

Former Frankford Arsenal Proposed Plan for Area 1 Soils

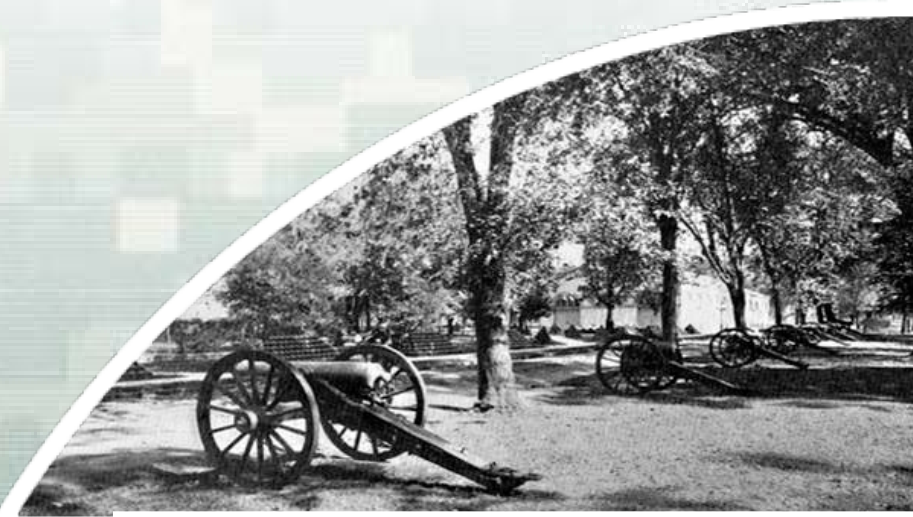
Todd Beckwith

Project Manager

February 18, 2015

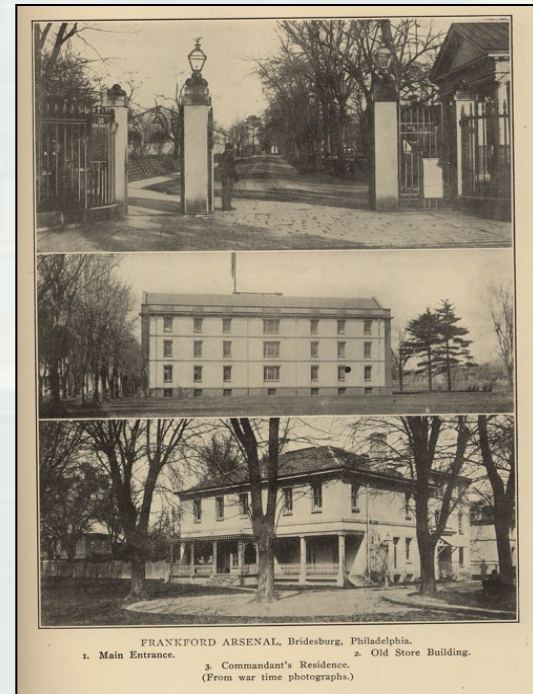


US Army Corps of Engineers
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Agenda

- Arsenal History
- Environmental Process
- Area 1 Soils Project Background
- Results
- Next Steps
- Status of Other Areas



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Former Frankford Arsenal

- Commissioned in 1816
- Military artillery and small arms ammunition research, manufacturing, testing, and storage facility
- Closed in 1977
- Large scale decontamination and decommissioning efforts followed
- Property transferred for economic reuse
- Currently used as a commercial business park and recreational area



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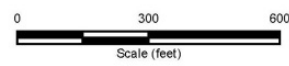
Decontamination and Cleanup 1970s and 1980s



Legend

- Roads Edges
- Outside FFA Area
- Original Frankford Arsenal Boundary
- Waterbodies
- Buildings**
- Existing Building (FFA)
- Demolished Building (FFA)
- Radiological Decontamination
- Explosives Decontamination
- Area Outside Building Decontaminated for Radionuclides

Note: 135 Buildings were Decontaminated for Heavy Metals. Building numbers were not specified in report.



USATHAMA BUILDING DECONTAMINATION
(1980 - 1981)

AREA I SOIL REMEDIAL INVESTIGATION
FORMER FRANKFORD ARSENAL
PHILADELPHIA, PENNSYLVANIA

Environmental Cleanup Process

*Coordination with the Pennsylvania Department of Environmental Protection, the lead regulatory agency, throughout the process.



