

U.S. ENVIRONMENTAL PROTECTION AGENCY  
POLLUTION/SITUATION REPORT  
Haystack Navajo Radioactive Structures Site - Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region IX

**Subject:** POLREP #3  
**Progress**  
**Haystack Navajo Radioactive Structures Site**

**Haystack, NM**  
**Latitude: 35.3553091 Longitude: -107.9475609**

**To:** Vivian Craig, N.N. EPA

**From:** Randy Nattis, Federal On Scene Coordinator  
**Date:** 6/10/2013  
**Reporting Period:** 6/2/2013 - 6/8/2013

## 1. Introduction

### 1.1 Background

<b>Site Number:</b>	09WW	<b>Contract Number:</b>	EP-S5-08-02
<b>D.O. Number:</b>	0096	<b>Action Memo Date:</b>	9/15/2011
<b>Response Authority:</b>	CERCLA	<b>Response Type:</b>	Time-Critical
<b>Response Lead:</b>	EPA	<b>Incident Category:</b>	Removal Action
<b>NPL Status:</b>	Non NPL	<b>Operable Unit:</b>	Entire site
<b>Mobilization Date:</b>	5/5/2013	<b>Start Date:</b>	5/6/2013
<b>Demob Date:</b>		<b>Completion Date:</b>	
<b>CERCLIS ID:</b>	NNN000909132	<b>RCRIS ID:</b>	
<b>ERNS No.:</b>		<b>State Notification:</b>	
<b>FPN#:</b>		<b>Reimbursable Account #:</b>	

#### 1.1.1 Incident Category

Removal Action

#### 1.1.2 Site Description

The Site consists of 12 structures and 8 exterior areas containing areas of elevated Uranium contamination soils or materials on residential properties known as Allotments. Allotments are reservation land the federal government distributed to individual Indians, generally in 40-, 80-, and 160-acre parcels. Typically, the allotment includes residential structures, Navajo ceremonial buildings, called Hogans, and frequently an outer storage building. The Hogan and storage buildings are usually located in close proximity (within 200 feet) of the residential structures. Exterior surveys include approximately 1/2 an acre surrounding each primary structure; however, in some cases where the structures are closer together the survey areas may consist of less than 1/2 an acre apiece.

In February, June, July and August of 2011, U.S. EPA, in partnership with Navajo Nation EPA (NNEPA), investigated 58 residential properties containing 171 structures in the Haystack and Church Rock Chapter areas. U.S. EPA assistance was requested by Navajo Nation to conduct these investigations based on results of the initial screenings conducted by NNEPA in these same areas in 2009 and 2010. The U.S. EPA investigation identified 12 structures and 8 yards; all located within the Haystack and Church Rock Chapter areas, requiring response action. All of the structures are occupied and used for residential purposes.

#### 1.1.2.1 Location

The Site is located within the Navajo Nation Indian Reservation in New Mexico. The Site is situated within the Navajo Nation Chapters known as Haystack and Church Rock.

#### 1.1.2.2 Description of Threat

Current Site conditions pose ongoing releases and the threat of future releases of hazardous substances, namely: Uranium and its progeny (i.e. Radium-226 and Radon) and ionizing gamma and alpha radiation associated with those progeny. The likelihood of direct human exposure, via ingestion and/or inhalation of hazardous substances, and the threat of future releases and migration of those substances, pose an imminent and substantial endangerment to public health, welfare and the environment based on the factors

set forth in the NCP, 40 CFR 300.415(b)(2).

### 1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

In February and throughout the summer of 2011, U.S. EPA conducted radiation assessments of 58 residential properties and all of the structures associated with each residential property, which amounted to a total of 171 structures. Most of the subject residential properties had been identified during previous screenings as potential concerns. These earlier screenings were conducted separately by NNEPA in order to streamline U.S. EPA's assessment activities.

Past and present investigations were requested based on anecdotal evidence that residents transported contaminated mine materials to their residential properties for use in structure construction. Many of these residents worked in nearby uranium mines and reportedly carried contaminated construction materials home from the mine.

In addition, some of the residential properties are situated down gradient from abandoned uranium mines (both reclaimed and un-reclaimed). Therefore, some of the contamination in residential soils may be the result of contaminant transport forces (i.e., contaminant migration due to wind and runoff).

U.S. EPA conducted the radiological assessments of these 171 structures in partnership with NNEPA. In each structure, U.S. EPA measured total gamma radiation and gamma radiation dose rate. NNEPA measured total radon in select rooms in structures where there were current residents. Outside of each structure on the residential property yard, U.S. EPA measured total gamma radiation using a GPA integrated radiation ratemeter. The equipment logged the GPS location for each reading, collecting thousands of mapped data points per residential property.

