Long-Term Stewardship Assessment Report

Browning Ferris Incorporated Solley Road Landfill

EPA ID #: MDD000797365

Glen Burnie, Maryland 21061

Assessment Date: February 28, 2019

Report Date: March 19, 2019

Introduction: Long-term stewardship (LTS) refers to the activities necessary to ensure that engineering controls (ECs) are maintained and that institutional controls (ICs) continue to be enforced. The purpose of the EPA Region 3 LTS program is to periodically assess the efficacy of the implemented remedies (i.e, ECs and ICs) and to update the community on the status of the RCRA Corrective Action facilities. The assessment is conducted in twofold, which consists of a record review and a field inspection, to ensure that the remedies are implemented and maintained in accordance to the final decision.

Site Background: Browning Ferris Inc. (BFI) Solley Road Landfill is located at 7890 Solley Road, Glen Burnie, Maryland on approximately 150 acres (Facility). As a result of past operations at the Facility, groundwater at the Facility became contaminated with volatile organic compounds (VOCs) at concentrations exceeding applicable maximum contaminant levels (MCLs) codified at 40 C.F.R. Part 141 and promulgated pursuant to the Safe Drinking Water Act, 42 U.S. C. §§300f et seq. BFI subsequently closed the East and West Fills in accordance with state solid waste management regulations. BFI received certified closure under RCRA for the Secure Cell in 1983.

In 1999, Allied Waste Industries, Inc. (Allied) purchased BFI. In 2008, Allied merged with Republic Services, Inc. (Republic). BFI is a subsidiary of Republic and is the current owner and operator of the Facility. BFI is currently performing post-closure maintenance and monitoring at both the East and West Fills under a RCRA Post-Closure Permit. An aerial map is attached as **Figure 1**.

Current Site Status: In July 2012, EPA issued the Final Decision and Response to Comments (FDRTC). The final remedy determination is Corrective Action Complete with Controls. Controls include operation and maintenance and monitoring actions for the groundwater recovery and treatment system; operation and maintenance of the landfill caps; operation and maintenance of the gas extraction system and the leachate collection system; continued implementation of a groundwater monitoring program; and compliance with and maintenance of institutional controls. The final remedy detailed in the FDRTC is implemented through a Corrective Action Permit between EPA and BFI which incorporates Controlled Hazardous Substance (CHS) Facility Permit No. A-033 issued by Maryland Department of the Environment (MDE) dated July 31, 2012 (Permit). The facility remains under continued use for maintenance, operation and monitoring purposes required by MDE and EPA.

Long-term Stewardship Site Visit: On February 28, 2018, EPA conducted a long-term stewardship site visit with Republic Services and its representatives to discuss and assess the status of the implemented remedies at the site.

The attendees were:

Name	Organization	Email Address	Phone No.
John Hopkins	EPA Region 3	hopkins.john@epa.gov	(215)814-3437
David Smith	Republic Services	dsmith5@republicservices.com	(410)335-9500
Michael Deyling	CES Inc.	mdeyling@cesincusa.com	(207)795-6009

Institutional Controls (ICs) Status:

Corrective Action Permit: The Permit is the method for implementing institutional and engineering controls required as a condition of the Statement of Basis and Final Decision. The following ICs apply to the BFI Solley Road Landfill facility, shown on **Figure 1**:

Land Use Restriction: The Property shall not be used for residential purposes or in any way that will adversely affect or interfere with the integrity and protectiveness of the landfill caps; the leachate collection and removal system, and groundwater monitoring wells. There were no residential structures observed at the time of the visit. The Facility remains under its continued use; strictly for maintenance, operation and monitoring activities required by MDE and EPA.

Groundwater Use Restriction: The groundwater from the Facility shall not be used for any purpose other than to conduct the operation and maintenance and monitoring activities required by MDE and to implement EPA's selected remedy. BFI is currently in compliance with the above use restriction.

Engineering Controls (ECs) Status:

East and West Fill Caps: From approximately 1963 to 1979, BFI accepted industrial waste for disposal at the East Fill and municipal waste at the West Fill. Both landfills encompass approximately 18 acres each. An 8-acre landfill cell located within the southern end of the East Fill is designated as the "Secure Cell." The Secure Cell was a RCRA permitted hazardous waste disposal facility which operated from 1980 to 1982. The Facility ceased receiving waste at the Facility in 1982. BFI subsequently closed the East and West Fills in accordance with state solid waste management regulations. BFI received certified closure under RCRA for the Secure Cell in 1983.

The landfill caps were improved in 1996 and currently consist of the following layers: a soil barrier layer (SBL) of 12 inches; a 40mil-thick textured flexible (geo)membrane layer; a 9-inch thick drainage layer made of shredded used tires; a Geo-textile layer for protection of the drainage layer; and a soil cover consisting of common borrow incorporated with lime stabilized biosolids supporting the vegetative cover.

