

Frequently Asked Questions (FAQs)

Former Lake Ontario Ordnance Works and Niagara Falls Storage Sites Towns of Lewiston and Porter, New York

Last updated March 2004

General Questions

1. Where are the Lake Ontario Ordnance Works (LOOW) and Niagara Falls Storage Sites (NFSS) located?

The sites are co-located on Pletcher Road in the Towns of Lewiston and Porter (Niagara County) in northwestern New York, about 19 miles northwest of Buffalo and 10 miles north of the City of Niagara Falls. NFSS is located on part of the former LOOW, a site developed for producing explosives during World War II.

2. How big are the sites?

The Niagara Falls Storage Site consists of 191 acres that is owned by the Federal government and is located within the original 7500-acre Lake Ontario Ordnance Works boundary. The 10-acre waste containment structure that contains radioactive residues is located within the NFSS. Please see the site map at <http://www.lrb.usace.army.mil/derpfuds/loow/sitemap.jpg>.

3. What is on the sites and what is the status of the cleanup and site ownership?

In 1944, the NFSS was used by the Manhattan Engineer District for storing low-level radioactive residues and wastes from uranium ore processing conducted during the development of the atomic bomb. Until the late 1950's, additional radioactive residues and wastes were brought to the site for storage. Three buildings remain on the 191-acre site: Building 401 and two maintenance buildings. Building 401 contains some fixed, low-level radioactive contamination and may contain chemical contamination. It was remediated for asbestos contamination in 2003. Building 401 was used as the powerhouse for the TNT plant at the Lake Ontario Ordnance Works in 1943. It was only in operation for a year until TNT was in excess production. From 1953-59 and 1965-71, the building was used to manufacture Boron-10, which is not radioactive. Building 401 is currently structurally sound and has been secured to prevent trespassing. Building 403 was a fire system building that had a hose-drying tower. It was later used as a radiological laboratory. Building 403 was decontaminated as a preventative maintenance measure in 1998 and was demolished in August 2000. In 1952, drums containing high activity, low-level radioactive residues (K-65) were stored in a silo, which has since been demolished. The Department of Energy relocated the residues in the 1980's and they were placed in an engineered waste containment structure that is about 10-acres in size. The containment structure was constructed in two phases in 1986 and 1991. There are about 260,000 cubic yards of material stored at the site, of which only approximately 4,000 cubic yards are K-65 high activity residue. NFSS is currently United States Government property.

The LOOW site has two primary components other than the NFSS – the 2,500-acre developed area on the east side of the former LOOW, which was used in the early 1940s for manufacturing of trinitrotoluene during World War II; and approximately 5,000 acres that were left undeveloped, presumably to allow for expansion, which never occurred. That property was declared excess and resold. Current landowners include Lewiston-Porter Schools, local and federal governments, general residential developers, and private corporations. Presently, there are numerous

underground pipelines/utilities that may contain contaminated material and buried drums containing acetone and other organic compounds in portions of the property currently owned by Chemical Waste Management. The Corps is investigating the possible presence of TNT in the pipes and sumps at a former Wastewater Treatment Plant, has completed an interim removal action of surface crystalline TNT along the former TNT lines and is developing a report to recommend further action.

For further information, please see the individual site fact sheets on the LOOW and NFSS Public Information Websites at:

- <http://www.lrb.usace.army.mil/fusrap/nfss/nfssdocs.htm>
- <http://www.lrb.usace.army.mil/derpfuds/loow/docs.htm>

4. Has the government acknowledged the full extent of contamination at LOOW and NFSS?

For both sites, the Corps is currently conducting investigations to identify and quantify the full breadth of current, on-site contamination. We will not know the full breadth of contamination until we have finished collecting and assessing this data. NFSS, and portions of LOOW have undergone several cleanups over the years. The Corps is striving to use the best, most current data to accurately represent remaining site contamination.

5. Under what programs are the LOOW and NFSS being addressed?

The former LOOW site is being addressed under the Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS), which addresses environmental damage caused by Department of Defense (DoD) activities. The program is used to clean up property that was once owned or used by DoD, but is no longer owned by the DoD.

The NFSS is being addressed under FUSRAP, or the Formerly Utilized Sites Remedial Action Program, initiated in 1974 to identify, investigate and clean up or control sites that were part of the Nation's early atomic energy program. Activities at these sites were performed in the 1940s, 1950s and 1960s by the Manhattan Engineer District (MED) between 1944-1946 or under the Atomic Energy Commission (AEC) between 1947-1975. Both the MED and the AEC were predecessors to the U.S. Department of Energy (DOE). In 1997, Congress transferred the responsibility for the program from the DOE to the U.S. Army Corps of Engineers (USACE). The goal of FUSRAP is to clean up or contain the MED- or AEC-related radioactive material so that the sites may be released for appropriate future use and to ensure the protection of human health and the environment. The NFSS was included in FUSRAP because historical information indicates that radioactive storage resulting from government activity occurred in this area.

