SHEEP CREEK WATER COMPANY
REGULAR BOARD OF DIRECTORS MEETING
January 21, 2021 ~ 6:30 PM
SHEEP CREEK WATER COMPANY – via Zoom
4200 Sunnyslope Rd., Phelan, CA 92371

Due to the Covid-19 pandemic and required Social Distancing, The Sheep Creek Water Company Regular Board of Directors Meeting will be held via Zoom Meeting for Shareholder participation. Shareholders may access the meeting remotely with the following options.

Remote Participation Information:

Zoom: https://us02web.zoom.us/j/88410137958?pwd=b2VlR2JxUW4zY0lUUmFGMFZScWlFUT09
Meeting ID: 884 1013 7958
Passcode: 037235

One tap mobile
+16699006833,,88410137958#,,,,,,0#,,037235# US (San Jose)

Dial-In
(669) 900-6833
Meeting ID: 884 1013 7958
Passcode: 037235

AGENDA

1) **Open Meeting-** 6:30 PM
   a. Flag Salute
   b. Invocation

2) **Consent Motions**
   a. Minutes:
      i. *Regular Board of Directors Meeting- December 17, 2020*
   b. Bills:
      i. *December 17, 2020*through *January 21, 2021*
   c. Managers' Report: Included in Board Packet

3) **Open Forum/Public Comment-** Under this item any member of the Board or Public may address the Board on any item relating to the company not listed on this agenda. However, the Board is prohibited under AB 240 from taking any action on an item not appearing on the agenda. Board president will call on each participant and at that time you have three (3) minutes to speak.

4) **Old Business**
   a. System Update
   b. PPHCSD Consolidation Update

5) **New Business**
   a. 2021 Annual Shareholders Meeting

6) **Next Scheduled Meeting**
   a. February 18, 2021 via Zoom
   b. March 18, 2021 via Zoom

7) **Closed Session**
   a. Employee Evaluation

8) **Adjournment**

SHEEP CREEK WATER COMPANY
Regular Board of Directors Meeting
December 17, 2020 ~ 6:30pm
Sheep Creek Water Company ~ Board Room via Zoom
4200 Sunnyslope Road, Phelan, CA 92371

The Regular Board of Directors Meeting of December 17, 2020, was called to order by Andy Zody at 6:30 pm. Chris Cummings led in the Pledge of Allegiance and David Nilsen led in the Invocation. Mr. Zody reminded everyone that the meeting is being recorded for accurate meeting minutes.

Directors Present: Directors present were Board President Andy Zody, Secretary/Treasurer Kellie Williams, and also present were Director's David Nilsen and Luanne Uhl.
Staff Present: General Manager Chris Cummings
Guests Present: PPHCSD Board Member Deborah Philips and Michael Palecki, with the Mountaineer Progress

Consent Motions

Minutes: Regular Board of Directors Meeting – December 17, 2020
Bills: November 19, 2020 through December 17, 2020
Managers' Report – December 17, 2020

David Nilsen moved to accept the Consent Motions as presented. Kellie Williams seconded the motion. Motion carried.

Open Forum: *Under this item any member of the Board of Public may address the Board on any item relating to the company that is not listed on this agenda. However, the Board is prohibited under AB240 from taking any action on an item not appearing on the agenda. The Board President will call on each participant and at that time they will have three (3) minutes to speak.*

Old Business

a.) System Update: Static water levels compared to one year ago have had an increase of between 2 – 4 feet. Wells 3A and Well 5 are running daily, averaging 5 hours a day. Water usage is averaging 365,000 thousand gallons per day. The Tunnel is averaging 132 gallons per minute with total pumping capacity at 1,948 gallons per minute.

The draft Asset Management Plan was reviewed and corrections were submitted back to the engineer. The SWRCB received the draft for review and did not have any comments or changes. The Final Draft has been completed and was received yesterday. The Final version of the AMP will be submitted back to the SWRCB to complete the final Directive in the updated compliance order dated March 2020.

b.) PPHCSD Consolidation Update: The cost for the scope of work for the engineer to complete the construction plans and application was higher than the state normally sees, this is currently being addressed. DFA had some concerns with a few projects that were added to the project. I included 3.6 miles of water main replacement and a booster station to be installed here at the office. Both of these projects are to improve fire flows in the commercial zone and needed areas of the system. Also included is tank rehabilitation, which may have to be address at a later time.

The State also has concerns regarding negotiations, and wants to see continued progress and confirmation of consolidation. The State is concerned with investing into the project and either District backs out. PPHCSD, IEC and Sheep Creek met to discuss the concerns from the State and also a timeline was prepared to begin to gather the necessary information to present to the Shareholders. Along with the proposed consolidation, the sale of the water rights will be proposed at the Annual Shareholders Meeting.

Chris also reported that Sheep Creek has met with the CSD this week to continue moving forward with discussion. Chris is working to schedule a time to meet with the SWRCB and the CSD to discuss options to get some meters released from the moratorium and extending the timeline for the compliance order.

New Business:

a.) Jason Hong – Meter Service Reimbursement Request: Shareholder, Jason Hong, purchased a ten acre parcel of vacant land with 2 meter services installed in 2006. Mr. Hong then, purchased 2 additional meters services for the property. As of August 2018, when the SWRCB moratorium was put into place the additional meter services had not been placed. Mr. Hong has not had any success in selling the property due to the SWRCB Service Connection Moratorium that was placed on Sheep Creek. Mr. Hong is having severe health issues and is pleading with the Board for help with a reimbursement for the two meters services that were purchased and have not been installed. Mr. Hong has sent an additional request for reimbursement to his request in September.

The Board agreed that Mr. Hong could place a flyer at the Sheep Creek Water Company office to advertise the sale of the 2 meter services with the understanding by the buyer that the meter services will not be able to be placed until the Service Connection Moratorium is lifted.

Next Scheduled Meeting: January 21, 2021, via Zoom.

Adjournment: David Nilsen moved to adjourn the meeting. Kellie Williams seconded the motion. Motion carried. The Regular Board of Directors meeting of December 17, 2020 was adjourned at 7:00 pm.

Respectfully Submitted,

Kellie Williams
Secretary/Treasurer
Sheep Creek Water Company

Sheep Creek Water Company
4200 Sunnyslope Rd.
P.O. Box 291820
Phelan, CA 92329-1820
Office (760) 868-3755/Fax (760) 868-2174
Email sheepcreek@verizon.net / www.sheepcreekwater.com

Regular Board of Directors Meeting – Managers Report

January 21, 2021

PRODUCTION

- December Production- 334.72 AF- 5% increase from 2019 & 31% decrease from 2013
- December Usage- 33.4 AF sold- 5% increase from 2019 & 25% decrease from 2013

Well soundings & average pumping for the past month:

- Static Water Levels at this time have had a minimal change.
  - **Well 2A** Compared to 1 year ago, static level is the same- 333 gpm
  - **Well 3A** Compared to 1 year ago, static level is up 6.93feet- 329 gpm
  - **Well 4A** Compared to 1 year ago, static level is the same- 300 gpm
  - **Well 5** Compared to 1 year ago, static level is up 2.31 feet- 310 gpm
  - **Well 8** Compared to 1 year ago, static level is down 4.62 feet- 350 gpm
  - **Tunnel** the Tunnel flow is currently averaging 133 gpm
- Well 8 is running an average of 9 - 12 hours a day.
- Total Pumping capacity as of January 14, 2021 is 2,006 gpm.
- Current usage is averaging 381,000 gallons per day
- **Allotment Tier 1 – First share on account remain 750 CF/Share and Remaining shares 150 CF/Share. $0.50 per hcf**
- **Allotment Tier 2 – 150 CF/Share all shares after Tier 1 $3.46 per hcf**
- **Tier 3 Overage- No Allotment $6.32 per hcf**

Work Completed or in Progress

- Work orders as office requests
- Well Soundings- By-weekly
- CLA-VAL Maintenance & Stainless Steel Pilot System Upgrade- 2-6" & 3-2"
- 7 Meter Upgrades
- 0 Mainline Leaks/ 0- Service Line Leaks
- Hydrant & Valve Replacement- Ongoing
  - Valle Vista & Amador- Material Ordered
  - Monte Vista & Amador- Material Ordered
  - Johnson & Amador- Project Planning
  - Riggins & Coyote- Materials Ordered
- SWRCB Asset Management Plan- Completed
  - AMP submitted to the SWRCB per Compliance Order 05-13-18R-002A1
- Source Capacity Project- On hold due to PPHCSD Consolidation
- PPHCSD Consolidation
  - Meetings with PPHCSD, SWRCB DFA, Sacramento State- Office of Water Programs
  - OWP to prepare and complete grant application
  - Additional negotiations between PPHCSD & SCWC to take place

Month	Total Usage	Tier 1 Usage	Tier 2 Usage Well 11	Tier 3 Usage Overage		Monthly Deposits Total Well Maintenance	Tier 2 & 3- $1.46 MWA Fees	Tier 3-$2.00 Improvement	Tier 3-$1.13 Assessment	System Updrade	Well 11 $5.00 Assessment
JAN	12,107.71	8,491.74	580.00	3,035.97		$ 3,026.93	$ 846.80	$ 6,071.94	$ 3,430.65	$ 3,750.00	$ 5,940.00
FEB	11,352.75	9,136.58	550.00	1,666.17		$ 2,838.19	$ 803.00	$ 3,332.34	$ 1,882.77	$ 3,750.00	$ 5,940.00
MAR	11,457.14	8,933.72	750.00	1,773.42		$ 2,864.29	$ 1,095.00	$ 3,546.84	$ 2,003.96	$ 3,750.00	$ 5,945.00
APR	13,002.86	10,296.63	825.00	1,881.23		$ 4,603.83	$ 1,204.50	$ 3,762.46	$ 2,125.79	$ 3,750.00	$ 5,930.00
MAY	19,970.35	13,956.44	1,250.00	4,763.91		$ 7,999.54	$ 1,825.00	$ 9,527.82	$ 5,383.22	$ 3,750.00	$ 5,920.00
JUNE	23,013.93	14,894.75	1,800.00	6,319.18		$ 9,813.07	$ 2,628.00	$ 12,638.36	$ 7,140.67	$ 3,750.00	$ 5,915.00
JUL	25,218.74	11,963.01	5,250.00	8,005.73		$ 12,932.55	$ 7,665.00	$ 16,011.46	$ 9,046.47	$ 3,750.00	$ 5,940.00
AUG	24,222.88	12,480.20	4,500.00	7,242.68		$ 11,927.06	$ 6,570.00	$ 14,485.36	$ 8,184.23	$ 3,750.00	$ 5,955.00
SEP	24,214.24	12,922.40	4,000.00	7,291.84		$ 11,699.48	$ 5,840.00	$ 14,583.68	$ 8,239.78	$ 3,750.00	$ 5,945.00
OCT	21,640.87	12,023.99	3,500.00	6,116.88		$ 10,218.66	$ 5,110.00	$ 12,233.76	$ 6,912.07	$ 3,750.00	$ 5,950.00
NOV	14,550.18	10,413.84	1,550.00	2,586.34		$ 5,705.72	$ 2,263.00	$ 5,172.68	$ 2,922.56	$ 3,750.00	$ 5,955.00
DEC	14,432.86	10,010.10	1,526.63	2,896.13		$ 5,819.60	$ 2,228.88	$ 5,792.26	$ 3,272.63	$ 3,750.00	$ 5,955.00
TOTAL	215,184.51	135,523.40	26,081.63	53,579.48		89,448.90	38,079.18	107,158.96	60,544.81	45,000.00	71,290.00
		$ 67,761.70	$ 90,242.44	$ 338,622.31							

Well Account

Capital Improvement Account

Assessment Account

System Upgrade Account

COMPLETED WORK 2020- Operations & Well Maintenance Only

January Through December

New Meter Installations (SWRCB Approved)		$1,036.46
Meter Repairs and Upgrades		$39,866.19
Page 1 - 33		
Meter Upgrades	89	
Service Replaced	5	
System Leaks		$5,962.84
Page 34 - 37		
Service Leaks	4	
Main Line Leaks	12	
System Maintenance		$11,664.83
Page 38 - 41		
System Upgrade & Replacement		$42,403.74
Page 42 - 45		
Fire Hydrants	6	
Gate Valves	13	
Total 2020 Operations Maintenance		**$100,934.06**

SHEEP CREEK WATER COMPANY

LEAK & MAIN BREAK REPORT

2020

	LOCATION	DATE	MATERIAL USED	SIZE	MATERIAL	TYPE	Line Type
1.	Nielson Rd- 100' East of Sierra Vista Rd	3/5/2020	4" x 12" Repair Clamp	4"	OD Steel	Bell	Distribution
2.	Valle Vista Rd- Between Acct 203 & 1128	4/3/2020	2- 4" x 12", 4" x 7.5" Repair Clamp	4"	OD Steel	3- Pin Holes	Distribution
3.	Sierra Vista Rd- 300' North of Yucca Terrace Dr	4/27/2020	4" x 7.5" Repair Clamp	4"	OD Steel	Pin Hole	Distribution
4.	Johnson Rd End of Line- Acct 153	6/1/2020	4" FCA, 4" Blind Flange	4"	OD Steel	Pin Hole	Distribution
5.	Smoketree Rd- 200' East of johnson Rd	6/27/2020	6" x 7.5" Repair Clamp	6"	PVC	Pin Hole	Distribution
6.	Acct 680	7/17/2020	1" x 6" Repair Clamp	1"	Poly	Split	Service Line
7.	Buttonwood Between Valle Vista & Sierra Vista	7/20/2020	4" x 7.5" Repair Clamp	4"	OD Steel	Pin Hole	Distribution
8.	Alanthus- 30" west of valve	7/24/2020	6" x 12" Repair Clamp	6"	PVC	Pin Hole	Distribution
9.	Lindero & Monte Vista- 10' West of Valve	8/18/2020	4" x 7.5" Repair Clamp	4"	OD Steel	Pin Hole	Distribution
10.	Acct 971	8/26/2020	1" x 6", 1" x 3" Repair Clamp	1"	Poly	Split	Service Line
11.	Alanthus- 4' west of valve	9/19/2020	6" x 12" Repair Clamp	6"	PVC	Pin Hole	Distribution
12.	Acct 601	9/25/2020	1" x 6" Repair Clamp	1"	Poly	Pin Hole	Service Line
13.	Acct 1221	9/29/2020	1" x 6" Repair Clamp	1"	Poly	Split	Service Line
14.	Campanula Rd- 100' North of Amador Rd	10/2/2020	4" x 7.5" Repair Clamp	4"	OD Steel	Bell	Distribution
15.	Alanthus- 10' east of valve	10/5/2020	6" x 12" Repair Clamp	6"	PVC	Pin Hole	Distribution
16.	Campanula Rd- 100' North of Amador Rd	11/24/2020	6" x 7.5" Repair Clamp	6"	OD Steel	Pin Hole	Distribution

