U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
American Nuclear Corporation - Removal Polrep
Initial Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject: **POLREP #1**
Initial POLREP Site Preparation and Removal Action Start
American Nuclear Corporation
C4N8
Clinton, TN
Latitude: 36.0433521 Longitude: -84.1837529

To: James Webster, USEPA R4 ERRB
Steve Sanders, TDEC

From: Carter Owens, OSC
Date: 3/15/2024
Reporting Period: 11/15/2023 through 3/15/2024

1. Introduction

1.1 Background

Site Number:	C4N8	**Contract Number:**	
D.O. Number:		**Action Memo Date:**	9/12/2023
Response Authority:	CERCLA	**Response Type:**	Time-Critical
Response Lead:	EPA	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	11/15/2023	**Start Date:**	11/15/2023
Demob Date:		**Completion Date:**	
CERCLIS ID:	TNN000420811	**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category
Time-Critical Removal

1.1.2 Site Description
The Site is a former radiological source manufacturing facility. Operations at the facility caused sitewide radiological contamination. The building remaining on-site contains a former machine shop, electronics lab, office, and a Hot Cell formerly used to load teletherapy sources. The Hot Cell is a shielded radiation containment chamber contained inside a second attached building on the east side of the facility. Key problem areas include the Hot Cell and the surrounding supporting building, drainage piping underneath the building, and contaminated soils.

1.1.2.1 Location
The Site is located at 1497 Blockhouse Valley Road, Clinton, Tennessee, 37716. The geographic coordinates of the Site are 36.043251 degrees north and 84.183476 degrees west. The Site is bordered by TVA and County-owned property. Melton Hill Lake and the Clinch River are approximately four tenths of a mile to the west, and Braden Branch Creek is approximately 50 yards to the south of the Site.

1.1.2.2 Description of Threat
Release of Cs-137 and Co-60 to the environment, as well as residual radiological contamination throughout the operations building containing the Hot Cell. Cs-137 and Co-60 are hazardous substances as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and are listed as hazardous substances in 40 C.F.R § 302.4.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results
On September 12, 2022, the EPA, the Tennessee Department of Environmental Control (TDEC), and the EPA's Superfund Technical and Response Team contractor (START) arrived on-site to conduct a site reconnaissance and begin a removal site evaluation. Initial investigative actions performed by the EPA included a radiological survey of the entire property, along with air and swipe sampling from the interior of the building. An average background gamma radiation measurement of approximately 5 microRoentgen per hour (µR/hr) was obtained outside on the North side of the building.

Screening of the operating area, which houses the Hot Cell, showed gamma exposure readings ranging from 0.06mR/hr to 7.5 mR/hr, which is 1500 times greater than background of 5 µR/hr. The highest gamma exposure readings were all within close proximity to the Hot Cell. The Hot Cell is roughly 280 sqft in size with approximately three-feet thick walls of concrete/shielding on all exposed sides. The Hot Cell is also roughly 18 feet tall.

A total of three air samples and 15 swipe samples were collected to assess the presence of airborne and removable contamination. On-site analysis of the filter and swipe samples indicated that no removable surface contamination was present outside of the Hot Cell.

On April 17, 2023, the EPA and START mobilized back to the Site to conduct soil, sediment, and additional

wipe sampling. EPA collected soil and sediment samples from the on-site soils, off-site drainage slough, on-site drainage ditch, and off-site background locations. A total of 17 sediment and two surface soil samples were collected from a depth of zero to two inches below ground surface (bgs). Sub-surface soil samples using a direct push drill rig were collected from 22 locations across the Site and four additional soil borings, where the drill rig could not reach, were collected using a hand auger.

EPA radiation subject matter experts were consulted to develop removal management levels (RML) for the radionuclides Cs-137 and Co-60. Site-specific data was used to determine removal levels for a residential scenario using the Preliminary Remediation Goals for Radionuclides (PRG) calculator. The derived Site-specific RMLs for Cs-137 and Co-60 are 4.8 and 0.94 picoCuries per gram (pCi/g), respectively.

Laboratory analysis confirmed that the Site-specific RMLs for Cs-137 and/or Co-60 were exceeded in two on-site sediment samples and three sub-surface soil borings. None of the off-site sediment samples had exceedances for Cs-137 or Co-60.

