

Engineer's Report February 8, 2018 Meeting

- 1. Jan. 16, 2018 Worked with Bart Parmalee to get the new pump installed. It took longer than originally thought due to rusted and corroded parts. Not much came apart easily. An electrician came at 11 and changed the wiring over form the old motor to the new motor. We were unable to get pump primed due to not being able to get 3 plugs out to bleed out the air because we didn't have the necessary tools.
- 2. Jan. 17, 2018 Returned to the pump house with better tools and was able to remove 2 of the plugs and was able to bleed the pump sufficiently to get it primed and back in working order.
- 3. Jan. 23, 2018 VTC water main break. Got a call early about turning our pumps on as they were losing a lot of water. Went over to see if I could assist and spent 3 or 4 hours there. When I was downtown there were several calls in the afternoon about turning the pumps back on. When I returned I headed straight for the pump house but John had already come to the rescue. VTC didn't get the line repaired until 7:30 at night.
- 4. Jan 24, 2018 The water main break at VTC yesterday triggered a voluntary boil water notice. The nursing home was our main concern and they were put on notice. Carolyn also contacted a few other more vulnerable residents and suggested they boil water until further notice. Around 7 pm I went to the pump house to run the pump for several hours to make sure there was adequate clean chlorinated water in the system. It ran again from 4 am until 8 am.
- 5. Jan. 24, 2018 Patricia and I went to pump house to remove the leaking back pressure valve and to add chlorine to the mixing tank due to the high usage over the past couple of days. I ordered a new back pressure valve later.
- 6. Jan 25, 2018 The State asked us to take water samples for 2 days both at VTC and in our part of the system. I took a sample last night and this morning and Scott stopped early and picked them up to take to the lab in W. Lebanon.
- 7. Jan. 26, 2018 Carolyn called to say one of her tenants was complaining about very high water pressure and leaking hot water heater. Sounded like an thermal expansion problem and I called John because he had been dealing with Gillespie and he called them to get a plumber there. Once the expansion tank was installed the problem was solved.
- 8. Jan. 29, 2018 I worked on updating our general system map to include Menig and the Independent living. We need to do this to update our O&M manual. Doug sent me copies of their "as-builts" to work from. I made some progress but more to do.
- 9. Jan. 30, 2018 Received the new back pressure valve which has improvements over the old one. I ordered a new plastic hand drum pump used to transfer chlorine from 5 gallon jugs to mixing tank. Mice had damaged the old so it did not work properly.
- 10. Jan 31, 2018 I had numerous emails with the back pressure valve technical support regarding the proper setting and installation of the valve. The old valve may not have been installed correctly. The new installation requires a pressure gauge on the chlorine pump line and an emergency connection in the event the diaphragm ruptured.
- 11. Feb. 6, 2018 Installed the rebuilt check valve along with recommended pressure gauge and emergency overflow. There was a problem however in that the chlorinator was not pumping an adequate volume of chlorine.
- 12. Feb. 7, 2018 Scott Beavers came over to help me figure out what the problem is with the chlorinator. After trying many things to resolve the problem we finally determined it was the back pressure valve. I changed out the old one for the new one and everything worked as it should. Couldn't determine why the valve was the problem.

Respectfully submitted Bill DeFlorio, Engineer



Engineer's Report Mar. 8, 2018 Meeting

It was a quiet month compared to past months this fiscal year.

- 1. Feb. 27, 2018 Carolyn, John and Bill met at VTC to hear a presentation by Randy Bronson from Vermont Emergency Management regarding a free program available to organizations like ourselves that will give us the ability to send via email, text messages or phone calls information to all our customers regarding emergencies, water main breaks, boil water notices and other areas of concern that we feel water users need to know. Carolyn started working on collecting telephone numbers, email addresses etc. for every user which will be entered into the VT-Alert database.
- 2. Feb 23 March 2, 2018 With Dan Lalumia's help we put together an updated Water Rate sheet and a customer information letter to be sent out with the recent water bills.
- 3. Feb. 28, 2018 Mike and I read all the water meters which took about 2.5 hrs. I entered the data into a spreadsheet when I got home in preparation for sending out water bills. The information obtained from the readings gives us a good look at the estimated amount of water that will be used in a quarter and how much revenue it will generate. The estimates are 760 units (76,000 cf) (568,480 gallons) and will generate approximately \$4,214.50 (\$16,858 per year). This will probably vary some from quarter to quarter. The second and third quarters should produce the most revenue as part-time and summer residents will be back and the campground will be open although the Lu apartments will have fewer people during the summer months. (see attached sheet figures)
- 4. March 5, 2018 I contacted Patricia Beavers regarding other services they could provide. I thought she was supposed to get back to us after our meeting with her in December. She said she misunderstood the time line and thought we were waiting for the Permit to Operate before discussing other services. I have printed out her emails for review.



