

US EPA ARCHIVE DOCUMENT



Contaminated Structures



Stakeholders Conference

April 2013



Overview

- ◆ Description of Contaminated Structures Problem and the Five Year Plan to Address it
- ◆ The Screening, Survey, and Cleanup Process
- ◆ Phase I and II Completed Assessments & Cleanups
- ◆ Phase III and beyond
- ◆ Questions and Answers

The Problem

- ◆ Residential structures may have been constructed using abandoned mine materials or built on or near abandoned mines
- ◆ Materials include:
 - ❖ Chunks of ore and waste rock used for foundation, walls, or fireplaces
 - ❖ tailings mixed into cement used for foundations/floors
 - ❖ cinder blocks contaminated by tailings
- ◆ Radioactive materials used in the construction of homes and hogans as well as contamination in surface soil can result in exposure of current and future residents to elevated levels of radiation

Example Structures



Five Year Plan – The Big Picture for Structures

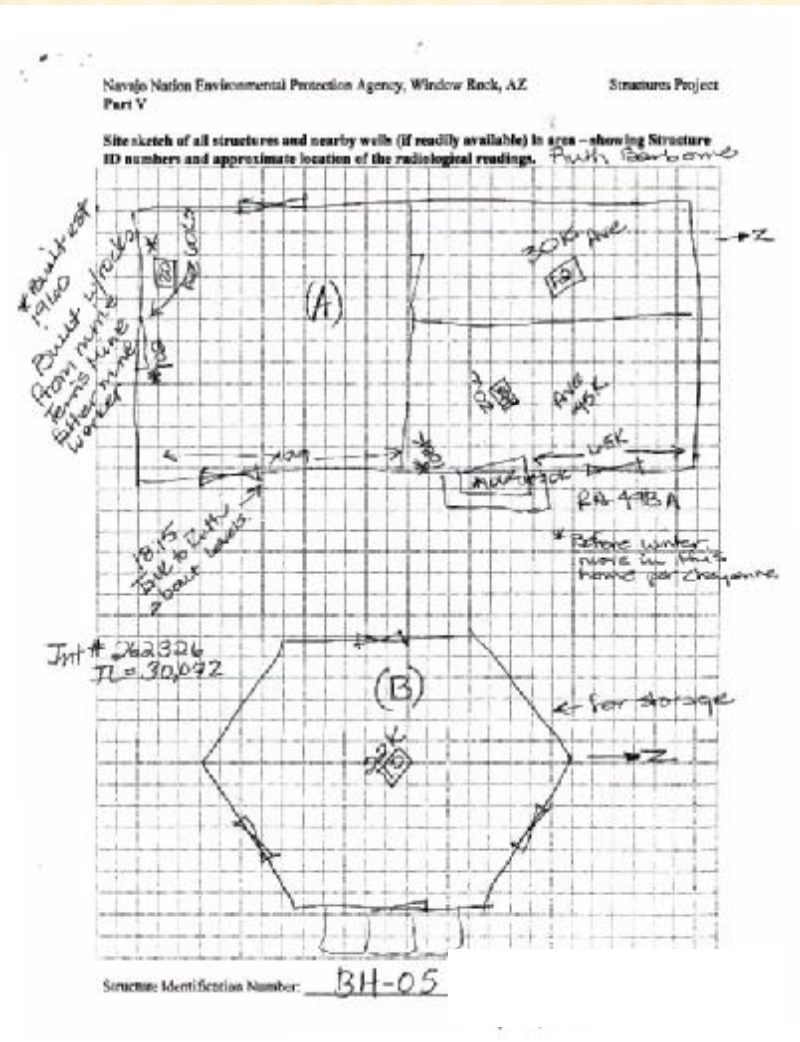
- ◆ **EPA with NNEPA will Assess ~500 structures in 5 years between 2008 and 2012**
- ◆ **EPA will cleanup structures w/elevated radiation levels under CERCLA/Superfund authority**
- ◆ **Structure Assessments - Initial Screens by NNEPA**
 - ❖ Existing lists
 - ❖ List of ~ 500 ¼ mile of AUM
 - ❖ NNEPA interviews with Chapter Officials & Residents
- ◆ **NNEPA Refers Structures/Yards to EPA**
 - ❖ NNEPA completes radiological assessments and referrals to USEPA
- ◆ **EPA Remediation and Compensation**
 - ❖ Demolish structures & provide temporary housing
 - ❖ Remove contaminated soil/landscape and replace/restore
 - ❖ Provide Replacement Structures or Financial Compensation

