

**US Army Corps
of Engineers
Baltimore District**

Fort Detrick Installation Restoration Program

**Restoration Advisory Board Meeting
5 May 2004 7:30 PM
Fort Detrick, Frederick, Maryland**



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Area B-11 Removal Project Status

- **No lost time accidents (1190 days)**
- During Phase I, removed 2005 tons of waste and contaminated soil from Pit 1. 52 cylinders (39 intact) recovered from Pit 1.
- Overburden removed from Pits 2, 3, and 4 from 8 May through 30 May 2003
- Phase II, Pits 2, 3, and 4, excavated as follows:
 - Pit 2 begun 5 June 03, completed 11 June 03.
 - Pit 3 begun 16 June 03, completed 1 Aug 03.
 - Pit 4 begun 7 Aug 03, completed 3 Nov 03.
- After 3 Nov 2003, completed area cleanup, decontamination, and re-tooling for cylinder processing and disposal. Cylinder processing is now in progress.



Pit 1 Completed Grade



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Area B-11 Pits 2, 3, 4 Removal Project Status



Wastes recovered during Phase II excavation (Pits 2, 3 and 4) included:

- Small glass containers
- Glass/plastic
- Medical waste
- Metal fragments
- Five 5-gallon pails
- Small laboratory chemical bottles
- Two vials containing white-yellowish powder
- Approximately 20 intact cylinders and 22 perforated cylinders ranging in size from 7/8" to 8" in diameter and 5" to 25" in length were recovered. Some intact or partial valve assembly. All have been cataloged and secured.



Scalpels Recovered from Pit 2

1479 tons of waste and soil from Pits 2, 3, and 4 were shipped offsite for incineration and 9 roll-off containers of non-hazardous overburden were disposed at the Ft. Detrick landfill.

Excavation and backfill of Pits 1, 2, 3, and 4 are complete!!



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Area B-11 Pits 2, 3, 4 Removal Project Status (Continued)

- Pits 2, 3, and 4 Schedule

- Startup activities: 21 March 2003 – 02 May 2003
- Excavation: 08 May 2003 – 2 Jan 2004
- Demob/Decon: 5 Jan 2004 – 13 Feb 2004

- Funding

- Removal action was fully funded in June 2003



Pit 4 shown 4 Dec 2004 (pre-backfill)



Pits 2 and 3 shown 4 Dec 2003

- Cylinder Disposition Schedule

- Complete Work Plans: 01 Dec 2003 – 06 Feb 2004
- Prove-out Biological Sterilization Process: 15 Dec 2003 – 04 Apr 2004
- Initial Cylinder Processing System Setup: 19 Feb 2004 – 17 Mar 2004
- Cylinder Processing and Disposition: 18 March 2004 – 11 May 2004
- Final Decon/Site Restoration: 12 May 2004 – 22 June 2004

- Funding

- Cylinder disposition funded – Shaw contract in place 29 Sept 2003.
- Cylinder disposition subcontract in place 02 Dec 2003.



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Area B-11 Pits 2, 3, 4 Removal Project Status (Continued)

- Decontamination of Tent was Completed on **8 April 2004**

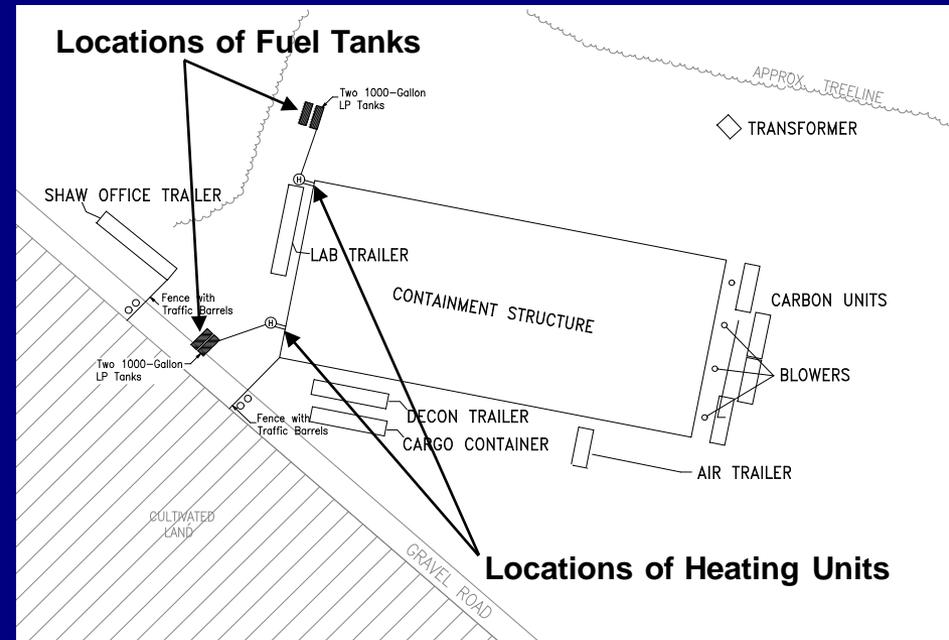
-Sandia Decon Formulation, a hydrogen peroxide based disinfectant, was used for decon to minimize corrosion and damage to the containment structure. The formulation loses its effectiveness below 40 °F. Therefore, two liquid propane fueled external heaters were used to heat the interior of the CS. The heating ducts were attached to two sets of fresh air intakes. Two blowers were operated to maintain negative pressure.



