

EXECUTIVE SUMMARY

General Electric Corporation Environmental Programs;
Former United Nuclear Corporation Naval Products Facility
License No. SNM-368 (Terminated); Docket No. 07000371 (Retired)
NRC Site Visit Report No. 07000371/2011001

On April 13, 2011, a Region I inspector and branch chief visited the former United Nuclear Corporation Naval Products (UNC) Facility, located at 71 Shelton Avenue, in New Haven, Connecticut. UNC is a former NRC licensee that was authorized to fabricate nuclear fuel components for the naval reactor program and is currently owned by General Electric Corporation (GE). The purpose of the site visit was to review GE's activities regarding the remediation of the special nuclear material, specifically, the high enriched uranium that remains in specific locations on the site.

In September 1997, GE had acquired UNC. Although GE owns UNC, they are neither the current owner of the 71 Shelton Avenue property nor an NRC licensee and therefore are not required to comply with the Decommissioning Timeliness Rule. However, in June 1998, UNC (now GE) had agreed to undertake the remediation. UNC/GE informed the NRC in August 1998 the Department of Energy had accepted financial responsibility for the site cleanup. In 2006, Crownbell Management (CM) had become the site owner and plans to redevelop the property. Additionally, the State of Connecticut, Department of Environmental Protection (CTDEP) and the City of New Haven have a vested interest in the site, as part of redevelopment in the area.

The site visit consisted of a tour of the former H-Tract building (identified as 3H and 6H); the area and property adjacent to the building; specifically, a utility trench located on the south side of the building extending past the southeast edge of the property; and a connected, but inactive, sewer system that traverses an adjacent private property line. In addition, we discussed the objectives of UNC/GE's Final Status Survey Plan and the next steps to support final site remediation activities with two former UNC Naval personnel; two representatives from UNC/GE's contractor; a representative of the CTDEP; two representatives from the Department of Energy; the 71 Shelton Avenue property owner and one representative from GE at the conclusion of the site visit.

SITE VISIT REPORT DETAILS

I. Background and Site Information

The former UNC Naval Facility was originally operated by Olin Mathieson Chemical Corporation – Winchester Western Division (Olin) from April 1956 to May 31, 1961 and by UNC from June 8, 1961 to April 22, 1976. Specifically, Olin operated as a contractor from 1956 to 1960, and obtained an Atomic Energy Commission (AEC) (later Nuclear Regulatory Commission (NRC)) special nuclear material license (SNM-368; Docket Number 07000371) in 1960 for fabrication and manufacture of reactor fuel components for the Naval Reactors Program at the New Haven, Connecticut H-Tract facility. On May 31, 1961, Olin transferred these assets to United Nuclear – Fuels Division. On June 8, 1961, NRC re-issued SNM-368 to United Nuclear – Fuels Division, which later became known as United Nuclear Corporation Naval Products (UNC). This license authorized possession and use of enriched uranium and source materials, including natural uranium, depleted uranium, and thorium for research and nuclear fuel fabrication. The radioactive material used in these operations was primarily enriched uranium and natural uranium. In 1974, UNC announced the closing of the H-Tract facility and transferred their inventory of radioactive materials from the New Haven, CT location to the Montville, CT location. Final surveys of the New Haven facility were completed by February 1976 and the NRC performed confirmatory surveys on March 8-10, 1976. On April 22, 1976, NRC amended the SNM-368 license to remove the New Haven facility from the license. The site was released for unrestricted use in accordance with the existing regulations and guidance. The SNM-368 license was terminated on June 8, 1994, following the decontamination and decommissioning of the Montville site. The NRC's guidance and criteria for release for unrestricted use, at that time, was Regulatory Guide 1.86, dated June 1974, and "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted use or Termination of Licenses for Byproduct, Source or Special Nuclear Material," dated May 3, 1973.

