Lake Francis Mutual Water Company

3/21/22

6 pm

Venue:Alcouffe Center

Facilitator:	Anna Romano	**Minutes Recorder:**	Rooja Mohassessy

Member Participation at Board Meetings: Members may silently observe the meeting after the closed session has concluded. They may not, however, address the Board. Opportunity to address the Board on agendized items will be provided at the Open Session forum of the meeting. Only pre-approved items not on the agenda can be raised at the Open Session. All members will be given the same time allotment.

If you wish to observe the Board meeting, please RSVP by emailing the Secretary at secretary@lakefrancisestates.org

Closed Executive Session: 6 pm

a. Changes in Board work load
   i. Pres - Grant Reporting/Audit
   ii. VP - Grant Writing/ Application
   iii. AVP- Internal and Vendor Communications
   iv. SEC - Website Administration, Corp Books, External Communication
   v. Grant Application Support, Firewise
   vi. Water Manager - reports
b. Procedure in signing letters and posting approvals
c. Arrearages

Board Meeting: 6:30 pm

Roll Call.

<u>Present:</u> Anna Romano, Ethel Winchell, Lisa Thompson, Rooja Mohassessy,
Guest members present: Terry Patton, Jonathan Beth

<u>Approval of Minutes of 11/9/21 Board Meeting</u> - Approved

<u>Addressing Members' Concern</u> -

<u>Old Business:</u>

Item 1:
Shut-off Valves - President/CEO

A. Main valve - installed
B. Valves repaired - (Mooney and Gonzales)

Item 2:
Repair and Maintenance - AVP

- **Leak Repairs -** two leaks fixed
- **Road Repair -** PGE paid for the damage on Kenneth. Contractor kindly patched potholes around the Estate with the extra asphalt.
- Procedure of job orders. Create a policy of requesting repairs in non-emergency situations.. Monitor progress of job. Ex: pending, assigned to contractor, completed, etc. Create a ticket system on website **[ACTION ITEM]** to be implemented by secretary

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Item 3:
Grant Status: VP and President
The Board only applies for 100% funded grants that benefit the LFMWC with its operation of supplying water to the community and enabling upgrades to the aging infrastructure.

a. Grant-funded Leak Detection Survey of the entire Estate, funded by Calrural, was carried out. No leaks detected. Only a wharf head leak which the manager fixed.
b. Grant-funded well capacity Study conducted (40+ pages report). A comprehensive study to be uploaded on website. Results of study: **the two wells supply sufficient water for total build of community. However, additional water storage is needed for full build.** The well sounding study will be repeated in the summer when water usage is high.
c. *Technical Assistance Grant* obtained, value of $12,640 for RCAC to write scope of work and find engineers. Engineering plan for tanks, water lines, wells, water meters (22 water meters, each value of $10K. Grant will cover the meters for existing homes but not for new builds). Water meters can be installed but they need not necessarily affect the fees. They can be used for leak detection and usage measurement purposes.
d. VP now on the *SAFER Advisory Board* of the California Water Board. Her position will help LFMWC have access to the best practices and information needed to successfully apply for more grants and navigate them successfully.

e. State Engineering Plan and Design - Selection of Engineering Firm. RCAC will interview two firms who will offer bids this Wednesday. President and VP will be present. This is a State-funded grant. Next step is to apply for the construction grant.
f. Board resolution needing approval after the firm is chosen on Wednesday.
g. Calfire Grant –The Board has applied in partnership with DOHFPD for three 100% funded grants to cover the costs of:
   1. Fuel break around the Estate involving Wilkinson and Lucero
   2. Purchase equipment for clearing
   3. Train the fire boss and crew. LFMWC is sponsored by the Dobbins Fire Department.
h. Grant in progress–applying for fire substation and fire truck within lake Estate. This will allow us to shelter in place. In case of fire at the entrance to the Estate the fire department will not enter. It is imperative for LFE to be independent in battling the fire and creating a safe haven for members to shelter in place. The grant will enable LFE to purchase a vacant lot to house the truck and the substation.
i. A possible grant to investigate – Susan Rainier and VP 100% grant-funded acquisition of 85 acre which currently holds our easements, as a wildlife habitat. This will prevent the acquisition of the land to create a neighboring subdivision and threaten our utility easements.
j. Arrearages grant obtained - LFMWC already received the grant money for several delinquent accounts. LFMWC must maintain record keeping of the grant funds for seven years.
k. DWR Small Community Drought Relief grant for funding the construction after the engineering plan is completed.

Item 4: President
Policies: Irresponsible Use of Water
Rescind Policy on Seasonal Water Use - make a motion, and vote M/D/V Policy rescinded
Not necessary to impose additional fees on members as we are in good financial standing and we are a non-profit. There is currently sufficient water supply according to the recent study conducted. However, the fee for water waste and irresponsible use of water remains in place at $150. See minutes of last meeting for details.

Item 5: Secretary
Plexiglass Board - will be incorporated into the Estates signage.
Calfire grant will possibly cover the signage. Project on hold to see if the grant will cover it.

- Will be relocated closer to the entrance
- More space for residents to hang names
- Larger casing for Announcements, etc.
- Get a quote

Order easement signs near wells, and pumps and at entrances to those easements. This will allow prospective buyers of those properties to be aware of the easements. M/D/V
The Secretary has drafted a Welcome Packet to new owners/residents. It can be shared with Real Estate agents who usually work the Estate. **ACTION ITEM–Secretary upload packet on website and send to Real Estate agents.**

Item 6: Secretary
Status of Corp Books - ownership documentation

Sec will acquire proof of ownership through the county in order to issue membership certificates. **ACTION ITEM** Secretary

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New Business:

Item 1: Firewise Community - AVP
The application has been approved by the State. We are awaiting for final approval of the National Fire Protection Association NFPA. ACC will be implementing the subsequent steps. **Firewise designation enables residents to receive a discount on home ownership.** 2024 is the next evaluation. The action plan can easily be implemented.

Item 2: Finance 2021 Year End Tax Report **-President**

- Tax reporting for this year will be complicated. Three tax return reports need to be prepared. One period of the year will be for-profit, a second period is non-profit, and changing the fiscal year requires a third report.
- Financials attached to the minutes. Profit and loss report. Net profit of $ 14,225.81

Item 3: Lien discussion

a. Find a service to handle lien collections. **ACTION ITEM**–Secretary will inquire about a company to handle liens
b. Develop a template to inform members of liens **ACTION ITEM**–Secretary

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Item 5: President
Pending sale and easements.
Educating the realtor re the 85 acre for prospective buyers
Zoom with Realtor - to be scheduled **ACTION ITEM** VP will schedule

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Meeting adjourned at 7:44

OPEN SESSION:
Terry: A resident wishes to move boulders from her property to border the road and prevent access to the lake, but wanted to inquire about it before taking action. It was determined that the water company has no jurisdiction over that land, as it is owned by Yuba Water. There may be other ideas how this could be addressed, but it is an ACC matter and it will be deferred to them. **Members are encouraged to use the intake form on the website to voice concerns.**

Chris has not yet provided the tool to operate the shut off valve. AVP will communicate with the contractor. **[ACTION ITEM]** AVP

2022

NATIONAL FIREWISE USA® PROGRAM

CERTIFICATE

OF RECOGNITION

The National Fire Protection Association acknowledges that

Lake Francis Estates

located in Dobbins, CA

has successfully completed the Firewise USA® program's annual requirements for 2022 and is a participating site in good standing throughout the 2023 calendar year.

James T. Pauley, President, NFPA

NFPA | FIREWISE USA® RESIDENTS REDUCING WILDFIRE RISKS

March 25, 2022

Date Issued

Lake Francis Mutual Water Company

Source Water Capacity Plan

Prepared by:

Rachel Kennard, California Rural Water Association &

Darin McCosker, California Rural Water Association

Purpose

The purpose of this document is to provide the Lake Francis Mutual Water Company (LFMWC) with estimates of source water capacity and storage requirements (excluding storage needed for fire flow) that would satisfy a full build-out of the Lake Francis Estates subdivision. This report was developed using historical data, static and pumping levels obtained in March 2022, and information provided by the LFMWC. Well capacity tests were not completed as a part of this report; however, a well capacity test was completed for Well 4 in 2016. The data provided herein relies on the results of that test. There is no evidence of a capacity test done for Well 5, however, upon speaking with board members of the LFMWC, Well 5 is presumed to produce at a rate of 30gpm for arsenic blending purposes. The information in this report relies on the presumption that Well 5 produces 30 gpm.

Overview of the LFMWC

The LFMWC services the Lake Francis Estates subdivision located one-half mile southwest of Dobbins and is adjacent to the western shore of Lake Francis. The streets encompassing the subdivision are Shirley Drive, Ingersoll Drive, and Kenneth Avenue. The subdivision comprises 20 acres of land subdivided into 58 lots. As of February 2022, 21 lots have residential dwellings. The remaining 37 lots have not yet been developed.

The LCMWC is serviced by two active wells – well 4 and well 5. Wells 1 and 2 are destroyed and well 3 is inactive (see Table 1). Well 4 (figure 1) is 297 feet deep with a 4 inch casing and provides 23 gallons per minute to the distribution system. The gpm is substantiated by the drillers report dated in September 2016. Well 5 (figure 2) is 419 feet deep with a 6 inch casing and is presumed to provide 30 gallons per minute to the distribution system. Both wells are equipped with a production meter and production readings are logged monthly. Chlorination is only used for emergency disinfection purposes; no continuous disinfection practices are used. Both wells draw from a fractured rock aquifer.

Arsenic levels in well 5 exceed the Maximum Contaminant Level (MCL) of 10µg/L, therefore, water from Well 5 can only be pumped when it is blended with water from Well 4. Blended samples are taken from the sample tap located near well 3 (figure 3). Analytical results taken from the blended sample tap suggest that the blending ratio meets state and federal standards for arsenic.

Table 1: Lake Francis Mutual Water Company Sources and Sampling Points

Well	PWSID	Status
Well 01	CA5800805_001_001	INACTIVE- DESTROYED
Well 02	CA5800805_002_002	INACTIVE- DESTROYED
Well 03	CA5800805_003_003	INACTIVE
Well 04	CA5800805_004_004	ACTIVE
Well 05	CA5800805_005_005	ACTIVE
Well 4 & 5 BLENDED	CA5800805_006_006	ACTIVE

Figure 1: Inside Well 4 Enclosure

Figure 2: Inside Well 5 Enclosure

Figure 3: Well 3 Enclosure and Blended Sample Tap

The main transmission line is 4-inch class 160 polyvinyl chloride (PVC) pipe configured in a loop system to avoid stagnant dead ends. All service connections, except lot 58, are serviced by a double service connection. The system is currently unmetered and does not have a method to determine water loss from unknown leaks. The system has five 4-inch standpipe hydrants and three gate valves.

Three gravity storage facilities maintain pressure in the distribution system and satisfy demand when the wells are not running. The system has one pressure zone. Tank 1 is approximately 7,000 gallons, Tank 2 is approximately 10,000 gallons, and Tank 3 is approximately 14,000 gallons for a total storage capacity of 22,000 gallons. However, a float gauge prevents the tanks from filling above 2/3 full, therefore, the usable storage is approximately 14,500 gallons. The storage facilities are not National Sanitation Federation (NSF) 61 certified and are therefore not suitable for use in drinking water systems. Efforts are currently underway to replace the existing storage facilities. See Appendix A for system maps.

Methods

Historical production records from January 2019 – December 2021 were used to calculate the following parameters summarized in Table 2

Table 2: Methods For Water Needs in Current Buildout

Parameter	Equation	Description
Combined Production	$\sum_{n=36} P_{well\ 4} + P_{\ well\ 5}$	*Combined production was found by summing well 4 production (in gals) in a given month to the production for well 5 (in gals) in the same month. This process was repeated for all 36 months in the timeseries.*
Average monthly Demand	$\frac{CP._{Jan19} + \cdots + CP_{Dec22}}{36}$	*Average monthly demand was found by summing all values for combined production and dividing by 36. This value is the average monthly demand of the current buildout (21 lots).*
Maximum Monthly Demand	$= MAXIMUM(CP)$	*Maximum Monthly demand was determined by finding the maximum combined production value in the timeseries*
Average household Monthly demand	$\frac{Av.\ monthly\ demand}{21}$	*Average household monthly demand was found by dividing average monthly demand by the number of lots with active service connections (21)*
Maximum monthly household demand	$\frac{Max.\ monthly\ demand}{21}$	*Maximum household monthly demand was found by dividing maximum monthly demand by the number of lots with active service connections (21)*
Maximum Day Demand	$\frac{Max.\ Mo.Demand}{30}$	*Maximum day demand was found by dividing maximum monthly demand by the average days in a month (30). Daily production meter reads are not currently available at the LFMWC; therefore, this calculation is an estimate based on maximum monthly demand.*
Current monthly pump run times for Well 4 and Well 5	$\frac{Mo.\ prod.}{gpm\ *\ 60\,min}$	*Monthly pump run time for well 4 and 5 were found by dividing monthly production for each month by the sustained yield of the well (in gpm) multiplied by 60 minutes. The resulting value is a monthly pump run time in hours.*
Current daily pump run times for Well 4 and Well 5	$\frac{Mo.pump\ run\ time}{30}$	*Daily pump run time for well 4 and 5 were found by dividing monthly pump run time by the average number of days in a month (30). The resulting value is daily pump run time in hours.*

The data calculated in Table 2 was used to estimate the water needs for a full buildout of 58 lots. Table 3 summarizes the parameters estimated for a full buildout.

Table 3: Methods for Estimated Future Needs (Full Buildout)

Parameter	Equation	Description
Average Monthly Demand	$Av. HH\ mo. demand * 58$	*The average monthly demand for a full buildout was estimated by multiplying the current average household (HH) monthly demand by the number of lots in a full buildout (58)*
Maximum Monthly Demand	$Max. HH\ mo. demand * 58$	*The maximum monthly demand for a full buildout was estimated by multiplying the current maximum household (HH) monthly demand by the number of lots in a full buildout (58)*
Maximum Day Demand	$\frac{Max\ Monthly\ Demand}{30}$	*The maximum day demand for a full buildout was estimated by dividing the maximum monthly demand by the average number of days in a month (30)*
Production percentage increase	$\frac{Max\ mo. demand\ _{FB}}{Max\ mo. demand_{CB}}$	*The percentage increase in production needed to sustain a full buildout was estimated by dividing the maximum monthly demand of the full build by the maximum monthly demand of the current build.*
Anticipated average daily run times	$Av. daily\ run\ time_{CB} * \%\ prod\ increase$	*Anticipated average daily run times to sustain a full build was calculated by multiplying the average daily run times for the current build out by the percentage production increase needed to sustain a full buildout. This process was completed separate for well 4 and well 5.*
Anticipated summer run times (June-September)	$av. (RT_{june-sept}) * \%\ prod\ increase$	*The anticipated summer rune times for a full buildout was estimated by averaging the current summer run times from June to September for each year in the time series and multiplying that value by the % production increase required to sustain a full buildout.*
Additional storage needs (not including needs for fire flow)	$current\ storage\ Vol + 10\% - Max\ day\ demand_{FB}$	*Additional storage needs (excluding fire flow) was calculated by summing the current storage capacity and adding a 10% increase to account for an upcoming grant to expand storage capacity by 10%. This value is the total amount of storage the LFMWC will have when the grant project is complete. This value was subtracted by the estimated maximum day demand of the full buildout to determine how much extra storage is required to meet maximum day demand*

Using the sustained yield for Well 4 provided by driller's report (23gpm) and information provided by LFMWC that well 5 produces 30 gpm, maximum daily and monthly yield were calculated and summarized in Table 4.

Table 4: Methods for Estimated Maximum Yield for Full Buildout

Parameter	Equation	Description
Max Daily Yield	$CP\ rate * 1440\ minutes$	*Maximum daily yield for both wells was calculated by multiplying the combined production (53gpm) by the number of minutes in a day (1440). This calculation depends on the combined production rates of 23gpm & 30gpm and relies on the assumption that the wells can pump 24 hours a day without causing a drawdown below the perforations.*
Maximum Monthly Yield	$Max\ daily\ yield * 30$	*Maximum monthly yield was calculated by multiplying the maximum daily yield by the average number of days in a month (30). This value relies on the assumption that the wells can pump 24 hours a day without causing a drawdown below the perforations.*

Drawdown rate was measured at each well site on March 2nd, 2022. Well 4 required the use of a solinst because the sounding port was too narrow to fit a sonic Eno Scientific well sounder. The sounding port for Well 5 was wide enough to accommodate a sonic Eno Scientific well sounder device. The following parameters were measured on March 2nd, 2022:

1. Static level
2. Pumping level
3. Recharge

Using the measurements obtains on March 2nd, 2022 and information about well construction, a drawdown rate was established for each well. Table 5 summarized the calculated needed to determine drawdown rate.

