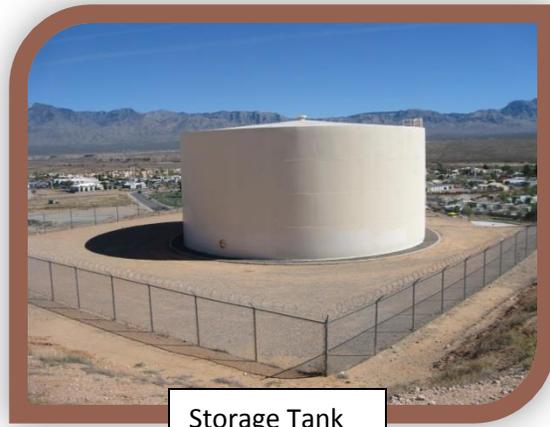


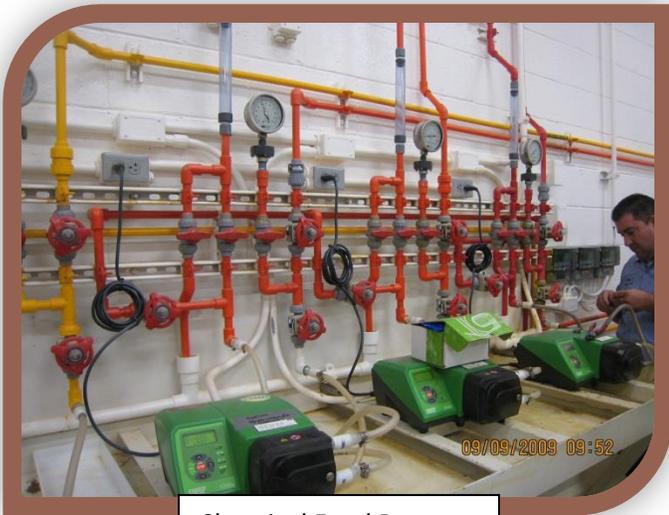


Well Motor

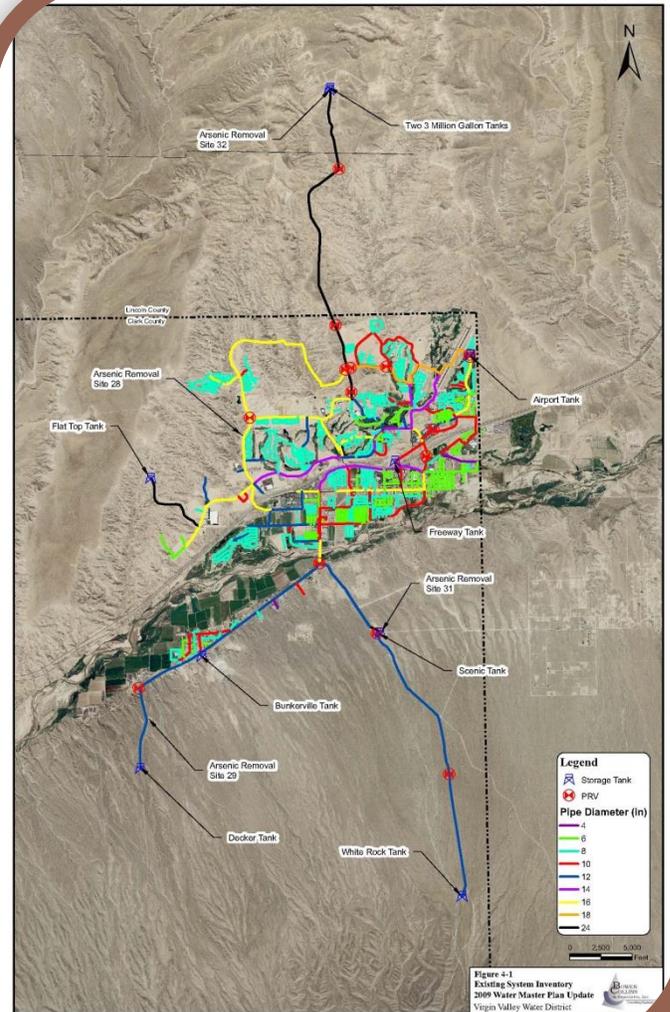