Reviewed historical documents

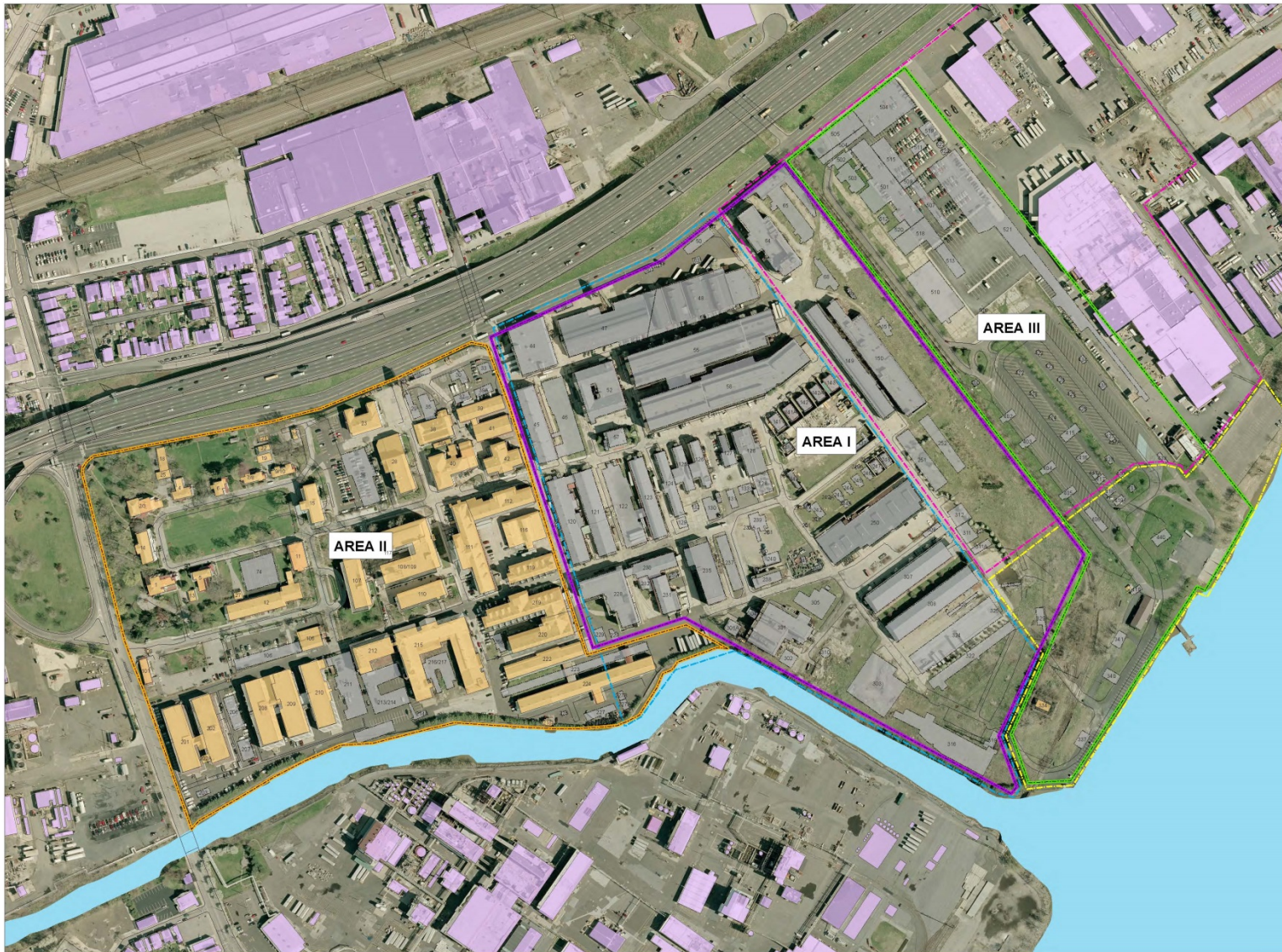
Remedial Investigation: Determine the nature of the waste; assess risk to human health and the environment; & evaluate treatment options.

Feasibility Study: To develop, screen, and evaluate alternatives for clean-up.




Presents alternatives and provides a recommendation for the preferred alternative.





