WATER PLEASE!

BACKGROUND:

"No local economy existed before water and none will be able to survive without it." This is a quote by a former Visalia City Manager on September 10, 2013, which appeared in the *Visalia Times Delta.*

In the late 1800s, Tulare County obtained its water entirely from rain and floods. Before development of improved water delivery systems, most of the recharge to the Central Valley aquifer system was from rain and mountain snowmelt. Because of the location of the mountains, the discharge was to rivers and marshes near the valley center.

The first wells were Artesian wells which bubbled from beneath the ground. Due to drought conditions in the 1880s, wells began to be developed. At that time, there were more wells in California than the rest of the United States. There were three to four hundred documented wells in the San Joaquin Valley. Wells could only be drilled twenty to thirty feet deep due to the Monterey Shale, a rocky formation beneath the ground's surface. Those wells did not last beyond 1910. Eventually, development of the centrifugal pump in the early 1900s eliminated the problem of drilling past the Monterey Shale.

The Tulare Irrigation District was formed in 1889. The controversial raising of a $500,000 water bond for this district (equivalent to $25 million in 2013) caused many problems: lawsuits, need for Pinkerton Guards, and exporting water.

During the 1940s – 1950s, the Central Valley Project, a state project, provided water to Tulare County from the Sacramento Delta.

Rain and snowmelt flow into channels and basins and become surface water which percolates into the ground. In wet years, surface water flows into cities' rivers and channels, then into storage basins percolating into the water table, recharging groundwater supplies.

There was a period of stability for water availability from 1971-1976, when due to several very wet years, large scale projects came on-line and surface water was utilized instead of groundwater.

Since the mid 1970s, the use of groundwater has exceeded the ability of the aquifer to replenish itself.

REASON FOR INVESTIGATION:

The 2013-2014 Tulare County Grand Jury initiated an investigation into city and County water wells, the current depth of those wells, the County's water table, and how the cities and the County plan to sustain water resources for future population growth.

PROCEDURES FOLLOWED:

1. Interviewed relevant witnesses.

2. Researched relevant documents.

FACTS:

1. An acre-foot of water is equivalent to enough water to cover one acre of ground to a depth of one foot. An acre-foot of water is sufficient water to provide for two four person families for one year. The population of Tulare County was 449,253 as of July 2011 according to the United States Census Bureau.

2. The rate of formulation for percolation for recharge basins has an accepted standard formula: A Good rating equals ¾ acre foot per day; and a Marginal rating equals ½ acre foot per day and absence of percolation. The percolation ranking for recharge basins in Tulare County varies from one to another and none of the basins are less than marginal.

3. The drinking water for the City of Visalia is obtained solely from groundwater wells. Groundwater for Visalia is obtained from the Kaweah basin, in which the city is located.

4. In Tulare County, more than ninety percent of the groundwater is utilized by agriculture.

5. Water conservation provides a one-to-one direct benefit. An acre-foot not pumped is an acre-foot saved. The Visalia City Council enacted Visalia's Water Conservation Ordinance in 1989. Because the majority of the city's water was being used for landscape irrigation and because of the decline in water levels, the City Council in 2000 implemented Stage 3 which restricted outdoor irrigation, daily watering and other outside water use.

6. The City of Visalia is undertaking a $140 million upgrade of its Water Conservation Plant to produce advanced treated recycled water which can be used with restriction for agricultural irrigation. A portion will be utilized to irrigate facilities on the west side of Visalia, but a majority will be traded with the Tulare Irrigation District for surface water to be used for recharge on the east side of Visalia. A new piping infrastructure will deliver recycled water to irrigate Plaza Park, Valley Oaks Golf Course and the Visalia Municipal Airport so that wells can be turned off at these facilities. The City and Kaweah Delta Water Conservation District are working together to install structures in the Packwood Creek area, which will enable the pooling of water into nearby basins and channels to increase recharge.

7. Visalia has 4.5 miles of aging pipelines that are over one hundred years of age. Replacing these pipelines could cost in excess of $6 million.