PRODUCTION 6 - YEAR RECAP

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL	TOTAL	TOTAL	
2020	-3%	10%	2%	-16%	33%	13%	20%	4%	8%	3%	8%	5%				Reduction compared to 2019
	-40%	-36%	-57%	-57%	-42%	-46%	-39%	-44%	-40%	-37%	-37%	-31%	GALLS	CU.FT	A.F.	Reduction compared to 2013
Tunnel	5,481,792	5,087,000	5,428,224	5,313,600	5,671,000	5,652,000	5,954,000	5,954,976	5,754,240	5,896,944	5,702,400	5,914,800	67,810,976	9,065,639	208.07	
Well # 2A	177,000	62,000	22,000	11,000	12,000	14,000	3,419,000	7,282,000	254,000	14,000	23,000	21,000	11,311,000	1,512,166	34.71	
Well # 3A	0	1,245,000	4,863,000	5,480,000	9,107,000	5,025,000	15,000	25,000	6,825,000	6,401,000	4,177,000	2,480,000	45,643,000	6,102,005	140.05	
Well # 4A	31,000	28,000	21,000	44,000	14,000	29,000	732,000	7,480,000	253,000	21,000	19,000	30,000	8,702,000	1,163,369	26.70	
Well # 5	5,119,000	4,377,000	440,000	347,000	3,529,000	6,710,000	3,062,000	21,000	6,154,000	5,570,000	3,077,000	2,390,000	40,796,000	5,454,011	125.18	
Well # 8	34,000	80,000	23,000	55,000	23,000	2,055,000	7,514,000	29,000	114,000	20,000	22,000	470,000	10,439,000	1,395,588	32.03	
Well # 11	0	127,800	88,600	194,100	482,700	1,109,600	2,906,300	705,800	274,500	0	11,200	10,700	5,911,300	790,281	18.14	
PPHCSD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
TOTAL G	10,842,792	11,006,800	10,885,824	11,444,700	18,838,700	20,594,600	23,602,300	21,497,776	19,628,740	17,922,944	13,031,600	11,316,500	190,613,276	25,483,058	584.88	
TOTAL CF	1,449,571	1,471,497	1,455,324	1,530,040	2,518,543	2,753,289	3,155,388	2,874,034	2,624,163	2,396,116	1,742,193	1,512,901	Total Reduction=		460%	
TOTAL AF	33.270	33.774	33.402	35.117	57.805	63.193	72.422	65.964	60.229	54.995	39.986	34.724	190.61			
2019	-18%	-28%	-17%	-31%	-26%	-14%	-3%	-9%	5%	4%	-14%	-12%				Reduction compared to 2018
	-38%	-42%	-58%	-49%	-56%	-53%	-49%	-46%	-44%	-39%	-42%	-34%	GALLS	CU.FT	A.F.	Reduction compared to 2013
Tunnel	4,808,174	4,384,800	5,017,090	5,163,000	5,517,058	5,140,800	5,490,720	5,713,920	5,537,000	5,624,640	5,400,000	5,535,360	63,332,562	8,466,920	194.33	
Well # 2A	10,000	41,000	2,784,000	3,817,000	3,943,000	5,499,000	5,628,000	2,863,000	150,000	3,281,000	1,076,000	870,000	29,962,000	4,005,615	91.94	
Well # 3A	7,000	228,000	144,000	11,000	1,600	38,000	234,000	57,000	0	0	0	0	720,600	96,337	2.21	
Well # 4A	6,000	211,000	132,000	11,000	7,000	27,000	35,000	15,000	57,000	22,000	10,000	15,000	548,000	73,262	1.68	
Well # 5	2,928,000	2,285,000	2,278,000	3,881,000	3,637,000	4,746,000	6,006,000	6,506,000	5,055,000	6,346,000	2,102,000	3,173,000	48,943,000	6,543,182	150.18	
Well # 8	3,122,000	2,612,000	6,000	12,000	76,000	310,000	58,000	2,865,000	4,922,000	1,695,000	3,445,000	1,134,000	20,257,000	2,708,155	62.16	
Well # 11	250,600	267,200	322,500	663,600	988,800	2,385,700	2,281,300	2,739,700	2,481,500	456,100	44,800	0	12,881,800	1,722,166	39.53	
PPHCSD	0	0	0	0	0	0	0	0	0	0	0		0	0	0.00	
TOTAL G	11,131,774	10,029,000	10,683,590	13,558,600	14,170,458	18,146,500	19,733,020	20,759,620	18,202,500	17,424,740	12,077,800	10,727,360	176,644,962	23,615,637	542.02	
TOTAL CF	1,488,205	1,340,775	1,428,287	1,812,647	1,894,446	2,426,003	2,638,104	2,775,350	2,433,489	2,329,511	1,614,679	1,434,139	Total Reduction=		-47%	
TOTAL AF	34.157	30.773	32.782	41.604	43.481	55.681	60.549	63.699	55.853	53.467	37.060	32.916	176.64			
2018	3%	0%	-32%	-6%	-27%	-41%	-36%	-20%	-20%	-7%	-10%	-6%				Reduction compared to 2016
	-25%	-19%	-49%	-27%	-40%	-45%	-48%	-41%	-47%	-41%	-33%	-39%	GALLS	CU.FT	A.F.	Reduction compared to 2013
Tunnel	5,879,088	5,204,909	5,674,190	5,428,987	5,583,000	5,362,000	5,450,000	5,395,000	5,150,736	5,272,877	5,070,989	5,159,000	64,630,776	8,640,478	198.31	
Well # 2A	0	0	238,000	1,682,000	17,000	184,000	2,142,000	1,152,000	998,000	128,000	5,000	0	6,546,000	875,134	20.09	
Well # 3A	0	0	11,000	157,000	1,147,000	665,000	10,000	6,000	0	0	0	0	1,996,000	266,845	6.12	
Well # 4A	123,000	157,000	255,000	1,458,000	2,316,000	74,000	73,000	9,000	0	0	12,000	0	4,477,000	598,529	13.74	
Well # 5	3,559,000	4,031,000	3,129,000	5,518,000	6,216,000	8,424,000	6,448,000	5,119,000	5,116,000	5,592,000	4,571,000	3,535,000	61,258,000	8,189,572	187.97	
Well # 8	3,971,000	4,511,000	3,531,000	5,312,000	3,966,000	6,487,000	6,279,000	5,507,000	6,059,000	5,714,000	4,346,000	3,423,000	59,106,000	7,901,872	181.36	
Well # 11	0	0	0	0	0	0	0	0	0	0	0	24,700	24,700	3,302	0.08	
PPHCSD	0	0	0	0	0	0	0	5,525,000	0	0	0	0	5,525,000	738,636	16.95	
TOTAL G	13,532,088	13,903,909	12,838,190	19,555,987	19,245,000	21,196,000	20,402,000	22,713,000	17,323,736	16,706,877	14,004,989	12,141,700	203,563,476	27,214,368	624.62	
TOTAL CF	1,809,103	1,858,811	1,716,336	2,614,437	2,572,861	2,833,690	2,727,540	3,036,497	2,316,007	2,233,540	1,872,325	1,623,222	al Reduction=		-39%	
TOTAL AF	41.522	42.663	39.393	60.006	59.052	65.038	62.602	69.693	53.157	51.264	42.973	37.256	203.56			
2017	-18%	-15%	-16%	-11%	-17%	-37%	-20%	-14%	0%	9%	5%	19%				Reduction compared to 2016
	-40%	-32%	-38%	-31%	-33%	-41%	-35%	-36%	-34%	-31%	-22%	-6%	GALLS	CU.FT	A.F.	Reduction compared to 2013
Tunnel	6,570,115	5,860,915	6,590,203	6,468,984	6,579,043	6,284,000	6,397,805	6,255,850	5,989,982	6,108,091	5,865,005	5,960,779	74,930,772	10,017,483	229.92	
Well # 2A	18,000	23,000	0	0	19,000	168,000	36,000	10,000	9,000	8,000	0	0	291,000	38,904	0.89	
Well # 3A	3,727,000	5,786,000	7,405,000	6,194,000	6,006,000	5,728,000	4,964,000	2,496,000	2,485,000	282,000	0	0	45,073,000	6,025,802	138.30	
Well # 4A	439,000	45,000	0	279,000	37,000	47,000	403,000	1,203,000	9,000	2,397,000	2,081,000	864,000	7,804,000	1,043,316	23.95	
Well # 5	62,000	29,000	0	100,000	2,687,000	4,115,000	6,412,000	7,334,000	6,533,000	5,182,000	3,992,000	4,054,000	40,500,000	5,414,439	124.27	
Well # 8	28,000	26,000	1,692,000	5,444,000	6,327,000	6,284,000	7,282,000	7,135,000	6,590,000	5,498,000	4,341,000	4,521,000	55,168,000	7,375,401	169.28	
PPHCSD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
TOTAL G	10,844,115	11,769,915	15,687,203	18,485,984	21,655,043	22,626,000	25,494,805	24,433,850	21,615,982	19,475,091	16,279,005	15,399,779	223,766,772	29,915,344	686.61	
TOTAL CF	1,449,748	1,573,518	2,097,220	2,471,388	2,895,059	3,024,866	3,408,396	3,266,557	2,889,837	2,603,622	2,176,338	2,058,794	al Reduction=		-33%	
TOTAL AF	33.27	36.12	48.14	56.72	66.45	69.43	78.23	74.97	66.33	59.76	49.95	47.25	223.77			
2016	-27%	-20%	-26%	-22%	-19%	-7%	-18%	-26%	-34%	-37%	-26%	-21%	GALLS	CU.FT	A.F.	Reduction compared to 2013
Tunnel	8,211,082	7,599,067	7,907,083	7,593,998	7,591,925	7,261,013	7,365,600	7,221,859	6,873,984	6,987,946	6,655,003	6,717,874	87,986,434	11,762,892	269.98	
Well # 2A	16,000	27,000	3,393,000	4,281,000	6,731,000	3,365,000	3,066,000	124,000	0	3,000	6,000	1,000	21,013,000	2,809,225	64.48	
Well # 3A	29,000	31,000	35,000	1,692,000	4,498,000	10,091,000	4,110,000	1,218,000	101,000	13,000	11,000	12,000	21,841,000	2,919,920	67.02	
Well # 4A	48,000	35,000	30,000	43,000	29,000	2,932,000	3,056,000	1,504,000	220,000	17,000	16,000	18,000	7,948,000	1,062,567	24.39	
Well # 5	4,831,000	6,174,000	7,368,000	7,135,000	7,324,000	6,861,000	8,024,000	6,451,000	6,668,000	5,803,000	4,457,000	3,294,000	74,390,000	9,945,187	228.26	
Well # 8	22,000	20,000	21,000	26,000	32,000	5,286,000	6,395,000	7,963,000	7,231,000	5,121,000	4,332,000	2,915,000	39,364,000	5,262,567	120.79	
PPHCSD	0	0	0	0	0	0	0	4,060,000	587,000	0	0	0	4,647,000	621,257	14.26	
TOTAL G	13,157,082	13,886,067	18,754,083	20,770,998	26,205,925	35,796,013	32,016,600	28,541,859	21,680,984	17,944,946	15,477,003	12,957,874	257,189,434	34,383,614	789.17	
TOTAL CF	1,758,968	1,856,426	2,507,230	2,776,871	3,503,466	4,785,563	4,280,294	3,815,757	2,898,527	2,399,057	2,069,118	1,732,336	al Reduction=		-23%	
TOTAL AF	40.37	42.61	57.55	63.73	80.41	109.84	98.24	87.58	66.53	55.06	47.49	39.76	257.19			
2015	-9%	-11%	-18%	-13%	-24%	-32%	-35%	-23%	-17%	-24%	-23%	-12%	GALLS	CU.FT	A.F.	Reduction compared to 2013
Tunnel	11,454,624	10,236,038	11,083,219	8,772,192	9,099,864	9,244,800	9,410,112	9,106,560	8,674,560	8,768,189	8,335,872	8,424,907	112,610,937	15,054,938	345.54	
Well # 2A	0	346,000	2,603,000	5,592,000	5,732,000	6,307,000	5,680,000	7,461,000	6,318,000	4,528,000	1,134,000	451,000	46,152,000	6,170,053	141.61	
Well # 3A	4,305,000	261,000	614,000	833,000	1,922,000	3,833,000	2,845,000	5,311,000	4,918,000	1,695,000	410,000	28,000	26,975,000	3,606,283	82.77	
Well # 4A	0	38,000	54,000	41,000	74,000	46,000	0	23,000	30,000	35,000	35,000	42,000	418,000	55,882	1.28	
Well # 5	545,000	4,458,000	6,169,000	8,059,000	7,494,000	6,712,000	7,219,000	7,590,000	7,245,000	6,689,000	6,012,000	5,418,000	73,610,000	9,840,909	225.87	
Well # 8	197,300	38,100	136,700	22,100	40,000	28,000	0	6,000	13,000	13,000	12,000	17,000	523,200	69,947	1.61	
Well #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
TOTAL G	16,501,924	15,377,138	20,659,919	23,319,292	24,361,864	26,170,800	25,154,112	29,497,560	27,198,560	21,728,189	15,938,872	14,380,907	260,289,137	34,798,013	798.68	
TOTAL CF	2,206,140	2,055,767	2,762,021	3,117,552	3,256,934	3,498,770	3,362,849	3,943,524	3,636,171	2,904,838	2,130,865	1,922,581	al Reduction=		-22%	
TOTAL AF	50.63	47.18	63.39	71.55	74.75	80.30	77.18	90.51	83.46	66.67	48.91	44.13	260.29			
2014													GALLS	CU.FT	A.F.	
Tunnel	13,525,027	12,058,099	13,130,856	12,582,000	12,798,000	12,226,896	12,471,077	12,305,016	11,772,864	11,942,986	11,467,008	11,593,901	147,873,730	19,769,215	453.74	
Well # 2A	39,000	0	0	124,000	6,518,000	10,510,000	13,486,000	10,647,000	1,792,000	143,000	0	0	43,259,000	5,783,289	132.74	
Well # 3A	37,000	0	0	50,000	9,769,000	10,895,000	11,019,000	10,688,000	6,318,000	9,049,000	8,959,000	3,493,000	70,277,000	9,395,321	215.64	
Well # 4A	53,000	0	2,521,000	6,205,000	1,619,000	1,185,000	1,441,000	1,057,000	8,972,000	1,192,000	0	0	24,245,000	3,241,310	74.39	
Well # 5	154,000	0	1,293,000	22,000	28,000	0	31,000	106,000	1,301,000	2,124,000	310,000	0	5,369,000	717,781	16.47	
Well # 8	4,820,900	5,362,900	4,790,000	7,081,200	1,936,100	819,200	1,412,500	609,000	3,197,300	2,819,800	1,171,000	0	34,019,900	4,548,115	104.39	
Well #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
TOTAL G	18,628,927	17,420,999	21,734,856	26,064,200	32,668,100	35,636,096	39,860,577	35,412,016	33,353,164	27,270,786	21,907,008	15,086,901	325,043,630	43,455,031	997.37	
TOTAL CF	2,490,498	2,329,011	2,905,729	3,484,519	4,367,393	4,764,184	5,328,954	4,734,227	4,458,979	3,645,827	2,928,744	2,016,965				
TOTAL AF	57.16	53.46	66.69	79.98	100.24	109.35	122.31	108.66	102.34	83.68	67.22	46.29	325.04			

