorine residual alarms. The wells will shut off automatically if the chlorine residuals are detected below 0.5 milligrams per liter. SMCSD uses online HACH residual analyzers to continuously monitor the chlorine residuals. Ideally, the chlorine residual is maintained at 1.2 to 1.7 mg/L in the water leaving the well sites.

On June 30, 2014, DDW reviewed the San Lawrence Terrace Well, Mission Lane and Oak Drive arsenic monitoring results from SMCSD from November 2012 to May 2014. DDW determined that the arsenic levels in the San Lawrence Terrace Well are consistently over the MCL of 10 micrograms per liter (ug/L) and there is significant blending in the distribution system. The arsenic level in the Terrace Well ranged from 5 to 16 micrograms per liter (ug/L) with an average of 12.9 ug/L from monitoring data reviewed beginning November 2012 and up to December 2015. SMCSD monitors two locations at its distribution system for arsenic levels: 8701 Oak and 1287 Mission Street. The arsenic results for the 8701 Oak location ranged 2 to 15 ug/L with an average of 6.4 ug/L for data reviewed from December 2012 to December 2015. The 1287 Mission had an arsenic result range of 4 to 8 ug/L with an average 5.4 ug/L from June 2013 to December 2015.

SMCSD does not have a formal blending facility or plan. It is currently not permitted to conduct blending treatment. The letter suggested that SMCSD developed a plan for a blending location, a sampling plan for the blending location and a permit amendment application to be submitted to DDW to add arsenic blending as an approved treatment for the San Lawrence Terrace Well.

SMCSD Chief Operator said the water system has secured a grant to build a dedicated pipe directly connecting the Terrace Well and the Terrace Reservoir. The Chief Operator said SMCSD is planning to install a new SCADA system at the reservoir to better monitor the water going into the Terrace Reservoir. SMCSD plans to submit a permit amendment application to DDW once the new pipeline is built and it is ready to start blending the Terrace Well water with Well 03 and 04 water.

II.c Element 3 – Distribution System

SMCSD’s water distribution consists of two distribution pressure zones. The pressures in the distribution zones range from 60 to 75 pounds per square inch (psi) and are maintained by the distribution reservoirs. The zones are the San Miguel and San Lawrence Terrace Zones. The San Miguel Zone has a pressure range of 60 to 75 psi. The San Lawrence Terrace Zone has a pressure range of 40 to 50 psi. SMCSD’s water mains consist of 4 to 16-inch cast iron (85 percent), 8-inch plastic polyvinyl chloride (PVC C900), steel and small percentages of 3 to 6-inch asbestos cement pipes. SMCSD maintains 10-foot horizontal and 1-foot vertical distance between potable water and sewer lines. SMCSD has a main replacement program to replace inadequate mains with at least a 6-inch PVC C900 pipes.

For newly installed lines, SMCSD will use HTH tablets or chlorine gas to disinfect them with a 24-hour contact time and a final chlorine residual of at least 25 mg/L. Bacteriological tests are made after the disinfection. For fractured mains, repairs are made under partial pressure or if a section is replaced, the line is swabbed with a chlorine solution and flushed according to American Water Works Association (AWWA) disinfection procedures. SMCSD shall use products that meet the NSF Standard 60 and 61 when disinfecting and or replacing the new, repaired or replaced lines.

SMCSD has two dead ends in the San Lawrence Terrace pressure zone. The two dead ends are flushed every six months. SMCSD has a map of all the valves in its distribution system and plans to exercise them on a yearly basis. SMCSD maintains 38 backflow prevention devices to protect its water system from cross connection. SMCSD has an ongoing program of surveying the backflow devices. Mr. Jon Williams from San Luis Obispo County Environmental Health Services is the Cross Connection Program Coordinator for SMCSD. **SMCSD is required to test all the backflow prevention devices every year.** New services shall be evaluated for any cross connections and backflow hazards. SMCSD should also periodically survey existing service connections, for potential backflow hazards or cross connections.

Year	Total Number in System	Number Installed	Number Tested	Number Failed	Number Repaired
2012	35	---	42	6	8
2013	35	1	39	3	5
2014	38	3	40	0	1
2015	41	2	35	1	5

II.d Element 4 – Finished Water Storage

SMCSD maintains two potable water storage reservoirs for the distribution system for keeping pressure in the distribution system. The reservoirs are the 630,000 Gallon Reservoir and the Terrace Reservoir. The two reservoirs have a combined capacity of 680,000 gallons.