It should be noted that DERP-FUDS and FUSRAP have different funding sources and criteria.

6. What is the specific responsibility of the Corps at the Niagara Falls Storage Site?

As mandated by the United States Congress, the U.S. Army Corps of Engineers is using the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process to thoroughly investigate the extent of both chemical and radiological contamination at the NFSS. Throughout this process, we will work with regulatory agencies, stakeholders and the public to propose, develop and implement plans to achieve a cleanup that ensures protection of human health and safety and the environment, and restores the site for appropriate future use.

7. Are the Lewiston-Porter schools contaminated?

The Corps has no evidence of radioactive contamination from DoD activities at the school. The recent background radiation study (History Search Report, prepared for the U.S. Army Corps of Engineers, Baltimore District by EA Engineering, Science and Technology, August 1998, available in the Administrative Record File) supports this conclusion. The Corps also took some background soil samples on the school property, and analyzed them for metals and organic

compounds. This study was completed to support the Niagara Falls Storage Site (NFSS) work, conducted under the Formerly Utilized Sites Remedial Action Plan (FUSRAP). We presented the results of this background soil sampling at the June 2001 LOOW Restoration Advisory Board (RAB) meeting (for further information, please see fact sheet, "Investigation of Lewiston-Porter School Property," dated June 2001). The only significant findings of these background samples were that lead and arsenic are above the NY State background concentration of lead and arsenic in residential soils. The concentrations of lead, while slightly elevated above background, are below the level that the USEPA has found to be acceptable for a child's play area (as per TOSC regulation, 40 CFR Part 745: Lead; Identification of Dangerous Levels of Lead; Final Rule). According to information provided by the NYDOH, the levels of arsenic are comparable to levels of arsenic found in old fruit orchards in this part of New York State. Arsenic has not been found in elevated concentrations on the LOOW site; therefore, it cannot be migrating from the LOOW site onto the school property.

History/Sampling Questions

1. Does the Corps have complete knowledge about the historic uses of the LOOW and NFSS properties?

Many written records and historical information available to us are incomplete. We have interviewed former workers and residents about their memories and past experiences, and we will continue to do this as new contacts are made. We are always grateful for citations, copies of reports, articles, maps and other historical information provided by community members.

2. What was the role of the U.S. Department of Energy (DOE) at the NFSS site?

The Department of Energy operated the Niagara Falls Storage Site before 1997, at which time the Corps of Engineers was given responsibility for FUSRAP remediation. The DOE constructed the waste containment structure in the 1980s and installed an interim cap over it that contains three feet of compacted clay, topped by one foot of fill, and 6 inches of topsoil. The thickness of the cap was calculated based on the percolation rate of radon, such that by the time radon percolates through the cap it is harmless. DOE proposed a long-term cap as a final remedy. USEPA objected to the long-term cap, and the National Academy of Science was tasked to do a study. The National Academy of Science Report was prepared in 1995 to address the safety of the high activity residues at the site. The report emphasized that the present (interim) cap is considered safe for 25-50 years (i.e. expectancy for 25-year life is 2011). The Corps is conducting an ongoing remedial investigation that will evaluate both radioactive wastes and chemical contamination onsite. Radiological investigation of two open vicinity properties will be conducted in future phases of the work.

3. What process is the Corps using to evaluate the sites?

The Corps of Engineers follows the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) at both LOOW and NFSS. This process involves several steps, such as a Remedial Investigation / Feasibility Study (RI/FS) phase and development of a Proposed Plan and Record of Decision before doing site cleanup. The remedial investigation will involve: identifying on-site contaminants, determining the extent of contamination, determining potential risk to people and the environment, and determining how long chemicals will persist in the environment and where they may move within the environment. The feasibility study will identify possible technologies for cleaning up the site and evaluate each technology for: protection of human health, compliance with regulations, long and short-term effectiveness, reductions of toxicity/mobility, implementability, cost, and acceptance by the state and the public. The proposed final remedy is specified in the proposed plan. The proposed plan is then open for public review and comment.