Population 3361

CONSUMPTION 10-YEAR

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL	
2020	-3%	3%	11%	-21%	16%	18%	4%	-1%	11%	10%	5%	12%		Reduction with 2019
	-33%	-27%	-43%	-58%	-46%	-40%	-44%	-44%	-34%	-30%	-25%	-10%		Reduction with 2013
Cons'n HCF	12,108	11,353	11,457	13,003	19,970	23,014	25,219	24,223	24,214	21,641	14,550	14,433	215,185	
Cons'n GPM	203	211	192	225	335	398	423	406	419	363	252	242	306	
Cons'n A.F.	27.795	26.062	26.302	29.850	45.846	52.833	57.894	55.608	55.588	49.681	33.403	33.133	493.996	
Ave GPDPP	86.922739	81.502788	82.252217	93.349131	143.3696	165.21983	181.04844	173.89903	173.83701	155.36247	104.45753	103.61528	128.736	
2019	-19%	-24%	-19%	-10%	-22%	-21%	-10%	-7%	-2%	5%	-15%	-1%		Reduction with 2018
	-31%	-30%	-49%	-47%	-53%	-49%	-46%	-43%	-40%	-36%	-28%	-20%		Reduction with 2013
Cons'n HCF	12,481	10,980	10,327	16,381	17,288	19,469	24,323	24,572	21,868	19,744	13,907	12,940	204,279	
Cons'n GPM	209	204	173	284	290	337	408	412	379	331	241	217	290	
Cons'n A.F.	28.652	25.207	23.707	37.606	39.688	44.695	55.838	56.409	50.203	45.325	31.926	29.706	468.960	
Ave GPDPP	89.599906	78.826483	74.137008	117.60186	124.11268	139.77034	174.61781	176.40347	156.99586	141.74173	99.840565	92.896918	122.212	
2018	14%	-16%	-39%	-20%	-24%	-42%	-24%	-26%	-15%	-6%	-16%	0%	-18%	Reduction with 2016
	-15%	-7%	-37%	-41%	-40%	-35%	-40%	-39%	-39%	-39%	-16%	-18%	-30%	Reduction with 2013
Cons'n HCF	15,360	14,461	12,701	18,206	22,082	24,730	27,000	26,417	22,364	18,762	16,399	13,123	231,605	
Cons'n GPM	257	268	213	315	370	428	452	443	387	314	284	220	329	
Cons'n A.F.	35.262	33.198	29.157	41.796	50.692	56.772	61.983	60.646	51.341	43.072	37.647	30.126	531.693	
Ave GPDPP	110.27104	110.97826	91.182041	130.70548	158.52588	183.45592	193.83409	189.65218	165.90748	134.69679	121.65634	97.352463	140.685	
2017	-18%	-41%	-27%	-9%	-17%	-39%	-27%	-15%	-16%	11%	2%	19%	-15%	Reduction with 2016
	-38%	-35%	-24%	-33%	-34%	-33%	-42%	-30%	-40%	-29%	3%	-3%	-28%	Reduction with 2013
Cons'n HCF	11,121	10,088	15,275	20,758	24,151	25,786	26,112	30,311	22,165	21,963	19,912	15,588	243,231	
Cons'n GPM	186	187	256	359	405	446	438	508	384	368	345	261	345	
Cons'n A.F.	25.531	23.159	35.066	47.653	55.443	59.196	59.945	69.585	50.885	50.420	45.713	35.785	558.381	
Ave GPDPP	79.84039	72.423639	109.66031	149.02165	173.384	185.11993	187.46068	217.60869	159.1277	157.67493	142.95342	111.90702	145.515	
2016	-25%	10%	3%	-26%	-21%	11%	-21%	-17%	-28%	-35%	0%	-19%	-16%	Reduction with 2013
Cons'n HCF	13,498	17,144	20,915	22,752	29,188	42,373	35,594	35,657	26,381	19,859	19,429	13,103	295,892	
Cons'n GPM	226	318	350	394	489	734	596	597	457	333	336	220	421	
Cons'n A.F.	30.986	39.356	48.014	52.232	67.007	97.274	81.712	81.857	60.561	45.589	44.604	30.081	679.274	
Ave GPDPP	96.901074	123.0758	150.15207	163.3402	209.54503	304.19796	255.53169	255.98606	189.389	142.56712	139.48591	94.070633	177.020	
2015				-4%	-27%	-20%	-33%	-27%	-9%	-18%	-8%	11%	-15%	Reduction with 2013
Cons'n HCF	15,686	15,711	20,472	29,631	26,759	30,807	30,067	31,370	33,365	25,346	18,042	17,975	295,231	
Cons'n GPM	263	291	343	513	448	533	504	526	578	425	312	301	420	
Cons'n A.F.	36.010	36.068	46.997	68.023	61.430	70.723	69.025	72.015	76.596	58.187	41.418	41.266	677.757	
Ave GPDPP	112.61029	112.79422	146.96957	212.72352	192.10615	221.16724	215.85778	225.2065	239.53237	181.96248	129.52236	129.04811	176.625	
2014														
Cons'n HCF	17,899	18,812	18,885	30,747	35,306	39,612	46,285	35,211	38,411	33,592	20,749	19,044	354,552	
Cons'n GPM	300	349	316	532	592	686	776	590	665	563	359	319	504	
Cons'n A.F.	41.091	43.187	43.353	70.585	81.051	90.937	106.256	80.833	88.180	77.117	47.632	43.719	813.941	
2013														
Cons'n HCF	17,965	15,582	20,215	30,811	36,733	38,221	44,989	43,058	36,655	30,752	19,423	16,096	350,501	
Cons'n GPM	301	289	339	533	616	662	754	721	635	515	336	270	498	
Cons'n A.F.	41.242	35.771	46.408	70.732	84.327	87.743	103.281	98.848	84.149	70.598	44.588	36.952	805	
													46.763566	
2012														
Cons'n HCF	15,541	16,894	20,272	19,552	39,647	36,242	44,216	41,956	31,268	28,645	20,721	15,028	329,982	
Cons'n GPM	260	313	340	339	664	628	741	703	541	480	359	252	468	
Cons'n A.F.	36	39	47	45	91	83	102	96	72	66	48	34	758	
2011														
Cons'n HCF	15,076	13,553	17,061	20,126	28,968	36,990	35,866	42,149	34,486	28,970	22,109	14,483	309,836	
Cons'n GPM	253	251	286	348	485	640	601	706	597	485	383	243	440	
Cons'n A.F.	35	31	39	46	67	85	82	97	79	67	51	33	711	

AVERAGE GALLONS PER MINUTE

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
2020	26%	43%	40%	56%	51%	53%	62%	50%	55%	48%	45%	36%	Compare 2019
Tunnel	123	122	122	123	127	131	133	133	133	132	132	133	
Well # 2A	250	279	262	306	286	292	344	339	336	333	319	333	
Well # 3A	0	312	324	327	318	311	311	347	321	333	323	329	
Well # 4A	272	292	250	319	292	302	372	350	332	269	288	300	
Well # 5	305	309	327	314	319	307	311	318	289	289	302	310	
Well # 8	270	284	295	367	367	367	348	322	333	333	333	350	
Well # 11	251	251	251	251	251	251	251	251	251	251	251	251	
TOTAL G	**1,471**	**1,849**	**1,831**	**2,007**	**1,960**	**1,961**	**2,070**	**2,060**	**1,995**	**1,940**	**1,948**	**2,006**	
2019	26%	-2%	0%	3%	13%	61%	155%	166%	155%	154%	70%	83%	Compare 2018
Tunnel	107	109	112	119	124	119	123	128	128	126	125	124	
Well # 2A	150	208	207	170	179	189	184	158	172	204	186	229	
Well # 3A	148	186	194	186	186	167	162	167	0	0	0	0	**Pump Pulled 9-19**
Well # 4A	174	179	185	189	194	167	167	179	207	207	207	312	
Well # 5	155	168	170	173	165	197	196	231	270	283	290	299	
Well # 8	181	193	193	198	198	192	195	258	259	242	285	263	
Well # 11	251	251	251	251	251	251	251	251	251	251	251	251	
TOTAL G	**1,166**	**1,294**	**1,312**	**1,286**	**1,297**	**1,282**	**1,278**	**1,372**	**1,287**	**1,313**	**1,344**	**1,478**	
2018	-40%	-27%	-16%	-12%	-19%	-42%	-57%	-49%	-48%	-48%	-17%	-21%	Compare 2017
Tunnel	131	129	127	125	125	124	122	121	119	118	118	116	
Well # 2A	0	150	175	135	125	55	30	30	25	25	30	30	
Well # 3A	115	211	122	195	167	33	25	25	25	25	25	25	
Well # 4A	199	213	251	194	168	99	60	60	60	60	60	60	
Well # 5	286	289	297	279	274	278	124	119	124	128	138	147	
Well # 8	320	325	337	317	284	205	141	161	152	161	167	179	
Well # 11	0	0	0	0	0	0	0	0	0	0	251	251	
TOTAL G	**1,051**	**1,317**	**1,309**	**1,245**	**1,143**	**794**	**502**	**516**	**505**	**517**	**789**	**808**	
2017	-35%	-40%	-43%	-48%	-45%	-11%	66%	58%	17%	6%	-28%	-37%	
Tunnel	147	145	147	148	147	147	143	140	137	136	136	134	
Well # 2A	214	274	0	0	0	50	50	50	107	107	0	0	**Pump Pulled 11-17**
Well # 3A	330	330	345	295	301	280	180	143	115	115	115	115	
Well # 4A	370	333	333	253	253	200	200	144	115	130	154	184	
Well # 5	353	372	372	355	353	353	280	257	238	244	258	275	
Well # 8	333	361	367	358	350	342	310	278	256	266	288	308	
TOTAL G	**1,747**	**1,815**	**1,564**	**1,409**	**1,404**	**1,372**	**1,163**	**1,012**	**968**	**998**	**951**	**1,016**	
2016													
Tunnel	184	182	177	176	170	168	165	162	159	157	154	150	
Well # 2A	381	500	559	534	468	213	44	38	38	45	111	167	
Well # 3A	537	646	530	635	610	225	28	31	90	114	183	286	
Well # 4A	659	729	556	478	439	193	94	52	132	157	267	333	
Well # 5	461	468	463	471	438	381	120	163	192	218	305	353	
Well # 8	458	476	438	433	444	365	248	194	217	254	297	326	
TOTAL G	**2,680**	**3,001**	**2,723**	**2,727**	**2,569**	**1,545**	**699**	**640**	**828**	**945**	**1,317**	**1,615**	
2015													
Tunnel	256	253	248	203	203	214	210	204	201	196	193	189	
Well # 2A	0	749	625	573	533	537	524	491	418	417	439	479	
Well # 3A	693	680	678	705	652	641	631	613	591	586	594	583	
Well # 4A	883	905	818	759	881	697	697	639	625	625	625	875	
Well # 5	551	551	547	537	513	497	488	471	451	452	459	460	
Well # 8	463	454	465	460	444	467	467	333	361	361	333	405	
TOTAL G	**2,846**	**3,592**	**3,381**	**3,237**	**3,226**	**3,053**	**3,017**	**2,751**	**2,647**	**2,637**	**2,643**	**2,991**	
2014													
Tunnel	303	299	294	291	287	283	279	276	273	268	265	260	
Well # 2A	1,156	1,156	1,156	1,148	1,015	985	886	733	688	630	0	0	**Nov- Pump Pulled**
Well # 3A	617	617	617	641	706	685	664	652	619	637	657	679	
Well # 4A	883	883	898	919	882	851	772	903	667	667	760	760	
Well # 5	317	317	326	326	259	259	258	310	301	306	0	0	**Oct- Pump Pulled**
Well # 8	505	506	499	496	485	471	450	463	406	459	438	438	
TOTAL G	**3,781**	**3,778**	**3,790**	**3,821**	**3,634**	**3,534**	**3,309**	**3,337**	**2,954**	**2,967**	**2,120**	**2,137**	

