



## **Office of the Health Officer**

Tyler Driscoll - Health Officer  
Rudolph A. Cartier III, DO, FACEP - Deputy Health Officer  
36 Main St., Center Harbor, NH 03226  
Phone: 603-253-4451

### **Report of Wastewater Release**

**183 Whittier Highway, Center Harbor, NH 03226**

**Date of Release: November 10, 2023**

**Date of Initial Report: November 24, 2023**

**Date of First Follow Up: December 7, 2023**

#### **Situation and Background**

Around 2:00 pm on November 10, 2023, Center Harbor Police were requested to 183 Whittier Highway in Center Harbor for reports of a sewer line rupture. At 2:25 pm, the Center Harbor Fire Department was requested for further assistance. Upon arrival, it was found that a 10 inch force main had ruptured. This line carries partially treated wastewater from the Center Harbor sewage lagoons southward down NH Route 25 (Whittier Highway) to Meredith and on to Franklin where it undergoes additional treatment. At the Center Harbor lagoons, treatment is limited to sun exposure. The large line is used intermittently when the lagoons require drainage, or when an adequate amount of wastewater has been collected. The line is owned and operated by Bay District Sewer Commission.

#### **Initial Response and Investigation**

Deputy Health Officer Rudolph A. Cartier III was on duty with the Center Harbor Fire Department on this day and responded at the time of the request for fire department assistance. Upon arrival, a cloudy, clay-colored fluid was noted to be flowing from an approximately 3' diameter hole just off the shoulder of NH Route 25 (Whittier Highway). There was a strong odor of sewage around the area, and a clay-colored sediment was noted in an approximately 6' diameter area around the hole, indicating that the flow had been higher prior to his arrival. The fluid was noted to be traveling down the roadside to a small brook located in front of 183 Whittier Highway, passing through a small culvert under the driveway of that address, and continuing through a second culvert under Whittier Highway. The brook continued approximately 1000 feet to Lake Winnepesaukee with an outlet due west of Half Mile Island located adjacent to the property at 196 Whittier Highway. There was an approximately 100 foot diameter plume of similarly cloudy fluid noted in the lake. Upon return up the driveway of 196 Whittier Highway, one residential building was encountered which appeared unoccupied and under construction. The presence of wells at either affected property was not determined at that time.

#### **Actions Taken**

While the leak appeared to have slowed from its initial rate, actions were taken to mitigate further release. A dike was placed in front of the culvert leading under the driveway at 183 with moderate decrease of wastewater leaving this culvert. Bay District Sewer officials were on site and had requested a vacuum truck to the scene to remove residual wastewater from the diked area as well as the original hole. Once this was completed, all municipal services had left the scene. NHDES had been notified by Bay District Sewer and municipal authorities on scene.

As a precaution, entry into the water south of Half Mile Island to Bullrush Cove was discouraged.

### Follow Up Investigation

On November 17, 2023, Deputy Health Officer Cartier was able to make contact with Teresa Ptak of the NHDES Wastewater Engineering Bureau for further information regarding any additional testing that would be needed and to discuss any concerns with nearby residential wells that could be impacted by the release. Ms. Ptak advised that NHDES rules set protective radii around wells excluding septic systems which varies based on the amount of wastewater expected to enter the system daily. Given the estimated release of 1500 gallons, this radius would be 125-150 feet. This radius would include the recommended protective distance for septic systems managing up to 14,400 gallons of wastewater per day. Any well outside of that area would be considered to be very low risk for contamination from this release. In addition, any drilled well which had been properly constructed would be expected to exclude any bacterial or viral contamination from such a surface release, even if it was located within the protective radius. A septic system would be expected to continuously leach sewage into the ground and is not considered to be a risk to properly sited and constructed wells, so a one time release of sewage in the vicinity of a well would be very unlikely to cause contamination of a residential water supply.

