STATE OF WASHINGTON

DEPARTMENT OF HEALTH

SOUTHWEST DRINKING WATER REGIONAL OPERATIONS

P.O. Box 47823 Olympia, Washington 98504-7823

TDD Relay 1-800-833-6388

May 30, 2017	Sunwood Lakes Homeowners Association Inc. ID #863043	
	County:	Thurston
	System Type:	Community
Paul Robischon Washington Water Service Company 6800 Meridian Road Southeast Olympia, Washington 98513	Operating Permit Color:	Green
	Surveyor:	Kay Rottell
	Inspection Date:	May 11, 2017

Thank you and Mike Forsberg for meeting with me to conduct a survey of this water system. Sanitary surveys are the Office of Drinking Water's (ODW) way to inspect public water systems through a field visit. ODW is also able to offer technical assistance to help utilities improve their system operations and ensure that public health is protected.

This report documents the findings of this survey. Deficiencies that need your attention are summarized below. As you correct the items, send me documentation that demonstrates the items have been completed as directed. Include the system name, ID number, and the date the deficiencies were corrected. You can send them to me by e-mail at kay.rottell@doh.wa.gov or by mail at PO Box 47823, Olympia, Washington 98504-7823.

If you are not able to correct these deficiencies, you must submit a Corrective Action Plan by the date assigned describing how and when the work will be completed.

SIGNIFICANT DEFICIENCIES* - NONE FOUND

SIGNIFICANT FINDINGS - BY JULY 14, 2017**

1. Replace the broken lock hasp and secure the well enclosure for Well #5 (S05) against unauthorized entry.

OBSERVATIONS

2. The water system is required to develop and implement a Small Water System Management Program (SWSMP). This document can be a powerful tool for keeping important documents preserved and indexed, and provide you with the information needed to remain in compliance and to protect public health when operations do not go as expected. You do not need to submit the SWSMP to ODW for review and approval at this time, but it should be available for review on request and during your sanitary survey. You can find the guide for your system on our website (DOH Form #331-134).
3. The homeowner's association must establish the legal authority to implement a cross-connection control program (WAC 246-290-490). The first step in developing an effective cross-connection control program is to develop the legal authority to implement your CCC program. Refer to *Cross Connection Control for Small Water Systems* (DOH Publication #331-234) or a certified cross-connection control

specialist for guidance in establishing your authority. There is a list of certified cross-connection control specialists on the ODW website.

4. After you have established the legal authority to implement a cross-connection control program, direct your cross-connection control specialist to conduct a hazard assessment of all service connections. The authority for this must be in your locally adopted CCC ordinance or by-law. Under the direction of your CCS, ensure that the appropriate cross-connection control device is installed on the service line of each high health hazard premises.
5. Source water quality samples are not being taken in the correct location in accordance with WAC 246-290-300 (7). The system is collecting blended water samples; however, the sources are not blended prior to distribution; the wells alternate and pump directly into distribution individually. Source samples must be collected at each source after any treatment prior to distribution.

RECOMMENDATIONS

6. Periodically inspect and clean Wells 3 and 4 enclosures to ensure that the aquifer is protected from contamination and so the wells can be more easily put back online during an emergency.
7. Read customer meters more frequently to identify increases in distribution system leakage and prevent potential property damage due to an unidentified leak.. We recommend at least bi-monthly meter readings.
8. Continue to install blow-offs on all dead-end lines to allow flushing of the entire distribution system. Flushing helps maintain water quality, removes built-up sediment, and allows an operator to respond to an emergency where it is important to get the existing water out of the distribution system as quickly as possible.
9. Flush your distribution system at least once a year. It is important to get settled material out of the pipes, or else it will someday affect water quality and consumer acceptance. If you have elevated iron and manganese or sediment problems, you may need to perform flushing more frequently.
10. Submit a request for a well field designation. The request should include both well logs, inorganic chemical analysis from each well (such as conductivity, total hardness, nitrates, and chlorides), and a schematic showing that the wells discharge through a common pipe with a sampling port prior to distribution.

SYSTEM INFORMATION

This system consists of 360 residential connections with a residential population of 925, and 1 non-residential connection. This system is approved for 438 equivalent residential units (ERU). The system is owned by the homeowners association which contracts with Washington Water Service Company (WWSC) for operations.

