

AGENDA

Pantex Environmental Restoration Public Meeting

Square House Museum, Panhandle

September 13, 2004, 4:00 p.m.

Hosted by

United States Department of Energy/National Nuclear Security Administration,

Pantex Site Office (USDOE/NNSA, PXSO)

and

Texas Commission on Environmental Quality (TCEQ)

4:00 - 4:05

Introduction

Jim McWilliams, TCEQ

4:05 - 4:30

Status Update

Dennis Huddleston, BWXT Pantex

1. Soil Vapor Extraction System
2. Pump & Treat System
3. Reports
4. D&D
5. Radiological Report Update

4:45 - 5:00

Burning Ground Risk Assessment

Dennis Huddleston, BWXT Pantex

5:00 - 5:45

Field Activities

Dennis Huddleston, BWXT Pantex

1. Burning Ground Landfill Covers
2. Ozone Injection Study
3. Perched aquifer barrier study
4. Pump & Treat conveyance line

5:45

ER Program Questions & Answers

Johnnie Guelker, PXSO

Dennis Huddleston, BWXT Pantex

Environmental Remediation Services Public Meeting

September 13, 2004

Dennis E. Huddleston
Department Manager, ERS
Program Manager ER



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Status Update

- **Soil Vapor Extraction System**
- **Pump & Treat System**
- **Reports**
- **Deactivation & Decommissioning**
- **Radiological Report Update**



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Burning Ground Soil Vapor Extraction System

■ **Purpose – Interim Corrective Measure to remove/reduce volatile organic compounds from the subsurface soils.**

■ **Status**

- Start up: February 2002
 - To date: Approximately 10,570 pounds organic compounds removed
 - May - July 2004 :
 - 332 lbs. Toluene
 - 29 lbs. Trichloroethylene
 - 4 lbs. 1,1,1-TCA
 - 365 lbs. Total Mass Removed

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Perched Groundwater Pump and Treatment Operations

■ **Purpose – Interim Stabilization Measure to remove/reduce High Explosives and Chromium from the perched groundwater.**

■ **Status**

- Start up: September 1995
 - Total water treated (Cumulative): 320 million gallons
 - Total water treated (May - July 04): 13.3 million gallons
 - Total Chromium removed (Cumulative): 113 pounds
 - Total High Explosives (Cumulative): 3,772 pounds

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Status of Investigative Reports

■ RCRA Facility Investigation Reports Conditional Approvals

- Fire Training Area Burn Pits on 04/11/03
- Burning Ground on 09/16/03
- Zone 10 Soil on 09/30/03
- Zone 11 Soil on 04/14/04
- Zone 12 Soil on 04/30/04
- Ditches & Playas on 07/29/04



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Status of Investigative Reports (continued)

■ Request for Additional Information

- Radiological Investigation Report
- Groundwater RFIR
- Independent Sites RFIR

■ Addressing Public Comments

- Risk Based End State Vision Document



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Deactivation and Decommissioning

■ **Purpose** –Facility cleanup and footprint reduction to remove excess and abandoned facilities no longer required for mission.

■ **Status**

- FY04 Planned: 131,570 sq. ft.
- FY05 Planned: 45,747 sq. ft.
- FY04 Completed to Date: 70,600 sq. ft.

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HE Synthesis Complex Demolition



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Burning Ground Risk Assessment Update

- Project started March 2004
- Completed data review and setup of models and risk equations completed in May 2004
- Risk assessment completed in August 2004
- Report will be finalized after the approval of the groundwater report



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Burning Ground Risk Assessment

- **Considered risk remaining after previous corrective measures.**
 - Focuses on current and potential future risk.
- **Previous corrective measures**
 - Removed high explosive contaminated soils from various burn pads, wash rack, and landfill areas.
 - Removed depleted uranium contamination at one burn pad.
 - Placed an administrative soil cover on one landfill and one burn pad to protect site workers.