Storage Tank

# Virgin Valley Water District FY2015 Report



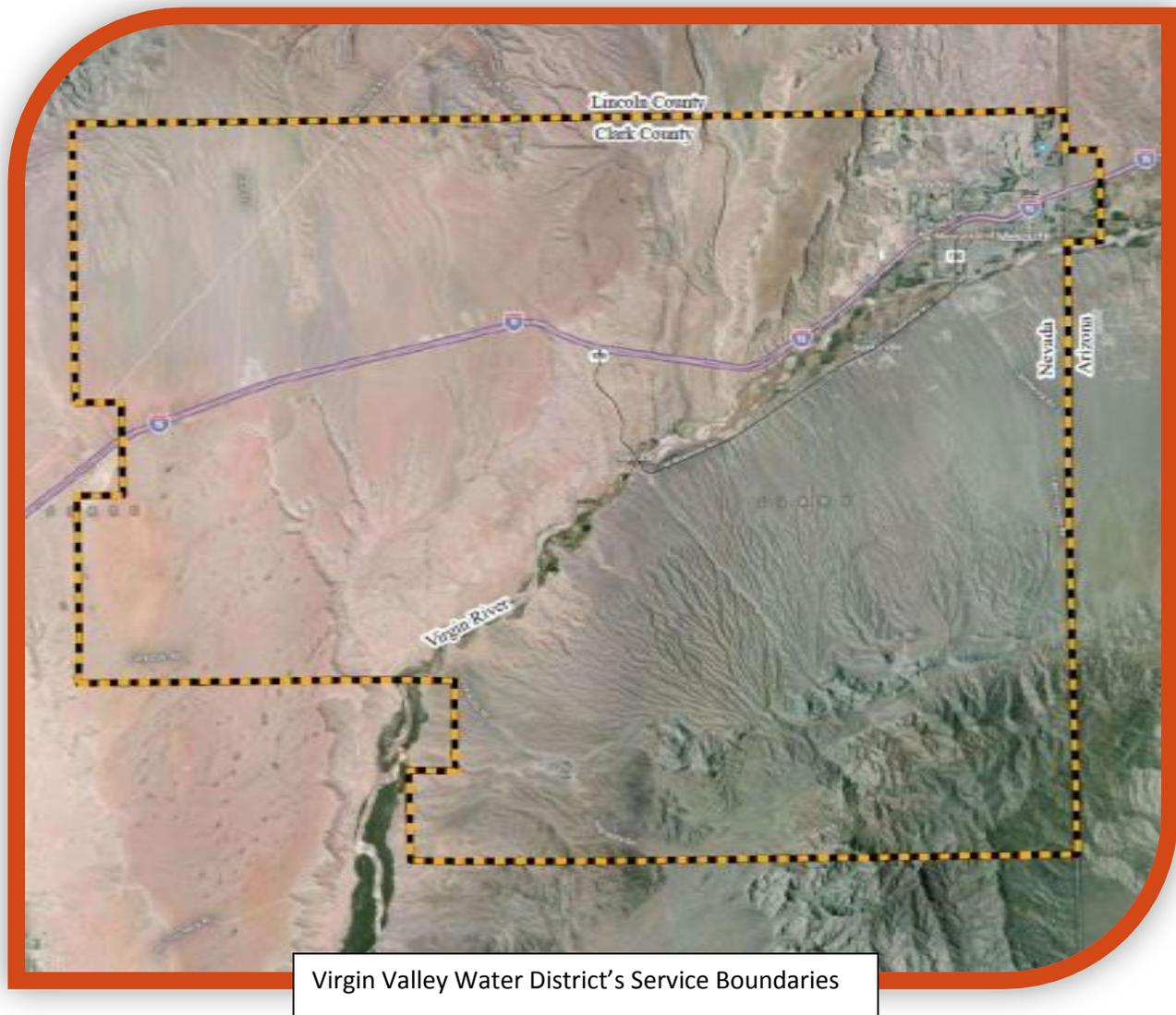
Chemical Feed Pumps  
at Treatment Plant



