

Town of Ashland, Massachusetts



Department of Public Works

Doug Small, DPW Director, Ext. 7941

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Ashland Water Policy Committee

January 12th, 2017, 6:30 PM

Room A – Basement Floor

Attendees

- Wayne Bates - WPC Chair
 - Dan Roman - WPC
 - Cathy Rooney - WPC
 - Jeff Lemay - WPC
 - Rajitha Purimetla - DPW
1. Call to order, 6:43pm
 - a. Meeting minutes approval from November 1, 2016
 - i. Motion by to approve as printed, second by CR, 4-0
 2. Position nominations
 - a. Current positions - Wayne as chair, Jeff as secretary
 - b. Dan moving in March - will be stepping down from WPC
 - i. Need to find two more members
 - c. Tabling discussion for further consideration
 3. Goals for 2017
 - a. Reviewing IMA w/ Hopkinton for conservation opportunities
 - b. Public education and outreach regarding conservation
 - i. Irrigation contractor seminar/demo, possibly in march
 - ii. Website updates and refinement
 - c. Review of previous policy changes and implementation tracking
 - d. Propose water policy changes as necessary for Fall Town Meeting
 - e. Motion by WB to approve 2017 goals, second by CR, 4-0

4. Draft report on emergency connection
 - a. Wordsmithing
 - b. Discussion of graphics and tables
 - c. Review next draft at next meeting
5. Current IMA discussion
 - a. Completed as part of "Goals for 2017"
6. Motion to adjourn at 8:50



Town of Ashland, Massachusetts

*Department of Public Works
20 Ponderosa Road, 01721-1191*

Doug Small, DPW Director, 508-532-7941

Roy M. Correia, W/S General Foreman, 508-532-7964

Rajitha Purimetla, Engineer, 508-532-7961

The summer of 2016 was one of the driest seasons. The season ended in a drought for the town of Ashland. Town of Ashland relies on one source of water, the 'Hopkinton Reservoir' for domestic, irrigation and fire safety needs. Almost 95% of the Town has municipally connected water and /or irrigation. The Water department strictly enforces conservation measures per the Town by-law / ordinance. This year was no exception, we went on Stage 1 on July 25th and Stage 2 soon after that on August 2nd. The reservoir levels kept dropping and we approached Massachusetts Department of Environmental Protection for an approval to obtain an Emergency connection via the town of Southborough (August 9th – Reservoir level (294.94)).

Mass DEP reviewed our application and understood we were a community that adheres to conservation measures and had no other alternative water source. They declared a State of Water Supply Emergency (UAO-NE-16-F002) on August 22nd, 2016 (Reservoir level - 294.54).

Town of Southborough, Board of Selectmen was notified and requested that Town of Ashland be approved an Emergency water connection. This request was approved on September 21st, 2016(Reservoir level -294.43).

MWRA Request for approval: September 9th –Committee meeting, September 14th Board meeting and the final Advisory Board meeting on September 15th (Reservoir Level - 293.36) were all attended and Ashland requested that an Emergency connection be approved for the 4th time. MWRA approved the Emergency connection after clarifying that the water withdrawals will cost us per the tiered rates. MWRA approved the request based on the facts that:

- Mass DEP declared a state of water emergency for the town of Ashland and the state wide drought Emergency.
- Ashland was working towards a permanent solution for water shortages that have occurred consistently in the past decade. Town of Ashland has worked towards analyzing alternate water sources and the regulatory process from various state agencies to obtain a supplemental connection.

Here is some relevant data during the Emergency water connection:
a. The reservoir level during the months of September and October 2016.