Table 5: Methods for Drawdown Rate Calculations

Parameter	Equation	Description
Drawdown	$pumping\ level - static\ level$	*Total drawdown was calculated by subtracting the pumping level by the static level*
Volume at Static Level	$Casing, ft^2 * 0.785 * (depth - SL) * 7.48$	*The volume at the static level was determined by multiplying the square of the casing (in ft) by 0.785, then multiplying that value by the difference between the total depth and the static level to find the volume. The value is then turned into gallons by multiplying the value by 7.48*
Volume of water/ft of depth	$Casing, ft^2 * 0.785 * 7.48$	*The volume of water per foot of depth in the casing was calculated by multiplying the square of the casing (in ft) by 0.785 and multiplying that value by 7.48*
Drawdown Rate	$\frac{drawdown * vol/ft}{gpm}$	*The drawdown rate was calculated by multiplying the drawdown by the volume of water per foot of depth and then dividing by the sustained yield (gpm) of the well. These values were compared with observed values in the field.*

Results

Table 6 outlines historical monthly production, monthly run time, and daily run time for both Well 4 and Well 5. Combined production is also shown in Table 6. Figure 4 shows combined production over the timeseries and Figure 5 shows a comparison between production values for Well 4 and Well 5. Figure 5 shows that Well 4 runs roughly 1/3 more than Well 5 for the purpose of blending. Peak demand over the historical period was in August 2020 (390,000 gallons).

Table 6: Historical Monthly Production & Pump Run Times (Jan2019-Dec2021)

Date	Well 4				Well 5				Combined Production
	Meter Read	Production (gal)	Mo. run time (Hrs)	Daily run time (Hrs)	Meter Read	Production (gal)	Mo. run time (Hrs)	Daily run time (Hrs)	
Jan-19	3323800	39700	28.77	0.96	4181600	36500	20.28	0.68	76200
Feb-19	3363500	34300	24.86	0.83	4218100	13000	7.22	0.24	47300
Mar-19	3397800	40300	29.20	0.97	4231100	26900	14.94	0.50	67200
Apr-19	3438100	55100	39.93	1.33	4258000	37200	20.67	0.69	92300
May-19	3493200	79000	57.25	1.91	4295200	53300	29.61	0.99	132300
Jun-19	3572200	141800	102.75	3.43	4348500	95300	52.94	1.76	237100
Jul-19	3714000	170600	123.62	4.12	4443800	113700	63.17	2.11	284300
Aug-19	3884600	176800	128.12	4.27	4557500	117700	65.39	2.18	294500
Sep-19	4061400	100600	72.90	2.43	4675200	66600	37.00	1.23	167200
Oct-19	4162000	74700	54.13	1.80	4741800	49200	27.33	0.91	123900
Nov-19	4236700	69000	50.00	1.67	4791000	45900	25.50	0.85	114900
Dec-19	4305700	39900	28.91	0.96	4836900	26200	14.56	0.49	66100
Jan-20	4345600	39500	28.62	0.95	4863100	26100	14.50	0.48	65600
Feb-20	4385100	75800	54.93	1.83	4889200	50000	27.78	0.93	125800
Mar-20	4460900	45700	33.12	1.10	4939200	29800	16.56	0.55	75500
Apr-20	4506600	79900	57.90	1.93	4969000	52700	29.28	0.98	132600
May-20	4586500	116400	84.35	2.81	5021700	75300	41.83	1.39	191700
Jun-20	4702900	162800	117.97	3.93	5097000	105600	58.67	1.96	268400
Jul-20	4865700	185800	134.64	4.49	5202600	120500	66.94	2.23	306300
Aug-20	5051500	240000	173.91	5.80	5323100	151100	83.94	2.80	391100
Sep-20	5291500	220000	159.42	5.31	5474200	134300	74.61	2.49	354300
Oct-20	5511500	186500	135.14	4.50	5608500	112700	62.61	2.09	299200
Nov-20	5698000	71500	51.81	1.73	5721200	43400	24.11	0.80	114900
Dec-20	5769500	52200	37.83	1.26	5764600	31500	17.50	0.58	83700
Jan-21	5821700	50700	36.74	1.22	5796100	30700	17.06	0.57	81400
Feb-21	5872400	44100	31.96	1.07	5826800	26600	14.78	0.49	70700
Mar-21	5916500	62600	45.36	1.51	5853400	38300	21.28	0.71	100900
Apr-21	5979100	99200	71.88	2.40	5891700	60500	33.61	1.12	159700
May-21	6078300	158500	114.86	3.83	5952200	95800	53.22	1.77	254300
Jun-21	6236800	194500	140.94	4.70	6048000	116500	64.72	2.16	311000
Jul-21	6431300	206300	149.49	4.98	6164500	124200	69.00	2.30	330500
Aug-21	6637600	203900	147.75	4.93	6288700	122000	67.78	2.26	325900
Sep-21	6841500	159900	115.87	3.86	6410700	96800	53.78	1.79	256700
Oct-21	7001400	82000	59.42	1.98	6507500	49500	27.50	0.92	131500
Nov-21	7083400	37100	26.88	0.90	6557000	22700	12.61	0.42	59800
Dec-21	7120500	46300	33.55	1.12	6579700	28400	15.78	0.53	74700

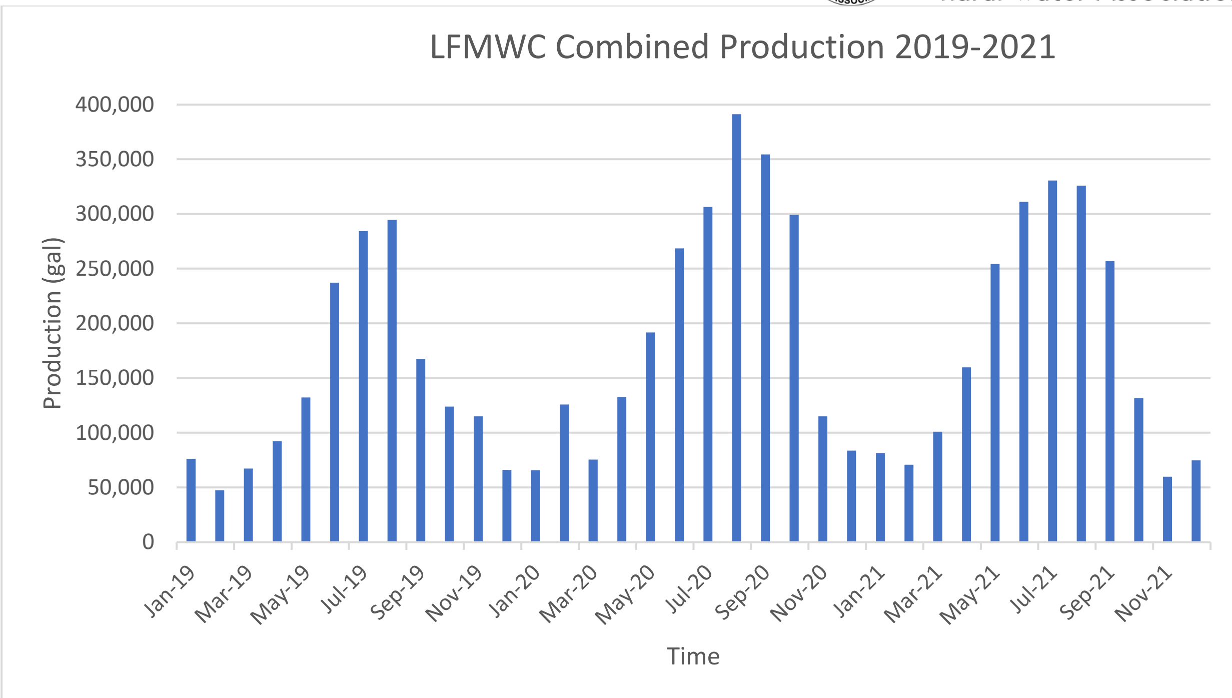


Figure 4: LFMWC Combined Production (Jan2019-Dec2021)

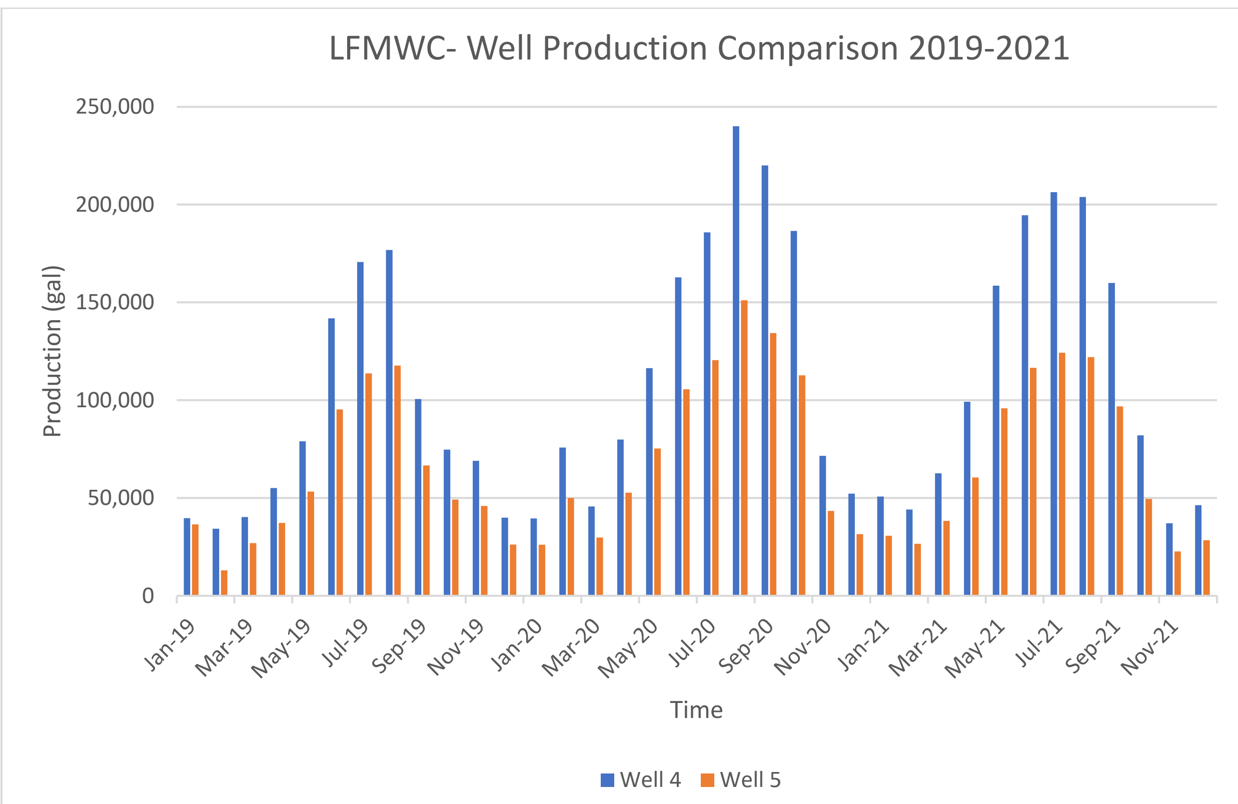


Figure 5: LFMWC Production Comparison (Jan2019-Dec2021)

Figure 6 shows monthly pump run times for Well 4 and Well 5 and Figure 7 shows average daily pump run time for Well 4 and Well 5. While there are variations in pump run time throughout the year, Well 4 and Well 5 have an average daily pump run time of 2.58 hours and 1.25 hours, respectively. These findings conclude that the current buildout of 21 lots requires the wells to run an average of 2.58 hours (Well 4) and 1.25 hours (Well 5) per day to sustain demand. The average daily summer month (June-September) run times are 4.35 hours and 2.11 hours for Well 4 and Well 5 respectively. These results conclude that the peak demand of the current buildout requires the wells to run 4.35 hours (Well 4) per day and 2.11 hours (Well 5) per day to sustain the current demand.

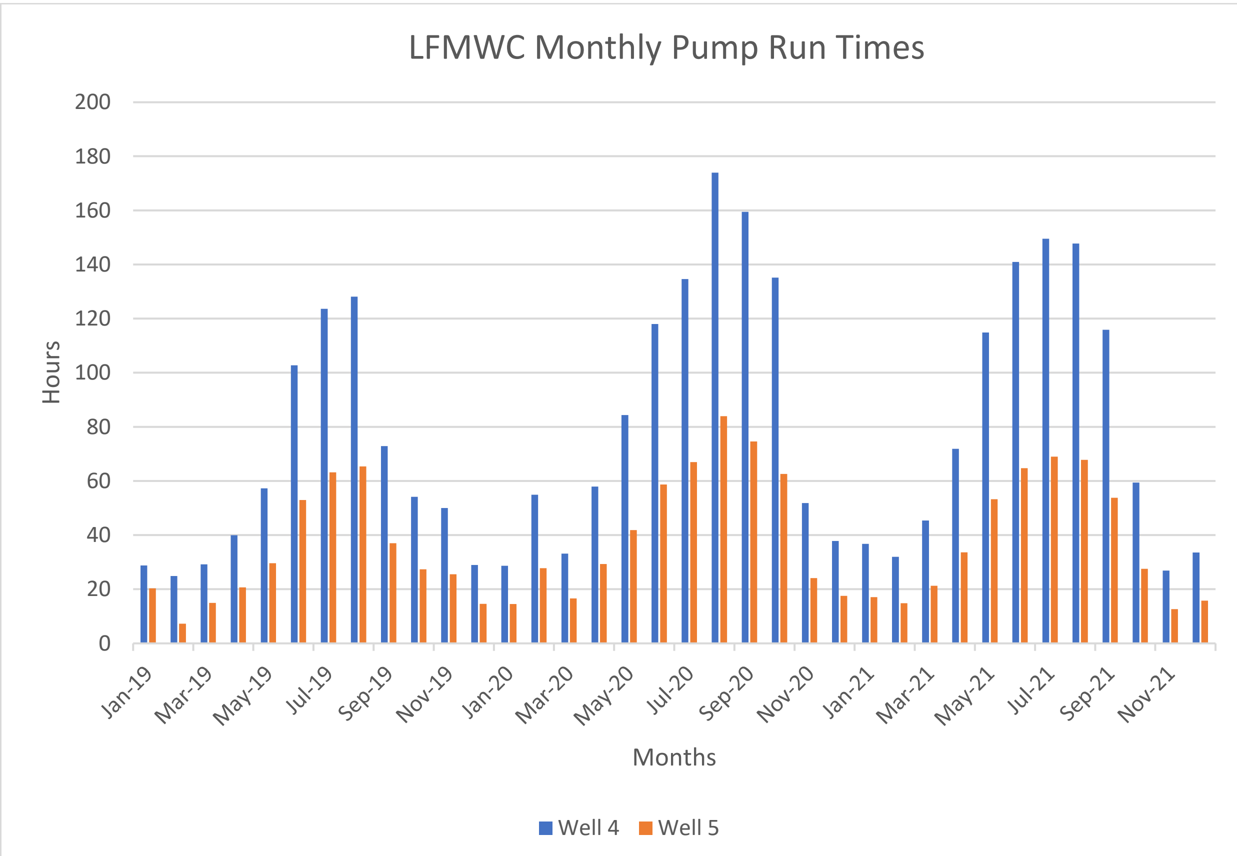


Figure 6: LFMWC Monthly Pump Run Times

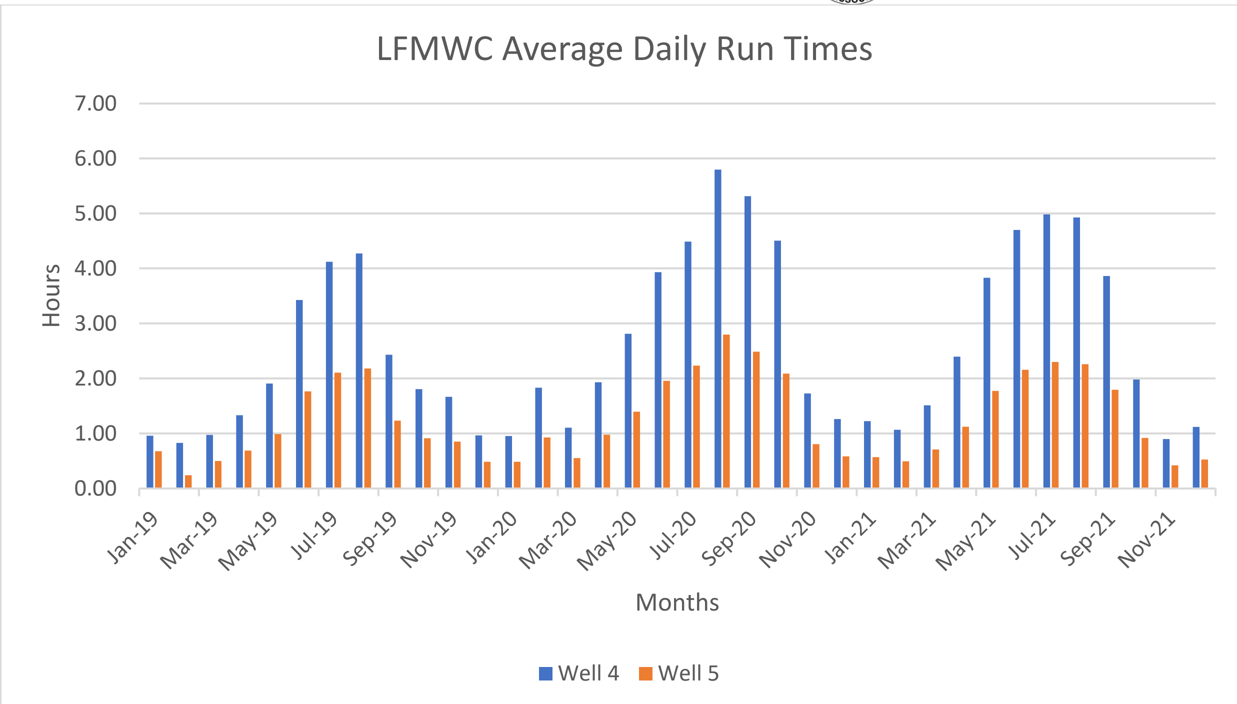


Figure 7: LFMWC Average Daily Pump Run Times

Table 7 summarizes the current buildout statistics using the production data in Table 6. Table 8 summarizes the anticipated growth statistics. It is estimated that a full buildout will increase average monthly demand by 307,000 gallons, increase maximum monthly demand by 690,000 gallons, and increase the maximum day demand by 23,000 gallons. A full buildout is estimated to require Well 4 to run 4.5 more hours on average throughout the year and an estimated 7.6 more hours during the summer months. Likewise, a full buildout is estimated to require Well 5 to run 2.2 more hours on average throughout the year and an estimated 3.7 more hours during the summer months.