Complex Water System

## Executive Summary

The mission of the VVWD is to provide culinary water service to all residents in its' boundaries: Town of Bunkerville, City of Mesquite, and Riverside. The District's water system is very complex with seven pressure zones, fed by eight wells, treated by five arsenic removal plants providing water through 153 miles of pipe to nearly 8,400 connections.



FY2015 (July 1, 2014 to June 30, 2015) was a transitional fiscal year in many ways. First, the District took a major step forward to be able to repair and maintain needed infrastructure and to begin planning to build needed new infrastructure by raising rates. Secondly, the district transitioned three new board members onto the Board of Directors. And thirdly, staff have the tools and training necessary to ensure the Districts' \$200,000,000 of infrastructure operates correctly and efficiently.

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## The History<sup>1</sup>

The Virgin Valley Water District was created by the State Legislature in 1993. The initial assets of the District were formed from the Mesquite Farmstead Water Association and Bunkerville Water User's Association. Water rights contributed from each of the two water companies comprised 60% from the Mesquite Farmstead Water Association and 40% from the Bunkerville Water User's Association.

The first well in the valley was drilled in 1930 on the school grounds in Mesquite. The well was 300 feet deep. The well water was not drinkable because of the high amount of dissolved solids (salts) so the water was used in the restrooms of the school.

The first "water system" in the Valley was constructed in 1933 which connected the Bunkerville High School and ten homes that utilized piped irrigation water. Soon after this, 25,000 and 10,000 gallon concrete tanks were constructed. The 10,000 gallon tank was built near the canal, the 25,000 gallon tank built on "Tank Hill". Water was pumped from the 10,000 gallon tank up to the 25,000 gallon tank. The water from the 25,000 gallon tank then flowed into the system that served the ten homes and high school.

In the mid 1930's, a plan was developed, funding was provided by the Soil Conservation Service, and labor from local residents and the Civilian Conservation Corps to develop several springs and pipe water part way down the mountain to a small dam. Residents from the valley could then drive wagons or trucks to the dam and fill water barrels with much better water than the canal water. A small water tank was built next to the dam for residents to receive their water (mainly because the small dam site had become a convenient swimming hole). Once enough funds were collected, a new tank, further down the mountain was constructed. It became known as "Three Mile Tank". It was unique in that it had a wall inside the tank that separated the water into a 60%/40% split. The 60% side was for Mesquite residents. The 40% side was for Bunkerville residents.

In 1938, the Church of Jesus Christ of Latter Day Saints funded a project to complete waterlines from "Three Mile Tank" to Bunkerville and Mesquite (separate lines). Now local residents could go to the local standpipe and obtain water in town instead of having to drive up the mountain.

In the mid to late 1940's, funding was secured to provide a rudimentary water distribution system. For Bunkerville, the Bunkerville Water User's Association was responsible for the distribution system. For Mesquite, it was the Mesquite Farmstead Water Association that was responsible for the distribution system. Because of World War II, steel/cast iron materials were not available for use for pipe. Asbestos cement pipe was used throughout the systems to deliver water.

The infrastructure and the associated water rights from the two water companies are what comprised the beginnings of the Virgin Valley Water District.



