



State of California—Health and Human Services Agency
California Department of Public Health



ARNOLD SCHWARZENEGGER
Governor

October 20, 2010

Mr. Tom Lindenmeyer
General Manager
Jacumba Community Sanitation District
1266 Railroad St
Jacumba, Ca 91934

Dear Mr. Lindenmeyer:

**JACUMBA COMMUNITY SANITATION DISTRICT, SYSTEM NO. 3710011
2010 SANITARY SURVEY**

On July 15th, 2010, Mr. Scott Ketcham, a Sanitary Engineer with the California Department of Public Health, Drinking Water Field Operations Branch (CDPH), conducted a sanitary survey of Jacumba Community Sanitation District (Jacumba) accompanied by General Manager Mr. Tom Lindenmeyer and Operator Juliana Creamer. We thank you and your staff for extending full cooperation during the inspection.

During the sanitary survey CDPH inspected Jacumba's reservoirs, pumps, and distribution system. Evaluations were performed of Jacumba's cross-connection control program, facility security, emergency response plans, system operator certifications, and various operations and maintenance programs.

Jacumba is currently operating under a domestic water supply permit that was issued by CDPH on December 30, 2002.

After inspecting the facilities, speaking with operations staff, reviewing the operations records, correspondence file, water quality data, and compliance records, CDPH has determined that Jacumba is well maintained and operated. The following is a summary of our findings, along with action items and recommendations, which must be addressed to better protect public health and improve system reliability.

- I. Source
 1. Physical

Jacumba's source consists of a single active groundwater well (Well 4) and one standby well (Well 6).

In 2009, Jacumba began the installation of 2 additional wells to the water system. These are identified as Well 7 and Well 8 in the table below. Upon investigation it was found that the water temperature in Well 7 was approximately 84° F. Water quality was otherwise acceptable however Jacumba has decided to designate the well as inactive and possibly use the well as a future source or backup source by blending to reduce water temperature.

CDPH understands Jacumba plans to develop Well 8 as an additional source. Jacumba has determined the iron and manganese levels in this well will ultimately require that a treatment system be installed and Jacumba is pursuing funding with the U.S. Department of Agriculture for this purpose. A permit amendment has not been issued and Well 8 is limited to development and water quality testing purposes until Jacumba can address the issues outlined in CDPH permit amendment application review letter dated November 16, 2009.

<i>Well</i>	<i>Status</i>	<i>Capacity gpm</i>
1	Abandoned	-
2	Abandoned	-
3	Inactive	-
4	Active	200
5	Inactive	-
6	Standby	600
7	Monitoring	-
8	Pending	-
Total Capacity		200

2. Capacity

The yield of Well 4 has been rated at 200 gallons per minute and Jacumba has 670,000 gallons of storage capacity. These two elements provide the system with a total source capacity of 958,000 gallons per day.

The California Waterworks Standards requires public water systems to have the capacity to meet the system's Maximum Day Demand (MDD) at all times, and systems with less than 1,000 service connections to meet the MDD with storage capacity. MDD is determined based on the highest MDD reported for the last 10 years; however, only 4 years of data was reviewed for Jacumba. Based on this information, Jacumba's reported MDD of 210,000 gallons occurred in August of 2007

Based on a total storage capacity of 670,000 gallons, Jacumba has the ability to meet MDD, as required by the California Waterworks Standards, provided the reservoirs are at full capacity.

Based on Jacumba's reported Maximum Day Demand (MDD) of 210,000 gallons for August of 2007, the PHD can be calculated. PHD is determined by dividing the MDD by 24 hours and applying a peaking factor of 1.5. For August 2007, the calculated PHD is 13,125 gallon / hour (gph) (210,000 gallons/ 24 hours x 1.5).

Jacumba's total source capacity is 12,000 gph and the total storage capacity is 167,500 gph (670,000 gallons/4 hours under PHD conditions). Therefore, Jacumba's total source capacity under PHD is 179,500 gph (12,000 gph + 167,500 gph). Based on the calculated total source capacity, Jacumba has the ability to meet PHD for at least four hours (179,500 gph is greater than 13,125 gph), provided the reservoirs are at full capacity.

3. Quality

The water quality of Jacumba's wells is highly variable depending on the location of the well and its depth. Well 4 is sited in a shallow alluvial aquifer that is layered above a granitic batholith aquitard. Well 4 does not have any Maximum Contaminant Level (MCL) violations, but has a pattern of total coliform positive events. Well 6 is sited in a deep fractured rock aquifer that is under volcanic influence. Well 6 has MCL violations for odor threshold, fluoride, and toluene. Additionally, Well 6 has a pH of 9.5, a temperature of 95° F, and a strong sulfuric odor. These combined factors result in the water of Well 6 having a high chlorine demand.