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Burning Ground Risk Assessment (continued)

■ Previous corrective measures (cont')

- Operating a Soil Vapor Extraction system to substantially reduce soil gas in subsurface soils.
- Plugged groundwater well serving as pathway for soil gas movement to groundwater.



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Burning Ground Risk Assessment (continued)

■ Media Considered

- Soil
- Soil gas
- Perched groundwater



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Burning Ground Risk Assessment (continued)

■ Pathways considered

- Direct exposure to soils
- Migration to groundwater
 - Soil gas
 - Soil contaminants
 - Perched aquifer contaminants
- Volatilization to air
 - Soil
 - Soil gas



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Burning Ground Risk Assessment (continued)

■ Conclusions

- Onsite workers
 - Soil covers and soil removal actions provide protection.
 - Long-term measures and further remediation must be considered in the corrective measures study.



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Burning Ground Risk Assessment (continued)

■ Conclusions

- Subsurface workers (construction or excavation workers)
 - Current Solid Waste Management Unit interference measures protect workers at this time.
 - Long-term measures and further remediation must be considered in the corrective measures study.

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Burning Ground Risk Assessment (continued)

■ Conclusions

- Specific areas of the Burning Ground should be protected from ponding or water infiltration.
- The Soil Vapor Extraction system has been effective in reducing impacts to groundwater and air.
- Controls should be implemented to ensure the perched groundwater is not used.

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Field Activities

- **Burning Ground Landfill Covers**
- **Ozone Injection Study**
- **Perched aquifer barrier study**
- **Pump & Treat conveyance line**



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Burning Ground Landfill Covers

■ **Goal**

- To provide a barrier to prevent further impacts of past activities from reaching the groundwater.



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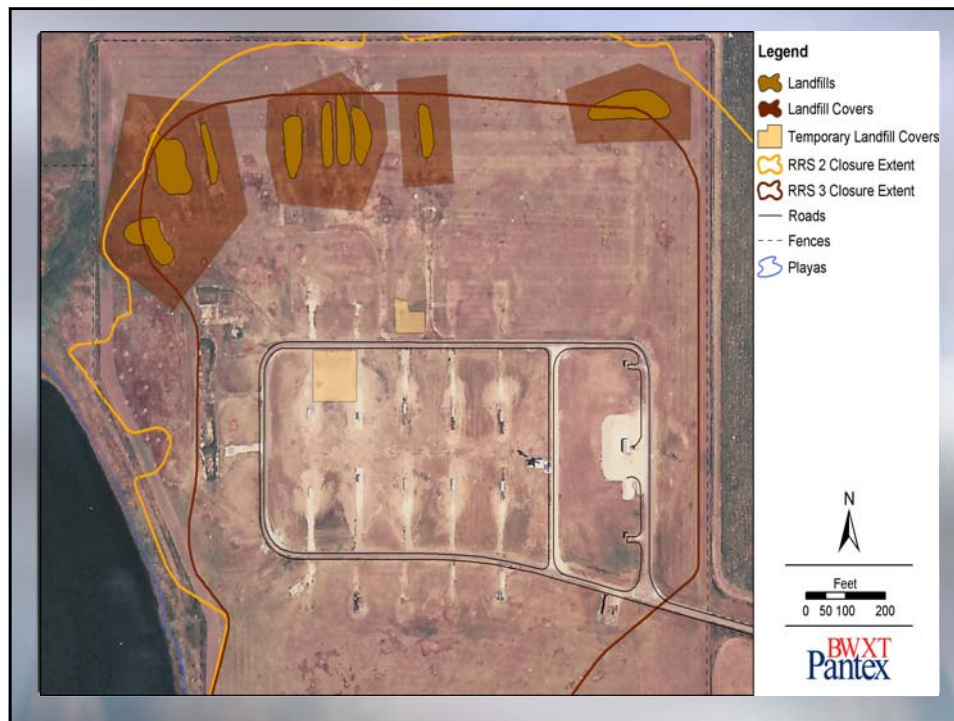
Burning Ground Landfill Covers (continued)

■ Objective

- Evaluate and design Voluntary Corrective Measures for eight landfills at the burning grounds.
- Design
 - Site specific
 - Minimizes the exposure to human and ecological receptors.
 - Reduces the potential of water infiltration into the landfills subsurface.

