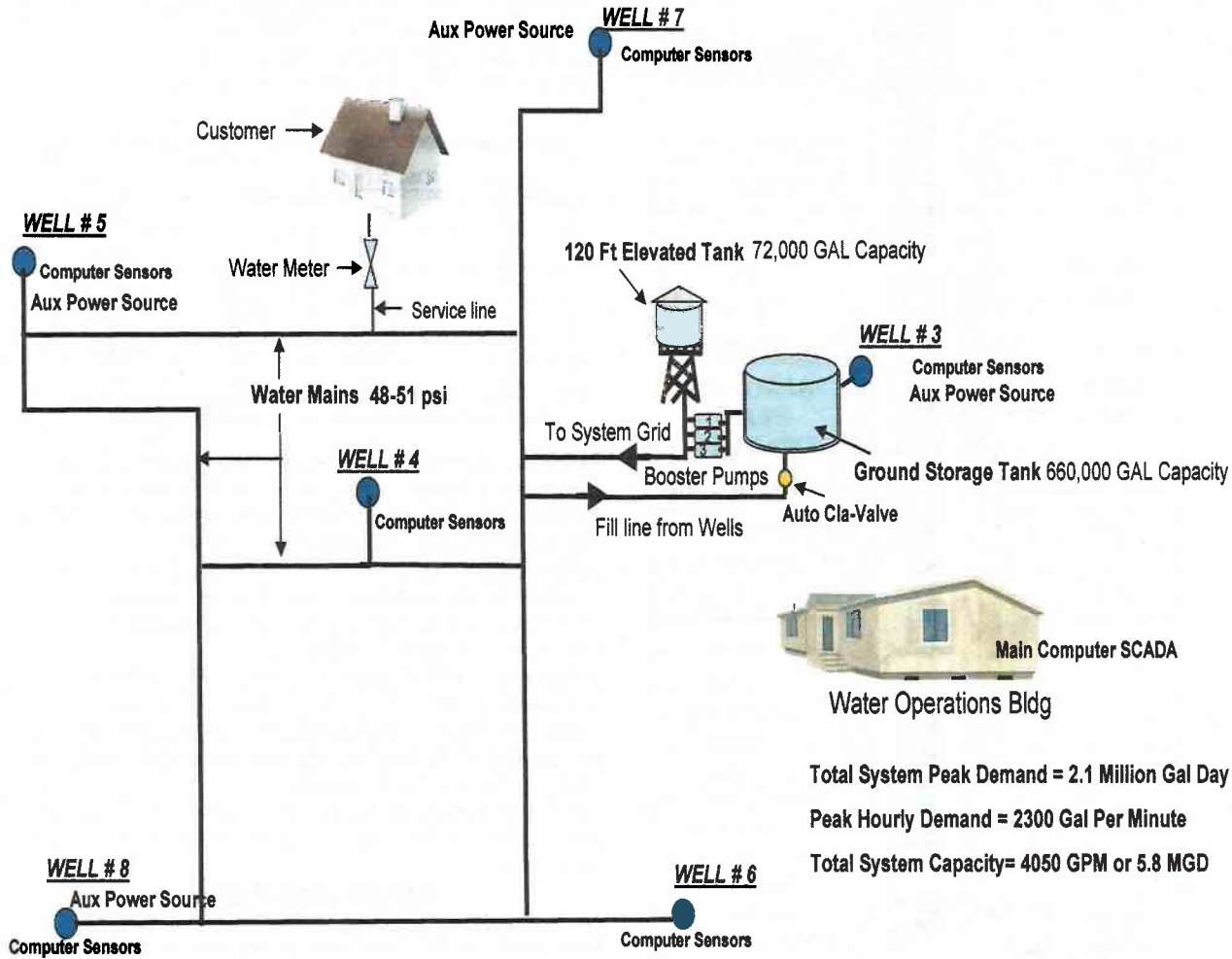


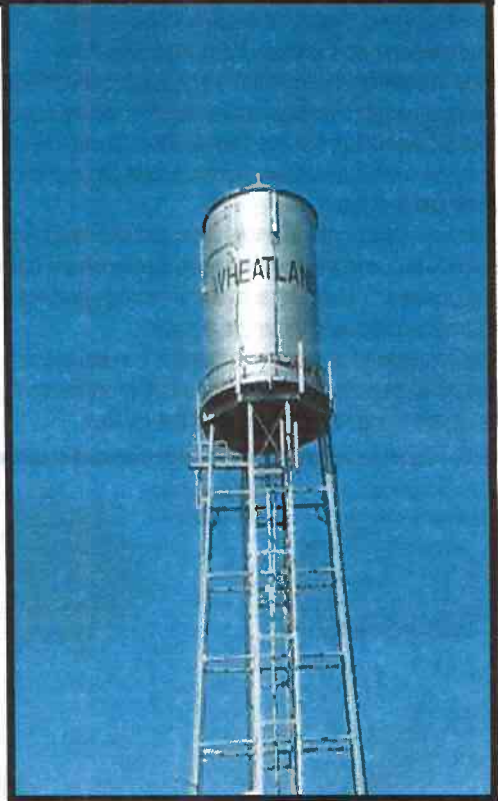
# City of Wheatland, CA Water System 5810004



Total System Peak Demand = 2.1 Million Gal Day  
 Peak Hourly Demand = 2300 Gal Per Minute  
 Total System Capacity= 4050 GPM or 5.8 MGD

System has six deep ground water wells that pump to a ground storage tank. Three booster pumps that pump water to a 120 ft elevated storage tank. System has computer system which monitors chlorine levels, flow (gpm), line pressure, and pumping levels at each well. Computer shows ground and elevated tank water levels. Wells operate on/off with level of ground water storage tank and can be put in to any lead/lag sequence and rotation. Booster pumps operate on/off with level of elevated tank. When the booster pumps are ON the fill line to the ground water storage tank is automatically closed. 4 wells have emergency auxiliary generator power sources available.

# ALL ABOUT YOUR WHEATLAND WATER SYSTEM



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## WATER CYCLE