630,000 Gallon Reservoir

The 630,000 Gallon Reservoir was constructed in 2009 above ground using welded steel. It replaced Reservoir 1, which is a buried reservoir located at the same site. Reservoir 1 is disconnected from the 630,000 Gallon Reservoir and the distribution system. The 630,000 Gallon Reservoir is 24 feet tall and 80 feet in diameter. It can store up to 630,000 gallons of water. The reservoir site is fenced and locked with a gate for access.

The 630,000 Gallon Reservoir has a common inlet and outlet, but it is equipped with a series of duckbill and check valves to adequately mix the water in the tank to minimize stagnation. SMCSD shall inspect the reservoirs mixing system and related components every five years and/or as necessary per manufacturers recommendations to ensure proper mixing system operation. **The tank, mixer and cathodic protection were visually inspected by SMCSD near the end of 2015.** The inlet/outlet pipe has flexible joints for earthquake protection. The reservoir interior is coated with epoxy and is equipped with cathodic protection. The reservoir delivers water to the distribution systems by gravity. The reservoir's overflow, drain and air vent are screened. The reservoir drains and overflows to a sump located at the reservoir site.

Terrace Reservoir

The San Lawrence Terrace Reservoir was constructed above ground in 1970 with steel. It has a capacity of 50,000 gallons. The reservoir is located on a hillside in a rural area east of the Salinas River. The reservoir site is fenced and has a locked access gate. The reservoir floats with the 630,000 Gallon Reservoir, but its overflow is three feet higher. The reservoir has a common inlet/outlet. It drains to the hillside. The reservoir receives water from the distribution system. The reservoir overflow is screened.

Name	Type	Year Built	Capacity (gallons)	Comments
630,000 Gallon Reservoir	steel	2009	630,000	Visually inspected toward end of 2015
Terrace Reservoir	Steel	1970	50,000	---

II.e Element 5 – Pumps, Pump Facilities, and Control

SMCSD has one inactive booster pump facility. There are two pumps installed at the booster pump facility. The pumps are manufactured by Emerson Motor Company and the pumps operate at one and two horse powers. The booster pumps were used to deliver water from the west side of San Miguel to the east. The booster pump station is no longer needed after the new 630,000 Gallon Reservoir was built. Currently the east side of the town is fed by gravity from the two reservoirs.

II.f Element 6 – Monitoring, Reporting, and Data Verification

California laws and regulations require a public water system to routinely monitor its groundwater sources for general physical parameters, general minerals, inorganic chemicals, radiological chemicals, volatile organic chemicals (VOCs), non-volatile synthetic organic chemicals (SOCs), total coliform bacteria, and fecal coliform bacteria (*E. coli*).

A public water system is also required to routinely monitor its distribution system for total coliform bacteria, fecal coliform bacteria, lead and copper, disinfection byproducts, chlorine residuals, and asbestos when the water has been determined to be aggressive and there are asbestos containing mains in the distribution system.

II.f.1 Chemical Source Monitoring and Reporting

II.f.1.A Source Monitoring Schedule

The following table shows the previous monitoring dates, the monitoring frequencies and the next due dates for future monitoring for primary and secondary chemicals, general physicals

and minerals of the source waters.

Table 6A: Chemical Monitoring of Sources						
Source Name & PS Code		General Physical & Minerals	Inorganic*	Radio-logical	VOCs	SOCs*
Well 03 - 4010010-0045	Last Sample	1/27/2015	9/23/2014	10/7/2014	8/17/2010	9/22/2009
	Frequency	3 Years	3 Years	6 Years	6 Years	9 years
	Next Sample	January 2018	September 2017	October 2020	August 2016	September 2018
Well 04 4010010-005	Last Sample	1/27/2015	9/23/2014	10/7/2014	8/17/2010	9/20/2006
	Frequency	3 Years	3 Years	3 Years	6 Years	9 years
	Next Sample	January 2018	September 2017	October 2017	August 2016	Due Now
Terrace Well 4010010-009	Last Sample	7/17/2014	7/17/2014	4/30/2015	11/29/2011	11/29/2011
	Frequency	3 years	3 years	6 years	6 years	9 years
	Next Sample	July 2017	July 2017	April 2021	November 2017	November 2020

* For Inorganics, asbestos is on a nine year monitoring cycle (next due date is in July 2018 for Well 03 and 04). SOCs are for atrazine and simazine only.