Inside each structure and in every room, U.S. EPA conducted gross gamma scanning surveys of structure floors and walls with a ratemeter and a Ludlum Model 44-20 (a 3" by 3" unshielded sodium iodide scintillator). In those same locations U.S. EPA conducted an area gross gamma dose rate measurement with a Reuter-Stokes RSS-131 Pressurized Ionization Chamber (PIC). Finally, radon measurements were collected using Rad Elec model radon detection equipment. Results from all instruments at all locations were tabulated for use in removal decision-making in consultation with NNEPA.

Daily background PIC and ratemeter measurements were also included in these tables. These background measurements were collected at a field calibration site visually determined to be uncontaminated by the assessment team. The average background measurements were used to determine daily instrument investigation levels (ILs)(Average background plus 3 times the standard deviation). Areas exceeding ILs for any of the instruments were flagged and photographed by the assessment team during each residential property and structure investigation.

Based on the assessment results, U.S. EPA determined that twelve structures in the Haystack and Church Rock Chapters area required a removal action. These structures are identified as EPA Structure ID Nos: BH-02-A, BH-05-A, BH-07-A, BH-07-B, BH-19-D, BH-26-A, BH-34-A, BH-38-C, BH-42-A, BH-42-B, and CR-81-A. At nine of these structures, the indoor dose levels collected with the PIC exceeded the dose action level. At the remaining three structures, the indoor dose does not exceed the action level; however, high levels of gamma radiation measured by other instruments as well as elevated interior radon levels indicate the need for removal of all or part of the structure. All twelve structures are located within the Navajo Nation.

U.S. EPA also determined that eight yards in the Haystack and Church Rock Chapter areas require a removal action. The eight yards are identified as EPA Site ID Nos: BH-16, BH-26, BH-29, BH-35, BH-40, BH-42 and CR-92. Each of these residential properties has areas containing areas of elevated Uranium contamination soils which is above the action level of two times background.

## 2. Current Activities

### 2.1 Operations Section

#### 2.1.1 Narrative

The EPA Emergency Response Section is conducting a CERCLA removal action to mitigate the imminent and substantial threats to human health, welfare, or the environment by taking steps to prevent the release of radium-226, uranium, and the external gamma radiation. The removal action will include the following objectives to prevent direct human contact with external alpha and gamma radiation as well as uranium and its progeny radium-226 and the radon from building materials and in residential soils at up to 9 properties. Remove portions of or the entirety of 9 contaminated structures. Remove contaminated soil or material from eight residential properties. Transport and dispose excavated material at an appropriate facility. Replace excavated soils with clean fill and restore property to pre-removal conditions. Conduct confirmation scanning, sampling and analysis. Provide voluntary temporary lodging for families of affected residential properties.

#### 2.1.2 Response Actions to Date - 6.02.2013 - 6.08.2013 - Operational Period

##### Property CR-81-A - Structure and Yard removal:

U.S. EPA

*Foundation operations:*

- RFP awarded to Boyd
- Boyd on-site with CHID to verify foundation pad height and size (Boyd will have to add additional height to foundation pad based on CHIDs specifications).

##### Property BH-36-A - Structure removal:

U.S. EPA

#### *Demolition operations:*

- BH-36-A - has been completely demolished.
- All materials have been scanned and sorted
- ~200 cubic yards of contaminated soils and materials have been staged and sampled for disposal
- 4 20 yard roll-off bins of Non-Hazardous construction debris (C&D) have been scanned, loaded and sent off for disposal
- Over excavation of foundation area to the depth of 6 inches have been completed (the demolition of BH-34-A will take place prior to the completion of the excavation process)
- 100 cubic yards of back fill material was brought in from C&E (grants, NM)
- ~4,000 gallons of water used

#### **Special notes:**

1. The foundation material removed from this structure contained yellow rock within the concrete. Also, there was obvious mining materials such as 4 by 4 wood beams and waste rock used to construct the foundation and fireplace. All of this material was greater than 500,000 cpm, exceeding the range of the ludlum meter and probe used (1,000,000 cpm). This material was specially segregated and sampled for disposal.
2. US. EPA and NNEPA briefed the home owner about the findings and is in the process of coordinating a information session with Indian Health Services (IHS)

#### **Property BH-35 - Yard removal:**

U.S. EPA

Uranium contaminated soils:

- An area of ~80 sq feet was scanned, marked and excavated down to 2 feet
- The excavated soils have been consolidated with the contaminated soils and materials from the structure demolition.
- The area has been back filled, compacted and brought back up to grade.

#### **Air Monitoring**

Day	DataRAM TWA ( $\mu\text{g}/\text{m}^3$ ) <sup>a</sup>	DataRAM 10-sec Max ( $\mu\text{g}/\text{m}^3$ ) <sup>a</sup>	DataRAM Location	Wind Direction	Wind Speed (mph)
Sunday	–	–	–	–	–
Monday	–	–	–	–	–
Tuesday	–	–	–	–	–
Wednesday	–	–	–	–	–
Thursday	11.94	831.89	50' north of BH-36A	SW	0-10
Friday	7.24	161.01	50' north of BH-36A	SW	5-20
Saturday	34.87	353.48	100' SE of BH-36A	SSW	5-25

a: Level is 15 mg/m<sup>3</sup> over an 8 hour period - Total particulates,

Key:

$\mu\text{g}/\text{m}^3$  = Micrograms per cubic meter.

mg/m<sup>3</sup> = milligrams per cubic meter.

