USACE PBOW RAB
MEETING MINUTES
PLUM BROOK ORDNANCE WORKS
November 30, 2010

Attendees

Rick Meadows, USACE Huntington
Lisa Humphreys, USACE Huntington
John Blakeman, RAB Member
Peg Kingsley, RAB Member
David Speer, RAB Member
Gil Steinen, RAB Member
Lee Yeckley, RAB Member
Archie Lunsey, Ohio EPA NWDO
Paul Jayko, Ohio EPA NWDO
Sharon Barnes, Barnes Nursery
Jarret Barnes, Barnes Nursery
Giselle Rodriguez, USACE CERL
Stephen Cosper, USACE CERL
Steve Downey, Shaw Environmental
Mike Gunderson, Shaw Environmental
Helen Owens, TMG Services, Inc.

RAB Meeting Agenda

- Restoration Advisory Board Actions
  - Community Co-Chairperson
  - Development of Mission Statement and Operating Guidelines
  - RAB Evaluation
- Case Study/Lessons Learned – USACE Engineer Research and Development Center
- Project Updates
- Schedule next RAB Meeting

Restoration Advisory Board Actions

The RAB is responsible for selecting a Community Co-Chairperson

- John Blakeman is willing to serve as the "interim" co-chairperson until a permanent volunteer is selected.
- Mr. Blakeman cannot serve as the "permanent" co-chair since he is a contractor to NASA. Serving as the PBOW RAB co-chairperson would be a conflict of interest.

Development of Mission Statement and Operating Guidelines

- Rick Meadows, USACE Co-Chairperson offered to check and see if a facilitator may be used to assist PBOW RAB in developing the mission statement and operating guidelines for the RAB.
- John Blakeman suggested reviewing plans from other RABs first. Rick Meadows will check to see if he can fine plans from other RABs.

USACE Huntington District developed an evaluation form that was completed by the RAB Members in attendance at the meeting. At the end of the meeting, time was allowed for the RAB to discuss the evaluation questions within the membership (non-RAB members were excluded) and each member completed the questionnaire and returned it to Mr. Meadows. The blank

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questionnaire is included as part of these minutes. The results from the questionnaire were favorable. One suggestion was to provide more speakers. Also, the RAB voted to elect Mr. Blakeman as the Interim Community Co-Chairperson.

Lessons Learned – Composting

As a guest speaker, Giselle Rodriguez, USACE Engineer Research and Development Center provided the presentation entitled "Composting as Green Remediation Approach". Ms. Rodriguez's presentation is included as part of these minutes.

Project Updates

Updates were provided on the following projects and the presentations are included as part of these minutes.

Helen Owens, TMG Services, Inc.

- TNT C Remediation

Michael Gunderson, Shaw Environmental provided updates on the following projects:

- Wastewater Treatment Plants 1 and 3 and TNT A and TNT B Sewer Lines
- Ash Pits 1 and 3
- Powerhouse No. 2 Ash Pits
- Garage Maintenance Area
- Reservoir No. 2 Burning Ground
- Pentolite Road Red Water Ponds
- Wastewater Treatment Plant No. 2, TNT C and Steel Sewer Lines
- Acid Area 1
- Acid Areas 2 and 3
- TNT Area A
- Sitewide Groundwater

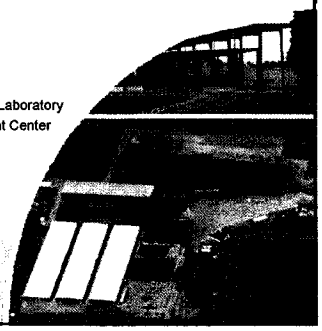
RAB Meeting Schedule

The next Team and RAB meeting was tentatively scheduled for March 24, 2011.

Composting as a Green Remediation Approach

Giselle Rodriguez

Construction Engineering Research Laboratory
Engineer Research and Development Center



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ERDC – CERL

CERL Mission:
Enable Sustainable Installations Through Transformation Technolog

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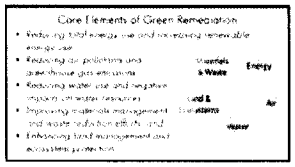
Green Remediation

The practice of considering all environmental effects of remedy implementation and incorporating options to maximize net environmental benefit of cleanup actions.



http://www.clu-in.org/greenremediation/

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Why Green Remediation in the Army?

