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By Pine duBois and Karen Vale

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OF NUCLEAR INTEREST: Groundwater pollution problems from wastewater treatment at Pilgrim

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As an environmental watchdog campaign concerned about the health of Cape Cod Bay, we're kept very busy by Entergy's Pilgrim plant operations. Earlier this year, the public learned that high levels of tritium (a radioactive form of hydrogen) spiked to high levels in groundwater samples at the plant. While we pursue answers for that event, we are simultaneously investigating a different groundwater pollution problem – one produced from Pilgrim's on-site industrial wastewater treatment facility.

Pilgrim's wastewater facility treats water that has been contaminated by routine industrial activities of the plant, and then the water is discharged to the ground via a leach field on Rocky Hill Road. We suspect that the facility has been a source of groundwater contamination for some time, potentially impacting the Plymouth-Carver Sole Source Aquifer and Cape Cod Bay.

The issue has been on our radar since 2012, when we first raised concerns about the facility in person to the state's Department of Environmental Protection (DEP); however no action was ever taken. So on Feb. 7 we sent formal request asking the state agency to address several apparent deficiencies in its regulatory oversight of Pilgrim's wastewater treatment facility.

Among the problems outlined in our letter is that DEP has apparently classified Pilgrim's wastewater treatment facility as "domestic." Instead, we believe DEP should reclassify the facility as "industrial," which would require compliance with additional regulations appropriate for a producer of industrial wastewater.

Another apparent deficiency is that DEP eliminated pollution limits for chloride and total dissolved solids (TDS) from Pilgrim's reissued groundwater discharge permit in 2007. When issuing new permits, DEP is supposed to apply pollution limits that are "at least as stringent" as prior permits. We believe that DEP should amend Entergy's groundwater discharge permit to restore the TDS and chloride discharge limits that were required prior to 2007.

Pilgrim has also been chronically noncompliant with nitrogen pollution limits set by DEP. The state agency typically requires municipal wastewater treatment facilities (including Plymouth's) to discharge a maximum nitrogen limit of 10 mg/l. However, Pilgrim's nitrogen discharges to the ground regularly exceeded that limit by up to 12 times in 2012, and DEP allowed the plant to delay compliance from 2007 to at least 2012. Excess nitrogen is a great concern because it passes through the soils to groundwater and then to surface waters, where this excess nutrient promotes algae growth and decay. This condition depletes the oxygen supply in the water, making it difficult for fish, sea grass and other marine life to thrive.

Excess nutrient loading has been identified as one of the greatest threats facing water quality in Massachusetts' coastal areas. Government and private groups dedicate extensive resources to mitigate and clean up nitrogen pollution in the bay; however Entergy has been allowed to pollute the groundwater that flows into the bay with nitrogen without any ramifications.

In 2008, Pilgrim added an industrial sludge press in the wastewater treatment facility, which is used to extract low-level radioactive waste from the facility's process water. We believe that this low-level waste is stored on the Pilgrim site within 100 feet of Cape Cod Bay. We are concerned with the storage of any radioactive waste in an area that has the potential to contaminate the bay. We are seeking answers from the regulators to ensure the bay is protected from radioactive leaks or catastrophic failure of storage facilities.

Time will tell if DEP responds to our formal request for information on Pilgrim's wastewater treatment facility. In the meantime, the groundwater pollution continues.

Karen Vale is a biologist and campaign manager at Plymouth-based Cape Cod Bay Watch, a project of the Jones River Watershed Association.

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