

US EPA ARCHIVE DOCUMENT



Contaminated Structures



**Stakeholders Conference
November 8-10, 2011**



What are we going to talk about . . .

- ◆ Overview 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 Update and Phase IV and V Projections
- ◆ 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



Ceremonial Hogan



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**
- ◆ EPA in coordination with NNEPA completes radiological assessments and makes final determination on structures/yards requiring cleanup
- ◆ **EPA Remediation and Compensation**
 - ◆ Demolish or partially 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 uses list of 10 criteria to select appropriate background area. Criteria include finding an area with similar geology and elevation and that appears undisturbed and not impacted by outside 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.**

NEPA Screening and Referral to U.S. EPA

- ◆ **NNEPA conducts initial “screening” of homesites (residential properties) & structures located within approximately ¼ mile of an AUM or those that otherwise have been identified as a concern.**
- ◆ **NNEPA refers to EPA all structures and yards that meet or exceed its established ILs.**
- ◆ **Current Protocol: Investigation Level will be less than or equal to twice (2X) background. If 10 times the SD plus the background exceeds twice background, than the IL defaults to twice background.**

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

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 Phases, EPA hopes that CHID – the Community Housing and Infrastructure Department under the Navajo Nation Division of Community Development - will rebuild structures through a grant with EPA

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 II and future Phases.
- ❖ 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

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

Replacement Structures



Replacement Structures



Log Home and Hogan



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**

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 plans to demolish structures & clean yards by Summer 2012
 - ◆ EPA plans to complete all replacement structures by end of 2013

Phase IV and V Projections

- ◆ **Phase IV Geographic Area:**
 - ◆ NNEPA conducts screens in Northern & Western Agencies

- ◆ **Timeline:**
 - ◆ NNEPA referrals to EPA by July 2012
 - ◆ EPA complete surveys and secures cleanup funding by September 2012

- ◆ **Phase V Geographic Area:**
 - ◆ NNEPA conducts screens in Central Agency

- ◆ **Timeline:**
 - ◆ NNEPA referrals to EPA by July 2012
 - ◆ EPA completes surveys and secures cleanup funding by September 2012

EPA Structure Numbers To Date

- ◆ **Number of EPA “Gamma” Surveys of Structures: 367 Structures**
 - ◆ Phase I (115) + Phase II (81) + Phase III (171) = 367

- ◆ **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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