Date	Reservoir Level	Rainfall in inches	Date	Reservoir Level	Rainfall in inches
9/1/16	293.97	0.01	10/1/16	292.85	0.61
9/2/16	293.97	0.02	10/2/16	292.84	0.76
9/3/16	293.88		10/3/16	292.84	0.02
9/4/16	293.81		10/4/16	292.83	0.02
9/5/16	293.77		10/5/16	292.81	
9/6/16	293.67	0.25	10/6/16	292.78	
9/7/16	293.68		10/7/16	292.75	
9/8/16	293.65	0.07	10/8/16	292.69	
9/9/16	293.64	0.02	10/9/16	292.68	0.31
9/10/16	293.6		10/10/16	292.76	1.4
9/11/16	293.51	0.04	10/11/16	292.74	0.02
9/12/16	293.5	0.09	10/12/16	292.74	
9/13/16	293.47		10/13/16	292.72	0.01
9/14/16	293.38		10/14/16	292.71	
9/15/16	293.36		10/15/16	292.65	
9/16/16	293.33		10/16/16	292.64	
9/17/16	293.27		10/17/16	292.63	
9/18/16	293.24		10/18/16	292.60	0.12
9/19/16	293.16	0.01	10/19/16	292.58	
9/20/16	293.20	0.32	10/20/16	292.53	
9/21/16	293.17		10/21/16	292.54	0.1
9/22/16	293.12		10/22/16	292.78	2.69
9/23/16	293.11		10/23/16	292.95	0.14
9/24/16	293.10	0.13	10/24/16	292.97	
9/25/16	293.05		10/25/16	293.00	
9/26/16	292.95		10/26/16	292.98	
9/27/16	292.91		10/27/16	293.00	
9/28/16	292.92	0.22	10/28/16	293.09	1.11
9/29/16	292.87		10/29/16	293.16	
9/30/16	292.81		10/30/16	293.18	0.02
			10/31/16	293.21	0.24

b. System pressure at the time of withdrawal. (Note that the Hours are Cumulative hours)

MONTH: Sept 2016

RUSSET HILL RD. WATER BOOSTER STATION

Day Time	PUMP 1		PUMP 2		PUMP 3		PUMP 4		PUMP 5		PUMP 6		System	Suction
	Hours	Press.	Hours	Press.	Hours	Press.	Hours	Press.	Hours	Press.	Hours	Press.		
1	23774.1	30	29350.1	85	06392	95	057228	30	032259	30	031621	30	65	30
2	23794.23	30	29348.0	100	064057	38	057462	40	032259	34	031621	40	65	35
3														
4														
5														
6	23825.14	32	29353.54	98	06423.4	34	5764.4	36	3225.9	30	3162.1	30	66	32
7	23828.81	32	29372.70	32	6428.9	90	5767.9	90	3225.9	32	3162.1	36	60	32
8	23839.46	30	29377.72	98	6433.5	34	5775.2	36	3225.9	36	3162.1	34	66	32
9	23843.10	104	29376.29	42	6436.1	42	5777.9	44	3225.9	42	3162.1	42	64	42
10	23873.6	98	29445.36	30	06455.3	30	05873	40	032259	30	031621	30	60	30
11														
12														
13														
14	23880.0	30	29487.19	100	06463	35	05803.9	35	032259	30	031621	38	65	30
15	23889.48	90	29466.95	35	06427	35	05806.4	35	032259	33	031621	37	60	35
16														
17														
18														
19	23925.44	104	29514.11	42	06472.6	42	5827.9	44	3225.9	42	3162.1	42	60	42
20	23934.21	30	29527.30	96	6482.6	30	5832.7	32	3225.9	32	3162.1	32	60	30
21	23942.98	98	29537.63	38	06487.9	30	5838.5	36	3225.9	36	3162.1	36	64	35
22														
23														
24														
25														
26	23982.48	40	29547.37	104	6505.6	40	5862.9	40	3225.9	40	3162.1	40	68	30
27	23981.33	92	29608.10	32	6509.8	30	5868.1	94	3225.9	30	3162.1	30	60	32
28	23948.01	30	29623.17	98	6519.7	31	5871.4	53	3225.9	31	3162.1	31	68	30
29	23909.32	98	29631.68	36	6516.5	30	5878.0	36	3225.9	30	3162.1	30	66	35
30	24015.29	32	29646.12	98	6519.6	34	5881.0	34	3225.9	34	3162.1	36	66	33