Table 7: Current Buildout Statistics

Parameter	Result
Average Monthly Demand (gal)	174,153
Maximum Monthly Demand (gal)	391,100
Average Monthly Household Demand (gal)	8,293
Maximum Monthly Household Demand (gal)	18,624
Maximum Day Demand (gal)	13,037
Well 4 Average Daily Pump Run Time (hrs)	2.58
Well 4 Average Summer Daily Pump Run Time (hrs)	4.35
Well 5 Average Daily Pump Run Time (hrs)	2.11
Well 5 Average Summer Daily Pump Run Time (hrs)	1.25

Table 8: Anticipated Growth Statistics (full buildout)

Parameter	Result
Average Monthly Demand (gal)	480,993
Maximum Monthly Demand (gal)	1,080,181
Maximum Day Demand (gal)	36,006
Well 4 Anticipated Daily Pump Run Time (hrs)	7.12
Well 4 Anticipated Summer Daily Pump Run Time (hrs)	12.02
Well 5 Anticipated Daily Pump Run Time (hrs)	3.45
Well 5 Anticipated Summer Daily Pump Run Time (hrs)	5.81

Table 9 shows the calculated storage requirements for the LFMWC. The calculations include the 10% increase in capacity that is included in a current grant application. This analysis does not include the volume needed for fire flow. Additional storage is needed for fire flow and methods for determining the volume needed for fire flow may be obtained from the local Fire Marshall or the Local Primacy Agency regulator. It is estimated that the LFMWC needs at least 12,000 gallons in additional storage after the project upgrade. Without the 10% increase upgrade, the LFMWC will need at least 14,200 gallons in additional storage.

Table 9: Storage Requirement Calculations

Parameter	Result
Current capacity (gal)	22,000
10% increase from grant (gal)	2,200
Maximum Day Demand for full buildout	36,006
Extra needed for Fire Flow	Not included in this analysis
Additional storage needed to sustain full build-out with 10% upgrade (based on total storage)	11,806
Additional storage needed to sustain full build-out without 10% upgrade (based on total storage)	14,200

Based on the sustained yield of 23 gallons per minute for Well 4 and 30 gallons per minute for Well 5, the system can produce a combined effluent of 53 gallons per minute. Theoretically, if the wells ran 24 hours per day, they could produce a maximum of 76,320 gallons per day and 2,289,600 gallons per month. The volume that can theoretically be produced by Well 4 and 5 far exceed the demands of the system at full buildout. However, to further substantiate this effort, both wells were sounded on March 2nd, 2022. Static level was measured first and pumping level was measured every 1-2 minutes at each well. Groundwater recovery was also measured every 1-2 minutes. Figures 8-10 show the drawdown and recovery of Well 4 and Figures 11-13 show the drawdown and recovery of Well 5.

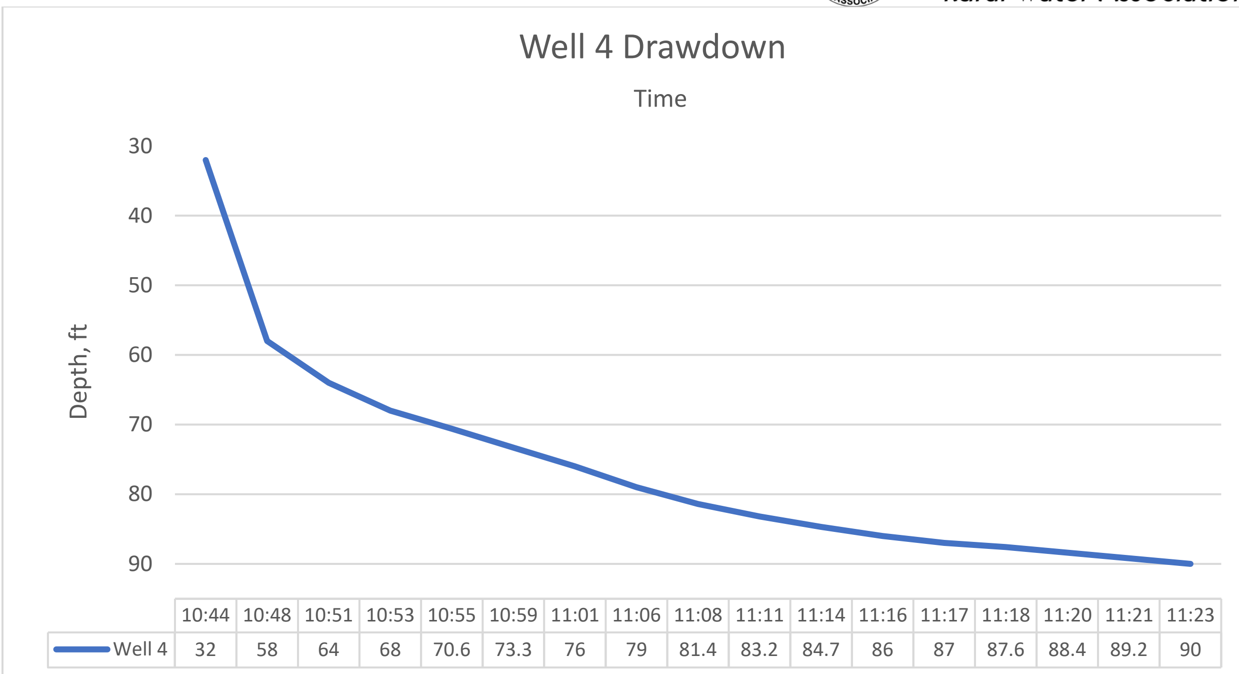


Figure 8: Well 4 Drawdown Measurements

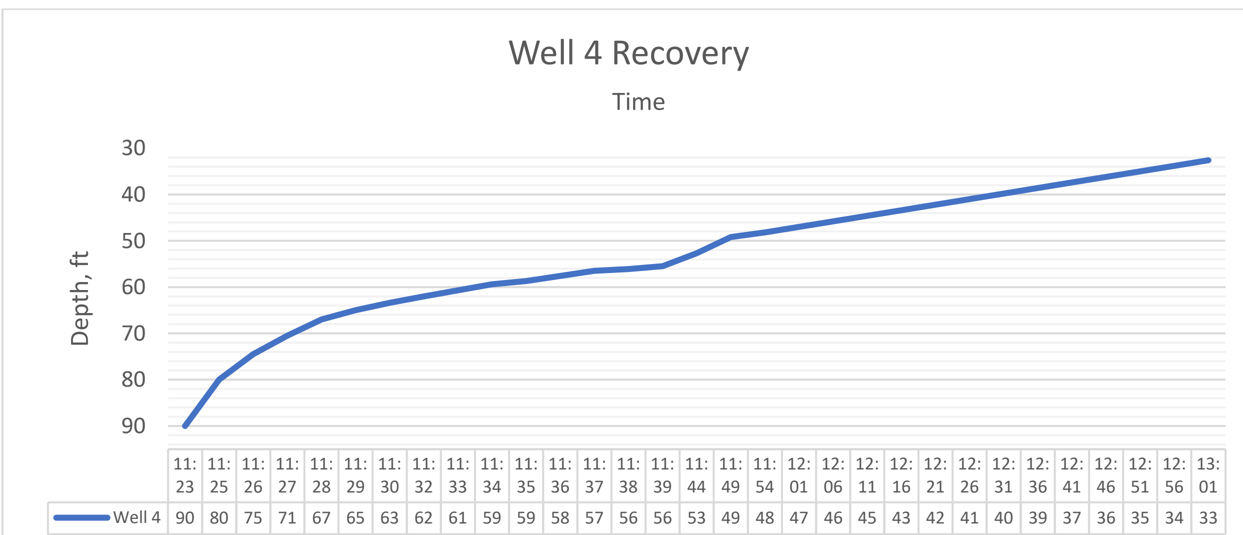


Figure 9: Well 4 Recovery Measurements

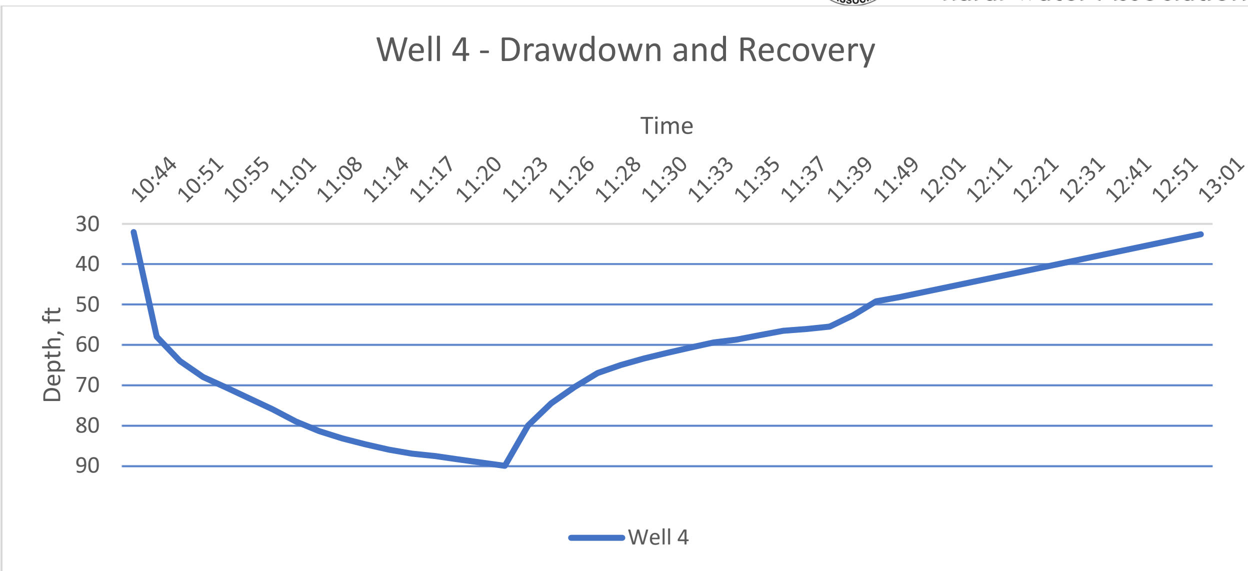
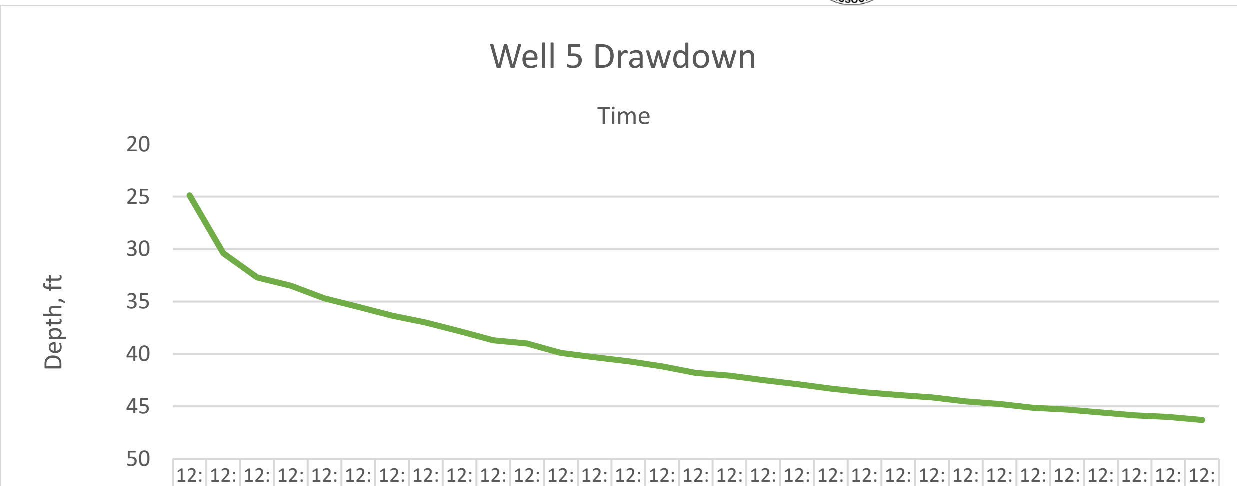
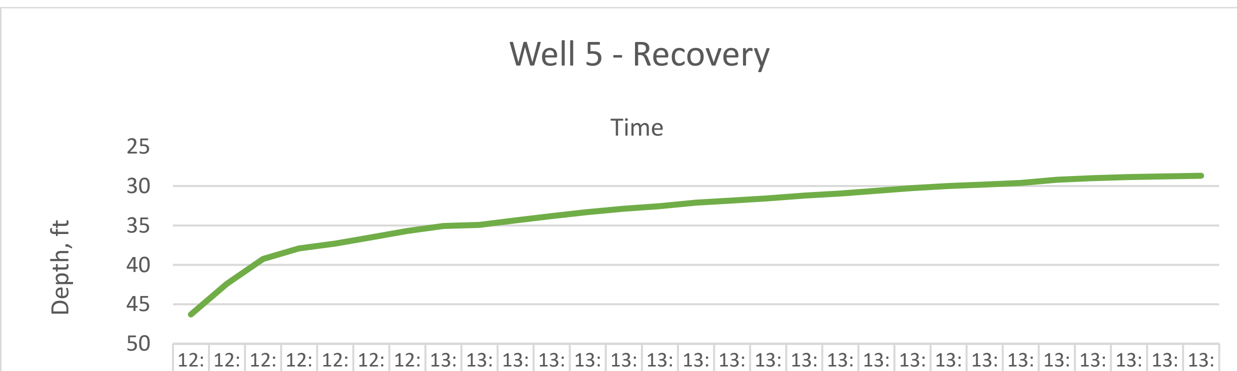


Figure 10: Well 4 Drawdown and Recovery Measurements

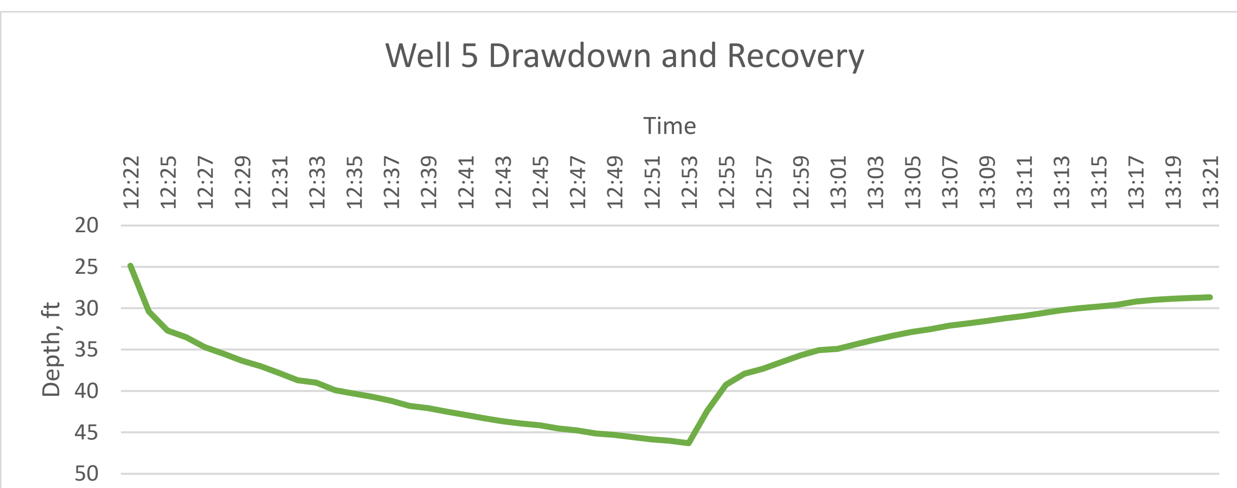
Well 4 has a static level of 32 ft and a total casing depth is 297 feet, indicating a relatively full column. Upon startup of the well, the groundwater level initially dropped quickly, but then tapered to a level of 90 feet within 40 minutes. Although a pumping level was not sustained during the field measurements, the degree to which the rate was slowing was indicative that the true pumping level is not much lower than 90 feet. Considering the column depth is 297 feet deep, field staff were not concerned that the pumping level would fall below the perforations. The drawdown rate for Well 4 is 1.65 feet/minute until the pumping level is achieved (≈ 90 feet). Recovery was also monitored for Well 4. Well 4 recovered to the static level with 1.5 hours. As of March 2nd, 2022, field staff at the California Rural Water Association have no concerns about the ability for Well 4 to produce water for a full buildout. Well 4 is estimated to run 12 hours per day during peak summer months at full buildout. Since the pumping level is unlikely to fall far below 90ft, the well has little chance of having supply problems. However, an additional field investigation should also take place during the summer months to confirm these results.



