



**US Army Corps  
of Engineers®**  
Buffalo District  
*BUILDING STRONG®*



**BUFFALO DISTRICT FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM UPDATE 2015**



### INTRODUCTION

The *Buffalo District Formerly Utilized Sites Remedial Action Program Update* provides information about progress the U.S. Army Corps of Engineers is making in cleaning up sites with contamination resulting from the Nation's early atomic energy program. The Formerly Utilized Sites Remedial Action Program (FUSRAP) was initiated in 1974 to identify, investigate, and if necessary, clean up or control sites throughout the U.S. contaminated as a result of Manhattan Engineer District (MED) or early Atomic Energy Commission (AEC) activities. Both the MED and the AEC were predecessors of the U.S. Department of Energy (DOE).

Congress transferred administration and execution of FUSRAP cleanups from the DOE to the Corps of Engineers in October 1997. The Corps of Engineers continues to address sites the DOE began, sites that were referred to the Corps of Engineers by the DOE's Office of Legacy Management under a Corps of Engineers/DOE Memorandum of Understanding, and sites added to the program by Congress.

#### **The Corps of Engineers' FUSRAP objectives are to safely, effectively and efficiently:**

- Identify and evaluate sites where authority and the need for a response action exist;
- Clean up or control FUSRAP sites to ensure protection of human health and the environment;
- Dispose or stabilize radioactive material in a way that is safe for the public and the environment;
- Perform work in compliance with applicable federal, state, and local environmental laws and regulations; and
- Return sites for appropriate future use.

When executing FUSRAP, the Corps of Engineers follows the investigation and response framework of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This framework is shown on Page 5. Each site may have multiple operable units (OUs) each in a different phase within the CERCLA process.

The Corps of Engineers is committed to informing and involving the public as it progresses through the decision-making process for each site. Response actions are coordinated with the U.S. Environmental Protection Agency (EPA) and/or state environmental regulatory agencies on all sites.

Two years after the Corps of Engineers completes a response action and final closeout activities at a FUSRAP site, that site, along with responsibility for long-term stewardship, if necessary, reverts to the DOE. FUSRAP sites that have been transferred back to the DOE's Office of Legacy Management for long-term stewardship are the Wayne Interim Storage Site, Newark, New Jersey; Bliss and Laughlin, Buffalo, New York; the Ashland 1 Site including Seaway Area D, Tonawanda, New York; and the Ashland 2 Site including Rattlesnake Creek, Tonawanda, New York.

Currently seven districts within three Corps of Engineers divisions work on 25 active FUSRAP sites within 10 states. Districts involved in FUSRAP are Buffalo and Pittsburgh within the Great Lakes and Ohio River Division; St. Louis within the Mississippi Valley Division; and Baltimore, New England, New York, and Philadelphia within the North Atlantic Division. The Corps of Engineers' Environmental and Munitions Center of Expertise and the Kansas City District also provide technical assistance.

Since the Corps of Engineers began administering FUSRAP, program funding has ranged between \$99.9 million and \$140 million a year. The FUSRAP budget for fiscal year (FY) 2015 was \$101.5 million. Progress and the schedule for each site is dependent on prioritization among all active FUSRAP sites taking into account what CERCLA phase they are in and the availability of FUSRAP funds nationally.

