

Biorecycling Treatment and Beneficial Use Facility (Webb Hill)

Frequently Asked Questions

Background

For the past 15 years, Bio Recycling Corporation has operated the Webb Hill facility in Mason County. Biosolids are the material that remains from wastewater treatment facilities and septic tanks. Biosolids break down when applied to land and add nutrients for plant growth as well as improve the soil's condition. The Webb Hill facility currently treats more than 34 million gallons of material a year and applies this treated material to various fields within its approximately 400-acre facility.

Under a biosolids permit issued by the Washington Department of Ecology (Ecology), Bio Recycling is required to treat the material to destroy potentially harmful organisms that can cause illness or disease before applying the biosolids on the land. Facility operators also monitor the soil to make sure the amount of nutrients applied is fully used by the range grass planted at the site.

Over the past several years, area residents have raised questions about potential impacts a biosolids facility could have on groundwater, with particular concern about the Skokomish River and Hood Canal. In response, the Skokomish-Dosewallips Watershed Planning Unit (WRIA 16) applied for and received a grant to evaluate the environmental monitoring at the Webb Hill facility.

With this grant and additional funding from Puget Sound Action Team, the WRIA 16 planning unit hired a consultant to locate and drill four groundwater monitoring wells on Bio Recycling property and then analyze the groundwater from the wells to check for any impacts on groundwater.

One well sample showed elevated nitrate levels above the safe drinking water standard of 10 milligrams per liter (10 mg/L), and a second well with a nitrate level just below that level. The two other monitoring wells returned samples with very low or no trace of nitrate.

Both BioRecycling owner-operator and the WRIA 16 planning unit want to determine if any groundwater containing nitrate is leaving the land application site. Therefore, both plan to install additional groundwater monitoring wells.

A report detailing how the study was conducted and the data collected so far is available from Mason County at <http://www.co.mason.wa.us>.

Frequently Asked Questions:

Did the report find a potential impact on water quality?

Yes. The groundwater samples from the four wells show that there is nitrate in the groundwater beneath the biosolids land application sites at Webb Hill. The federal standard for nitrates in drinking water is 10 mg/L. In this study:

- The sample from monitoring well one (MW-1) contained 13.3 mg/L, the highest nitrate level among the four taken. It is near the center of the 400-acre Bio Recycling facility.
- Water from monitoring well two (MW-2) contained 0.79 mg/L of nitrate.
- Nitrate was not detected at monitoring well three (MW-3). This well is toward the northern boundary of the facility.
- Monitoring well four (MW-4) contained 9.78 mg/L, just a few tenths below the safe drinking water standard for nitrate.

No off property testing was conducted in this report.

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Did the report identify the path of groundwater from the Webb Hill site?

Partially. The results of this study indicate that water appears to move from the northeast to the southwest beneath the Bio Recycling facility.

The study determined that groundwater travels very slowly under the facility, equal to about 0.2 ft/day. The gradient is unknown beyond the limits of the existing monitoring wells.

Will anything happen as a result of this report?

Yes. Bio Recycling's operator-owner is making adjustments in the facility operations to reduce the application of nitrogen by 50 percent at the Webb Hill site. This change should be in effect in late fall. In addition, Bio Recycling will fund the drilling of one or two more wells to further define groundwater movement and help determine if nitrate is moving off site. The operation will also fund some sampling and analyses to monitor for groundwater impact from its facility.

The Skokomish-Dosewallips Watershed Planning Unit (WRIA 16) received a grant from Ecology for additional monitoring work at the site. The planning unit and its technical committee will coordinate with Bio Recycling to determine the best use of these funds. Preliminary ideas include the additional monitoring wells as well as additional surface and groundwater sampling.

Ecology is evaluating the biosolids permit limits and suggested application rates for the Webb Hill site to determine if there are issues with the recommended biosolids application rate. Depending on the findings from this evaluation, the permit may be modified to lower the application rate at Webb Hill.

Mason County Public Health will evaluate drinking water wells in the area to make sure that levels of nitrate are within safe drinking water limits. Individual owners who live within 3000 feet down gradient of Bio Recycling's facility boundary will be contacted about testing their well water for nitrate. The results will be used in conjunction with available data to establish a "baseline" level to determine any future changes.

With the addition of two to four new monitoring wells, increased data will provide useful information about what is happening in the groundwater and enable the responsible agencies to respond to water quality changes.

BIOSOLIDS

Where do biosolids come from?

Biosolids are an organic, semisolid byproduct that comes from the treatment of wastewater in a sewage treatment plant and the contents of a septic tank. Biosolids can be applied after they are treated to kill disease or illness-causing germs. They can be applied to land to condition the soil, add valuable nutrients and improve the overall quality of soil.

Why do we recycle biosolids?

The U.S. Environmental Protection Agency has long advocated for responsible biosolids management. Washington passed its own law in 1992 establishing a state biosolids program.

The law emphasizes the use of biosolids as a "beneficial commodity" while protecting public and environmental health. State rules define beneficial use as the application of biosolids to the land for the purpose of improving soil texture, fertility and stability, and enhancing the growth of vegetation in land reclamation projects.

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BIO RECYCLING TREATMENT FACILITY (WEBB HILL)

How is the Bio Recycling facility on Webb Hill regulated?