Determining Background & Investigation Level

- ◆ **NNEPA & EPA have agreed upon written protocol for establishing Background and Investigation Level for each discrete geographic area**
- ◆ **Selection of Background Area:** NNEPA selects a background area with similar geology and elevation and that appears unimpacted by mining activities.
- ◆ **Determining Background Level:** Background established by collecting readings within selected area at 3 random locations approx 20 feet apart. **Background = average of those 3 points.**
- ◆ **Investigation Level (IL):** IL is based on background level plus 10 times the standard deviation (SD). **SD is a number that represents the variability between sample location measurements.**

Collaboration with NNEPA

- ◆ NNEPA has screened over 800 structures to date.
- ◆ Contaminated structures packets referred to EPA
 - ❖ R9 completed approximately 300 Removal Evaluations



EPA Survey and Cleanup Determination

- ◆ EPA “surveys” referred structures and yards using sensitive instruments that measure gamma radiation contamination and gamma radiation exposure (dose)

- ◆ **What makes a structure an exposure risk?**
 - ❖ If any reading inside meets or exceeds 15 millirem/year above background (15 mR/yr = 1 in 10,000 risk of getting cancer if you spend 24 hrs day, 7days week inside the structure/room for 30 years)
- OR
- ❖ If contamination is above the IL and you have a Radon level above 4.0 picocuries/liter

- ◆ **What makes a yard contaminated?**
 - ❖ If the soil area identified is equal to or greater than twice background

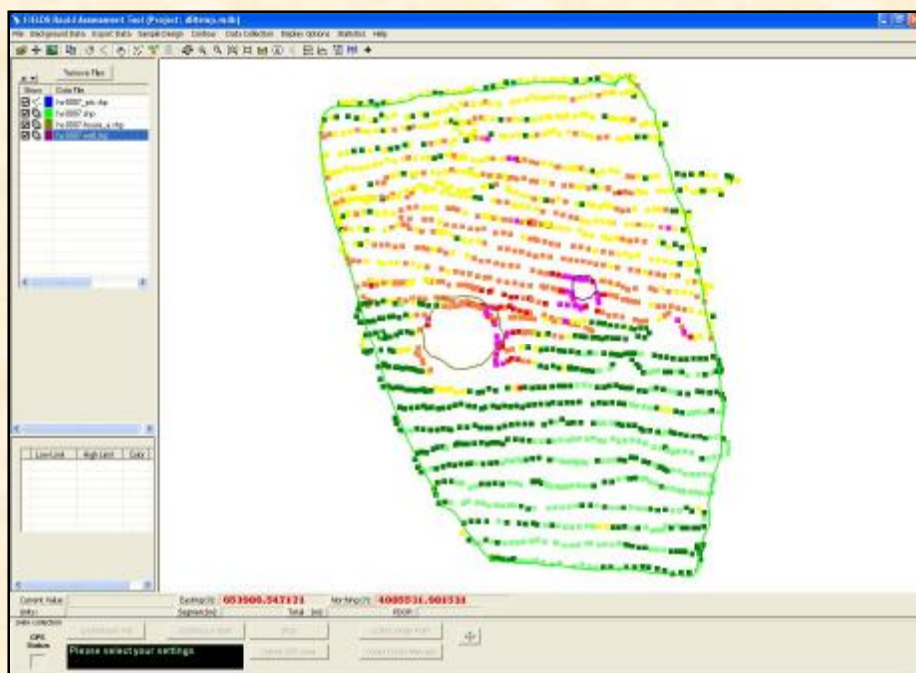
Indoor Radiation Assessment



- ◆ Interior radiation surveys were performed for all structures by an assessment team.
- ◆ Radiological survey data and structure characteristics were documented.
- ◆ Use Pressurized Ion Chamber (exposure - microR/hr) & 3"x3" NaI scintillating detector with ratemeter (contamination - cpm)

Outdoor Scanning

- ◆ Teams synchronize the gamma count rate and dose rate data with GPS point location simultaneously, as well as visualize the data being collected in a 2 dimensional field.