Additional wipe samples were collected from the door to the Hot Cell and from the support structure above the door, which houses the motor and chain drive used to open the door. On-site analysis showed the presence of removable contamination on the samples, so they were sent off for further laboratory analysis. Laboratory analysis confirmed the presence of removeable contamination within interior walls/structures of the Hot Cell.

The EPA conducted a geophysical survey of the ANC property. The geophysical survey included electromagnetic (EM) digital geophysical mapping (DGM), ground-penetrating radar (GPR), and line tracer surveys over a 4-acre portion of the Site. The purpose of the geophysical survey was to detect and map potential:

- Buried underground storage tanks (USTs), vaults, and sumps;
- Backfilled excavations associated with former UST removal;
- Underground product lines and other subsurface features associated with existing or former USTs;
- Septic tanks and leach fields;
- Debris disposal areas;
- Voids; and
- Detectable underground utilities, pipe runs, conduits, and other structures (potential preferential pathways for contaminant migration), including Municipal underground water supply lines connected at Blockhouse Valley Road.

Two candidate EM anomalies, that could be associated with the presence of USTs, were detected in the northern and southern portions of the Site.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

The EPA has documented the presence of Cs-137 and C0-60 above site-specific RMLs within site soils and sediments. Gamma exposure readings inside the building indicate levels as high as 1500 times greater than background levels for the area. Cs-137 and Co-60 are hazardous substances as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and are listed as hazardous substances in 40 C.F.R § 302.4.

2.1.2 Response Actions to Date

From November 2023 through February 2024 EPA, EPA's Emergency Response and Removal Services Contractor (ERRS) and START visited the Site to prepare for removal activities.

On March 10, 2024, the EPA OSC, ERRS, and START mobilized to the Site to begin removal activities. The week of March 11 will consist of the following Site preparatory actions:

- Delivering and staging all necessary equipment for the removal action
- Setting up the on-site office trailer
- Radiation Safety Officer (RSO) subcontractor setting up the on-site radiological screening lab
- (RSO) demarcating the radiation work zones as detailed by the radiation protection plan and posting all necessary signage.
- Delivering stone and reinforcing site roadways for increased truck traffic for T&D
- Other miscellaneous site-prep work to support the building/Hot Cell demolition and disposal.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

As of July 1980, the State of Tennessee had condemned and taken ownership of the ANC property. The State of Tennessee does not presently have resources or funds available to conduct a removal action at the Site, and referred the Site to the EPA's Superfund program on July 15, 2022.

2.1.4 Progress Metrics

Waste Stream	*Medium*	*Quantity*	*Manifest #*	*Treatment*	*Disposal*

2.2 Planning Section

2.2.1 Anticipated Activities

Site preparation work to begin building/Hot Cell demolition and disposal.

2.2.1.1 Planned Response Activities

Site preparation work to begin building/Hot Cell demolition and disposal.

2.2.1.2 Next Steps

Hold an operational tactics meeting with ERRS, RSO, and EPA to discuss necessary steps to ensure demolition of the building/Hot Cell is conducted safely with minimal worker exposure. Building demolition

activities are tentatively scheduled to begin the week of March 18, 2024.

2.2.2 Issues

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2.3 Logistics Section

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2.4 Finance Section

2.4.1 Narrative

An Action Memorandum authorizing EPA removal activities has been approved for the Site.

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
ERRS - Cleanup Contractor	$4,600,000.00	$100,000.00	$4,500,000.00	97.83%
TAT/START	$228,806.00	$10,000.00	$218,806.00	95.63%
Intramural Costs				
Total Site Costs	$4,828,806.00	$110,000.00	$4,718,806.00	97.72%

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

2.5 Other Command Staff

2.5.1 Safety Officer

An ERRS Radiation Safety Officer sub-contractor is on-site during removal activities.
The OSC continues to coordinate with the EPA Safety Officer and EPA-ERT Radiation Subject Matter Expert.

2.5.2 Liaison Officer

ERRS coordinates the receipt of equipment and supplies to the Site.

2.5.3 Information Officer

EPA's Public Information Officer coordinates community outreach and provides information to the public.

3. Participating Entities

3.1 Unified Command

EPA
TDEC

4. Personnel On Site

ERRS - Kemron
RSO - Solutient
START - Tetra Tech
EPA

5. Definition of Terms

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6. Additional sources of information

6.1 Internet location of additional information/report

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7. Situational Reference Materials

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