## The Board

The Board of Directors for the Virgin Valley Water District in FY2015 were:

### Calendar Year 2014

Ted Miller, President  
 Kenyon Leavitt, Vice-President  
 Sandra Ramaker, Secretary/Treasurer  
 Richard Bowler  
 Kraig Hafen

### Calendar Year 2015

Nephi Julien, President  
 Barbara Ellestad, Vice-President  
 Sandra Ramaker  
 Richard Bowler  
 Robert "Bubba" Smith  
 Mary Johnson, Secretary/Treasurer

## The Staff

The District Staff (pictured below) in FY2015 were:

### **Administration:**

Kevin Brown  
 Aaron Bunker  
 Mary Johnson  
 Hatty Tanner  
 Valerie Martinez  
 Natalie Anderson  
 Kyle Hughes  
 Wes Smith

### **Distribution:**

Steve Tietjen  
 Cameron Klug  
 Adam Owsley  
 Kevin Amen (Chris Woods replaced Kevin in May 2015)  
 Bryan Plum

### **Meters:**

Rob Faught  
 John Zarate  
 Kason Bulloch  
 (Kason replaced Isaac Steed in July 2015)

### **Treatment:**

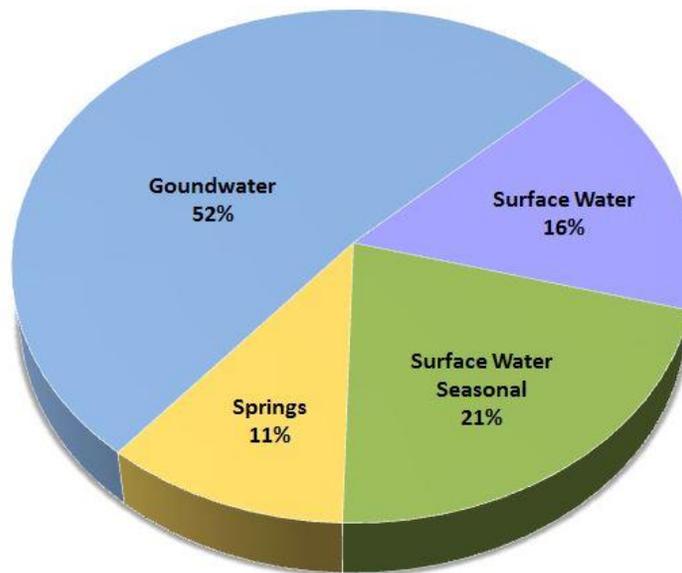
Philip Abbott  
 Troy Tanner  
 Chris Woods (Keith Garret replaced Chris in June 2015)



The District has a very experienced and dedicated staff. From top to bottom, the District’s staff is amongst the best in the water industry. They are extremely dedicated to providing safe and reliable water to the residents and visitors to the Mesquite and Bunkerville area.

### The System

**Water Rights.** The District has a variety of water rights including groundwater, surface water (Year Round: Virgin River and Riverside, and Seasonal: Halfway Wash), and spring water (multiple sources on the Virgin Mountains). The chart below summarizes the District’s water rights.



Entity	Approximate Amount afy
Groundwater	12,172
Surface Water	3,820
Surface Water Seasonal	5,000
Springs	2,501
<b>Total</b>	<b>23,492</b>
One acre-foot per year (afy) equals 325,851 gallons	

