



US Army Corps
of Engineers®

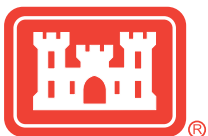
Formerly Utilized Sites Remedial Action Program Update



Fiscal Year 2017



BUILDING STRONG®



Introduction

The *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 United States 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 U.S. Army 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 of 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.
- Return sites for appropriate future use.

When executing FUSRAP, the Corps of Engineers follows the 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 Pages 5 and 6. Each site may have multiple operable units (OUs), each in a different phase of 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. The Corps of Engineers coordinates response actions 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 any necessary long-term stewardship, reverts to the DOE. Sites that have been transferred back to the DOE's Office of Legacy Management for long-term stewardship are the Madison Site, Madison, Illinois; Wayne Interim Storage Site, Newark, New Jersey; the Bliss and Laughlin Site, Buffalo, New York; the Ashland 1 Site, including Seaway Area D, Tonawanda, New York; the Ashland 2 Site including Rattlesnake Creek, Tonawanda, New York; and the Painesville Site, Painesville, Ohio. In addition, the Linde Site, Tonawanda, New York, was transferred in FY 2017.

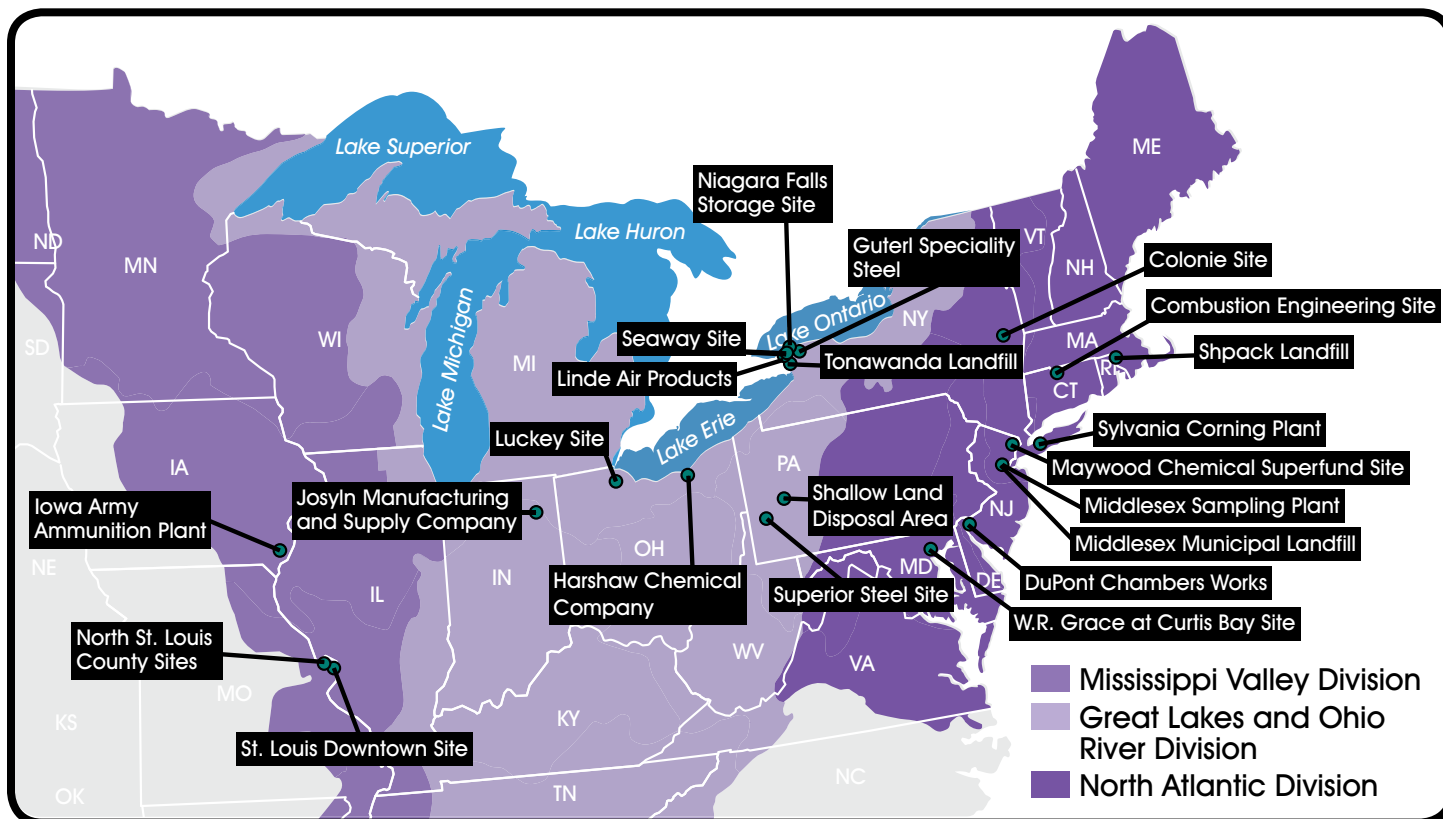
Seven districts from three Corps of Engineers divisions work on 24 active FUSRAP sites in 10 states. Districts involved in FUSRAP are Buffalo and Pittsburgh from the Great Lakes and Ohio River Division; St. Louis from the Mississippi Valley Division; and Baltimore, New England, New York, and Philadelphia from 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 from \$99.9 million to \$140 million a year. The FUSRAP appropriation for fiscal year (FY) 2017 was \$112 million. Progress and the schedule for each site is dependent on Corps of Engineers prioritization among all active FUSRAP sites taking into account the CERCLA phase they are in and the availability of FUSRAP funds nationally.

