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SECRETARY FOR  
ENVIRONMENTAL PROTECTION

**State Water Resources Control Board**

Division of Drinking Water

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APR 27 2016

CITY OF  
WHEATLAND

April 18, 2016

City of Wheatland  
P.O. Box 395  
Wheatland, CA 95692

Attention: Larry L. Panteloglow, Sr., Public Works Director

Subject: City of Wheatland, Public Water System No. 5810004 – Fiscal Year 2015-2016 Annual Inspection

On April 14, 2016, Paul Rowe of my staff met with you, Don Scott, Terrence Hill, and Josh Tarrant to conduct an annual inspection of the City of Wheatland public water system. The City's water system appears to be generally well maintained and operated. No deficiencies were noted during the inspection. Please see the enclosed report for further information.

If you have any questions or comments concerning this inspection, please call Paul Rowe at (530) 224-4866, or myself at (530) 224-4861.

Reese Crenshaw, P.E.  
Valley District Engineer  
Drinking Water  
Field Operations Branch

Enclosures

State Water Resources Control Board  
Division of Drinking Water  
Annual Inspection Report

Purveyor City of Wheatland System Number 5810004  
Person(s) Contacted/Position Larry Panteloglou, Sr. (Director); Don Scott (Superintendent)  
Date of Inspection April 14, 2016 Reviewing Engineer Paul Rowe, P.E.  
Previous Annual Inspection April 1, 2015 by Dan Cikuth, P.E. District Engineer Reese Crenshaw, P.E.

**A. INTRODUCTION**

**1. Permit Status (Date Issued/Amendment Purpose)**

Full: A water permit was issued to the City on January 22, 1954, for the 70,000-gallon (nominal) elevated storage tank (old Southern Pacific RR water tank) and old wells that existed at that time. The old wells have been destroyed.

Amendment(s): November 21, 1962 for Well 5 (Town & Country Garden Subdivision)  
February 28, 1995 for Well 6 (high school well).  
February 12, 2001, for new Well 4 (next to police station)  
January 28, 2003 for new Well 3 (corp yard), new Well 7 (Forecast homes), and  
new 660,000 bolted steel ground water storage tank with booster station.  
February 4, 2004, for Well 8 (Wheatland Ranch)  
October 2012, for continuous chlorination

Are the permit provisions complied with? Yes.

Is the permit up to date? Yes.

List data sheets on file (permit, files, etc.): Well data sheets, reservoir data sheets, and a distribution data sheet are in the permit file.

**2. Changes in System**

Since last annual inspection: Well #3 was rehabilitated (new column, shaft, bearings and impellers. Cleaned well screens and motor rewound with new bearings and ratchet assembly). The SCADA integration plan has been completed.

Planned future changes: The City is waiting on the availability of the developer (Louis Homes) to get started with the Heritage Oaks East subdivision. This may not happen until late 2016 to 2017. The first phase will be the construction of one new well and a 600,000 gallon storage tank. The second phase involves the construction of an additional well and a 1.2 MG storage tank. As finances provide, the City plans to rehabilitate Well #8, then Well #4. The City will also replace one or two more Hach Cl-17 chlorine analyzers with Analytical Technology Inc.'s Model Q46H. Because water usage has dropped almost 35% since 2013, the City is looking to increase water rates in order to continue funding the normal operation and maintenance of the water system.

**3. Consumer & Production Data (from 2015 Annual Report)**

Number of service connections 1,186 Number with meters 1,186

Approximate population served: 3,437

Water produced during recent 12-month period (January – December 2015) 199.1 MG

Maximum month: 23.32 MG (July 2015) Maximum day: 1.356 MG (October 5, 2015)

#### 4. Past Water Production Data

**Table 1 – Water Use Data\*\***

Year	Max. Month MG	Max. Day x1.5 gpm	Report Max. Day MG	Max. Day gpm	Total Conn.	GPM PDPC	Meter Conn.	Flat Conn.	Source Capacity gpm	Max. Pop.
2004	62.1	2,087	2.46	1,708	1,198	1.43	1,198	0	4,050	3,194
2005	49.0	1,647	2.18	1,514	1,198	1.26	1,198	0	4,050	3,432
2006	46.5	1,563	1.71	1,188	1,216	0.98	1,216	0	4,050	3,422
2007	44.5	1,495	1.66	1,153	1,205	0.96	1,205	0	4,050	3,580
2008	41.6	1,398	1.69	1,174	1,205	0.97	1,205	0	4,050	3,510
2009	38.9	1,307	1.45	1,007	1,258	0.80	1,258	0	4,050	3,500
2010	39.8	1,337	1.89	1,313	1,258	1.04	1,258	0	4,050	3,548
2011	37.0	1,243	1.56	1,083	1,258	0.86	1,258	0	4,050	3,469
2012	38.6	1,340	1.607	1,116	1,258	0.89	1,258	0	4,050	3,469
2013	40.17	1,350	2.009	1,395	1,258	1.11	1,258	0	4,050	3,456
2014	33.18	1,115	1.288	894	1,258	0.89	1,258	0	4,050	3,495
2015	23.32	784	1.356	942	1,186	0.79	1,186	0	4,050	3,437
				<b>5 Year</b>	<b>Avg</b>	<b>= 0.91</b>				