Time	12:22	12:23	12:25	12:26	12:27	12:28	12:29	12:30	12:31	12:32	12:33	12:34	12:35	12:36	12:37	12:38	12:39	12:40	12:41	12:42	12:43	12:44	12:45	12:46	12:47	12:48	12:49	12:50	12:51	12:52	12:53
Well 5	25	30	33	34	35	36	36	37	38	39	39	40	40	41	41	42	42	43	43	43	44	44	44	45	45	45	45	46	46	46	46



Time	12:53	12:54	12:55	12:56	12:57	12:58	12:59	13:00	13:01	13:02	13:03	13:04	13:05	13:06	13:07	13:08	13:09	13:10	13:11	13:12	13:13	13:14	13:15	13:16	13:17	13:18	13:19	13:20	13:21
Well 5	46	42	39	38	37	37	36	35	35	34	34	33	33	33	32	32	32	31	31	31	30	30	30	30	29	29	29	29	29

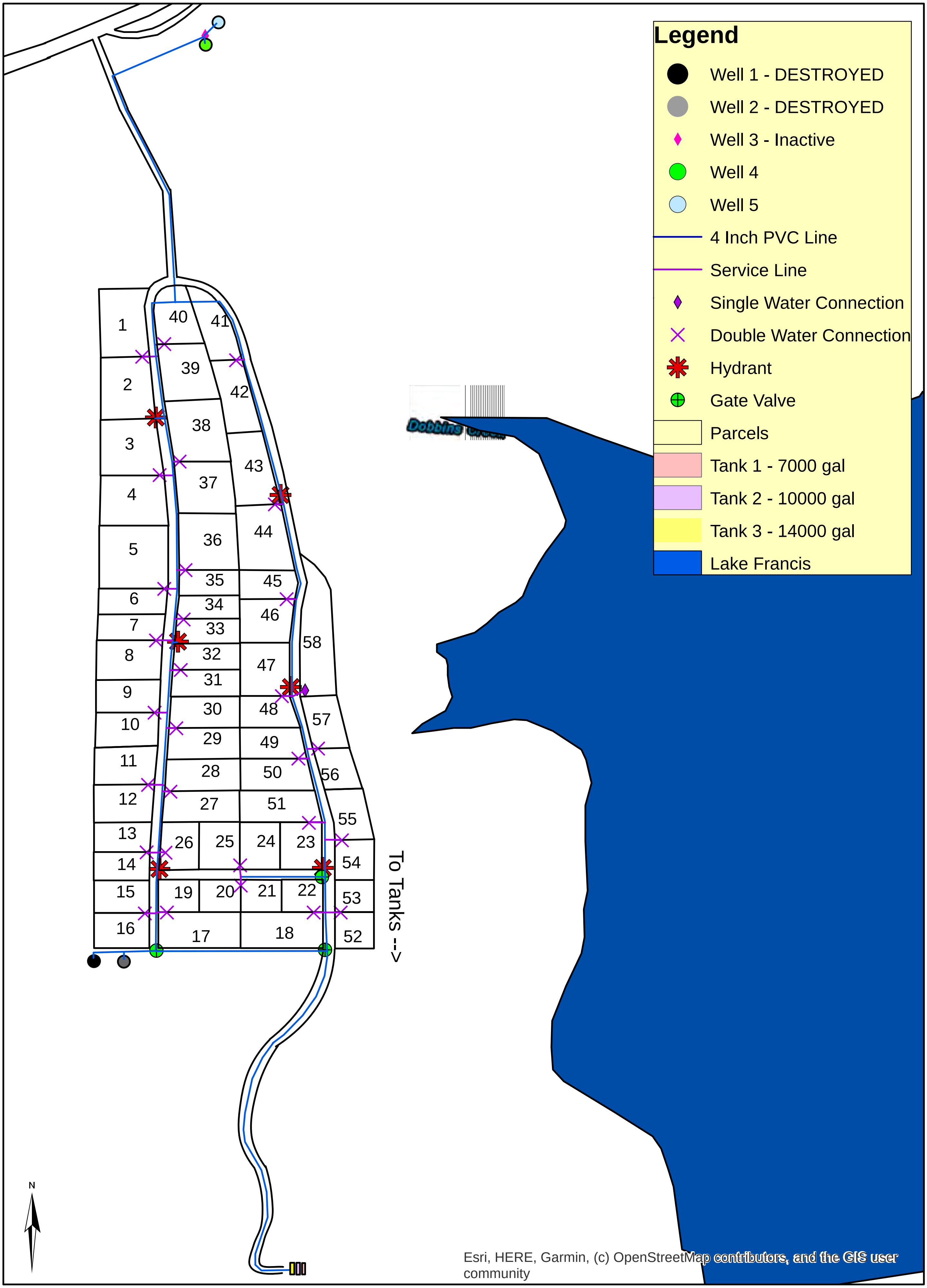


Well 5 has a static level of 24.8 ft and a total casing depth is 419 feet, indicating a relatively full column. Upon startup of the well, the groundwater level initially dropped quickly, but then tapered to a level of 46 feet within 30 minutes. Although a pumping level was not sustained during the field measurements, the degree to which the rate was slowing was indicative that the true pumping level is not much lower than 46 feet. Considering the column depth is 419 feet deep, field staff were not concerned that the pumping level would fall below the perforations. The drawdown rate for Well 5 is 1.57 feet/minute until the pumping level is achieved (≈ 46 feet). Recovery was also monitored for Well 5. Well 5 recovered to 28 feet (four feet from static level) 25 minutes. As of March 2^{nd}, 2022, field staff at the California Rural Water Association have no concerns about the ability for Well 5 to produce water for a full buildout. Well 5 is estimated to run 5.8 hours per day during peak summer months at full buildout. Since the pumping level is unlikely to fall far below 46ft, the well has little chance of having supply problems. However, an additional field investigation should also take place during the summer months to confirm these results.

Conclusions

Based on the results of this analysis and the field data collected on March 2^{nd}, 2022, Well 4 and Well 5 are able to produce the volume of water needed to sustain a full buildout of 58 lots. However, additional field investigations taken during the summer months may be necessary to further substantiate these findings. The additional storage required for a full buildout is 12,000 gallons with the 10% increase in storage or 14,200 gallons without the 10% increase in storage. This is the minimum additional volume needed to meet the estimated maximum day demand at full buildout. This value does not include the additional volume needed for fire protection.

Appendix A – System Maps


Legend
Well 1 - DESTROYED
Well 2 - DESTROYED
Well 3 - Inactive
Well 4
Well 5
4 Inch PVC Line
Service Line
Single Water Connection
Double Water Connection
Hydrant
Gate Valve
Parcels
Tank 1 - 7000 gal
Tank 2 - 10000 gal
Tank 3 - 14000 gal
Lake Francis
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
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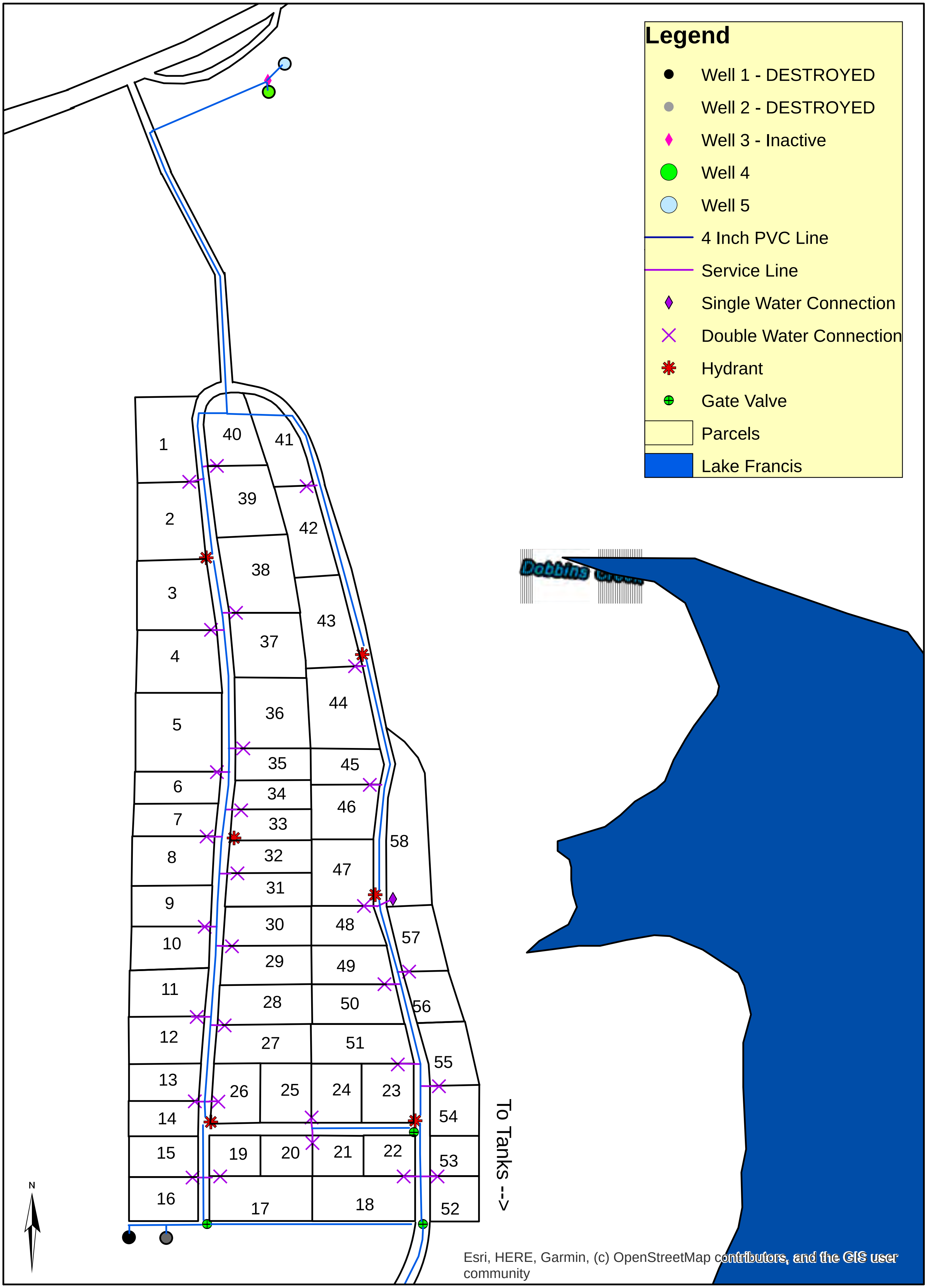
Dobbins
To Tanks -->
N
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community



Legend
Well 1 - DESTROYED
Well 2 - DESTROYED
Well 3 - Inactive
Well 4
Well 5
4 Inch PVC Line
Service Line
Single Water Connection
Double Water Connection
Hydrant
Gate Valve
Parcels
Lake Francis
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To Tanks -->
N
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Drinking Water Source Assessment

Water System

LAKE FRANCIS MUTUAL WATER

Yuba County

Water Source

WELL 03

Assessment Date

October, 2001

California Department of Health Services
Drinking Water Field Operations Branch
LPA Yuba County

District No.	**88**
System No.	**5800805**
Source No.	**003**
PS Code	**17N/07E-05G02 M**

Vulnerability Summary

District Name LPA Yuba County **District No.** 88 **County** Yuba

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 03 **Source No.** 003 **PS Code** 17N/07E-05G02 M

Completed by Jodi Bird **Date** October, 2001

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the **WELL 03** of the **LAKE FRANCIS MUTUAL WATER** water system in **October, 2001**.

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Septic systems - low density

A copy of the complete assessment may be viewed at:

Yuba County Environmental Health
938 14th Street
Marysville, CA 95901

You may request a summary of the assessment be sent to you by contacting:

Jodi E. Bird
Water Program Coordinator
(530) 741-6251

Delineation of Ground Water Protection Zones

District Name LPA Yuba County **District No.** 88 **County** Yuba

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 03 **Source No.** 003 **PS Code** 17N/07E-05G02 M

Completed by Jodi Bird **Date** October, 2001

Method Used to Delineate Protection Zones

X 1. Calculated Fixed Radius

2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
3. More Detailed Methods
4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q) **10** gallons/minute

16 acre feet/year

702,670 cubic feet/year

Effective Porosity **0.20** [X] Default Value

Screened Interval of Well **10** feet [X] Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	709 Feet	900 Feet	**900** Feet
Zone B5 - 5 Year TOT*	1,122 Feet	1,500 Feet	**1,500** Feet
Zone B10 - 10 Year TOT*	1,586 Feet	2,250 Feet	**2,250** Feet

Physical Barrier Effectiveness (PBE)

District Name LPA Yuba County **District No.** 88 **County** Yuba

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 03 **Source No.** 003 **PS Code** 17N/07E-05G02 M

Completed by Jodi Bird **Date** October, 2001

Parameter	Possible Points	This Source	Score
Type of Aquifer **Confinement**			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0	X	0
2. Confined	50		
Aquifer Material (Unconfined Aquifers) **Type of material within aquifer**			
1. Porous Media (Interbedded sands, silts, clays, gravels) with continuous clay layer minimum 25' thick above water table within Zone A	20		
2. Porous Media (Interbedded sands, silts, clays, gravels)	10		
3. Fractured rock (Low Physical Barrier Effectiveness - no further questions required)	0	X	0

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High

Score 0

Effectiveness Low

Inventory of Possible Contaminating Activities (PCA Inventory)

District Name LPA Yuba County **District No.** 88 **County** Yuba

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 03 **Source No.** 003 **PS Code** 17N/07E-05G02 M