TWA = Time weighted average.

mph = Miles per hour.

NR = Not reported yet because sample has not yet at 48 hours and

For up to date information on the status of all removal and building activities, please visit the profile page of the OSC website [www.epaosc.org/BACAHAYSTACK](http://www.epaosc.org/BACAHAYSTACK) and scroll down to the 'Removal Status Progress Report'

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

N/A

### **2.2 Planning Section**

#### **2.2.1 Anticipated Activities**

During the next operational period, site activities will continue:

Boyd contacting to begin rising the foundation pad for CR-81-A (U.S. EPA)

Boyd to begin the foundation work for CR-81-A (U.S. EPA, CHID)

Construction of new structure at CR-81-A ~June 24th (CHID)

Disposal sampling from BH-05-A, BH-07-A and BH-07-D (U.S. EPA)

Demolition of BH-34-A (U.S. EPA)

Soil over excavation and compaction of BH-36-A and BH-34-A (U.S. EPA, CHID)

Area and structure preparation (BH-05-A)

Demarcating lay down areas for sorting debris (BH-05-A)

Demarcating temporary storage area for consolidated contaminated soils (BH-05-A)

Delivered storage units for both BH-05-A, BH-07-A and BH-07-D

Delivered moving checks for both BH-05-A, BH-07-A and BH-07-D  
Begin temporary housing for BH-05-A and BH-07-A

#### **2.2.1.1 Planned Response Activities**

Begin demolition of BH-05-A on June 24th  
Demolition and Yard removals to continue through July 2nd prior to demobilization for Holiday

#### **2.2.1.2 Next Steps**

CHID to start building CR-81-A once the foundation has been installed.

#### **2.2.2 Issues**

**Located backfill material (clay soils) suitable for compaction**  
**Equipment breakdowns**  
**Weather (wind, rain, extremely dry conditions, cold 30F, heat 100 F)**  
**Altitude (~7000 feet)**

### **2.3 Logistics Section**

OSC Nattis, USACE, NNEPA, CHID, ERRS and START PMs are coordinating all logistical needs  
OSC Calanog will be the FOSC backup to OSC Nattis and will be on-site starting June 17th

U.S. EPA has been working with NNEPA, CHID and the NN Head Start program to utilize the Haystack Head Start building as a command post.

### **2.4 Finance Section**

No information available at this time.

### **2.5 Other Command Staff**

#### **2.5.1 Safety Officer**

OSC Nattis is in charge of all site safety. The START contractor will support OSC Nattis and has implemented an extensive area air surveillance plan in place that involves the total particulate monitoring and sampling for dust contaminated with alpha radiation. A site map and HASP is available on the site website identifying the exclusion zone and support zone as well as the decontamination areas. 15 minutes each morning is used to discuss radiation and worker safety.

Worker safety - All personnel will be scanned daily as they enter and leave the exclusion zone.

All equipment will be scanned as they enter and leave the exclusion zone.

#### **2.5.2 Liaison Officer**

OSC Nattis  
OSC Nattis will continue to coordinate with locals, Residents, USACE, NNEPA, CHID and USEPA

## **3. Participating Entities**

USEPA  
NNEPA  
USACE  
CHID

## **4. Personnel On Site**

1 EPA OSC (Nattis)  
1 NN EPA (Craig)  
2 START (EnE)  
7 ERRS (EQm)

## **5. Definition of Terms**

CERCLA: Comprehensive Environmental Response Compensation and Liability Act of 1980  
EPA: United States Environmental Protection Agency  
USACE: U.S. Army Corps of Engineers  
ERRS: Emergency and Rapid Removal Services contractor (EQM, Inc.)  
µg/hr: Micrograms per hour  
µR/hr: Microroentgen per hour  
NNEPA: Navajo Nation Environmental Protection Agency  
CHID: Community Housing & Infrastructure Department  
OSC: On-Scene Coordinator  
START: Superfund Technical Assessment and Response Team contractor (Ecology and Environment, Inc.)  
TDD: Technical Direction Document  
DO: Delivery Order

## **6. Additional sources of information**

### **6.1 Internet location of additional information/report**

<http://staging.epar9.ene.com/navajooperationalviewer/>

GIS Viewer - This will allow the user to keep track of site progress, view photos and see the areas of concerns.

### **6.2 Reporting Schedule**

POLREPs will be reported on a weekly schedule while the Site is mobilized. The work week is to be considered Monday through Saturday, Six ten hour days, or up to 60 hours a week. The POLREP reflecting the work week will be distributed no later than the following Tuesday.

## **7. Situational Reference Materials**

No information is available at this time.