More FUSRAP information can be found at:

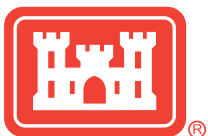
<http://www.usace.army.mil/Missions/Environmental/FUSRAP/>

Active FUSRAP Site Locations



Acronyms

AEC	Atomic Energy Commission	MED	Manhattan Engineer District
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	MSP	Middlesex Sampling Plant
CWC	Coldwater Creek	NCP	National Oil and Hazardous Substances Pollution Contingency Plan
DOE	Department of Energy	NFSS	Niagara Falls Storage Site
DU	depleted uranium	NRC	Nuclear Regulatory Commission
EPA	Environmental Protection Agency	OU	operable unit
FUSRAP	Formerly Utilized Sites Remedial Action Program	ROD	record of decision
FY	fiscal year	RWDA	Radioactive Waste Disposal Area
IWCS	Interim Waste Containment Structure	SLAPS	St. Louis Airport Site
		TENORM	technologically enhanced naturally occurring radiological materials



Active FUSRAP Sites

Mississippi Valley Division

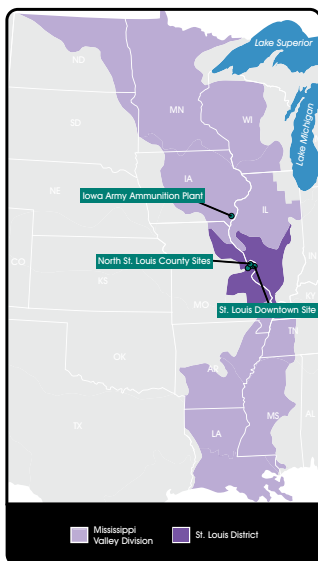
St. Louis District

Iowa Army Ammunition Plant, Middletown, Iowa

North St. Louis County Sites

- Latty Avenue Properties, St. Louis, Missouri
- St. Louis Airport Site
- St. Louis Airport Site Vicinity Properties

St. Louis Downtown Site



North Atlantic Division

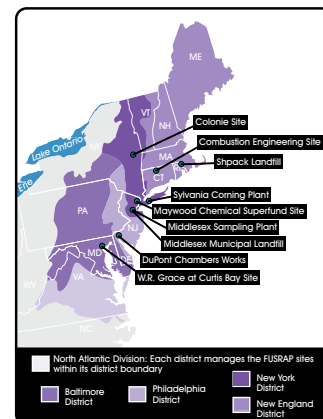
Baltimore District

W.R. Grace at Curtis Bay Site, Baltimore, Maryland

New England District

Combustion Engineering Site, Windsor, Connecticut

Shpack Landfill, Norton/Attleboro, Massachusetts



New York District

Maywood Chemical Superfund Site, Maywood, New Jersey

Middlesex Municipal Landfill, Middlesex, New Jersey

Middlesex Sampling Plant, Middlesex, New Jersey

Colonie Site, Colonie, New York

Sylvania Corning Plant, Hicksville, New York

Philadelphia District

DuPont Chambers Works, Deepwater, New Jersey

Great Lakes and Ohio River Division

Buffalo District

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

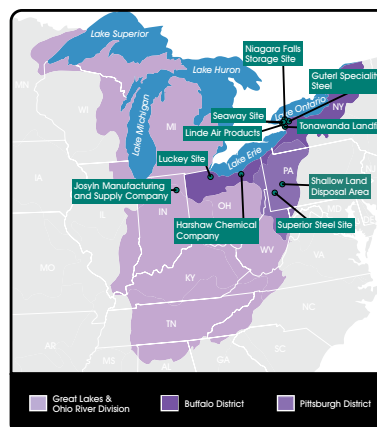
Harshaw Chemical Company, Cleveland, Ohio

Luckey Site, Luckey, Ohio

Superior Steel, Carnegie, Pennsylvania

Pittsburgh District

Shallow Land Disposal Area, Parks Township, Pennsylvania



*Transferred to the U.S. DOE Office of Legacy Management during FY 2017.