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Phase Area Boundary

-  Area I
-  Area II
-  Area III

Property Boundary

-  City of Philadelphia
-  Dietz & Watson
-  PIDC

Buildings

-  Existing FFA Building
-  Demolished FFA Building
-  Outside FFA Area
-  Waterbodies



**FORMER FRANKFORD ARSENAL
AREA I AND AREA III
PROPERTY CHANGES**

**FORMER FRANKFORD ARSENAL
PHILADELPHIA, PENNSYLVANIA**

2/2015	CABRERA Project No. 06-3103.00	FIGURE 3
	Cabrera Services 1100 N Charles St Suite 300 Baltimore, MD 21201	 U.S. Army Corps of Engineers, Baltimore District



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Area I Remedial Investigation

- Historical Records Reviewed:
 - Site Histories
 - Previous Investigations and Cleanups
 - Munitions and Explosives of Concern Engineering Evaluation/Cost Analysis
 - Radiological Historical Site Assessment

- Site-Related Constituents:
 - Explosives
 - Radionuclides
 - Metals
 - Chlorinated solvents
 - Polychlorinated biphenyls (PCBs)



Phased Investigation

- Phase 1 Environmental Site Assessment, 1999
- Radiological Historical Site Assessment, 2001
- Radiological Scoping Survey, 2003
- Act 2 Remedial Investigation Report, 2005
- Supplemental Site Investigation, 2007
- Underground Storage Tank Removal, Battery Disposal and Well Abandonment, 2008
- Area I Remedial Investigation, 2008-2014



Remedial Investigation Methods

- Geophysical Surveys
- Direct Push Technology Sampling
- Soil Borings
- Groundwater Monitoring Wells
- Surface and Subsurface Soil Samples
 - 714 soil samples collected



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Site-Specific Soil Screening Limits

- Analytical results compared to the standards and/or limits provided in the following:

COPC	Screening Limits	Regulator
Chemicals	Act 2 non-residential medium specific concentrations	Pennsylvania Department of Environmental Protection
Polychlorinated biphenyls	Toxic Substances Control Act level for high occupancy areas (unrestricted)	Environmental Protection Agency
Radionuclides	Residual Radioactive Contamination from Decommissioning (surface soil screening)	Nuclear Regulatory Commission

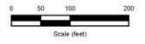


Soil Sample Locations



Legend

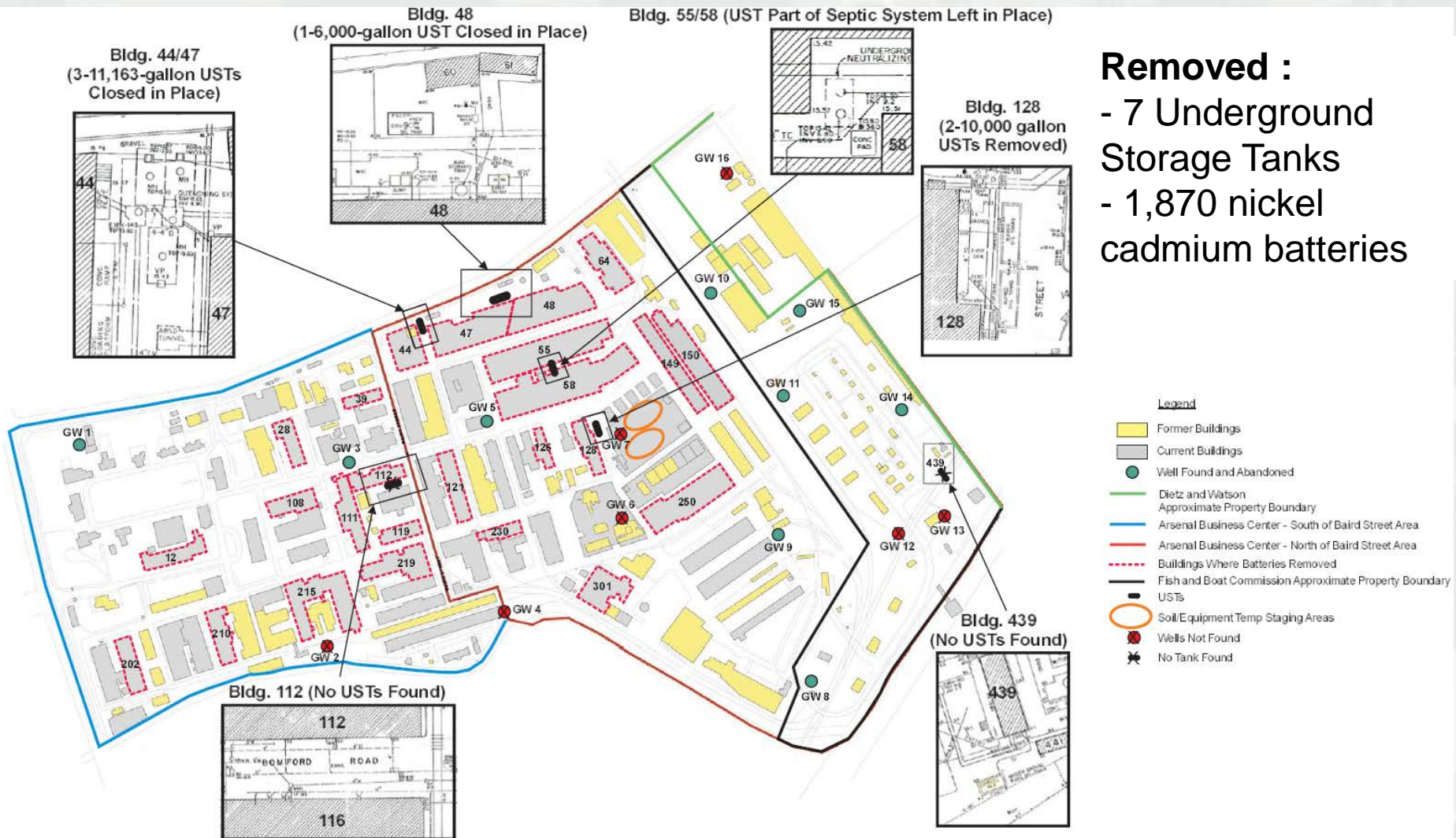
- Soil Sample Location**
- 1999 RI Soil Sample
 - 2005 RI Soil Sample
 - 2007 RI Soil Sample
 - 2008 RI Soil Sample
 - 2009 IRA Confirmatory Sample
 - 2012 IRA Confirmatory Sample
 - Monitoring Well
 - Area I Boundary
 - Waterbodies
- BUILDINGS**
- Demolished (FFA)
 - Existing (FFA)
 - Outside FFA Area