Table 6B: Chemical Monitoring of Sources					
Source, Name & PS Code		Nitrite (As N)*	Nitrate (As N)*	Perchlorate	Hexavalent Chromium
Well 03 - 4010010-004	Last Sample	1/27/2015	1/26/2016	11/18/2014	8/28/2014
	Frequency	3 Years	1 year	3 Years	3 Years
	Next Sample	January 2018	January 2017	November 2017	August 2017
Well 04 4010010-005	Last Sample	1/27/2015	1/26/2016	11/18/2014	8/28/2014
	Frequency	3 Years	1 year	3 Years	3 Years
	Next Sample	January 2018	January 2017	November 2017	August 2017
Terrace Well 4010010-009	Last Sample	7/17/2014	2/22/2016	7/17/2014	8/28/2014
	Frequency	3 years	1 year	3 years	3 Years
	Next Sample	July 2017	February 2017	July 2017	August 2017

For Well 03 and 04, silver (due September 2017), color and turbidity (both due February 2019) are on different monitoring tracks. Well 03 and 04 were last sampled for fluoride in 2015 and next due in January 2018. **Well 04 is overdue for atrazine and simazine. SMCS D shall take a sample from Well 04 and test for atrazine and simazine within 30 days as of this Sanitary Survey Report.**

For the Terrace Well, arsenic levels have been tested above the MCL since 2008. DDW required SMCS D to take weekly arsenic samples from the Terrace Well since the Sanitary Survey conducted in 2012. **SMCS D shall continue to conduct the weekly arsenic sampling of the Terrace Well.** DDW also required SMCS D to take weekly nitrate samples from the

Terrace well in the 2012 Sanitary Survey Report due to nitrate levels exceeding the MCL in 2007 and 2008. The Terrace Well's nitrate results have been under the MCL since April 2008. SMCSO requested the a reduce nitrate monitoring schedule for the Terrace Well on May 20, 2016 and DDW reduced the nitrate monitoring from weekly to annually. However, if the nitrate level from the Terrace Well exceeds the MCL again, SMCSO shall return to weekly sampling of the well. **There is no asbestos monitoring results in DDW file or online database for the Terrace Well, SMCSO shall take a sample from the Terrace Well and test for asbestos within 30 days as of this Sanitary Survey Report.**

II.f.1.B Source Monitoring Results

General Physical and Minerals (Secondary Drinking Water Standard)

Table 7: General Physical and Minerals					
	MCL	DLR	Well 03	Well 04	Terrace Well
Aggressive Index‡			12.6	12.0	11.8
Bicarbonate Alkalinity (mg/L) ‡			300.0	280.0	260.0
Calcium (mg/L) ‡			65.0	51.0	11.0
Carbonated Alkalinity (mg/L) ‡			BDL	BDL	BDL
Hydroxide Alkalinity (mg/L) ‡			BDL	BDL	BDL
Magnesium (mg/L) ‡			58.0	46.0	8.0
pH‡			8.0	7.5	8.0
Sodium (mg/L) ‡			108.0	70.0	110.0
Total Hardness as CaCO ₃ (mg/L) ‡			401.0	317.0	60.4
Aluminum (mg/L)	0.2		0.03	BDL	BDL
Color (Units)	15		BDL	BDL	BDL
Copper (mg/L)	1.0	0.05	0.01	BDL	BDL
Foaming Agents (MBAS) (mg/L)	0.5		Needs Resend	Needs Resend	BDL
Iron (mg/L)	0.3	0.1	0.18	0.08	0.07
Manganese (mg/L)	0.05	0.02	BDL	BDL	BDL
Methyl-tert-butyl ether (MTBE) (mg/L)*	0.005		BDL	BDL	BDL
Odor – Threshold (Units) at 60 degree Celsius	3	1	BDL	BDL	BDL
Silver (mg/L)	0.1	0.1	BDL	BDL	BDL
Thiobencarb (mg/L)†	0.001		---	---	---
Turbidity (Units)	5	0.1	0.2	0.1	1.1
Zinc (mg/L)	5.0	0.05	BDL	0.03	BDL
Total Dissolved Solids (mg/L)					
Total Dissolved Solids (mg/L)	1000*		800	600.0	400.0
Specific Conductance (mS/cm)					
Specific Conductance (mS/cm)	1.600*		1,250	929.0	569.0
Chloride (mg/L)					
Chloride (mg/L)	500*		142.0	87.0	22.0
Sulfate (mg/L)					
Sulfate (mg/L)	500*	0.5	200.0	127.0	39.0

*The values for Total Dissolved Solids, Specific Conductance, Chloride, and Sulfate are upper values of MCL ranges for which no fixed MCL has been established.