BFI has maintained the integrity and effectiveness of the landfill caps by mowing twice per year, typically once during May or June and once during September or October. BFI performs bi-weekly perimeter and monthly site inspections. No plants with deeply penetrating root systems or erosion of

the cover were observed during the site visit. Surface water berms and swales were in good condition with no signs of ponding.

Leachate Collection System: Sometime in the 1980s, BFI installed a leachate collection system around the perimeter of the East and West Fills. BPI has since expanded the original design of the leachate collection system. The current leachate collection system consists of: a leachate collection trench and sump system located adjacent to the access road on the east side of the East Fill and a leachate collection well in the Secure Cell. Leachate is pumped to a transfer sump and is subsequently pumped to the following locations: an above ground leachate storage tank; and a sump that is used for transfer of leachate and also collects leachate from throughout the perimeters of the East and West Fills. Leachate collected by the leachate collection system is transferred to a tanker truck and disposed of at a RCRA-permitted disposal facility.

Sump levels are monitored about 3 times per week. Each month, approximately 10,000 – 12,000 gallons of leachate is collected from the East Fill while approximately 3,000 gallons is collected from the West Fill. The leachate collected is transferred and disposed off-site approximately once or twice each month. BFI performs monthly visual inspection of the condition of sumps and reports quantities of leachate collected and disposed semi-annually as part of the Post-Closure Monitoring Report required by Permit A-033. BFI continues to operate the leachate collection as intended.

Active landfill gas extraction system: In 1995, BFI installed and began operating a landfill gas extraction system on the East and West Fills. The landfill gas extraction system is currently operated pursuant to permit number 02-9-0495-M. Pursuant to the Post-Closure permit, BFI is required to maintain and operate the system as follows: automated operation of the blower and flare system; weekly collection of operating data; balance extraction well network to maintain proper vacuum at well heads and to maintain sufficient methan concentrations for combustion; monitor perimeter gas probes on a quarterly basis to evaluate off-site gas migration; and collect condensate and dispose at a licensed disposal facility. Gas extraction wells were observed to be in good condition at the time of the site visit. BFI continues to operate the landfill gas extraction system as intended.

Groundwater Recovery and Treatment System: In November 1995, BFI installed and began operating a Ground Water Recovery and Treatment System (GWRTS) to remediate impacts to groundwater caused by the release of VOCs at the Facility. BFI has made minor modifications to the GWRTS since 1995 in response to groundwater quality monitoring results. The GWRTS currently consists of 3 operating groundwater recovery wells (E-6, X-4 and X-5) located adjacent to the west and northwest base of the West Fill to extract impacted ground water from the Patapsco Aquifer; an air stripper; five discharge (injection) wells located near the western border of the Facility; a control building, and associated pumps, piping, sumps and controls.

Groundwater is extracted by the recovery wells and pumped through a dual-containment pipe to the air stripper, where VOCs are removed. The treated groundwater is then pumped to the discharge wells for injection back into the Patapsco Aquifer. BFI submits semi-annual groundwater withdrawal reports pursuant to Water Appropriation and Use Permit AA1989G094. BFI also submits quarterly Discharge

Monitoring Reports pursuant to Maryland NPDES Permit 16-DP-2755. Recovery wells were observed to be in good condition at the time of the site visit. BFI continues to operate the GWRTS as intended.

GWRTS Monitoring: BFI conducts semi-annual groundwater monitoring for VOCs compounds at ten locations, nine monitoring wells and recovery well E-6, to evaluate the performance of the treatment system. Also, four additional monitoring wells are sampled annually for VOCs. In general, groundwater flow direction is towards the west/northwest. Results of the latest November 2018 sampling event suggest that total VOC concentrations in groundwater are consistent with historical trends and that the GWRTS is effectively containing the VOC groundwater plume on-site. Five of thirteen monitoring wells were non-detect for total VOCs. Detected concentrations ranged from 3.9 ug/L at well R-15-2 located near the westerly extent of the plume to 7,100 ug/L at TW-10 located near the toe of the West Fill slope. Monitoring well R-9-3 showed a significant increase in total VOCs to 183 ug/L during the May 2018 sampling event. As a result, the pumping rate at extraction well X-4 was increased. The reported result for November 2018 at R-9-3 was 65 ug/L for total VOCs. X-4 will continue to be pumped at the increase rate to evaluate if it has a positive effect on R-9-3.

Financial Assurance: Financial assurance is required for this site. A financial assurance evaluation, which includes a review of site operation and maintenance costs, is completed annually by BFI.

Reporting Requirements/Compliance: All reporting requirements have been met as summarized in the latest semi-annual Corrective Action Permit progress report dated January 16, 2019.