\*\*The water system has extensive SCADA capability, including a historian. Max day production is used to calculate flow per service connection per day.

Discussion & appraisal: *The maximum day demand (MDD, the highest daily demand in past 10 years) is 1,647 gpm (2005), based on reported maximum day for each year. The peak hourly demand (PHD = 1.5 x MDD) is 2,471 gpm. MDD and PHD are defined in the California Drinking Water Regulations, specifically T22 CCR §64554. This section of the regulations requires that MDD be met by sources alone and that four hours of PHD be met by a combination of sources, storage, or interties. The City of Wheatland water system has sufficient source capacity alone (4,050 gpm) to meet both MDD and PHD. Average demand per service connection averaged 0.91 gpm/sc/day during the past five years. This is within the expected range.*

#### B. SOURCE DATA

**Table 2 – Source Data**

Well	Capacity (gpm)	Location	Auxiliary Power	Comments
<b>Well 3</b>	750	Corp. yard	yes – generator runs control room and well facility	30 HP motor; water lube; constructed 1989; in-well sand separator
<b>Well 4</b>	650	By police sta.	no	50 HP motor; water lube; constructed 2000; sand separator
<b>Well 5</b>	670	Town & Garden Subdivision	yes – generator on wheels	50 HP motor; water lube; constructed 1962; sand separator
<b>Well 6</b>	650	East side of high school	no – but well has quick connect	50 HP motor; water lube; constructed 1960; sand separator
<b>Well 7</b>	480	Forecast Homes Subdivision	yes – generator mounted on slab	40 HP motor; water lube; constructed 2001; in-well sand separator
<b>Well 8</b>	850	Wheatland Ranch Subdivision	yes – generator on wheels	60 HP motor; water lube; constructed 2003; in-well sand separator
<b>Total</b>	<b>4,050</b>			

Discussion & appraisal (i.e., does source capacity comply with Waterworks Standards?)

Source capacity complies with the California Waterworks Standards (see discussion under Section A.4., above).  
Well sequence rotated via SCADA. Wells 4 through 8, each with a pressure tank, pump directly to the distribution system. Well 3 pumps only to Tank 2 (660,000-gallon, ground-level, bolted steel). All of the wells are controlled by the water level in Tank 2. The Tank 2 booster pumps are controlled by the water level in Tank 1 (elevated, 70,000-gallon), which provides a constant system pressure. An automatic valve prevents the booster pumps from filling Tank 2. Tank 1 can be filled from the distribution system when the booster pumps are on but not when the booster pumps are off.

Well #7 has been offline since 2015 because the chlorine residual could not be maintained in the hydro tank receiving Well #7 water. The City is still investigating this problem further once the higher priority wells are rehabilitated.

## C. TREATMENT

1. **Surface Water Sources** There are no surface water sources.

### 2. Groundwater Sources

Is continuous disinfection provided? Yes. Sodium hypochlorite (12.5%) feed systems are present at all the wells to minimize the chance of Total Coliform Rule violations.

Describe facilities: PULSAtron® Series E pumps (6.31 Lph) meter chlorine into the system. Usage (gallons/day) and concentration (mg/L) of chlorine are logged daily.

Discussion & appraisal: Chlorine analyzers have been installed at each well site and are connected to SCADA. The SCADA historian calculates and stores, for one year, the daily average chlorine residual leaving each well site. These values are hand entered into an Excel spreadsheet on a regular basis. Chlorine residuals in the distribution system are typically 0.5 to 0.7 mg/L.

### 3. Other Treatment or Blending Facilities

Describe facilities & parameters treated/blended (i.e. iron, & manganese, fluoridation, nitrate, corrosion control, organics, etc.) There are no other treatment or blending facilities.

### 4. Describe Records Maintained of Treatment

The following information on each well is recorded daily, tabulated, and submitted monthly to the Division: total daily production (system), run time and production (each well), average daily chlorine residual (each source), estimated chlorine used, four daily distribution chlorine residuals, main-tank daily average chlorine residual, and monthly maximum static water levels. Comments are provided, as needed.