Engineer's Report April 12, 2018 Meeting

A more active month than last report.

- 1. March 13, 2018 Worked on drafting a letter to be sent to customer's needing to have thermal expansion tanks installed. John's input was very helpful.
- 2. March 15, 2018 Correspondence with Randy Bronson of VT-Alert. Set date for a training seminar for April 26th.
- 3. March 16, 2018 Many emails with meter billing software company and company that sells a temperature and power monitoring device. Worked with Lisa at Lake Sunapee to get Fire District checking account online. Call from engineer in Williamstown about proposed Robert Squire home on Ski Tow Road.
- 4. March 19, 2018 Online access to checking account now set up.
- 5. March 21, 2018 Worked with Mike get rent checks and deposit done to take to bank. Had a video conference with AaaTex company that makes meter billing software that works with Quickbooks. It seemed easy enough to learn.
- 6. March 22, 2018 Sent out letters to customers regarding installation of thermal expansion tanks to start soon. Also updated customer list and sent to Matt at Gillespie's.
- 7. March 23, 2018 Ordered power and temperature monitor at a total cost of \$246 plus \$99 a year for the service. Worked some on updating O&M manual.
- 8. April 9, 2018 Installed and set up new monitoring device at the pump station and added phone numbers for prudential members as well as Patricia and Scott Beavers. The device can be monitored online at sensoredlife.com.
- 9. April 10, 2018 Mike dropped off the fire district computer and I worked on designing an invoice template for metered billing. Also reviewed some of the accounts and found a number of accounts showing credit balances even though they shouldn't. I fixed a number of them and there is more to do. Printed out report on activity since our last meeting.
- 10. April 10, 2018 Talked with Frankenburg Agency about Fire District insurance. It hasn't been updated since 1990 and it only covers the building and not the contents. The amounts of coverage would not cover much due to inflation. The liability limits seem low as well.
- 11. April 11, 2018 I've put in calls to Compucount to get an estimate on billing services but no one has gotten back to me yet. It is a busy time for them with tax deadline coming right up.
- 12. April 12, 2018 Made some corrections in Quickbooks to fire district account on Mike's computer as it showed open balances in which checks were issued but not applied correctly. There are quite a few more from way back that need to be fixed some time. Printed out reports.

RFD#1 2017-2018 Engineer's Report

Last year was one of the busiest years we've experienced in a long time. Here's a recap of some of the events.

