

## San Joaquin County Grand Jury



### **Water, Water Everywhere But Can We Drink It? 2012–2013 Case No. 0712—Informational Report**

#### **Summary**

*“Never drink the water here.”* That is what local newspaper articles have reported, indicating that in some rural areas of San Joaquin County, the water supply from privately owned water wells is unsafe for public consumption. More importantly, recent notification to customers of high levels of arsenic in groundwater wells in two cities in San Joaquin County indicated unsafe drinking water. In light of this, the 2012-2013 San Joaquin Grand Jury (Grand Jury) reviewed the inspection reports of five drinking water treatment plants and toured plant facilities. This was to ensure that water provided by the municipal entities is of the highest quality and safe for public consumption. This informational report is a result of Grand Jury tours and information gathered on how and where our water supplies originate. The question remains: *“is our drinking water safe?”*

#### **Glossary**

<b>Aquifer</b>	An aquifer is an underground layer of water-bearing permeable rock or unconsolidated materials (gravel, sand, or silt) from which groundwater can be extracted.
<b>Arsenic</b>	Enters drinking water supplies from natural deposits in the earth or from agricultural and industrial practices.
<b>CCR</b>	Consumer Confidence Report. These reports are also known as annual water quality reports or drinking water quality reports.

<b>EPA</b>	The Federal Environmental Protection Agency was founded to “protect human health and to safeguard the natural environment – air, water, and land—upon which life depends.”
<b>Municipal</b>	Pertaining to a town or city.
<b>Proposition 84</b>	Safe Drinking Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006.
<b>Safe Drinking Water Information System</b>	Federal data base of information regarding public water systems including violations of EPA standards.
<b>TTHMS</b>	Four organic chemicals: chloroform, bromodichloromethane, dibromochloromethane, and bromoform, which form when disinfectants react with natural organic matter in water.

## **Background**

Municipal water systems in San Joaquin County receive their water supply from both underground and surface water. County water resources include rivers, streams, channels, lakes, and underground aquifers. An expanding population and increasing industrial development are placing pressures on the County’s present water supply. At the same time, commercial and domestic waste, agricultural discharge and water-related recreational activities are threatening the water quality.

Water systems come in all shapes and sizes. They can be publicly or privately owned and maintained. While their designs may vary, they all share the same purpose -- providing safe, reliable drinking water to the communities they serve.

The types of treatment provided by specific municipal water systems vary depending on the size of system, whether they use groundwater or surface water and the quality of the source. Treatment for conventional surface water is usually more intense, but has a standard sequence of processes to remove contaminants. Ground water sources generally have a higher initial quality and tend to require less treatment for specific contaminants than surface water.

Drinking water is monitored for a wide variety of contaminants to verify it meets all federal and state quality standards. The major classes of contaminants include: volatile organic compounds (chlorinated solvents and fuel components), synthetic organic compounds (herbicides, pesticides), inorganic compounds (chemical elements containing no carbon atoms), radionuclides (radioactive contaminants) and microbial organisms including bacteria. Testing for these contaminants takes place on varying schedules and at different locations throughout the water treatment system.

Although the water may be safe when leaving the water treatment plants, it is critical to ensure that contamination does not occur in the distribution system.

The Grand Jury toured water plant facilities and observed coagulation, sedimentation, filtration, disinfection and other water treatment processes. The Grand Jury also viewed automated computer systems which fully operate and monitor water quality, reliability, as well as overall plant safety and security. Discussions were held with the California Department of Public Health (CDPH) drinking water inspectors, water treatment plant district managers and general managers, chief operations supervisors, drinking water chemists, a City Public Works Director and a civil senior engineer. A review of CDPH annual water treatment inspection reports and California domestic water quality and monitoring regulations reports was completed. The California Code of Regulations, Title 22, Chapter 19, Section 64449 (Secondary Maximum Contaminant Levels and Compliance) and the California Health and Safety Code, Section 116470 require these reports. The Grand Jury also reviewed the consumer confidence reports on drinking water.

