Memorandum to File: National Institutes of Health, Twinbrook 1 and 2

January 20, 2020 R/A Orysia Masnyk Bailey

License No. 19-00296-10 Docket No. 030-01789

I have completed my review of the National Institutes of Health (NIH) Final Status Surveys (FSS) for their Twinbrook 1 and 2 buildings at 12441 Parklawn Drive, Rockville, MD. In addition, Elizabeth Andrews and I performed a site visit on January 27-28, 2020, during which we reviewed additional documents, interviewed licensee and contractor personnel, and took selected, biased surveys.

The survey reports contained the results of an FSS conducted in accordance with NUREG 1575, "Multi-Agency Radiation Survey and Site Investigation Manual" (MARSSIM). The isotopes of concern were Tritium, Carbon-14, and Sulphur-35 in Twinbrook 1, and the same with the addition of Uranium-238 with progeny in equilibrium, Iodine-125, and Iron-55 for Twinbrook 2.

The derived concentration guideline levels (DCGLS) used for the release criteria, for most of the isotopes, were those published in NUREG-1757, Volume 1, revision 2, Appendix B, Table B.1, except that in the report the contractor "rounded up" the numbers. For Uranium-238 and Iodine-125, the contractor used DandD software, Version 2.1, Building Scenario. A review of the DandD reports showed that the values were derived using the recommended default values.

The report refers to the scoping survey conducted prior to the FSS. The contractor did not generate a scoping survey report, but we were able to review the data and interview the contractor concerning the survey. The scoping survey surface scans were used to inform the FSS. Surface scans included 100% of accessible floor and lower wall areas, 50% of the upper wall areas and 10% of the ceiling. Included in the lower wall areas were all surface areas. The contractor took wide area smears (that numbered in the thousands) of all accessible areas, including inside the fume hoods, drawers and cabinets, vacuum pump system, neutralization water holding tank, and sink drains. All scans and smears were below the minimal detectable sensitivities, which were 10 -50% of the DCGLs. Survey equipment was appropriate and properly calibrated. The impacted areas in the buildings were appropriately designated as Class 3 survey units.

We were able to review the Historical Site Assessments (HSA) for both buildings. These reports relied heavily on the NIH Division of Radiation Safety (DRS) comprehensive database and archived records. This is a database that includes the operating history (material purchased, used, and disposed) as well as all survey records. There was only one sealed source, contained in a self-shielded irradiator, used in the buildings. We reviewed the leak test records and determined there was no evidence of a leaking source.

In 2009, a Tritium and Carbon-14 contamination event was identified in Laboratory 239 in Twinbrook 2. We reviewed the Radiological Survey Report which was generated by the same contractor that performed the FSS. In fact, this contractor works for the NIH and performs semi-annual comprehensive surveys of the NIH labs. This is in addition to the routine daily and weekly surveys performed by NIH staff. The report described decontamination and remediation work in accordance with licensee and regulatory requirements, with no remedial contamination left behind.

We toured the buildings and took biased surveys of selected areas with nothing found above background levels. The buildings were empty except for built in furniture like lab tables, cabinets, and fume hoods. Because of the above, I have concluded that Twinbook 1 and 2 are acceptable for unrestricted release.

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