4. Groundwater Under the Direct Influence of Surface Water

Well 4 is sited in a thermal spring fed vernal pool depression that has historically been described as a swamp. The spring discharges into the basin at a location that is approximately 320 feet to the northeast of the well. The "gully" area is currently the receiving basin for stormwater runoff from Old Highway 80. During precipitation events stormwater is discharged approximately 75 feet east of the well.

These discharges are of concern due to the combination of a high ground water table surrounding the well (i.e. depth of 10 feet in summer and 8 feet in winter) and the extremely high percolation rate (i.e. less than 1 minute per inch) of the shallow aquifer. Soils with high percolation rates do not provide the level of filtration and natural pathogen attenuation of unconsolidated soils. Therefore there is the potential for pathogenic organisms to short circuit through the aquifer and enter directly into the well.

Additionally, though the Department of Water Resources Water Well Standards (Bulletins 74-81 & 74-91) require a sanitary seal to a

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minimum depth of 50-feet. Based on historic documentation, the sanitary seal of Well 4 may not exist or may only extend to a depth of 20-feet.

These factors of the well's physical location, soil type, and lack of adequate sanitary seal elevate the potential of the well to be Groundwater Under the Direct Influence of Surface Water (GWUDI).

In the case of Well 4, the GWUDI concern is further elevated due to a historic trend of pre-chlorination total coliform positive events. In the past decade, Well 4 has had a dozen positive total coliform events: one in 2001, three in 2002, two in 2004, four in 2005, one in 2009, and one in 2010. The 2009 and 2010 events are believed to be related to recharge events in the "gully". The 2009 event may be related to heavy recharge associated with a wet winter. The 2010 event occurred after the April 4th, 2010 earthquake when neighboring Well 6 became artesian and began spilling into the area next to Well 4.

Due to these combined factors, CDPH has determined that Well 4 is most likely GWUDI. Wells determined to be GWUDI must meet the requirements of the Federal Long Term 2 Enhanced Surface Water Treatment Rule (LT2), which includes treatment, monitoring and reporting.

5. Inactive and Abandoned Wells

Jacumba has two inactive wells and two abandoned wells. The historic record for all four of these sites does not appear to indicate that the wells were abandoned in accordance with Department of Water Resources Bulletins 74-81 and 74-90

- Wells 3 & 5 are both inactive wells that are 100 feet and 300 feet east, respectively, of the system's primary well, Well 4.
- Wells 1 & 2 are abandoned wells within 1 mile of the active well sites.

Action Items:

By December 31, 2010, Jacumba must submit a plan for providing treatment of water produced by Well 4 to meet the requirements of LT2, a plan for developing a new source that meets all primary and secondary standards to replace Well 4, or a monitoring plan to demonstrate Well 4 is not GWUDI.

The treatment plan must include a description of the disinfection system and inactivation calculations. The link below leads to an EPA

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approved excel-based chlorine contact time calculation resource that can be used for performing the require inactivation calculations.

http://www.epa.gov/ogwdw/disinfection/gwr/pdfs/calculator_gwr_contact_time_calculator_v0.xls

The monitoring plan must include a schedule for monitoring gross physical properties, i.e. pH, temperature, conductivity, and Microscopic Particulate Analysis (MPA) including Giardia and Cryptosporidium assays. The monitoring schedule must capture rainfall events along with any flooding near the wellhead that may occur throughout the season. Please be advised that monitoring results may be inconclusive and result in a final determination of GWUDI solely based on the well's construction, soils and proximity to surface water sources.

Also, please be advised that LT2 allows for 0.5-log pathogen removal credit (Giardia and Crypto) for a state-approved Watershed Control Program, which requires a Watershed Sanitary Survey and Control Measures, e.g. relocating the stormwater discharge piping to a location that would no longer impact Well 4, etc.

By December 31, 2010, must submit a plan for the destruction of Wells 1, 2, 3 & 5 in accordance with Bulletins 74-81 and 74-90.

II. Treatment

During CDPH's 2010 inspection, no deficiencies were noted.

Per permit 05-14-02P-015: Provision 3: Jacumba must provide continuous chlorination of Well 4 in order to provide a chlorine residual in their distribution system.

III. Distribution & Pipelines

During CDPH's 2010 inspection, no deficiencies were noted.

1. Pipelines

Based on historic documentation and system accounts, the distribution system consists of a mixture of asbestos concrete (45%), PVC Schedule C-900 (45%), PVC schedule 40 (8%), and ductile iron (2%). The majority of the distribution network is comprised of 4-inch to 20-inch diameter mains.

Jacumba has 6 dead-ends, but only has blowoffs or fire hydrants at 5 of these locations. According to Jacumba's Annual Report to the Drinking Water Program (ARDWP) flushing is performed every six-months.

IV. Tanks

During CDPH's 2010 inspection, no deficiencies were noted.

Reservoir	Capacity (MG)	Year Installed	Date of Last Inspection	Date of Last Cleaning
Tank B	0.43	1994	2005	2005
Tank A	0.24	2005	-	-

Recommendation:

Per AWWA Standard D100-05, it is recommended that all reservoirs be internally and externally inspected every 3 years.