Data from the CDPH are submitted either quarterly or annually to the Safe Drinking Water Information System. These data include San Joaquin County drinking water treatment information, violations of maximum contaminant levels (MCL) and the recording of treatment techniques. Violations regarding public and consumer notifications as well as information on enforcement activity are also included. In addition, CDPH provides the Federal Environmental Protection Agency (EPA) with an annual compliance report of violations of primary drinking water standards.

The Grand Jury reviewed important drinking water warning notifications from the Water Division Departments of the City of Lathrop and the City of Manteca. The notifications, mailed respectively on January 2013, and November 2012, advised their customers that several groundwater wells contained a principle contaminant, arsenic. A principal contaminant is a chemical detected above a public drinking water standard on two or more samplings. CDPH arsenic monitoring MCL reports indicate that arsenic is the most naturally-occurring principal contaminant in the southern portion of the San Joaquin Valley with readings greater than 10 ppb. This area includes Kern, Merced, Tulare and Stanislaus counties, to name a few. Arsenic is a known carcinogen. According to the Centers for Disease Control and Prevention, it has been linked to cancer of the bladder, lungs, skin, kidney, nasal passages, liver and prostate. Non-cancer effects of arsenic can include thickening and discoloration of the skin, stomach pain, nausea, vomiting and diarrhea.

On January 22, 2001, the EPA adopted a new standard for arsenic in drinking water at 10 parts per billion (ppb), replacing the prior EPA standard of 50 ppb. This new standard took effect on February 22, 2002, but water systems were not required to comply with the standard until January 23, 2006. Fourth-quarter 2012 reporting of MCL's for arsenic in the City of Lathrop's groundwater well was at 10.1 ppb. As of November 1, 2012, the City of Manteca reported MCL's at 10.4 ppb. Both cities exceeded the MCL standard of 10 ppb for arsenic.

Approved methods to filter arsenic out of groundwater are currently in use in both Lathrop and Manteca. The City of Lathrop has a newly operational Louise Avenue Water Treatment Facility, which provides an arsenic-reduction filtration system for five of its groundwater wells.

The City of Manteca uses a 50-50 blending mixture of surface and well water for 14 of its wells. Bayoxide E33, a dry media in granular or pellet form which has a high capacity for arsenic absorption is also used. The result is arsenic MCL's meet EPA standards in both the City of Lathrop and the City of Manteca.

As this report was being written, the EPA notified the City of Stockton's Delta Water Supply Project Treatment Plant (DWSP) that levels of total trihalomethane (TTHMs) exceeded the EPA standards. DWSP levels of TTHMs ranged from 82-96 parts per billion (ppb). The EPA standards for TTHMs are 80 ppb. Increase of TTHM's can typically occur in the winter during heavy rain storms and spring months. Although the United States EPA has not conducted cancer assessments for TTHMs, there are potential health effects from their ingestion in water including liver, kidney and central nervous system problems. Public notification of this violation occurred on March 15, 2013.

The City of Stockton is implementing a new method of disinfecting drinking water. This method will help convert a portion of the City's drinking water from chlorine disinfection to chloramine disinfection. This new process is less reactive to organic matter in the water than chlorine and reduces the formation of disinfection byproducts.

The City of Stockton estimates the levels of TTHMs should once again be in compliance with EPA standards within three to four months from the date this report is released.

The following is a brief background of the five drinking water treatment plants toured:

**City of Lathrop Louise Avenue Water Treatment Facility  
2112 East Louise Avenue, Lathrop, California**

This is a new centralized water treatment facility known as the Louise Avenue Water Treatment Facility, located in the City of Lathrop's new corporation yard. The facility is currently treating the groundwater supply from wells six, seven, eight, nine and ten for arsenic and has been successful in meeting EPA standards for MCL levels of 10 ppb.

At the time of the Grand Jury's February 2013 visit, the California Department of Public Health had not yet certified this new facility. Until the facility meets with the complete satisfaction of the CDPH, the monitoring and oversight of its operation will remain under their supervision. Upon certification, training will begin for City of Lathrop Public Works employees to take complete control of the facility. The cost of this facility is \$10 million dollars and the City of Lathrop has applied for a State revolving loan from the CDPH to help finance a portion of its capital cost.

