

FORMER GUTERL SPECIALTY STEEL CORPORATION

FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)

TECHNICAL PROJECT PLANNING MEETING

LOCKPORT, NEW YORK

December 7, 2010




US Army Corps of Engineers
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Agenda

- Site Overview and Remedial Investigation Summary
- Project Tasks:
 - ▶ Feasibility Study
 - ▶ Supporting Tasks
 - Data Gap Assessment
 - Groundwater Modeling
- Questions & Answers



Aerial view of site looking southwest




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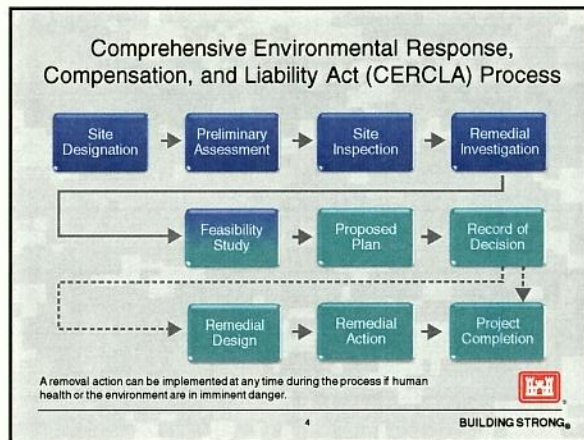
FUSRAP

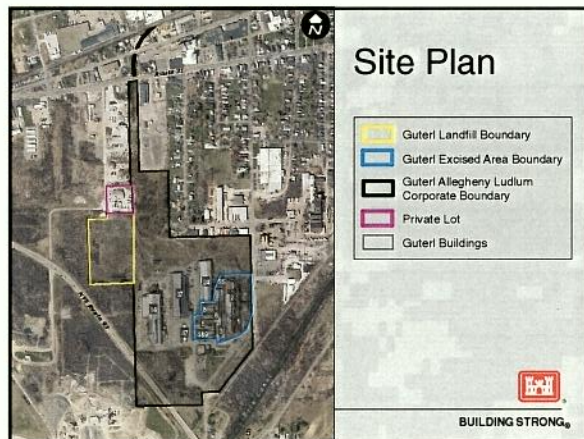
- FUSRAP – an environmental program created in 1974 under the Atomic Energy Act of 1954
- FUSRAP focuses on radiological contamination from MED/AEC activities
- FUSRAP was transferred to USACE in 1997
- USACE is lead agency for investigations and remediation, if necessary; work conducted per CERCLA
- Site is transferred to DOE after USACE completes work
- NYSDEC is lead state agency and coordinates with other state agencies



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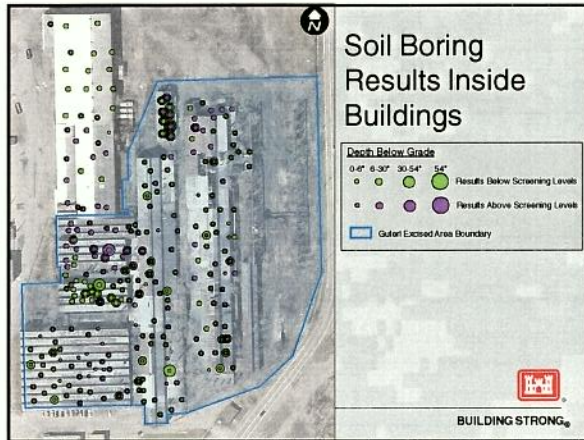


