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Bethlehem landfill may be leaking

By REBECCA BROWN
COURIER STAFF

BETHLEHEM—They've long suspected and feared it, and now they claim it's true. High levels of contaminants in a test well are evidence that the "state-of-the-art" lined landfill is leaking, say members of Environmental Action for Northern New Hampshire, and other landfill opponents.

However, landfill operators say they have a more plausible

explanation, and state regulators are reserving judgment until more analyses are complete.

However, the state Department of Environmental Services has ordered that new tests be performed and that a "corrective action plan" to investigate and remediate the problem be developed.

Landfill owners have complied with the orders. They have reported some results of new tests and expect to provide further data by late July.

While not yet determining the reason for the groundwater contamination, DES has concluded that the double-lined landfill is the source, according to Waste Management Specialist Jim Berg.

This is a significant finding, according to landfill critic Ted Wilkinson, who says that in the past, the state and landfill operators have attributed groundwater quality problems to the old, unlined landfill.

"It's the first time the state has conceded there is no connection between this and the relocated waste," he said.

Judy Wallace, speaking for Environmental Action, called the issue "timely."

"We've been talking about how it will leak eventually, and obviously it has," she said.

Landfill operators and engineers assert that the liner system is working as designed. Rather, they say, it is likely that landfill gas has condensed inside the test well tube and affected the water samples. They have responded to DES with an analysis supporting this reasoning.

The groundwater tests became an issue this spring.

In April, a regularly scheduled test showed a higher than normal level of volatile organic compounds (VOCs) in a monitoring well that draws groundwater from underneath the landfill.

The well, 406L ("L" for "lower"), sits on the boundary between the old, unlined landfill and the new, lined section built by current owners North Country Environmental Services. It and 406U ("upper") monitor the double-lined Stage 1 landfill.

Several years ago, NCES removed the trash from the old unlined landfill and placed it within the lined area. Disturbing the old garbage, NCES officials have said, caused dramatic "spikes" in test well results in the vicinity.

Groundwater is tested for VOCs, which include chemical solvents found in household cleaners and paints as well as industrial applications. Water is also tested for acidity, drinking water metals, iron, and other parameters according to the groundwater permit issued by the state.

In addition to groundwater, detention ponds, several seeps, and the Ammonoosuc River are also tested.

Water quality monitoring data are summarized each year in an annual report and submitted to DES and the Town of Bethlehem. Records of the individual tests are also on file.

The April tests showed higher than acceptable levels of acetone, 2-butanone (MEK), tetrahydrofuran, and chloromethane. Ambient groundwater quality standards are set by the U.S. Environmental Protection Agency.

With the exception of methylene chloride in an April, 1997 sample, this was the first time ambient groundwater standards had been exceeded at well 406L, according to NCES engineers.

According to a May letter to NCES, DES finds the VOC concentrations very high and of significant concern when compared with historical data.

The department ordered a corrective action plan, and stated that if results from the testing round were confirmed, a more "aggressive and rigorous sampling program" would be required.

NCES responded by retesting the well in late May. Its engineering firm, Sanborn, Head & Associates of Concord, reports that results "indicate considerably lower concentrations of a similar suite of VOCs" to those found in April.

Pointing to the low VOC levels found in May, later test results that show less concentrations as more water is drawn from the well, as well as lower levels in well 406U, the engineers suggest that droplets of liquefied gas may have formed inside the test well. The landfill gas contains small amounts of VOCs, and this affected the water samples, they reason.

"It's like water condensing on a glass," says engineer Scott Shillaber.

Inside the landfill, it is at least 20 degrees warmer than soil. Condensate forms when warm saturated gas is cooled outside the refuse mass, he explains in a report to DES.

The test well in question has a very long pipe. It reaches about 180 feet from its end, where water is drawn up by a pump, to about 30 feet into the groundwater under the landfill.

It is possible, Shillaber explained this week, that the well pipe could be "breached" or cracked, allowing gas into the

chamber. A pipe contractor was hired to run a small camera down the well to investigate. Results from the videotape will be included in the next report to the state.

It is also possible that VOCs in landfill gas diffuse into groundwater adjacent to the landfill, Shillaber's report states.

He also suggests that "overflowed" trash reaching outside the lined landfill area could account for leachate break outs, especially during spring rains. The corrective action report proposes that NCES will monitor trash overfills more closely and "repair break outs as they occur and document those efforts."

The gas extraction system at the landfill will be expanded to reduce gas pressure, according to NCES.

Shillaber asserted that while condensed VOCs may affect water within the well, they are not reaching surrounding groundwater.

Wallace remains concerned, however.

"Whether the landfill liner is broken or not doesn't matter," she says. "One way or another, it (VOCs) is coming out."

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