**Dr. Joe D. Waidhofer Water Treatment Plant  
6767 East Main Street, Stockton, California**

Stockton East Water District (SEWD) was established in 1948 under the 1931 Water Conservation Act of the State of California. Constructed in 1977, the SEWD Dr. Joe D. Waidhofer Water Treatment Plant began operations in 1978.

Today, SEWD's service area encompasses approximately 143,300 acres. It supplies wholesale treated surface water to Stockton area customers through the California Water Service Company, the City of Stockton and unincorporated areas which includes the Lincoln Village Maintenance District and Colonial Heights Maintenance District. The plant operates at a rate of 50 million gallons per day (mgd) with future plans to expand the facility to operate at 60 to 70 mgd. The plant receives most of its water supply from New Melones Reservoir on the Stanislaus River and New Hogan Reservoir on the Calaveras River via pipelines to the SEWD. The 2012 CDPH *Annual Water Treatment Report* describes the SEWD treatment plant as well operated, maintained and in compliance with water quality standards.

**Nick DeGroot Water Treatment Plant**  
**5855 Dodds Road, Oakdale, California**

South San Joaquin Irrigation District's (SSJID) Nick C. DeGroot Water Treatment Plant was dedicated on July 14, 2005. It produces 40 mgd of surface water. This plant provides treated surface water to the cities of Lathrop, Manteca and Tracy through an agreement reached in 1995 with SSJID. The City of Escalon also has an agreement for SSJID water but has opted to sell its allotment of raw surface water to the City of Tracy and remains without any constructed facilities to receive SSJID water. In the future, Escalon may choose to be a recipient of SSJID water. Raw water for the treatment plant is available through SSJID's Stanislaus River Water Rights. The river water is conveyed through an existing diversion structure at the Goodwin Dam to the South San Joaquin Main Supply Canal and then to Woodward Reservoir.

Pumps then direct water from the reservoir to the water treatment plant. CDPH's overall system appraisal indicates that the SSJID ultra-filtration membrane provides a safe and wholesome source of drinking water to customers of the SSJID water system. It complies with all state and federal regulations. The adjacent Robert O. Schulz Solar Farm supplies electricity for the treatment plant. The solar farm, built in 2008, is comprised of 6,720 photovoltaic panels set on seven acres of land and currently generates about 419 kW of electricity daily. It will save the SSJID nearly \$400,000 a year in utility costs.

**City of Stockton Delta Water Supply Project**  
**11373 North Lower Sacramento Road, Lodi, California**

City of Stockton's Delta Water Supply Project (DWSP) completed in June of 2012, is located on 60 acres north of Eight Mile Road. DWSP received the Leadership in Energy and Environmental Design (LEED) Gold Award, for its Administration building and landscaping. LEED is the nation's preeminent program for design, construction and operation of high-efficiency buildings. The United States Green Building Council established the LEED award with verification made by the Green Building Certification Institute. Tax-exempt bonds, a federal rebate and a \$12.5 million dollar grant from the State of California provided through Proposition 84 helped partially fund the City of Stockton DWSP construction.

The DWSP project includes a new intake and pump station that diverts water from the San Joaquin Delta through an underground pipeline to the new \$211 million dollar DWSP facility. The initial phase will allow 30 mgd of water to be treated and delivered to 170,000 residences north of March Lane, meeting approximately one-third of Stockton's water needs. At the final build-out, estimated to be in 2050, the water treatment plant will have the capacity to treat up to 160 mgd.

**City of Tracy John Jones Water Treatment Plan  
6640 South Tracy Boulevard, Tracy, California**

The City of Tracy John Jones Water Treatment Plant (JJWTP) was not in operation due to standard maintenance/repairs at the time of the Grand Jury's visit. Because the plant was not in operation, the Grand Jury was able to view the intricate components of the plant. Sources of the City of Tracy's water supply include the Stanislaus River through the Nick DeGroot Water Treatment Plant, the Delta Mendota Canal and nine groundwater wells. The JJWTP releases 15 mgd of water a day to the City of Tracy and its surrounding areas. Inspections by CDPH Drinking Water Division engineers indicated that the operation of the water system was satisfactory and all state and federal drinking water requirements were met.