8. In the City of Tulare, which has thirty networked wells, the water table has dropped more than seventy feet since January 2013. When Tulare has a wet year, excess water flows into groundwater recharge basins. Tulare's goal is to accumulate 10,000 acre-feet per year in the groundwater recharge basins. Unfortunately, the City is using 17,000 acre-feet of groundwater recharge per year. Consequently 7,000 acre-feet of reserve is being depleted each year.

9. The City of Tulare has two wastewater treatment plants: one for people and another for dairies. Three thousand two hundred acres are watered with treated waste water in Tulare.

10. The City of Tulare added water meters in 2006 and the water use decreased fifteen percent, but when the rates were increased gradually to increase the water fund, the residents reduced the amount of water they were using, which reduced the amount of revenue for the water fund. Currently, approximately 150 meters have been placed throughout the city parks.

11. The City of Tulare has one elevated water storage facility with 150,000 gallon capacity which helps to reduce water pressure problems.

12. The City of Tulare is faced with over $200,000 of water projects which include repairs for two backup generators, repairs to the water pumping facility, and potential treatment of the water due to high arsenic levels.

13. The winter of 2012 was one of the driest winters on record since 1920. The year 2013 will be the sixth driest year on record in 109 years.

14. The Kaweah Delta Conservation District's customer's water allotment was forty-four percent of normal yearly rainfall. The allotment for 2013 was set at forty percent of average yearly rainfall. They began receiving twenty-eight percent of their average yearly allotment in April 2013.

15. The City of Lindsay's water rates are among the highest for municipal customers in Tulare County. Lindsay is also considered to be a disadvantaged community and has an average household water bill of 1.8 percent of the annual median household income of approximately $30,000.

16. Lindsay receives approximately sixty percent of its water through surface contracts with the United States Bureau of Reclamation. The contract allows Lindsay to receive as much as 2,500 acre-feet per year. The United States Bureau of Reclamation maintains the right to reduce Lindsay's annual allocation based on climate conditions and the amount of water permitted to flow to the San Joaquin River. Between 1977 and 2006 the average allotment was ninety-eight percent, but between 2007 and 2013 the average allocation dropped to eighty-one percent.

17. In Lindsay, water well number fourteen has exceeded maximum contaminant levels, and the city needs to install a treatment system to reduce the contaminants. Water well number fifteen has been tested and resulted in a "boil water" (a requirement that water be boiled to be made usable for consumption) advisory for all users. Water well number eleven is inactive due to having exceeded the safety levels for percolate; this well is available for emergency use only. There are several contaminants that may cause critical health concerns in the near future because Lindsay has low water pressure during high-flow conditions in the summer.

18. In the Matheny Tract, a residential area, beginning approximately ten years ago, water pressure began to decline, while arsenic levels began to rise, gradually making the water unsafe for human consumption. The California Department of Health Services limits arsenic levels to ten or fewer micrograms per liter. According to the Rural Community Assistance Corporation, Matheny Tract's arsenic level in 2013 was, on the average, seventeen micrograms per liter. Construction to extend the City of Tulare's water system to Matheny Tract began in October 2013 and is pending completion. This project will allow the residents to connect to a municipal source, a much cleaner and reliable provider. Initial work on a new delivery system has also begun. The residents will be metered and the city of Tulare will take care of the maintenance and operation of the system as well as the billing. Self Help Enterprises and Rural Community Assistance Corporation assisted with the application for funding for the project.

19. Residents of Allensworth and Alpaugh, both rural unincorporated communities in Tulare County, have water with elevated arsenic levels. They have advanced a proposal to resolve the water issues in their communities. Under the plan, the Community Service Districts, a group of community service organizations, would combine with the Angiola Water District, which sells water for irrigation, would deliver drinking water for residents. The proposal received approximately $420,000 in grants to research its feasibility. This proposal is unique

in that it combines a remote rural community water district and an irrigation water district. The arrangement could serve as a model for other rural communities. The proposal has the support of the Tulare County Board of Supervisors, which submitted the application to the California Strategic Growth Council.

20. Research shows there are an estimated 1.8 million Californians live in low-income, unincorporated communities and many lack potable water and other basic infrastructure. In the Tulare Lake Basin, there are approximately 370 of these communities.

21. According to surveys, residents of some low income, unincorporated communities spend up to ten percent of their income on bottled water.