Completed by Jodi Bird **Date** October, 2001

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Residential/Municipal					
Airports - Maintenance/ fueling areas (VH)	N	N	N		
Landfills/dumps (VH)	N	N	N		
Railroad yards/ maintenance/ fueling areas (H)	N	N	N		
Septic systems - high density (>1/acre) (VH if in Zone A, otherwise M)	N	N	N		
Sewer collection systems (H, if in Zone A, otherwise L)	N	N	N		
Utility stations - maintenance areas (H)	N	N	N		
Wastewater treatment plants (VH in Zone A, otherwise H)	N	N	N		
Drinking water treatment plants (M)	N	N	N		
Golf courses (M)	N	N	N		
Housing - high density (>1 house/0.5 acres) (M)	N	N	N		
Motor pools (M)	N	N	N		
Parks (M)	N	N	N		
Waste transfer/recycling stations (M)	N	N	N		
Apartments and condominiums (L)	N	N	N		
Campgrounds/ Recreational areas (L)	N	Y	Y		
Fire stations (L)	N	N	N		
RV Parks (L)	N	Y	Y		
Schools (L)	N	N	Y		
Hotels, Motels (L)	N	N	N		
Agricultural/Rural					
Grazing (> 5 large animals or equivalent per acre) (H in Zone A, otherwise M)	N	N	N		
Concentrated Animal Feeding Operations (CAFOs) as defined in federal regulation1 (VH in Zone A, otherwise H)	N	N	N		
Animal Feeding Operations as defined in federal regulation2 (VH in Zone A, otherwise H)	N	N	N		
Other Animal operations (H in Zone A, otherwise M)	N	N	N		

Y = Yes N = No U = Unknown
*** = A contaminant potentially associated with this activity has been detected in the water supply.**

Inventory of Possible Contaminating Activities (PCA Inventory)

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 03 **Source No.** 003 **PS Code** 17N/07E-05G02 M

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Agricultural/Rural					
Farm chemical distributor/ application service (H)	N	N	N		
Farm machinery repair (H)	N	N	N		
Septic systems - low density (<1/acre) (H in Zone A, otherwise L)	Y	Y	Y		
Lagoons / liquid wastes (H)	N	N	N		
Machine shops (H)	N	N	N		
Pesticide/fertilizer/ petroleum storage & transfer areas (H)	N	N	N		
Agricultural Drainage (H in Zone A, otherwise M)	N	N	N		
Wells - Agricultural/ Irrigation (H)	N	N	N		
Managed Forests (M)	N	N	N		
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)	N	N	N		
Fertilizer, Pesticide/ Herbicide Application (M)	N	N	N		
Sewage sludge/biosolids application (M)	N	N	N		
Crops, nonirrigated (e.g., Christmas trees, grains, grass seeds, hay, pasture) (L) (includes drip-irrigated crops)	N	N	N		
Other					
NPDES/WDR permitted discharges (H)	N	N	N		
Underground Injection of Commercial/Industrial Discharges (VH)	N	N	N		
Historic gas stations (VH)	N	N	Y		
Historic waste dumps/ landfills (VH)	N	N	N		
Illegal activities/ unauthorized dumping (H)	N	N	N		
Injection wells/ dry wells/ sumps (VH)	N	N	N		
Known Contaminant Plumes (VH)	N	N	N		
Military installations (VH)	N	N	N		
Mining operations - Historic (VH)	N	N	N		
Mining operations - Active (VH)	N	N	N		
Mining - Sand/Gravel (H)	N	N	N		
Wells - Oil, Gas, Geothermal (H)	N	N	N		
Salt Water Intrusion (H)	N	N	N		

Y = Yes N = No U = Unknown
*** = A contaminant potentially associated with this activity has been detected in the water supply.**

Inventory of Possible Contaminating Activities (PCA Inventory)

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 03 **Source No.** 003 **PS Code** 17N/07E-05G02 M

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other					
Recreational area - surface water source (H)	N	N	N		
Underground storage tanks - Confirmed leaking tanks (VH)	N	N	N		
Underground storage tanks - Decommissioned - inactive tanks (L)	N	N	Y		
Underground storage tanks - Non-regulated tanks (tanks smaller than regulatory limit) (H)	N	N	N		
Underground storage tanks - Not yet upgraded or registered tanks (H)	N	N	Y		
Underground storage tanks - Upgraded and/or registered - active tanks (L)	N	N	N		
Above ground storage tanks (M)	N	N	N		
Wells - Water supply (M)	Y	Y	Y		
Construction/demolition staging areas (M)	N	N	N		
Contractor or government agency equipment storage yards (M)	N	N	N		
Dredging (M)	N	N	N		
Transportation corridors - Freeways/state highways (M)	N	N	N		
Transportation corridors - Railroads (M)	N	N	N		
Transportation corridors - Historic railroad right-of-ways (M)	N	N	N		
Transportation corridors - Road Right-of-ways (herbicide use areas) (M)	N	N	N		
Transportation corridors - Roads/ Streets (L)	Y	Y	Y		
Hospitals (M)	N	N	N		
Storm Drain Discharge Points (M)	N	N	N		
Storm Water Detention Facilities (M)	N	N	N		
Artificial Recharge Projects - Injection wells (potable water) (L)	N	N	N		
Artificial Recharge Projects - Injection wells (non-potable water) (M)	N	N	N		
Artificial Recharge Projects - Spreading Basins (potable water) (L)	N	N	N		
Artificial Recharge Projects - Spreading Basins	N	N	N		

Y = Yes N = No U = Unknown
*** = A contaminant potentially associated with this activity has been detected in the water supply.**

Inventory of Possible Contaminating Activities (PCA Inventory)

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805
Source Name WELL 03 **Source No.** 003 **PS Code** 17N/07E-05G02 M

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other					
(non-potable water) (M)					
Medical/dental offices/clinics (L)	N	N	N		
Veterinary offices/clinics (L)	N	N	N		
Surface water - streams/ lakes/rivers (L)	N	N	Y		
Wells - monitoring, test holes (L)	N	N	N		

Y = Yes N = No U = Unknown
* = A contaminant potentially associated with this activity has been detected in the water supply.

Vulnerability Ranking

District Name LPA Yuba County **District No.** 88 **County** Yuba

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 03 **Source No.** 003 **PS Code** 17N/07E-05G02 M

Completed by Jodi Bird **Date** October, 2001

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Septic systems - low density (<1/acre) (H in Zone A, otherwise L)		5	5	5	15
A	Wells - Water supply (M)		3	5	5	13
B10	Historic gas stations (VH)		7	1	5	13
A	Transportation corridors - Roads/ Streets (L)		1	5	5	11
B5	Wells - Water supply (M)		3	3	5	11
B10	Underground storage tanks - Not yet upgraded or registered tanks (H)		5	1	5	11
B5	Campgrounds/ Recreational areas (L)		1	3	5	9
B5	RV Parks (L)		1	3	5	9
B5	Septic systems - low density (<1/acre) (H in Zone A, otherwise L)		1	3	5	9
B5	Transportation corridors - Roads/ Streets (L)		1	3	5	9
B10	Wells - Water supply (M)		3	1	5	9

*** = A contaminant potentially associated with this activity has been detected in the water supply.**

Assessment Summary

District Name	LPA Yuba County	**District No.**	88	**County**	Yuba
System Name	LAKE FRANCIS MUTUAL WATER			**System No.**	5800805
Source Name	WELL 03	**Source No.**	003	**PS Code**	17N/07E-05G02 M
Completed by	Jodi Bird	**Date**	October, 2001		

Description of System and Source

The LAKE FRANCIS MUTUAL WATER water system is located in Dobbins - a foothill community 35 miles northeast of Marysville in Yuba County, CA. There are approximately 28 service connections serving a population of 60.

The drinking water source for the LAKE FRANCIS MUTUAL WATER water system is a series of four (4) groundwater wells that are pumped to three (3) steel tanks providing 34,000 gallons of storage capacity. General land use is rural/residential.

Assessment Procedures

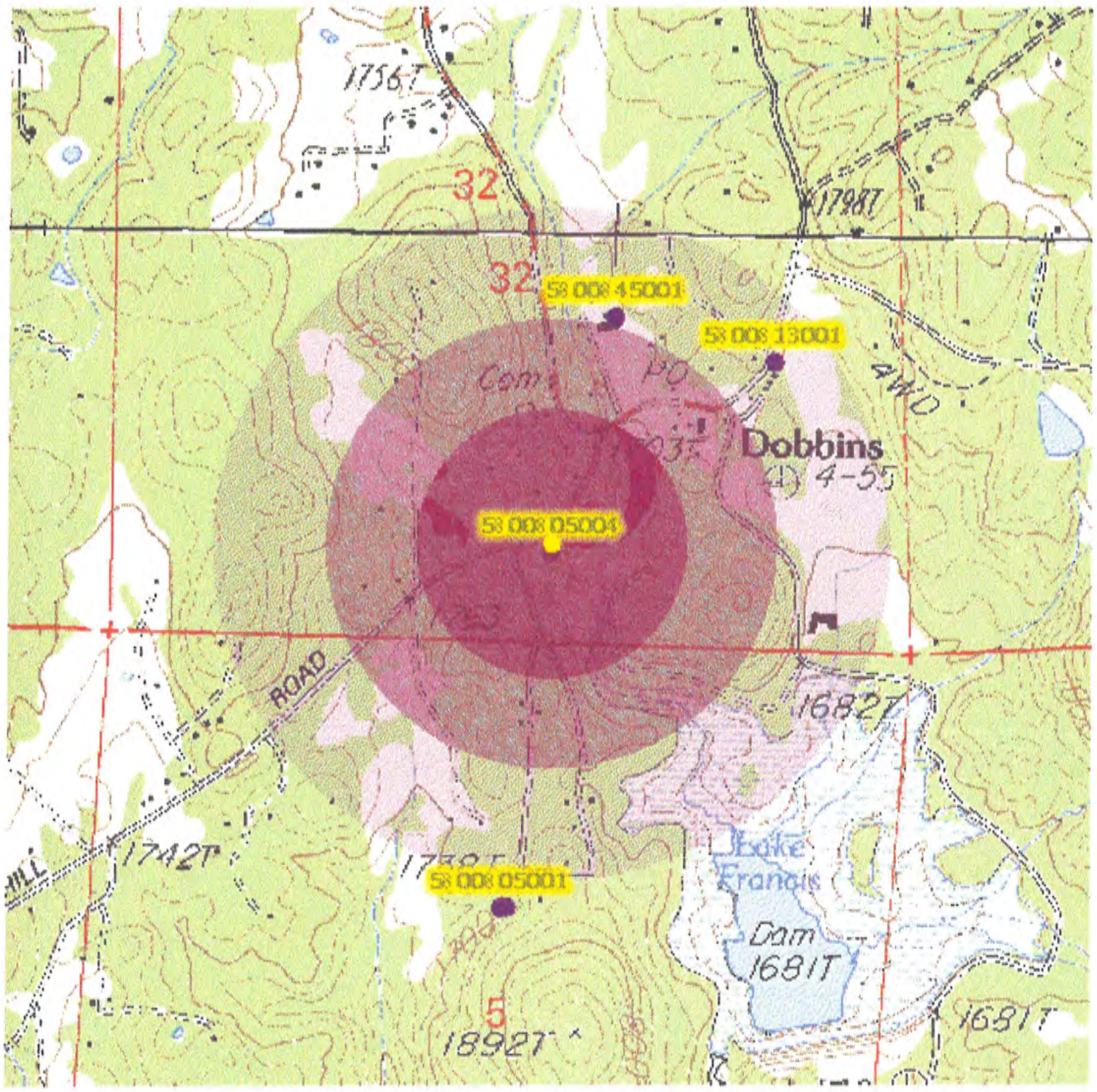
The assessment of the source WELL 01 was conducted by Yuba County Environmental Health Department staff. The following sources of information were used in the assessment: water system files, County records, well drillers logs, and USGS information.

Procedures used to conduct the assessment include:

File review, protection zone calculations, field studies, and contact with the water system operators.

Contents of this Assessment

- Yes ☒ No ☐ **Assessment Summary**
- Yes ☒ No ☐ **Vulnerability Summary**
- Yes ☐ No ☒ **Source Location Form**
- Yes ☒ No ☐ **Delineation of Ground Water Protection Zones**
- Yes ☒ No ☐ **Physical Barrier Effectiveness Checklist**
- Yes ☒ No ☐ **Well Data Sheet**
- Yes ☒ No ☐ **Inventory of Possible Contaminating Activities**
- Yes ☒ No ☐ **Vulnerability Ranking**
- Yes ☒ No ☐ **Assessment Map**



LAKE FRANCIS MUTUAL WATER COMPANY
PUBLIC WATER SYSTEM 5800805-003

Drinking Water Source Assessment

Water System

LAKE FRANCIS MUTUAL WATER

Yuba County

Water Source

WELL 04

Assessment Date

October, 2001

California Department of Health Services
Drinking Water Field Operations Branch
LPA Yuba County

District No.	**88**
System No.	**5800805**
Source No.	**004**
PS Code	**17N/07E-32Q02 M**

Vulnerability Summary

District Name LPA Yuba County **District No.** 88 **County** Yuba

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 04 **Source No.** 004 **PS Code** 17N/07E-32Q02 M

Completed by Jodi Bird **Date** October, 2001

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the **WELL 04** of the **LAKE FRANCIS MUTUAL WATER** water system in **October, 2001**.

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Septic systems - low density

A copy of the complete assessment may be viewed at:

Yuba County Environmental Health
938 14th Street
Marysville, CA 95901

You may request a summary of the assessment be sent to you by contacting:

Jodi E. Bird
Water Program Coordinator
(530) 741-6251

Delineation of Ground Water Protection Zones

District Name LPA Yuba County **District No.** 88 **County** Yuba
System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805
Source Name WELL 04 **Source No.** 004 **PS Code** 17N/07E-32Q02 M

Completed by Jodi Bird **Date** October, 2001

Method Used to Delineate Protection Zones

X 1. Calculated Fixed Radius

2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
3. More Detailed Methods
4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	**10** gallons/minute		
	16 acre feet/year		
	702,670 cubic feet/year		
Effective Porosity	**0.20**		[X] Default Value
Screened Interval of Well	**10**	feet	[X] Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	709 Feet	900 Feet	**900** Feet
Zone B5 - 5 Year TOT*	1,122 Feet	1,500 Feet	**1,500** Feet
Zone B10 - 10 Year TOT*	1,586 Feet	2,250 Feet	**2,250** Feet

Physical Barrier Effectiveness (PBE)

District Name LPA Yuba County **District No.** 88 **County** Yuba

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 04 **Source No.** 004 **PS Code** 17N/07E-32Q02 M

Completed by Jodi Bird **Date** October, 2001

Parameter	Possible Points	This Source	Score
Type of Aquifer **Confinement**			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0	X	0
2. Confined	50		
Aquifer Material (Unconfined Aquifers) **Type of material within aquifer**			
1. Porous Media (Interbedded sands, silts, clays, gravels) with continuous clay layer minimum 25' thick above water table within Zone A	20		
2. Porous Media (Interbedded sands, silts, clays, gravels)	10		
3. Fractured rock (Low Physical Barrier Effectiveness - no further questions required)	0	X	0

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High

Score 0

Effectiveness Low

Inventory of Possible Contaminating Activities (PCA Inventory)

District Name LPA Yuba County **District No.** 88 **County** Yuba

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 04 **Source No.** 004 **PS Code** 17N/07E-32Q02 M

Completed by Jodi Bird **Date** October, 2001

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Residential/Municipal					
Airports - Maintenance/ fueling areas (VH)	N	N	N		
Landfills/dumps (VH)	N	N	N		
Railroad yards/ maintenance/ fueling areas (H)	N	N	N		
Septic systems - high density (>1/acre) (VH if in Zone A, otherwise M)	N	N	N		
Sewer collection systems (H, if in Zone A, otherwise L)	N	N	N		
Utility stations - maintenance areas (H)	N	N	N		
Wastewater treatment plants (VH in Zone A, otherwise H)	N	N	N		
Drinking water treatment plants (M)	N	N	N		
Golf courses (M)	N	N	N		
Housing - high density (>1 house/0.5 acres) (M)	N	N	N		
Motor pools (M)	N	N	N		
Parks (M)	N	N	N		
Waste transfer/recycling stations (M)	N	N	N		
Apartments and condominiums (L)	N	N	N		
Campgrounds/ Recreational areas (L)	N	Y	Y		
Fire stations (L)	N	N	N		
RV Parks (L)	N	Y	Y		
Schools (L)	N	N	Y		
Hotels, Motels (L)	N	N	N		
Agricultural/Rural					
Grazing (> 5 large animals or equivalent per acre) (H in Zone A, otherwise M)	N	N	N		
Concentrated Animal Feeding Operations (CAFOs) as defined in federal regulation1 (VH in Zone A, otherwise H)	N	N	N		
Animal Feeding Operations as defined in federal regulation2 (VH in Zone A, otherwise H)	N	N	N		
Other Animal operations (H in Zone A, otherwise M)	N	N	N		

Y = Yes N = No U = Unknown
*** = A contaminant potentially associated with this activity has been detected in the water supply.**

Inventory of Possible Contaminating Activities (PCA Inventory)

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 04 **Source No.** 004 **PS Code** 17N/07E-32Q02 M

