

## Technical Memorandum

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**Date** 28 July 2009

**To** Bob Brock, USAED COR

**From** Terry Heikkila, PE, PMP

**Subject** Taku Gardens: Sampling of Contaminated Soil Pile

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The objective of this technical memorandum is to describe the procedures that will be followed to sample the contaminated soil pile at Taku Gardens in order to determine whether this soil is suitable for thermal treatment at OIT Ltd (North Pole, Alaska) in accordance with their permit or whether an alternative route for disposal is required. OIT's permit allows for disposal of treated soil at the Fort Wainwright Landfill. This technical memorandum also document the discussion and agreement on this matter held during the Remedial Program Managers Conference Call 07/28/09

The contaminated soil was accumulated during the 2007 and 2008 drum and debris remedial investigation activity. Soil was screened using a photoionization detector (PID). Any visual and olfactory observations during the investigation activity were documented. Soil displaying visual or olfactory evidence of contamination, or PID readings over 20 parts per million was removed to the stockpile (built in accordance with 18 AAC 78.274), and waste characterization samples were collected per the approved work plan for VOCs, SVOCs, PCBs, RCRA Metals, Pesticides and Herbicides. Although the sample results are within OIT's permit limits, the soil was not sampled for fuel constituents, which is required by OIT's permit. Therefore, additional soil samples will be collected from the stockpiles and analyzed for fuel.

Grab samples will be collected from the locations of the highest PID screening values. The estimated volume of soil in the stockpile is approximately 800 cubic yards (cy); therefore, 17 grab samples will be required, per 18 AAC 78.605 (2 samples for the first 50 cy of soil and 1 additional sample per 50 cy or part thereof). These samples will be analyzed for gasoline-range organics (AK101), residual-range organics, diesel-range organics (AK102/103) and Benzene Toluene Ethlybenzene and Xylene (BTEX) compounds (SW8021).

Field screening samples will be obtained from every 10 cy of stockpiled soil at various depths but none less than 18 inches below the exposed surface of the pile. All screening results calibration logs and any other notes accompanying sampling will be recorded in the field log book, along with a diagram of the stockpile and location of PID screens and samples.

PID Headspace measurements will be collected using clean ziplock bags partially filled (one third to half) with soil. Headspace vapors will be allowed to develop in the container for at least 10 minutes but no longer than one hour; containers will be shaken or agitated for 15 seconds at the beginning and end of the headspace development period to assist volatilization; temperatures of the headspace must be warmed to at least 40° F (approximately 5° C), with instruments calibrated for the temperature used. After headspace development, the PID probe

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must be inserted to a point about one-half the headspace depth; the container opening must be minimized and care will taken to avoid uptake of water droplets and soil particulates. After probe insertion, the highest meter reading will be taken and recorded, if erratic meter response occurs at high organic vapor concentrations or conditions of elevated headspace moisture, a note to that effect must accompany headspace data. Calibration of field instruments will occur as per the manufacturer's guidelines prior to each use at least once daily.

Results from this sampling effort, along with previous waste characterization sample results will be submitted to the U.S. Army, EPA and ADEC for a decision on disposal options.