The water cycle, also known as the hydrologic cycle, begins when water from the earth's soil, plants, and water bodies turns into water vapor through the process of **evaporation**.

This invisible vapor, most of which comes from the world's oceans, travels up into the atmosphere and **condenses**, forming clouds. This is called **condensation**.

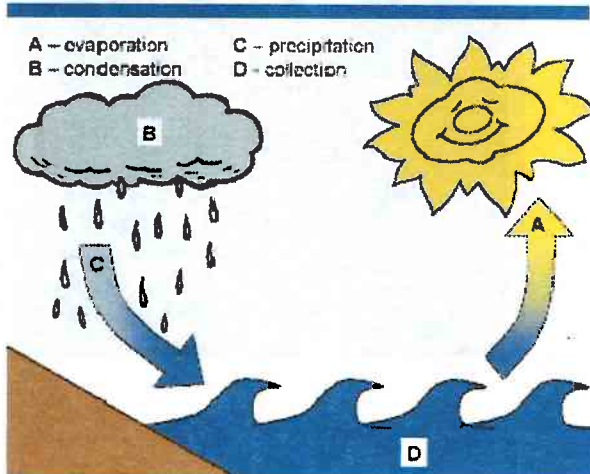
The vapors in the clouds condense more and more until they form water droplets. More and more water vapor combines with the water droplet until it is too heavy to stay in the sky any longer. The water falls to the earth far below as **precipitation**. Examples of precipitation include rain, hail, sleet, and snow.

When the water reaches the earth's surface, some of it will flow along the surface of the earth as **runoff** while the rest of it soaks into the soil--called **recharge**. Down, down, down the water goes through the soil until it becomes **groundwater** and is stored in the **aquifer** below.