- 1. May 2017 A leak survey was done for the water system and 3 leaks were detected. A leak in front of Al Floyd's needed repair right away. Estimated loss from leaks was 20,000 to 30,000 gallons per day.
- 2. June 2017 A new 1-1/2" meter was installed at the pump house as required by the State. Based on recommendations of the committee that studied fair billing methods the Prudential Committee voted to purchase and install water meters for all properties that did not already have a meter
- 3. July 2017 Plumbing inspections were conducted prior to installation of meters. Several estimates were obtained for work that needed to be done at the pump house. The Fire District contracted with Williams Bros. of Randolph Center to replace floor joists, plywood decking and install a new insulated door, at a cost of \$2,500.
- 4. August 2017 The Fire District contracted with Gillespie Fuels of Northfield to install water meters (Bart Parmalee was unable to do the job at this time). I worked with Aaron Emmons to install a new service to his house.
- 5. Sept. 2017 Repair work was completed at the pump house by Williams Bros. Dead River Co. fixed the propane heater at the pump house that had not been working.
- 6. October 2017 A new service was installed to the white church by connecting it to the 6" line from the college (the old service was one of the leaks detected in May). It appeared to be leaking under the parking lot of the red school. The old service was discontinued as it would be too costly to dig up the parking lot and possibly the road to fix it. The campground developed a leak and we were unable to shut their line off at the main so it needed to be dug up and a new curb stop and fittings were installed. It may have been damaged when the Gifford connection was made. We also discovered an old discontinued service nearby that was leaking a little so we were able to fix that at the same time. The meter installation project was completed.
- 7. Nov. 2017 Replaced a double electric outlet at the pump house that shorted out. All the water meters were read in preparation for establishing rates.
- 8. Dec. 2017 The water was shut off at Peter Paul's and the meter removed as he was leaving for the winter. The State Drinking Water Division did an inspection of the entire water system, including VTC. The Fire District has some minor issues that we will have to address. VTC had a number of issues that they will have to address as well.
- 9. January 2018 One of the two pumps at the pump house failed. The motor tore itself completely off the frame doing damage to the pump. Fortunately there was a spare pump & motor assembly on hand and Bart Parmalee installed it. We may have to purchase another pump soon as the second pump is almost 40 years old. Current cost of a new pump is \$3,600. VTC had a break on an 8" main and were losing a lot of water. Our pump had to be run all day until the break could be repaired. The break caused a brief loss of water to the Fire District. A back pressure valve had to be replaced at the pump house.
- 10. February 2018 There were some issues with the chlorinator which were resolved.
- 11. March 2018 The Fire District signed up for VT-Alert, a free service offered by the State. It gives the fire district a way of communicating with customers in a timely manner should there be a need. Test alerts will be sent out from time to time to make sure the system is working properly. Also a monitoring device was purchased and installed at the pump station that will notify fire district prudential members and contract operator should power or heat be lost.

Possible projects for 2017-2018:

- 1. The wood structure over the spring needs some repairs and to be painted.
- 2. The galvanized piping within the pump house should be replaced soon. It's almost 40 years old and is corroding badly at the joints.
- 3. Upgrade electrical system and put in a new energy efficient electric heater at the pump house.
- 4. The State may require an automated pump control system. At present the pumps run on a timer. There are some advantages to an automated system but it could be costly to buy and install.
- 5. The Fire District may need to replace the hydrant and old gate valves in front of the Clark's house.
- 6. A regular hydrant maintenance and valve exercising program will be started.
- 7. The cost of a backup generator system for the pump house is being explored. This would insure that there is the ability to pump water at all times and also keep the pump house heated.
- 8. The Fire District is working to get all our plans of the water system digitized and available on the website.



