FEASIBILITY STUDY REPORT

KENILWORTH PARK LANDFILL
NORTHEAST, WASHINGTON, D.C.
NATIONAL CAPITAL PARKS-EAST

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Prepared By:
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EXECUTIVE SUMMARY

This Feasibility Study Report (FS) was prepared for the Kenilworth Park Landfill Site (Site), located in Northeast Washington, District of Columbia (District or D.C.), to evaluate potential remedial alternatives for the Site consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The National Park Service (NPS) is the lead agency for response action at the Site.

Site Description

The Site covers 130 acres within Kenilworth Park and Aquatic Gardens, which is part of the Anacostia Park unit of National Capital Parks-East (NACE), in Washington, D.C. The Site comprises two areas divided by the Watts Branch, a tributary to the Anacostia River: Kenilworth Park Landfill North (KPN) and Kenilworth Park Landfill South (KPS). KPN and KPS are 80 acres and 50 acres in size, respectively. The Site is bounded on the north by Kenilworth Marsh; on the east by residential areas; on the south by a District Trash Transfer Station and the Neval Thomas Elementary School; and on the west by the Anacostia River. NPS has determined it is appropriate to divide the Site into two operable units (OUs): OU1 comprises surface soils and subsurface soils including waste material disposed of in the KPN and KPS landfills; OU2 is the shallow groundwater underlying OU1. This FS Report evaluates remedial alternatives for OU1.

Historically, both KPN and KPS were used as recreation areas. KPN has developed athletic fields and was the site of the Kenilworth-Parkside Community Center (Community Center) located at the eastern end of KPN near Anacostia Avenue. The District has demolished the Community Center, with plans to replace it with a new recreation center in the same general area. KPS is currently closed to the public but will be developed for active recreational uses after the completion of the CERCLA process. Future recreational activities for KPS include a bicycle/recreation trail, among other things.

Site History

In 1942, the District began operation of a dump on the Site and burned trash and buried ash there until 1968; it then operated the Site as a sanitary landfill until 1970. During its nearly 30 years of operation, the dump primarily received municipal solid waste and incineration ash, totaling approximately 3.5 million tons of disposed material. In 1970, the landfill ceased operations, was covered, and portions converted to recreation fields.

Site Investigations

Between 1998 and 2009, a number of environmental investigations were undertaken to determine the nature and extent of contamination at the Site, including Preliminary Assessment/Site Inspections (PA/SIs), Remedial Investigations (RIs), and supplemental data collection and reports. Various media were investigated, including surface soil, subsurface soil and buried waste material, sediment, groundwater, surface water, soil vapor, and indoor air. The results of these investigations were used in risk assessments to form the basis for the

development of remedial action objectives and identification and evaluation of remedial alternatives. Site contaminants of concern include lead, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and methane gas.

Basis for Site Remediation

The development of remedial alternatives for the Site was based on the results of the Site investigations (the PA/SIs and RIs) and the risk assessments (human health and ecological), as well as analysis of applicable or relevant and appropriate requirements (ARARs) and criteria to be considered (TBCs). A summary of the Site investigation and risk assessment findings is provided below.

Contaminant levels in some of the shallow groundwater within and immediately adjacent to the waste materials in KPN and KPS exceed drinking water standards, but only in a small number of the monitoring wells sampled as part of the RI. The groundwater at or near the Site is not a current source of drinking water and not likely a future source due to insufficient volumes and the local availability of municipal potable water. The deeper Patuxent aquifer beneath the Site is used for water supply in the Indian Head-Waldorf area 25 miles to the southeast of the Site. However, the low-permeability clays underlying the Site, and the upward hydraulic gradient in the Patuxent aquifer, would prevent any contaminants in shallow groundwater at the Site from migrating into the underlying Patuxent aquifer.

The RI concluded that significant groundwater transport of Site contaminants to adjacent surface water bodies was not likely due to: 1) the relatively low (as compared to typical landfills) concentrations of most COCs in Site wells; 2) the sporadic distribution of detected COCs – elevated concentrations are localized at individual wells with no overall dissolved plume; and 3) the presence of low permeability soils between the wastes and adjacent surface waters that significantly reduces groundwater flow away from the Site.

The data do not indicate an overall impact from the Site on surface water or sediment in the adjacent surface water bodies (Anacostia River, Watts Branch, and Kenilworth Marsh). Groundwater transport is the only potential pathway for Site contaminants to migrate to adjacent water bodies and groundwater data collected during the RI do not indicate a significant groundwater transport pathway. NPS has established shallow groundwater as an operable unit (OU2) of the Site. NPS will collect additional groundwater data to supplement existing Site data and prepare an RI Addendum to assess the extent to which hazardous substances in OU2 pose a threat to human health or the environment. As warranted by and consistent with the data collected, the RI Addendum will be used to support the development, evaluation, and selection of response action for OU2, if warranted.