Army Energy Security Goals

Directive Topic	Energy Performance Target (Source)
[illegible]	[illegible]

Source: Army Energy Security Implementation Strategy, 2009

Avoid solving one problem creating another problem

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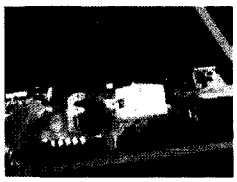
Nebraska Ordnance Plant



10-kW wind turbine to power groundwater circulation wells (GCWs) for air stripping and ultraviolet treatment for removal of

Source: USEPA Green Remediation Best Management Practices

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Massachusetts Military Reservation

The treatment process was optimized to eliminate purge water, reducing land and subsurface disturbance, use of petroleum fuel by

Source: USEPA Green Remediation Best Management Practices

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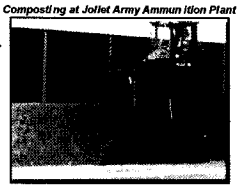
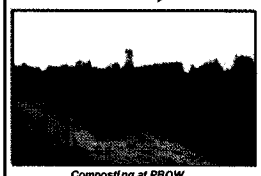
Using Bioremediation as a Green Remediation Alternative

Land-based systems



Composting at Joliet Army Ammunition Plant



Composting at PBOW

Other Options
- Biostimulation
- Bioreactors
- Bioaugmentation

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Joliet Army Ammunition Plant

- Joliet, IL
- Closed in 1977
- Explosives Contamination
- 275,000 tons of soil treated
- Amendments Used:
  - 52% stable bedding
  - 30% wood chips
  - 18% corn processing waste
- 70:30 amendment to soil ratio
- Treatment time: 17 days/windrow
- Overall treatment Cost: $84 per ton

20 acre composting facility built in 1999

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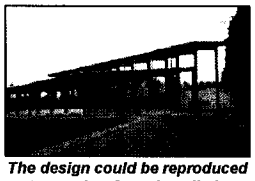
Milan Army Ammunition Plant

- Milan, TN
- Active GOCO* Installation
- Explosives Contamination
- 10 acre facility
- 28,000 tons of soil treated
- Amendments Used:
  - Manure
  - Corn silage
  - Sawdust
  - Woodchips
- Overall Cost: $17,800,000



The design could be reproduced at any other Army installation

**Government Owned, Contractor Operated*

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Other Composting Sites

Site Name	Soil Quantity (yd^3)
Hawthorne AD[a]	64,000
JOAAP	>200,000
MLAAP	>58,000
Newport AAP[b]	9,000
Pueblo AD	21,000
Sierra AD	2,000
Tooele AD	15,000
UMCD	15,000

[a]Army Depot [b]Army Ammunition Plant
(Source: Spain et al. 2000)*

Biodegradation of Nitroaromatic Compounds and Explosives

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Lessons Learned

- Use of Field Testing
- Optimize treatment by keeping appropriate moisture and temperature
- Amendment placement to facilitate mixing
- Construction of Permanent Facilities
- Effective Communication with contractor and community
- Use of a single contractor to avoid duplicated efforts and costs.

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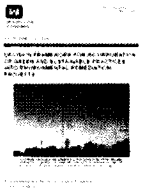
Available Guidance



SURF

ASTM INTERNATIONAL

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Public Works Technical Bulletin

Composting for Explosives Remediation: Case Studies and Lessons Learned

Project Funded by HQUSACE

WBDG

http://www.wbdg.org/ccb/browse_cat.php?o=31&c=215

Available in 2011

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Questions?

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Stephen D. Cosper
stephen.cosper@us.army.mil
(217)-398-5569

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PBOW TNT Area C Project Update

PBOW RAB Meeting
November 30, 2010

TMG Services, Inc.
St. Albans, West Virginia

TNT Area C – Project Update

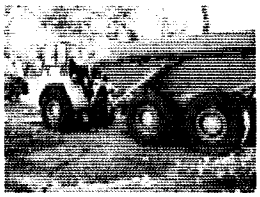
- Began excavating in August 2010
- Fifteen areas planned for excavation, totaling approximately 9200 cubic yards
- Thirteen excavations are completed (~3500-5000 cubic yards)
- Excavated soil is stockpiled and analyzed to determine if the soil is hazardous for lead or 2,4-DNT
- Non-hazardous soil used for daily cover at Erie County Landfill

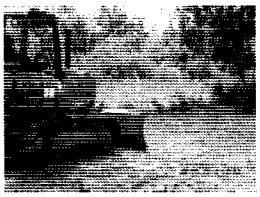
TNT Area C – Project Update

- Planned Activities
  - Complete excavations
  - Transport hazardous soil to treatment pad
  - Transport non-hazardous soil to ECL
  - Treat soil – alkaline hydrolysis/lead stabilization (planned for spring 2011)
  - Backfill excavations

Areas had to be cleared before excavations could begin

Excavations were surveyed in April 2010 before vegetation became too thick





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Huntington District

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Slide 7

US Army Corps of Engineers
Huntington District

Placing the silt fence around the stockpile area

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Slide 8

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Soil is stockpiled onto the plastic liner

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Slide 9

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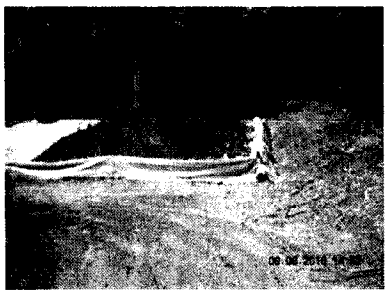
Huntington District

One of the stockpiles at Bldg 616



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Slide 10

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Old foundations and walls from the buildings are uncovered during excavation

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Slide 11

US Army Corps of Engineers
Huntington District

The goal....