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Burning Ground Landfill Covers (continued)

■ **Design**

- Controls moisture infiltration into the landfill based on a water balance concept.
 - Water that infiltrates into the vegetative cover is used so it does not reach the contaminants.
- Water-balance covers have proven less expensive to construct and perform better in the long-term controlling infiltration when compared to other barrier designs.
- Consists of two distinct layers
 - First layer consists of a 12 inch clay cover.
 - Second layer consists of 18 inches of topsoil which will be seeded with mixed grasses and winter wheat.

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Burning Ground Landfill Covers (continued)

■ **The Voluntary Corrective Measures Implementation Design addressed the following factors stated in 40 CFR section 264.525.**

- Long-term effectiveness and permanence of the design, along with the degree of certainty that the design will prove successful.
- Reduction of toxicity, mobility, or volume with the design.
- Short-term risks to public health, workers, and the environment and the time required to achieve protection.
- Ease or difficulty of implementing the design, including technical, administrative, and logistic feasibility.
- Capital and annual operations and maintenance (O&M) cost, net present value of capital and annual O&M cost, and potential future remedial cost.



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Ozone Injection Study

■ **Background**

- Ozone gas has been used as a water treatment since the 1800's and for soil and groundwater cleanup since the 1990's.
- Ozone is commonly used to treat water in:
 - Public swimming pools
 - Hot tubs
 - Bottled water
 - Etc.
- Lab testing at the University of Nebraska has confirmed that ozone decomposes high explosives, including RDX.



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Ozone Injection Study (continued)

■ Goal

- Testing ozone gas injection into subsurface soils to decompose high explosives and prevent movement into the perched groundwater.



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Ozone Injection Study (continued)

■ Objective

- The Voluntary Corrective Measures field testing is designed to ensure the technology is effective in the field before it is used full-scale.
- Test results will indicate how much and how fast the high explosives can be decomposed, and what the full-scale design requirements would be.



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Ozone Injection Study (continued)

■ Design

- Study wells are 30 feet deep.
- Results will be available on this treatment methods effectiveness in approximately 60 and 90 days. (November-December 2004 timeframe)

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Ozone Injection Study (continued)



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Perched aquifer barrier study

■ **Goal**

- Testing a method where groundwater is treated as it moves naturally through a man-made barrier.



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Perched aquifer barrier study (continued)

■ **Objective**

- The Voluntary Corrective Measures testing is designed to ensure the technology is effective before it is used full-scale.
- Test results will indicate how much of the high explosives can be decomposed and what the full scale design requirements would be.



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Perched aquifer barrier study (continued)

■ **Design**

- Involves injecting sulfur-compounds into the perched aquifer that allow natural iron to interact with high explosives contaminants to create a bioremediation process that leaves water, carbon, and oxygen as the final products.
 - The injection is carried out in a line of wells that then form a reactive barrier zone.
 - The sulfur compounds are injected, a formation change takes place, then those sulfur compounds are taken back out to allow for the natural bioremediation process to take place.
- The University of Nebraska and Pacific Northern National Laboratory have confirmed that this technology can decompose high explosives, including RDX.

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Pump and Treat Injection Wells and Conveyance Line

■ **Goal**

- To enhance our ability to manage the contaminant plume in the perched aquifer and implement systems for future controls and improvements.

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Pump and Treat Injection Wells and Conveyance Line

■ **Objective**

- Plug 6 existing injection wells.
- Install 2 new injection wells.
- Install ion exchange filter system.
- Build conveyance line from the Pump & Treat facility to the irrigation system holding pond.

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Construction of the Conveyance Line