In regards to testing of the water of Lake Winnepesaukee in the area of the release as well as the Center Harbor Town Beach, Ms. Ptak advised that there would be no requirement for additional testing per the NHDES, but that testing could be performed by the Town or individual homeowners if desired. She recommended that any wells which were tested have total coliform and E. coli levels checked and any surface water should have only E. coli levels checked. Acceptable levels of E. coli for freshwater beaches are less than 158 MPN/100 mL for a single sample or two samples of less than 88 MPN/100 mL per the New Hampshire Beach Inspection Program.

Finally, Ms. Ptak advised that in general, remediation of the stream bed for a one-time sewage release would not be required. The likelihood of future bacterial/viral contamination from residual sediment is very low.

Following this discussion, additional site visits were completed at 172, 183, and 196 Whittier Highway on the same date to ascertain the presence of residential wells and occupation of any residences in the area of the release.

At 183 Whittier Highway, an 18 foot deep dug well was noted. This was uphill from the area of the brook which had contained the release at a distance of 175 feet. The amount of elevation from the stream bed to the top of the well was estimated at 30 feet. This residence was occupied and the occupant was advised of the investigation. Occupant was advised that there was no recommendation for testing of the well, but that she could obtain additional testing if so desired and that any illness should be reported to the Health Officer.

At 172 Whittier Highway, two residential structures were found which appeared to be seasonal and were unoccupied at time of inspection. Each structure had its own drilled well which appeared to be in good condition. Each well was within 50 feet of the lake shore, but greater than 300 feet from the release location into the lake. At 196 Whittier Highway, a drilled well in good condition was noted next to an occupied residence. This well was approximately 50 feet from the brook which had contained the release. Given that these wells are drilled and in good condition, the likelihood of contamination from this release is extremely low, and additional testing would not be necessary.

The release site was re-evaluated and found to have been repaired with soil in place as well as sediment-containing booms. There was no residual leak or sewage odor noted. The nearby stream bed was still noted to have clay colored sediment at its bottom, but the water was clear and no sewage odor was noted. This was the case for the entire course of the brook to the lake.

Attention was then turned to the lake itself. Inspection was performed both from the shore and by boat. The cloudy plume in the lake noted on the day of release had cleared, and no odor was noted around the area. There was no evidence of harmed plant or animal life in the area. While exiting the area by boat, it was noted that there was a moderate current moving from the area of release into the lake towards the town beach passing through the two stone piers of an old bridge between the mainland and Hog Island from south to north. The town beach is noted to be approximately 2,300 feet north-northwest of the location of release into Lake Winnepesaukee.

In discussion with operators from Bay District Sewer, the estimated total release was 1,500 to 2,000 gallons of wastewater. However, while no specific estimated release flow was indicated on the report to NHDES, Bay District Sewer did indicate that the pumps were running for approximately 30 minutes at a flow rate of 175 gallons per minute to >900 gallons per minute. This would indicate a potential discharge of up to 27,000 gallons of wastewater. Additionally, based on a diameter of 10" and a length of approximately 2,800 feet from site of the break to the top of the hill on Whittier Highway, the estimated volume of the line is 11,000 gallons which would have either had to return to the lagoons or be released from the rupture site. It is certainly possible that not all of the wastewater pumped from the lagoons was released from the rupture site, but given

the totality of information available at this time, the estimate of 1,500 gallons released is a best case scenario with the possibility of up to 27,000 gallons released and a most likely amount released of approximately 10,000 gallons.

### Conclusion and Follow Up Plans

At this time, there appears to be extremely low risk of significant bacterial/viral contamination of local residential water wells, lake water, or public beaches. Despite the uncertainty of the total amount of wastewater released, the massive volume of distribution in Lake Winnepesaukee as well as the paucity of swimming and other water activities at the time of the release poses extremely low risk to the public. No remediation will be required of Bay District Sewer by the NHDES, and no additional testing will be performed by the State.

As a precaution, the Center Harbor Health Officer will perform additional E. coli testing in the vicinity of the release site and at the public beach on Lake Winnepesaukee. This will be completed at earliest convenience this month (November 2023) as well as after ice-out (estimated April 2023) and prior to the Summer swimming season (May 2023).