AREA I SOIL SAMPLE LOCATIONS

AREA I SOIL REMEDIATION INVESTIGATION
FORMER FRANKFORD ARSENAL
PHILADELPHIA, PENNSYLVANIA

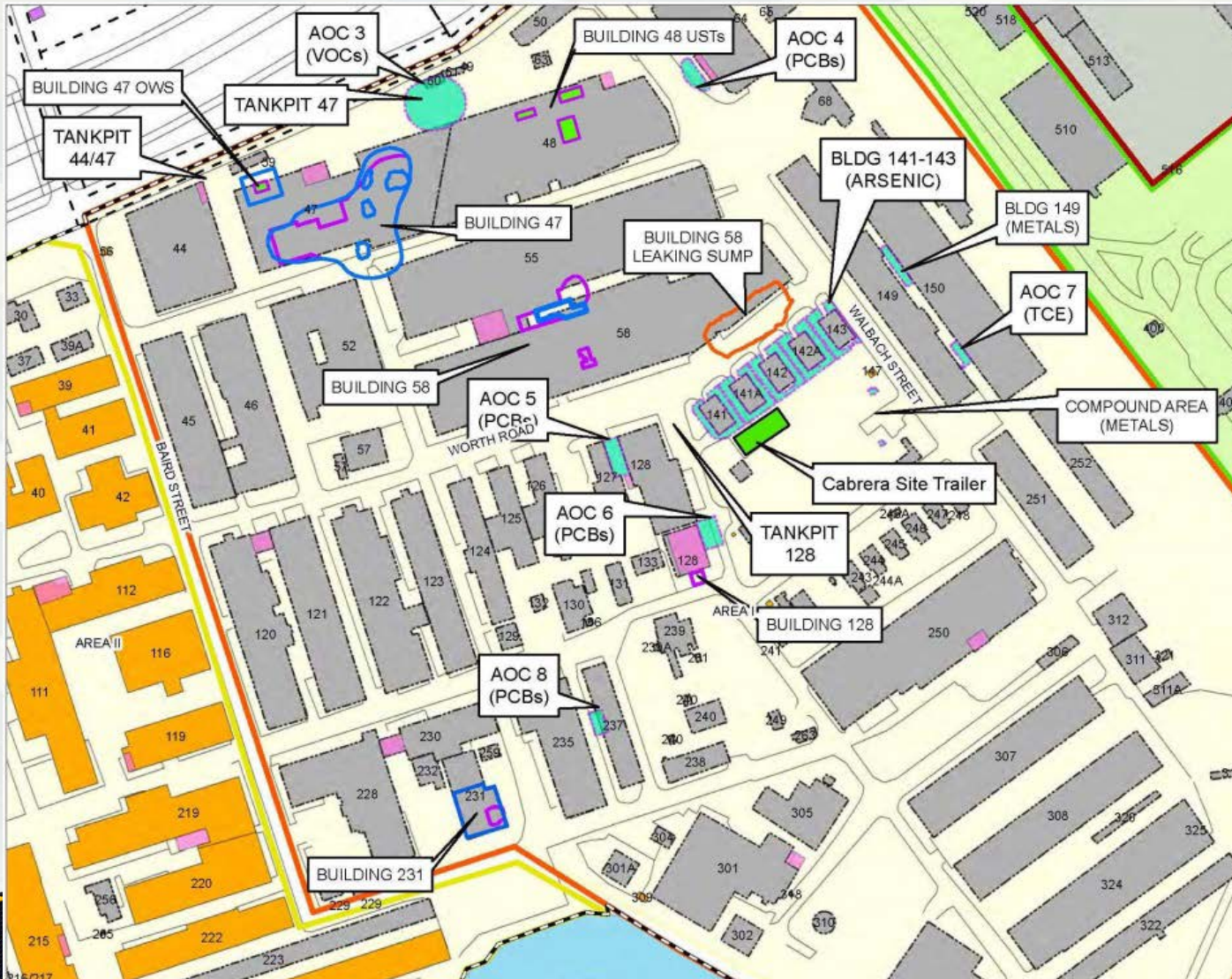
Hazardous, Toxic and Radioactive Waste Removal Action



