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INFORMATIONAL RELEASE

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Main Wastewater Treatment Plant Release of Partially Disinfected Outflow

We are providing this update on the recent release of partially disinfected outflow from Burlington's Main Wastewater Treatment Plant so that the public is well informed on the incident, what action steps have been taken, and the Department's ongoing commitment to stewarding the City's treasured water resources.

Heavy rains last weekend combined with atypical wastewater entering the plant stressed its biological and chemical systems. As a result, approximately 3.5 million gallons of treated but not fully disinfected outflow left the plant. A large component of this outflow was stormwater as the plant serves a portion of the City which has combined sewers that capture both sewage and stormwater runoff. While it is hard to prove definitively, we believe that our biological system may have been impacted by an expected and authorized discharge of chemical cleaning compounds from a large customer within our collection system. Based on our understanding, the customer complied with all required procedures. We have suspended discharges from that source and any other non-wastewater sources while we investigate the relationship of that discharge to this incident.

Given that the plant's outfall is nearly a half-mile out in the lake (well beyond the breakwater) and the limited recreational use of the lake this time of year, the potential risk to human health for this incident is small. Nonetheless, nearby public access points to the lake were posted in accordance with the State's new public notification law.

Public Works staff takes these incidents very seriously and we have already taken the following actions: 1) suspended any authorization of non-traditional discharges into the wastewater collection system, 2) adjusted our chemical approach and 3) supplemented the plant's biological agents. The plant operated well within compliance during the storm earlier this week and staff are preparing for the storm forecast for today. The City's increased investment in our stormwater and wastewater systems will continue to reduce these types of events.

Residents and businesses can also help our Wastewater Treatment Plants operate effectively by disconnecting sump pumps and gutters from the City sewer, not pouring hazardous substances, medicines or grease down the drain, and not flushing baby wipes or hygiene products.

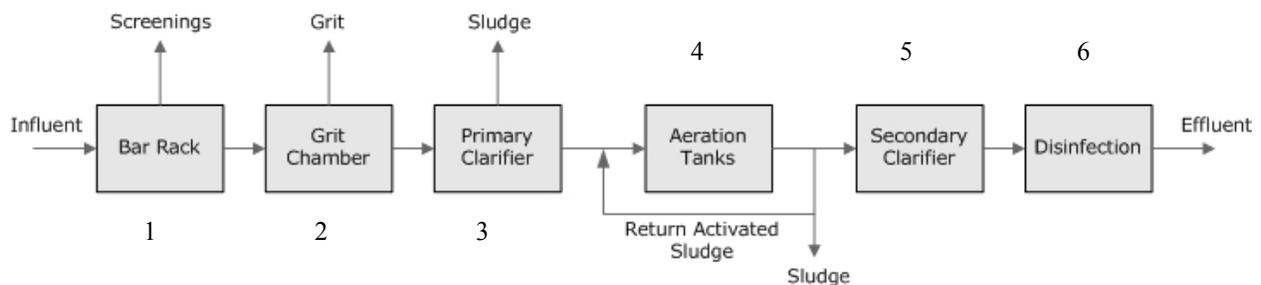
For more information about our wastewater treatment plant, technical details of what occurred over the weekend, and what measures we have been taking to mitigate the risk of this occurring again, please see the detailed explanation below or at www.burlingtonvt.gov/dpw.

Detailed Explanation:

Wastewater treatment plants are complex systems which, on most days, work very efficiently to take very polluted influent/inflow (the sewage that comes from homes, business, and in Burlington's case, stormwater runoff from roadways) and produce clear effluent/outflow with little to no bacteria or other contaminants. For example, our average bacteria concentrations are 2-4 colonies/100 mL, which is less than typical stormwater runoff. We are able to do this using a variety of wastewater treatment processes including physical, chemical and biological treatment.

What happened to the sewage plant over the weekend?

Unfortunately, because of the complexities of these wastewater systems, they can be sensitive to changes in the influent/inflow and sensitivities within the various treatment processes. While Burlington Main Plant is usually able to maintain high quality effluent throughout the year, even during storm events such as that this weekend, the combination of settling challenges in our secondary clarifiers (see location 5 in the diagram below) and the elevated flows unfortunately resulted in the discharge of effluent or outflow that was treated but not fully disinfected. Specifically, changes in the settling ability of our solids (due in part to acute die-off of some of our biological system) together with the high flows allowed some portion of the treated solids that are usually retained in the secondary clarifier to be discharged with the outflow. The additional amount of solids meant that the amount of chlorine disinfectant that we add was not sufficient to kill all of the bacteria and so we discharged effluent with a higher bacteria count than acceptable (800 col/100 mL vs. the 235 col/100 mL standard). While it is hard to prove definitively, we believe that our biological system may have been impacted by an expected and authorized discharge of chemical cleaning compounds from a large customer within our collection system. Based on our understanding, the customer complied with all required procedures. We have suspended discharges from that source and any other non-wastewater sources while we investigate the relationship of that discharge to this incident.



This event was certainly undesirable and we are doing everything we can to prevent it happening in the future (see Actions taken). It is important to note that this type of incident is quite different from a spill of raw, completely untreated sewage that has not gone through any of earlier processes of the wastewater treatment process. Additionally, a large component of this outflow was stormwater as the plant serves a portion of the City which has combined sewers that capture both sewage and stormwater runoff. The location and design of the diffuser outfall for the treatment plant (2400' off shore and 1000' outside the breakwater) as well as the timing of this incident does reduce the risk to human health in this particular incident. However, nearby public access points to the lake were posted in accordance with the State's new public notification law.

Actions taken:

-) Upon realizing that there were settling issues in the secondary clarification tanks last week, wastewater staff immediately began the application of additional polymer to assist with the settling. Unfortunately, our cationic (positively charged) polymer did not function as needed due to a change in the charges on the particles.
-) Staff switched to an anionic (negatively charged) polymer which yielded better results but did not have enough polymer on hand to get us through the storm event on Friday/Saturday. Since anionic polymer is not as commonly used as cationic polymer, securing additional polymer has been difficult despite reaching out to other municipal wastewater plants. As of Wednesday night (4/5) staff have secured a small amount of anionic polymer and a delivery of a large amount is scheduled for late Thursday (earliest available).
-) As necessary, dosages of disinfection chemicals are being adjusted to ensure maximum disinfection of the outflow and minimal bacteria levels.
-) Until further notice, a moratorium on previously permitted non-wastewater discharges has been put into effect to support regrowth of our biological system.
-) We have been boosting our biological system using “seed” that comes from the biological systems of other nearby wastewater treatment plants since Tuesday.
-) As always with this type of incident, Burlington Water Resource staff are looking at any and all methods by which this and other types of process related incidents can be mitigated in the future.
 - o This includes our city wide Integrated Water Quality Planning effort which has kicked off this year and which is looking at strategies for improving our plant effluent and reducing stormwater flow to the combined sewer through green stormwater infrastructure.
 - o Prior to this incident, staff had placed orders for sludge blanket level detectors which will help us detect settling ability changes in our sludge blankets earlier. These are due to arrive within the next 4 weeks and are a high priority for immediate installation.

While we still have to weather one more near term storm event Thursday – Friday, results from sampling during the storm event on Tuesday morning showed E. coli at 20 col/ 100 mL which is well below our permit and EPA standards and non-storm event samples since this weekend are trending back at the normal 2 col/100 mL level.

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