This system is served by two groundwater wells, wells 2 and 5, which feed into two 68,000 gallon reservoirs. The distribution system is divided into two pressure zones, the main zone fed directly from the wells and the reservoirs and a small boosted zone, 22 connections, on Incline Drive near the reservoirs. The Incline Drive pressure zone is fed by a booster pump station near the reservoir site.

The system was initially constructed in 1968 to serve Sunwood Lake Division 1. Well 2 was drilled in 1970 to serve Divisions 2 and 3. Wells 3 and 4 were drilled in 1980 and 1991. The finished water reservoirs were constructed in 1982 and 1991. Well 1 was inactivated prior to 1995 but an exact date is unclear. Well 5 was drilled in 2004 due to high levels of iron and manganese and diminishing capacities in wells 3 and 4.

SECTION 1: SOURCE

This system has two active groundwater wells. The wells are located off 80th Avenue behind the fire station. A 1,000 gallon hydropneumatic tank protects the well pumps and is located adjacent to the wells. Water is pumped directly into the distribution system.

Well 2 is a 12-inch diameter well drilled in December 1970 to a depth of 302 feet. The well is cased to 298 feet and screens are located between 291 and 301 feet. The well log does not indicate a surface seal. The static water level at the time of drilling was 35-feet below the ground surface. The well is equipped with two, 7-1/2 horsepower submersible pumps capable of producing 150 gallons per minute, combined.

Well 5 is an 8-inch diameter well drilled in March 2004 to a depth of 300 feet. The well is cased to 289 feet and screens are located between 283 and 298 feet. Static water depth at the time of drilling was 33-feet below the ground surface. The well has an 18 foot bentonite surface seal. The well is equipped with a 15-horsepower submersible pump capable of producing 175 gallons per minute.

Source ID #	Name:	Description:	Ecology Tag #	Listed on WFI Yes	Listed on WFI No
S02	Well #2	301 feet deep	ABR129	☒	☐
S05	Well #5	300 feet deep	AGP645	☒	☐

WELLHEAD	Source ID #S02 Yes	Source ID #S02 No	Source ID #S05 Yes	Source ID #S05 No
System has well log	☒	☐	☒	☐
*Wellcap sealed	☒	☐	☒	☐
*Openings sealed	☒	☐	☒	☐
*Vent screened	☒	☐	☒	☐
Terminates 6" above grade	☒	☐	☒	☐
*Protected from flooding	☒	☐	☒	☐
Source meter	☒	☐	☒	☐
Pressure gauge	☐	☒	☐	☒
**Raw water sample tap	☒	☐	☒	☐
Check valve	☒	☐	☒	☐
**Protected from unauthorized access	☒	☐	☐	☒
Structure in good condition	☒	☐	☒	☐
*Sanitary control area has no unmitigated contaminants	☒	☐	☒	☐
**Protected from physical damage	☒	☐	☒	☐
Frequency of routine site visit	Monthly		Monthly	
Frequency of source meter reading	Monthly		Monthly	

WELL PUMP EQUIPMENT	Source ID #S02		Source ID #S05	
	Yes	No	Yes	No
*Functional and reliable pump and pump controls	☒	☐	☒	☐
*Pump control valve or vacuum relief valve with a protected air gap at discharge	NA		NA	
Generator available	☒	☐	☒	☐
Generator has automatic startup	☐	☒	☐	☒
Generator fuel source	diesel		diesel	

EMERGENCY SOURCES

Well 1 is located in the area of the active wells. The well is physically disconnected from the distribution system.

Wells 3 and 4 are located on the same site at a different location within the community. They are fenced and disconnected from the distribution system. These wells could be reactivated if necessary; however, they were taken offline due to the poor aesthetic water quality.

ID #	Name:	Description:	Ecology Tag #	Listed on WFI Yes	Listed on WFI No*	Disconnected Yes	Disconnected No*	Inspected Yes	Inspected No*
S01	Well #1		AGN775	☒	☐	☒	☐	☒	☐
S03	Well #3		AGN774	☒	☐	☒	☐	☒	☐
S04	Well #4		AGN724	☒	☐	☒	☐	☒	☐

The well enclosure's lock hasp for Well 5 (S05) was broken and the enclosure cannot be locked. This well is not located within the locked fenced area. Replace the broken lock hasp and secure the well enclosure against unauthorized entry.

WWSC has updated the electrical in the well house to connect a portable generator. WWSC has portable generators available to use at the system during power outages.