MONTH: Oct 2016

RUSSET HILL RD. WATER BOOSTER STATION

Day	Time	PUMP 1		PUMP 2		PUMP 3		PUMP 4		PUMP 5		PUMP 6		System	Suction
		Hours	Press.	Hours	Press.	Hours	Press.	Hours	Press.	Hours	Press.	Hours	Press.		
1															
2															
3		24044.05	106	29622.67	44	6535.8	44	5892.6	46	3225.9	44	3162.1	42	60	44
4		24046.88	32	29624.75	97	6536.7	32	5899.5	34	3225.4	32	3162.1	32	68	32
5		24059.55	94	29702.10	34	6542.7	32	5907.5	34	3225.9	34	3162.1	32	62	32
6		24062.81	34	29718.66	100	6544.2	36	5908.6	35	3225.9	34	3162.1	36	68	35
7		24076.01	94	29725.62	32	6549.5	32	5915.3	34	3225.9	34	3162.1	32	70	32
8															
9															
10															
11		24102.57	30	29722.12	33	6567.0	45	5931.6	48	3225.9	31	3162.1	31	59	32
12		24110.00	30	29742.01	40	6567.6	30	5932.2	31	3225.9	30	3162.1	32	65	29
13		24126.54	38	29747.05	100	6574.7	39	5941.0	40	3225.9	38	3162.1	38	69	36
14		24126.54	32	29817.69	99	6574.7	34	5941.0	30	3225.9	32	3162.1	34	68	33
15		24128.77													
16															
17		24158.74	59	29843.36	40	6588.2	103	5961.4	41	3225.9	40	3162.1	40	60	39
18		24161.85	93	29856.94	31	6589.6	31	5962.5	25	3225.9	31	3162.1	32	71	32
19		24175.15	30	29866.94	30	6595.6	45	5969.2	30	3225.9	30	3162.1	30	60	30
20		24175.89	40	29889.84	105	6596.2	40	5970.5	41	3225.9	40	3162.1	40	68	40
21		24192.15	30	29891.57	48	6603.2	34	5978.3	35	3225.9	36	3162.1	35	64	35
22															
23															
24		24209.2	30	29937.6	31	6611.2	43	5987.0	100	3225.9	31	3162.1	31	60	33
25		24224.4	30	29947.7	32	6611.2	30	5989.2	30	3225.9	40	3162.1	33	60	34
26		24224.7	40	29961.1	40	6618.2	100	5994.5	42	3225.9	40	3162.1	40	60	34
27		24231.4	40	29992.1	100	6619.3	40	5998.5	35	3225.9	35	3162.1	40	60	40
28		24244.09	92	29984.7	31	6625.8	32	6002.2	100	3225.9	31	3162.1	30	60	30
29															
30															
31		24277.2	40	30013.5	110	6640.0	41	6017.2	45	3225.9	44	3162.1	43	68	43

c. Water tank levels ranged from 87 to 67 feet at Cedar tank and 15 to 9 feet at the Woodridge tank during the months of September and October 2016.

To estimate the volume of water in our tanks - When the Cedar street tank level is about 46.2 feet in elevation it consists of 1.386 Million gallons of water.

d. The amount of water drawn from the Emergency connection (including dates):

Date	Time	Start Reading	Close Reading	Personnel Name	Notes
9-22-16	11:30	0000006	577,000 GAL	RC	577,000
9-27-16	8am-11:30	577,000 GAL	742,000 GAL	JRC	165,000 GALS
9-30-16	8am-11:40	742,000 GAL	910,000 GAL	JRC	168,000 GALS

Date	Time	Start Reading	Close Reading	Personnel Name	Notes
10-4-16	8:30	910,000	1074,000	RC	164,000
10-6-16	8:00	1074,000	1178,000	RC	104,000
10-11-16	8:00	1178,000	1341,000	RC	163,000
10-14-16	8:00	1341,000	1501,000	RC	160,000
10-17-16	8:30	1501,000	1670,000	RC	169,000
10-18-16	8:00	1670,000	1840,000	RC	170,000
10-19-16	7:30	1840,000	2009,000	RC	169,000
10-20-16	8:00	2009,000	2179,000	RC	170,000
10-21-16	7:30	2179,000	2350,000	RC	171,000
10-24-16	8:00	2350,000	2520,000	RC	170,000
10-25-16	7:00	2520,000	2691,000	RC	171,000
10-26-16	7:15	2691,000	2871,000	RC	180,000
10-27-16	7:30	2871,000	3041,000	RC	170,000
10-28-16	9:00	3041,000	3195,000	RC	154,000

e. The amount the treatment plant processed during the months of September and October (for both towns):