## D. STORAGE DATA

Table 3 – Storage Data

Name	Type	Capacity (gal.)	Zone	Comments
Tank 1	Elevated	70,000	1	Tank 1 level determines system pressure. Constructed 1904; modified 1948 (wood tank replaced with steel; same support structure). Located at 4 <sup>th</sup> & A Streets (same as Tank 2). Common inlet outlet.
Tank 2	Ground level – bolted steel	660,000	1	Single pressure zone established at level of elevated tank. Tank 2 needed to meet fire flow. Constructed summer of 2002.
	<b>Total</b>	<b>730,000</b>		

Does storage capacity comply with Waterworks Standards? Yes; see discussion in Section A.4.

Are all data sheets completed & on file? Yes. Tank data sheets are in the permit file folder. The Tank 1 data sheet is in the 1962 "Report of Sanitary Engineering Survey." The Tank 2 data sheet is in a bound copy of Permit Amendment 10-18-962A3, January 2003, which also includes domestic and fire booster station data sheets.

Are DDWEM coating procedures adhered to? Yes.  
 Discussion & appraisal (i.e., were reservoirs coated, cleaned &/or inspected last year? Plans for recoatings, cleanings &/or inspections? Tanks are inspected every three to four years. Both the elevated storage tank (Tank 1) and the ground level storage tank (Tank 2) were inspected, cleaned, and repaired with epoxy in 2013. Neither tank has cathodic protection. Both tanks will possibly be inspected and cleaned again during the fall of 2016.

**E. TRANSMISSION FACILITIES**

Describe transmission facilities There are no transmission facilities. The sources are distributed throughout the service area, making transmission mains unnecessary.  
 Are there low head lines? No.  
 Discussion & appraisal N/A.

**F. DISTRIBUTION SYSTEM**

**1. Pressure Zones**

**Table 4 - Pressure Zone Data**

Pressure Zone Name	Pressure Range	Pressure Sources	Storage Capacity
One pressure zone	49 to 51 psi	Wells 4 through 8; Tank 1, and Tank 2 booster stations.	0.73 MG

**2. Booster or Reducing Stations** The ground-level, bolted-steel tank (Tank 2) has a booster station with four pumps. Three of the pumps are dedicated to domestic supply. Two have a capacity of 450 gpm and a new one is 800 gpm (1,700-gpm total). Fire flow is provided by one 75 HP pump with a capacity of 2,000 gpm.

**3. Mains**

**Table 5 – Distribution System Materials**

Material	Amount (%)	Size	Condition	Comments
Asbestos cement	40	6 & 8-inch	good	
Cast or ductile iron	< 1	6-inch	fair	
C900 PVC	60	6 to 12-inch	new	Material of choice for new mains.

**4. Discuss leak history during past 12 months (mains & connections)**

According to the 2015 Annual Report, there were 9 service connection breaks/leaks and 1 main leak. All were repaired. No other problems were reported.

**5. Are Distribution facilities constructed in accordance with Waterworks Standards?**

Yes, in accordance with the Waterworks Standards in effect at the time.

**6. Describe water main & sewer line separation practices**

Division criteria are followed.

**7. Extent of lead pipes, joints, or lead solder used in distribution system**

There are no known lead pipes, joints or solder in the system.

Discussion & appraisal The distribution system is said to be in very good condition. Much of it is new or replaced from 2003 to 2005.

**G. WATER QUALITY & MONITORING**

**1. Bacteriological Monitoring**

Description of program Under the Total Coliform Rule, the City collects 5 monthly routine distribution samples from 15 sample sites, 9 of them dedicated sampling stations. A single sample is collected on the first, second, and third Tuesdays of each month. Two samples are collected on the fourth Tuesday. Samples are analyzed at the Yuba City, ELAP-certified laboratory.

Sampling plan approved & current (do we have a copy?) Yes

Controlling factor is population or service connections? Both

Number of samples per month or week required? Four (4) per month.

MCL violations in past year? No.

Discussion & appraisal One positive routine distribution sample was detected in May 2015, but all repeat samples were non-detect. Also raw water sampling was not consistent in 2015. The City stated that quarterly bacteriological raw water sampling is to done in February, May, August, and November.

**2. Chemical Monitoring**

Description of program The City uses the Division's online monitoring schedules and communicates with the Division as needed to verify accuracy of these monitoring schedules. Yuba City Lab is used for sample analysis unless samples are subbed out by the lab.

Who collects samples? Samples are collected by water system operators.