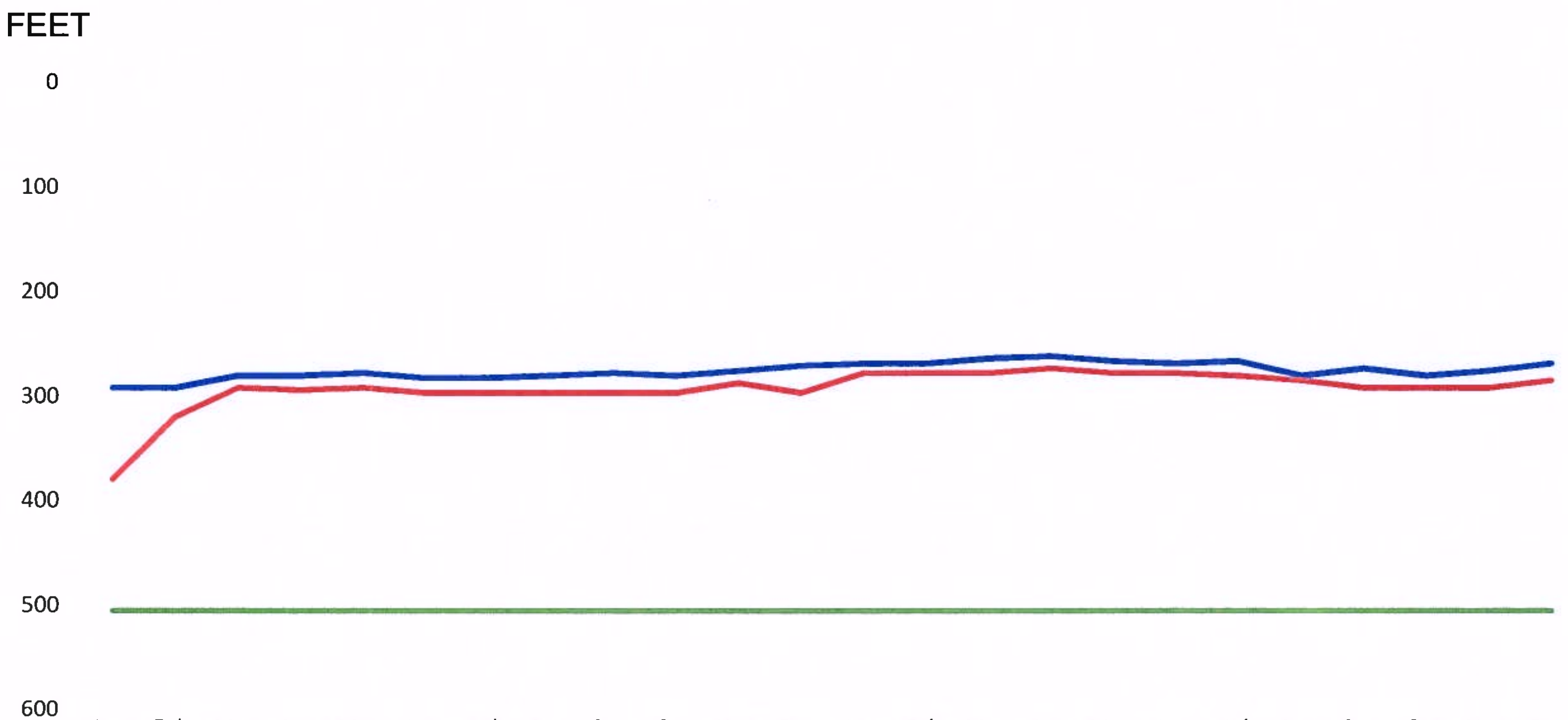
DAILY PRODUCTION FOR DECEMBER 2020 GALLONS

Date	WELL # 2A	WELL # 3A	WELL # 4A	WELL # 5	WELL # 8	WELL # 11	GPM	TUNNEL	TOTAL	CU.FT.	A.F.	GPM
1	21000	122000	2000	114000	20000		133	190800	469800	62807.49	1.4415	326
2						10700	133	190800	201500	26938.5	0.6183	140
3		103000		96000			133	190800	389800	52112.3	1.1961	271
4		166000		154000			133	190800	510800	68288.77	1.5674	355
5		73000		73000			133	190800	336800	45026.74	1.0334	234
6		95000		88000			133	190800	373800	49973.26	1.147	260
7		116000		103000			133	190800	409800	54786.1	1.2574	285
8		95000		88000			133	190800	373800	49973.26	1.147	260
9		129000		120000			133	190800	439800	58796.79	1.3495	305
10		90000		83000			133	190800	363800	48636.36	1.1163	253
11		99000		92000			133	190800	381800	51042.78	1.1715	265
12		103000		96000			133	190800	389800	52112.3	1.1961	271
13		95000		88000			133	190800	373800	49973.26	1.147	260
14		109000		101000			133	190800	400800	53582.89	1.2298	278
15		100000		93000			133	190800	383800	51310.16	1.1777	267
16		95000		88000			133	190800	373800	49973.26	1.147	260
17		107000		99000			133	190800	396800	53048.13	1.2176	276
18		95000		89000			133	190800	374800	50106.95	1.15	260
19		98000		89000			133	190800	377800	50508.02	1.1593	262
20		119000		112000			133	190800	421800	56390.37	1.2943	293
21		102000		95000			133	190800	387800	51844.92	1.1899	269
22		127000		118000			133	190800	435800	58262.03	1.3372	303
23							133	190800	190800	25508.02	0.5855	133
24							133	190800	190800	25508.02	0.5855	133
25							133	190800	190800	25508.02	0.5855	133
26							133	190800	190800	25508.02	0.5855	133
27							133	190800	190800	25508.02	0.5855	133
28							133	190800	190800	25508.02	0.5855	133
29		109000		100000			133	190800	399800	53449.2	1.2268	278
30		133000		166000			133	190800	489800	65481.28	1.5029	340
31			28000	45000	450000		133	190800	713800	95427.81	2.1902	496
Ttl's	21000	2480000	30000	2390000	470000	10700		5914800	11316500	1512901	**34.724**	
	A.F.	A.F.	A.F.	A.F.	A.F.	A.F.	Av.	mgd	mgd	cu.ft/day	afd	
	0.0644369	7.6096962	0.0920528	7.3335379	1.4421602	0.0328322	**133**	0.1908	0.365048	48803.26	1.1201	
								A.F.				
								18.14913				

MSEXCEL/DAILYPROD20

SHEEP CREEK WATER COMPANY

WELL #2A Monthly Water Levels / 2 years



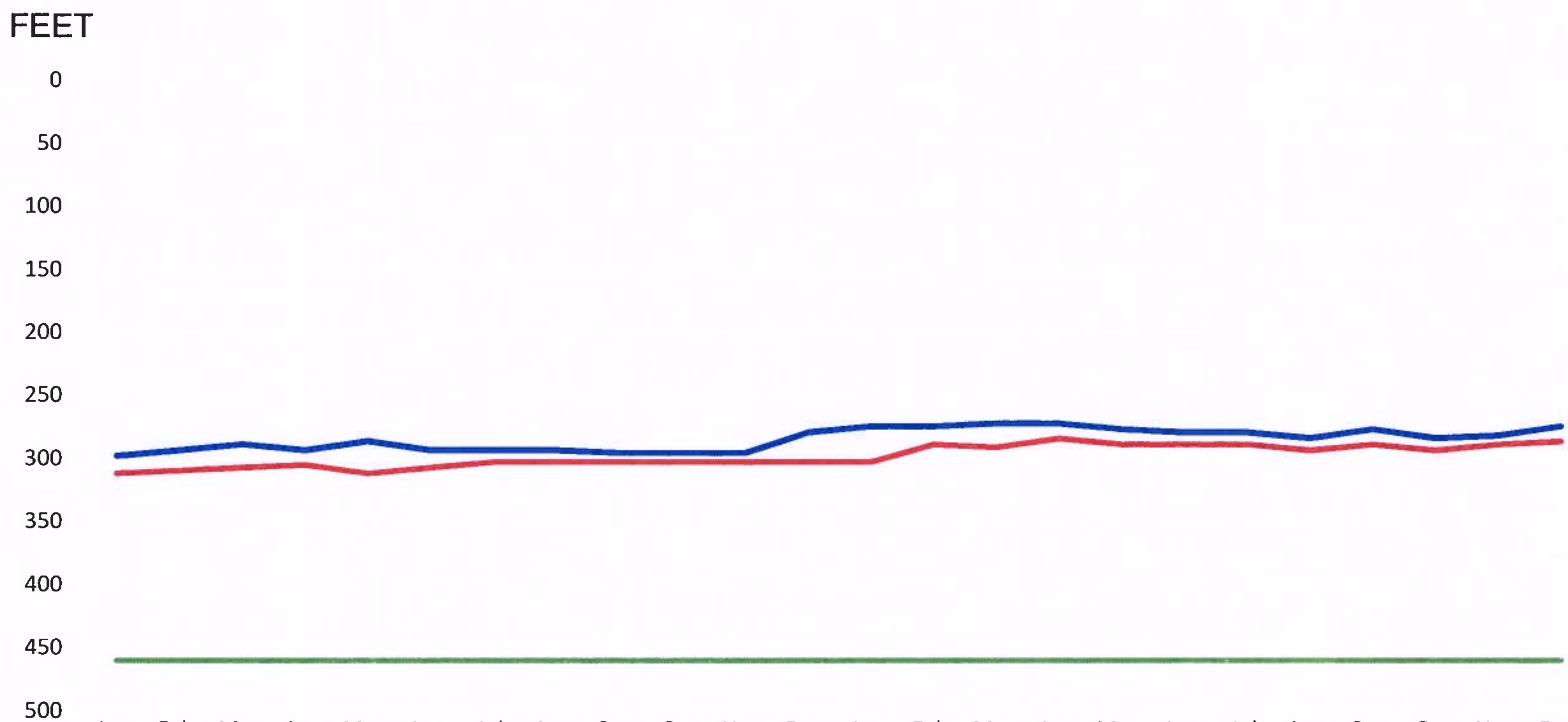
	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
WELL 2A S	292	292	281	281	279	283	283	281	279	281	276	272	269	269	265	262	267	269	267	281	274	281	276	269
WELL 2A P	380	320	292	295	292	297	297	297	297	297	288	297	279	279	279	274	279	279	281	286	292	292	292	286
PUMP DEPTH	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505

2019 / 2020

WELL 2A S   WELL 2A P   PUMP DEPTH

SHEEP CREEK WATER COMPANY

WELL #3A Monthly Water Levels / 2 years



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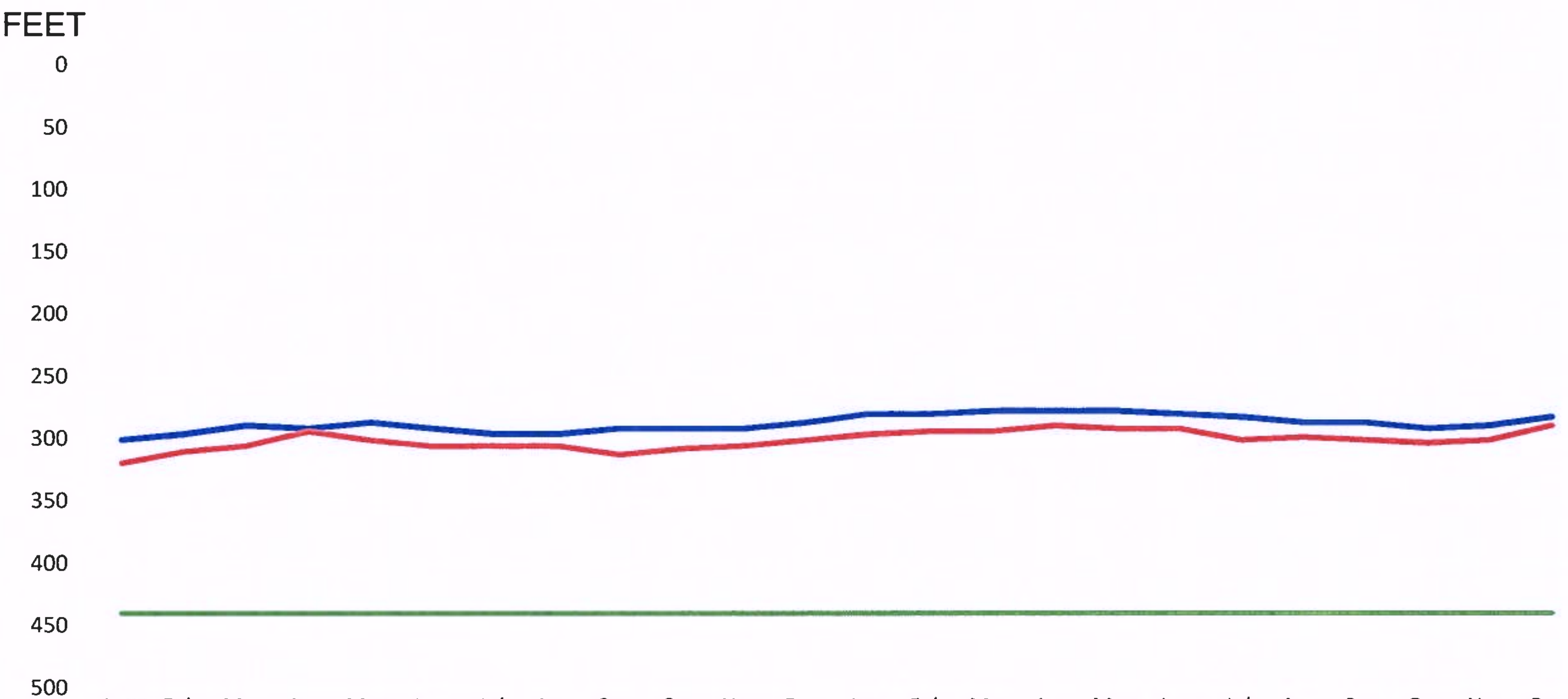
WELL # 3A S	298	294	289	294	287	294	294	294	296	296	296	280	275	275	273	273	278	280	280	284	278	284	282	275
WELL # 3A P	312	310	308	305	312	308	303	303	303	303	303	303	303	289	291	284	289	289	289	294	289	294	289	287
Pump Depth	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460