General Overview of the Manhattan Engineer District and Atomic Energy Commission Processes

Uranium Ore:

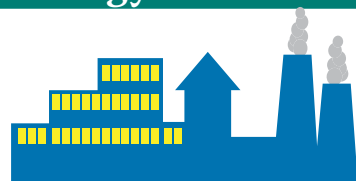
- Uranium-234
- Uranium-235
- Uranium-238



Mining and Assay

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

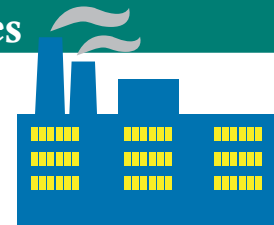
- ◆ *Middlesex Sampling Plant (assay)*



Milling

Uranium was separated from other natural materials in the ore.

- ◆ *Linde Air Products*
- ◆ *St. Louis Downtown Site*



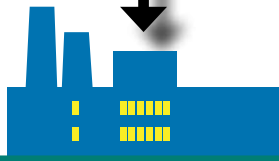
Refining/Conversion

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.

- ◆ *DuPont Chambers Works (research)*
- ◆ *Harshaw Chemical Company*



Enrichment (Gaseous Diffusion, etc.)

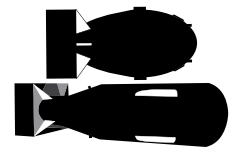
Increases the percentage of Uranium-235.



Uranium Metals and Metals Machining

Metals were manufactured, rolled, and shaped.

- ◆ *Combustion Engineering*
- ◆ *Guterl Specialty Steel*
- ◆ *Joslyn Manufacturing and Supply Company*
- ◆ *Superior Steel*
- ◆ *Sylvania-Corning (research)*



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.

- ◆ *Iowa Army Ammunition Plant*
- ◆ *Luckey Site (beryllium)*



Waste Storage/Disposal

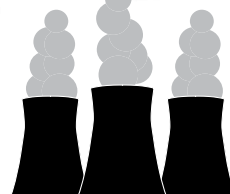
Wastes from processing were sent to facilities for storage/disposal.

- ◆ *Hazelwood Interim Storage Site/ Latty Avenue Properties*
- ◆ *Middlesex Municipal Landfill*
- ◆ *Niagara Falls Storage Site*
- ◆ *Seaway Industrial Park*
- ◆ *Shpack Site*
- ◆ *St. Louis Airport Site*



Incidental Contamination

- ◆ *Tonawanda Landfill Vicinity Property*
- ◆ *St. Louis Airport Site Vicinity Properties*



Nuclear Production Reactors

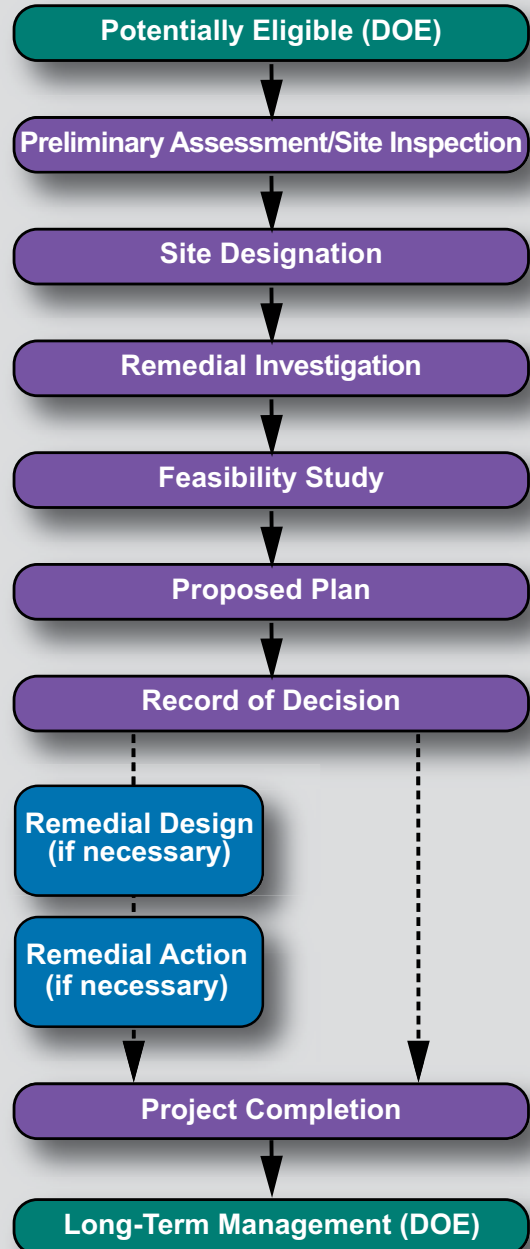
More useful nuclear material created.

Sites Added to FUSRAP by Congress

- ◆ *Colonie*
- ◆ *Maywood Chemical Works (thorium)*
- ◆ *Shallow Land Disposal Area*



Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Process for FUSRAP



A removal action may be initiated at any time during the process if human health or the environment is in immediate danger.