The EPA Cleanup Process

- ◆ **After EPA completes its Surveys, it issues an Action Memorandum that documents the structures and yards needing cleanup under CERCLA, aka Superfund.**
- ◆ **The Action Memo Secures Federal \$ Funding \$ To:**
 - ❖ Conduct Structural Engineer Evaluations of impacted structures to determine if partial or complete demolition needed
 - ❖ Demolish or partially demolish structures
 - ❖ Provide temporary housing for impacted residents
 - ❖ Remove contaminated soil/landscape and replace/restore it when done
 - ❖ Provide Replacement Structures or Financial Compensation to impacted residents

The Cleanup Process

◆ Demolition at Beginning of Building Season

- ◆ Exception for emergency “hot” structures
- ◆ Minimize disruption and time out of home
- ◆ Limited construction season – Winter too harsh for building
- ◆ Coordination with Navajo Tribal Utility Authority (NTUA) to disconnect utilities and reconnect when Rebuilt complete

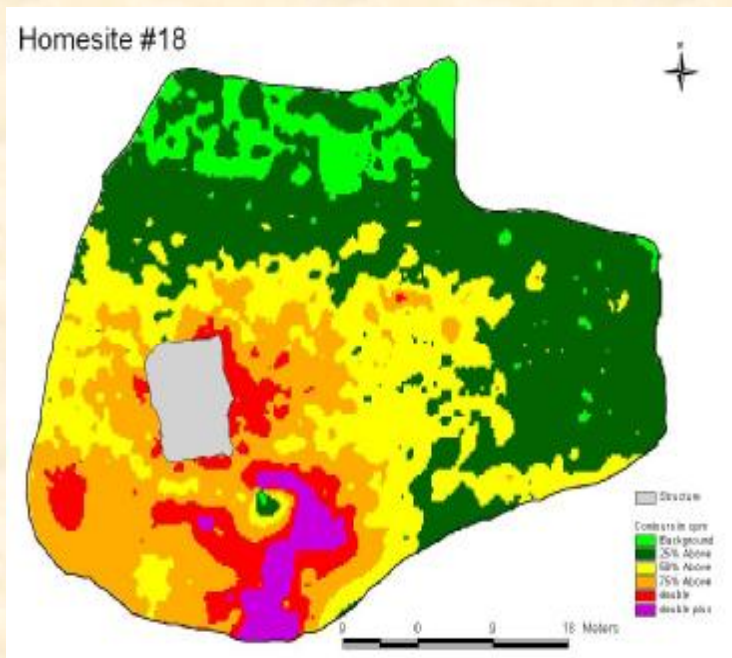
◆ Rebuilding Structures

- ◆ Subcontractors (builders) may vary by region so rebuild options and monetary values may also vary
- ◆ In upcoming Structure Phase III, CHID – the Community Housing and Infrastructure Department will rebuild structures through a grant with EPA.

Structure Demolition



Unanticipated outcomes



Contour map anomalies



House built on mill tailings

The Cleanup Process

- ◆ **Completion of Rebuilt Structure**
 - ❖ **Structure Inspection with EPA & Structure Owner**
 - Time to Identify any defects/problems
 - ❖ **Notice of Completion**
 - ❖ **Termination of Temporary Housing Benefits**
 - ❖ **Residents Given Home Warranty with Builder**

- ◆ **Temporary Housing Options and Agreements**
 - ❖ U.S. Army Corps of Engineers managing housing options in Phase III
 - ❖ Residents sign Temporary Housing Agreements
 - ❖ Reimbursed costs include hotels, per diem, livestock & pet costs, travel costs, and all reasonable out of pocket expenses related to the move