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Agricultural/Rural					
Farm chemical distributor/ application service (H)	N	N	N		
Farm machinery repair (H)	N	N	N		
Septic systems - low density (<1/acre) (H in Zone A, otherwise L)	Y	Y	Y		
Lagoons / liquid wastes (H)	N	N	N		
Machine shops (H)	N	N	N		
Pesticide/fertilizer/ petroleum storage & transfer areas (H)	N	N	N		
Agricultural Drainage (H in Zone A, otherwise M)	N	N	N		
Wells - Agricultural/ Irrigation (H)	N	N	N		
Managed Forests (M)	N	N	N		
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)	N	N	N		
Fertilizer, Pesticide/ Herbicide Application (M)	N	N	N		
Sewage sludge/biosolids application (M)	N	N	N		
Crops, nonirrigated (e.g., Christmas trees, grains, grass seeds, hay, pasture) (L) (includes drip-irrigated crops)	N	N	N		
Other					
NPDES/WDR permitted discharges (H)	N	N	N		
Underground Injection of Commercial/Industrial Discharges (VH)	N	N	N		
Historic gas stations (VH)	N	N	Y		
Historic waste dumps/ landfills (VH)	N	N	N		
Illegal activities/ unauthorized dumping (H)	N	N	N		
Injection wells/ dry wells/ sumps (VH)	N	N	N		
Known Contaminant Plumes (VH)	N	N	N		
Military installations (VH)	N	N	N		
Mining operations - Historic (VH)	N	N	N		
Mining operations - Active (VH)	N	N	N		
Mining - Sand/Gravel (H)	N	N	N		
Wells - Oil, Gas, Geothermal (H)	N	N	N		
Salt Water Intrusion (H)	N	N	N		

Y = Yes   N = No   U = Unknown
*** = A contaminant potentially associated with this activity has been detected in the water supply.**

Inventory of Possible Contaminating Activities (PCA Inventory)

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805
Source Name WELL 04 **Source No.** 004 **PS Code** 17N/07E-32Q02 M

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other					
Recreational area - surface water source (H)	N	N	N		
Underground storage tanks - Confirmed leaking tanks (VH)	N	N	N		
Underground storage tanks - Decommissioned - inactive tanks (L)	N	N	Y		
Underground storage tanks - Non-regulated tanks (tanks smaller than regulatory limit) (H)	N	N	N		
Underground storage tanks - Not yet upgraded or registered tanks (H)	N	N	Y		
Underground storage tanks - Upgraded and/or registered - active tanks (L)	N	N	N		
Above ground storage tanks (M)	N	N	N		
Wells - Water supply (M)	Y	Y	Y		
Construction/demolition staging areas (M)	N	N	N		
Contractor or government agency equipment storage yards (M)	N	N	N		
Dredging (M)	N	N	N		
Transportation corridors - Freeways/state highways (M)	N	N	N		
Transportation corridors - Railroads (M)	N	N	N		
Transportation corridors - Historic railroad right-of-ways (M)	N	N	N		
Transportation corridors - Road Right-of-ways (herbicide use areas) (M)	N	N	N		
Transportation corridors - Roads/ Streets (L)	Y	Y	Y		
Hospitals (M)	N	N	N		
Storm Drain Discharge Points (M)	N	N	N		
Storm Water Detention Facilities (M)	N	N	N		
Artificial Recharge Projects - Injection wells (potable water) (L)	N	N	N		
Artificial Recharge Projects - Injection wells (non-potable water) (M)	N	N	N		
Artificial Recharge Projects - Spreading Basins (potable water) (L)	N	N	N		
Artificial Recharge Projects - Spreading Basins	N	N	N		

Y = Yes N = No U = Unknown
*** = A contaminant potentially associated with this activity has been detected in the water supply.**

Inventory of Possible Contaminating Activities (PCA Inventory)

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 04 **Source No.** 004 **PS Code** 17N/07E-32Q02 M

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other					
(non-potable water) (M)					
Medical/dental offices/clinics (L)	N	N	N		
Veterinary offices/clinics (L)	N	N	N		
Surface water - streams/ lakes/rivers (L)	N	N	Y		
Wells - monitoring, test holes (L)	N	N	N		

Y = Yes N = No U = Unknown
* = A contaminant potentially associated with this activity has been detected in the water supply.

Vulnerability Ranking

District Name LPA Yuba County **District No.** 88 **County** Yuba

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 04 **Source No.** 004 **PS Code** 17N/07E-32Q02 M

Completed by Jodi Bird **Date** October, 2001

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Septic systems - low density (<1/acre) (H in Zone A, otherwise L)		5	5	5	15
A	Wells - Water supply (M)		3	5	5	13
B10	Historic gas stations (VH)		7	1	5	13
A	Transportation corridors - Roads/ Streets (L)		1	5	5	11
B5	Wells - Water supply (M)		3	3	5	11
B10	Underground storage tanks - Not yet upgraded or registered tanks (H)		5	1	5	11
B5	Campgrounds/ Recreational areas (L)		1	3	5	9
B5	RV Parks (L)		1	3	5	9
B5	Septic systems - low density (<1/acre) (H in Zone A, otherwise L)		1	3	5	9
B5	Transportation corridors - Roads/ Streets (L)		1	3	5	9
B10	Wells - Water supply (M)		3	1	5	9

*** = A contaminant potentially associated with this activity has been detected in the water supply.**

Assessment Summary

District Name LPA Yuba County **District No.** 88 **County** Yuba

System Name LAKE FRANCIS MUTUAL WATER **System No.** 5800805

Source Name WELL 04 **Source No.** 004 **PS Code** 17N/07E-32Q02 M

Completed by Jodi Bird **Date** October, 2001

Description of System and Source

The LAKE FRANCIS MUTUAL WATER COMPANY water system is located in Dobbins - a foothill community 35 miles northeast of Marysville in Yuba County, CA. There are approximately 26 service connections serving a population of 60.

The drinking water source for the LAKE FRANCIS MUTUAL WATER COMPANY water system is a series of four (4) groundwater wells that are pumpted to three (3) steel tanks that provide 34,000 gallons of storage capacity. General land use is rural/residential.

Assessment Procedures

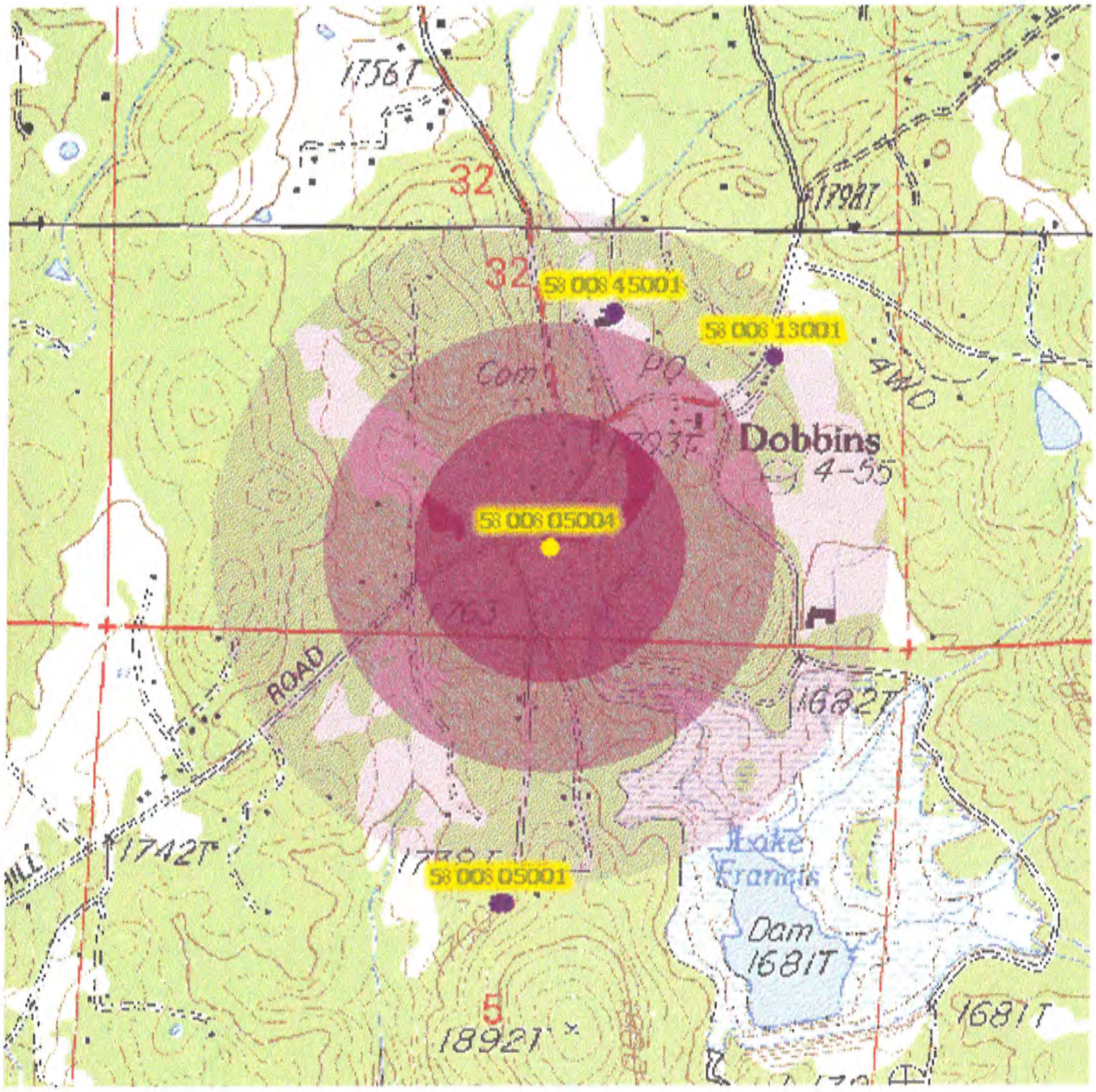
The assessment of the source WELL 01 was conducted by Yuba County Environmental Health Department staff. The following sources of information were used in the assessment: water system files, County records, well drillers logs, and USGS information.

Procedures used to conduct the assessment include:

File review, protection zone calculations, field studies, and contact with the water system operators.

Contents of this Assessment

- Yes ☒ No ☐ **Assessment Summary**
- Yes ☒ No ☐ **Vulnerability Summary**
- Yes ☐ No ☒ **Source Location Form**
- Yes ☒ No ☐ **Delineation of Ground Water Protection Zones**
- Yes ☒ No ☐ **Physical Barrier Effectiveness Checklist**
- Yes ☒ No ☐ **Well Data Sheet**
- Yes ☒ No ☐ **Inventory of Possible Contaminating Activities**
- Yes ☒ No ☐ **Vulnerability Ranking**
- Yes ☒ No ☐ **Assessment Map**



LAKE FRANCIS MUTUAL WATER COMPANY
PUBLIC WATER SYSTEM 5800805-004

DWR-ERP

Emergency Response Plan

Leak Detection

California

Rural Water Association

Date

February 23rd 2021

Mark Hardison - Leak Detection Specialist lll
California Rural Water Association
Critical Zone Leak Detection

PWS System

Lake Francis Mutual Water Company
PO Box 422 Dobbins Ca 95935
Ethel S Winchell - Board Memeber
(530) 741-0820 / ethel@lakefrancisestates.org

Leak Report

Date:	02/16/2022
System:	Lake Francis Mutual Water Company
Leak Detection members:	M. Hardison
Equipment Used:	FCS Correlator/Acoustic Ground Mic/DXmic Pro Ground Mic
Map Reference:	Diamond Maps/Google/GPS/GIS Map

Street and/or Block Numbers:

Shirley Drive/Ingersoll Drive

Leak Number	Address of Suspected Leak	Utility or Customer (U or C)	Leak Pinpointed (Y or N)	Leak to be Rechecked (Y or N)	Leak Repaired (Y or N)	Comment
1	Kenneth/Ingersoll	U	Y	N	N	Leaking Wharf Head

	Meters / Corp Stop	Hydrants	Valves	Test Rods	Other
Indicate Number of Manual Listening Points Used	13	5	0	0	N/A
Indicate Number of Leak Noise Loggers Listening Points Used	0	0	0	0	N/A

Miles of Mains Surveyed:	0.36	Survey Time: (Hours)	4.0
Number of Leaks Suspected:	1	Rechecked: (Numbers)	0
Number of Leaks Pinpointed:	1	Pinpointing Time: (Hours)	0.25

Remarks:

Leaking Wharf Head at Ingersoll Dr/Kenneth Ave. discovered during visual inspection on survey #4. See photo of leaking Wharf Head on page 11.

Ground Mic Log

Address	Meter/Corp	Valve	Hydrant	Wharf Head	Stand Pipe	Leak Detected	Notes
Kenneth/Shirley	☐	☐	☐	✓	☐	☐	
13898 Shirley Dr	✓	☐	☐	✓	☐	☐	
13882 Shirley Dr	✓	☐	☐	☐	☐	☐	
13908 Shirley Dr	✓	☐	☐	☐	☐	☐	
Lot #3 Shirley Dr	✓	☐	☐	✓	☐	☐	
13931 Ingersoll Dr	✓	☐	☐	☐	☐	☐	
Lot #5 Ingersoll Dr	✓	☐	☐	☐	☐	☐	
Lot #6 Ingersoll Dr	✓	☐	☐	☐	☐	☐	
Lot #34 Ingersoll Dr	✓	☐	☐	☐	☐	☐	
Lot #35 Ingersoll Dr	✓	☐	☐	☐	☐	☐	
13889 Ingersoll Dr	✓	☐	☐	✓	☐	☐	
13931 Ingersoll Dr	✓	☐	☐	☐	☐	☐	
13886 Ingersoll Dr	✓	☐	☐	☐	☐	☐	
Lot #11 Ingersoll Dr	✓	☐	☐	☐	☐	☐	
Kenneth/Ingersoll	☐	☐	☐	✓	☐	✓	Leaking from Wharf Head
	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	
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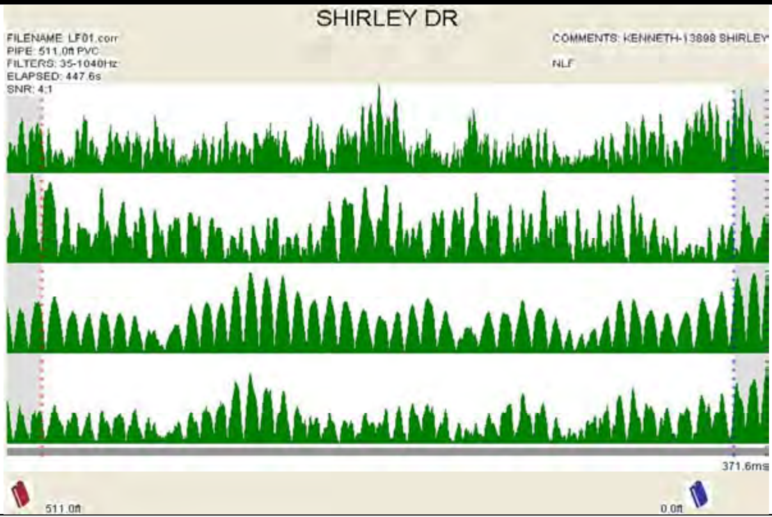
	☐	☐	☐	☐	☐	☐	

Leak Detection Survey Results

Survey #1



Survey Graph

	The Correlator program allows for a "***Snapshot Option***". When the snapshot button is pressed during a correlation, the snapshot feature effectively enables the operator to compare noise levels at different points during the correlation process. When a leak is detected, the graph will have a peak in the same spot and will be located in the same spot on all snapshots. This will indicate the presence of a leak.  ***The correlation has detected a "Leak(s)".***
	The Correlator displays a peak in all snapshots graphs in the same spot but is not leak due too: Water passing through a meter. Running pumps. Pressure Reducing Valve. Electrical (Transformer). Illegal service. Underground Sewer, Power, Cable lines. Gas Service ***The correlation has detected "No leak(s)".***
✓	The Correlator program snapshots are all differ in graph peaks, this indicates flow due to pumping, pressure surges or momentary use of water through meter(s). ***The correlation has detected "No leak(s)".***
	The Correlator program displays a "***Center Correlation***". The graph peak is in the center of the screen with equal footage on each side indicates the program sensor at a 50/50 point hears no sounds. ***The correlation has detected "No leaks".***

Remarks:

No leaks were found during this survey.