Mapping: The EPA facility website map is accurate and includes the 150-acre BFI Solley Road Property. A downloadable geospatial PDF map is available on EPA's corrective action facility webpage under the "Reports, Documents and Photographs" section, found here.

Conclusions and Recommendations: No EC/IC deficiencies were identified. EPA has determined that the remedy institutional and engineering controls have been fully implemented.

Attachments:

Figure 1: Aerial Map of Browning Ferris Inc. Solley Road Landfill

Picture 1: From top of East Fill facing west

Picture 2: From top of West Fill facing northwest

Picture 3: Top of East Fill

Picture 4: Top of West Fill

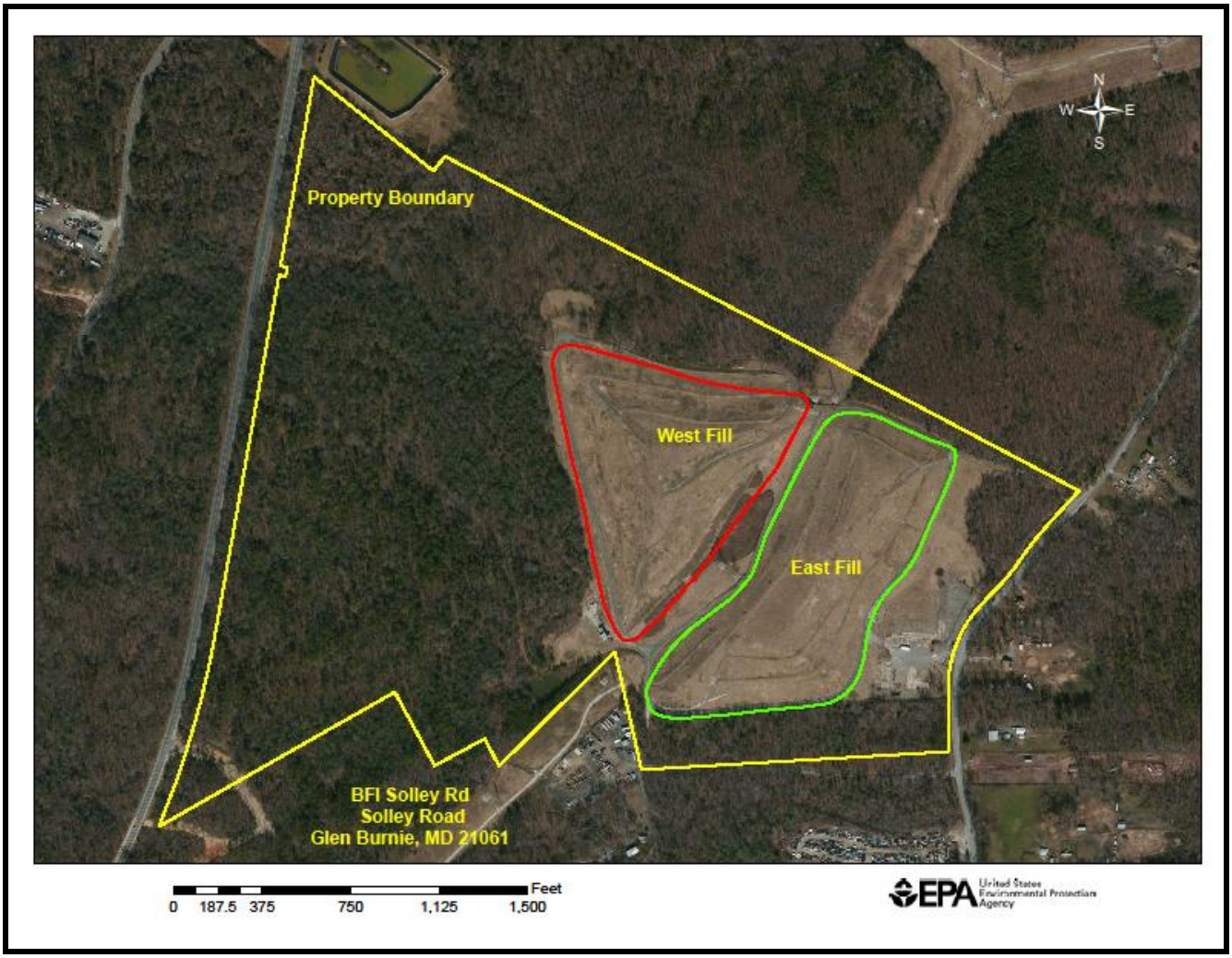
Picture 5: Methane Gas Extraction System candlestick flare

Picture 6: Gas Extraction System well #14

Picture 7: Extraction well X-4

Picture 8: Leachate storage tank

Figure 1: Aerial Map of Browning Ferris Inc. Solley Road Landfill



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