

4/2/18

Swann Keys Civic Association
37689 Swann Dr.
Selbyville, DE 19975

The 2017 summer season, put Swann Key's aging water treatment thru the ultimate test. This has raised questions concerning the reliability of the current systems. President, George Kirkley & Swann Keys' water board, along with Sharp Water Culligan have taken this matter very seriously & have been working diligently to rehabilitate the current water treatment, to avoid a repeat 2017. We are confident that the repairs made, along with proposed upgrades will ensure a less eventful 2018 summer season.

This report is designed to highlight Sharp Water Culligan's reactions, repairs, & future upgrades.

1.) Water Plant Operations - Keith Merrill (operator's license KM3761) performs daily water plant operations. Details include, daily testing of iron, chlorine, & PH, recording of meter reading, & adding of salt. Monthly, bacteria samples are collected & analyzed by Water Testing Labs of MD, Inc. for total coliform & E. Coli. Annually, samples are collected and analyzed for Nitrates & Fluoride. Keith is our eyes and ears on the ground & reports findings, out of the ordinary to our service department. He is not a serviceman.

2.) Reactions -

2017

- March 7th) **Filter #1** running water to the drain in the service position, prompting a control valve rebuild.
- April 19th) The unthinkable happened. **Softener #3's** leg collapsed, breaking adjoining plumbing & soaking the electronics. The reactionary force, that morning included the President, General Manager, & Operations Manager. After repairs were made the legs of all softeners were shored up by 3" steel channel.
- May 4th) **Softener #3** unable to remove brine from brine tank. Replaced pilot valve assembly.

Corporate Headquarters
129 Columbia Road
Salisbury, MD 21801
Telephone: 410-742-3333
Toll FREE: 800-439-3853
Fax: 410-543-2222

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- June 6th & 7th) **Softener #1** developed a leak at the bottom elbow. Due to the specialty fitting, the media had to be removed & repairs were made from the inside.
- June 15th & 28th) **Softener #1** Unable to remove brine from brine tank. Educator was clogged with stones that were coming from deteriorating distributor verticals of the filters.
- July 12th) **Filter #3** running water to the drain in service position. Stones were found in control valve & was rebuilt. This filter was turned offline to prevent further issues until given approval to repair & rebed.
- July 22nd) Reports of irony water throughout the park. Main well was switched off and park was operating off of secondary well, that sent a sludge of oxidized iron downstream. After switching back, water quality improved after recharging water softeners & flushing the park.
- July 25th) **Softener #2** running water to the drain in service position. Our service tech located the bad diaphragm & replaced. He did not have the parts to completely rebuild the control valve.
- August 3rd) **Filter #1** running water to the drain in service position. 13 stones were found in valve and was rebuilt, again.
- August 7th & 8th) **Filter #3** Replaced deteriorated lateral, cleaned distributors, & completely rebedded with 20 cu. ft. FilterAg Plus.
- August 10th) **Filter #1** Removed media in preparation of rebed & discovered female adaptor badly deteriorated.
- August 15th) **Filter #1** Cut out Female adaptor & welded new one in it's place. Epoxy coated new fitting.
- August 16th) **Filter #1** Installed new lateral, cleaned distributors, & rebedded with 20 cu. ft. FilterAg Plus.
- August 24th) **Filter #2** Removed media.
- August 28th) **Filter #2** Rebuilt control valve, installed new lateral, cleaned distributors, & rebedded with 20 cu. ft. FilterAg Plus.
- December 6th) **Softener #1** Replaced leaky air relief valve.

2018

- February 8th) **Softener #3** Keith reports of irony water & not using salt. Diagnosed bad brine float, replaced the two old style brine floats.

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- March) Well is turned off & park is pulling water from storage tank, in preparation for tank inspection. During that time **Softener #3** initiates a regeneration but cannot properly regenerate without water. After well is turned back on, Keith notices **Softener #3** is passing iron and immediately takes that unit offline & engages a regeneration. After tank is inspected it is refilled with water, the weight of the tank cracks the male adaptor.
- March 14th) **Softener #3** is retested and put back online. Male adaptor & adjoining plumbing are repaired.

Recap

	Rebuild	Rebed
Filter #1	Mar 7 th & Aug 3 rd	Aug 16th
Filter #2	Aug 28th	Aug 28th
Filter #3	July 12th	Aug 7th
Softener #1	Apr 4 th , 2016	
Softener #2	Never	
Softener #3	Never	

- 3.) Future Upgrades – As noted, above, all filters have been rebedded & control valves have been rebuilt. Softeners #2 & #3 have never been rebuilt, only repaired. This can be done with no down time. Culligan recommends annual internal valve inspection & valve rebuild every 5 years.

Culligan provides a CSM pressure gauge/sample cock kit that will simply screw onto the existing valve body. This kit will display influent and effluent water pressure of each filter and softener. Installation of this kit is relatively, simple & will save money on labor, as there is no drilling & tapping, involved.

We also recommend instillation of a chlorine analyzer with an auto dialer. A sample port will be tapped inline, downstream & provide a constant chlorine residual. As a water softener passes iron, due to a malfunction, the chlorine will oxidize the iron, in turn lowering the residual. An auto dialer will then send a text &/or email to a predetermined contact list when the chlorine residual drops below certain point. This will give us an early indication something is awry.

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A bulk brine silo will greatly reduce salt expenses. Purchasing salt in bulk vs. pallets of bagged salt.

In addition to water treatment upgrades, Swann Keys' water board is in the planning stages with Pennoni Engineering on additional infrastructure upgrades.

We are all in agreement that Swann Keys is growing at a pace that until just recently was unimaginable. The current administration has embraced the impending expansion with advantageous optimism. The future here is very bright, & Sharp Water Culligan is committed to providing Swann Keys with years of reliable, steadfast service, for all of their water treatment needs.



Eric Hunter
Sharp Water Culligan
Operations Manager

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