United States Department of Agriculture

Agricultural Research Service

Beltsville Agricultural Research Center
BARC 27: Beaver Dam Road Landfill

April 2010

The U.S. Department of Agriculture's Agricultural Research Service is undertaking a Remedial Investigation (RI) and Feasibility Study (FS) at a site designated as the Beaver Dam Road Landfill (BARC 27), located on the Central Farm of the Beltsville Agricultural Research Center. A Remedial Investigation is a carefully structured process of collecting samples from potentially contaminated media (including soil, surface water, sediment, groundwater, and/or air), analyzing them for environmental contamination, and evaluating the potential risks that any contaminants found in those samples may pose to human health and the environment. The FS evaluates possible alternatives for cleanup to address any risks that have been identified, taking into account regulatory requirements, effectiveness, implementability, cost, community acceptance, and other factors.

Background

Beaver Dam Road Landfill (BDRLF) is located approximately 1,700 feet east of the intersection of Beaver Dam Road and Research Road, on the north bank of the Beaver Dam Creek stream valley. The landfill is somewhat dome-shaped, with steeply sloped sides surrounded by woods to the east and south, and it is covered with vegetation. BDRLF is upstream of the floodplain of Beaver Dam Creek.

BDRLF was reportedly used as a disposal site for non-hazardous substances such as construction rubble, furniture, and other debris. This site was used for disposal from the early 1940s through the 1980s, after which time the landfill was closed and capped.

Several environmental studies of BDRLF have been completed. These included a field reconnaissance study (1996), baseline groundwater sampling (1997), and a Site Screening Process (SSP) investigation (1999). These investigations identified the presence of certain chlorinated volatile organic compounds (VOCs) within the shallow groundwater system at the site. As a result, a more comprehensive RI/FS was initiated in 2002. The RI/FS identified the types, quantities, and locations of contaminants and developed ways to address the contamination problems.

Completed Remedial Investigation Activities

RI field activities included soil conductivity probing and field screening of soil gas samples; surface water, sediment, and shallow groundwater sampling; and advancing soil borings to collect surface and subsurface soil samples. Wetlands delineation of the floodplain south and east of the landfill has also been performed to determine wetland boundaries. The RI identified a plume of groundwater contaminated with the VOC trichloroethylene (TCE) approximately 650 feet wide, by 450 feet long southeast (downgradient) of the BDRLF. However, the source of TCE is unknown.

Chemical analyses of the soil borings were used to site five additional monitoring wells at various locations south of the landfill. These wells were installed in 2004. Nine monitoring wells (four existing wells and five new wells) have been sampled on five separate occasions since their installation in 2004.

Baseline Risk Assessment and Feasibility Study

As part of the RI/FS, ARS conducted a baseline risk assessment to determine current and future effects of contaminants on human health and the environment. There are no current residents at the BDRLF site, and no groundwater use within 1 mile of the site. The

baseline risk assessment focused on health effects for current receptors (trespassers, visitors, or site workers), and children and adults in a future hypothetical residential setting.

The baseline risk assessment showed that there are no significant risks to current receptors associated with exposure to surface water or sediment (i.e., in Beaver Dam Creek and its associated tributaries), or surface soil at the BDRLF. However, the contaminated groundwater south of the BDRLF contains chemicals of concern found at concentrations that pose a significant risk if the groundwater were to be used in the future as source of potable water.

A baseline ecological risk assessment did not identify any unacceptable risks to wildlife from exposure to compounds in the surface water or sediment in nearby Beaver Dam Creek and its tributaries. As a result, a decision was made that no action was needed to address potential ecological risks at the BDRLF.

Following EPA acceptance of the RI report in March 2008, an FS report was prepared. The FS examined various remedial alternatives to address the contaminated groundwater. These included; land use controls and groundwater monitoring; extraction, on-site treatment, and recharge; and groundwater treatment using a mulch biowall permeable reactive barrier. Biowalls are permeable trenches filled with biologically active materials, such as mulch, compost, and/or vegetable oil, and used to capture and remediate chlorinated VOCs in groundwater. The mulch biowall was selected as the remedy to treat contaminated groundwater, due to its relatively low cost, implementability, and effectiveness.

At a public meeting in July 2009, the selection of a mulch biowall as the groundwater remedy was presented, and following the public comment period a Record of Decision (ROD) was drafted which documented and formalized the decision. The ROD is pending EPA acceptance. Following EPA acceptance, remedial activities will be planned and implemented.

For More Information:
Contact Kim Kaplan, ARS Information Staff, 301-504-1637, Kim.Kaplan@ars.usda.gov, or visit the ARS Information Repository located in Room 121, Building 003, 10300 Baltimore Avenue, Beltsville, MD. The Information Repository is open to the public Monday through Friday, 8:30 am to 4:30 pm.

The Information Repository is also available at the Prince George's County Memorial Library at 4319 Sellman Road. The library's hours of operation are Monday and Tuesday, 1 pm to 9 pm; Wednesday through Friday, 10 am to 6 pm; and Saturday, 10 am to 5 pm.

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