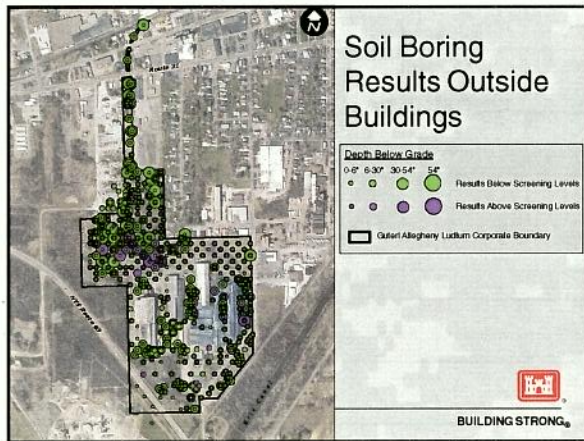


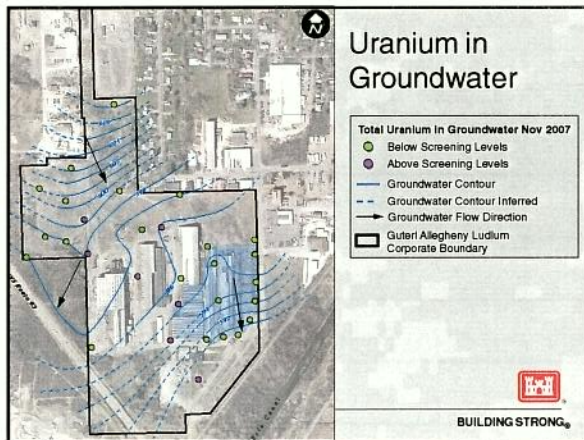
Investigation Results Summary

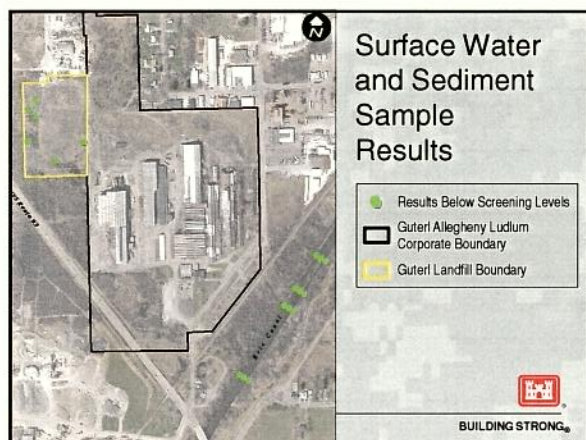
- No imminent threat to human health or the environment
- Constituents of concern are uranium and thorium
- Most heavily impacted buildings are Building 6 and Building 8
- Uranium present in shallow groundwater
- Confirmed no migration of FUSRAP-related materials in soil offsite
- Confirmed no FUSRAP-related impacts present in the Erie Canal

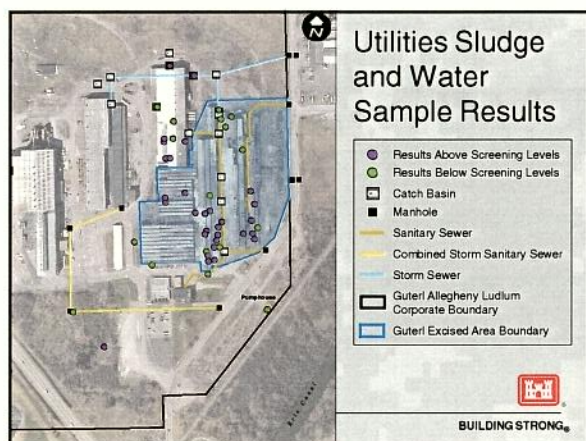
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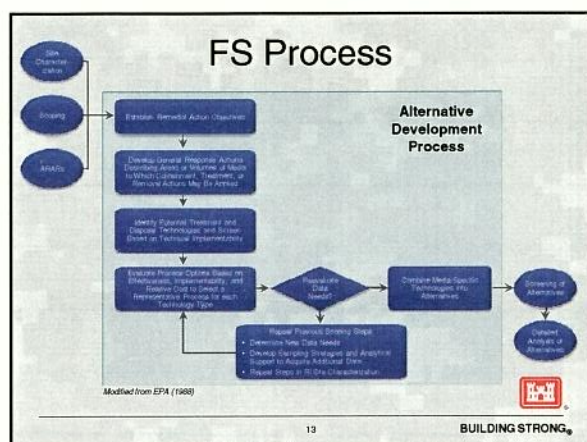