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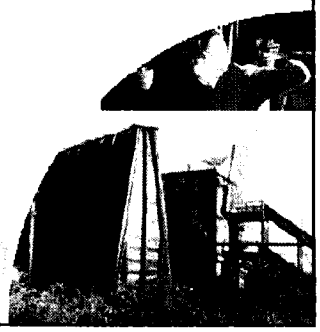
Slide 12

Project Update

Michael Gunderson
Shaw E&I, Inc.,
Knoxville, Tennessee
30 November 2010



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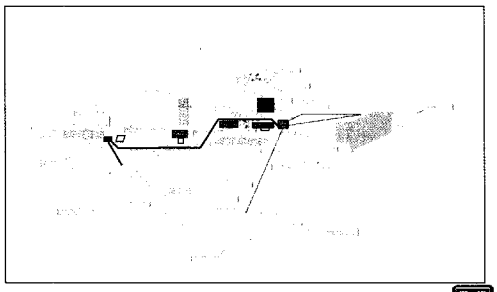
Site Locations



Wastewater Treatment Plants #1 & #3 and TNTA and TNTB Sewer Lines

- Site Characterization Report Submitted November 2010
  - PAHs, nitroaromatics in treatment plant areas
    - Additional limited sampling conducted in November 2010 to confirm/deny a detection in historical data of TNT (170,000 mg/kg).
  - Nitroaromatics along sewer line
    - TNTA Sewer Line - Up to 70 ug/L nitroaromatics detected in groundwater, over 1,300 mg/kg nitroaromatics detected in soil
      - Additional sampling conducted to determine extent of contamination and to fill data gaps
      - Data suggests only limited impact at two discrete locations
    - TNTB Sewer Line - Limited detections at low levels along TNTB sewerline
      - Data suggests only limited impact to soil and groundwater

Wastewater Treatment Plants #1 & #3 and TNTA and TNTB Sewer Lines

- Funded through BHHRA/SLERA Phase
  - Baseline Human Health Risk Assessment in preparation – submittal April 2011
    - Completed supplemental sampling November 2010
  - Screening Level Ecological Risk Assessment in preparation – submittal April 2011
- To be Completed (not yet funded)
  - Feasibility Study
  - Proposed Plan
  - Decision Document

Ash Pits 1and 3

- Site Characterization Report Completed
  - Limited detection of PAHs at both sites
- Funded through BHHRA/SLERA Phase
  - Baseline Human Health Risk Assessment in Preparation
    - Ash Pits 1& 3 submittal June 2011
  - Screening Level Ecological Risk Assessment in Preparation Preparation – submittal June 2011
    - Ash Pits 1& 3 submittal June 2011
- Anticipate both sites to go to No Action Decision Document
  - Funding for Proposed Plan and Decision Document expected December 2010

Powerhouse #2 Ash Pit

- Site Characterization Report Completed
  - Limited detection of PAHs
- Funded through BHHRA/SLERA Phase
  - Baseline Human Health Risk Assessment in Preparation
    - Ash Pit 2 submittal December 2010
  - Screening Level Ecological Risk Assessment in Preparation Preparation – submittal June 2011
    - Ash Pit 2 submittal December 2010
- Anticipate No Action Decision Document
  - Funding for Proposed Plan and Decision Document expected December 2010

Garage Maintenance Area

- Site Characterization Report Completed September 2010
  - Limited detection of nitroaromatics and PAHs in soil
  - Nitroaromatics and solvents detected in overburden groundwater
  - Fuel related compounds reported in Locomotive Building maintenance pit and sump
- Funded through BHHRA/SLERA Phase
  - Baseline Human Health Risk Assessment
    - Submitted September 2010
  - Screening Level Ecological Risk Assessment
    - Submitted September 2010

Garage Maintenance Area

- Additional Investigations Planned
  - Data gap sampling in maintenance pit and sump of Locomotive Building
  - Sellite Area
    - Produced Sellite (sodium sulfite) used to purify TNT
    - Limited data suggests potential impact by PAHs
  - Rail Car Unloading Area
    - Rail line unloading area adjacent to Sellite Area
    - Potential for contaminants related to raw materials
    - Groundwater impacted by solvents (1,1,1-trichloroethane), potentially from rail car maintenance activities