†Thiobencarb is waived from monitoring.

‡These constituents do not have any MCLs or DLRs.

MCL = maximum contaminant levels, DLR = Detection Limits for Purposes of Reporting

BDL = Below Detection Limit. The BDLs for the General Physical and Minerals are set at or below the DLR levels.

SMCSD's active wells met the general physical and minerals MCLs. **SMCSD sampled for foaming agents back in February 2015 for Well 03 and 04, but the results were not presented in DDW online database, SMCSD shall request its laboratory to re-send the Well 03 and 04 foaming agents results to DDW electronically.**

Inorganic Chemicals

Table 8: Inorganic Chemicals					
	MCL (mg/L)	DLR (mg/L)	Well 03	Well 04	Terrace Well
Aluminum	1.	0.05	0.03	BDL	BDL
Antimony	0.006	0.006	BDL	BDL	BDL
Arsenic	0.010	0.002	0.003	0.003	0.011
Asbestos*	7 MFL*	0.2 MFL > 10 um*	BDL	BDL	Due Now
Barium	1.	0.1	0.0783	0.0758	0.0721
Beryllium	0.004	0.001	BDL	BDL	BDL
Cadmium	0.005	0.001	BDL	BDL	BDL
Chromium (total)	0.05	0.01	0.002	0.002	BDL
Cyanide*	0.15	0.1	---	---	---
Fluoride	2.0	0.1	0.3	0.4	0.2
Hexavalent Chromium	0.010	0.001	BDL	0.0012	BDL
Lead		0.005	0.0013	BDL	BDL
Mercury	0.002	0.001	0.00005	0.00003	BDL
Nickel	0.1	0.01	BDL	0.001	BDL
Nitrate (as N)	10.	0.4	4.3	3.4	4.8
Nitrate + Nitrite (sum as N)	10.	---	5.7	3.4	1.5
Nitrite	1.	0.4	BDL	BDL	BDL
Perchlorate	0.006	0.004	BDL	BDL	BDL
Selenium	0.05	0.005	0.004	0.004	0.007
Thallium	0.002	0.001	BDL	BDL	BDL

*MFL = million fibers per liter, MCL for fibers exceeding 10 micro-meter (um) in length.
BDL is set at or below the DLR levels.

The wells are waived from cyanide monitoring requirements. SMCSD Well 03 and 04 met the inorganics drinking water standards. **The Terrace Well exceeded the arsenic MCL in its latest sampling event and has had levels of arsenic exceeding the MCL dating back to July 2008. The Terrace Well is required to be sample weekly as a result of the 2012 Sanitary Survey and SMCSD shall continue the weekly arsenic monitoring. SMCSD has not analyzed the Terrace Well for asbestos and therefore must collect an asbestos sample within 30 days as of this Sanitary Report.**

Radioactivity

The following table has the latest monitoring results for radiological activities for SMCSD's active wells. SMCSD has completed this round of radiological activity sampling. Well 04's Gross Alpha (GA) result is above half the MCL, it shall be sampled at least every three years. The GA results for Well 03 and the Terrace Well are above the DLR but below half the MCL, the two wells shall be sampled at least every six years.

Table 9: Radiological Results					
	Gross Alpha (GA)	GA Counting Error	Radium 226	Radium 228	Uranium
MCL (pCi/L)	15	---	Ra-226 + Ra-228 = 5		20

DLR (pCi/L)	3	---	1	1	1
Well 03	4.07	1.96	GA+0.84xCE-Ur: ¥ 4.07+0.84x1.96-7.02= -1.30<5 This single sampling event is completed.		GA+0.84xCE: † 7.02
Well 04	13.1	2.89	13.1+0.84x2.89-10.1= 5.4 This single sampling event is completed.		10.1
Terrace Well	3.98	1.62	This single sampling event is completed.		3.98+0.84x1.62= 5.34 This single sampling event is completed.

†GA+0.84xCE is used to find out if further sampling is required for uranium and/or radium isotopes. GA=Gross Alpha result; CE is the gross alpha counting error.

¥GA+0.84xCE-Ur is used to determine if further sampling for radium isotopes. Ur is uranium concentration.