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).

To assess potential human health and ecological risks from contaminants in the environment.

Feasibility Study

To identify, develop, and evaluate remedial alternatives, analyzing in detail each remedial alternative for 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.
- 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 on 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)

To develop detailed designs, plans, specifications, and bid documents for conducting the remedial action.

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

To document and demonstrate 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 must conduct necessary operations and maintenance and/or site monitoring for the first two years following remedy completion. After that time, the Corps of Engineers turns the site over to the DOE's Office of Legacy Management for long-term stewardship.

Program Accomplishments

The Corps of Engineers completed a successful FY 2017 with a budget of \$112 million. The 2017 funds were used for the continuation of ongoing remedial activities at 11 sites, conducting investigations at 10 sites, and the navigation of three sites through the close out/transfer process to the U.S. DOE Office of Legacy Management. Program accomplishments for FY 2017 include the following.

The New York District completed the cleanup of the Colonie Site (New York) and is ready to start the close out and transfer process to the DOE in FY 2018.

A Record of Decision was signed for the Tonawanda Landfill Vicinity Property (New York).

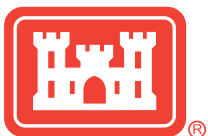
The long awaited new prime contract for the Shallow Land Disposal Area Site (Pennsylvania) was awarded in April 2017.

The Buffalo District transferred long-term stewardship responsibilities for the completed Linde (Praxair) Site to the U.S. DOE Office of Legacy Management.

The Program approved the use of the Wayne Disposal, Inc., (Michigan) for the disposal of very low level radiological waste and technologically enhanced naturally occurring radiological materials (TENORM) waste from FUSRAP sites. This will provide an alternate, safe, cost-effective disposal option for these materials.



Remedial activities at the Destrehan Street section of the St. Louis Downtown Site



Site Updates

St. Louis District

Iowa Army Ammunition Plant

Middletown, Iowa

The Iowa Army Ammunition Plant is an active, government-owned facility that covers more than 19,000 acres in southeastern Iowa. From 1947 to 1975, portions of the plant were under the control of the AEC for weapon-assembly operations and munitions testing resulting in uranium and munitions explosives contaminating the soils. In accordance with the signed Federal Facilities Agreement among the Corps of Engineers, DOE, EPA, and state of Iowa, the St. Louis District is addressing the plant areas formerly used by the AEC.

In September 2011, the district completed a ROD for OU 8, which addresses depleted uranium (DU) contamination using a sorting process to remove DU from the surrounding soil. This process allowed for less contaminated soil to be shipped off-site and saved money for the government and ultimately the taxpayer.



Contaminated
soil traveling
to the soil sorter
detectors at the Iowa
Army Ammunition Plant

In FY 2017, approximately 8,125 cubic yards of DU-contaminated soil were processed and about 576 cubic yards of DU-contaminated soil were shipped off-site for disposal. Another 1,369 cubic yards of DU-contaminated soil and debris were stockpiled for shipment in early FY 2018.

In FY 2018, the district will continue the ongoing cleanup efforts at the site under the FUSRAP ROD. In addition, approximately 21 survey units outside of the general excavation area are scheduled for final status survey in FY 2018.

North St. Louis County Sites

St. Louis, Missouri

In FY 2017, the St. Louis District continued remedial activities in accordance with a 2005 ROD for the three sites that comprise the North St. Louis County Sites: the Latty Avenue Properties, which include Hazelwood Interim Storage Site/Futura Coatings Company and eight vicinity properties; the St. Louis Airport Site (SLAPS); and the SLAPS Vicinity Properties, which include Coldwater Creek (CWC) and adjacent properties. The district conducted one public meeting and issued two newsletters for the St. Louis Sites. The district will continue with one public meeting and two newsletters in FY 2018.

Latty Avenue Properties

The Latty Avenue Properties comprise eight vicinity properties plus the Hazelwood Interim Storage Site and Futura. Early in 1966, the Continental Mining and Milling Company purchased ore residues and uranium- and radium-bearing process wastes stored at SLAPS from the MED/AEC and moved them to a storage site on Latty Avenue.

In FY 2017, the St. Louis District conducted groundwater monitoring and long-term management activities at the Latty Site. These activities will continue in FY 2018. Also in FY 2018, the St. Louis District will continue to prepare the land use controls to address the remaining contamination beneath the buildings on the Futura property.

St. Louis Airport Site

In 1946, the MED acquired the 21.7-acre tract of land, now known as SLAPS, to store residues from uranium processing at the Mallinckrodt facility in St. Louis. Residuals from the uranium processing accumulated at SLAPS through 1957. In 1966, Continental Mining and Milling Company bought the residues for recycling and moved the residues from SLAPS to a site on Latty Avenue. Contamination containing uranium-238, radium-226, and thorium-230 remained on the property.