Engineer's Report June 14, 2018 Meeting

- 1. April 20, 2018 We had a bad hit on the bacteria sample that Scott Beavers took at John Lens home.
- 2. April 23, 2018 I worked with Patricia taking additional bacteria samples as required when a bad sample is obtained. We took samples at the church, John's house and Floyd's store. We also took a raw water sample at the pump house. Patricia delivered them to the lab that afternoon. She got the results the following morning and everything tested good. Patricia felt that the lab was probably at fault for the bad sample we had. She said it happens every so often. Unfortunately, it cost us more money in her time and additional lab fees.
- 3. April 26, 2018 I attended a training session on the VT-Alert system at VTC. Scott and Ted were there as well. I sent out a test notification later that day. Only a small percentage of our customers that acknowledged it.
- 4. May 4, 2018 Got a call from Jackie Dowd regarding Gillespie installing the expansion tank. She said the plumber wanted to install a pressure reducing valve as well. She was upset because it meant having to move a lot of things out of the way and was nervous because of the incident there last year. I told her that Gillespie was supposed to clear it with us before and they hadn't. She asked if she could tell them not to install the PRV and I gave her permission. I told her I'd come and check the pressure in a day or two. John helped out by calling Gillespie about the situation.
- 5. May 5, 2018 I went to Dowd's to check their pressure. It was high at 78 psi. I told Jackie she needed a pressure reducing valve and that I would arrange it with Gillespie. I also checked Wheatley's and Squires, while in the area. Wheatley's was also high so I let Gillespie know they would need a PRV valve as well. Squires didn't require anything as they already had a thermal expansion tank installed a couple of years ago and they also had a pressure reducing valve. I did look at the meter installation per their request. There was a very slight leak at one of the fittings. I tightened up the fittings and that seemed to solve the problem.
- 6. May 17, 2018 I spent several hours with Carolyn (as the new Treasurer) and Dan (as the collector of rents and taxes) going over how to use Quickbooks. After consulting with John Lens we decided to switch from the desktop version to Quickbooks online. It was the only way that Dan and Carolyn could work together on invoicing and bookkeeping. I will be able to oversee what they are doing.
- 7. May 31, 2018 Mike and I the meter readings. It goes faster with 2 people and we were done in 2 hours. I did more work entering the figures into the spreadsheet so I could send them to Dan for invoicing. Dan has caught on well and managed to get out all the invoices with very little input from me.
- 8. June 1, 2018 I met with James Berry, painting contractor at the spring house to get an estimate on painting the siding and roof. His estimate is \$1,800. He said if we provide the paint it would be \$1,400.
- 9. June 5, 2018 I was on hand when the 6" main was tapped for the new service to the State lab. I kept the coupon that was cut out and it showed absolutely no build up since the line was installed in the early 90's.
- 10. June 13, 2018 I got a revised quote from Brookfield Services on a backup generator. The new number is \$16,799. The original was \$22,630. I think we could do it for a lot less if we got a generator just big enough to handle the power and heat. Being able to start the 10 hp pump motors requires a 20 to 30kw generator.
- 11. June 6, 2018 Scott Beavers sent me a quote from Champlain Associates on a SCADA system for the pump house. The estimate was \$5,128.40 which is far less than previously thought. We'll need an on site inspection by the company to insure the quote will cover our needs should we have to go in that direction.
- 12. June 6, 2018 The college accidentally discharged 5 to 7,000 gallons of fertilizer from the biodigester when a coupling broke on their delivery system. I sent you all copies of emails and information on the situation. There is an article in today's Herald on the front page giving a little more detail.
- 13. June 11, 2018 Got an email from Doug Pfhol requesting that I read the hydrant meter they installed as they plan to use water from it for a garden area they are having made.



Engineer's Report July 12, 2018 Meeting

June 2018 - John and I finalized the Consumer Confidence Report (4 pages). I was able to email the majority of them but needed to get 20 copies made a Beacon Printing to mail to the remainder of customers.

I spent a number of hours working on our maps to eventually get them all in digital format. I added quite a bit of additional information to our base map with the hopes of making it more useful to someone that's less familiar with the system in the future. Some new information that I added came from reading my father-in-law's diaries over the 40 years he was on the Fire District.

I created a valve and hydrant maintenance spreadsheet giving the sizes, locations, approx. age and when last exercised. I will be working with Scott this next week on inspecting and exercising all the valves and hydrants in the system. This should be done yearly but it has not been done for some time.

July 2018 - John and I met with Ted Manazir from VTC to get a conversation going about combining services and having one independent operator for both operations. I'm sure John will have more to add about the meeting. Yesterday I inspected the spring and pump house and cut down the tall grass around both buildings. The spring level was about 8" below the overflow. It appeared that before pumping it had been close to the overflow. I believe there is a fair amount of leakage from the reservoir. Some day we may want to put a liner in it to eliminate most of the leakage. Everything else looked good.

I got a chance to talk to Clark Campbell at the campground about them keeping the grass cut down and agreed to have his man do it. They will charge us \$25 an hour which is a bargain compared to what we paid Scott last time.



Engineer's Report Aug. 9, 2018 Meeting

July 2018

July 15th - Scott Beavers and I worked for 4 hours on exercising valves and hydrants. Lubricated hydrants as needed. There were a couple of issues mainly with the valve and service boxes. One valve we could not get the wrench due to a box that shifted off center. One curb stop we could not operate because the box was broken. They will need to be repaired. We got about half of them done and will do the other half on another day.

July 21st - Got a call about water running down Water Street but when I got there the water wasn't running but the road was wet. It apparently was coming from the VTC house that's on the right 2 house down. No one is living there now. I checked the shutoff and I could hear water leaking. I shut off the valve and the noise stopped. I notified Ted about the situation as it will be their responsibility.