22. An environmental research study found that between 2005 and 2008, approximately 1.3 million San Joaquin Valley residents drank water with unhealthy levels of nitrates, which can lead to severe illness and even death among infants.

23. Contamination threatens the water supplies of 250,000 people in rural towns in Tulare County.

24. In 2008, the Legislature passed the Clean Air Act that directed $829 million in bonds to water projects throughout the state. Two million dollars would go to Tulare, Fresno, Kern and other San Joaquin Valley counties to develop integrated water quality and wastewater treatment programs for disadvantaged communities. A proposal has been submitted to the Tulare County Board of Supervisors that includes a feasibility study exploring whether the small north county water districts of East Orosi, Sultana, Seville and Yettem would be able to tie into the Orosi Public Utilities District. A plan calls for water to come from the Alta Irrigation District, replacing the nitrate contaminated wells that deliver water to many of the smaller districts in the area. The study would look at water demand, water rights, surface water treatment plant capacity and infrastructure costs to tie the whole system together.

25. The California Department of Public Works announced a plan to hasten the stream of federal money to drinking water projects that could benefit poor Valley towns with contamination problems such as Tooleville, Seville and Yettem. This results from an order of the United States Environmental Protection Agency which scolded the state for leaving safe drinking water funds unspent instead of investing the money in communities where drinking water supplies are contaminated.

26. As of August 2013 and at least two months before the first winter storms are due in the San Joaquin Valley, Lake Kaweah was at fifty-three percent of average water level and Lake Success was at sixty-four percent.

27. Approximately 200,000 acre-feet or 15% of the water is diverted for Salmon per year.

28. The depth of the water table beneath the City of Visalia has dropped an average of three feet per year over the past twenty-five years. The first ten months of 2013 have been the driest since 1895, according to the National Climatic Data Center. Water levels in many of the state's big reservoirs remain below historical averages.

29. The Tulare Irrigation District manages 70,000 acres of water rights East of Visalia to Kings County which include the Kaweah Water Basin and the Friant Water Canals.

30. The Tulare Irrigation District intends to expand its recharge basin by four-thousand acres at a total cost of $130 million: $18,000 per acre for the land and $15,000 per acre for development. A recharge basin can be as small as twenty acres in size. The Tulare Irrigation District has applied for a grant from the Bureau of Reclamation to build the basins, which may have to sit empty due to lack of rain.

31. Agricultural cropping patterns are intensifying. Farmers are planting row crops in the rows between fruit and nut trees in order to have year-round crops which consume more water than previously used by farmers.

32. The City of Lindsay proposes to construct a levee and excavating a basin at the treatment process plant. The levee and basin would cost the city an estimated $3.8 million, which is not available in their operating budget.

FINDINGS:

1. As the shortage of water increases, the costs to water districts to meet the maintenance requirement challenges increase. When water districts raise consumer prices to offset these fiscal demands, the response by the public is to conserve water in order to keep the bills down. This becomes a vicious cycle.

2. There is a need for potable water and improvement of basic infrastructure in certain communities. Many low income residents are forced into purchasing bottled water. Those who are unable to purchase or access potable water face certain health risks.

3. As water pressure decreases and the water table goes down, the levels of arsenic and other contaminants increase.

4. Without more rainwater, the efforts to collect and conserve water will be in vain.

5. The water infrastructures of all of the communities in Tulare County are old and need costly repairs and updating.

6. The City of Lindsay proposes to create additional surface water storage by constructing a levee and excavating a basin to improve efficiency at the water treatment process plant.

7. The upgrade of Visalia's wastewater treatment facility will enable one hundred percent of the wastewater to be recycled. Approximately thirteen million gallons a day of recycled water will be generated by the upgraded Water Conservation Plant.

RECOMMENDATIONS:

1. The Tulare County Grand Jury recommends that all Tulare County and City agencies review their water conservation programs and implement as deemed necessary. Everyone needs to boost conservation efforts and make more efficient use of existing supplies.

2. The Tulare County Grand Jury recommends the County apply for any available Federal and State grants for the affected unincorporated areas needing potable water.

REQUIRED RESPONSES:

1. Tulare County Board of Supervisors

2. Tulare County Resource Management Agency

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