Discussion & appraisal Almost all chemical sampling is up to date except for the following constituents that are overdue: Well 7 – Gross Alpha (due July 2015), Well 8 – Total Chromium (due November 2010). The monitoring schedule for these delinquent items is attached to this report.

**3. Other Organics**

Description of program No special organic sampling is required at this time.

Discussion & appraisal N/A.

**4. Disinfection By Products**

Description of program Due to low (nondetect) results, the City qualified for reduced (triennial) Stage 1 DBPR monitoring in 2004. A signed Stage 2 DBPR sampling plan was submitted to the Division in 2013. The plan requires the City to annually collect dual DBP samples at West End Main Street. The City failed to conduct Stage 2 DBPR sampling in 2014, but a dual sample was taken in July of 2015. Both samples were well below the MCL.

Discussion & appraisal Sampling is up to date

**5. Additional Monitoring**

Description of program (Physical quality of distribution system, corrosion, lead & copper monitoring, etc.) The most recent lead and copper samples were collected on July 23, 2014, resulting in 90<sup>th</sup> percentile values of 0.004 mg/l and 0.350 mg/L for lead and copper, respectively. Each of the 90<sup>th</sup> percentile values are below respective action levels. Forty (40) samples were collected, which exceeds the required number of 20 samples. The next lead and copper sampling is due by no later than September 30, 2017.

6. Is an approved water quality monitoring plan on file? (i.e., briefly summarize plan & needed additions) There are less than 10,000 service connections; therefore, a water quality monitoring plan is not required.

**H. OPERATION & MAINTENANCE**

**1. Planning & Personnel**

Are system improvements made in accordance with the Waterworks Standards?

System improvements are reportedly made in accordance with the Waterworks Standards.

Does the utility have up-to-date distribution system maps? Yes.

Is up-to-date copy of system schematic on file? No. Please Submit.

What is the minimum grade requirement? A minimum Grade D2 Certified Distribution Operator is required. The water system grade requirement and individual operator certifications were confirmed on April 1, 2015.

**Table 6 – Personnel**

Name	Distribution Grade	Treatment Grade
Larry L. Panteloglow Sr.	D2	T2
Donald R. Scott	D2	T2
Terrence Y. Hill	D1	---
Josh P. Tarrant	D1	---

**2. Cross-Connection Control Program**

Name of cross-connection control inspector(s) Don Scott is the cross-connection control coordinator who is responsible for over-seeing that testing is completed. In years past, backflow devices were tested by Bill's Backflow Service, but now this serviced is performed by the City. Test certifications and other information are filed in folders according to year. The Public Works Director makes the decision if, and what type of back flow prevention device is required for new or existing connections.

Is there a copy of the cross-connection control ordinance on file? Yes. A copy of the City's ordinance (Title 13 Public Services; Division II, Water; Chapter 13.52 Cross-connection Control) was downloaded from the Internet and placed in the case file on 6/27/12.

Discussion & appraisal There were 41 backflow devices reported for 2015. 41 devices were tested, and 2 were repaired or replaced.

**3. Complaints**

**Table 7 – Complaints Summary (2015)**

Type	Number	Comments
Taste and Odor	0	
Color	0	
Turbidity	0	
Worms and Other Visible Organisms	0	
Pressure - (High or Low)	1	Incident after service connection
Illnesses - (Waterborne)		
Other	0	
<b>Total</b>	<b>1</b>	

Discussion & appraisal Customer complaints are received at the City offices and a service request is emailed to Don Scott. Complaints are normally addressed the same day. Resolved complaints are filed by Don and tracked on spreadsheet software.

#### 4. Emergency Response

Is an up-to-date emergency notification plan on file? Yes. The ENP is dated April 23, 2014.  
Emergency response plan An Emergency Response Plan was received by the Division on 1/25/06. A Vulnerability Assessment, dated 1/19/06, was completed and submitted to federal EPA.  
Notification of DDWEM of significant system problems Communications between the water system and the Division have historically been very good.  
Discussion & appraisal The City has met its obligations under emergency preparedness and emergency response regulations.

#### 5. Main Disinfection Program

Describe main disinfection program (i.e., method, contact time, chlorine residual, bacteriological tests, records) for new & repaired mains The City uses the tablet method to disinfect water mains. Contractors hired by the City use both the tablet method and the chlorine injection method of disinfection. Most distribution issues involve service lines and not water mains.  
Does the main disinfection program comply with AWWA specifications? Yes.  
Discussion & appraisal In compliance.