Replacement Structures



Replacement Structures



Log Home and Hogan



Responsible Party Investigation

◆ Resident Interviews

- ◆ **Purpose** - Identify potential mine owners and operators liable under CERCLA to allow EPA to recover its costs
- ◆ **Structure Information** – When the structure was built and source of materials used to construct it
- ◆ **Mine Information** – Location of mines and mills relative to structure, and family members who worked at mines
- ◆ **Any other info** helpful to identifying source of contaminated material used in structure or found in yard

Phase I Summary

- ◆ **Geographic Area:**
Teec Nos Pos, Cane Valley, Red Valley, Cove & Tuba City
- ◆ **Time-line:**
Winter 2007 through Fall 2010
- ◆ **The Final Numbers:**
 - ❖ Surveyed - 115 structures on 56 homesites
 - ❖ Demolished - 28 structures (8 occupied, 1 just foundation)
 - ❖ Yards Cleaned - 10 yards
 - ❖ Financial Compensation – 11 Financial Cashout Settlements
 - ❖ Rebuild by Owner – 1 Settlement covering 2 structures
 - ❖ EPA Rebuilt Structures – 14
- ◆ **All Phase I EPA Rebuilds Completed Fall 2010**

The homesites were located in four geographic areas of the Navajo Nation: Teec Nos Pos, Cane Valley, Red Valley, and Tuba City.



Phase II Summary

- ◆ **Geographic Area:** Churchrock
- ◆ **Timeline:** Summer 2009 to 2012
- ◆ **The Final Numbers:**
 - ◆ NNEPA referred 27 homesites with 24 structures of concern
 - ◆ EPA in partnership with NNEPA surveyed all 81 structures on the 27 homesites; EPA determined 6 structures & 2 retaining walls required action
 - ◆ Financial Compensation – 2 Financial Cashout Settlements
 - ◆ EPA Rebuilt Structures – 3
- ◆ **Next Steps**
 - ◆ EPA demolished all structures and cleaned all yards in 2011 and expects to complete all replacement structures by early 2012.

Phase III Summary

- ◆ **Geographic Area:** Baca-Haystack Chapter & Church Rock Chapter
- ◆ **Timeline:** February 2011 to Present
- ◆ **The Numbers:**
 - ❖ NNEPA referred 58 residential properties (homesites & allotments) with 171 structures of concern
 - ❖ EPA in partnership with NNEPA surveyed all 171 structures on the 57 properties
 - ❖ EPA determined 9 structures (3 more potential structures pending radon data) & 8 yards required action
 - ❖ EPA authorized \$2.67 million to remediate these structures/yards
- ◆ **Next Steps**
 - ❖ EPA will begin to demolish structures & clean yards in Spring 2013
 - ❖ CHID will replace structures by end of 2013.

Phase IV and V Projections

- ◆ **Phase IV Geographic Area:**
 - ❖ Cameron and Red Valley/Cove
 - ❖ NNEPA made referrals to EPA and EPA completed surveys by September 2012
 - ❖ EPA plans to cleanup 1 yard and 1 structure in Cameron in 2013
 - ❖ 8 structure cleanups are planned for Red Valley in 2013.

- ◆ **Phase V Geographic Area:**
 - ❖ NNEPA has conducted screens Northern and Central Agencies

- ◆ **Timeline:**
 - ❖ NNEPA referred Phase V structures (109 structures on 41 homesites) to EPA in Spring 2013
 - ❖ EPA will complete surveys and secure cleanup funding by September 2013

EPA Structure Numbers To Date

- ◆ **Number of Structures Demolished: 34 Structures**
 - ❖ Phase I (28) + Phase II (6) = 34

- ◆ **Number of Yards Cleaned: 12 Yards**
 - ❖ Phase I (10) + Phase II (2) = 12

- ◆ **Number of Financial Settlements: 13**
 - ❖ Phase I (11) + Phase II (2) = 13

- ◆ **Number of Rebuilds by EPA: 17**
 - ❖ Phase 1 (14) + Phase II (3) = 17

- ◆ **Number of Rebuilds by Owner: 1**
 - ❖ Phase 1 (1) = 1



Questions and Answers

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