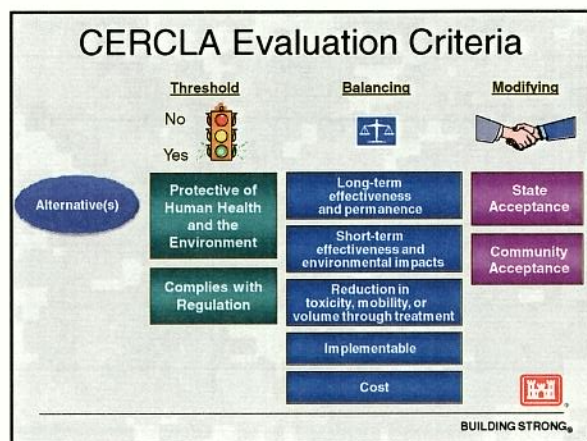


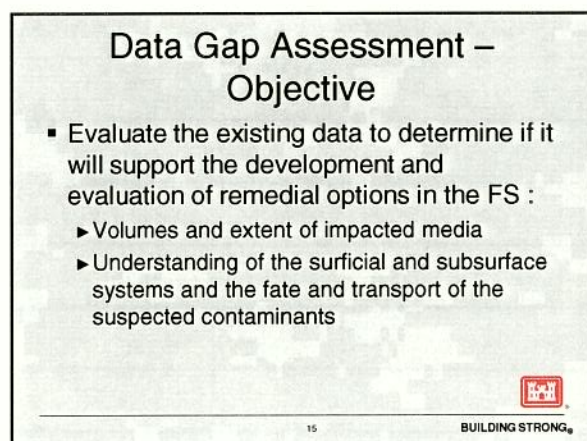
Feasibility Study

- An analysis of range of options to address impacts to the environment at a site and evaluate appropriate options to ensure the protection of human health and the environment by:
 - Elimination of the hazard
 - Reducing the hazard to acceptable risk levels
 - Preventing exposure to the hazard through engineering or institutional controls

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Data Gap Assessment – Media Evaluated

- Soil
- Sediment
- Groundwater
- Surface Water
- Buildings



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Data Gaps Identified in RI

- Two data gaps were identified:
 - ▶ The horizontal extent of uranium in bedrock groundwater was not defined at the southwestern/southeastern border of site.
 - ▶ The vertical extent of uranium in bedrock groundwater was not defined; need to verify if uranium continues to exceed screening levels in groundwater deeper than 15 feet into bedrock.
- These data gaps will be addressed in the Feasibility Study process.



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Additional Data Collection/Needs

- USACE plans to sample groundwater seeps on walls of canal during the Spring 2011 sampling event
- Select non-FUSRAP (or AEC) related chemical parameters may be analyzed to evaluate their affect on Uranium leaching and mobility in groundwater



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Initial Feasibility Study Focus

- Develop general Remedial Action Objectives (RAOs)
- Evaluate Applicable or Relevant and Appropriate Regulations (ARARs)
- Develop specific RAOs



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Feasibility Study – RAOs

- General – to protect human health and the environment
- Develop specific RAOs that address:
 - ▶ FUSRAP contaminants or ROCs (ROCs are those radionuclides that pose an unacceptable risk in certain media for a given land use)
 - ▶ Media of interest



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Feasibility Study – RAOs cont.

- ▶ Exposure pathways
 - ▶ Proposed Cleanup Levels (based on ARARs if available, consider risk)
- Develop based on current and anticipated future land use - industrial.
- Consider surrounding land use



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Feasibility Study – Preliminary General RAOs (cont.)