#### 6. Valve Maintenance Program

Describe program There are about 237 valves in the system ranging from six to twelve inches in diameter. The City purchased a valve turning machine in 2014. According to the City's 2015 electronic annual report, forty (40) valves were exercised in 2015. The goal is to exercise each valve every two years.  
Are number & location of valves satisfactory? (i.e., mainline, ARVR, blowoff valves, etc.)  
The recent rebuilding of the distribution system included a sufficient number of valves to isolate individual streets.  
Discussion & appraisal (e.g., are valves recorded on maps available to field crews? Are all valves located with valve covers raised to grade?) Yes.

#### 7. Flushing

Describe flushing program (i.e. dead-ends, records, etc.) Fire hydrants and dead-ends are flushed semi-annually. Flushing progresses from the storage tanks out to the perimeter of the distribution system.  
Approximate number of dead ends 19 Percent with flushing valves 100 %  
Discussion & appraisal The City flushed all dead ends in 2015 and is planning to do so in 2016.

#### 8. Supervisory Control and Data Acquisition (SCADA) System

Discussion & appraisal The City's newly integrated (as of 2015) SCADA system allows operators to observe and control conditions in the distribution system including at individual well sites, storage tanks, and booster pumps. Observable and/or controllable parameters include pressure, chlorine residual, flow rate, on/off status, lead/lag and start/stop settings (wells), water level, etc.

#### 9. Backup Power & Alarm Systems

Discussion & appraisal Four of the six wells have back-up power, providing sufficient flow (2,750 gpm) to meet MDD (1,647 gpm) and PHD (2,471 gpm) during an electrical outage. Alarms are provided based on pressure, chlorine residual, flow, failure to start, and water levels (high/low). When an alarm goes off, the duty operator is called. The operator can access SCADA remotely via a laptop computer.

### I. OVERALL SYSTEM APPRAISAL

The City water system appears to be well operated and maintained by State certified staff who are up to date in continuing education and certification requirements. Operators are assisted by a SCADA system that enables

remote observation and control of critical system functions. Water quality is excellent, and multiple generators allow for uninterrupted supply of potable water.

Report by: Paul J. Rowe, P.E.

*Paul Rowe*      4-15-2016

Signature

Date

Enclosures

- 1) Chemical Monitoring Deficiency Record

## SYSTEM DEFICIENCY RECORD

Name of System City of Wheatland System Number 5810004

Date Noted	Description of Defect or Hazard	Priority Code	Reported Corrected	Confirmed Corrected
09/26/07	Complete data sheet for elevated tank – [Note: Data sheet was in the file all along.]	3	---	---
09/26/07	Prepare Vulnerability Assessment and submit to EPA. Prepare Emergency Response Plan, and submit to the Division and send certification of completion to EPA.	2	03/23/09	04/08/09
09/26/07	Create and implement system to ensure lack of backflow protection for existing customers is periodically evaluated for appropriateness (Title 17, Section 7584, paragraph B).	2		04/08/09
04/08/09	Lead and copper results not being collected in required four-month window (June – September).	3	Remains Until Next Sampling Round (Summer 2011)	4/23/2014
04/08/09	Initial radionuclides monitoring may have been completed, but awaiting confirmation from laboratory.	3	Radium 228 due for several sources.	6/29/12
04/08/09	Initial perchlorate monitoring is incomplete.	3		03/29/2010
03/29/2010	Collect and/or report Gross Alpha samples for Well 7 as soon as possible.	3		2/8/2011
03/29/2010	Collect and/or report deficient chemical sampling according to the enclosed Drinking Water Monitoring Schedule.	3		6/29/12
2/8/2011	Wells 5 & 7: cover older style AVR valves to prevent contamination from entering the upward facing vents.	3		6/29/12
2/8/2011	Well 06: Seal the pump base to the pedestal	3		6/29/12
6/29/12	None noted.			--
6/7/13	None noted.			--
4/23/2014	Collect and report Gross Alpha sampling from Well 7	2	Ongoing	
4/23/2014	Make sure any surface water drainage from Well 5 is routed away from the well.	2	Ongoing	
4/1/2015	Complete the enclosed Bacteriological Sample Siting Plan template.	3	11/4/2015	4/13/2016
4/1/2015	Ensure that raw water bacteriological sampling is done quarterly.	2	May 2015	4/13/2016
4/1/2015	Complete chemical sampling according to the attached Last Sample Date and Monitoring Schedule.	2		4/13/2016
4/15/2016	None noted			

**Priority Code:**

1. Serious health hazard; corrective action must be taken immediately.
2. Critical system or operational defect &/or potential health hazard; must be corrected as soon as possible.
3. System or operational defect &/or potential contamination hazards of lesser public health significance. Must be corrected as work load permits.
4. System or operational defect &/or potential health hazard - costly to correct - to be included in any long-range water improvement project.