Remedial activities at SLAPS are complete, and the post-remedial action report was released in May 2009. Groundwater monitoring and long-term management activities began in 2010 and are ongoing. The Corps of Engineers will transfer the site back to the DOE's Office of Legacy Management when all of the North County sites are completed.

St. Louis Airport Site Vicinity Properties

The SLAPS Vicinity Properties are located in the cities of Hazelwood and Berkeley, Missouri. A 14.2-mile section of CWC located in North St. Louis County is a SLAPS Vicinity Property. CWC flows adjacent to SLAPS and the Latty Avenue Properties through the communities of Berkeley, Hazelwood, Florissant, Black Jack, and unincorporated St. Louis County and empties into the Missouri River. CWC flows north under Highway 270 through both residential and public recreational areas.

The St. Louis District is currently sampling the CWC corridor and adjacent properties north of Highway 270. Uranium, radium, and thorium contamination at the SLAPS Vicinity Properties is linked to both SLAPS and the Latty Avenue Properties. Over time, residues migrated from other sites or were deposited as the residues were hauled along transportation routes.

In FY 2017, the St. Louis District completed cleanup at Duchesne Park in Florissant, Missouri; initiated and completed remedial activities at the Palm Drive properties in Hazelwood, Missouri; and initiated the remedial activities at the Ballfields Phase 2B.

The St. Louis District continued sampling CWC and adjacent properties and issued documentation releasing 23 properties for beneficial use. Additional documents issued include predesign investigation reports for one property and a remedial design for six



Soil Sampling at the Chez Paree St. Louis Airport Site Vicinity Property

properties. The district shipped 10,801 cubic yards of contaminated material off-site for disposal from the North County SLAPS vicinity properties.

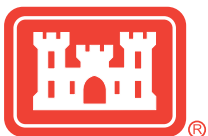
In early FY 2018, the St. Louis District completed the remediation and restoration of the six Palm Drive Properties as well as sampling Pershall Road. The district will continue remedial activities at the Ballfields Phase 2B and will remediate a new area of the Chez Paree Apartment Complex in FY 2018. In addition, the district will continue sampling CWC and adjacent properties. The St. Louis District will also issue documentation releasing 40 vicinity properties and ship 15,000 cubic yards of contaminated material to an off-site disposal location.

St. Louis Downtown Site

St. Louis, Missouri

From 1942 until 1957, the MED and AEC contracted with Mallinckrodt Chemical Works to process uranium ore for the production of uranium metal. Residuals of the process, including spent pitchblende ore, process chemicals, radium, thorium, and uranium, were released from the Mallinckrodt property and into the environment through handling and disposal practices.

The St. Louis District continues remedial activities in accordance with the 1998 ROD for the accessible areas at the St. Louis Downtown Site, which includes the Mallinckrodt plant and 42 vicinity properties.



Excavation of
contaminated
soil at the former
Building 17 area at
the St. Louis Downtown Site

In FY 2017, the St. Louis District removed 14,366 cubic yards of contaminated material and shipped it off-site for disposal. The district also finalized documents releasing three properties. Additional FY 2017 efforts consisted of the cleanup within the Mallinckrodt former Building 101 area in Plant 6 West Half and initiation of remedial activities at Destrehan Street and the Mallinckrodt former Building 17 area inside Plant 1. The district anticipates completing the cleanup of the former Building 101 area and Destrehan Street; initiating remedial action at Mallinckrodt Plant 2 North, the Heintz Steel property, and the Gunther Salt property; and issuing documents to release three additional areas during FY 2018.

The inaccessible areas of the St. Louis Downtown Site were broken into Group 1 and Group 2 property groups. The district issued a ROD with No Further Action as the selected alternative for inaccessible soils at the Group 1 properties in FY 2014. In FY 2018, the St. Louis District will continue working toward issuing a remedial investigation addendum focusing on the remainder of the inaccessible soils categorized as Group 2 properties.

Buffalo District

Joslyn Manufacturing and Supply Company

Fort Wayne, Indiana

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. The remedial investigation contract award will occur based on the availability of FUSRAP funds nationally.

Guterl Specialty Steel

Lockport, New York

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

In FY 2017, the Buffalo District completed internal revisions and technical reviews of the draft feasibility study. In FY 2018, the district will complete the feasibility study and the proposed plan, which are scheduled to be approved and publicly released together in FY 2019. Groundwater monitoring continues to be conducted annually for the site.



Sample preparation during the Guterl Site
environmental monitoring

Linde Air Products *Tonawanda, New York*

Praxair, Inc., owns and operates the 135-acre Linde Site in Tonawanda, New York. From 1942 to 1946, the former Linde Air Products Division of Union Carbide processed uranium ores at this site under contract to the MED.

In March 2017, the Buffalo District completed the transfer of the site to the DOE's Office of Legacy Management for long-term stewardship.

The Tonawanda Landfill, a vicinity property to the Linde Site, is reported separately in this update.