Month/Year: September 2016

MONTHLY PUMPAGE DATA

PWS No.: 3014000

ASHLAND WATER DIVISION

Date	Ashland Finished Water		Hopkinton Finished Water		WTP Combined Finished		Hrs	Gallons	Hrs	Gallons	Hrs	Gallons	Total Pumpage All Sources	
	Hrs	Gallons	Hrs	Gallons	Hrs	Gallons							MG	Gallons
9/1/2016	17.33	1,279,000	14.07	499,000	24.00	1,778,000							2.06	2,055,000
9/2/2016	23.80	2,174,000	14.12	500,000	24.00	2,674,000							2.79	2,789,000
9/3/2016		0	13.20	477,000	13.20	477,000							0.65	652,000
9/4/2016	20.72	1,464,000	12.70	452,000	24.00	1,916,000							2.02	2,019,000
9/5/2016	21.08	2,224,000	14.03	501,000	23.58	2,725,000							2.94	2,945,000
9/6/2016		0	10.07	363,000	10.07	363,000							0.48	481,000
9/7/2016	24.00	1,631,000	11.65	409,000	24.00	2,040,000							2.07	2,070,000
9/8/2016	24.00	1,852,000	11.43	401,000	24.00	2,253,000							2.48	2,482,000
9/9/2016	8.48	693,000	11.27	396,000	11.27	1,089,000							1.20	1,205,000
9/10/2016	20.77	1,281,000	12.60	452,000	24.00	1,733,000							1.76	1,759,000
9/11/2016	23.98	1,594,000	12.57	449,000	23.98	2,043,000							2.21	2,206,000
9/12/2016	15.22	1,275,000	12.58	449,000	16.97	1,724,000							1.84	1,843,000
9/13/2016	3.05	193,000	12.60	450,000	13.90	643,000							0.86	864,000
9/14/2016	21.03	1,443,000	9.97	401,000	22.78	1,844,000							2.03	2,035,000
9/15/2016	23.95	2,086,000	11.15	400,000	24.00	2,486,000							2.51	2,511,000
9/16/2016	8.73	835,000	10.57	379,000	13.63	1,214,000							1.41	1,405,000
9/17/2016	21.35	1,331,000	9.60	350,000	24.00	1,681,000							1.77	1,769,000
9/18/2016	24.00	1,838,000	9.63	350,000	24.00	2,188,000							2.19	2,194,000
9/19/2016	8.30	723,000	9.25	330,000	9.87	1,053,000							1.14	1,137,000
9/20/2016	17.48	1,093,000	9.63	348,000	24.00	1,441,000							1.59	1,586,000
9/21/2016	24.00	1,696,000	9.70	340,000	24.00	2,036,000							2.17	2,174,000
9/22/2016	3.72	405,000	9.58	340,000	9.58	745,000							0.94	945,000
9/23/2016	3.47	219,000	9.22	330,000	10.93	549,000							0.66	659,000
9/24/2016	24.00	1,504,000	9.08	329,000	24.00	1,833,000							1.89	1,886,000
9/25/2016	24.00	1,645,000	8.35	301,000	24.00	1,946,000							1.88	1,883,000
9/26/2016	13.72	1,169,000	8.53	295,000	15.32	1,464,000							1.64	1,637,000
9/27/2016	1.50	95,000	8.27	296,000	8.27	391,000							0.36	364,000
9/28/2016	24.00	1,523,000	8.62	307,000	24.00	1,830,000							1.98	1,981,000
9/29/2016	24.00	2,011,000	8.42	303,000	24.00	2,314,000							2.25	2,253,000
9/30/2016	1.30	148,000	8.32	299,000	8.32	447,000							0.48	485,000
10/1/2016	22.50	1,400,000	8.37	300,000	24.00	1,700,000							1.78	1,775,000
10/2/2016	24.00	1,776,000	8.35	301,000	24.00	2,077,000							2.14	2,137,000
10/3/2016	8.23	720,000	8.18	294,000	9.80	1,014,000							0.94	937,000
10/4/2016	3.12	194,000	8.78	315,000	9.90	509,000							0.77	773,000
10/5/2016	24.00	1,505,000	8.45	301,000	24.00	1,806,000							1.96	1,960,000
10/6/2016	24.00	1,814,000	8.40	301,000	24.00	2,115,000							2.22	2,216,000
10/7/2016	2.18	241,000	8.37	297,000	8.37	538,000							0.69	687,000
10/8/2016	22.05	1,374,000	8.50	304,000	24.00	1,678,000							1.82	1,818,000
10/9/2016	24.00	1,612,000	8.43	300,000	24.00	1,912,000							1.93	1,925,000

