

Northern Drainage Waste Sampling for Radionuclides

The following provides guidance for radiological sampling of waste generated during excavation of the Northern Drainage Area.

All of the chemical samples taken for waste disposal characterization shall be split and analyzed for gamma emitting radionuclides by gamma spectroscopy, strontium-90 and tritium, using an off-site laboratory. Minimum detectable activity for both cesium-137 and strontium-90 shall be ≤ 0.05 pCi/g. Minimum detectable activity for tritium shall be ≤ 1 pCi/g. The gamma spectroscopy library shall also include the following contaminants-of-concern as a minimum: Na-22, K-40, Mn-54, Co-60, Cs-134, Cs-137, Eu-152, Eu-154, Th-228, Th-232, U-235, U-238 and Am-241.

Statistical evaluation of sample analytical results to determine whether the sampled waste contains different activity from the local background will be conducted in accordance with the protocol described in Section 7.2.1 of the 1993 McLaren/Hart report¹. In lieu of this protocol, the guidance in NUREG 1505² for demonstrating that survey units are indistinguishable from the reference area (local background) may be used. Waste found by statistical evaluation to exceed the local background identified in Table 20 of the 1995 McLaren/Hart report³ will not be shipped offsite. Instead DTSC will be notified and the need for further waste evaluation or alternate disposition will be determined.

Field surveys, including gamma exposure, total beta contamination and alpha/beta wipe tests will be taken of any discrete objects which may be found that would be difficult to sample and analyze in a laboratory. Any solid debris surveyed that exceeds instrument minimum detectable activity, using commonly used survey instrumentation, will be held for further evaluation.

Waste generated shall be shown to meet the requirements of the relevant waste disposal facility permit before being shipped offsite.

Based on site knowledge, previous monitoring of the area, and previous sampling analysis, there is no evidence to suggest that any radiological contamination exists in the area. The radiological controls normally associated with radiological remediation projects including, radiation worker training, personnel dosimetry, baseline and post-project bioassays, workplace air monitoring for radionuclides, continuous routine radiation and contamination surveys, personnel and area contamination controls, tenting and HEPA ventilation, etc are not planned as part of the North Drainage debris removal. However, as part of Boeing's commitment to a safe working environment, site conditions will be reviewed throughout the duration of the debris removal project, and adjustment to work plan monitoring will be made, as necessary.

¹ McLaren/Hart, "Multi-Media Sampling Report for the Brandeis-Bardin Institute and the Santa Monica Mountains Conservancy. Volume 1. March 10, 1993. http://www.etec.energy.gov/Health-and-Safety/Documents/BrandeisBardin/MultMedSamRep_V1.pdf

² NUREG-1505, Nuclear Regulatory Commission, "A Non-parametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys." January 1998.

³ McLaren/Hart, "Additional Soil and Water Sampling at the Brandeis-Bardin Institute and Santa Monica Mountains Conservancy." Jan 19, 1995. <http://www.etec.energy.gov/Health-and-Safety/Documents/BrandeisBardin/AddSoilandWaterSamp.pdf>