Fuel Tank



Heating Unit/Manifold





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Area B-11 Cylinders, Overview

Approximately 94 Cylinders Removed during Area B-11 Removal Action

- 52 from Pit 1; 42 from Pits 2, 3, 4 - 59 intact cylinders and 35 perforated cylinders
- Size range from 7/8" to 8" in diameter and 5" to 25" in length

X-ray and Portable Isotopic Neutron Spectroscopy (PINS) Evaluation Performed on Five of the Cylinders

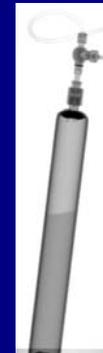
- X-Rays indicated cylinders contain liquids and gases
- PINS analysis indicated weak chlorine peaks and no signatures that would indicate the presence of chemical warfare material

While the Contents of the Majority of the Cylinders are Unknown, the Potential Exists that they Contain Biological or Chemical Agents

- However, based on PINS analysis, it is likely that most contain soil and water residues



Radiography of
cylinders recovered





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Area B-11 Cylinder Disposition Process

Remove Cylinder from
Storage Locker and
Prep the Exterior

Place Cylinder Into
CMD Vessel

Drill Cylinder and
Collect Filtered Gas Sample

Analyze Gas by
GC/MS and FTIR

Direct Cylinder
Gasses (filtered) to
Appropriate
Processing System

Solids/
Liquids/
Carcasses

Autoclave Cylinder
and Contents

Remove from CMD
In a Container, Handle
Contents, De-valve or Cut

Analyze
Solids/Liquids
By
GC/MS/FTIR/HAZCAT

Reagent/Gas
Processing Wastes

Dispose Non-Haz Cylinder Contents and
Unrestricted Cylinder Carcasses at Fort
Detrick Medical Waste Incinerator

Repackage Hazardous Chemical Waste
Materials and Unrestricted Cylinder
Carcasses

Dispose Hazardous Chemical Wastes
and Unrestricted Cylinder Carcasses At Off-site
Disposal Facility

Re-Autoclave Restricted
Cylinder Carcasses

Dispose Restricted Cylinder Carcasses
At Area B Landfill

Characterize and Repackage
Haz. Processing Wastes
And Non-Processable Gasses

Dispose Hazardous Processing
Wastes At Off-site Disposal Facility



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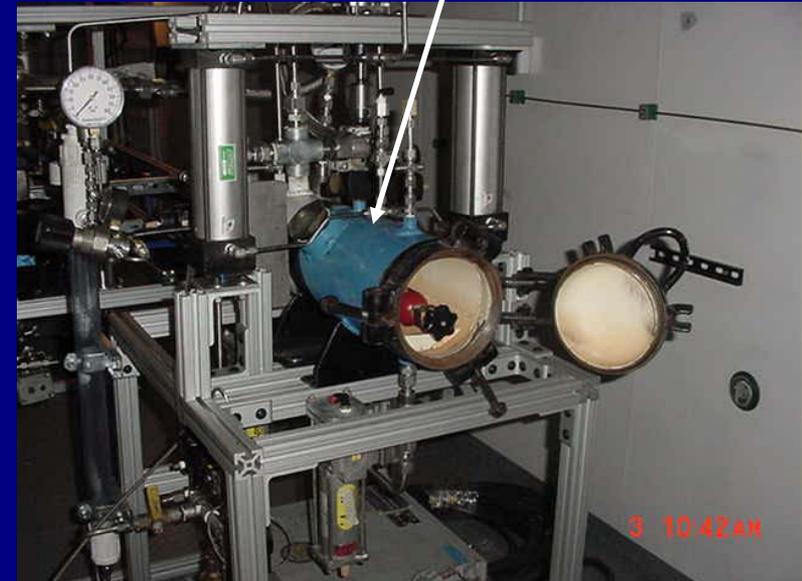
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Area B-11 Cylinder Disposition Small CMD Autoclave Prove-Out

Small CMD Autoclave Prove-Out

- **Small CMD autoclave prove out completed 28 February 2004.**
- Vacuum applied and steam introduced.
- Autoclave conditions (>15 psig and >250 °F) achieved within 15 minutes in cylinders.
- Tests with empty and full cylinders yield similar rapid heating.
- Validation of sterilization tests performed using *Geobacillus stearothermophilus* strips.
- Prove-out of sterile gas filtration completed.
- **Small CMD mobilized on 02 March 2004.**
- **Small CMD processing started 18 March 2004 and was completed on 26 April 2004.**
- **Autoclave conditions during site processing maintained at >80 psig and 310 °F for 30 mins.**