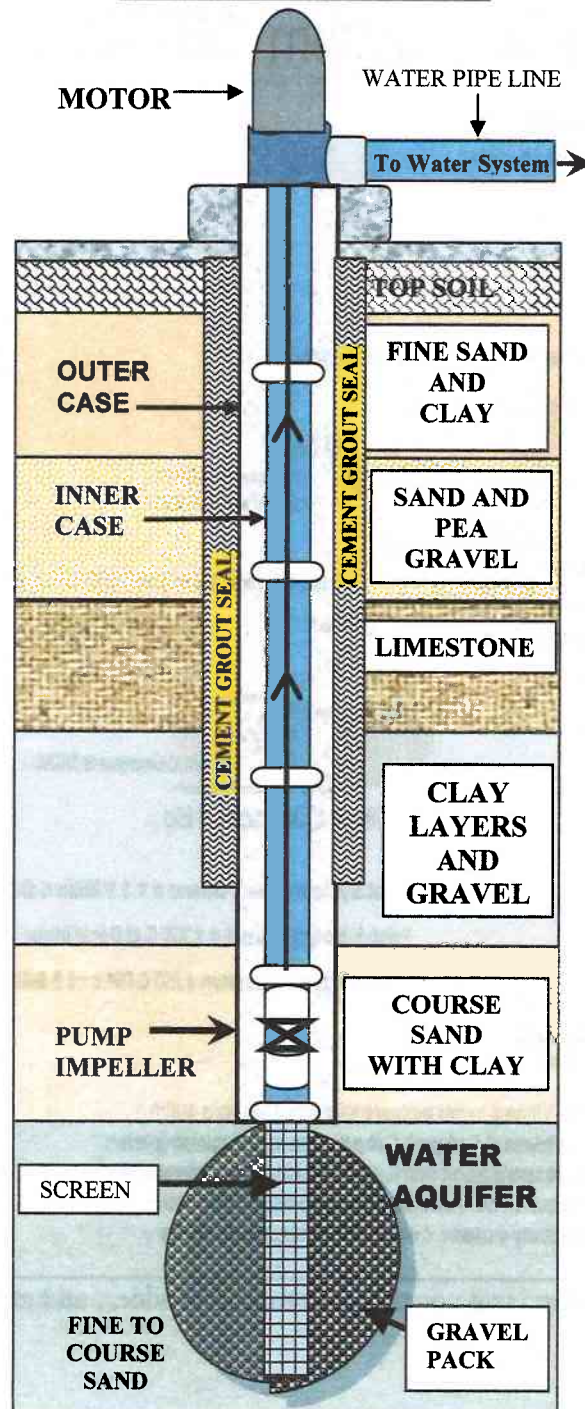
Once the water has joined the aquifer, it doesn't stop there. The groundwater slowly moves through the spaces and cracks between the soil particles on its journey to lower elevations. This movement of water underground is called **groundwater flow**.

Eventually, after years of underground movement, the groundwater comes to a **discharge area** where it enters a lake or stream. There, the water will once again be evaporated and begin the cycle again.

Water has been transported through the water cycle for millions of years and will continue this cycle forever. In the water cycle, water is constantly on the move.



## TYPICAL GROUNDWATER WELL CONSTRUCTION



## Wheatland Water System Data:

Ground Storage Tank Volume – 660,000 gallons  
 Elevated Storage Tank Volume – 72,000 gallons  
 Peak Hourly Demand – 2,300 gallons per minute  
 Total Water Source Capacity – 4050 gpm  
 Total Water System Capacity – 5,800,000 gal per Day  
 Avg. Daily Summer Demand - 1,250,000 gals  
 Peak One Day Water Demand – 1,700,000 gals  
 Peak One Month Water Demand - 49,000,000 gals

## Well Data

Well #	Depth (ft)	Avg. Yield (gpm)	Year Drilled
# 3	280	750	2001
# 4	159	720	2000
# 5	197	650	1962
# 6	230	670	2000
# 7	230	480	2001
# 8	176	850	2003

Note: Well # 5 had major work completed in 2009.

**Casing** is used to maintain an open access in the earth while not allowing any entrance or leakage into the well from the surrounding formations. The most popular materials used for casing are black steel, galvanized steel, PVC pipe and concrete pipe.

**Grout** is a sealant that is used to fill in the spaces around the outside of the well. It protects the well against the intrusion of contaminants. A grout mixture can be made of cement, bentonite, or concrete (each used separately).

**Screen** keeps sand and gravel out of the well while allowing groundwater and water from formations to enter into the well. Screen is available in many materials, the most popular being stainless steel and slotted PVC pipe. Screen is used when wells are drilled into unconsolidated materials.

**Gravel pack** is placed around the outside of the screen to prevent sand from entering the well or clogging the screen and to stabilize the well assembly.

## Water Distribution System

The distribution system consists of piping, valves, fire hydrants, service lines, and meters to deliver and distribute the water supply to the customers. The city water distribution piping ranges from 4" to 12" in diameter and almost all of the piping is made up of a thick plastic material called C-900 PVC pipe. Wheatland's complete water distribution system is almost 21 miles long with over 90 hydrants and 240 valves. All water used in Wheatland is measured and charged by usage through a water meter. There are over 1200 water meters in the distribution system that range from sizes of ¾" to 6" in diameter. The water elevated tank which is approximately 120 ft high and helps keep an even water pressure throughout the distribution system of between 48 to 51 psi. The distribution system is tested by a lab 5 times a month to ensure it is free of any possible disease causing bacteria.

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