2019 / 2020

WELL # 3A S WELL # 3A P Pump Depth

SHEEP CREEK WATER COMPANY

WELL #4A Monthly Water Levels / 2 years



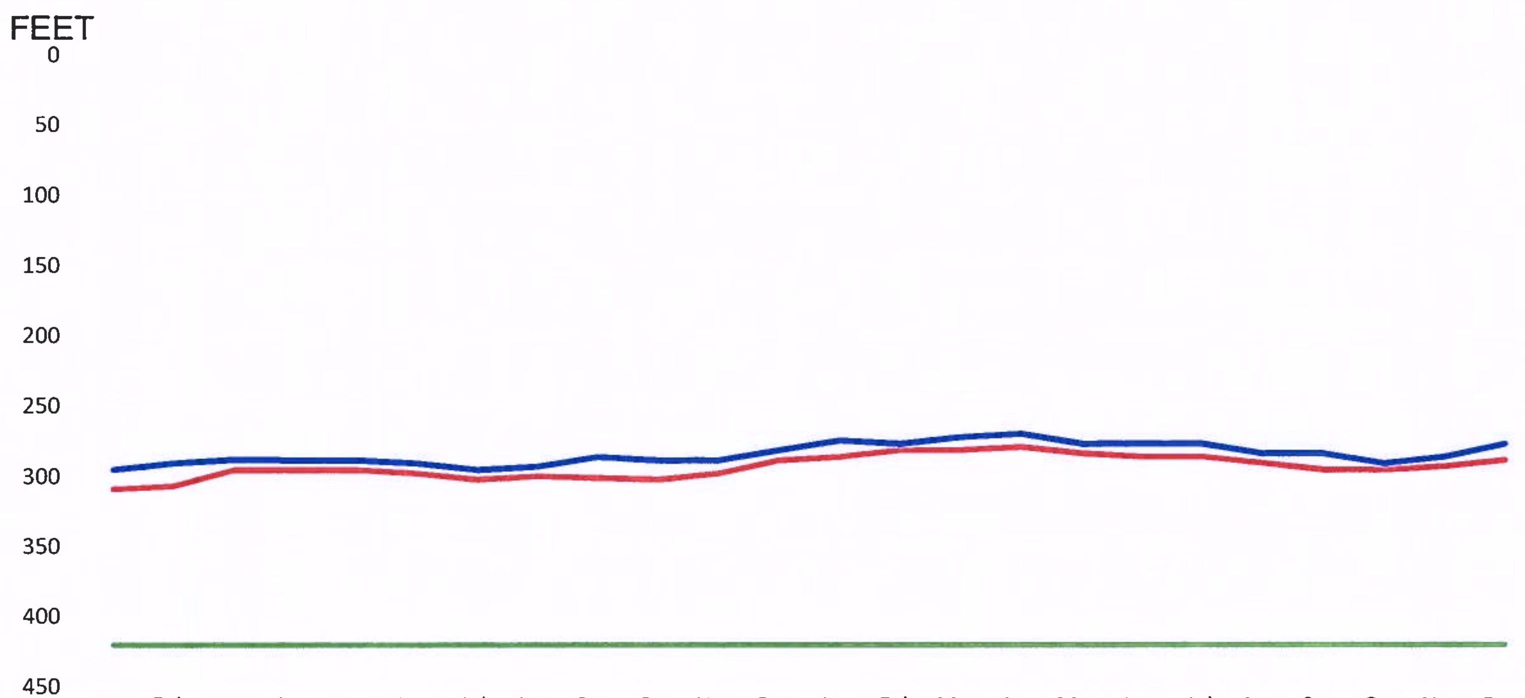
	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
WELL # 4A S	301	297	290	292	288	292	297	297	292	292	292	288	281	281	278	278	278	281	283	288	288	292	290	283
WELL # 4A P	320	311	306	294	301	306	306	306	313	308	306	301	297	294	294	290	292	292	301	299	301	304	301	290
Pump Depth	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440

2019 / 2020

WELL # 4A S — WELL # 4A P — Pump Depth

SHEEP CREEK WATER COMPANY

WELL #5 Monthly Water Levels / 2 years



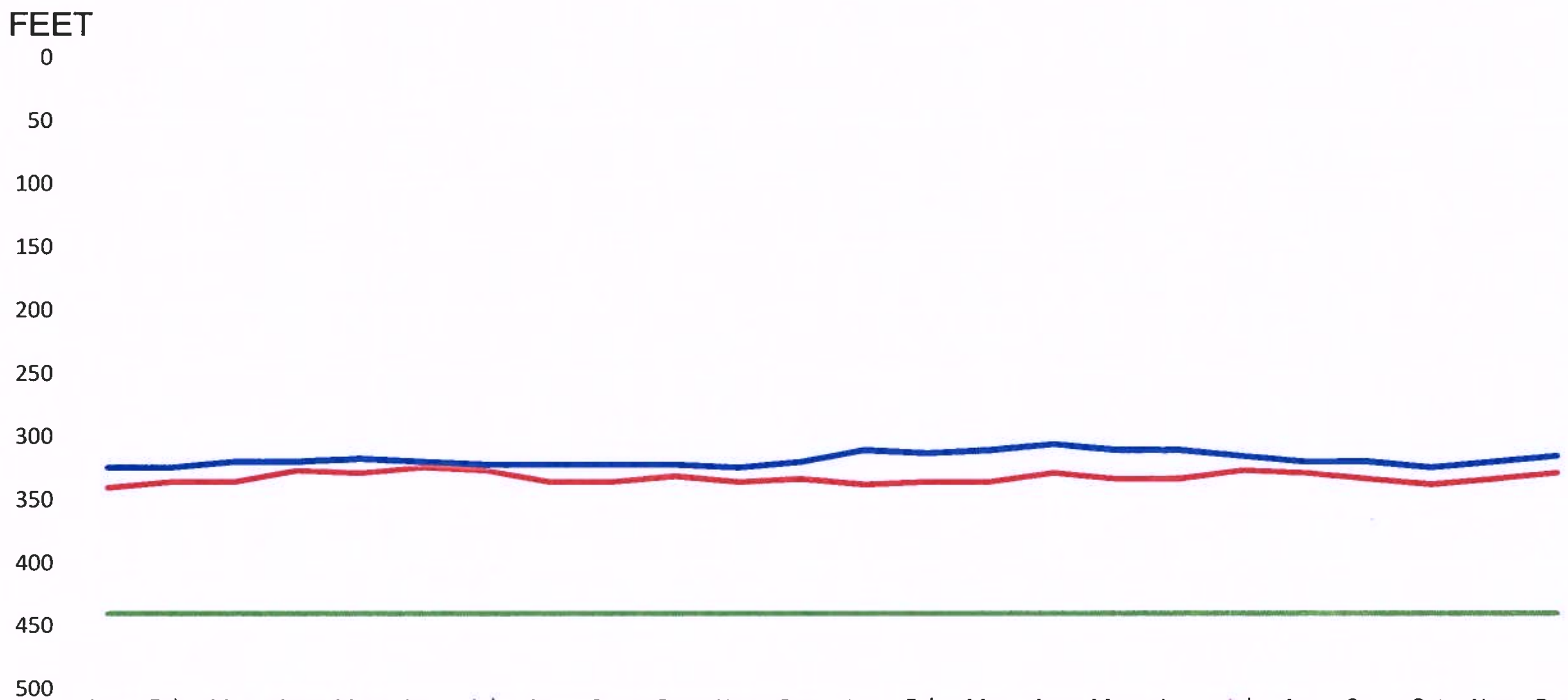
	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
WELL # 5 S	295	291	288	288	288	291	295	293	286	288	288	281	274	277	272	270	277	277	277	284	284	291	286	277
WELL # 5 P	309	307	295	295	295	298	302	300	301	302	298	288	286	281	281	279	284	286	286	291	295	295	293	288
Pump Depth	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420

2019 / 2020

WELL # 5 S — WELL # 5 P — Pump Depth

SHEEP CREEK WATER COMPANY

WELL #8 Monthly Water Levels / 2 years



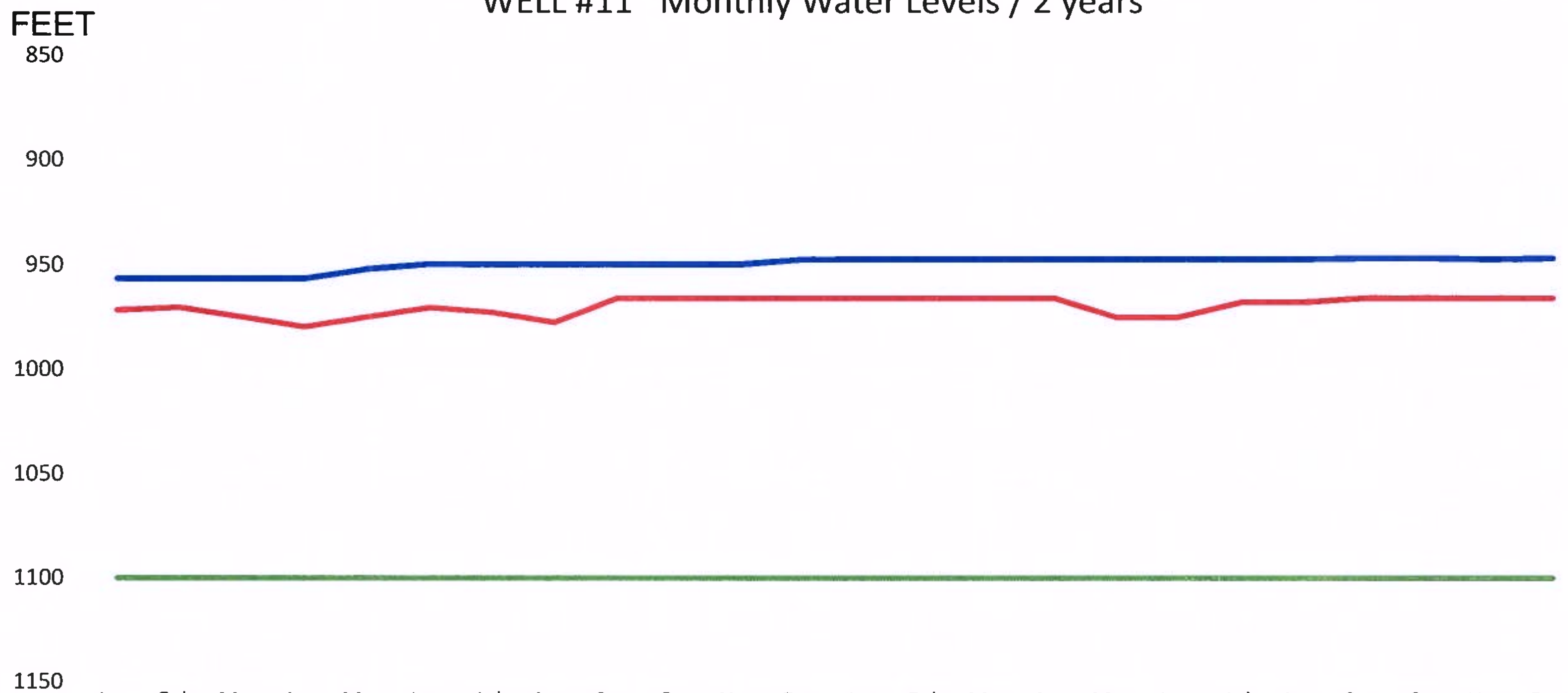
	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
WELL # 8 S	325	325	320	320	318	320	322	322	322	322	325	320	311	313	311	306	311	311	315	320	320	325	320	315
WELL # 8 P	341	336	336	327	329	325	327	336	336	331	336	334	338	336	336	329	334	334	327	329	334	338	334	329
Pump Depth	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440

2019 / 2020

WELL # 8 S — WELL # 8 P — Pump Depth

SHEEP CREEK WATER COMPANY

WELL #11 Monthly Water Levels / 2 years



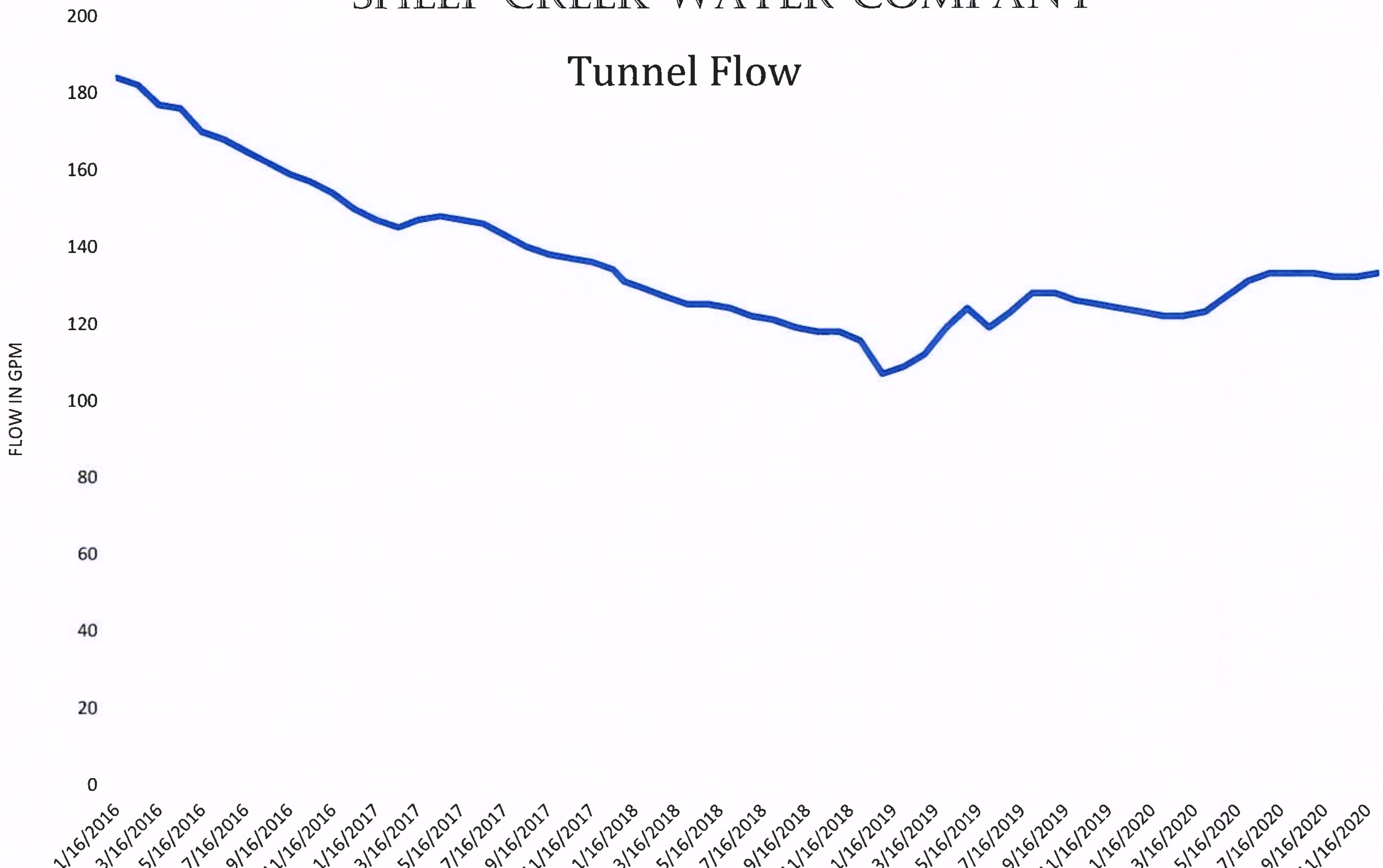
	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Well 11 S	957	957	957	957	952	950	950	950	950	950	950	948	948	948	948	948	948	948	948	948	947	947	948	947
Well 11 P	972	971	975	980	975	971	973	978	966	966	966	966	966	966	966	966	975	975	968	968	966	966	966	966
Pump Depth	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100

