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January 12, 2017

GAIL M. POMERANZ AND VERONICA M. WILLIAMS

99 HAVEN ST
WARWICK, RI 02889

Dear GAIL M. POMERANZ AND VERONICA M. WILLIAMS:

I am writing to inform you of ongoing efforts by the Warwick Sewer Authority (WSA) to address odors in your neighborhood. We are well aware of odor complaints in the vicinity of Cedar Swamp Road going back many years. The WSA has spent a lot of time and resources on this problem in recent years and we continue in our commitment to abate and prevent odors in your neighborhood.

Sewer-related odors are caused by the release of hydrogen sulfide (H_2S) gas which is generated within the sewer system. Hydrogen sulfide smells like rotten eggs and can be detected by the human nose at very low levels. Although hydrogen sulfide is not dangerous at low levels, it is a nuisance for you and a concern for the WSA because even at low levels, over long periods of time, H_2S can corrode sewer pipes, manholes and other infrastructure. We believe this is exactly what happened in February 2011 when a very large, very deep sewer pipe at the end of Cedar Swamp Road collapsed.

Following the 2011 pipe collapse, the WSA established a more vigilant odor abatement program in the Cedar Swamp Road area. That program included the following efforts:

- Purchased and installed a system for injecting odor control chemicals into the sewer system at three (3) upstream pump stations (Tidewater, Angelsca, and Buttonwoods). The chemical works to keep the H_2S from being generated in the wastewater. As long as we maintain an adequate supply of chemicals on site and the chemical pumps do not break down, this system works well.
- Removed an obstruction in the manhole just upstream from the Cedar Swamp pumping station which reduced the turbulence that was causing the H_2S to become airborne at that location.
- Adjusted pumping frequencies at certain stations (i.e., Tidewater Drive) to keep the wastewater flowing so it doesn't become stagnant (which causes odors).
- Hired a consultant to study this area of our collection system, determine the causes and sources of odors, and make recommendations for reducing the odors. The study used collection system information (flows, pipe size, pipe length, etc.) as well as H_2S monitoring data to determine where odors were being generated. The study found that

the upstream chemical addition worked but suggested alternative locations may be more effective. The study also recommended the installation of some kind of odor control system (scrubber, filter, etc.) at the Cedar Swamp pumping station along with upgrades to the ventilation system.

- Cleaned/flushed out sewer lines in the area.
- Installed inserts in numerous manholes to absorb/prevent odors from escaping into the atmosphere.
- Provided carbon filters for installation on sewer vents for homes where odor complaints seemed to be concentrated.
- Dispatch WSA staff to investigate all odor complaints from area residents which includes collecting data on H₂S levels in the sewer system and other information.

These actions have had some success in reducing the H₂S levels in the sewer system according to our monitoring data. However, we continue to get odor complaints so there's obviously more that needs to be done. We have also shifted our thinking to ways of *preventing* odors in order to address the more concerning problem for us, which is the potential for corrosion.

Future actions we plan to take include the following:

- Conduct "smoke testing" which will show us where the H₂S gases are escaping the sewer system (this is currently scheduled for January 18th and WSA will be distributing more detailed information to area residents about this).
- Complete an on-going pilot study of an alternative odor control chemical injection system that could address the corrosion issue and reduce the maintenance efforts required for the existing chemical addition system. The pilot study set specific performance goals for the vendor in terms of H₂S levels observed at specific locations in the neighborhood.
- Develop plans and specifications for upgrading the ventilation and odor control systems at the Cedar Swamp pump station. Monies have been budgeted for this effort, we have engaged an engineering consultant, and we are in the process identifying funding sources for the construction of these infrastructure improvements.
- Continue to collect and review H₂S data utilizing continuous odor analyzers installed in this area of the collection system.
- Further investigate other potential cost-effective technologies we can utilize to reduce and possibly eliminate odors in the Cedar Swamp sewer shed.

We ask for your patience as we continue to attack the odor issues in your neighborhood on various fronts. At this time, we are also asking for your assistance with providing us information that could help us determine the source(s) of the odors as well as the most appropriate solutions. To this end, we have created an on-line odor complaint form on the WSA web site (www.warwicksewerauthority.com). The form is easily accessed at <http://www.odor.warwicksewerauthority.com/>. We are asking you to use this form to report any observed odors to us as soon as you observe them. We are especially interested in the times of day that odors are being observed but the form is designed to collect information of

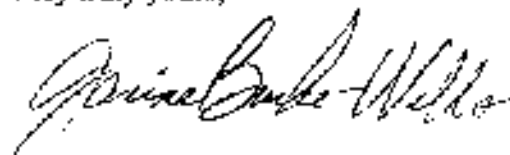
CoLAR Swamp sewer shed advisory
Hand delivered January 13, 2017

value to us in identifying the cause of the odor problem. Since you will be the first to use this new form, we would also appreciate feedback on its ease of use.

There are and always will be odors associated with wastewater collection and treatment operations. However, the WSA is committed to minimizing odors and reducing odor complaints, especially in your neighborhood. I recently met with your City Council representative, Timothy Howe, about this issue. He suggested a neighborhood meeting to discuss WSA's efforts in more detail. We have scheduled that meeting for Wednesday, February 15th, at the Buttonwood Community Center from 6 to 7:30 PM.

Thank you for your continuing patience and assistance. If you cannot attend the community meeting but have questions or are interested in more information about these odor issues, please feel free to contact the WSA at 401-468-4710 (between 8 AM and 4 PM) or email us at war.wsa@warwickri.com.

Very truly yours,



Janine Burke-Wells, Executive Director



Scott Goodinson, Superintendent

cc: Mayor Scott Avedisian
Councilman Timothy Howe, Ward 3
WSA Board of Directors
John Hannon, WSA Collection System Manager
Anthony Poole, WSA Administrative Services Manager
Bill Patenaude, RDEM