



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



March 2004

Former Linde Site • Tonawanda New York

About FUSRAP

Congress established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 in response to concerns regarding past Manhattan Engineer District activities. The goal of FUSRAP is to clean up or contain the Manhattan Engineer District-related material so that the sites may be released for appropriate future use and to ensure protection of the public and the environment.

Site Description and History

The former Linde Site is located in the Town of Tonawanda, New York, which is just north of the city of Buffalo, New York. The 135-acre site was previously owned by the Linde Division of Union Carbide



and was used to process uranium ores under contract with the Manhattan Engineering District between 1942 and 1946. That activity resulted in residual radiological contamination at portions of the property.

In the 1950s, Linde facilities were decontaminated and cleaned in compliance with health and safety guidelines applicable at that time; some structures were demolished and many others were converted to other commercial uses.

The current owner is Praxair Inc. The Corporation uses its Tonawanda facility as its worldwide research and development facility. Praxair employs about 1,400 employees.

Adjacent properties include an elementary school, residential areas, a public park and golf course, railroad tracks, and industrial and commercial businesses.

The U.S. Army Corps of Engineers is managing cleanup of the radionuclides under the Formerly Utilized Sites Remedial Action Program (FUSRAP).



Installation of replacement utility tunnel north of Building 14.



Loading containers for shipment out of State.

Safety Precautions at the Site

Safety is the number one priority of the Corps and its contractors.

Before any work is allowed to begin, a detailed Health and Safety and Emergency Response Plan is developed to protect on-site personnel and visitors from physical harm and exposure to hazardous materials. The Health and Safety and Emergency Response Plan is used in conjunction with Activity Hazard Analyses and serves as the site specific Safety and Health Plan, Radiation Protection Plan, Accident Prevention Plan, Emergency Response Plan, Emergency Action Plan, Contingency Plan, and Fire Prevention Plan. Strict enforcement of these plans is a requirement.

We have monitored our workers and the surrounding environment since 1997. Routine radiological surveys are performed throughout the site on a daily basis and confirm there has been no measurable offsite release of radiological contamination. Our environmental surveillance includes continuous high volume air monitoring around the perimeter of the site, including one on the roof of the Holmes Elementary School and a background sampler located at the Sheridan Park water tower. We plan to continue air monitoring through the conclusion of our remedial activities.



An example of precise excavation methods being utilized.



Restoration of a completed excavation area.

Linde Soils Clean Up Continues

The U.S. Army Corps of Engineers (USACE) issued a Record of Decision (ROD) to clean up radiologically contaminated soils in March 2000. The selected remedy is supported by the community, is fully protective of human health and the environment and complies with Federal and State requirements. Principal radionuclides of concern are uranium, thorium, and radium.

Remedial action began at the site in 2000 and is scheduled to be completed in 2006. The USACE has removed five buildings and over 165,000 tons (85,000 cubic yards) of material from the site to date. About 39,000 tons (20,000 cubic yards) of material remain to be removed based on current estimates.

Excavated materials are sent off-site for recycling and disposal at licensed facilities outside of New York State.

We began restoring completed areas in April 2002. Since then, over 85,000 cubic yards of backfill has been placed to restore excavated areas. Additional material will be placed as areas are cleared and made ready for restoration.

We are proud of our success and safety record at the site. Our soils remedial action contractor has been on site for over 1,700 days and recorded over 460,000 man-hours without a lost time accident. In addition, our environmental monitoring confirms there has been no measurable off site release of radiological contamination.

Other Operable Units

In addition to our soils remedial activities, the U.S. Army Corps of Engineers is evaluating other operable units, which include Building 14 Groundwater, and the Tonawanda Landfill and Mudflats Vicinity Property.

Linde Building 14 Dismantling to Begin in April

Linde Building 14 was used for laboratory and pilot studies for uranium separation in the early part of Manhattan Engineering District activities. The building is currently used by Praxair for research activities and office space. Analysis confirms that workers have been safe working inside of the building.

Specific areas of radiological contamination do exist within Building 14 that exceed Federal and State requirements that are applicable or relevant and appropriate. These areas are generally inaccessible and removal would affect the structural integrity of the building (such as the removal of soils beneath concrete floors, in drain lines, under load bearing walls etc.) It has been demonstrated that removal of the building provides the greatest certainty of success in meeting long term remediation goals for the site.

In April 2003, the U.S. Army Corps of Engineers issued a Record of Decision to remove Building 14. The selected plan is fully protective of human health and the environment and complies with Federal and State requirements and meets community commitments.

A safe and methodical dismantling of the building is planned to begin in April 2004. Removal of debris should be completed in the fall of 2004. Our careful planning will promote safe execution with no health impacts to our workers or the general public.



Building 14, slated to be dismantled and removed beginning April 2004.

Status on the Linde Groundwater Investigation

The U.S. Army Corps of Engineers is investigating Linde groundwater conditions. Sampling data collected from depths ranging from 20 to 150 feet below ground surface is being used to determine the impacts of disposal of Manhattan Engineering District related liquids that were injected into the deep aquifer in the 1940s. This data will be used to determine if any further action is required. Groundwater investigation activities are coordinated with Federal and State regulators to ensure all agency concerns are addressed. The groundwater investigation report is scheduled to be released in 2004.



Well Installation Activities - February 2001

Status of Linde Vicinity Property Investigation Tonawanda Landfill/Mudflats

The U.S. Army Corps of Engineers is finalizing its investigations at a designated vicinity property located about 1.2 miles north of the Linde (Praxair) facility. The Tonawanda Landfill and Mudflats Area is about 170 acres and is owned by the Town of Tonawanda, and borders the city of Tonawanda.

Investigations have included sampling and analysis of soil, sediment, surface water, subsurface groundwater and a radiological baseline risk assessment. The Remedial Investigation Report for this site should be released to the public by summer 2004.

Administrative Record File

The U.S. Army Corps of Engineers maintains an Administrative Record File, which contains documents that form the basis for the selection of response actions at the Tonawanda Sites.

We maintain the file at two locations for the convenience of the public. You can either review the file at the Tonawanda Public Library, or visit the USACE office record location (please call ahead for an appointment).

The Administrative Record is available for viewing at the following locations:

U.S. Army Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207
FUSRAP: 1(800)833-6390

Tonawanda Public Library
333 Main Street
Tonawanda, New York 14150

Contact us for more information

The U.S. Army Corps of Engineers has developed a specific mailing list for the different Tonawanda sites to inform those who have expressed interest of new developments as they occur. If you would like to be included on our mailing lists, please let us know.

We have established a toll-free public access number to answer any questions pertaining to the project. If you have questions, please do not hesitate to call us at: 1-800-833-6390

We also maintain a public website to inform the public of recent activities. Please feel free to visit our website at:
<http://www.lrb.usace.army.mil/fusrap> to learn more about FUSRAP, our sites, or radiation.

Electronic mail can be sent to us at:
fusrap@usace.army.mil

We appreciate your involvement and if you have any questions or suggestions, please let us know.

You can write to us at:

U.S. Army Engineer District - Buffalo
1776 Niagara Street
Buffalo, NY 14207

ATTN: FUSRAP



This is one in a series of project updates that provide information about regulatory, technical, and other issues related to the Formerly Utilized Sites Remedial Action Program (FUSRAP). This fact sheet discusses current site status Remedial Action work being conducted at the former Linde FUSRAP Site.