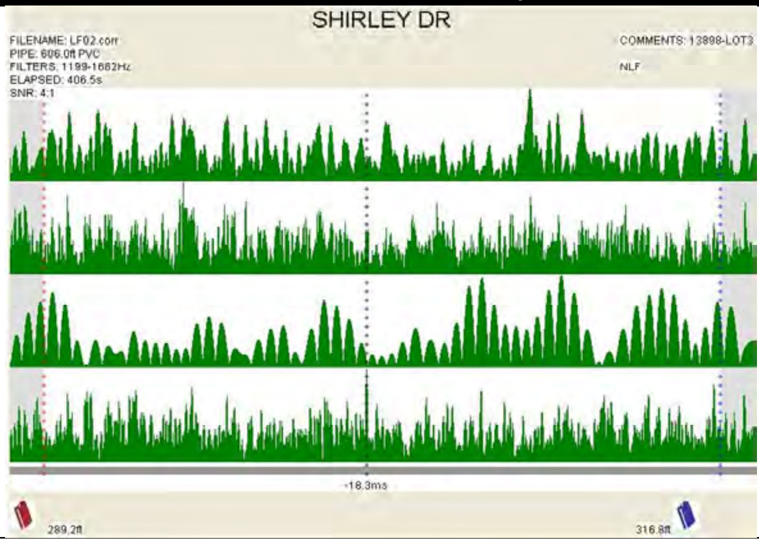
Location:

Wharf Head at Kenneth Ave/Shirley Dr. to Wharf Head at 13898 Shirley Dr.

Hydrant	2
Valve	
Corp Stop	
Diameter	4"
Material	PVC
Length	511'

Leak Detection Survey Results

Survey #2



Survey Graph

	The Correlator program allows for a "***Snapshot Option***". When the snapshot button is pressed during a correlation, the snapshot feature effectively enables the operator to compare noise levels at different points during the correlation process. When a leak is detected, the graph will have a peak in the same spot and will be located in the same spot on all snapshots. This will indicate the presence of a leak.  ***The correlation has detected a "Leak(s)".***
	The Correlator displays a peak in all snapshots graphs in the same spot but is not leak due too: Water passing through a meter. Running pumps. Pressure Reducing Valve. Electrical (Transformer). Illegal service. Underground Sewer, Power, Cable lines. Gas Service ***The correlation has detected "No leak(s)".***
✓	The Correlator program snapshots all differ in graph peaks, this indicates flow due to pumping, pressure surges or momentary use of water through meter(s). ***The correlation has detected "No leak(s)".***
	The Correlator program displays a "***Center Correlation***". The graph peak is in the center of the screen with equal footage on each side indicates the program sensor at a 50/50 point hears no sounds. ***The correlation has detected "No leaks".***

Remarks:

No leaks were found during this survey.

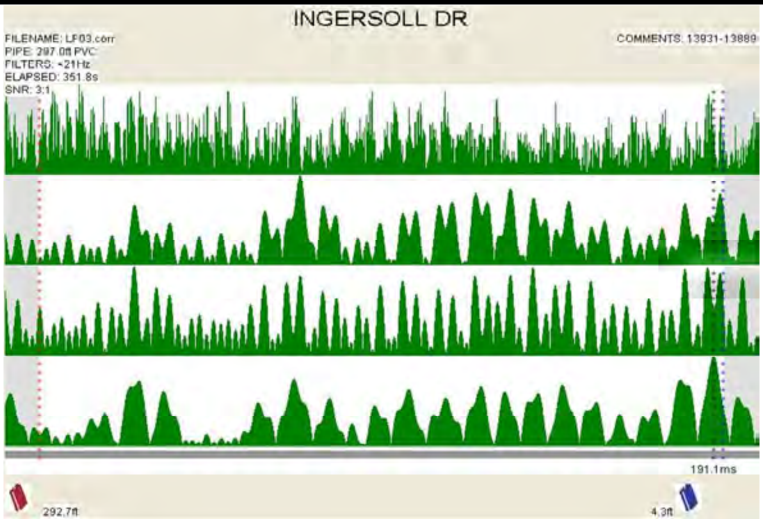
Location:

Wharf Head at 13898 Shirley Dr. to Wharf head at Lot#3 on Shirley Dr.

Hydrant	2
Valve	
Corp stop	
Diameter	4"
Material	PVC
Length	606'

Leak Detection Survey Results

Survey #3



Survey Graph

The Correlator program allows for a "***Snapshot Option***". When the snapshot button is pressed during a correlation, the snapshot feature effectively enables the operator to compare noise levels at different points during the correlation process. When a leak is detected, the graph will have a peak in the same spot and will be located in the same spot on all snapshots. This will indicate the presence of a leak.

The correlation has detected a "Leak(s)".

The Correlator displays a peak in all snapshots graphs in the same spot but is not leak due too:

Water passing through a meter.	Running pumps.	Pressure reducing Valve.
Electrical (Transformer).	Illegal service.	Underground Sewer, Power, Cable lines.
		Gas Service

The correlation has detected "No leak(s)".

✓ The Correlator program snapshots all differ in graph peaks, this indicates flow due to pumping, pressure surges or momentary use of water through meter(s).

The correlation has detected "No leak(s)".

The Correlator program displays a "***Center Correlation***". The graph peak is in the center of the screen with equal footage on each side indicates the program sensor at a 50/50 point hears no sounds.

The correlation has detected "No leaks".

Remarks:

No leaks were found during this survey.

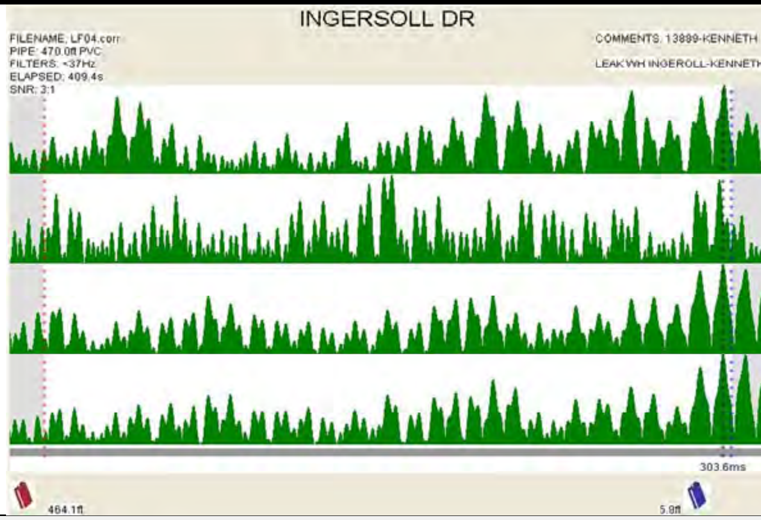
Location:

Meter at 13931 Ingersoll Dr. to Wharf head at 13889 Ingersoll Dr.

Hydrant	1
Valve	
Corp Stop	1
Diameter	4"
Material	PVC
Length	297'

Leak Detection Survey Results

Survey #4



Survey Graph

The Correlator program allows for a "***Snapshot Option***". When the snapshot button is pressed during a correlation, the snapshot feature effectively enables the operator to compare noise levels at different points during the correlation process. When a leak is detected, the graph will have a peak in the same spot and will be located in the same spot on all snapshots. This will indicate the presence of a leak.

The correlation has detected a "Leak(s)".

The Correlator displays a peak in all snapshots graphs in the same spot but is not leak due too:

Water passing through a meter. Running pumps. Pressure Reducing Valve.

Electrical (Transformer). Illegal service. Underground Sewer, Power, Cable lines.

Gas Service

The correlation has detected "No leak(s)".

✓ The Correlator program snapshots all differ in graph peaks, this indicates flow due to pumping, pressure surges or momentary use of water through meter(s).

The correlation has detected "No leak(s)".

The Correlator program displays a "***Center Correlation***". The graph peak is in the center of the screen with equal footage on each side indicates the program sensor at a 50/50 point hears no sounds.

The correlation has detected "No leaks".

✓

Remarks:

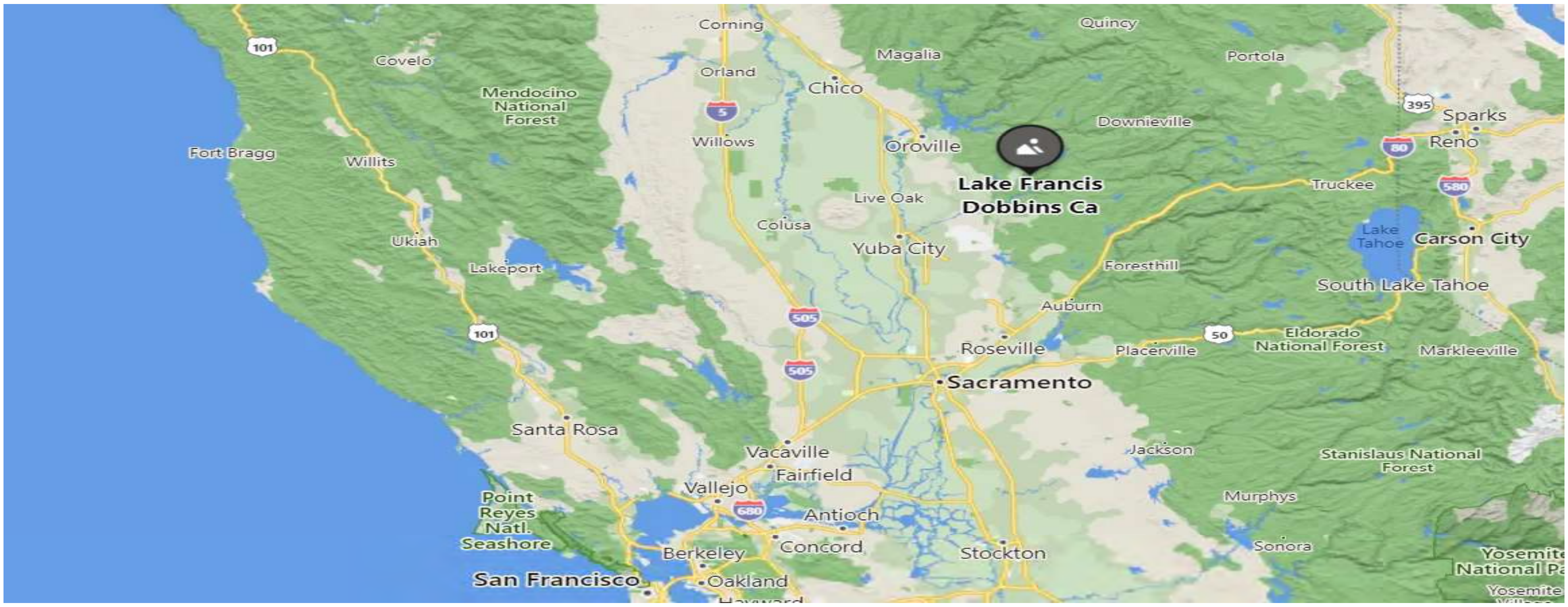
Leaking Wharf Head at Ingersoll Dr/Kenneth Ave. discovered during visual inspection on survey #4. See photo of leaking Wharf-Head on page 11. No additional leaks were found during this survey.

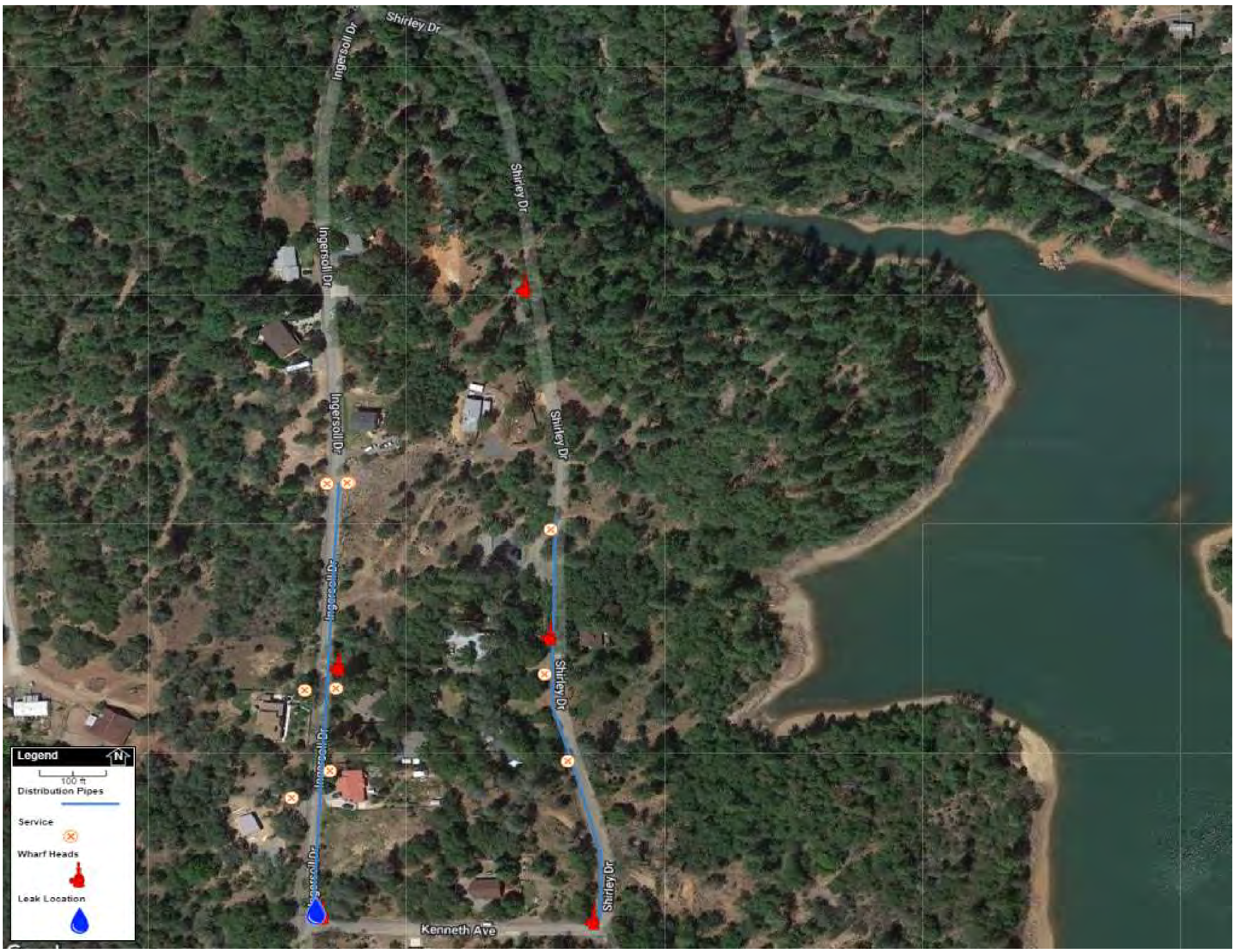
Location:

Wharf head at 13889 Ingersoll Dr. to Wharf head at Ingersoll Dr/Kenneth Ave.

Hydrant	2
Valve	
Corp Stop	
Diameter	4"
Material	PVC
Length	470'

CRWA Survey Map



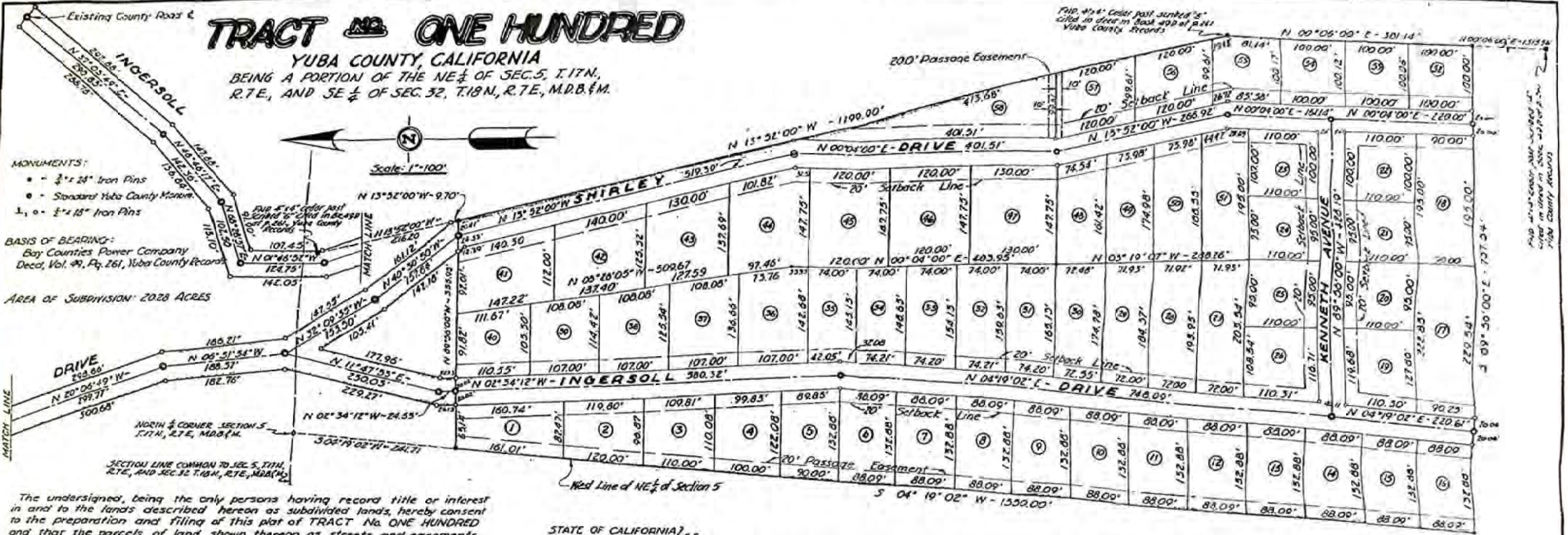


DiamondMaps.com

TRACT NO. ONE HUNDRED

YUBA COUNTY, CALIFORNIA

BEING A PORTION OF THE NE¼ OF SEC. 5, T.17N., R.7E., AND SE¼ OF SEC. 32, T.18N., R.7E., M.D.B.&M.