Mason County and Ecology partner on the regulation of the Webb Hill facility. Ecology issues a biosolids permit. Mason County reviews and approves the site for land application of the biosolids and samples surface waters on the Webb Hill property every three months. The samples are sent to a qualified lab and the results are shared with Ecology and Bio Recycling.

How does Bio Recycling operate?

Bio Recycling receives biosolids – which have already been treated in a wastewater treatment plant to kill harmful bacteria – and septage (untreated solids and liquids) from septic tanks. This material is pumped into one of two 8,000-gallon underground tanks for treatment with lime, calcium oxide (CaO). This process is called lime stabilization.

After the septage has been treated, it is then applied to the soil in regulated amounts by using large sprinklers. The facility pasture is divided into separate areas so that this process can be monitored and tracked to ensure that no one area receives more biosolids than it can use for crop growth. These areas of application are also tracked to ensure that no cattle are allowed to graze for at least 30 days after the application.

How does Ecology and Mason County ensure Bio Recycling is operating in compliance with their permit?

Under an agreement with Ecology, Mason County conducts quarterly inspections of the Webb Hill facility and takes water samples that are analyzed by Pacific Group Water Group for nitrogen, nutrients, and nine metals. In addition, Bio Recycling contracts with Land Profiles Inc., whose professional soil scientists take annual soil samples to analyze the soil for Total Kjeldahl Nitrogen, ammonia, phosphorus, and metals.

All samples are sent to a state-certified lab and are analyzed for nitrogen, nutrients and a series of nine metals. These results are evaluated and reported by Pacific Ground Water Group (a third party consulting firm hired by Mason County) in quarterly and annual reports that are available to the public upon request. In addition, Bio Recycling submits an annual report to Ecology and Mason County detailing the sources and the amount of material handled at the facility. Mason County Public Health and Ecology have copies of the quarterly monitoring reports and annual reports.

HEALTH ISSUES

What is nitrate? What kind of health issues are caused by high levels of nitrate?

Nitrate (NO₃) is a compound of nitrogen and oxygen found in many food items in your everyday diet. Generally, the concentration in the ground water is low. The major adult human intake of nitrate is from food rather than from water. Vegetables such as spinach, lettuce, beets and carrots contain significant amounts of nitrate. Drinking water normally contributes only a small percentage of the total nitrate intake. Nitrate is found in most fertilizers, manure and liquid waste discharged from septic tanks.

High nitrate levels in drinking water pose a risk to infants because they may cause methemoglobinemia, a condition known as "blue baby." Nitrate reduces the ability of red blood cells to carry oxygen. Infants who drink water with high levels of nitrate (or eat foods made with nitrate-contaminated water) may develop a serious health condition due to the lack of oxygen. This condition is called methemoglobinemia or "blue baby syndrome." If your baby does not have any of the symptoms of "blue baby syndrome," you do not need to have a doctor test for methemoglobinemia.

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Could my drinking water be affected?

There are many potential sources of nitrates in drinking water. Rain or irrigation water can carry nitrate from any source down through the soil into groundwater. Shallow wells, poorly sealed or constructed wells and wells that draw from shallow aquifers are at greatest risk of nitrate contamination. There is no known impact on water quality beyond the Bio Recycling facility boundary at this time. Mason County Public Health, Ecology and Bio Recycling agree more investigation should be done.

The county will test the wells located within 3000 feet down gradient from the site to gather “baseline” information. Mason County Public Health will talk with each of those property owners individually and provide information to others who may be interested in getting their drinking water tested.

How can I find out if my well water has an unsafe level of nitrate? Have it tested.

If you own a private well and are unsure about your water quality, you should test for coliform bacteria and nitrate. Mason County Public Health (360-427-9670 extension 580) can tell you where you can get your water tested and may have specific recommendations for testing. You can obtain sample bottles for both of these tests at Mason County Building Three, which is located at 426 W Cedar Street in Shelton. The sample bottles have sampling directions and a lab schedule wrapped around them.

Why is free testing limited to those within 3000 feet down gradient from the edge of the site?

The report estimates that that biosolids have been applied to the Webb Hill site for approximately 22 years, and groundwater has traveled approximately 1,500 feet down gradient from the land application sites. Mason County Public Health wanted to be additionally cautious and has decided to sample within an area covering twice this distance.

What happens if the nitrate levels in my water are elevated?

If your nitrate test results are over 8 mg/L, Mason County Public Health recommends testing every 3 months. If results are between 5 mg/L and 8 mg/L, Mason County Public Health recommends testing every year. Also see *Important Information for Private Well Owners*, published by the Washington Department of Health (Publication Number 331-349), available on the Web at http://www.doh.wa.gov/ehp/dw/Publications/331-349_1-13-07.pdf.)

What will Mason County Public Health do with the test results from my water?

Mason County Public Health will make test results available to the property owners. If the results are over 5 mg/L (5 ppm), Mason County Public Health will work directly with affected property owners on the next steps including annual testing of the water at a minimum.

Additional resources from state Department of Health

Nitrate in Drinking Water: <http://www.doh.wa.gov/ehp/dw/Programs/nitrate.htm>

Nitrate fact sheet: http://www.doh.wa.gov/ehp/dw/Publications/331-214_2-21-07.pdf