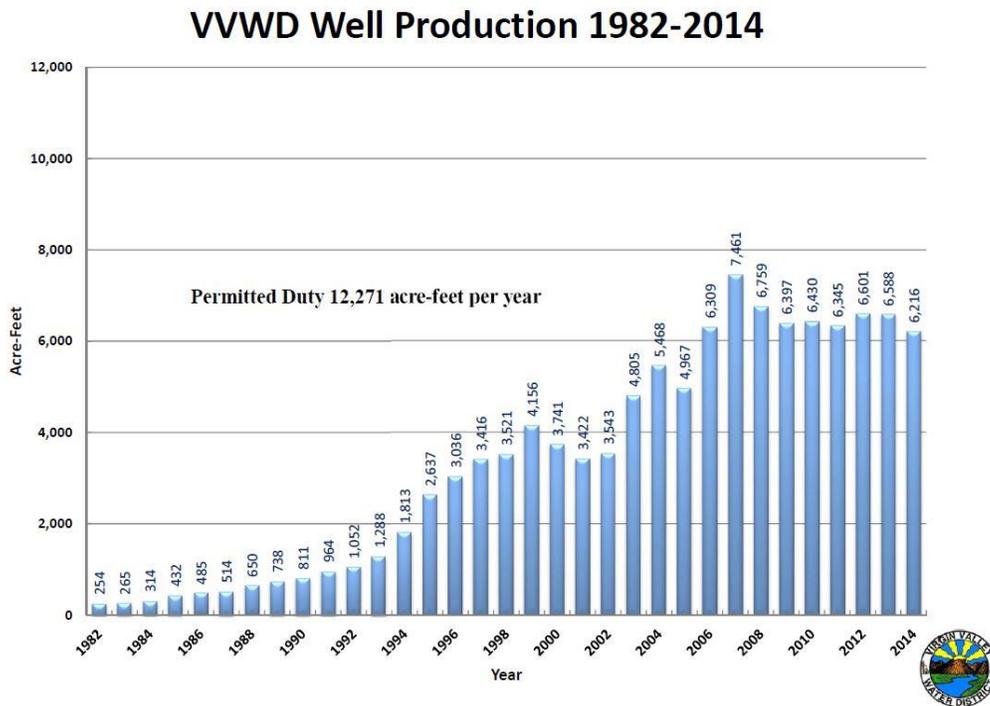


Figure 1: VVWD Water Rights

**Water Sources.** Of the water rights listed above, the District is only using its groundwater resources to meet the current culinary water needs of its' customers. In FY 2015, the District had eight wells that produced water. Three of the wells – Wells 2, 29, and 31, (including the District's highest producing well) are south of the Virgin River either in or near Bunkerville. Three of the District's wells are north of I-15 in Mesquite City limits – Wells 26, 27, and 28. The other two are north of Mesquite in southern Lincoln County – Wells 32 and 33 (one of which is the District's second highest producing well).

The deepest well is 2,010' deep, the shallowest is 645' deep. The highest producing well can pump 2,500 gallons per minute, the lowest 400 gallons per minute. Total well production when all eight wells are pumping is 9,600 gallons per minute (13,824,000 gallons per day).

Figure 2 shows the historical pumping rate per year in acre-feet (one acre-foot = 325,851 gallons).



**Figure 2: Historical Pumping Rates**

**Water Treatment.** The District utilizes five treatment facilities, completed in 2009, to treat the groundwater to remove high amounts of arsenic. The treatment plants are in excellent shape. The filter media has approximately 3 – 4 years of life left before it needs to be replaced. The booster pump impellers were replaced with stainless steel after the bronze impellers severely corroded after very short periods of use. The stainless steel impellers are performing as staff had hoped – very well with no signs of deterioration.

**Water Storage.** The District has seven above ground steel storage tanks that provides 14,300,000 gallons of storage. The storage is important to help maintain pressures, adequate storage to fight fires, and provide water during power outages. Inspections and cleaning of the tanks (Airport and Freeway) was performed. The Airport tank showed significant deterioration and the need to recoat the interior of the tank.

During FY2015, and in conjunction with the District's Master Plan, planning and design began for a 2,000,000 gallon buried reinforced concrete tank that will serve the Sun City area.

**Water Distribution.** The District has approximately 150 miles of pipe to transport water from the sources, treatment plants, and storage facilities to each individual customer. The District has nearly 8,400 metered customers. During FY2015, a proactive pipe replacement program was developed. The first priority of pipe replacement is the deteriorating ductile iron pipe in the northwest part of Mesquite.