Date	Ashland Finished Water		Hopkinton Finished Water		WTP Combined Finished								Total Pumpage All Sources	
	Hrs	Gallons	Hrs	Gallons	Hrs	Gallons	Hrs	Gallons	Hrs	Gallons	Hrs	Gallons	MG	Gallons
10/10/2016	12.10	1,065,000	7.70	279,000	13.52	1,344,000							1.49	1,491,000
10/11/2016		0	8.40	303,000	8.40	303,000							0.46	464,000
10/12/2016	19.85	1,291,000	8.28	301,000	24.00	1,592,000							1.62	1,624,000
10/13/2016	23.98	2,162,000	8.23	299,000	23.98	2,461,000							2.40	2,400,000
10/14/2016	1.70	190,000	8.38	302,000	8.37	492,000							0.65	648,000
10/15/2016	21.33	1,326,000	8.27	299,000	24.00	1,625,000							1.59	1,591,000
10/16/2016	24.00	1,701,000	8.27	300,000	24.00	2,001,000							2.06	2,056,000
10/17/2016	10.37	882,000	7.17	260,000	10.67	1,142,000							1.23	1,229,000
10/18/2016		0	9.43	343,000	9.43	343,000							0.28	279,000
10/19/2016	21.17	1,344,000	11.28	395,000	24.00	1,739,000							1.87	1,872,000
10/20/2016	24.00	1,708,000	8.25	299,000	24.00	2,007,000							1.90	1,901,000
10/21/2016	2.48	277,000	8.30	295,000	8.30	572,000							0.69	687,000
10/22/2016	22.02	1,168,000	8.47	299,000	23.80	1,467,000							1.47	1,472,000
10/23/2016	21.65	1,358,000	7.10	248,000	21.83	1,606,000							1.77	1,774,000
10/24/2016	2.03	125,000	8.47	302,000	10.50	427,000							0.42	418,000
10/25/2016	16.27	1,025,000	9.57	341,000	24.00	1,366,000							1.45	1,451,000
10/26/2016	24.00	1,495,000	8.37	294,000	24.00	1,789,000							2.00	1,995,000
10/27/2016	6.77	585,000	8.30	299,000	8.30	884,000							1.00	995,000
10/28/2016	3.22	202,000	8.30	298,000	10.07	500,000							0.57	565,000
10/29/2016	24.00	1,498,000	8.23	300,000	24.00	1,798,000							1.81	1,810,000
10/30/2016	24.00	1,651,000	8.32	299,000	24.00	1,950,000							2.01	2,006,000
10/31/2016	8.20	713,000	7.10	255,000	8.47	968,000							0.95	954,000
Totals	338.20	67,826,000	580.80	20,819,000	125.38	88,645,000							94.18	94,184,000
Average	15.38	1,111,902	9.52	341,295	18.45	1,453,197							1.54	1,544,000
Maximum	24.00	2,224,000	14.12	501,000	24.00	2,725,000							2.94	2,945,000
Minimum	1.30	0	7.10	248,000	8.27	303,000							0.28	279,000

How much water is pumped in 2016 when the reservoir water levels were 293 v/s 296?

Per the Monthly pumping reports – When the reservoir levels were close to 293 feet the total pumping volume was 41.725 MG (Millions gallons) for the month. When the reservoir levels were close to 296 the monthly total pumping volume was 70.822 MG.

