National Park Service
U.S. Department of the Interior

Gateway National Recreation Area
210 New York Avenue
Staten Island, NY 10305

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Spring Creek Park Information on Radium Contamination

This fact sheet includes information on the discovery, investigation, and removal of man-made radioactive materials, containing radium, found in the ground in areas of Spring Creek Park. The purpose is to provide information on what was found, the potential health effects associated with this material, what the National Park Service (NPS) continues to do to ensure that the Park remains a safe place for NPS staff and Park visitors, and that the environment is protected. NPS will provide additional information and updates as they become available.

What was Found?

Radiological contamination was recently discovered at Spring Creek Park (Site). Soil sampling results for the Spring Creek Resilience and Ecosystem Restoration Project previously identified contaminants in the soil, including pesticides, PCBs, and various metals (e.g., lead). Based on these results and what is known of the landfill history at the Site, the National Park Service (NPS) initiated its authority under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Due to the similarities of the historical development with another Gateway site, Great Kills Park (both were developed, in part, through landfilling during similar timeframes), NPS completed a limited gamma walkover survey at the Site in December 2017. The survey was implemented to inform the ongoing CERCLA investigations and as a prudently conservative public safety measure to evaluate the potential presence of radioactive contamination on or near the NPS established trails within the Park. The survey identified five man-made radioactive articles containing radium in near surface soils as well as other localized areas of elevated levels of radioactivity.

What is 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 also are 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. On average, we each receive a radiation dose of approximately 1 millirem per day (a unit of measure for radiation dose) 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 used in everything from medical "cures" to children's toys. It was widely used in luminescent paint for watches, aircraft switches, clocks, and instrument dials, often in military applications; in commercial applications as an additive in products such as toothpaste, hair creams, and food items due to its supposed curative powers; and for medical use as a cancer treatment.

How Did Radium End up at Spring Creek?

Investigation into the source of the radium contamination is ongoing. Based on the information we have at this time, it is believed that the man-made radioactive articles are from discarded materials historically brought to the Site. Radium present in these articles may have caused contamination of the soil immediately surrounding the article.

Am I at Risk from Exposure to Radium at Spring Creek?
Exposure, and ultimately risk, depends on the amount of time and how close you are to the actual source of the radiation. The greatest risk at the Site is from direct contact with a man-mad radioactive article. The man-made radioactive articles containing radium buried in near surface soils on and near trails at the Site have been removed. While the Site requires further investigation, current survey results indicate there is a low risk of exposure to radium from passive use (e.g., walking, jogging) of established trails.

What is Being Done?
NPS is following the process detailed in CERCLA to address contamination at this Site. Technical support including radiological expertise is being provided through the US Army Corp of Engineers and contractors. Implementation of a CERCLA Engineering Evaluation/Cost Analysis (EE/CA) was approved by the NPS Associate Director for Park Planning, Facilities and Lands in December 2017 and is currently ongoing. The purpose of the EE/CA is to further investigate the Site, evaluate potential human health and ecological risks associated with exposure to hazardous substances that may be present, identify pertinent cleanup requirements, and if necessary, identify clean up actions for the Site. NPS CERCLA actions are being coordinated with the current Storm Resilience and Ecosystem Restoration Project planned for Spring Creek Park.

Where Can I Obtain More Information about Radium and Radiation?
Information about radium and radiation in general can be found from the following sources:

- US Environmental Protection Agency – www.epa.gov/radiation/radionuclide-basics-radium
- Agency for Toxic Substances and Disease Registry (ATSDR)- www.atsdr.cdc.gov/toxprofiles/tp.asp?id=791&tid=154
- Health Physics Society – http://hps.org/publicinformation/ate/faqs/radiation.html

How can I contact the National Park Service:
- Email questions any time to: gate_springcreekcleanupproject@nps.gov
- or call our Public Affairs Office at 718-815-3651