**Other Potential Water Impacts:**

The recent push by State government for the Bay Delta Conservation Plan (BDCP) has sparked a heated debate over how this may impact our County's water supply. The estimated cost of this project is \$23.7 billion and would require the construction of twin water tunnels 35 miles in length and 40 feet in diameter. These tunnels would siphon water using three intakes on the Sacramento River just below Freeport. The water would travel some 60 miles underground to pumping facilities near Tracy. With the use of existing canals, the water will be moved to farms in the southern San Joaquin Valley and to cities farther south such as Los Angeles and San Diego. Proponents of the tunnel project estimate the system would be capable of diverting 67,500 gallons of water per second, enough to fill six Olympic swimming pools per minute, when completed.

Due to incomplete and conflicting reports provided by experts studying all aspects of the tunnel project, many farmers, urban and environmental groups, believe the tunnel project could make things worse for Delta farmers regarding water availability and quality. Farmers now irrigate with water cleansed as it flows through the Delta. If the tunnel project moves ahead, the resulting water supply could contain more salinity and toxins which could damage crops.

During each tour of water treatment facilities, the Grand Jury asked water treatment officials their opinions concerning the potential impact of the tunnel project. The Grand Jury was interested in learning the effects it could have on future water supplies and on the quality of water in the Delta. Each expert cited a lack of information and would not comment saying there are too many variables and too little definitive data. However, a local newspaper article reported on a draft resolution of the San Joaquin County Supervisors which called the project "...a modern day incarnation of the peripheral canal..." and stated "It would be destructive to the economy, habitat, water rights, water quality, land use governance, and way of life for the County."

Any changes to California's water distribution and its effect on future water supplies and water quality remain a mystery.

## **Method of Investigation**

The 2012-2013 Grand Jury reviewed water treatment inspection reports, interviewed drinking water treatment officials and their employees and conducted site visits.

### **Materials Reviewed**

- City of Escalon CDPH Report
- City of Lathrop CDPH Report and CCR
- City of Manteca CDPH Report
- City of Ripon CDPH Report and CCR
- South San Joaquin Irrigation CDPH Report
- City of Stockton CCR
- Stockton East Water District CDPH Report

### **Interviews Conducted**

- California Department of Public Health Drinking Water Inspectors
- General Managers of Water Districts
- Chief of Municipal Operations
- City Senior Civil Engineer
- Chief Plant Operator
- Water Treatment Chemists
- City Director of Public Works

### **Sites Visited**

- City of Lathrop Louise Avenue Water Treatment Facility
- SEWD -Dr. Joe Waidhofer Water Treatment Plant
- SSJID -Nick DeGroot Water Treatment Plant
- City of Stockton Delta Water Supply Project
- City of Tracy John Jones Water Treatment Plant
- Goodwin Dam, water source for SSJID
- Tulloch Dam, water source for SSJID
- SSJID Robert O. Schulz Solar Farm Single Axis Solar Tracking System

## **Conclusion**

After the Grand Jury conducted many interviews, reviewed water quality reports by the State and local entities, and toured five water treatment plants, it is evident that the major public water systems of San Joaquin County provide safe drinking water. In the few instances where contaminant standards were non-compliant, the levels of the contaminants are close to state and federal standards. In these instances, additional efforts to be compliant with EPA standards are under way.

## **Disclaimer**

Grand Jury reports are based on documentary evidence and the testimony of sworn or admonished witnesses, not on conjecture or opinion. However, the Grand Jury is precluded by law from disclosing such evidence except upon specific approval of the Presiding Judge of the Superior Court, or another judge appointed by the Presiding Judge (Penal Code Section 911, 924.1 (a) and 929). Similarly, the Grand Jury is precluded by law from disclosing the identity of witnesses except upon an order of the court for narrowly defined purposes (Penal Code Section 924.2 and 929).