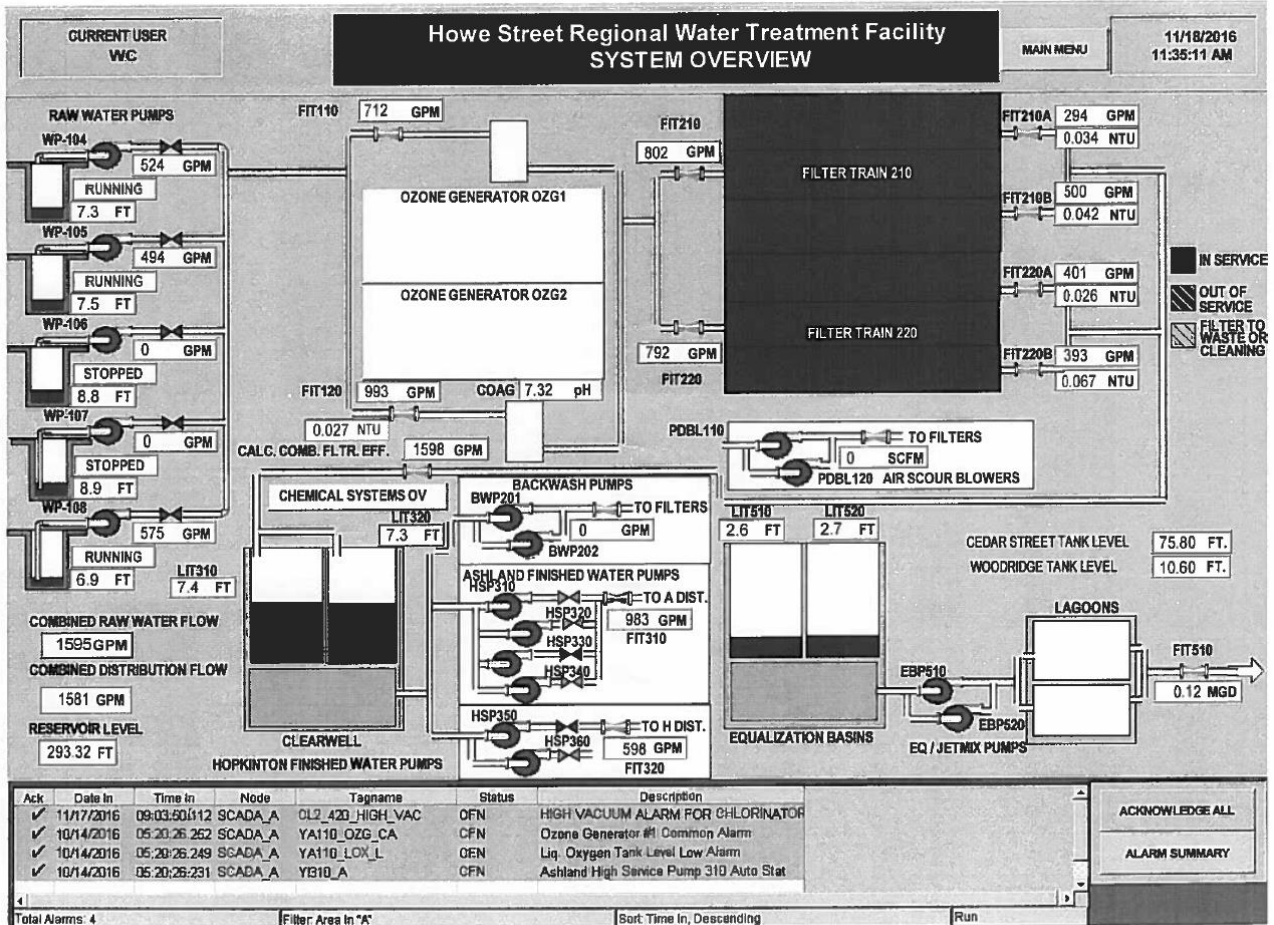
There were no recorded losses of water (fires, water main breaks, backwashing, flushing, etc) during the months of September and October.

Below are screen shots from our SCADA system showing all 5 wells and the water levels when the reservoir is approximately 293 feet.