- Remove or prevent exposure to impacted media (buildings, soil, groundwater, and utilities)
- Minimize the transport of ROCs in soil to other media (e.g., groundwater)
- Control or reduce the concentrations of ROCs in groundwater to prevent offsite impacts to potential receptors including the emergency City water supply uptake in the Erie Canal



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Feasibility Study – ARARs

- ARARs provide either actual cleanup levels or a basis for calculating such levels
- Identify any chemical-specific ARARs or To Be Considered (TBCs) for the development of RAOs
(TBCs are unpromulgated criteria, advisories, or guidance)



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Potential ARARs

- Safe Drinking Water Act - 42 USC § 300f et seq.; 40 CFR Part 141 National Primary Drinking Water Regulations:
 - ▶ Maximum contaminant levels (MCLs) and non-zero maximum contaminant level goals (MCLGs) are potential ARARs for current or potential drinking water sources
- US NRC Radiological Criteria for License Termination, 10 CFR 20 Subpart E



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Preliminary Specific RAOs

- Remove or prevent exposure to media (buildings, soil, groundwater, and utilities) containing concentrations of FUSRAP ROCs that result in a dose of over 25 mrem/year
- Prevent ingestion of groundwater with FUSRAP ROCs above the MCLs (e.g., Uranium > 30 ug/L)



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Preliminary Specific RAOs cont.

- Prevent the offsite migration of uranium in surface water/sediment and groundwater which could result in an exposure above the MCL of 30 µg/L

Preliminary RAOs will be updated as necessary (i.e. after final identification of ARARs)



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Point of Compliance

- As part of developing RAOs, need to consider the point of compliance for cleanup criteria



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Feasibility Study – General Response Actions (GRA)

- Develop GRA for each medium
- Consider actions such as:
 - ▶ No Action (baseline for comparison)
 - ▶ Removal
 - ▶ Disposal
 - ▶ Treatment
 - ▶ Containment
 - ▶ Institutional Controls



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Groundwater Modeling – Objective

- Develop a baseline flow and transport model for the FS Alternative screening process to evaluate:
 - ▶ Potential for leachate generation from any remaining residues in soil or other on-site media
 - ▶ Impact to groundwater from each FS alternative
 - ▶ Fate of re-defined total Uranium plume
 - ▶ Modeling of remedial technologies



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FS Modeling Approach

- Address the fate and transport of elemental (total) uranium in order to evaluate the groundwater impacts
- Data are available to initiate soil leachate model; however modeling of resultant impact to downgradient groundwater will be performed after data gap investigation
- Groundwater model to incorporate new data acquired from additional site investigations following the data gap analysis



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Soil Leachate Modeling

- Determine Uranium mass loading from soil to groundwater
- Determine impact on downgradient groundwater – after data gap investigation
- Run alternate soil leaching scenarios
 - ▶ Account for variability in solubility of U^{6+} vs. U^{4+}
 - ▶ Use location specific source terms
 - ▶ Incorporate new data on groundwater constituents and quality, redox potentials, presence of non-FUSRAP related chemicals, anions/cations, etc.

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Geochemical Modeling

- Support the flow and transport modeling effort by providing defensible contaminant transport parameters
- Derived from the RI data and the 3 years of post RI data
- Parameters developed for:
 - ▶ Baseline case
 - ▶ Selected remedial alternatives that modify local geochemical environments

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Groundwater Modeling – FS Scenario Modeling

- Support the assessment of alternatives performance with respect to groundwater
- FS alternatives for consideration:
 - ▶ Monitored Natural Attenuation
 - ▶ Groundwater Extraction/Ex-Situ Treatment
 - ▶ In-Situ Chemical Treatment
 - ▶ Physical Containment (e.g., slurry wall)
 - ▶ Chemical Containment (e.g., permeable reactive barrier, consisting of reactive material placed underground to intercept and treat the ground water plume)
- All rely on source removal as primary step

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Questions?



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Contact Us

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