2019 / 2020

Well 11 S Well 11 P Pump Depth

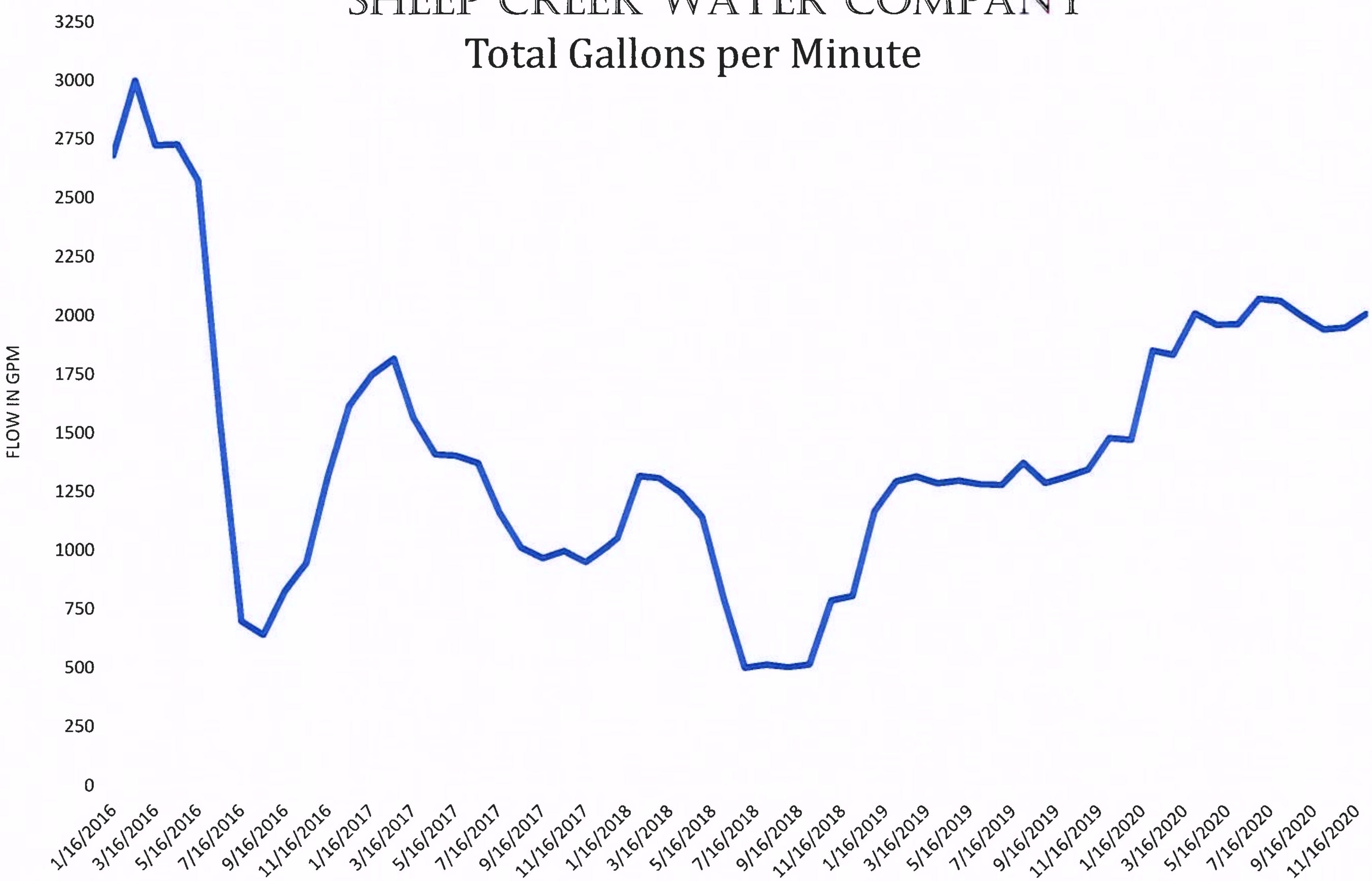
SHEEP CREEK WATER COMPANY

Tunnel Flow



SHEEP CREEK WATER COMPANY

Total Gallons per Minute



SHEEP CREEK WATER COMPANY
WATER PRODUCTION ACRE FEET
Series1
0
10
20
30
40
50
60
70
80
90
100
110
120
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
Jul-16
Oct-16
Jan-17
Apr-17
Jul-17
Oct-17
Jan-18
Apr-18
Jul-18
Oct-18
Jan-19
Apr-19
Jul-19
Oct-19
Jan-20
Apr-20
Jul-20
Oct-20
2015- 2020

Asset Management Plan

Prepared for:

Sheep Creek Water Company
4200 Sunnyslope Rd
Phelan, CA 92371

Date

December 15, 2020

Prepared by:
Infrastructure Engineering Corporation
1401 Commercial Way, Suite 100
Bakersfield, CA 93309

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Appendix A “Safe Drinking Water State Revolving Fund Applicant Engineering Report”, dated May 22, 2019 prepared by the California Rural Water Association

Appendix B “Final Feasibility Report for Sheep Creek water Company Addressing Water Source Capacity Issues”, dated January 14, 2019 prepared by Infrastructure Engineering Corporation

Appendix C Reports of Findings from the Diving Operations Conducted in November 2018, prepared by LiquiVision Technology Diving Services

Appendix D “Financial Planning, Revenue Requirements, Cost of Service, and Rate Setting Analysis”, dated March 8, 2019 prepared by Robert D. Niehaus, Inc.

1.0 Introduction

a. Background

The Sheep Creek Water Company (SCWC) is a private shareholder owned water company which was formed in 1913. The SCWC system is recognized as Water System No. CA3610109 by the State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW). There are a total of 8,000 shares in the company, the shares are held by approximately 1,400 shareholders.

The SCWC supplies water to unincorporated areas of San Bernardino County in Phelan, CA. The service area is approximately 7,000 acres and serves approximately 1,200 connections. In March 2020, the SCWC received a Compliance Order (Order No. 05-13-18R-002A1) Source Capacity Violation, an amendment to the initial Compliance Order received in 2018 from the State Water Resources Control Board (SWRCB), Division of Drinking Water (DDW). Under this order, the state established directives to be met by the SCWC. One of the Directives, Directive 2b, consists of the preparation of an Asset Management Plan (AMP) as part of the requirements that need to be met for the SCWC to comply.

b. Purpose

Asset Management Planning is beneficial to water companies as their implementation can help meet service expectations and regulatory requirements, prolong the life of assets, improve response to emergencies, improve security and safety, and reduce the overall costs for operations and capital expenditures. Infrastructure Engineering Corporation (IEC) has prepared this Asset Management Plan (AMP) for the SCWC Water System. The purpose of the AMP is to provide an initial framework for the SCWC to establish a Capital Improvements Program (CIP) that prioritizes projects for the water system. Some of the goals of the Asset Management Plan are summarized as follows:

1. Create an inventory of all current existing water system facility assets.
2. Identify capital improvement-based projects
3. Provide estimated capital expenditures
4. Provide recommendation of future asset management implementation and funding strategies

c. Approach

In accordance with EPA guidance, AMP addresses five core questions:

1. What is the current state of the system's assets?
2. What is the required "sustainable" level of service?
3. Which assets are critical to sustained performance?
4. What are the minimum life cycle costs?
5. What is the best long-term funding strategy?

There are several ways to address these questions and it can vary from agency to agency, below is a description of how the AMP will address these five questions.

Current State of System's Assets

To answer the first question, IEC has developed an inventory of the existing water system assets. This is based on existing water system records provided by the SCWC as well as the Engineering Report dated May 2019, prepared by the California Rural Water Association (CRWA). Please see **Figure 1** for a map of the existing water system facilities. To prepare the inventory, IEC reviewed the following records provided by the SCWC:

- Pipeline and appurtenances
  - Leak and Main Break Reports
  - Line Flushing logs
  - Logs of Dead Ends
  - New water main installations and costs
  - Water main footage inventories
  - Pipeline markup maps
- Property information
  - Well 11 records
- Tanks/Reservoirs
  - Reservoir inspection reports
- Well and Pumps
  - Well and Pump rehabilitation and completion reports
  - Pump curves
  - Well graphs
- Well production and billing
  - Daily production data
  - Consumption records
  - Operating budgets
  - Billing register data

Some of the data required for the inventory was unavailable, therefore IEC made reasonable assumptions about dates of installation and conditions of the assets based on conversations with the SCWC staff. IEC also reviewed reports and information developed by the California Rural Water Association (CRWA). This includes the Engineering Report prepared in 2019 and inspection reports that were developed as part of the Engineering Report. In general, based on the records reviewed to complete the inventory, most the infrastructure in the system is old. Most of the distribution system was installed in the late 1950's and the tunnel which is one of the water supply sources was constructed around the 1930's. Lists of inventories are provided in **Section 2** of this report.

Required Level of Service

To answer the second question, the AMP will address desired Levels of Service (LOS) for the SCWC's water system assets. According to the EPA, a level of service can be defined as characteristics or attributes of a service that describe required levels of performance. Below is a summary of minimum Level of Service (LOS) standard for the assets in the SCWC water system, these standards are consistent with other public water systems.

Table 1.1 Level of Service Standards

Asset	LOS Standard
Water Supply Sources	System must have adequate source capacity to meet the system's max. day demand (MDD) per California Code of Regulations (CCR) Monitor Water Quality per CCR
Wells and Pumps	Comply with California Drinking Water Regulations: Conduct regular inspections to ensure adequacy of systems
Tanks/Reservoirs	Comply with AWWA Standards and California Drinking Water Regulations: Adequate storage to meet system demands Adequate storage to meet additional system demands during emergencies, for example fires or power outages Conduct regular inspections to ensure adequacy of systems
Distribution System	Comply with materials and installation standards per AWWA and California Drinking Water Regulations: Ensure that there is redundancy within system Minimize number of inconvenienced customers when doing repairs Repair fire hydrants as required Add blow off for flushing at all dead ends per California Drinking Water Regulations

IEC developed a LOS rating scale, see **Table 1.2** below. The LOS rating is based on assets meeting the minimum levels of service as described above.

Table 1.2 Level of Service Rating

Level of Service Rating	Description
1	Exceeds all LOS Requirements
2	Exceeds some LOS Requirements
3	Meets all LOS Requirements
4	Fails some LOS Requirements
5	Fails all LOS Requirements

Identifying Critical Assets

A critical asset is that which has the highest consequences if they fail. IEC developed a Likelihood of Failure (LoF) scale dependent of the percentage of useful life consumed for each asset. This scale will range from 1 to 4, 1 representing the highest likelihood of failure and 4 representing the lowest probability of failure. Refer to **Table 1.3** for the Likelihood of Failure (LoF) Ratings .

Table 1.3 Likelihood of Failure as related to Percentage of Life Consumed

Likelihood of Failure (LoF) Rating	Percentage of Useful Life Consumed (%)[1]
1	0 to 25
2	25 to 50
3	50 to 75
4	75 to 100

[1] Where: Percentage of useful life consumed = age/adjusted useful life

Consequence of Failure (CoF) can be defined as the significance of impacts to customers, property, safety, and health. In this case, CoF can be measure by how failures in the water system affect the SCWC customers. IEC prepared a CoF scale, please refer to **Table 1.4** . The consequence of failure (CoF) rating scale will range from 1 to 3, with 1 representing low impacts and representing severe impacts.

Table 1.4 Consequence of Failure as related to Impacts

Consequence of Failure (CoF) Rating	Impacts	Impacts to SCWC Customers
1	Low Impacts	Water shutdowns lasting 2 hrs. or less
2	High Impacts	Water Shutdowns lasting 2 to 12 hrs.
3	Severe Impacts	Water shutdowns lasting 12 to 24 hrs. or more and Property Damage

To prioritize assets for inclusion as Capital Improvements Projects, IEC will consider a total score based on the LoF and CoF ratings as well as the LoS rating. Highest priority will be given to assets with a total score of 12. Lower priority will be given to assets will a rating of less than 12. The lowest priority will be given to assets with a rating of 3.

Minimum Life Cycle Costs and Long-Term Funding Strategies

The final part of this report will address the capital improvements plan and minimum life cycle costs as well as long-term funding strategies. IEC will calculate life cycle costs for the water system assets. Cost estimates are based on fiscal year budgets and operating revenue. IEC will calculate replacement cost of assets and recommend funding strategies.

2.0 Existing System Description

Water Supply Sources

The SCWC's sources of water are groundwater from the El Mirage Basin in the Swarthout Canyon of the San Gabriel Mountains and most recently groundwater from the Mojave Basin, Alto subarea. The SCWC has seven water supply facilities, this includes six wells and a tunnel, see **Table 2.1** for an inventory of the existing water supply sources and **Figure 1** for a map of the existing system.

In 2019, Infrastructure Engineering Corporation (IEC) prepared a Feasibility Report to address source capacity issues, refer to **Appendix B**. IEC conducted a water supply and demand analysis to determine if the SCWC would be able to meet customer demand with its existing and potential supply sources. IEC ran near- and long-term scenarios and concluded that based on existing conditions, and even with the addition of Well 11, the SCWC would not be able to meet demand in regulatory requirements unless it added additional water supply sources. Based on operational capacities determined by water production data, the SCWC water supply wells produce 1.09 MGD of water, see **Table 2.1** below, which is approximately half of the required 1.97 MGD for maximum day demand (MDD).