Niagara Falls Storage Site *Lewiston, New York*

The Niagara Falls Storage Site (NFSS) is a 191-acre federally owned site in Lewiston, New York. It is 19 miles northwest of Buffalo and 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.

In FY 2016, the district released the IWCS OU feasibility study and proposed plan and conducted a public meeting. The district received overwhelming public acceptance for the preferred remedy identified in the proposed plan, which was removal and off-site disposal of all materials within the IWCS. The district also initiated development of a feasibility study for the Balance of Plant and Groundwater OUs to evaluate potential remedial alternatives for all on-site materials outside the IWCS as well as groundwater.

The district will release the IWCS OU ROD and continue to prepare the feasibility study for the Balance of Plant and Groundwater OUs in FY 2018. The district will also continue to perform environmental surveillance to ensure the IWCS is performing as designed until the selected remedy is implemented.

The phytoremediation program was continued in FY 2017 with installation of piezometer wells, so the drawdown of the groundwater level by the test plants can be monitored.

The Buffalo District prepared a preliminary assessment for Vicinity Property H Prime to

determine if the property should be added to the site. The preliminary assessment, which was publicly released in early FY 2017, determined there is no imminent threat to human health or the environment on the property. However, surface soils, subsurface soils, concrete slabs/foundations, sediment, surface water, and groundwater may have residual impacts from past storage and processing of FUSRAP-related material on the property.

In FY 2018, a scope of work will be awarded to further investigate the vicinity property to determine the nature and extent of FUSRAP-related material on it and to evaluate the associated potential risks to human health and the environment. Work will commence based on the availability of FUSRAP funds nationally. Additionally, the district intends to prepare a preliminary assessment of Vicinity Property X in FY 2018.

Seaway Industrial Park *Tonawanda, New York*

The Seaway Site is a 93-acre commercial landfill 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.

The excavation and disposal of contaminated soil outside of the landfill leachate collection system and the landfill containment remedy are ready to start as soon as ongoing cleanup is completed at other FUSRAP sites or the funding level is increased for the national program.

Tonawanda Landfill *Tonawanda, New York*

The Tonawanda Landfill is a vicinity property of the Linde Site. It is located in Tonawanda, New York, a suburb north of Buffalo. The vicinity property 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. It 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 increase above acceptable limits in the future if the surface of the landfill is allowed to erode as time passes.

In FY 2017, the Buffalo District released the Landfill OU ROD. The selected remedy is targeted shallow removal and off-site disposal of FUSRAP-related material. The selected remedy is ready to start as soon as ongoing cleanup is completed at other FUSRAP sites or the funding level is increased for the national program.

Harshaw Chemical Company Site *Cleveland, Ohio*

This 55-acre former 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. The Harshaw Site is currently unused and secured by the property owner.

In FY 2017, the Buffalo District continued to prepare a feasibility study addendum to incorporate results of additional groundwater investigations and drafted a proposed plan to present preferred remedial alternatives for the site. The feasibility study addendum and proposed plan will be finalized in FY 2018 with subsequent release to the public for comment.

Luckey Site *Luckey, Ohio*

The Luckey Site, a 40-acre privately owned site 24 miles southeast of Toledo, is 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, radionuclide, 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 cleanup contract in FY 2015 and prepared the cleanup work plans in FY 2016. In FY 2017, the Buffalo District conducted a public poster session to provide information regarding the planned cleanup. During this time, the cleanup contractor conducted necessary background soil and air sampling and monitoring, and began to mobilize equipment to the site and set up necessary cleanup infrastructure. In FY 2018 the cleanup contractor will complete site infrastructure setup activities, and begin excavation and off-site disposal of FUSRAP-contaminated soils.

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 had been 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 2017, the Buffalo District continued supplemental field sampling activities, prepared the draft remedial investigation report, and began internal team reviews. The Buffalo District will conduct additional sampling in FY 2018. The draft remedial investigation report will be updated to include the evaluation of the additional sampling results, and the final report is scheduled for completion in FY 2020.

Pittsburgh District

Shallow Land Disposal Area *Parks Township, Pennsylvania*

In January 2002, Section 8143 of Public Law 107-117 directed the Corps of Engineers to clean up radioactive waste at the Parks Township Shallow Land Disposal Area under FUSRAP. This 44-acre site located northeast of Pittsburgh consists of 10 trenches containing wastes from a facility that processed uranium and thorium.

In FY 2017, the Pittsburgh District awarded a new remediation contract. The contract was not implemented because protest actions were filed that required corrective action. The Pittsburgh District continued to perform site maintenance, monitoring, and security.

In FY 2018, the Pittsburgh District anticipates resolving all remaining contract protest actions and will begin drafting remediation work plans. The Pittsburgh District will continue to perform site maintenance, monitoring, and security.