The well enclosures for Wells 3 and 4 appear to have insect and possible rodent activity. These enclosures should be inspected and cleaned periodically to ensure that the aquifer is protected from contamination and so the wells can be more easily put back online during an emergency.

SECTION 2: DISINFECTION

This system does not have permanent disinfection. The system installed temporary disinfection in 2015 due to two non-acute total coliform violations. WWSC pressure tested and sealed the reservoirs to prevent contamination entering the water system. Disinfection was removed in July 2015.

SECTION 3: OTHER TREATMENTS

This system does not have any treatment.

SECTION 4: DISTRIBUTION SYSTEM

This distribution system consists of a variety of 2, 4, and 6-inch pipe. The water system is generally looped with only one significant dead end line but multiple smaller dead ends in cul-de-sacs. The system has two pressure zones, the main pressure zone and a small boosted pressure zone consisting of 22 connections.

Pressures range from 77 to 32 psi in the distribution system.

FEATURES	Yes	No
Service area and facility map	☒	☐
Minimum pressure requirements met	☒	☐
Service meters (reading frequency semi-annually)	☒	☐
Leak detection program	☐	☒
Water system leakage (%)	4.8%	
Adequate valving for flushing and pipe repair	☒	☐
Blow-offs on dead ends	☐	☒
Routine flushing (frequency as needed)	☐	☒
Routine valve exercise (frequency every year)	☒	☐

Customer meters are only read semi-annually because the homeowners association manages billing instead of WWSC. This less frequent meter reading is adequate but leaks in the distribution system and on the customer side of the meter may be more difficult to identify. We recommend reading the customer meters more frequently if the distribution system leakage increases or if significant property damage occurs because a leak was not identified in a timely manner.

WWSC is working to install blow-offs on all dead ends in the system. They are installing a couple of blow-offs each year at the end of the cul-de-sacs.

The distribution system is not currently flushed on any routine basis. We recommend you flush your distribution system at least once a year. It is important to get settled material out of the pipes, or else it will someday affect water quality and consumer acceptance. If you have elevated iron and manganese or sediment problems, you may need to perform flushing more frequently.

The system has two backflow assemblies installed, one on the swimming pool fill line and one on the tennis court irrigation system. These assemblies are both owned by the homeowners association and are tested annually in the spring.

CROSS CONNECTION CONTROL (Community Systems)	Yes	No
System has enabling authority	☐	☒
Ongoing hazard inspections	☐	☒
High hazards identified	☐	☒
High hazards protected	NA	
Annual testing	☒	☐

CROSS CONNECTION CONTROL (Community Systems)	**Yes**	**No**
System has installation standards	☐	☒
CCS on staff or under contract	☒	☐
Cross connections observed have been eliminated	NA	

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SECTION 5: FINISHED WATER STORAGE

There are two finished water storage reservoirs installed on Incline Drive. The reservoirs do not have separate inlet/outlets but are equipped with risers and check valves to ensure circulation of the water in the tanks. The inlet/outlet line has a tee with a check valve to allow water to only exit the tank at the bottom when the tank is not filling. During the fill sequence the check valve forces the water to go up the riser to the top of tank.

The reservoirs were pressure tested and resealed to ensure no contamination was entering the reservoir in 2015. The fill risers were raised to the top of the tank to try to prevent stratification and improve mixing in the reservoir at the same time.

RESERVOIR	**RESERVOIR NAME**	**DESCRIPTION**	**YEAR BUILT**	**TOTAL VOLUME (GAL)**
1	Reservoir 1	14-ft diameter, 60-feet tall Concrete tank	Unknown	68,000
2	Reservoir 2	14-ft diameter, 60-feet tall Concrete tank	1996	68,00

TOP OF RESERVOIR	**Res #1**		**Res #2**	
	Yes	**No**	**Yes**	**No**
**Hatch: Locked	☒	☐	☒	☐
*Hatch: Watertight seal or gasket	☒	☐	☒	☐
Hatch: Over-lapping cover	☒	☐	☒	☐
*Screened air vent	☒	☐	☒	☐
*Openings sealed/protected	☒	☐	☒	☐