July 22nd - We got a list of tank installations from Gillespie and found there were inaccuracies. They were billing us for some customers that either already had tanks and prv's and in one case a property that the owner was having another plumber install the tanks. After a discussion with John we decided to sever ties with Matt and have Bart Parmelee finish up the 2 remaining homes (Parker and Lackard).

July 27th - I got the specs on the electric heater in the pump house and did research on a replacement. The existing heater is very old and should be replaced before winter. Moe Clark has agreed to do the change out once we get the new heater. The heater I'm looking at is a Cadet NLW202TW which we can buy online for \$385.90 with free shipping. The same heater through Home Depot is \$402.14. Installation cost estimate is \$50.

August: I've been going through the clerk's notes from 1939 when the Fire District was founded and have found a lot of useful information regarding improvements and expansions of the water system along with related costs. I am incorporating this information into the Asset Management inventory. The first section of 6" transite (approx. 1300 ft.) was installed between 1941 and 1942 at a cost of \$2,643.44 (they borrowed \$2,000). It ran from where the old reservoir on the VTC campus stood to the front lawn where John now lives. The reservoir up by the campus was constructed between 1947 and 1948 along with 2 hydrants at a cost of \$4,271.49 (borrowed \$4,000). I found that whenever they did a project of any size they had to borrow money. They would up the rents and taxes for a while until the loan was paid off and then they'd lower it again. This doesn't make sense to me why they would lower rates and then have to borrow money and pay interest on the next project instead of trying to build their reserves. One year they cut the property tax from 75¢ on the dollar to 50¢ (values were much lower) and cut the water rents by 1/3.

One other note of interest which is relative to the pressure reducing valves that were just installed. From the engineer's report of 1969 Irwin Trask reports that the tower is being constructed and should be in operation by August. Approximate pressure to go from 15 psi to 70 psi. Pressure reducing valves to be located where individual pipe hitches to the main (buried) to prevent blowing some of the old service lines apart. It did not say who paid for this but I suspect it was the State/VTC as in their agreement it was stated that the Fire District would not be burdened with any cost associated with installing the new water tower.



Engineer's Report Oct. 11, 2018 Meeting

August 2018

22nd - Scott Beavers discovered a leak in the galvanized pipe to the pressure gauge. I was not around so he got a hold of Bart Parmalee and he came and replaced some fittings. There was a split in a 1/2" nipple.

25th - Got a call from Ted that the level in the water tower was lower than he'd like and he asked if we could run our pump for 6 hours. They had a problem with the pump controls combined with students returning and were not pumping enough to keep up.

30th - Replaced an old meter at the dentist office. It read in gallons and had to be converted each month to cubic feet. The installation had a dual check so it was just a matter of swapping one meter for the other..

31st - Read water meters There were a few surprises such as Peter Paul who had used 72 units (7200 cf) or about 53,800 gallons. Apparently he'd been letting his outside hose run constantly. Sent information to Dan to do the billing. This quarter's billing includes property taxes.

September

4th: The spring reservoir has been low most of the summer although not low enough to be of great concern. I backed off the amount of time we're pumping until we get through this dry spell just to be on the safe side.

5th: Moe Clark and myself installed the new electric heater in the pump house. I also had him add another outlet to give us more flexibility.

21st: Met with Brian Baker at the pump house to evaluate the piping there and to explore what alternatives we have in type of pipe etc. (see proposal) We also talked about planning loans. He said he could have Bob Dufresne meet with us to talk about what's available and how it works. Doing a complete assessment of the water system could be covered under a planning loan. We need to get back to him if we're interested.

I called Dead River Propane to have the propane tank filled but they told me it had been done on Aug. 21st. A full tank should read 80% and it was down to 70% with nothing running. They agreed to send a technician out to inspect the tanks etc.

25th: Technician from Dead River came and found that there was at least one leak. He also said that the copper tubing from the tank to the building which is partly buried could be corroded and leaking. He talked with his office and they are going to replace the tubing, possibly the regulator and maybe the tanks.

27th: I helped VTC personnel fix a leak on the service to the house they own on Water Street. They had Pickett dig it and found the copper tubing leaking on the house side of the valve. I provided them with a short piece of polyethylene tubing and a fitting and they got it fixed.