Baltimore District

W.R. Grace at Curtis Bay Site

Baltimore, Maryland

From May 1956 through early 1957, thorium and rare earth elements were extracted from monazite sand at the site under an AEC license. This process occurred in the southwest quadrant of a 100-year-old, five-story manufacturing building (Building 23). Building 23 is still in active use by the property owner. Building components and equipment in the southwest quadrant of Building 23 exhibited residual radiological activity remaining from the monazite sand processing. Waste materials from the processing operations (termed gangue) were disposed of on-site in an area referred to as the Radioactive Waste Disposal Area (RWDA).

In April 2008, the U.S. entered into a site-wide settlement agreement with the site owner through the District of Delaware Bankruptcy Court. The agreement states that financial liability shall be shared between the site owner and the government in a 40/60 split. The site owner has the lead to contract, manage, and direct the site cleanup according to the final ROD for Building 23 and the ROD for the RWDA, which were signed in 2005 and 2011.

In FY 2017, the Baltimore District, in coordination with the site owner, completed a re-evaluation of the effectiveness of the current remedy being implemented at Building 23. They determined that partial demolition of Building 23 is a more cost effective remedy, and provides the same level of protectiveness.

In FY 2018, based on the engineering review, the team is preparing design drawings and specifications to complete a partial building demolition at Building 23. Additionally, the Baltimore District will draft an amended ROD and present it to the public with the revised remedy.

New England District

Combustion Engineering Site

Windsor, Connecticut

The Combustion Engineering Site, located in Hartford County eight miles north of Hartford, was a 600-acre research, development, engineering, production, and servicing facility for nuclear fuels, systems, and services from the mid-1950s through 2000. In FY 2012, Combustion Engineering completed the cleanup of FUSRAP-related material at the site. The cleanup was performed by the site owner as part of ongoing Nuclear Regulatory Commission (NRC) decommissioning work leading toward license termination and unrestricted release in accordance with License Termination Rule at 10 CFR Part 20, Subpart E.

During FY 2017, the New England District continued the process of transferring site administrative controls and file records management responsibilities to the DOE Office of Legacy Management for long-term stewardship. The district will continue the process through FY 2018 and complete the transfer in FY 2019.

Shpack Landfill

Norton/Attleboro, Massachusetts

In FY 2012, the New England District completed the FUSRAP cleanup at the Shpack Landfill Superfund Site, an eight-acre abandoned domestic and industrial landfill approximately 40 miles southwest of Boston. The New England District completed a closeout report for the site in FY 2016. The site was delisted from the EPA National Priority List in September 2017.

In FY 2017 (and continuing through FY 2018), the New England District continued the process of transferring site administrative controls and file records management responsibilities to the DOE Office of Legacy Management for long-term stewardship by FY 2019.



New York District

Maywood Chemical Superfund Site

Maywood, New Jersey

This site is a combination of 92 private and government-owned properties approximately 13 miles northeast of Newark, New Jersey, in the boroughs of Maywood and Lodi and the township of Rochelle Park. It is a National Priorities List site.

Contamination at the properties resulted from rare earths and thorium processing activities conducted at the Maywood Chemical Works from the early 1900s through 1959.

In FY 2017, the district continued addressing FUSRAP contamination consistent with the soils and groundwater RODs with 45,756 cubic yards of FUSRAP-related material removed and transported off-site for disposal. This included completing cleanup at a commercial property (an assisted living facility and short-term rehabilitation center) in Rochelle Park, completing cleanup at a community park in Lodi, and continuing cleanup at two large commercial properties (a former Sears warehouse and the Stepan Company Property) in Maywood. The district also prepared two deed notices consistent with the Maywood Site's *Land Use Control Implementation Plan*.



**FUSRAP
survey of
removed
foundation
slab sections
at a demolished
commercial warehouse
in Maywood, New Jersey**

In FY 2018, the district plans to continue cleaning up soils consistent with the soils and groundwater RODs, cleaning up commercial properties (former Sears and Stepan), and issue more deed notices at properties where inaccessible soils remain in place.

Middlesex Municipal Landfill

Middlesex, New Jersey

The Middlesex Municipal Landfill is a 37-acre site approximately 16 miles southwest of Newark. It consists of parcels belonging to the Borough of Middlesex and the Middlesex Presbyterian Church.

The Middlesex Municipal Landfill was operated as a landfill from approximately 1940 through 1972. The landfill was closed following the regulations at the time and maintained with a minimum cover of two feet and establishment of vegetation. Since its closure, the site has not been developed.

A 2008 radiological survey of the site identified small areas of low-level surface radiation leading the DOE to refer it to the Corps of Engineers in March 2009 for investigation under FUSRAP. The New York District conducted a preliminary assessment and site inspection in FY 2011. Based on results of the preliminary assessment and site inspection, the district recommended a remedial investigation for the site under FUSRAP. In 2014, the Middlesex Municipal Landfill was officially added to the program.

FY 2017 funding was used to initiate the feasibility study. FY 2018 funding will be used to complete the feasibility study and initiate the proposed plan.