FEATURES	Res #1		Res #2	
	Yes	No	Yes	No
Separate inlet/outlet	☐	☒	☐	☒
Protected drain outlet	☒	☐	☒	☐
*Protected overflow outlet	☐	☐	☒	☐
*Overflow line discharges into a sanitary sewer with an air gap	NA		NA	
Operational water level gauge	☒	☐	☒	☐
Bypass piping or isolation possibility	☒	☐	☒	☐
**Protected from unauthorized entry	☒	☐	☒	☐
Low level alarms	☐	☒	☐	☒
Sample tap at outlet	☒	☐	☒	☐

MAINTENANCE	Res #1		Res #2	
	Yes	No	Yes	No
Frequency of structural and coating inspection	5 years		5 years	
Frequency of cleaning	5 years		5 years	
Frequency of appurtenance inspection	Semi-annually		Semi-annually	
Frequency of routine site visit	Monthly		Monthly	
**Structure in good condition	☒	☐	☒	☐
Clear of excessive vegetation	☒	☐	☒	☐

Thank you for providing pictures of the reservoir hatch, vent, overflow, and other penetrations in the reservoirs.

The reservoirs were last cleaned in 2013.

SECTION 6: PRESSURE TANKS

The system has a 1,000 gallon hydropneumatic tank at the well site to limit water hammer and pump cycling.

Four small pressure tanks are located at the Incline booster pump station to limit booster pump cycling.

Site	Location	# and size of Hydropneumatic Tanks	# and size of Bladder Tanks
1	Wells 2 & 5 pump house	1 – 1,000 gallon	
2	Incline Drive Booster Pump Station		4 – 32, gallon

HYDROPNEUMATIC	Site: 1	
	Yes	No
Pressure relief valve	☒	☐
Pressure gauge	☒	☐

HYDROPNEUMATIC	Site: 1	
	Yes	No
Water level sight glass	☒	☐
Can be isolated	☒	☐
**Oil less Air compressor	☒	☐
In good condition	☒	☐

BLADDER	Site: 2	
	Yes	No
Isolation valve	☒	☐
Pressure relief valve	☒	☐
Pressure gauge	☒	☐
In good condition	☒	☐

BUILDINGS/ENCLOSURE	Site: 1		Site: 2	
	Yes	No	Yes	No
**Facility secure	☒	☐	☒	☐
Structure in good condition	☒	☐	☒	☐

The hydropneumatic tank pump house is currently being reinsulated. The old insulation has been removed and rolls of insulation were in the pump house but had not yet been installed. Continue the maintenance on the pump house to prevent freezing next winter.

SECTION 7: BOOSTER PUMPS AND FACILITIES

The Incline Drive booster pump station serves the 22 homes near the finished water reservoirs to ensure these homes maintain 30 pounds per square inch (psi) of pressure at the meter. The pumps are alternated: the first call is set at 44/65 psi, second call is set at 42/62 psi, and the third call is set at 40/60 psi.

Facility	Name	Description	Total Capacity (gpm)
1	Incline Drive Booster Pump Station	Three, 1-hp pump	60

BOOSTER PUMPS	Facility 1	
	Yes	No
Number of pumps	3	
Frequency of routine site visit	Monthly	
Isolation valves	☒	☐
Pressure gauge(s)	☒	☐
Pressure relief valve	☒	☐

BOOSTER PUMPS	Facility 1	
	Yes	No
Pump failure alarm	☐	☒
*Functional pump and pump controls	☒	☐
Protected from flooding	☒	☐
Redundant pumps	☒	☐
Equipment in good condition	☒	☐
Generator available	☒	☐
Generator has automatic startup	☐	☒
Generator fuel source	diesel	

BUILDINGS/ENCLOSURE	Facility 1	
	Yes	No
**Facility secure	☒	☐
Structure in good condition	☒	☐

The booster pump station electrical has be rewired to allow a portable generator to be used during prolonged power outages.

SECTION 8: WATER QUALITY MONITORING AND REPORTING

Both wells have elevated levels of manganese above the secondary MCL of 0.05 mg/L. Manganese levels are between 0.11 and 0.13 mg/L. Water quality complaints have decreased since Wells #3 and #4 were taken offline in 2005, which both had high levels of iron and manganese.

Refer to the Water Quality Monitoring Schedule for your monitoring requirements and status. If you have any questions on source monitoring, please contact Sophia Petro at (360) 236-3046.