At about the same time the SNM license was terminated, the NRC initiated a "Terminated Sites Review Project" to ensure that formerly licensed facilities by the AEC and/or the NRC were terminated in accordance with current NRC criteria for release for unrestricted use. As part of the Terminated Sites Review Project, the NRC's contractor, Oak Ridge National Laboratory (ORNL), identified the retired SNM-368 license as requiring additional review because final radiological survey records were either incomplete or inadequate. NRC Region I staff reviewed this assessment and determined further information on this site was necessary to conclude that the facility met the current criteria for release for unrestricted use.

Therefore, NRC and the NRC's contractor, Oak Ridge Institute for Science and Education (ORISE), conducted an independent measurements inspection in September 1996 using the release criteria in 1981 Branch Technical Position (BTP) "Disposal or Onsite Storage of Thorium or Uranium Wastes from Past Operations", published in the Federal Register on October 23, 1981. The results of this inspection indicated that residual enriched uranium, in certain areas inside the building and inside a connected inactive sewer system, had exceeded the release criteria of 30 picocuries per gram (pCi/g) in soil. These contaminated areas were documented in NRC Inspection Report (NRC Inspection No. 07000371/96-001) and in the ORISE "Radiological Scoping Survey of Buildings 3H and 6H at the former UNC H-Tract Facility, New Haven, Connecticut." (ADAMS Accession No. ML110120443).

In a letter from UNC/GE to the NRC, dated June 8, 1998, UNC/GE agreed to proceed with site characterization and remediate the facility, in accordance with Option 1 delineated in the NRC 1981 BTP. UNC/GE informed the NRC that the Department of Energy accepted financial responsibility for the site cleanup and in August 1998, UNC/GE submitted a Characterization Plan and Decommissioning Plan (DP) (ADAMS Accession No. ML010110248). The DP was approved by the NRC on April 6, 1999 and UNC/GE began sampling activities in 2003.

From 2005 through 2008 additional documents, such as, the Radiological Characterization Report and Appendix (ADAMS Accession Nos. ML051780083 and ML051780088) and the Final Status Survey Plan (FSSP) (ADAMS Accession No. ML062910318) were submitted to the NRC and reviewed. In a letter from NRC to UNC/GE, dated July 7, 2008, (ADAMS Accession No. ML081890407) the NRC expected UNC/GE to initiate decommissioning activities promptly. NRC notified UNC/GE that a review of the final status survey report was required before approving the release of this site.

Due to inactivity by UNC/GE with the project since 2008, NRC contacted UNC/GE personnel in February and March 2009. The UNC/GE representative responsible the site remediation updated the NRC on the project status. UNC/GE was in the process of securing the services of a new remediation contractor and expected to complete decommissioning of the facility in the summer of 2009. As of April 2011, the NRC has not received the information.

A diagram of the property and facility can be found in Attachment No. 1. The diagram is an excerpt from the ORISE "Radiological Scoping Survey of Buildings 3H and 6H at the former UNC H-Tract Facility, New Haven, Connecticut" (ORISE Report). From May 2010 through May 2011, UNC/GE was in the process of obtaining access agreements with the adjacent private property owner and with Olin Mathieson Chemical Corporation (Olin) (current owner of the adjacent defunct Argyle Street property (Argyle Street)). UNC/GE obtained an access agreement with Olin in February 2011 and with the adjacent private property owner in May 2011. With these access agreements, UNC/GE will be able to commence remediation work at the site.

II. Site Description

The site visit consisted of a tour of the former UNC facility (the H-Tract building known as 3H and 6H), and a connected, but inactive, sewer system that traverses an adjacent private property line. The building is constructed of concrete floors, concrete/cinder block walls and a wooden roof. The building was divided into two separate areas, the component assembly area (located in 3H), containing an x-ray reading room, a decontamination pit (decon pit), and a rectifier room, and the chemistry laboratories (located in 6H) containing a utility trench that is located on the south side of the building.