Volatile Organic Chemicals

The most recent sampling results showed SMCS D's active well's volatile organic chemicals (VOCs) levels were below the DLR levels. SMCS D shall continue to monitor its sources for VOCs according to the monitoring schedule.

Table 10: Volatile Organic Chemicals Results					
	MCL (mg/L)	DLR (mg/L)	Well 03	Well 04	Terrace Well
Benzene	0.001	0.0005	BDL	BDL	BDL
Carbon Tetrachloride	0.0005	0.0005	BDL	BDL	BDL
1,2-Dichlorobenzene	0.6	0.0005	BDL	BDL	BDL
1,4-Dichlorobenzene	0.005	0.0005	BDL	BDL	BDL
1,1-Dichloroethane	0.005	0.0005	BDL	BDL	BDL
1,2-Dichloroethane	0.0005	0.0005	BDL	BDL	BDL
1,1-Dichloroethylene	0.006	0.0005	BDL	BDL	BDL
cis-1,2-Dichloroethylene	0.006	0.0005	BDL	BDL	BDL
trans-1,2-Dichloroethylene	0.01	0.0005	BDL	BDL	BDL
Dichloromethane	0.005	0.0005	BDL	BDL	BDL
1,2-Dichloropropane	0.005	0.0005	BDL	BDL	BDL
1,3-Dichloropropane	0.0005	0.0005	BDL	BDL	BDL
Ethylbenzene	0.3	0.0005	BDL	BDL	BDL
Methyl-tert-butyl ether (MTBE)	0.013	0.003	BDL	BDL	BDL
Monochlorobenzene	0.07	0.0005	BDL	BDL	BDL
Styrene	0.1	0.0005	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane	0.001	0.0005	BDL	BDL	BDL
Tetrachloroethylene	0.005	0.0005	BDL	BDL	BDL
Toluene	0.15	0.0005	BDL	BDL	BDL
1,2,4-Trichlorobenzene	0.005	0.0005	BDL	BDL	BDL
1,1,1-Trichloroethane	0.200	0.0005	BDL	BDL	BDL
1,1,2-Trichloroethane	0.005	0.0005	BDL	BDL	BDL
Trichloroethylene	0.005	0.0005	BDL	BDL	BDL
Trichlorofluoromethane	0.15	0.005	BDL	BDL	BDL
1,1,2-Trichloro-1,2,2-Trifluoroethane	1.2	0.01	BDL	BDL	BDL
Vinyl Chloride	0.0005	0.0005	BDL	BDL	BDL
Xylenes	1.750*	0.0005	BDL	BDL	BDL

*MCL is for either a single isomer or the sum of the isomers.

BDL is set at or below the DLR levels.

Non-Volatile Synthetic Organic Chemicals (SOCs)

SMCS D is required to test its active wells for atrazine and simazine. The following table has the

latest results for the active wells. **Well 04's SOCs last monitoring date was September 2015 and DDW does not have any SOCs result for that sampling event in the file or online database. SMCSD shall sample Well 04 for the SOCs if it has not completed the sampling or have its laboratory re-send the results to DDW electronically if the sampling had been completed.**

Table 11: Non-Volatile Synthetic Organic Chemicals					
	MCL (mg/L)	DLR (mg/L)	Well 03	Well 04	Terrace Well
Atrazine	0.001	0.0005	BDL	Due Now	BDL
Simazine	0.004	0.001	BDL	Due Now	BDL

Raw Water Bacteriological Monitoring and Reporting

SMCSD is monitoring its wells monthly for bacteriological activity. The following table has the bacteriological results since 2014 for active wells. No total coliform or *E. Coli* positive samples were observed since 2014.

Table 12: Active Wells Bacteriological Monitoring Results (Total Coliform and <i>E. Coli</i>)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Well 03												
2014		1-0-0	1-0-0	<1.0, <1.0	1-0-0	1-0-0	---	1-0-0	1-0-0	<1.0, <1.0	1-0-0	1-0-0
2015	<1.0, <1.0	1-0-0	1-0-0	<1.0, <1.0	1-0-0	1-0-0	---	1-0-0	---	---	1-0-0	1-0-0
2016	<1.0, <1.0	1-0-0	1-0-0									
Well 04												
2014		1-0-0	1-0-0	<1.0, <1.0	1-0-0	1-0-0	---	1-0-0	1-0-0	<1.0, <1.0	1-0-0	1-0-0
2015	<1.0, <1.0	1-0-0	1-0-0	<1.0, <1.0	1-0-0	1-0-0	---	1-0-0	1-0-0	<1.0, <1.0	---	1-0-0
2016	<1.0, <1.0	1-0-0	1-0-0									
Terrace Well												
2014		1-0-0	1-0-0	<1.0, <1.0	---	1-0-0	<1.0, <1.0	1-0-0	1-0-0	<1.0, <1.0	1-0-0	1-0-0
2015	<1.0, <1.0	1-0-0	1-0-0									
2016	<1.0, <1.0	1-0-0	1-0-0									