Middlesex Sampling Plant

Middlesex, New Jersey

The Middlesex Sampling Plant (MSP) is a 9.6-acre, federally owned site in Middlesex, New Jersey. The MED established the MSP in 1943 for sampling; storage; and shipment of uranium, thorium, and beryllium ores.

MED operations ended in 1955, and the AEC later used the site for storage and performed limited sampling of thorium residues. In 1967, the AEC terminated activities at the MSP and decontaminated on-site structures to meet criteria then in effect.

From 1969 to 1979, the site served as a U.S. Marine Corps training center. In 1980, the MSP was returned to the DOE, which designated it for cleanup under

FUSRAP. The MSP was used for interim storage of two piles of radioactively contaminated soils removed from vicinity properties and from the Middlesex Municipal Landfill. The Middlesex Site was added to the EPA's Superfund National Priorities List in FY 1999.

The New York District completed a ROD for soils in September 2005. Remedial action in accordance with this ROD was completed in FY 2008. Characterization of groundwater is ongoing, including a supplemental bedrock groundwater investigation to delineate the contamination boundary.

In FY 2017, the New York District completed the groundwater feasibility study.

In FY 2018, the district plans to complete the groundwater proposed plan and initiate the ROD.

Colonie Site

Colonie, New York

The former 11.2-acre National Lead Industries Site, now called the Colonie Site, was used for electroplating and manufacturing various components using uranium and thorium. Radioactive materials released from the plant exhaust stacks spread to site buildings, portions of the grounds, and 56 commercial and residential vicinity properties.

In FY 2017, the New York District prepared and issued a proposed plan and ROD for the vicinity property OU, transferred responsibility for completion of a site management plan for the main site soils to the DOE Office of Legacy Management, prepared a five-year review of the groundwater ROD, and performed records retention in preparation for transfer back to the landowner (DOE).

In early FY 2018, the New York District issued the five-year review of the groundwater ROD and a *Groundwater 2016-2017 Monitored Natural Attenuation Report*. Release of the *Site Closure Plan* for the Colonie Site is planned later in FY 2018. Issuing the *Site Closure Plan* will start the transfer process back to the DOE Office of Legacy Management for long-term stewardship.

Sylvania Corning Plant

Hicksville, New York

The Sylvania Corning Plant is a 9.49-acre area located in the westernmost portion of Hicksville, Long Island, approximately 30 miles east of lower Manhattan. From 1952 to 1965, the Sylvania Corning Plant had contracts with the AEC for research, development, and production primarily in support of the government's nuclear weapons program. From 1952 to 1967, a second operation concentrated on AEC-licensed work primarily for the production of reactor fuel and other reactor core components. In September 2011, the site was included in a regional groundwater listing on the National Priorities List.

In FY 2017, the New York District completed a draft comprehensive site-wide remedial investigation report for regulatory review. The New York District plans to use FY 2018 funding to finalize the remedial investigation report.

Philadelphia District



DuPont Chambers Works

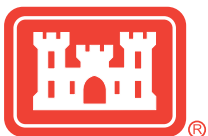
Deepwater, New Jersey

The DuPont Chambers Works FUSRAP Site is a 6.5-acre area located within the 680-acre Chambers Works property in Deepwater, New Jersey. The former DuPont Chambers Works property is currently an active chemical manufacturing facility owned and operated by The Chemours Company (formerly E.I. DuPont de Nemours and Company).

From 1942 to 1947, the MED and AEC contracted with DuPont to process uranium compounds and uranium scrap to produce uranium tetrafluoride, uranium hexafluoride, and a small quantity of uranium metal.

In FY 2017, the Philadelphia District awarded a new prime remediation contract and continued performing routine field maintenance and monitoring activities.

In FY 2018, the district plans to restart remediation activities.



Potential New Sites

The DOE determines eligibility of new sites for FUSRAP and 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.

The DOE has identified the Staten Island Warehouse Dock in Staten Island, New York, and the Wolff-Alport Chemical Corporation site in New York City as eligible for FUSRAP designation. The Corps of Engineers is currently considering whether to include them in the program. If any of these properties are designated

FUSRAP sites, they will be addressed when funding becomes available in the national program.

The *Formerly Utilized Sites Remedial Action Program Update*, EP 360-1-36, is published by the U.S. Army Corps of Engineers in accordance with U.S. House of Representatives Report 107-112, dated June 26, 2001, to accompany the Energy and Water Development Appropriations Act 2002, Public Law 107-66.

For more information, please email eugene.a.pawlik@usace.army.mil or call 202-761-7690.

All Photos: U.S. Army Corps of Engineers

Cover top photo: Excavation of contaminated soils below the foundation of a demolished commercial warehouse in Maywood, New Jersey

Cover bottom photo: Field Engineer and health physicist coordination during a gamma walkover survey at the commercial warehouse property in Maywood, New Jersey



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