A chain link fence completely surrounds the site. The south side of the building, which borders Argyle Street, is currently owned by Olin and is overgrown with vegetation. A second chain link fence surrounds the adjacent private property. This fence separates the adjacent private property and Argyle Street. There is an inactive sewer line that lies under Argyle Street, traverses under the property line (and chain link fence) of the adjacent private residence, and ends under Shelton Avenue.

III. Planned Remediation Activities

During the site visit on April 13, 2011, UNC/GE's FSSP objectives were discussed with the GE Remedial Project Manager; two former UNC Naval personnel; two representatives from GE's contractor; a representative of the CTDEP; two representatives from the Department of Energy; and the property owner of 71 Shelton Avenue.

The purpose of the FSSP is to detail the survey and sampling efforts to be performed at the site, with the goal of releasing the property and surrounding area for unrestricted use. The FSSP was prepared in accordance with the protocols and methods established in NUREG 1575, "Multi-Agency Radiation Survey Site Investigation Manual (MARSSIM)," Revision 1, dated August 2000, and UNC/GE's Decommissioning Plan, dated June 7, 2005 (ADAMS Accession No. ML051780091).

The areas of the site where contamination still exists that are subject to remediation are: the decon pit, the x-ray reading room, rectifier room (located in 3H), the chemistry laboratories south trench (located in 6H), and the inactive sewer system. As defined in UNC/GE's FSSP, the impacted soil will be excavated and packaged for disposal. The soil will be shipped to EnergySolutions Low Level Waste disposal facility, located in Clive, Utah.

Data from the ORISE Report and the UNC/GE Characterization Report indicated that the enriched uranium soil contamination ranged from 30 to 700 pCi/g, which exceed the 1981 BTP release criteria of 30 pCi/g total uranium in soil. Specifically, radionuclide concentrations of the total uranium in the decon pit was reported to be less than 6 pCi/g. The radionuclide concentrations of the total uranium in the x-ray room ranged from 3 pCi/g to 720 pCi/g in the soil under the floor. The concentrations of the total uranium in the south trench were reported to range from 37 to 57 pCi/g. The total uranium in the sewer system was reported to range from 3 to 217 pCi/g.

The UNC/GE survey will include the performance of gamma scans, subfloor soil sampling, and sediment sampling from the associated sewer system under Argyle Street. Surface scans for gamma radiation will be performed over accessible floor space in all areas of concern. Scans for beta radiation will be performed at the openings of accessible floor drains. Radiation surveys will be performed using sodium iodide (NaI) gamma scintillation detectors and geiger-mueller (GM) detectors coupled with ratemeters and/or scalers with audible indicators. UNC/GE does not yet have a start date, but expects to commence remediation and final status survey work late spring/early summer of 2011 and anticipates that the work will take approximately six months to complete. UNC/GE's contractor is currently working to revise the schedule and inform the NRC when the schedule has been completed.

IV. Summary

The following items were discussed with the individuals listed at the end of the report at the conclusion of the visit.

- The planned decontamination and decommissioning actions to be accomplished;
- NRC requested that GE submit a revised decommissioning schedule as the previous start date of April 2011 has been surpassed; and
- The importance to complete decommissioning of the site as soon as possible was emphasized and agreed to by all parties.

PARTIAL LIST OF PERSONS CONTACTED

General Electric Corporation Environmental Programs:

John Uruskyj, GE Remedial Project Manager

Robert Bonito, UNC General Manager/GE Property Manager (former UNC Naval employee)

Robert Gregg, UNC Consultant (former UNC Naval employee)

UNC/GE contractor:

John Eberlin, Project Manager

Robert Flowers, Program Manager

Connecticut Department of Environmental Protection:

Michael Firsick, State Inspector

Department of Energy:

Micheal MacLellan, Project Engineer, Schenectady Naval Reactors

Kevin Zagorda, Manager Deactivation and Remediation, Knolls

Crownbell Management Property Owner of 71 Shelton Avenue:

Schneur Katz, Property Manager

Attachment 1

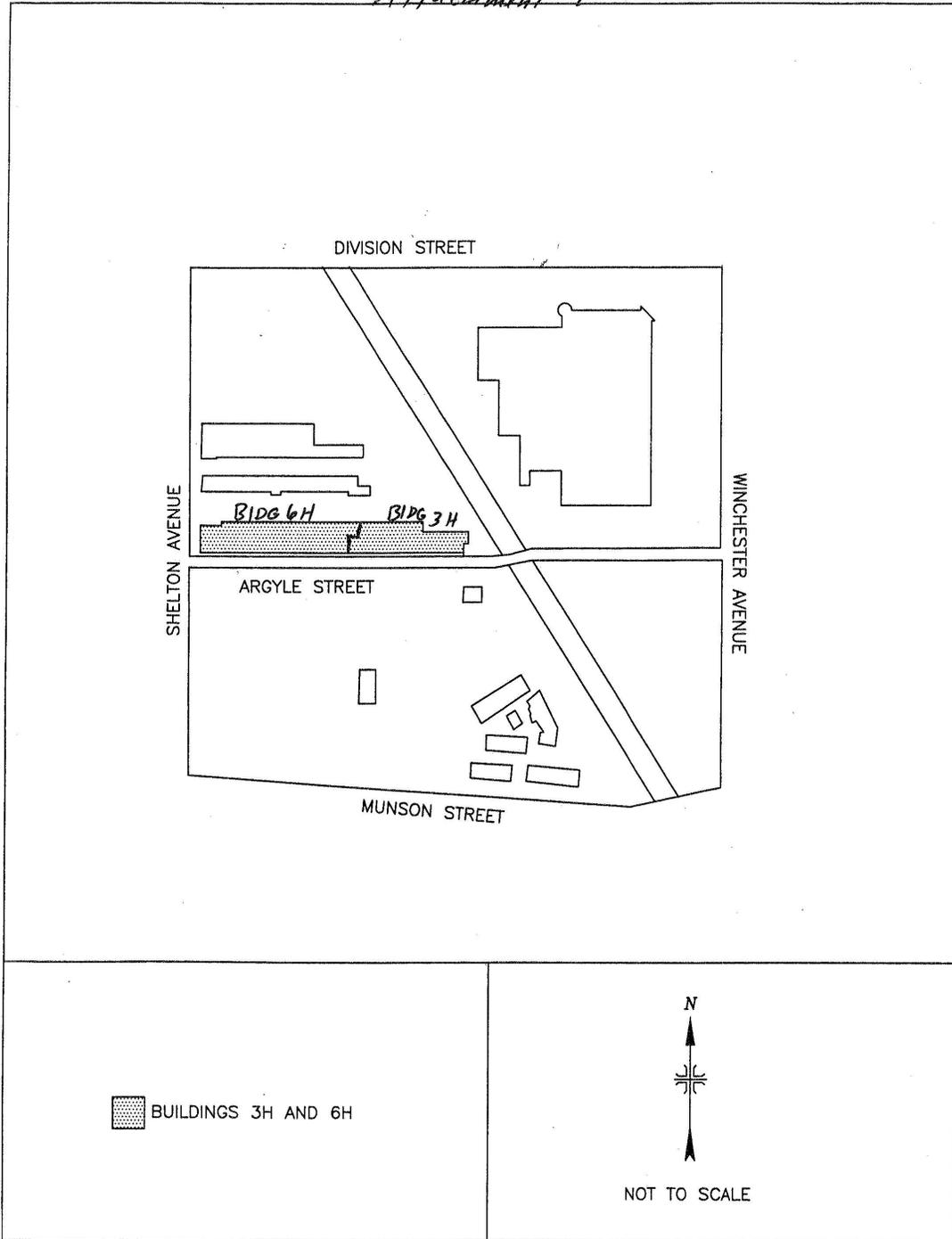


FIGURE 2: Layout of Science Park – Location