Table 2.1 Water Supply Source Inventory

Asset	Year of Installation	Depth	Rated Capacity (MGD)[1]	Operational Capacity (MGD)[1]	Expected Useful Life (yrs.)	Condition	Service History	Adjusted Useful Life (yrs.)	Age (yrs.)	Remaining Useful Life (yrs.)
Tunnel	1920	242'		0.18	100	Good	N/A	100	100	
Well 2A	2011	725'	0.58	0.04	25 to 35	Good	Casing Inspected in 2014 Casing rehab in 2017	35	9	26
Well 5	1993	495'	0.78	0.18	25 to 35	Good	Casing Repairs 2014	35	27	8

[1] Source: Final Feasibility Report

Asset	Year of Installation	Depth	Rated Capacity (MGD)[1]	Operational Capacity (MGD) [1]	Expected Useful Life (yrs.)	Condition	Service History	Adjusted Useful Life (yrs.)	Age (yrs.)	Remaining Useful Life (yrs.)
Well 3A	2001	500'	0.58	0.04	25 to 35	Good	Casing Inspection and Rehabilitation in 2019	35	19	16
Well 4A	2004	500'	1.15	0.09	25 to 35	Fair	Inspected in 2018	35	16	19
Well 8	2005	480'	0.75	0.2	25 to 35	Good	N/A	35	15	20
Well 11	2018	1500'	0.4	0.36	25 to 35	New	N/A	35	2	33
		Total	**4.24**	**1.09**						

Wells 3A and 4A were inspected by BESST Inc. Global Subsurface Technologies in 2019 as part of the Engineering Report by the CRWA. Although it was not possible to perform in depth inspections, both wells were recommended for rehabilitation because of deficiencies in the casing, **see Appendix A**.

Based on estimates by the EPA, most ground water supply wells have an expected useful life ranging from 25 to 35 years. Since the current water source supplies do not produce enough water to meet demand, the SCWC will need to add additional supply sources. Based on the feasibility report, the SCWC would need to drill at least four additional wells to meet required demand.

Well Pumps

Based on the records reviewed, most of the well pumps were installed in the last 30 years. **Table 2.2** provides an inventory of the existing water well pumps at the six well sites. Most water well pumping equipment has an expected useful life ranging from 10 to 15 years based on estimates by the EPA.

Table 2.2 Well Pumps Inventory

Asset	Year of installation	Depth	Expected Useful Life (yrs.)	Condition	Service History	Adjusted Useful Life (yrs.)	Age (yrs.)	Remaining Useful Life (yrs.)
Well 2A Pump	2011	505'	10 to 15	Good	Replaced in 2014 Rehab in 2017 Replaced in 2018	15	2	13
Well 5 Pump	1993	420'	10 to 15	Good	Replaced in 2014	15	6	9
Well 3A Pump	2001	460'	10 to 15	Good	Rehab in 2019	15	1	14

Asset	Year of installation	Depth	Expected Useful Life (yrs.)	Condition	Service History	Adjusted Useful Life (yrs.)	Age (yrs.)	Remaining Useful Life (yrs.)
Well 4A Pump	2004	440'	10 to 15	Unknown	N/A	15	16	0
Well 8 Pump	2005	440'	10 to 15	Unknown	N/A	15	15	0
Well 11 Pump	2018	1,100'	10 to 15	New	N/A	15	1	14

Wells 2A, 5, and 3A have been rehabilitated in recent years, based on these rehabilitation efforts it is assumed that these wells are in good condition. Well 5 was installed in 1993 and was rehabilitated in 2014. The pump at this well site was replaced and the casing received repairs and maintenance. The pump at the Well 2A site was replaced in 2014 and in 2017 it received repairs and maintenance. Well 3A was inspected in 2019 and after inspection the pump received repairs and maintenance. The pump at Well 11 is the newest pump and currently has no issues.

Tanks/Reservoirs

The SCWC currently owns seven storage tanks. All tanks are above ground and most of them were installed in late 1970's and early 1980's. There are currently five bolted steel tanks and two welded steel tanks.

The seven tanks are located at various sites and different elevations throughout the system, see **Figure 1**. Water is pumped directly from the wells into Tank 7. Tank 5 feeds from Tank 7, but it can also feed from water pumped directly from the wells through a bypass line. From this point, water flows through gravity to the rest of the system.

Table 2.3 provides an inventory of existing tanks. Based on manufacturer's data and estimates by the EPA, the expected useful life for storage tanks is between 30 to 60 years depending on maintenance. The useful life of tanks can be extended if tanks are correctly and routinely maintained. Based the installation year of each tank, it is assumed that most of the tanks are in fair condition. Tank 8, which was installed in 2008 is in good condition.

Table 2.3 Tanks/Reservoirs Inventory

Asset	Type	Year of Installation	Capacity (Gal)	Diameter	HWL	Expected Useful Life (yrs.)	Condition	Service History	Adjusted Useful Life (yrs.)	Age (yrs.)	Remaining Useful Life (yrs.)
Tank 2	Bolted Steel	1979	428,000	55'	23'	30-60	Fair	Inspected in 2018	50	41	9
Tank 3	Bolted Steel	1983	210,000	47'-3"	15'-6"	30-60	Fair	Inspected in 2018	50	37	13
Tank 4	Bolted Steel	1984	428,000	55'	23'	30-60	Fair	Inspected in 2018	50	36	14
Tank 5	Bolted Steel	1985	141,000	38'-7"	15'	30-60	Fair	Inspected in 2018	50	35	15
Tank 6	Bolted Steel	1989	912,000	80'-2"	23'-2"	30-60	Fair	Inspected in 2018	50	31	19
Tank 7	Welded Steel	1993	1,000,000	103'	15'-1"	30-60	Fair	Inspected in 2018	50	27	23
Tank 8	Welded Steel	2008	3,040,408	150'	23'	30-60	Good	Inspected in 2018	60	12	48

Tanks 2 through 8 were visually inspected by Associated Construction and Engineering in October 2018 as part of the condition assessment efforts by the California Rural Water Association (CRWA), refer to **Appendix A**. The purpose of this inspection was to determine if there were any coating issues. Based on this inspection, Associated Construction Engineering recommended relining the interior of Tanks 2, 3, 5 and 6, the exterior of these tanks is in fair condition based on their observations. Their report also recommended relining the interior and recoating the exterior of Tank 7. The exterior and interior coatings of Tank 8 were found to be in excellent condition and only had recommendations for spot repairs. Based on this inspection report, it was recommended that the SCWC perform visual inspections at least once every year.

In November 2018, LiquiVision Technology Diving Services performed underwater inspections on Tanks 2 through 7, see **Appendix C** . During these inspections it was discovered that all the tanks inspected have some deficiencies, including signs of corrosion and rust. The reports included recommendations for maintenance and improvements needed at each tank. LiquiVision Technology Diving Services recommended that all tanks be inspected every 2 – 3 years. Based on the underwater inspections, only Tanks 5 and 6 were recommended for interior relining.

Based on the conditions of the tanks and the inspections, the useful life for tanks 2 thru 7 was adjusted to 50 years, according to the SCWC staff none of thanks have been relined or recoated since they were installed. The remaining useful life of the tanks can be extended by conducting regular inspections and periodic recoating and relining of the tanks. The American water Works Association (AWWA) recommends steel tanks to be inspected every 3 to 5 years. Steel tanks typically require recoating and interion relining (for non-glass line tanks) every 15 years.

Distribution System

The SCWC water distribution system consists of approximately 73 miles of pipelines. Appurtenances include pressure regulating valves and isolation valves, there are approximately 240 dead end and in-line fire hydrants/blow offs, and approximately 1,200 service connections in the system. Refer to **Figure 1** for a map of the existing system and service area.

Table 2.4 provides an inventory of the existing pipelines, including materials, sizes, and quantity. The inventory also includes approximate year of installation, expected useful life, condition, service history, adjusted useful life, age, and remaining useful life.

Table 2.4 Pipelines Inventory

Material	Size	Year of Installation*	Total Length (LF)	Expected Useful Life	Condition	Service History	Adjusted Useful Life (yrs.)	Age (yrs.)	Remaining Useful Life (yrs.)
AC Pipe	4"	1965	4235	50-100yrs	Unknown	Repairs due to being hit and cracks in mains (2000 - 2020)	80	55	25
AC Pipe	6"	1965	5280	50-100 yrs	Unknown	Repairs due to being hit and cracks in mains (2000 - 2020)	80	55	25
AC Pipe	10"	1965	9643	50-100yrs	Unknown	Repairs due to being hit and cracks in mains (2000 - 2020)	80	55	25
PVC C900 Pipe	4"	1975	77	60-100 yrs	Unknown	Repairs due to breaks and holes in mains (2000 - 2020)	100	45	55
PVC C900 Pipe	6"	1985	31135	60-100 yrs	Unknown	Repairs due to breaks and holes in mains (2000 - 2020)	100	35	65
PVC C900 Pipe	8"	1985	96317	60-100 yrs	Unknown	Repairs due to breaks and holes in mains (2000 - 2020)	100	35	65
PVC C900 Pipe	10"	2000	4589	60-100 yrs	Unknown	Repairs due to breaks and holes in mains (2000 - 2020)	100	20	80
PVC C900 Pipe	12"	1996	7226	60-100 yrs	Unknown	Repairs due to breaks and holes in mains (2000 - 2020)	100	24	76
PVC Pipe SCH 40	4"	1975	67423	60-100 yrs	Unknown	Repairs due to breaks and holes in mains (2000 - 2020)	100	45	55
PVC Pipe SCH 40	6"	1975	42199	60-100 yrs	Unknown	Repairs due to breaks and holes in mains (2000 - 2020)	100	45	55
PVC Pipe SCH 40	10"	1978	8368	60-100 yrs	Unknown	Repairs due to breaks and holes in mains (2000 - 2020)	100	42	58
Steel Pipe	4"	1956	60793	35-40yrs	Poor	Repairs due to breaks and pin holes in mains (2000 - 2020)	35	64	0
Steel Pipe	6"	1956	27717	35-40yrs	Poor	Repairs due to breaks and pin holes in mains (2000 - 2020)	35	64	0
Steel Pipe	8"	1956	8050	35-40yrs	Poor	Repairs due to breaks and pin holes in mains (2000 - 2020)	35	64	0
Steel Pipe	10"	1956	6065	35-40yrs	Poor	Repairs due to breaks and pin holes in mains (2000 - 2020)	35	64	0
Steel Pipe	12"	1956	2555	35-40yrs	Poor	Repairs due to breaks and pin holes in mains (2000 - 2020)	35	64	0
Galvanized Pipe	1 1/4"	1956	330	35-40yrs	Poor	Repairs due to breaks and holes in mains (2000 - 2020)	35	64	0
Galvanized Pipe	1 1/2"	1956	700	35-40yrs	Poor	Repairs due to breaks and holes in mains (2000 - 2020)	35	64	0
Galvanized Pipe	2"	1956	275	35-40yrs	Poor	Repairs due to breaks and holes in mains (2000 - 2020)	35	64	0
Concrete Pipe	14"	1930	2730	100	Good	Inspected in 2000	100	90	10
HDPE	10"	2005	350	35-50yrs	Unknown	N/A	50	15	35
HDPE	12"	2005	828	35-50yrs	Unknown	N/A	50	15	35

*Pipelines which have been installed recently and are identified by year of installation in Figure 1 are not included for replacement.

The specific date of installation of pipelines in most of the system is unknown. Based on information available to us about the formation of SCWC, it is assumed that most of the distribution system was installed in the 1950's and the system has had only a few replacements and new installations in the last 20 years. Replacements in the system have been done by the SCWC as well as developers and customers. There have been new installations of pipelines in the system, these installations were done by the SCWC, Caltrans, or customers and developers. Below is a table with a total linear footage of new and replaced pipelines in the last 20 years. Most of the new installation and replacements are PVC C900 with some HDPE and include the installation of new hydrants and valves as needed.

Table 2.5 Pipeline Replacements and New Installations

Type	Total Length (LF)
SCWC Replacement	13,260
Customer or Developer Replacement	4,070
Total	17,330
SCWC New Installation	7,652
Cal-Trans New Installation	1,350
Customer or Developer New Installation	29,245
Total	38,247

The exact conditions of the pipelines are unknown but based on the material types and year of installation it can be assumed that some of the pipelines are in poor condition and need to be replaced. Based on leak and break data recorded by the SCWC staff, in the last three years and part of 2020, the three materials which have had the most breaks/failures are steel pipe, PVC pipe and AC pipe. **Table 2.6** summarizes the total number of breaks/repairs per material from 2017 to 2020. From 2017 to 2020, steel pipe has had a total of 32 of breaks/repairs, followed by PVC Pipe with a total 20 and AC Pipe with one, refer to **Table 2.6**

Table 2.6 Breaks/Repairs from 2017 to 2020

Description	2017 Breaks/Repairs	2018 Breaks/Repairs	2019 Breaks/Repairs	2020 Breaks/Repairs	Total
Steel Pipe	5	9	13	5	32
PVC Pipe	5	9	4	2	20
AC Pipe	0	1	0	0	1

Flushing has not been done regularly in the last ten years, regularly flushing dead ends helps with water quality issues and build up in pipes. There are also approximately 27 dead end locations within the system which currently have no way to flush water. Most of the SCWC distribution system is looped, but there are dead ends in the system could cause issues with water quality, redundancy, and pressure. Based on AWWA standards, the benefits of having a looped distribution system include improved water quality, redundancy, and reliability, as well as improved pressure within the system.

There are approximately 80 dead end hydrants/blow offs, and most of them were installed approximately ten years ago. The expected useful life for blow offs is 35 to 40 yrs., based on estimates by the EPA. Since the blow offs were installed more recently it is assumed that they are in good condition and have approximately 30 years of remaining useful life.

There are also approximately 375 in-line fire hydrants in the SCWC system. Approximately 284 of the hydrants are three-way dry barrel and were installed in the 1980's. The rest of the hydrants are standpipe/jones head and were installed between the 1950's and early 1980's. . The expected useful life of fire hydrants is between 40 to 60 years based on manufacturer data and estimates by the EPA. The exact condition of the fire hydrants is not known, in 2018 the Rural Water Association conducted a leak detection survey which detected leaks at two hydrant locations. Based on the year of installation, the in-line hydrants are approximately 50 to 70years old and some are past their useful life.

The SCWC system has approximately 1200 service connections. The exact year of installation is unknown, but it is assumed that most of the service meters were installed in the 1970's and there have been only a few replacements. These meters are manually read, the SCWC currently does not have an automated system to read the meters.

The SCWC has recorded water losses based on water production and consumption. From 2015 to 2019, the average water loss per year was 15%. The EPA considers 10 to 15% as an acceptable range for water losses within a system, but it is important to implement better technologies such as AMR to control and prevent leaks.