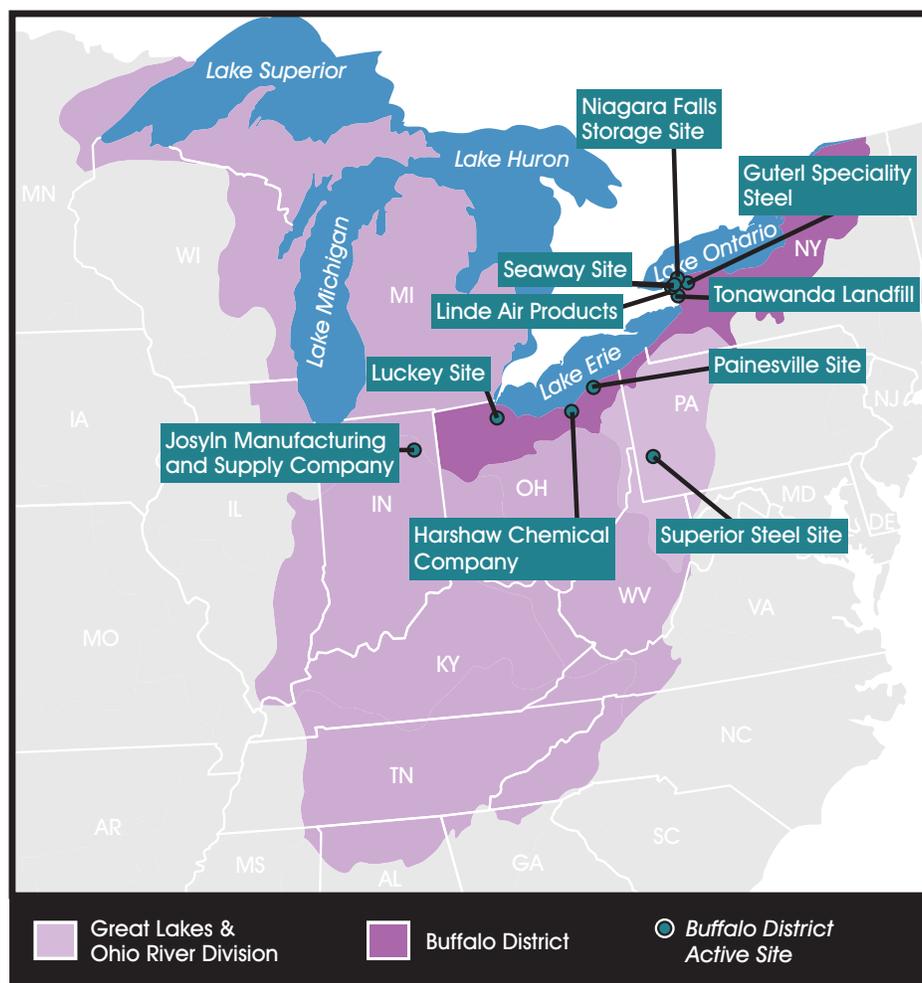
More FUSRAP information can be found at:

<http://www.usace.army.mil/Missions/Environmental/FUSRAP.aspx>

and

<http://www.lrb.usace.army.mil/HTRW/FUSRAP.aspx>

## ACTIVE BUFFALO DISTRICT FUSRAP SITES



Joslyn Manufacturing and Supply Company, Fort Wayne, Indiana

Guterl Specialty Steel, Lockport, New York

Linde Air Products, Tonawanda, New York

Niagara Falls Storage Site, Lewiston, New York

Seaway Industrial Park, Tonawanda, New York

Tonawanda Landfill, Tonawanda, New York

Harshaw Chemical Company, Cleveland

Luckey Site, Luckey, Ohio

Painesville Site, Painesville, Ohio

Superior Steel, Carnegie, Pennsylvania



## CERCLA Process for FUSRAP

### Preliminary Assessment/Site Inspection

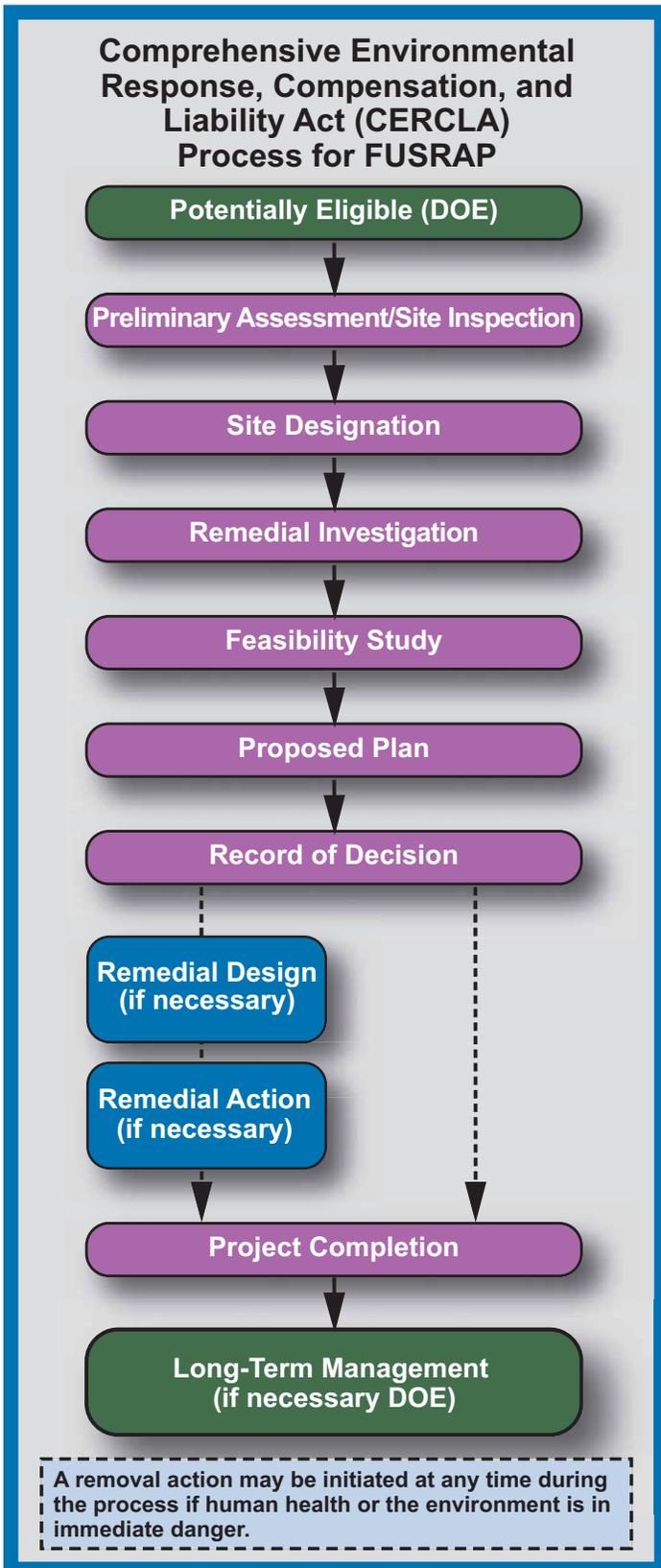
- To determine whether there has been a release or potential release that may require further action or investigation and to assess the nature of associated threats.

### Remedial Investigation

- To determine the nature and extent of the problem presented by the release.
- To evaluate the fate and transport of contaminants through site media (e.g., groundwater, surface water, etc.).
- To assess potential human health and ecological risks resulting from contaminants in the environment.

### Feasibility Study

- To identify and evaluate remedial response alternatives.
- To conduct an initial screen of technologies based on effectiveness, implementability and cost.
- To assemble remedial alternatives from the technologies retained after the initial screening process.
- To perform a detailed analysis and evaluation of each remedial alternative based upon its:
  - 1) Overall protection of human health and the environment;
  - 2) Compliance with applicable or relevant and appropriate requirements;
  - 3) Long-term effectiveness and permanence;
  - 4) Reduction of toxicity, mobility, or volume through treatment;
  - 5) Short-term effectiveness;
  - 6) Implementability; and
  - 7) Cost.



## Proposed Plan

- To document the Corps of Engineers' preferred remedial alternative.
- To seek and consider comments from federal and state environmental regulatory agencies.
- To seek and consider comments from the public through a mandatory minimum 30-day public review period.

## Record of Decision

- To document the Corps of Engineers' selection of the remedial alternative based upon the remedial investigation, the feasibility study, and comments received from federal and state environmental regulatory agencies and the public on the proposed plan.

## Remedial Design (if necessary)

- Detailed designs, plans, specifications, and bid documents for conducting the remedial action are developed during this phase.

## Remedial Action (if necessary)

- Upon approval of the remedial design, remedial action (the actual construction and implementation of the selected remedial alternative) is initiated. The remedial action is conducted until the remedial action objectives are achieved.

## Site Closeout

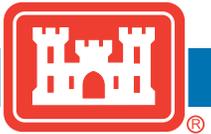
- Documents and demonstrates that the Corps of Engineers completed the response action in accordance with the record of decision (ROD) and in compliance with CERCLA, as amended, and the NCP.

## Long-Term Management

- Certain remedies may require a period of operation and maintenance, after the remedy is implemented, before the remedial action objectives and cleanup criteria are achieved.
- Under FUSRAP the Corps of Engineers is responsible for conducting the first two years of any necessary operations and maintenance and/or site monitoring following remedy completion, after which the site is turned over to the DOE for long-term stewardship.