V. Pumps, Pump Facilities and Controls

During CDPH's 2010 inspection, no deficiencies were noted.

VI. Monitoring and Reporting

Distribution System Bacteriological, Disinfection By-Products, and Lead & Copper were reviewed and no deficiencies were noted.

1. Jacumba performed the last cycle of lead and copper distribution system monitoring in August 2007. The next cycle of lead and copper monitoring must be performed between June 1st and September 30th, 2010.
2. Based on a population of 550 consumers serviced through 267 connections, and per a CDPH approved Bacteriological Sample Siting Plan, Jacumba collects 3-monthly distribution system bacteriological monitoring samples and one monthly pre-chlorination sample at Well 4.
3. Jacumba performs disinfection byproduct monitoring on an annual basis. In the six-year period between 2004 and 2010, Jacumba has not exceeded the Total Trihalomethanes (TTHM) or Haloacetic Acids (HAA) Running Annual Average (RAA) MCL. In this six-year period the TTHM and HAA RAAs were 44.2 ppb and 13.6 ppb, respectively. Jacumba's current disinfection byproduct sampling plan was last updated in October of 2008.
4. The Groundwater Rule (GWR) went into effect on December 1, 2009, and Jacumba Community Services District is now subject to its requirements. In e-mails sent on June 3, 2009 and December 14, 2009, as well as a letter on December 29, 2009, CDPH provided guidance on the GWR. This guidance informed systems intending to comply with the triggered source water monitoring requirement by collecting representative samples to submit a GWR compliance plan

to CDPH for review. As CDPH has not received such a plan from your water system to date, Jacumba Community Services District will be required to comply with the GWR triggered source water monitoring requirement by collecting a raw water sample at each operating well within 24 hours of notification that a routine distribution system sample is total coliform positive.

5. In July of 2010 Jacumba submitted their Initial Distribution System Evaluation (IDSE) report as required under Stage 2 of the Federal Disinfectants and Disinfection Byproducts Rule (DBPR). By October 1, 2013 Jacumba must complete a Stage 2 Compliance Monitoring plan and begin complying with Stage 2 monitoring requirements. CDPH is reviewing the proposed monitoring locations and frequency included in the IDSE Report and will provide guidance based on our completed review under separate letter.

VII. System Management and Operation

1. Jacumba's cross-connection program is currently overseen by Jed Spicer, a certified cross-connection control specialist. According to the 2009 ARDWP, Jacumba met the annual requirement for testing all 3 backflow prevention devices. The last cross connection control survey of Jacumba was last performed in 1992.
2. Jacumba's Emergency Response Plan was revised in 2005 and no deficiencies are noted.
3. According to ARDWP data, Jacumba's maximum day water consumption rate is 31% of the storage capacity, but is only 2% of Jacumba's combined storage and source capacity.

Year	Maximum Day (MG)	Maximum Month (MG)
2003	0.20	35
2007	0.21	27.8
2008	0.15	27.6
2009	0.13	24.9

VIII. Operator Certification Requirements

1. Treatment

Jacumba only provides wellhead chlorination; therefore, Jacumba is not required to comply with the Certified Treatment Operator regulations. However, Jacumba is staffed by the following Certified Treatment Operators:

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Treatment	Name	Operator No.	Grade	Expiration Date
	Tom Lindenmeyer	13900	T2	6/1/2013
Julianna Creamer	27566	T2	7/1/2012	

2. Distribution

In accordance with §64413.3 (a) & (b), due to population served (less than 1,000), Jacumba is classified as a D1 system.

Distribution System Classification	Minimum Certification of	
	Chief Operator	Shift Operator
D1	D1	D1

(Excerpt from Table 63770-A)

Jacumba has designated Julianna Creamer (D2), as chief operator who meets or exceeds staffing requirements (§64413.7 (a) & §63770).

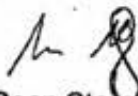
Jacumba is adequately staffed by the following:

Distribution	Name	Operator No.	Grade	Expiration Date
	Tom Lindenmeyer	16120	D1	*
	Julianna Creamer	27463	D2	1/1/2012
	Don Shirley	16119	D1	6/1/2010

*Tom is not listed as certified distribution operators on the CDPH website <http://www.cdph.ca.gov/certlic/occupations/Pages/dwopcert.aspx>

Please respond in writing by **December 31, 2010** regarding when and how the deficiencies outlined above will be addressed. If you have any questions regarding any of the items discussed above, please feel free to contact Alan Tell or me at (619) 525-4922.

Sincerely,



Sean Sterchi, P.E.
District Engineer

Enclosures:

Cross Connection Control Program Evaluation

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cc: Mark McPherson, Chief, Land and Water Quality Division, County of San Diego,
Department of Environmental Health