### Follow Up Testing

Testing for E. coli in the area of the Center Harbor Town Beach and south of Hog Island was performed on the dates noted in the table below. As previously stated, acceptable levels of E. coli are less than 158 MPN/100 ml for a single sample or less than 88 MPN/100 ml for two samples.

Date	Center Harbor Town Beach (MPN/100 ml)	Hog Island (MPN/100 ml)
11/28/2023	1.0	160.7

Initial testing on November 28, 2023 showed very low levels of E. coli at the Town Beach, but unacceptably high levels of E. coli in the area of Hog Island. Cold weather and the time of year limited the likelihood of water usage in this area, but recommendations were made to avoid water usage in the area of Hog Island until further testing is completed.

Any questions can be directed Deputy Health Officer Cartier at the contact information noted.



Rudolph A. Cartier III, DO  
Deputy Health Officer

Town of Center Harbor  
rcartier@centerharbornh.gov

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Town of Center Harbor

Fig. 1 - Clay-colored fluid collecting in and flowing out of an approximately 3 foot diameter hole and downhill in front of 183 Whittier Highway - 11/10/2023



Fig. 2 - Clay-colored fluid collecting in and flowing out of an approximately 3 foot diameter hole in front of 183 Whittier Highway. Additional sediment is noted in an approximately 6 foot diameter area around the hole - 11/10/2023



Fig. 3 - Clay-colored fluid moving downhill along Whittier Highway in front of number 183 - 11/10/2023





Fig. 4- Clay-colored fluid moving toward culvert under the driveway of 183 Whittier Highway. Culvert has been diked with red salvage cover - 11/10/2023



Fig. 5 - Clay-colored fluid moving through culvert under the driveway of 183 Whittier Highway (left side of image) - 11/10/2023



Fig. 6 - Release site on Lake Winnepesaukee - 11/10/2023



Fig. 7 - Release site on Lake Winnepesaukee - 11/10/2023



Fig. 8 - Clay-colored plume noted in water of Lake Winnepesaukee south of Hog Island - 11/10/2023



Fig. 9 - Clay-colored fluid flowing in brook just south of 196 Whittier Highway - 11/10/2023



Fig. 10 - Clay-colored fluid flowing in brook just south of 196 Whittier Highway - 11/10/2023



Fig 11. - Dug well at 183 Whittier Highway - 11/17/2023





Fig. 12 - Dug well at 183 Whittier Highway - 11/17/2023



Fig. 13 - Stream bed in front of 183 Whittier Highway - 11/17/2023



Fig. 14 - Release site in front of 183 Whittier Highway - 11/17/2023



Fig. 15 - Drilled well at the western structure at 172 Whittier Highway - 11/17/2023



Fig. 16 - Drilled well at the western structure at 172 Whittier Highway - 11/17/2023



Fig. 17 - Drilled well at the eastern structure at 172 Whittier Highway - 11/17/2023



Fig. 18 - Drilled well at 196 Whittier Highway - 11/17/2023



Fig. 19 - Overview of release area into Lake Winnepesaukee - 11/17/2023





Fig. 20 - Overview of release area into Lake Winnepesaukee - 11/17/2023



Fig. 21 - Lakeside structures of 172 Whittier Highway showing private beaches and water access - 11/17/2023



Fig. 22 - Release site into Lake Winnepesaukee - 11/17/2023



Fig. 23 - Release site into Lake Winnepesaukee. Water is clear - 11/17/2023



Fig. 24 - Release site into Lake Winnepesaukee. Water is clear - 11/17/2023



Fig. 25 - Stone piers with gap leading north away from the release site towards the Center Harbor Town Beach - 11/17/2023



Fig. 26 - Stone piers with gap leading north away from the release site towards the Center Harbor Town Beach. Water is approximately 2-3' deep passing through this gap with prevailing current moving south to north. - 11/17/2023



Fig. 27 - Overhead view of release site into Lake Winnepesaukee located at 43°42'06.2"N 71°27'29.8"W. Center Harbor Town Beach is 2,300 feet north-northwest of the indicated location.