### Acronyms

AEC	Atomic Energy Commission
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	Department of Energy
EPA	Environmental Protection Agency
FUSRAP	Formerly Utilized Sites Remedial Action Program
FY	fiscal year
IWCS	Interim Waste Containment Structure
MED	Manhattan Engineer District
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFSS	Niagara Falls Storage Site
NRC	Nuclear Regulatory Commission
OU	operable unit
ROD	record of decision



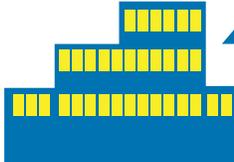
# General Overview of the Manhattan Engineer District and Atomic Energy



**Uranium Ore:**  
• Uranium-234  
• Uranium-235  
• Uranium-238

## Mining

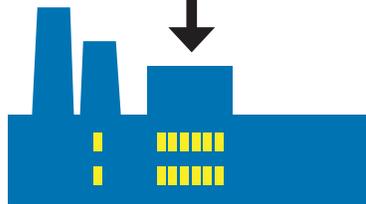
Uranium ore was obtained from the Belgian Congo or the western United States and Canada.



## Mill

Uranium was separated from materials in the ore.

◆ *Linde Air Products*



## Enrichment (Gaseous Diffusion, etc.)

Increases the percentage of Uranium-235.



## Uranium Metals and

Metals were manufactured.

◆ *Guterl Specialty Steels*  
◆ *Joslyn Manufacturing*  
◆ *Superior Steel*



## Waste Storage/Disposal

Wastes from processing were sent to facilities for storage/disposal.

◆ *Niagara Falls Storage Site*  
◆ *Seaway Industrial Park*



## Incidental Contamination

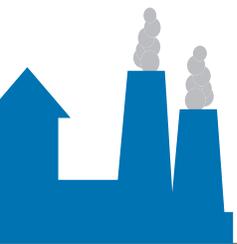
◆ *Painesville Site*  
◆ *Tonawanda Landfill Vicinity Property*



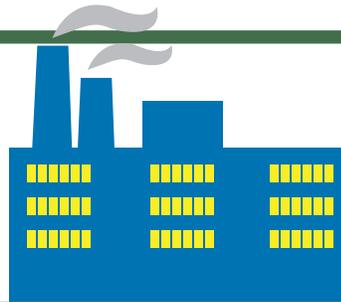
## Nuclear Production

More useful nuclear materials were produced.

# Commission Processes



**Refining**  
Uranium refined from other natural



**Refining/Conversion**

Products of refining/conversion:

- Uranium trioxide (orange oxide)
- Uranium dioxide (brown oxide)
- Uranium tetrafluoride (green salt)
- Uranium hexafluoride

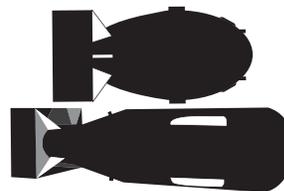
Produces a product that can be enriched.

◆ *Harshaw Chemical Company*



**Advanced Metals Machining**

Uranium refined, rolled, and shaped.  
Steel  
Manufacturing and Supply Company



**Weapons Development**

Enriched uranium provided by other federal operations was sent to weapons production facilities. Other sites involved in early weapons production were used for beryllium and thorium production or were research facilities.

◆ *Luckey Site (beryllium)*



**Production Reactors**

Material created.



## Buffalo District Site Updates

### Joslyn Manufacturing and Supply Company Fort Wayne, Indiana



*Circa 1947 photo of the Joslyn Manufacturing and Supply Company*

From 1943 to 1952 the Joslyn Manufacturing and Supply Company worked under government contract to temper, hot roll, quench, straighten, cool, grind, cut, and thread natural uranium billets into metal rods. The 23-acre Joslyn Site was entered into FUSRAP in FY 2009 and assigned to the Buffalo District. In FY 2014, the Buffalo District initiated project scoping for a remedial investigation. Contract award will occur based on the availability of FUSRAP funds nationally.

### Guterl Specialty Steel Lockport, New York



*Monitoring well repairs at the Guterl Site*

The 70-acre former Guterl Specialty Steel Site, also known as Simonds Saw and Steel Corporation, is located in Lockport, New York. From 1948 to 1956, the Simonds Saw and Steel Company rolled uranium steel billets into rods under a contract with the AEC.

During FY 2015, the Buffalo District continued preparation of the feasibility study, which develops and evaluates alternatives to address FUSRAP contamination at the site. The feasibility study report is scheduled for release in FY 2017. Groundwater monitoring is performed annually for the site.

### Linde Air Products Tonawanda, New York

Located in Tonawanda, New York, the Linde Site is a 135-acre site currently owned and operated by Praxair, Inc. The Tonawanda Landfill, a vicinity property to the Linde Site, is reported separately in this update. From 1942 to 1946, the former Linde Air Products Division of Union Carbide processed uranium ores at this site under contract to the MED.