October

10th: Scott and I worked on hydrants and valves that we didn't get back to in the summer. We tried to fix a hydrant on the south end of E. Bethel road but were unable to get it to stop leaking. We spent almost 3 hours on it as everything very hard to take apart. We ended up close the gate valve to the hydrant which also was difficult to shut off. We may need to get a service man in from Prescott's to fix it. We were unable to get done what we had planned and will have to pick another day to finish up.

10th: Scott went to the pump house after to do his bimonthly check up and found that there was about 3" of water in the basement. I was unable to go down with him as I had another appointment. I advised him to check the drain to see if it may be partially plugged.



Engineer's Report Oct. 31, 2018

October

11th to 19th: As you already know we had major leaks in the supply line from the spring to the pump house. So much so that it would not supply the pumps with an adequate supply. Work started on the 15th and took a good part of the week. The pipes both buried and inside the spring were totally gone. Holes everywhere. We replaced the pipes with new polyethylene pipe that won't ever corrode. After the repairs it took 4 days to refill the reservoir before we could start pumping again. There is still a problem with the newer pump vibrating badly. While we had the reservoir drained I had Brian Baker of Dufresne group come and inspect the inside of the spring and to take measurements to determine the volume of water it holds. He thought the concrete looked pretty good considering the age of the spring. He said some day we may want to think about having it lined to stop any possible leaks. He will submit a report on his findings.

15th: A service technician from EJP came to see if they could fix the hydrant across from Barbara Meaney that I was unable to fix. He worked on a couple of hours but was unable to get it to seal tight. He determined that the brass seat in the body of the hydrant was most likely damaged and would have to be replaced if there was any hope of getting it closed tightly. The hydrant would have to be excavated to do that so we decided as long as we need to excavate we should put in a new hydrant (the leaking one is 49 years old).

22nd: Dead River propane company came and replaced one of the tanks with a larger one. Ran new copper lines into the building and replaced the regulators and reset the pilot light. We are now in good shape for the winter. Last winter we had run out of propane.

23rd: I got the name of a company in Essex that specialized in pumps and explained our problem with the new pump. Without inspecting it they thought the problem was probably that the "O" rings had dried out from sitting so long and when the pump was started it tore them so that it would leak around the shaft and also cause the vibration. They requested information on the pump and will get the parts and make the repair. They are also going to price out a comparable replacement pump as the old pump is 36 years old.

30th: I found out that the only way to change the seat on the hydrant was to excavate it so it was decided to order a new hydrant and valves etc to replace the aging hydrant and valve there. Material costs alone are approximately \$4,700. I expect the excavation and installation will be another \$1,000. I will be placing an order and lining up Pickett to do the work as soon as possible. The work will require that we shut down the entire line for as long as it takes to do the work (6 to 8 hours).



Engineer's Report Nov. 5, 2018

November:

- Since our last meeting we replaced the leaking hydrant on the E. Bethel Road
- The bad pump picked up to be repaired on the 9th. They did discover when removing the pump that the rubber isolation piece between where the motor connects to the pump was destroyed. It most likely accounted for some of the vibration. It wasn't visible until they removed the shroud.
- On that same day I found that the propane heater was not working properly so turned off the gas and called for service. They came on the 12th to repair it. Needed a new orifice. The following week Scott Beavers detected a strong propane odor in the pump house. I called Dead River again and they advised turning off the tanks and sent a technician right away. The technician that came found a nut cracked on the tubing to the pilot light which had been worked on last week. He said it was a pretty good leak. He didn't have the part with him so they had to send it up from Woodstock. 3 hours later it was fixed. We were fortunate that we didn't have an explosion.

December:

- Talked with Mark Johnson of RCAP (Rural Community Assistance Program) Solutions regarding how they can help us with getting an Asset Management Plan completed. Basically, he would work on our behalf and guide us through the process of filing an Asset Management Plan loan application. He would help us select a qualified engineering firm that would complete and file the application (often free in hopes they will get our business).
- The pump repair is expected to be completed and the pump reinstalled by late next week.
- Update the rebuilt pump was reinstalled on Dec. 10th and it's back in operation working well.