Human Health and Ecological Risk Assessments

Human health risk assessments (HHRAs) were completed to evaluate risks of exposure to contaminants by visitors and workers at the Site. The results indicate complete exposure pathways for adult and child visitors and construction workers to Site soils and Site sediments

(e.g., Watts Branch, stormwater detention ponds). Dermal contact, ingestion, and inhalation were the routes of exposure evaluated. The HHRA concluded that carcinogenic risk to the composite child/adult Site visitor was above the CERCLA point of departure for identifying carcinogenic risk, due primarily to the potential ingestion of PCB- and PAH-containing surface soil. The HHRA concluded that the Site does not present an unacceptable carcinogenic risk to construction workers. No unacceptable non-carcinogenic risks were identified for Site visitors or construction workers except a worker scenario involving more than 90 days in an excavation in a specific area and depth where high lead concentrations are present (i.e., in the waste materials).

Methane was not detected inside the Community Center prior to its demolition, indicating that there was no indoor health or safety risk from methane. Similarly, methane was not found to pose a risk beyond the boundaries of the Site. The interior surfaces and the vast majority of land at the edges of the Site do not have any impermeable surface covering and, therefore, provide a relatively easy pathway for any methane that is still being generated by the landfill to be released to the atmosphere in a diffused manner through the existing cover soil or ground surface.

Methane concentrations in subsurface soils, however, were found to present unacceptable risk at several locations within the boundaries of the Site, indicating the potential for safety risks associated with future construction or utility work or other activities that disturb the subsurface waste material. Other than Alternative 1, No Action, perimeter methane monitoring has been included in remedial alternatives developed for the Site to confirm the lack of methane migration off-site in the future.

The ecological risk assessments evaluated risks of exposure to ecological receptors. The results of the ecological risk assessments, combined with additional data collected subsequent to the ecological risk assessment process and considering more recent soil screening levels and guidance, indicate that significant ecological risk is not present at the Site.

Based on these findings, the following Remedial Action Objectives (RAOs) were developed for the Site:

Contaminants in Soil

- Eliminate or minimize contaminant-related constraints to the full utilization and enjoyment of the Site consistent with NPS mandates;
- Meet federal and D.C. ARARs and/or risk-based cleanup goals, whichever are more stringent;
- Prevent exposure to PCBs, PAHs, and metals above risk-based levels in surface soil for Park visitors and utility/construction workers; and
- Prevent exposure to lead in surface and subsurface soil above risk-based levels via direct contact for construction/utility workers.

Methane in the Subsurface

- Prevent exposure to unacceptable levels of methane from landfill gas for Park visitors and utility/construction workers; and
- Prevent exposure to unacceptable levels of methane at on-site or off-site facilities.

Prevention of Future Hazards to Potentially Exposed Waste Materials

- Prevent erosion or future Site activities that could expose buried landfill waste material at the ground surface.

Based on the previous studies, risk assessments, RAOs, and ARARs, chemicals of concern (COCs) were selected and chemical-specific Remediation Goals (RGs) established for PCBs, PAHs, and lead in soil and methane in soil gas as follows:

COCs and RGs
Kenilworth Park Landfill

COC	Units	RG	Basis
PCBs			
Aroclor 1254	mg/kg	0.44	Child/Adult Site Visitor
Aroclor 1260	mg/kg	0.25	Child/Adult Site Visitor
Lead			
Lead Surf/Subsurface [1] (0-15 ft bgs)	mg/kg	455	Construction Worker
Methane			
Property Boundary	% LEL[2]	<100%	RCRA Landfill Gas Regulations 40 CFR § 258.23
Inside Buildings	% LEL[2]	<25%	
Site Worker in a Confined Space	% LEL[2]	<10%	29 CFR § 1910.146
PAHs			
Benzo(a)anthracene	mg/kg	1.23	Child/Adult Site Visitor
Benzo(a)pyrene	mg/kg	0.12	Child/Adult Site Visitor
Dibenzo(a,h)anthracene	mg/kg	0.12	Child/Adult Site Visitor

1. Risk estimation for lead exposure would be based on an area-wide average for the work site, considering both vertical and horizontal distribution of lead.
2. LEL – Lower Explosive Limit is 5% by volume (50,000 ppmv) methane in air

Development and Evaluation of Remedial Alternatives

Five remedial alternatives were evaluated:

Alternative 1: No action;

Alternative 2: Minor regrading combined with institutional controls and 3 years of annual perimeter methane monitoring;

Alternatives 3a and 3b: Soil cap (12-inch cap for Alternative 3a and 24-inch RCRA Subtitle D cap for Alternative 3b), localized shallow excavation and off-site disposal where pre-excavation is required, institutional controls, and perimeter methane monitoring before, during, and after remedial actions; and

Alternative 4: Removal of all accessible waste material and existing cover soils, localized shallow excavation and off-site disposal to accommodate a soil cap around existing development, wetlands restoration, and institutional controls.

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