



## SITE BACKGROUND

Great Kills Park (the Park) consists of approximately 523 acres of shoreline along Great Kills Harbor, Raritan Bay, and Lower New York Bay. The Park is managed by the National Park Service (NPS) but was formerly owned by the City of New York (the City). As part of the Marine Park Project Plan, initiated in 1925, the City acquired the property. From approximately 1926 to 1941, the City constructed and operated the Bay Terrace Incinerator in the north-central portion of Great Kills Park, began construction of a seawall in 1933, and began filling the area in approximately 1934 for the purposes of developing a shoreline recreation area. Wetlands were filled in to create useable land, a common land reclamation practice at the time. The filling occurred in stages using various materials including dredge fill from the Great Kills Harbor and Channel, incinerator waste, and waste from City Sanitation operations. Most of the filling was conducted from 1944 to 1948 when the City brought approximately 15 million cubic yards of waste by barge from Manhattan to Great Kills Park. The City operated Great Kills as a City park from 1949 until it was transferred to the United States and NPS management in 1972. NPS operates Great Kills Park as part of the Staten Island Unit of Gateway National Recreation Area.



Aerial image of Great Kills Park from 1949 after filling operations ended

## NPS RESPONSE ACTIONS AND NEXT STEPS

Elevated levels of radioactivity were first discovered in Great Kills Park in 2005 during an aerial survey conducted by the City and the U.S. Department of Energy. NPS responded immediately to the discovery by taking temporary measures to protect the public by closing and fencing off areas exhibiting elevated gamma readings. Shortly thereafter, NPS initiated environmental investigations to evaluate potential threats posed to public health or welfare or the environment by contaminants at Great Kills Park and to evaluate potential remedies to address identified threats. These investigations were and continue to be conducted pursuant to NPS cleanup authority under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also referred to as Superfund. NPS is the CERCLA “lead agency” responsible for planning and directing the Great Kills Park investigation and cleanup activities.

Pursuant to its delegated CERCLA lead agency authority, NPS implemented a series of response actions between 2005 and 2015 to investigate the nature of contamination and to mitigate risk to human health and the environment in the area of the Park impacted by historical waste disposal (this area of historical waste disposal is referred to as the “Site”). Response actions included implementing a Time-Critical Removal Action (TCRA) to address identified



locations of radiological contamination with the highest elevated gamma readings and install perimeter fencing and gates to restrict access to impacted areas of the Park. Results of the TCRA demonstrated that radioactive sources were comingled with other waste fill materials and there were reasons to believe that the waste fill material included chemical contaminants of concern. Subsequently, NPS determined that a Remedial Investigation (RI) was necessary to fully characterize the nature and extent of the contamination at the Site.

In 2016, NPS accelerated the RI of a 43-acre section of the Site, referred to as Operable Unit 1 (OU1), so that the results could inform construction planning for the South Shore of Staten Island Coastal Storm Risk Management Project. In 2017, NPS finalized a report of the OU1 remedial investigation findings. The report is available for download on the NPS webpage: [Great Kills Park Environmental Cleanup Project - Gateway National Recreation Area \(U.S. National Park Service\) \(nps.gov\)](https://www.nps.gov/greatkills/park-cleanup-project-gateway-national-recreation-area).



Drilling at Great Kills Park OU2 in 2018

Operable Unit 2 (OU2) occupies 239 acres and includes all Site areas that contain waste fill outside of OU1. NPS completed Phase 1 and Phase 2 field work associated with the OU2 RI in 2018 and 2021, respectively. NPS is using the information gathered during the remedial investigations at OU1 and OU2 to inform a comprehensive feasibility study that includes the evaluation of site-wide remedial action alternatives to address environmental impacts. NPS is preparing a single, all-inclusive site-wide RI/FS Report that documents the nature and extent of contamination and the associated potential risks to human health and the environment, and an evaluation of potential remedial alternatives.