The number of water lateral failures is starting to trend downward. In 2013 there were 114. In 2014 there were 90. Through the first half of 2015 there were 27.

## The Finances

The District ended a two consecutive year negative balance in FY2015. The operating profit in FY2015 was \$174,000. The operating loss for the District in FY2014 was \$1,100,335. The operating loss for the District in FY2013 was \$712,662.

Several factors are attributed to the better financial condition of the District:

- 1) Rate increase in the latter part of FY2015 took effect.
- 2) Secondary water system shut down.
- 3) Debt refinancing reduced annual payment requirements.
- 4) Staff made internal adjustments for more efficient operations.
- 5) Ability to lease water shares to Southern Nevada Water Authority.
- 6) Cash settlements.

## FY2014 Strategic Plan Accomplishments

In FY2015, the District tackled key strategic aspects identified in the FY2014 Annual Report. Those were:

- 1) A capital facilities plan was established to address strategic system shortfalls.
- 2) An increased focus of future planning also included proposed funding in future budgets for asset management and maintenance of existing infrastructure.
- 3) A revenue increase was approved to be implemented for the June 2015 water billing cycle.

## **FY 2015 Events**

FY 2015 brought many changes and challenges for the District. Personnel changes took place as Kevin Amen retired in May 2015, Chris Woods replaced Kevin Amen as an inspector, and Keith Garret was hired in July 2015 to replace Chris Woods in treatment.

The District obtained approval by the legislature and governor by the passage of S.271. This legislation will allow the District to create a fee for unused water commitments, and if necessary, allow for the recovery of unused water commitments in the event of a development not starting/completing or the District not receiving the requisite annual fee.

The Virgin Valley area experienced two significant power outages in September 2014 and May 2015, prompting the planning, budgeting, and installation (in FY2016) of backup power at several key sites.

In February 2015, the Board approved a rate increase to become effective on the June 2015 water bills.

The District had two significant waterline breaks, both in the Sun City area. One in July 2015 on Flat Top Mesa Drive, and one in December 2015 on Falcon Ridge Parkway near the Conestoga Golf Course Clubhouse.

An attempt was made to rehabilitate Well 27. A sleeve was placed over a hole in the casing, the well screen brushed, and a new pump installed. Upon firing up the well, a tremendous amount of sand was pumped indicating another hole elsewhere. Staff is evaluating other options including drilling a new well. This will become a FY2016 project.

The District began working with the City of Mesquite to plan for a transmission line crossing from the old Bunkerville Secondary System well site, under the Virgin River, and under I-15 at the proposed Exit 118 project site. Further discussions with NDOT indicated the ability to use the existing bridge site between Bunkerville and Mesquite for a transmission line crossing, thus saving the District millions of dollars in infrastructure costs.

A 12" transmission line was placed along Mesquite Heights Road and Canyon Crest Blvd.

The proactive pipe replacement program was started and the focus is replacing the existing ductile iron pipe in the northeast part of Mesquite. The first project that was started in FY2015, but will be completed in FY2016, is the lower Mesa Blvd. 10" and 12" pipe replacements (along with moving the Rock Springs 1 meter vault above ground). The 12" pipe will be replaced with a 16" line.

## **2015 Strategic Plan Objectives for FY2016**

With adequate funding in place, the District will focus on the following:

- 1) Provide Redundant Key Facilities
- 2) Repair Broken Systems
- 3) Maintain Equipment, Infrastructure, and Talent

## Summary

The Virgin Valley Water District's mission to supply culinary water to the residents, businesses, and visitors to the Virgin Valley is a complex and challenging task. Political, social, technical, financial, economic, regulatory, and historical challenges exist that at times are in conflict with the District's mission. Financially, technically, and managerially the District is in a position to accomplish tasks that have been needed for many years.

## References

1. Mesquite Flats: A History of Virgin Valley, Chapter 11 pages 145 - 153. Written by Vincent L. Leavitt, 2004.