of Buildings 3H and 6H

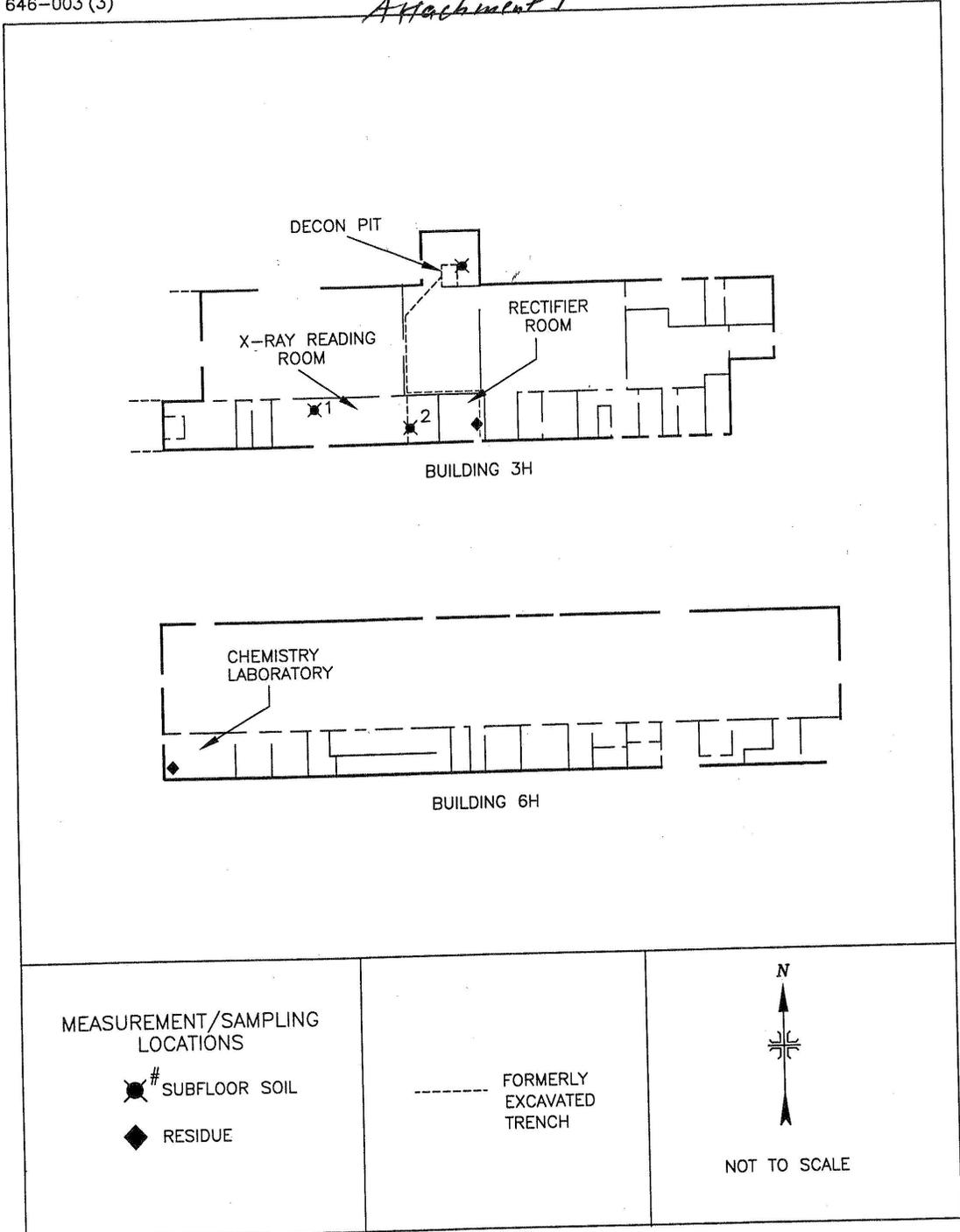


FIGURE 3: Floor Plan of Buildings 3H and 6H – Sampling Locations