CHEMICAL	
Sample Point	Description
1	Blended water station at well site

CHEMICAL	Sample Point 1	
	Yes	No
Monitoring adequate	☒	☐
ODW WQ data reviewed	☒	☐
Sample collection sites correct	☐	☒

CHEMICAL	Sample Point 1
	Yes No
System has prior: ☐ Nitrate results above 5 mg/L ☐ Nitrite results above 0.5 mg/L ☐ Primary MCL ☒ Secondary MCL exceedance(s) ☐ Organic detections ☐ Other _____	

This system should not be taking blended samples since the system does not always serve blended water to the customers. The wells alternate and both wells only run during high demand. The system must take discrete samples from source. The wells may qualify for a well field designation. We recommend submitting a request for a well field designation. The request should include both well logs, inorganic chemical analysis from each well (such as conductivity, total hardness, nitrates, and chlorides), and a schematic showing that the wells discharge through a common pipe with a sampling port prior to distribution.

COLIFORM	Yes	No
Monitoring adequate	☒	☐
Monitoring plan adequate	☒	☐
Monitoring plan followed	☒	☐
# of violations since last survey	4	

The system has had 4 non-acute coliform violations since the last survey occurring in November 2012, December 2012, November 2014, and February 2015. After the 2015 coliform violation the reservoirs were pressure tested and resealed.

LEAD & COPPER	Yes	No
Monitoring adequate	☒	☐
Results below action level	☒	☐

SECTION 9: SYSTEM MANAGEMENT AND OPERATIONS

The water system is required develop and implement a Small Water System Management Program (SWSMP). This document can be a powerful tool for keeping important documents preserved and indexed, and provide you with the information needed to remain in compliance and to protect public health when operations do not go as expected. You do not need to submit the SWSMP to ODW for review and approval at this time, but it should be available for review on request and during your sanitary survey. You can find the guide for your system on our website (DOH Form #331-134).

PROJECT/PLANNING	Yes	No
System approved	☒	☐
Current WSP/SWSMP	☐	☒

PROJECT/PLANNING	Yes	No
Year WSP/SWSMP approved	1995	
Emergency response plan	☐	☒

REPORTING	Yes	No	N/A
WFI reviewed and updated with purveyor	☒	☐	---
Consumer confidence report (Community only)	☒	☐	☐
Water use efficiency report (Municipal Water Suppliers)	☒	☐	☐
Cross connection control annual report (> 1000 conn)	☐	☐	☒

OPERATOR CERTIFICATION

This system is required to have one certified operator. The system is operated by Washington Water Service Company (WWSC), an approved Satellite Management Agency. WWSC is responsible for all aspects of the water system except for customer billing. Previously the homeowners association was doing building and yard maintenance, but WWSC has since taken over building and yard maintenance.

If you have any questions or this information is inaccurate, please contact Operator Certification at (800) 525-2536.

Name of Operator	Certification Number	Certifications	Mandatory Operator
Paul Robischon	002434	WDM2, WTPO2, CCS	☒

WDS-Water Distribution Specialist; WDM-Water Distribution Manager; WTPO-Water Treatment Plant Operator; BTO-Basic Treatment Operator; CCS-Cross Connection Specialist; BAT-Backflow Assembly Tester

OPERATIONS	Yes	No
Operational records maintained	☒	☐
Complaints followed up	☒	☐
Complaints documented	☒	☐
# of complaints recorded at ODW (since last survey)	1	
Operation and maintenance program	☒	☐
Previous survey deficiencies/findings corrected, if no list below.	☐	☐

WWSC is the management company that operates this system and they have a system to track complaints and repairs done on this system. Complaints and records of repairs are kept electronically at the management company.

CLOSING

Your system has had either a total coliform or *E. coli* MCL violation, a treatment technique violation for failure to conduct a required assessment or complete a corrective action, or more than one total coliform monitoring violation since the last survey. Your system does not qualify for the reduced frequency of Sanitary Surveys under WAC 246-290-416 (1).

Your next survey is due in 3 years.

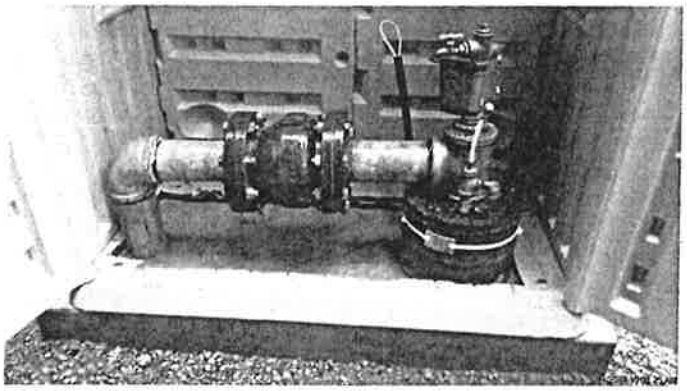
Regulations establishing a schedule of fees, including fees for sanitary surveys, were adopted March 18, 2012 (WAC 246-290-990). The amount due is $765. An itemized worksheet is enclosed with the invoice.

