

**PROJECT-SPECIFIC TYPE A
VERIFICATION FOR THE HIGH
FLUX BEAM REACTOR
UNDERGROUND UTILITIES
REMOVAL PHASE 2 D/F WASTE LINE
REMOVAL, BROOKHAVEN
NATIONAL LABORATORY UPTON,
NEW YORK**

P.C. Weaver

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Oak Ridge Institute for Science and Education

July 9, 2010

Ms. Terri Kneitel
U.S. Department of Energy
Brookhaven Site Office
53 Bell Avenue, Bldg. 464
Upton, NY 11973

DOE CONTRACT NO. DE-AC05-06OR23100
SUBJECT: PROJECT-SPECIFIC TYPE A VERIFICATION FOR THE HIGH FLUX BEAM REACTOR UNDERGROUND UTILITIES REMOVAL PHASE 2 D/F WASTE LINE REMOVAL, BROOKHAVEN NATIONAL LABORATORY UPTON, NEW YORK DCN: 5098-SR-02-0

Dear Ms. Kneitel,

Oak Ridge Institute for Science and Education (ORISE) has reviewed the project documentation and data for the High Flux Beam Reactor (HFBR) Underground Utilities removal Phase 2; the D/F Waste Line removal at Brookhaven National Laboratory (BNL) in Upton, New York. The Brookhaven Survey Group (BSG) has completed removal and performed the final status survey (FSS) of the D/F Waste Line that provided the conduit for pumping waste from Building 750 to Building 801. Sample results have been submitted as required to demonstrate that the cleanup goals of 15 mrem/yr above background to a resident in 50 years have been met. Four rounds of sampling, from pre-excavation to final status survey (FSS), were performed as specified in the Field Sampling Plan (FSP) (BNL 2010a).

It is the policy of the U.S. Department of Energy (DOE) to perform independent verifications of decontamination and decommissioning activities conducted at DOE facilities. ORISE has been designated as the organization responsible for this task at the HFBR. ORISE together with DOE determined that a Type A verification of the D/F Waste Line was appropriate based on its method of construction and upon the minimal potential for residual radioactivity in the area.

The removal of underground utilities is being performed in three stages in the process to decommission the HFBR facility and support structures. Phase 2 of this project included the grouting and removal of 1100 feet of 2-inch pipe and 640 feet of 4-inch pipe that served as the D/F Waste Line. Based on the pre-excavation sample results of the soil overburden, the potential for contamination of the soil surrounding the pipe is minimal (BNL 2010a).

ORISE reviewed the BNL FSP and identified comments for consideration (ORISE 2010). BNL prepared a revised FSP that addressed each ORISE comment adequately (BNL 2010a). ORISE referred to the revised Phase 2 D/F Waste Line removal FSP FSS data to conduct the Type A verification and determine whether the intent of the criteria specified for the FSS have been met. ORISE determined that the FSP and data summary provided sufficient information to support a Type A analytical evaluation. The FSP provided sufficient information related to the selection of field instrumentation with sensitivity to meet the scan minimum detectable concentrations (MDCs). Additionally, ORISE determined that the FSP appropriately addressed scan coverage, measurements, and analytical requirements for soil and duct samples collected for the contaminants of concern, Cs-137, Sr-90, and Ra-226, lead, and mercury.

The Phase 2 D/F Waste Line Removal Data Summary provided by BNL demonstrated that the FSP was being implemented as designed (BNL 2010b). However, ORISE respectfully submits the following comments for your consideration.

Page 4; paragraph 2; sentence 3: The statement is not specific about the source of the high radioactivity reported on the outside of the pipe. As written it appears that there could be something related to the pipe contributing to high radioactivity instead of identifying Building 801 (or contents thereof) as the significant contributor to high activity. Please clarify.

Page 4; paragraph 3: Is this the background reading at the 3-foot distance on the pipe that is referred to in the previous paragraph? Please clarify.

Removal of the line required the excavation of the overburden to depths of 8 feet, then scanning, and sampling of the excavation; coreholes were installed to determine the depth of contamination, if present; and the interior pipe surfaces were scanned. The surface gamma walk-over scans covered 100% of each excavated area. Portions of the D/F Waste Line were not excavated because doing so could have negatively impacted operational utilities and structures such as sidewalks, roads, or buildings. Static measurements were shown to be collected at systematic increments along the areas of concern. The primary contaminants of concern (Cs-137, Sr-90, and Ra-226) were determined to be well below cleanup goals and notably below background concentration levels.

It is therefore the opinion of ORISE that BNL has provided sufficient evidence to demonstrate compliance with the cleanup goals as prescribed in the Operable Unit I Record of Decision (BNL 1999) based upon the FSP specified for this project.

Please contact me at 865.576.5321 or Tim Vitkus at 865.576.5073 should you have any questions or need additional information provided.

Sincerely,



Phyllis C. Weaver
Health Physicist/Project Manager
Oak Ridge Institute for Science and Education

PCW:jc

Enclosure

cc: File/5098

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REFERENCES

Brookhaven National Laboratory (BNL). Record of Decision, Operable Unit I and Radiologically Contaminated Soils. Upton, NY; August 1999.

Brookhaven National Laboratory . High Flux Beam Reactor Decommissioning Project, Field Sampling Plan HFBR Underground Utilities, Bldgs. 704 and 802. Upton, NY; June 2010a.

Brookhaven National Laboratory. HFBR Underground Utilities Removal—Phase 2 D/F Waste Line Removal Data Summary. Upton, NY; June 2010b.

Oak Ridge Institute for Science and Education (ORISE). Document Review—Comments on the Field Sampling Plan, HFBR Underground Utilities, Building 704 and Building 802, Brookhaven National Laboratory. Oak Ridge, TN; May 20, 2010.