Reservior No. 2 Burning Ground

- Feasibility Study in preparation – submittal in May 2011
  - Data gaps identified due to limited analysis of historical samples for dioxins/furans and delineation of PCBs, PAHs
  - Data gap sampling conducted in October 2010
    - 34 samples collected
      - 12 samples for dioxins/furans, nitroaromatics, PCBs and PAHs
      - 22 samples for dioxins/furans
    - Data will be incorporated into Feasibility Study Report

Pentolite Road Redwater Pond

- Internal draft of Proposed Plan prepared which identified data gaps
- Funded to complete delineation sampling and report, FS addendum, Proposed Plan and Decision Document
- Continued Delineation Sampling
  - Nitroaromatics in subsurface soil associated with former waste pond
  - Sampling conducted in 2009 through June 2010 delineated contamination to the north of the pond
  - Data gap still present west of the pond.
    - Over 50 soil samples collected in November 2010
    - Screening data suggests the area is delineated but require confirmation data to verify.

Waste Water Treatment Plant #2 and TNTC & Steel Sewer Lines

- Funded through Decision Document for WWTP#2 and TNTC Sewer Line
- Funded through Site Characterization Report for steel sewer line.
- Schedule
  - Draft Work Plan: January 2011
  - Field work: March 2011 through May 2012
  - Draft Site Characterization Report: August 2012
  - Draft BHHRA/SLERA: January 2013
  - Draft Feasibility Study: January 2014
  - Draft Proposed Plan: September 2014
  - Draft Decision Document: April 2015

Waste Water Treatment Plant #2 and TNTC & Steel Sewer Lines

- Investigative approach for WWTP2 and TNTC sewer lines similar to ....
  - Other WWTP's
    - Surface and subsurface soil samples focusing on waste water tanks
    - Piezometers to define groundwater flow
    - Monitoring wells (overburden/shale and bedrock) to provide definitive data on groundwater contamination
  - Other wood stave sewer lines (e.g., TNTA and TNTB)
    - Test pits to determine depth and initial contamination
    - Soil borings to determine subsurface extent of contamination
    - Piezometers to define groundwater flow
    - Monitoring wells (overburden/shale and bedrock) to provide definitive data on groundwater contamination

Waste Water Treatment Plant #2 TNTC & Steel Sewer Line

- Investigative approach for steel sewer lines
  - Unique since this is the only steel sewer line on the site
    - Line is thought to have been used to transfer neutralized waste from WWTP1 and WWTP2 to WWTP3 during times of high flow
    - Constructed of steel
      - Geophysical survey conducted last year indicates the pipeline is still intact
      - Possible piece of the steel sewer line was found at Ash Pit #2, no waste was seen inside the pipe
  - Investigative approach similar to other sewer lines
    - Test pits to determine depth and initial contamination
    - Soil borings to determine subsurface extent of contamination
    - Piezometers to define groundwater flow
    - Monitoring wells (overburden/shale and bedrock) to provide definitive data on groundwater contamination
    - Pipeline will be breached to determine contents

Acid Area 1

- Feasibility Study funded
  - Main issue is PCBs in surface soil
    - Sources either from transformers or use of waste oils for vegetation suppression
    - Remedial goals
      - Aroclor 1254: 1 mg/kg
      - Aroclor 1260: 1 mg/kg
      - Total PCBs: 2 mg/kg
  - Additional delineation needed to finalize volume at AA1
    - Additional data anticipated to be collected 2011
    - Volume should not affect evaluation of remedial alternatives

Acid Areas 2 and 3

- Feasibility Study funded
  - Main issue is PCBs in surface soil
    - Sources either from transformers or use of waste oils for vegetation suppression
    - Remedial goals
      - Aroclor 1254: 1 mg/kg
      - Aroclor 1260: 1 mg/kg
      - Total PCBs: 2 mg/kg
  - Currently evaluating possible need for additional delineation sampling

TNT Area A

- Draft Decision Document issued in October 2010
- Review comments due December 13, 2010
- Selected Remedy: Excavation, Alkaline Hydrolysis, Windrow Composting, Ex Situ Chemical Stabilization, and On-Site/Off-Site Disposal (same as TNTC remedy)
  - Alkaline hydrolysis as initial treatment, windrow composting as polishing step for residual DNT (if needed based on TCLPand RG results).
  - Ex situ chemical stabilization needed for lead contaminated soil
  - Off-site disposal for nonhazardous untreated soil, PCB contamination soil and treated material
  - On-site placement of treated soils that meets RGs would be placed back on-site

Site Wide Groundwater

- Feasibility Study Addendum issued September 2010 for internal review
  - Objectives
    - Addressed comments raised by the USACE CX on the internal draft of the proposed plan
    - Revised applicable and relevant or appropriate requirements (ARARs)
    - Modified Alternative 2 to include natural attenuation as a component
    - Added new Alternative 5, Groundwater Monitoring and/or Institutional Controls
  - Document currently in internal review