Removed :

- 7 Underground Storage Tanks
- 1,870 nickel cadmium batteries

Removal Actions



-7,320 cubic yards of soil removed
- 16 tons of concrete

Post Removal Action Risk Assessment

Class of Compounds

- Metals
- Volatile Organic Compounds (VOCs)
- Semi Volatile Organic Compounds (SVOCs)
- Polychlorinated biphenyls (PCBs)



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Risk Assessment

Scientific process that estimates potential ecological and human health risks that could result from exposure to chemicals in the soil at Area I.

Risk assessment answers the questions:

- Is there a hazard?
- How serious is it?
- Who would be exposed?
- How would exposure occur (pathways)?



Data collection - soil sampling & chemical analysis



Potential receptors



Soil contact
Accidental ingestion/eating
Breathing soil particles



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Risk Assessment Conclusion

Four reasonable maximum exposure receptors were identified based upon the current and potential future land use at Area 1.

*Exposure duration listed under each photo.



Industrial/commercial worker
*250 days per year, 25 years



Utility Worker
*80 Hours



Maintenance Worker
*One day every
other week, 25 years



Construction Worker
*250 days per year, one year

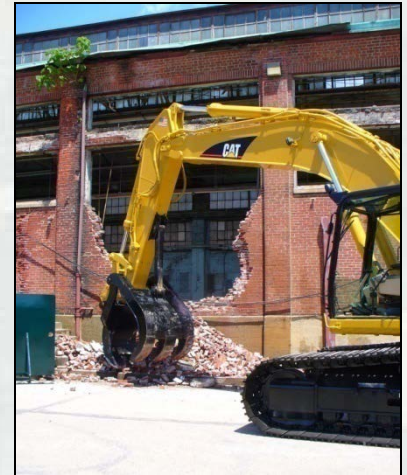
Potential cancer and non-cancer risks were determined for each reasonable maximum exposure receptor. It was determined that there was no unacceptable risk to these current and future receptors.



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Proposed Plan

- Based upon the results of the risk assessment, the Corps of Engineers recommends no further action for Area 1 Soils.
- The Pennsylvania Department of Environmental Protection approved the Remedial Investigation Report, which summarized these findings.



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Ways to Comment

- Orally at tonight's meeting.
- Fill out a written form and turn it tonight.
- Email or mail your written comments by March 9.

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Or

Mail: U.S. Army Corps of Engineers
ATTN: Andrea Takash
Rm. 11400, 10 South Howard St.,
Baltimore, Md. 21201



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Next Steps

- Take public comments under consideration and prepare responses to comments.
- Prepare a Decision Document, with Responsiveness Summary.
- Final Decision Document placed in the library and online.



Status of the Other Areas

- **Area II:** Soil Remedial Investigation Report finalized in December 2014. Identifies a few sites that will require a Feasibility Study and possible Remedial Action. Plan to finalize the Feasibility Study in the summer of 2015 and Proposed Plan in the fall of 2015.
- **Area III:** Soil Remedial Investigation field effort completed in fall 2014. Report is expected to be final by September 2015.
- **Groundwater:** Remedial Investigation Report is expected to be finalized in 2016.



Questions or Comments?



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