Small Cylinder Management Device Equipped with Autoclave





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Area B-11 Cylinder Disposition Large CMD Autoclave Prove-Out

Large CMD Autoclave Prove-Out

- Large CMD autoclave prove out was completed 11 April 2004.
- Vacuum applied and steam introduced.
- Autoclave conditions (> 15 psig and 250 °F) achieved in approx. 2 hours in cylinders.
- Validation of sterilization tests performed using *Geobacillus stearothermophilus* strips.
- Large CMD mobilized on 28 April 2004.
- Large CMD processing started 04 May 2004 and is currently ongoing.
- Autoclave conditions during site processing maintained at >25 psig and 250 °F for 2 hours.

Large Cylinder Management Device Equipped with Autoclave





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Area B-11 Cylinder Disposition Current Status

Cylinder Disposition Overview

- Autoclaved 23 non-intact cylinders as of 4 May 2004.
 - 16 with small CMD and 7 with large CMD.
- Purged, sampled, and autoclaved 51 intact cylinders as of 4 May 2004.
 - 49 with small CMD and 2 with large CMD
- Identified nitrogen (purge gas) and air constituents in gas samples.
- Also identified trace quantities of following gasses in three cylinders:
 - Methyl bromide (many uses)
 - Pentafluorochloroethane (propellant or refrigerant)
 - Ethylene oxide (sterilant)
- Detected various non-hazardous monomer and polymer solid residues in some cylinders; however, dirt and rust scale most common.
- Cutting cylinders in half prior to incineration at the Ft. Detrick medical waste incinerator with final disposal as scrap.
- 7 intact and 13 non-intact cylinders remain to be processed in large CMD; however, non-intact cylinders may be included with intact cylinders during processing.
- Anticipated cylinder processing completion date is 11 May 2004.



Fort Detrick Area A LTM Update

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Pending Schedule:

Award Area A LTM
LTM (Five Year Review)

Estimated Completion Date

May 04
July 06

Items Completed:

Area A Long-Term Monitoring (LTM) Plan
Area A LTM Sampling (1st round)
Area A LTM Sampling (2nd round)
Semi-Annual Sampling Report (May 02 Sampling)
Area A LTM Sampling (3rd round)
Semi-Annual Sampling Report (June 03 Sampling)
Final Area A LTM Sampling Report (May 03 Sampling)
Draft Area A LTM Sampling Report (Oct 03 Sampling)

Completed Date

April 02
May 02
June 03
November 02
October 03
November 03
December 03
February 04 (Army
Review)



Fort Detrick RI/FS

Area B Update

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COMPLETED (none new)

Engineering Evaluation/Cost Analysis (EECA) Area B-11 Chemical Waste Disposal Pits	(Feb 00)
EECA (Proposed Plan)	(May 00)
EECA (Decision Document)	(July 00)
Public Involvement and Response Plan	(July 00)
Chemical Oxidation Bench-Scale Test Work Plan	(Oct 00)
Photographic Analysis (USEPA EPIC Study)	(Mar 01)
Chemical Oxidation Bench-Scale Test Report (Final)	(July 01)
Area B Background and B-20 North Follow-On Work Plan	(Nov 02)

PENDING

Groundwater Pilot Test Field Technology Assessment Work Plan
 Area B Additional Investigation Work Plan
 Dye Trace Study Work Plan (Final)
 RI
 FS
 PP
 DD
 RD
 RA

Completion Date

Pending Funding
 Pending completion of Background Study
 Pending Funding
 Schedule being developed
 Pending Completion of Background Study
 Pending Completion of Background Study

Area B-1 Site Close-Out Document
 Area B-18 Site Close-Out Document

Changes to the Interim Removal Action Decision Document – B-11 Pit 1 Removal Action

Awaiting Army Signature

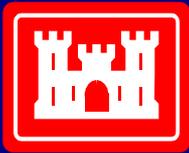
Changes to the Interim Removal Action Decision Document – B-11 Pits 2,3,4 Removal Action

Awaiting Army Signature

Area B Background Study

February 04

* Additional sites are being evaluated for Close-Out Documents.



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Area B Update

Completed and Planned Field Activities

COMPLETED TASKS SINCE LAST MEETING

- None

PLANNED

- Dye Trace Study - Schedule being developed (funding dependent).
- Additional residential well research downgradient of Area B to aid in monitoring groundwater contamination.
- Field sampling Area B-20 North, B-Grid, B-Ammo, B-Skeet.
- These sites are currently proposed to be closed-out after final testing



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Area C Update

- Internal Draft RI has been reviewed.
- Final RI Report has been funded.
- The Draft Final RI Report is being completed
- Draft Final RI was completed October 2003.
- Comments received – RI will be finalized once all comments have been resolved.
- **Final RI scheduled for June 2004**

