

**NPS Engineering Evaluation/Cost Analysis Field Investigation - Radiation Protection Plan  
Gateway National Recreation Area  
Spring Creek Park  
Queens, New York  
EDL Number 5 NER 3348**

**NPS Responses to NRC Comments  
July 10, 2018**

<b>Comment No.</b>	<b>NRC Comment</b>	<b>NPS Response</b>
1	<p>1) The Introduction of the Radiation Protection Plan (RPP), states, "If required, all work will be performed under Tidewater's Radioactive Materials license (RML No. MD-27-091-01)."</p> <p>We are not certain of your basis for determining what is meant by, "If required" and suggest that you explain how you are will determine what is required.</p>	<p>The work planned at Spring Creek Park is not radiological in nature. As such, the intent of the radiological controls implemented for this work effort are to ensure protection of project personnel and the environment by avoiding contact with radioactive materials during the field work. To avoid man-made radioactive articles/sources (e.g., deck markers), pre-screening of the soil surface will be performed at each designated boring location prior to advancing the boring. If pre-screening indicates a potential source, the boring location will be shifted to avoid encountering radioactive material during drilling.</p> <p>Based upon NPS's experience at a similar site (Great Kills Park), we believe the potential for encountering radioactive material in soil cores during drilling activities is extremely small. However, if material is unintentionally exhumed, it will be turned over to the National Park Service (NPS) for control and ultimate disposal. To avoid confusion, NPS has removed the reference to implementation of a radioactive material license in the RPP.</p>
2	<p>In the Draft Final NPS Engineering Evaluation/Cost Analysis, Sampling and Analysis Plan (Section 5.2.2, Groundwater Sampling Protocol), NPS discussed conducting a gamma scan of the core after it has been removed from the ground. It further states that if discrete radiological contaminant sources are excavated during drilling, the RSO will ensure proper handling and disposal of the item in accordance with the RSP.</p> <p>How will NPS determine that the core sample is a discrete radiological contaminant source?</p>	<p>The discussion regarding discrete radiological contaminant sources in the SAP is in reference to man-made articles (e.g., deck markers) that we believe would be visible and easily identifiable in the soil core. It has been our experience that, should a man-made article be present, there is a substantial instrument response, greatly in excess of ambient levels. As such, personnel performing radiological scanning of soil cores will use visual observation and professional judgment of instrument response to indicate the presence of a potential man-made radioactive articles/sources.</p>
3	<p>The RPP is not defined in the List of Abbreviations and Acronyms. The Sampling and Analysis Plan does</p>	<p>The acronym list has been updated to include RPP.</p>

	<p>not appear to mention anything about the RPP, nor is it defined in the List of Abbreviations and Acronyms. We suggest that this be revised accordingly.</p>	<p>The RPP is an attachment to the Site-specific Health and Safety Plan (HASP), which is Appendix 3 to the SAP. Therefore, the SAP does not refer to the RPP directly, but rather the overall HASP. As such, the SAP has not been revised.</p>
<p>4</p>	<p>Table 3.1 of the RPP shows the Radionuclides Of Potential Concern (ROPC) to be Radium, Uranium, and Thorium. The NRC staff is concerned that, in view of the past history of Spring Creek Park as a landfill, that there could be other radionuclides at the site such as old medical sources like Strontium-90 eye applicators, Cobalt-60 Teletherapy sources, Cesium-137 Brachytherapy sources, and others. There could also be old industrial Measuring Gauges containing Cobalt-60, Cesium-137, Strontium-90, and Americium-241. There could possibly even be material from the Manhattan Project (which did have labs in NYC).</p> <p>Therefore, the NRC staff suggest that NPS expand the radionuclides of concern to include other potential radionuclides, other than radium, thorium, and uranium. NPS should consider adding a Gamma Spec Isotope Identifier to its radiation detector inventory to identify any other radioactive sources that could be at the site so they can properly handle and dispose of them. NPS needs to define when the RPP will be implemented (I.e., if core samples greater than x times the background are detected, NPS will stop all activities and implement the RPP).</p>	<p>The title of Table 3.1 and elsewhere in the RPP, the reference to radionuclides of potential concern (ROPC) has been revised to, “Identified Potential Radiological Contaminants”. The term ROPC has been removed because it has specific meanings in CERCLA and added confusion to the document.</p> <p>The radionuclides listed in Table 3-1 were selected based on the radionuclides encountered during the NPS/USACE limited gamma walkover survey completed in December 2017 and at Great Kills Park (both Parks were developed, in part, through landfilling during similar timeframes). Further, the radiological survey methods and laboratory analysis are broad spectrum and will identify radioactive sources emitting gamma radiation. If the radiological scan of a soil core identifies a radioactive source, an in-situ gamma spectroscopy system will be brought to the site and used to identify the radionuclide emitting the radiation as appropriate.</p> <p>To date, only those radionuclides listed in Table 3.1 have been identified. Again, our experience at a similar site, Great Kills Park, provides a solid base to formulate our radiological survey protocol for protection purposes.</p>