Table 2.7 Inventory of Meter and Appurtenances

Description	Qty	Year of Installation
In-line Fire Hydrants	155	1950
Hydrants/Blowoffs	80	2010
Meters	1,200	1970

3.0 Prioritizing Critical Assets

Water Supply Sources:

Currently, the most critical asset to the SCWC System is its water supply sources. The SCWC will need to add four additional water supply wells to meet demand and regulatory requirements established by the State Water Resources Control Board (SWRCB), Division of Drinking Water (DDW). Adding four new water supply wells to the system is the highest priority.

Wells Pumps:

Below is a table of prioritization for the existing well pumps, see **Table 3.1**. The prioritization is based on a score from 3 to 12, with 3 being low priority and 12 being highest priority. For the methodology behind the ratings and the score refer to **Section 1** of this report.

Table 3.1 Well Pumps Prioritization

Asset	Percentage of Useful Life Consumed	LOS Rating	LoF Rating	CoF Rating	Score
Well 2A Pump	13%	4	1	1	6
Well 5 Pump	40%	4	2	2	8
Well 3A Pump	7%	4	1	1	6
Well 4A Pump	100%	4	4	1	9
Well 8 Pump	100%	4	4	2	10
Well 11 Pump	7%	1	1	3	5

Based on the score, well 8 pump has the highest priority in this category, this pump is past its expected useful life. Well 8 pump currently has one of the highest operational capacities, refer to **Section 2** for the inventory and capacities. Following order of priority well 4A pump is next, this pump is also past it's expected useful life. The rest of the pumps received lower scores and based on remaining useful life can be phased for improvements after the pumps at well 8 and 4A.

Tanks/Reservoirs

The table show the prioritization of the existing reservoirs, the prioritization score is based on the score provided, see Table **3.2**. A high score means a higher priority, for the methodology behind the ratings shows in the table and the score, refer to **Section 1** of this report.

Table 3.2 Tanks/Reservoirs Prioritization

Asset	Percentage of Useful Life Consumed	LOS Rating	LoF Rating	CoF Rating	Score
Tank 2	82%	4	4	1	9
Tank 3	74%	4	3	2	9
Tank 4	72%	4	3	1	8
Tank 5	70%	4	3	3	10
Tank 6	62%	4	3	2	9
Tank 7	54%	4	3	3	10
Tank 8	20%	3	1	1	5

Tanks 5 and 7 have the highest priority in this category, followed by tanks 2, 3, 6, and 4. Tank 8 is the newest tank and therefore has the lowest priority. As mentioned in **Section 2**, based on the inspections conducted in 2018, all tanks need maintenance. Maintaining the tanks can extend their useful life. Tanks need to be regularly maintained and inspected for sanitary and structural integrity. Based on AWWA M42, tanks should be inspected at least once every 3 to 5 years or as required by state and regulatory agencies and consideration for recoating and relining every 15 years.

Distribution System

The table below provides a summary of the prioritization of the pipelines in the distribution system, see **Table 3.3**.

Table 3.3 Pipelines Prioritization

Material	Size	Percentage of Life Consumed	LOS Rating	LoF Rating	CoF Rating	Score
AC Pipe	4"	69%	4	3	1	8
AC Pipe	6"	69%	4	3	1	8

Material	Size	Percentage of Life Consumed	LOS Rating	LoF Rating	CoF Rating	Score
AC Pipe	10"	69%	4	3	1	8
PVC C900 Pipe	4"	45%	3	2	1	6
PVC C900 Pipe	6"	35%	3	2	1	6
PVC C900 Pipe	8"	35%	3	2	2	7
PVC C900 Pipe	10"	20%	3	1	1	5
PVC C900 Pipe	12"	24%	3	1	2	6
PVC Pipe SCH 40	4"	45%	3	2	2	7
PVC Pipe SCH 40	6"	45%	3	2	1	6
PVC Pipe SCH 40	10"	42%	3	2	2	7
Steel Pipe	4"	100%	4	4	2	10
Steel Pipe	6"	100%	4	4	2	10
Steel Pipe	8"	100%	4	4	2	10
Steel Pipe	10"	100%	4	4	2	10
Steel Pipe	12"	100%	4	4	2	10
Galvanized Pipe	1 1/4"	100%	4	4	1	9
Galvanized Pipe	1 1/2"	100%	4	4	1	9
Galvanized Pipe	2"	100%	4	4	1	9
Concrete Pipe	14"	90%	4	4	3	11
HDPE	10"	30%	3	2	1	6
HDPE	12"	30%	3	2	1	6

Steel pipe has the highest priority in this category. Steel pipe has required more repairs in the last three years than most of the other pipes in the system. Steel pipe is prone to corrosion; corrosion can occur due to poor maintenance or naturally over time. Based on existing data, steel pipe makes up approximately 27% of the SCWC distribution system, which is another reason why steel pipe should have a higher priority for replacement due to its widespread presence in the system.

Based on the score for prioritization of assets, Concrete pipe has the highest score, but it will not be considered for replacement at this time. Based on information provided by the SCWC, the existing segment of concrete pipe in the system was inspected in the early 2000's and was found to be in good condition. According to the year of installation, the 14-inch pipeline is approximately 90 years old and it is recommended that the SCWC conduct another inspection to ensure that the pipeline remains in good condition. Galvanized pipe is used in service connections, therefore the cost for replacement is included in the water service reconnections.

Based on the prioritization of the assets, the next section of this report will describe the capital improvements projects for the SCWC. The SCWC's current budget for capital improvements projects is very limited. This means that they will have to phase the CIP projects and consider additional funding sources.

4.0 Summary of Capital Expenditures

Based on the prioritization from Section 3, the projects with the highest priority under each category are described in this section along with a planning level cost estimate. **Table 4.1** provides a list of the projects with a total cost a per project and a cost per fiscal year. The SCWC's fiscal year starts in January and ends in December.

Table 4.1 CIP Costs per Fiscal Year

Category	Project	Project Cost	Cost Per Year																			
			FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	FY 2037	FY 2038	FY 2039	FY 2040
Water Supply	New Well No 12	$ 1,387,400	$ 693,700	$ 693,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	New Well No 13	$ 1,387,400	$ 693,700	$ 693,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	New Well No 14	$ 1,387,400	-	-	$ 1,387,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	New Well No 15[1]	$ 1,387,400	-	-	-	$ 1,387,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wells & Pumps	Rehab Well 8	$ 84,500	-	-	-	-	$ 84,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rehab Well 4A	$ 84,500	-	-	-	-	$ 84,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Storage	Rehab tank 5	$ 112,613	-	-	-	-	$ 112,613	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rehab Tank 7	$ 600,600	-	-	-	-	-	$ 600,600	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rehab tank 2	$ 300,300	-	-	-	-	-	-	$ 300,300	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rehab Tank 3	$ 150,150	-	-	-	-	-	-	-	$ 150,150	-	-	-	-	-	-	-	-	-	-	-	-
	Rehabd Tank 6	$ 525,525				-	-	-	-	-	$ 525,525	-	-	-	-	-	-	-	-	-	-	-
	Rehab Tank 4	$ 300,300	-	-	-	-	-	-	-	-	-	$ 300,300	-	-	-	-	-	-	-	-	-	-
Distribution System[2]	Replace Steel Pipe	$ 3,526,750	-	-	-	-	-	-	$ 251,911	$ 251,911	$ 251,911	$ 251,911	$ 251,911	$ 251,911	$ 251,911	$ 251,911	$ 251,911	$ 251,911	$ 251,911	$ 251,911	$ 251,911	$ 251,911
	Water Service Reconnections and AMR System conversion	$ 358,800	-	-	-	-	-	-	$ 25,629	$ 25,629	$ 25,629	$ 25,629	$ 25,629	$ 25,629	$ 25,629	$ 25,629	$ 25,629	$ 25,629	$ 25,629	$ 25,629	$ 25,629	$ 25,629
		Total	**$ 1,387,400**	**$ 1,387,400**	**$ 1,387,400**	**$ 1,387,400**	**$ 281,613**	**$ 600,600**	**$ 577,839**	**$ 427,689**	**$ 803,064**	**$ 577,839**	**$ 277,539**	**$ 277,539**	**$ 277,539**	**$ 277,539**	**$ 277,539**	**$ 277,539**	**$ 277,539**	**$ 277,539**	**$ 277,539**	**$ 277,539**

[1] SCWC will need to request and extension from the DDW due to budget shortfalls

[2] Environmental related costs not included, cost will be applied at a programmatic level

Install 4 New Water Supply Wells

This project includes the installation of four new wells required to meet demand per regulatory requirements. For a breakdown of the planning level Capital Cost Estimate, see **Table 4.2** below. Per the DDW compliance order, the SCWC should have constructed the first well by June 2022, the second well by November 2022, the third well by June 2023 and the fourth well by November 2023. The total estimated planning level cost for the construction of the four wells is approximately $5,420,000.

Table 4.2 Planning Level Cost Estimate for the installation of Four New Wells

Construction Costs				
	Unit	Quantity	Cost/unit	Subtotal
Drill 1,500 foot 16" Well	EA	4	$ 500,000	$ 2,000,000
150 HP Submersible Motor & Pump 1	EA	4	$ 125,480	$ 501,900
Electrical and Instrumentation 1	LS	4	$ 94,535	$ 378,100
Well Head and Site Work 1	LS	4	$ 44,839	$ 179,400
Well Offsite Piping	LS	4	$ 150,000	$ 600,000
			Subtotal	$ 3,659,400
			30% Contingency[1]	$ 1,097,800
			Construction Costs	**$ 4,757,200**
				Additional Services
Administration, Engineering, CM (10%)				$ 475,700
CEQA (Combine Projects)				$ 113,200
Property Acquisition for Four Well Site Locations				$ 70,000
			Additional Services	**$ 658,900**
Total Estimated Planning Level Cost				***$ 5,420,000***
Annual Operation and Maintenance Cost[2]				***$ 129,600***

[1] Advancement for Cost Engineering International, Class 4, Study or Feasibility

[2] See Appendix D

Rehabilitate Wells

This project includes the rehabilitation of wells 4A and 8. The total estimated planning level cost for the rehabilitation of the two wells is approximately $169,000. The estimated cost to rehabilitate the wells includes repairs to casing and replacement of the existing pumps.

Table 4.3 Planning Level Cost Estimate for the Rehabilitation of Wells 2A and 8

Construction Costs						
	Unit	Quantity		Cost/unit		Subtotal
Well 2A Rehabilitation	LS	1	$	65,000	$	65,000
Well 8 Rehabilitation	LS	1	$	65,000	$	65,000
				Subtotal	$	130,000
				30% Contingency[1]	$	39,000
				Construction Costs	**$**	**169,000**
Total Estimated Planning Level Cost					***$***	***169,000***
Annual Operation and Maintenance Cost[2]					***$***	***38,410***

[1] *Advancement for Cost Engineering International, Class 4, Study or Feasibility*

[2] *See Appendix D*

Rehabilitate Tanks

This project includes the rehabilitation of Tanks 2 through 7. The rehabilitation includes recoating and relining the tanks. The total estimated planning level cost for the rehabilitation of the tanks is approximately $1,990,000.

Table 4.4 Planning Level Cost Estimate for the Rehabilitation of Tanks

Construction Costs				
	Unit	Quantity	Cost/unit	Subtotal
Tank 2 Rehabilitation	LS	1	$ 231,000	$ 231,000
Tank 3 Rehabilitation	LS	1	$ 115,500	$ 115,500
Tank 4 Rehabilitation	LS	1	$ 231,000	$ 231,000
Tank 5 Rehabilitation	LS	1	$ 86,625	$ 86,625
Tank 6 Rehabilitation	LS	1	$ 404,250	$ 404,250
Tank 7 Rehabilitation	LS	1	$ 462,000	$ 462,000
			Subtotal	$ 1,530,400
			30% Contingency[1]	$ 459,100
			Construction Costs	**$ 1,989,500**
Total Estimated Planning Level Cost				***$ 1,990,000***
Annual Operation and Maintenance Cost[2]				***$ 22,845***

[1] Advancement for Cost Engineering International, Class 4, Study or Feasibility

[2] See Appendix D

Pipeline Replacements

This project includes the replacement of pipelines in the distribution system, including appurtenances. Most of the labor under this category can be done by the SCWC crews, the SCWC has used their own crews to make new installations and replacements in their system. Having the SCWC replace their own pipelines is the least expensive option, the cost of installation per linear foot is based on data from past projects. The total planning level cost estimate is approximately $3,920,000.

Table 4.5 Planning Level Cost Estimate for the Replacement of Pipelines

Construction Costs						
	Unit	Quantity		Cost/unit		Subtotal
Replace 4-inch steel pipe	LF	60793	$	25	$	1,519,825
Replace 6-inch steel pipe	LF	27717	$	25	$	692,925
Replace 8-inch steel pipe	LF	8050	$	30	$	241,500
Replace 10-inch steel pipe	LF	6065	$	30	$	181,950
Replace 12-inch steel pipe	LF	2555	$	30	$	76,650
Convert to AMR System	EA	1200	$	130	$	156,000
Water Service Reconnections	EA	1200	$	100	$	120,000
				Subtotal	$	2,988,900
				30% Contingency[1]	$	896,700
				Construction Costs	**$**	**3,885,600**
Additional Services						
Environmental Services					$	30,000
				Additional Services	**$**	**30,000**
Total Estimated Planning Level Cost					***$***	***3,920,000***
Annual Operation and Maintenance Cost[2]					***$***	***120,900***

[1] *Advancement for Cost Engineering International, Class 4, Study or Feasibility*

[2] *See Appendix D*

5.0 Conclusion and Recommendations

Based on the SCWC's limited availability of budget for capital improvements, the best option is to start with the installation of the required water supply wells for the first 4 to 5 years. The AMP should be updated at least every 5 years and the projects will need to be reprioritized as needed. The EPA also recommends creating and Asset Management Steering Committee within agencies to review and update the AMP periodically. One of the benefits of having an AMP plan is cost savings over time if the plan is tracked and updated periodically.

FIGURE 1

1401 Commercial Way, Suite 100
Bakersfield, California 93309
T 661.529.2190
www.iecorporation.com

SHEEP CREEK WATER COMPANY (SCWC)

SCWC WATER SYSTEM MAP

FIGURE 1