Remediation of the Linde Site by the Buffalo District was completed in FY 2013. Approximately 186,000 cubic yards of contaminated material were excavated and shipped to out-of-state disposal facilities. In 2015 site restoration was complete and the site closeout report for the Linde Site was released to stakeholders. The district is preparing to transfer the site to DOE's Office of Legacy Management for long-term stewardship. Final transfer of the site is scheduled for spring 2017.



*Linde Site monitoring well decommissioning during site restoration*

## Niagara Falls Storage Site

*Lewiston, New York*

The Niagara Falls Storage Site (NFSS) is a 191-acre federally owned site, located in Lewiston, New York, 19 miles northwest of Buffalo, which contains a 10-acre Interim Waste Containment Structure (IWCS). The Buffalo District performs maintenance, monitoring, and environmental surveillance activities at the site to verify the IWCS remains protective of human health and the environment and continues to perform as designed.



***Performing environmental monitoring at the Niagara Falls Storage Site***

In FY 2015, the district continued progress on developing the IWCS OU feasibility study by soliciting community and stakeholder comments on key topics. The Buffalo District also released the Balance of Plant OU contamination extent investigation in February 2015. Focusing on all on-site areas outside the IWCS, this report summarized the field investigative findings, which will be used to reduce the volume estimate uncertainty for site soils requiring remedial action.

The district will release the IWCS OU feasibility study and IWCS OU proposed plan in FY 2016 for public review and comment. Public release of the document will be followed by a public meeting to seek community input on the preferred alternative identified within the IWCS OU proposed plan and to outline the next steps in the CERCLA process for the site. The district will also initiate development of the Balance of Plant OU feasibility study to evaluate potential remedial alternatives for the site soils outside the IWCS.

The Buffalo District has an active outreach program for NFSS, which included a site tour for the Town of Lewiston Environmental Commission and regular

updates to the community in FY 2015. The district employs a technical facilitator who conducts periodic meetings with members of the community throughout each year to enhance communication and technical understanding during the IWCS OU feasibility study development.

Additionally, the district is evaluating data for the current open vicinity properties to determine the necessary field investigative activities to support the future remedial investigations/feasibility studies for these properties.

## Seaway Industrial Park

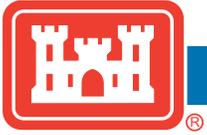
*Tonawanda, New York*

The Seaway Site is a 93-acre commercial landfill located in Tonawanda, New York, a suburb of Buffalo. Approximately 16 acres of the landfill contain radiological waste that originally came from the nearby Linde Site, which processed uranium ore for the MED. The Corps of Engineers signed a ROD for the Seaway Site in October 2009, which identified containment with limited off-site disposal as the selected remedy for the site.

In FY 2015 the Buffalo District awarded a contract and initiated excavation and off-site disposal of contaminated soil located beyond the landfill leachate containment system. Prior to field work, an information session was conducted to inform the public of remedial and health and safety measures to be employed. During FY 2016 the Buffalo District will complete the excavation and off-site disposal of contaminated soils on the landfill perimeter. Implementation of the landfill containment remedy is scheduled to begin following completion of ongoing remediation at other FUSRAP sites and the availability of program funding.



***First scoop of soil removed during remediation of the Seaway Site Northside Area***



### **Tonawanda Landfill**

*Tonawanda, New York*

The Tonawanda Landfill Vicinity Property, located in Tonawanda, New York, a suburb north of Buffalo, consists of two OUs: the 55-acre Tonawanda Landfill OU and the 115-acre Mudflats OU. The site was designated into FUSRAP in 1992 when early DOE investigations around the Linde Site detected elevated levels of FUSRAP-related radionuclides in the landfill. The Buffalo District completed work at the Mudflats OU in 2008 with a no-action ROD. The district completed preparation of an updated baseline risk assessment for the Landfill OU in FY 2012, which found that while risks to human health from potential exposure to FUSRAP-related material buried in the landfill are within acceptable limits for the current site conditions, risks could potentially increase above acceptable limits in the future, if the surface of the landfill is allowed to erode as time passes.

In FY 2015 the Buffalo District released the feasibility study and proposed plan for the Landfill OU. The proposed plan documents the preferred alternative, which is targeted shallow removal and off-site disposal of FUSRAP-related material. The Buffalo District will complete the Tonawanda Landfill OU ROD in FY 2017.