If you have any questions, please contact me at (360) 236-3037 or by e-mail at kay.rottell@doh.wa.gov.

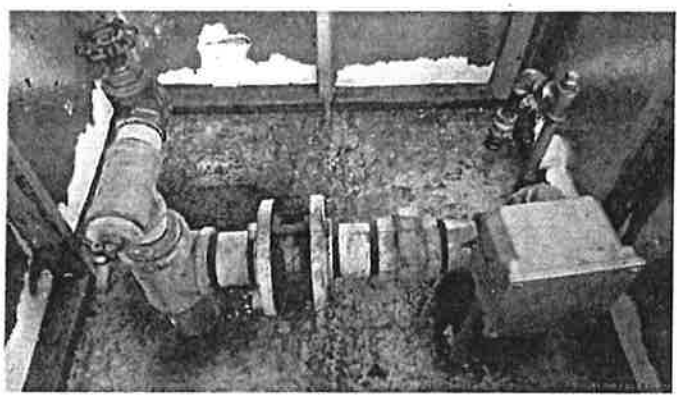
Sincerely,

Kay Rottell
Office of Drinking Water, Regional Engineer

cc: Tom Thomason, Sunwood Lakes Homeowners Associaiton
Thurston County Environmental Public Health
Denise Miles, ODW



Well #2 (S02)

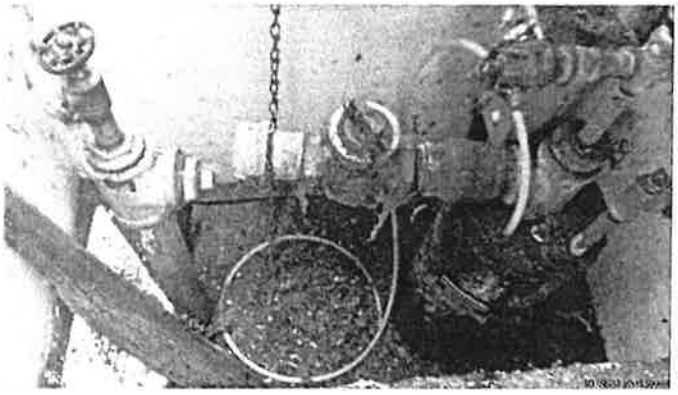


Well #5 (S05)

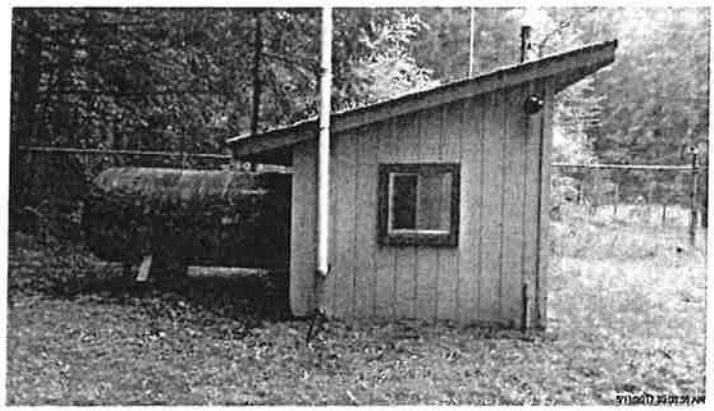
Well #5 enclosure with broken lock hasp

Inactive well #1 (S01) to the right of old hydropneumatic tank

Inactive well #3 (S03)



Inactive well #4 (S04)



Hydropneumatic tank and pumphouse at well site

Hydropneumatic tank with pumphouse

Oil-less air compressor in pumphouse

Finished water reservoirs

Catwalk between finished water reservoirs

Incline Drive Booster pump station

Pressure release-valve at BPS

BPS pressure switches

Reservoir sample tap

Combined sample tap at wells #2 and #5

Inactive well #1 (S01)