Key: # of samples collected - # of total coliform positive results - # of *E. coli* positive results; numbers are the MPNs.

II.f.2 Distribution System Monitoring and Reporting

II.f.2.A Distribution System Monitoring Schedule

The Aggressive Index (AI) values for SMCSD's active wells range from 11.8 to 12.6 based on the latest sampling results. Since the AI values for SMCSD's active wells are over 11.5, therefore the wells' water was not considered corrosive towards asbestos cement pipes. **SMCSD does not need to take any asbestos samples in its distribution system.**

SMCSD chlorinates its potable water prior to entering the storage reservoir and/or the

distribution system. It is required to monitor the chlorine residual in its distribution system. SMCSD needs to monitor for disinfection by-products – haloacetic acids (HAA5) and total trihalomethanes (TTHMs) – in the distribution system.

SMCSD took lead and copper samples in June 2014. The next round of sampling will be due in the summer months of 2017. The following table has the monitoring schedules for the distribution system.

Table 13: Distribution System Monitoring				
Site Name & PS Code		HAA5	TTHMs	Residual Chlorine
STG 2 – 2950 Telegraph Rd (Space 8) 5601144-003	Last Sample	9/21/2015	9/21/2015	***
	Frequency	1 year	1 year	Monthly
	Next Sample	September 2016	September 2016	***

II.f.2.B Distribution System Monitoring Results

Disinfection Byproducts Monitoring Results

SMCSD currently needs to comply with the reduced Stage 2 Disinfectants/Disinfection Byproducts (DBPs) Rule monitoring requirements. DDW has a copy of SMCSD's Stage 2 D/DBPs Plan dated August 6, 2012. SMCSD collects one dual routine sample at a location from its distribution system to test for HAA5 and TTHMs to comply with monitoring requirements for DBPs. SMCSD needs to collect one HAA5 and one TTHM sample yearly from its distribution system. The following table has the monitoring results for HAA5 and TTHMs since 2013. No results were found for 2013.

Table 14: HAA5 and TTHMs Results					
Site Name & PS Code	DBPs	MCL (mg/L)	2013 (mg/L)	2014 (mg/L)	2015 (mg/L)
STG 2 – 8701 Oak St. 4010010-011	HAA5	0.060	---	0.001	0.002
	TTHMs	0.080	---	0.0089	0.0114

Chlorine Results

To comply with the maximum residual disinfectant level (MRDL) for chlorine of 4.0 mg/L, SMCSD monitors its distribution systems for total chlorine residual. It collects at least one monthly sample, along with the bacteriological sample, to analyze for the chlorine residual. The following table has the results from 2013 to present chlorine residual levels from SMCSD's distribution system. The Location Running Annual Average (LRAA) for 2013 and 2014 are 1.29 and 1.28 mg/L, which are under the MRDL of 4 mg/L. **DDW does not have chlorine results from SMCSD since January 2016. SMCSD shall submit the chlorine residual results to DDW quarterly.**

Table 15: Distribution Chlorine Residuals Results (mg/L)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	1.45	1.27	1.17	1.41	1.39	1.26	1.33	1.31	1.21	1.06	1.30	1.34
2014	1.24	1.24	1.18	1.32	1.27	1.44	1.18	1.32	1.21	1.32	1.39	1.26
2015	1.37	1.17	1.26	1.31	1.46	1.44	1.18	1.23	1.19	1.18	1.28	1.13
2016												

Lead and Copper Results

For compliance with the Lead and Copper Rule (LCR), SMCSD collects and tests 10 LCR samples from its customers' taps in the reduced LCR monitoring. Recent results are summarized in following table. The lead and copper 90th percentile results were under the action level for samples taken in 2008, 2011 and 2014. In 2011, SMCSD only took five LCR samples and DDW notified SMCSD that it is required to take 10 LCR samples in 2014. SMCSD notified its customers of the latest Lead and Copper testing results.