## RADIUM HISTORY AND POTENTIAL EXPOSURE AT GREAT KILLS PARK

The radioactive contaminants that have been identified at the Site are radium, thorium, uranium and their decay progeny. The most prevalent being radium. Radium is a naturally occurring element that is radioactive. It is constantly formed by the decay of two elements, uranium and thorium, which exist naturally in rock and soil. Small quantities of naturally occurring radium are also present in building materials such as granite, cement, and clay brick. In the United States we are exposed to many sources of radiation every day from naturally occurring radioactive elements in our bodies and the environment from cosmic (sun) rays, as well as from man-made exposures, primarily from medical diagnosis (like x-rays) and treatment.

Historically, radium was erroneously used to treat rheumatism and mental disorders, and as a general tonic. It was widely used in luminescent paint for watches, aircraft switches, clocks, instrument dials, glow in the dark buttons, and many other products. The danger of radium was exposed in the 1920s by the Radium Girls – young female factory workers who contracted radiation poisoning from painting radium watch dials with self-luminous paint. Ensuing litigation, covered broadly by the media, brought the danger of radium to the forefront, spurring both the field of health physics and the labor rights movement. However, it was not until the 1970s that radium was no longer used in the manufacture of watches and clock dials.



Jar contaminated with radium – removed from the Site in 2014



The greatest potential risk from radiological Site contaminants results from coming into direct contact with man-made radiological articles and the ingestion of contaminated soil. Exposure, and ultimately risk, from an actual man-made radioactive article depends on the amount of time and how close you are to it. Both man-made articles and contaminated soil are known to exist at the surface at the Great Kills Park Site.

## CLOSED/OPEN AREAS

Environmental surveys and sampling conducted to date confirm that elevated levels of radioactive and chemical contaminants are present within the waste fill material at the Site. These include radionuclides (radium-226, uranium-238, and thorium-232) and chemical contaminants (metals, PCBs, dioxins/furans, VOCs, SVOCs/PAHs, and pesticides). In some areas, waste fill is present at the surface. As a result, NPS is maintaining closure of the Great Kills Park Site to protect the safety of NPS employees and the public. Closed areas include all of OU1 and OU2, which is fenced with locked gates at all major access points. Signs are posted along the fencing and on gates. Despite the closure of these areas, there are many activities that the public can continue to enjoy. Buffalo Street is open to vehicular and pedestrian traffic, and the adjacent multi-use path is open for walking, biking, and hiking. Bulkhead Road is open – but to pedestrian traffic only. The swimming beach is open and under lifeguard protection from Memorial Day through Labor Day. Fishing spots abound and the marina and boat launch ramp are available for boaters visiting the Great Kills Harbor.



Great Kills Park – Closed/Open Areas



## COMMUNITY INVOLVEMENT

Community involvement is an important part of the NPS CERCLA process. NPS has established an information repository, which houses a copy of the Great Kills Park Site Administrative Record File. CERCLA administrative record files consist of those documents that form the basis for the selection of the response at the Site. The Great Kills Park Site Administrative Record File currently includes documents associated with environmental investigations, interim response actions, and community relations materials. The Great Kills Park Site Administrative Record File will be updated periodically as new information and reports are finalized. The public can view the Great Kills Park Site Administrative Record File and make copies of documents at the following information repository location.

### Great Kills Park Site Information Repository

#### New York Public Library – Great Kills Branch

56 Giffords Lane (at Margaret Street)  
Staten Island, NY 10308

Phone: 718-984-6670

Website: [Great Kills Library](#) | [The New York Public Library \(nypl.org\)](#)

## FOR MORE INFORMATION

As NPS continues to implement the CERCLA process, there will be many opportunities for the public to be involved. To stay informed, you can visit the Great Kills Park Environmental Cleanup Project webpage by scanning this QR code:



You may also visit this same webpage through this link: [Great Kills Park Environmental Cleanup Project - Gateway National Recreation Area \(U.S. National Park Service\) \(nps.gov\)](#).

Once here, you can:

- Go to the [Community Involvement](#) section of the Site Environmental Cleanup Project webpage and sign up to receive project updates via email; and
- Email questions at any time to [greatkillscleanup@nps.gov](mailto:greatkillscleanup@nps.gov); and/or call our Public Affairs Office at (718) 815-3651.