### **Harshaw Chemical Company Site**

*Cleveland*



***Deconstruction of Building G-1 at the Harshaw Site***

This 55-acre industrial facility is located three miles south of downtown Cleveland. From 1944 to 1959, the Harshaw Chemical Company was under contract to the MED and the AEC to produce uranium for isotopic separation and enrichment in Oak Ridge, Tennessee.

During FY 2015, Building G-1 was deconstructed and groundwater data collected to refine the groundwater model for the site. In FY 2016 the Buffalo District will begin preparation of a feasibility study addendum and a proposed plan to present the preferred remedial alternative for each OU. The Buffalo District will continue annual groundwater sampling, testing and reporting activities at the site during FY 2016.

### **Luckey Site**

*Luckey, Ohio*

The Luckey Site, a 40-acre privately-owned site located 24 miles southeast of Toledo, is currently in the remedial design phase. From 1949 to 1958 the site was operated as a beryllium production facility under contract to the AEC, resulting in beryllium and lead contamination of site soils and groundwater. The site also received scrap steel containing radioactive residues from NFSS, for potential use in magnesium production activities, which were never initiated.

The Buffalo District awarded the site remediation contract in FY 2015, and will prepare the remediation work plans in FY 2016. Additionally in FY 2015 the Buffalo District continued preparation of an explanation of significant differences to document changes in the estimated cost of the remedial action for site soils. The explanation of significant differences will be completed in FY 2016.

### **Painesville Site**

*Painesville, Ohio*

The Painesville Site, a 30-acre privately owned site located about 22 miles northeast of Cleveland, is currently in the project closeout phase. Though not directly involved in past MED or AEC activities, the site became contaminated with FUSRAP-related materials when scrap steel containing radioactive residues was shipped to the site from NFSS, for use in other government-contracted operations. The Buffalo District completed remediation of site soils containing FUSRAP-related material in FY 2011, using innovative soil-segregation technology to increase the efficiency of shipping soil above the site cleanup levels for off-site disposal resulting in a cost savings of approximately \$6 million. A total of 14,800 cubic yards of contaminated material were shipped off site for disposal.

In FY 2014 the Buffalo District completed the site closeout report for the Painesville Site, and began preparations for the transfer of the site to the DOE's Office of Legacy Management for long-term stewardship. In FY 2015 the Buffalo District continued activities to prepare for the scheduled transfer of the site to DOE in FY 2016.

### **Superior Steel** *Carnegie, Pennsylvania*

The former Superior Steel Site, a 25-acre site located in Scott Township near Carnegie, Pennsylvania, was added to FUSRAP in FY 2008. Uranium metal was processed at the site in support of the AEC's fuel-element development program from 1952 to 1957. The site was also licensed to receive thorium metal for processing and shaping from 1957 to 1958. During FY 2013 the Buffalo District awarded a remedial investigation contract for the site.

Investigative field activities were completed during the last quarter of FY 2015. The remedial investigation report will be complete in FY 2017.

## **Potential New Sites**

Eligibility of new sites for FUSRAP is determined by the DOE, which refers eligible sites to the Corps of Engineers for further evaluation. As funding becomes available, the Corps of Engineers performs a preliminary assessment, and potentially a site inspection, as well as a preliminary legal analysis of government responsibility at the referred sites. Based on the results of these studies, the Corps of Engineers may designate a site into the program for further investigation and potential action. Sites may also be added to the program through legislative action.

NFSS Vicinity Properties H Prime and X have been identified by DOE as eligible and are currently under consideration by the Corps of Engineers Buffalo District for designation into FUSRAP. If any of these properties are designated into FUSRAP, they will be addressed when funding becomes available in the national program.



*Superior Site tunnel entry*



*Superior Site tunnel investigation*



*Drilling a groundwater well for the remedial investigation of the Superior Site*

For more information, please email [fusrap@usace.army.mil](mailto:fusrap@usace.army.mil) or call 800-833-6390.

Please share this newsletter with a friend and ask them to let us know if they would like to be added to the Buffalo District mailing list.

*All Photos: U.S. Army Corps of Engineers Buffalo District*

*Cover photos:*

*Top left: First scoop of soil removed during remediation of the Seaway Site Northside Area*

*Top right: Monitoring well repairs at the Guterl Site*

*Bottom: Deconstruction of Building G-1 at the Harshaw Site*



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