The undersigned, being the only persons having record title or interest in and to the lands described hereon as subdivided lands, hereby consent to the preparation and filing of this plat of TRACT No. ONE HUNDRED and that the parcels of land shown thereon as streets and easements are not dedicated for the use of the public, but are for the exclusive use of lot owners in the subdivision, their assignees, licensees, tenants and servants.

E. R. Ingersoll

Emma Ingersoll

Yuba County Title Company, a corporation, Trustee under Deed of Trust Recorded in Book 287 at Page 2, Official Records of Yuba County.

Roy J. Phillips, President

Donald J. Gavin, Vice President

STATE OF CALIFORNIA } s.s.
COUNTY OF YUBA }

On this 23rd day of September, 1960, before me a Notary Public in and for said County and State, residing therein duly commissioned and sworn, personally appeared E. R. Ingersoll and Emma Ingersoll known to me to be the persons whose names are subscribed to the within instrument and acknowledged to me that they executed the same.
In WITNESS WHEREOF, I have hereonto set my hand and affixed my Official Seal the day and the year in this certificate first above written.

Notary Public in and for said County and State

Feb. 17, 1963
My commission expires

STATE OF CALIFORNIA } s.s.
COUNTY OF YUBA }

On this 21st day of September 1960, Before me a Notary Public in and for said County and State, residing therein duly commissioned and sworn, personally appeared Ray J. Phillips and Donald J. Gavin known to me to be the President and Vice President of the corporation described in and that executed the within instrument, and also known to me to be the persons who executed the within instrument on behalf of the Corporation herein named, and they acknowledged to me that such Corporation executed the same.
In WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

Notary Public in and for said County and State

July 20, 1961
My commission expires

I, Lawrence G. Harris hereby certify that I am a registered civil engineer of the State of California and that this map correctly represents a survey made by me or under my direction at the request of E. R. Ingersoll in July, 1960, and that the survey is true and complete as shown. All monuments shown hereon are of the character and occupy the positions indicated and are sufficient to enable the survey to be retraced.

Sept. 14, 1960
Date

Lawrence G. Harris
Registered Civil Engineer License No 8958

I, Louis T. Mlcoch, County Surveyor of the County of Yuba, State of California, hereby certify that the within map of TRACT No. ONE HUNDRED is substantially the same as the tentative map on file and all the provisions of Division 4, Part 2, Chapter 2, Article 7, of the Business and professions Code of the State of California and any local ordinances applicable at the time of approval of the tentative map have been complied with and that I am satisfied that the within map is technically correct.

September 22, 1960
Date

Louis T. Mlcoch
County Surveyor, County of Yuba

Approved July 6, 1960
YUBA COUNTY PLANNING COMMISSION

Chairman

Secretary

STATE OF CALIFORNIA } s.s.
COUNTY OF YUBA }

I, Adrienne Conley, County Clerk of said County and State hereby certify that the Board of Supervisors of said County have [redacted] approved the within map of TRACT No. ONE HUNDRED for subdivision purposes in accordance with the conditional approval of the tentative map heretofore filed as approved, and the County of Yuba, on behalf of the public reject any parcels of land offered for public use.

9-30-60
Date

Adrienne Conley
County Clerk, County of Yuba

I, Mildred Tapley, County Auditor of Yuba County, State of California, do hereby certify that there are no liens for State, County, or other taxes except 1960-1961 taxes, a lien but not yet payable, against the land designated on this map or any part thereof.

9-30-60
Date

Mildred Tapley
County Auditor, County of Yuba

I, William C. Bossen, Tax Collector, in and for the County of Yuba, do hereby certify that there are no unpaid taxes against the land embraced within the boundaries of the herein embodied map or special assessments collected as taxes.

9-30-60
Date

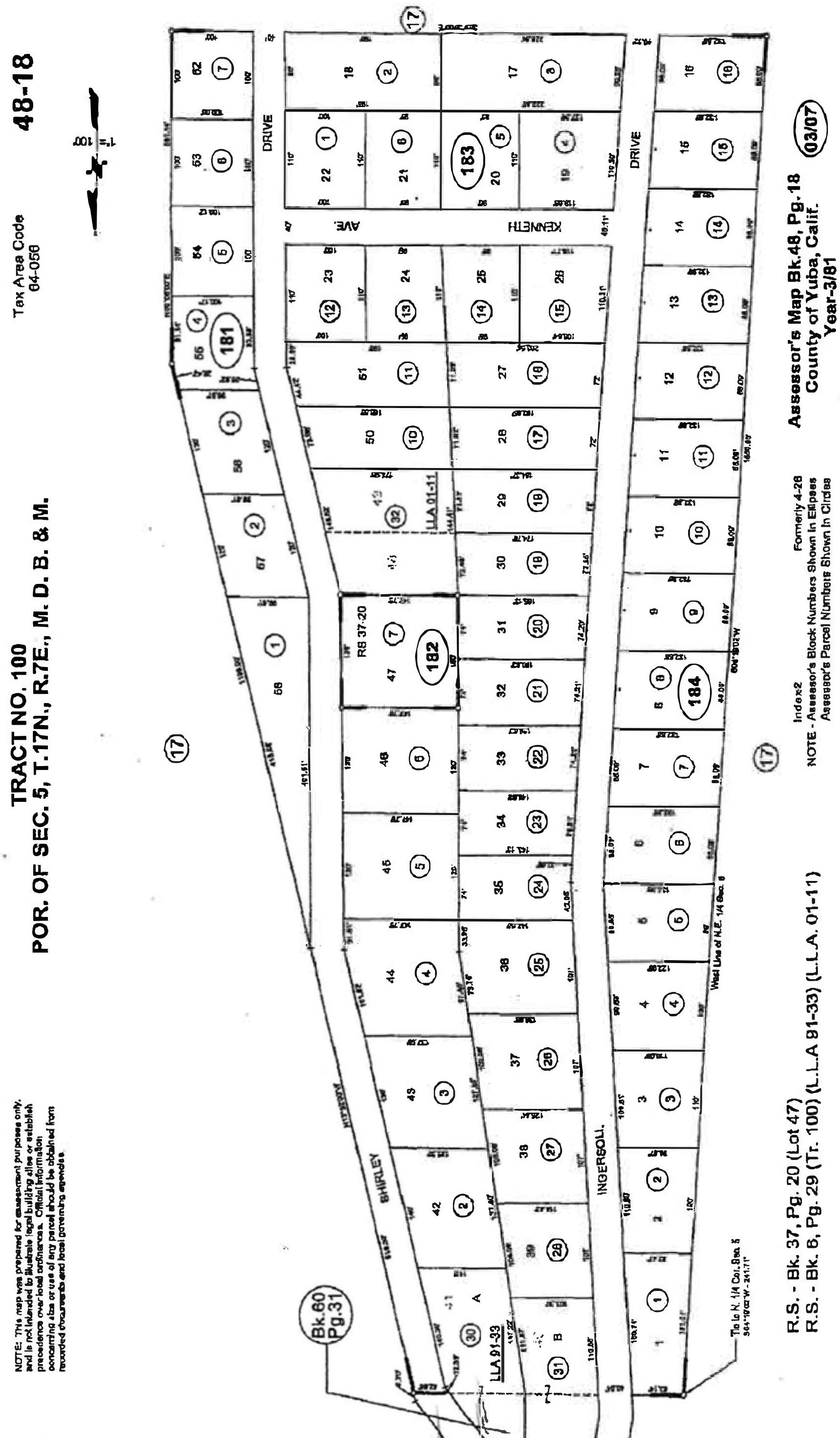
William C. Bossen
County Tax Collector, County of Yuba

3118

Accepted for Record and filed in office of the Recorder of Yuba County, State of California at the request of Yuba County Title Guarantee Co. at 9:48 O'clock A.M., On the 25th day of October 1960, and Recorded in Book 6 of Page 29 Yuba County Records.

Fee $5.00

Mildred Tapley
Recorder, County of Yuba



Description: Yuba, CA Assessor Map 48.18 Page: 1 of 1
Order: areth Comment:

CRWA Survey Pictures

A Sustainable Water Future For California

California has a large and growing gap between the amount of water available and the amount that people use. This gap can be illustrated by the large and ongoing shortfall in the state's two primary water sources: the Sacramento-San Joaquin River Delta and California's groundwater basins, which are collectively overtapped at the rate of about 6–7 million acre-feet per year. But California can fill this gap. Four simple solutions have the potential to generate 11–14 million acre-feet of water in new supplies and demand reductions. That's enough water to restore a thriving Delta and replenish depleted aquifers with millions of acre-feet to spare to support population and economic growth.

The following four solutions can generate 11-14 million acre-feet per year for California.

14 million acre-feet (total potential savings) =

•enough to serve 20 cities the size of Los Angeles every year

•enough to fill Shasta Lake—California's largest reservoir—three times

Agricultural Efficiency:
Agriculture, which uses about 80 percent of California's developed water supply, could reduce water use by **5.6–6.6 million acre-feet per year**, while maintaining current acreage levels and crop mix. This is a savings of about 17–22 percent of agricultural water use.

6.6 million acre-feet (potential agricultural efficiency savings) =

•enough to irrigate 2.5 million acres of fruits and nut trees

•enough to fill Lake Oroville—the state's second-largest reservoir—twice

Urban Efficiency:
Urban areas, which encompass residential and business uses and account for the remaining 20 percent of California's developed water use, could reduce water use by **2.9–5.2 million acre-feet per year,** or by about 32–57 percent.

5.2 million acre-feet (potential urban efficiency savings) =

•enough to supply 7 cities the size of Los Angeles every year

•equivalent to 100 ocean desalination plants, like the one being constructed in Carlsbad

Water Reuse:
Californians can stretch water supplies further by treating, where necessary, and reusing water for multiple purposes. The current water reuse potential, beyond what has already been achieved, is **1.2–1.8 million acre-feet per year.**

1.8 million acre-feet (potential water reuse savings) =

•enough to supply more than 2 cities the size of Los Angeles every year

•enough to irrigate 400,000 acres of vegetables

Stormwater Capture:
Capturing rainwater and storing it for later use instead of sending it to sewers and out to sea can increase water supplies and reduce pollution and treatment costs. Improving stormwater capture in just the Bay Area and urban Southern California can increase supply by **420,000–630,000 acre-feet per year.**

630,000 acre-feet (potential stormwater capture savings) =

•nearly enough water to supply Los Angeles every year

•enough water to fill about 300,000 Olympic-sized swimming pools

NRDC
The Earth's Best Defense
Pacific Institute

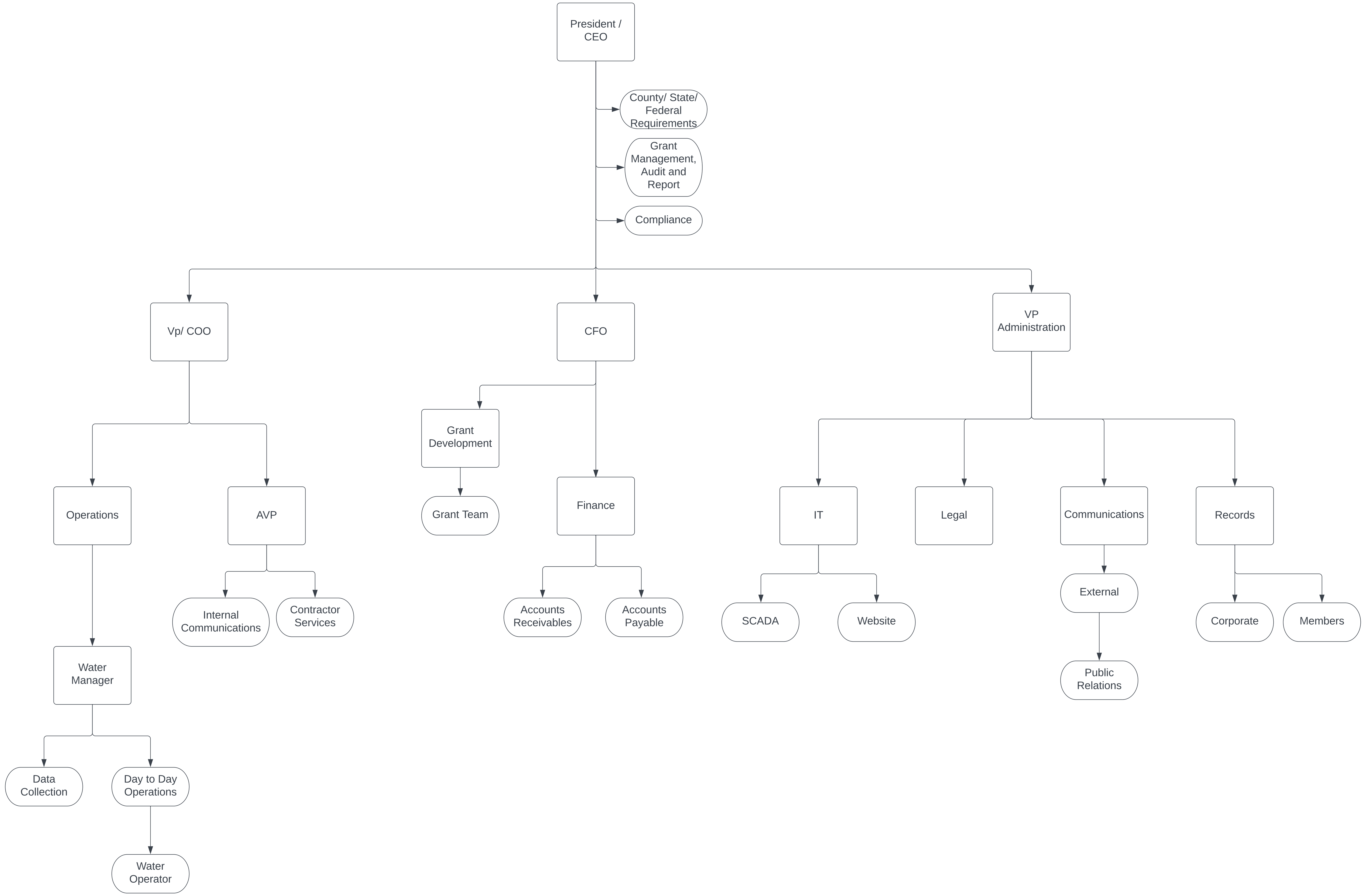
www.nrdc.org/water/ca-water-supply-solutions.asp
www.pacinst.org/publication/ca-water-supply-solutions

California Rural Water Association

Save Our Water

WATER LOSS CHART

LEAK SIZE or DRIP	LEAK SIZE or DRIP	Amount Loss Per DAY *(Gallons)*	Amount Loss Per MONTH *(Gallons)*	Amount Loss Per YEAR *(Gallons)*
1 (One) Drop *per second*		4.5	139.5	1,642.5
2 (Two) Drops *per second*		9	279	3,285
3 (Three) Drops *per second*		18	558	6,570
1/16 Inch or 1.6mm		822	25,002.5	300,030
1/8 Inch or 3.2mm		2,850	86,687.5	1,040,250
1/4 Inch or 6.5 mm		11,400	346,750	4,161,000
1/2 Inch or 13mm		45,600	1,387,000	16,644,000


President / CEO
County/ State/ Federal Requirements
Grant Management, Audit and Report
Compliance
Vp/ COO
CFO
VP Administration
Operations
AVP
Grant Development
Grant Team
Finance
IT
Legal
Communications
Records
Internal Communications
Contractor Services
Accounts Receivables
Accounts Payable
SCADA
Website
External
Public Relations
Corporate
Members
Water Manager
Data Collection
Day to Day Operations
Water Operator