

Beltsville Agricultural Research Center

BARC 22: College Park Landfill

September 2018

The U.S. Department of Agriculture's Agricultural Research Service completed a Remedial Investigation and Feasibility Study (RI/FS) at the College Park Landfill (CPLF) (BARC 22) site, which is located on the Beltsville Agricultural Research Center (BARC).

The RI is a carefully structured process for 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 discovered contaminants may pose to human health and the environment. The FS evaluates possible alternatives for cleanup to address any identified risks, while considering factors like regulatory requirements, effectiveness, cost, and community acceptance.

Background

The College Park Landfill site is located on the west-central portion of BARC's Central Farm, about 800 feet southeast of the intersection of Sunnyside Avenue and Edmonston Road. The site encompasses about 30 acres and is located next to wetlands associated with Beaver Dam Creek.

Historically, the site was mined for sand and gravel in the mid to late 1950s and then used as a municipal landfill by the city of College Park, MD. The landfill accepted municipal and solid wastes from 1954 to 1978. Although the landfill primarily accepted residential refuse and construction debris, it may have accepted other materials. Landfill operations ended in 1978, and the western and central portions of the landfill were covered and graded to accommodate baseball fields.

Several preliminary environmental studies of the College Park Landfill were completed, including Site Screening Process (SSP) investigations. An SSP determines if an area of concern requires remedial action, needs further study through the RI/FS process, or if no further action is needed.

The College Park Landfill SSP concluded that further investigation was needed and recommended the completion of an RI/FS. An RI/FS Work Plan was prepared to provide the roadmap for conducting further investigations of the site.

Remedial Investigation/Feasibility Study Objectives and Scope

When landfill operations ceased, the post closure activities performed to reduce or prevent the potential for contaminant migration were poorly documented. Visual inspection of the landfill surface indicates that any cover was applied in an unorganized fashion.

The RI/FS was planned to:

- Determine if any contaminants are present in groundwater and surface water.
- Estimate methane gas and leachate generation rates within the landfill and its immediate vicinity.
- Evaluate subsurface geology and engineering aspects of the landfill.
- Identify sensitive environments and wetlands near the landfill, Beaver Dam Creek, and the floodplain.

The initial phase of RI fieldwork was completed in 2001. A variety of advanced field investigation techniques, including Geoprobe® soil probing and sampling equipment, were used to collect samples and identify potential sources of contamination. Nine monitoring wells were installed at locations in and around the landfill to determine if contamination originating from the landfill may have impacted shallow groundwater. Five additional monitoring wells were installed in May 2007. Samples of landfill gas, leachate, stream, and stream sediment were also collected and analyzed.

Baseline Risk Assessment and Feasibility Study

As part of the RI/FS process, a baseline risk assessment was prepared using data from the field-sampling program. The risk assessment examined current and future risks to humans from exposure to contaminants found in the site's soil and water. The risk assessment determined that groundwater in the immediate vicinity of the site contains concentrations of several chemicals posing an unacceptable risk if the groundwater were used as a portable water source in the future.

These contaminants include benzene and arsenic that were detected at concentrations exceeding drinking water standards.

The baseline ecological risk assessment did not identify unacceptable risks to wildlife. Thus, a decision was made that no action was needed to address potential ecological risks at the CPLF.

Discussions with EPA determined that if an additional cap or cover is needed, a vegetative cap is a good option. A vegetative cap uses trees, plants, and compost instead of clay and plastic to minimize the infiltration of precipitation into the underlying wastes. A three-year pilot study was completed in June 2008 and a summary report was finalized in October 2009. In addition to potentially lower initial cost, the vegetative cap may reduce maintenance costs and enhance the natural habitat.

The RI report was finalized in February 2008 and the FS report was completed in late 2009. The FS report compared the implementation and long-term maintenance costs of a vegetative cap versus a standard RCRA landfill cover. Construction costs and long-term maintenance were found to be about the same with both options.

Ongoing and Future Activities

Annual groundwater monitoring and sampling is continuing at the College Park Landfill. A draft Proposed Remedial Action Plan (PRAP) detailing the implementation of a vegetative cap was developed and submitted to EPA in 2018 for review and comment. EPA determined that a revised Human Health Risk Assessment (HHRA) was necessary to assure that changes that have occurred from when RI was completed to do date have not changed the risk to potential receptors.

A revision to the HHRA is anticipated in late 2018 and the revised PRAP will be completed by January 2019. The PRAP will provide the alternatives and selected remedy to be used for the Record of Decision. Based on the FS the selected remedy will be a vegetative landfill cap. EPA and ARS are evaluating the potential landfill leachate effects on wetland ecology, and information obtained will be applied in the development and design of the vegetative cap remedy.

For More Information:

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