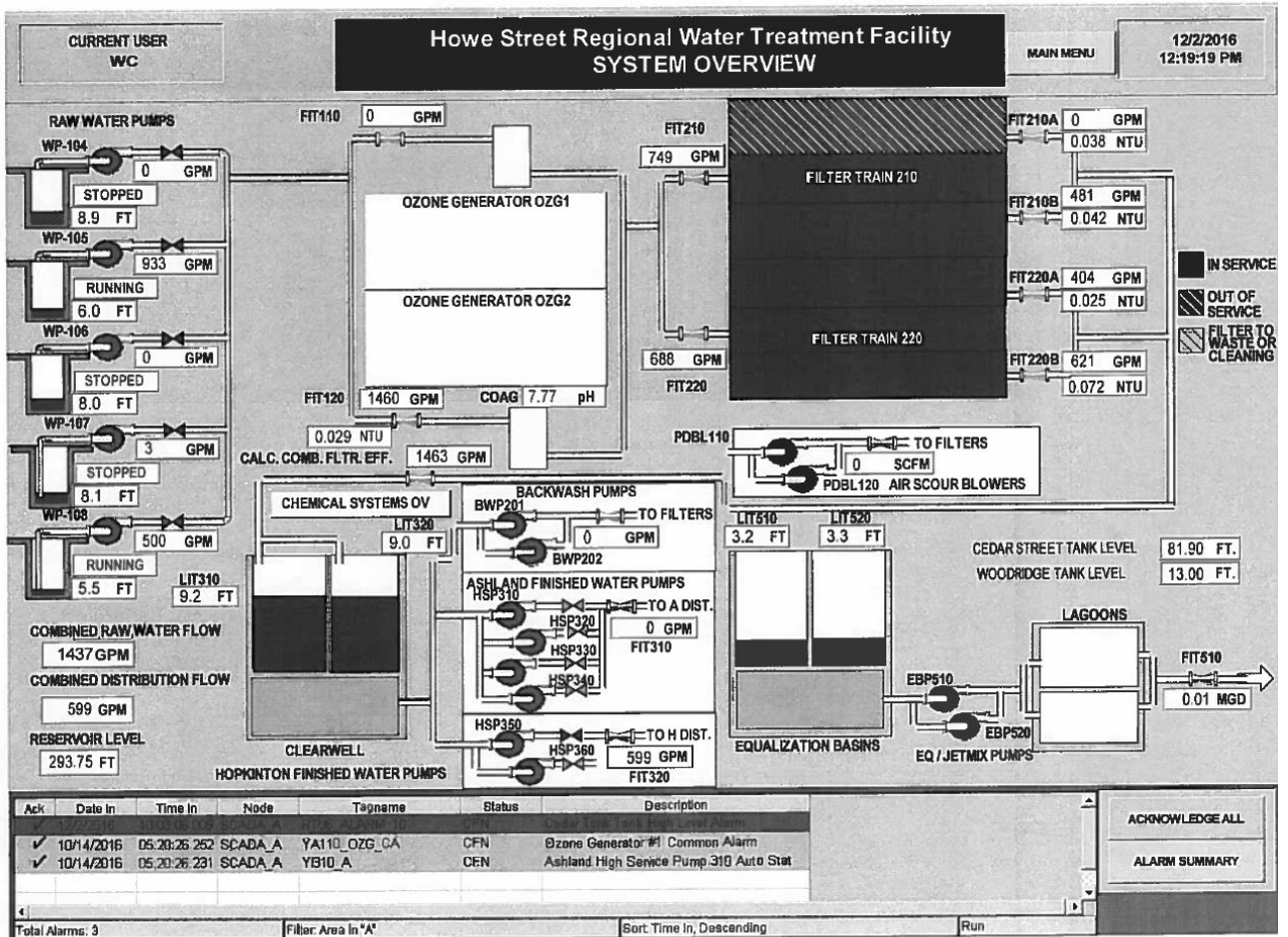
Note that the water pumps need to be at least 5 feet in water to ensure that the screens are submerged. There are a few reasons why:

- Due to the conical drawing of water on each of these wells the level varies when the pumps are running at 100%.

- If the screens are air bound, the pumps would be drawing air which in-turn would damage the pumping operation and the wells.



Res level - 293.32



Res level - 293.75

In comparison, When the aquifer is fully charged, the water depth in these wells are: Well #4 is at 23.7 feet, Well #5 is at 20.15 feet, Well #6 is at 24.9 feet, Well #7 is at 21 feet and Well #8 is at 20 feet.