Table 16: Lead and Copper Monitoring of Distribution System					
Sampling Date	# of Samples	90 th % Lead (mg/l)		90 th % Copper (mg/l)	
		Action Level	0.015	Action Level	1.3
		DLR	0.005	DLR	0.050
August 2008	9	<0.005		0.162	
August 2011	5	<0.005		0.15	
June 2014	10	0.0008		0.123	

II.f.3 Bacteriological Monitoring and Reporting

SMCSD has a Coliform and Groundwater Rule Sample Siting Plan (CGSSP) date June 23, 2011 with DDW. DDW reviewed and approved the CGSSP on June 27, 2011. The CGSSP shall be updated when necessary or at least every 10 years. According to the plan, SMCSD conducts monthly monitoring of its distribution system and the active wells for bacteriological quality. It also takes monthly bacteriological samples from the Terrace Reservoir. SMCSD has eight distribution sampling locations for bacteriological monitoring purpose. It collects eight bacteriological samples per month.

The United States Environmental Protection Agency's (US/EPA) revised Total Coliform Rule (rTCR) went into effect on April 1, 2016. Currently public water systems in California have to comply with both the state's Total Coliform Rule and the Federal's rTCR. Some major revisions in the Federal rTCR include bacteria to be monitored, notification requirements, Levels 1 and 2 Treatment Technique assessments for monitoring and MCL violations. More information regarding compliance with the Federal rTCR and state Total Coliform Rule can be found in the State Water Resources Control Boards rTCR website at:

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/rtrc.shtml

The following table summarizes the number of samples collected each month, the number of samples tested positive for total coliform bacteria and for *E. coli* for SMCSD's distribution system since 2013.

Table 17: Bacteriological Monitoring (Total Coliform and <i>E. coli</i>)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0
2014	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0
2015	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0	8-0-0
2016	8-0-0	8-0-0	8-0-0									

Key: # of samples collected - # of total coliform positive results - # of *E. coli* positive results

II.g Element 7 – System Management and Operations

SMCSD is a community water system. It is governed by a five-member Board of Directors. The President of the Board is Mr. John Green and the Vice President is Mr. Larry Reuck. The remaining three Directors are Mr. Anthony Kalvans, Mr. Gib Buckman and Mr. Travis Dawes. Mr. David Bentz is the interim General Manager. Mr. Kelly Dodds is the chief operator and Utilities Supervisor. Ms. Michelle Farrar is the water system's financial contact. SMCSD charges its customers a monthly flat base rate and variable usage rate for the potable water.

DDW has an Emergency Notification Plan (ENP) on file for SMCSD dated February 23, 2012. **Some of the information is outdated in the ENP, SMCSD shall update the ENP with the most current information.** SMCSD has not submitted its 2015 Annual Report to DDW through the Electronic Annual Reporting System, SMCSD shall submit its 2015 Annual Report electronically within 30 days as of this Sanitary Survey report. SMCSD distributed a copy of its 2014 Consumer Confidence Report (CCR) to its customers on June 15, 2015.

SMCSD reported and repaired four distribution system problems for 2014 regarding cracked mains. SMCSD did not receive any complaints from its customers in 2014. SMCSD reported that its wells' water levels are steady for 2014.

II.h Element 8 – Operator Compliance with State Requirements

SMCSD is classified as a D2 and TD water system. Mr. Dodds is the treatment and distribution Chief Operator. Mr. Dodds has a T2 and D2 operator certification. The following table has the operators' certifications information.

Table 18: Operator Certifications			
Name	Grade	Operator Number	Expiration Date
Kelly Dodds	T2	30803	2/1/2018
	D2	34874	8/1/2018
David Tracey	T2	36179	1/1/2018
	D2	39910	3/1/2019

III. CONCLUSION

The review of SMCSD's reports and routine water quality monitoring results indicates SMCSD's potable water meets all the applicable primary maximum contaminant levels, except for arsenic in the Terrace Well. SMCSD shall continue monitor the Terrace well weekly for arsenic due to its exceedance of the arsenic MCL. SMCSD's active wells also meet the secondary MCLs. SMCSD is capable of providing potable water to its customers that meet the California drinking water standards.

A site inspection of SMCSD's well, storage tanks, distribution system and booster pump stations shows SMCSD manages its system properly and according to the California drinking water laws and regulations.