The tasks at NFSS include: performing the RI/FS, remediating the Waste Containment Structure, cleaning up the remaining surface soil that is contaminated (radiological), determining

whether there is on-site chemical contamination, and if so, cleaning up, decontaminating and demolishing contaminated buildings. The Corps has many issues to address and acknowledges that experts disagree about removal vs. in-place management of the high activity K-65 residues. The Corps has created a team that has examined the issues, held several meetings with the public and has prepared and awarded the scope of work for the Remedial Investigation and portions of the Feasibility Study. The Remedial Investigation of NFSS is nearly complete and building 403 has been decontaminated and demolished. The site will continue to be maintained and monitored and findings will continue to be reported.

When the Corps studies are complete, we will know if any landfills can take the material, if disposal without treatment is possible, if chemical contamination exists on site, if surrounding landfills impact the subsurface and if chemical surveillance parameters and test frequency must be expanded. We will also know if surface soils must be remediated, if residues can be recycled and how quickly remediation must be started based on the safety and effective life of the current cap. The current NFSS schedule includes completing the Remedial Investigation by April 2004. The Feasibility Study began in April 2001 and will be completed by December 2005. Dates for preparation of the Proposed Plan and the Record of Decision will be contingent upon RI/FS findings.

At the LOOW site, a historical archive search was conducted in 1997 to review the available information regarding past operations and investigations. The search is documented in the *LOOW History Search Report*, available in the Administrative Record File. The Corps completed two phases of a Remedial Investigation, to study areas of the former LOOW that were identified in the historical records as possibly containing contamination from past DoD activities, and areas where investigations were previously performed but for which data gaps remained. The remaining RI tasks include a risk assessment, to determine if any areas of the site already investigated pose unacceptable risk to human health and the environment or warrant further investigation; completion of the report resulting from the Preliminary Assessment/Site Inspection (PA/SI) of the Small Bermed Clearings (SBCs) discovered through historical aerial photography analysis; and investigation of the underground pipelines and utilities.

4. What sorts of radionuclides are on-site?

Historical records indicate that thorium and radium (which generates radon) are present within the cell. The three-foot deep clay cap retards radon percolation until the radon has disintegrated, and periodic tests on the surface indicate that it is below background.

5. How about cesium or plutonium?

We have found cesium (well below action levels) but no plutonium.

6. What about the groundwater flow?

A groundwater model is being developed to determine the path that contaminants would take if there were a release. The regional groundwater flow direction is northwest to Lake Ontario. Available regional information indicates that no one uses well water, due to low yield and high natural mineralization. If you have any information about residents using well water, please contact us at 1-800-833-6390.

7. When you characterized the palletized waste from NFSS Building 401, what did you find?

The palletized waste included material that was generated when the USDOE cleaned up Building 401. Old lockers, several contaminated beams, Tyvek suits and gloves were removed. About 99% of the waste is construction debris with very little or no radioactive contamination. The radiological waste was segregated, and radiologically contaminated material was sent for disposal at an appropriately licensed site in Utah.

8. Was the NFSS Building 403 demolition debris disposed of off-site or on-site?

Clean debris went to Erie, Pennsylvania, and debris that had any radioactivity above background went to Envirocare in Utah.

9. Since the NFSS was a storage site for radioactive waste, was LOOW or NFSS a production area for biological and radiological materials?

Chemical and biological weapons were stored in the area of the LOOW site known as North East Chemical Warfare Depot (area north of Balmer Road currently owned by the Army National Guard). This material has long since been removed. No chemical or biological weapons were ever produced on the site. (For further information, please see the History Search Report, prepared for the U.S. Army Corps of Engineers, Baltimore District by EA Engineering, Science and Technology, August 1998, available in the Administrative Record File.) Radiological materials were stored, but not produced, on LOOW or NFSS.

10. Have elevated levels of radon been discovered in the northeast corner of the Lewiston-Porter schools?

As part of the NFSS Environmental Surveillance Program, the Corps maintains a background radon monitoring location near the center of the Lewiston-Porter school property. The radon results have all been normal at the school monitoring location.

11. Have radioactive materials moved off LOOW or NFSS?

The Corps noted that no material from the interim waste containment structure (IWCS) had migrated (moved) off NFSS; indeed soil and groundwater tests have confirmed that no radioactive materials have moved out of the WCS. We have never asserted that waste was not intentionally moved off site for disposal or storage at other sites. Considerable intentional transport of waste has occurred, including the steel drums that were transferred to Painesville. The Corps' mission is to quantify contaminants that remain on site and to clean them up. We are not focusing on waste that has already been removed.

12. If the Corps is not authorized to answer questions about health risks, then why did they present the results of the gamma walkover at the Lewiston-Porter school and say that no hazard to the public was found?

A risk assessment is a little different than a public health assessment (study). The risk assessments that the Corps conducts at DERP-FUDS and FUSRAP sites, such as LOOW and NFSS, follow the USEPA's Risk Assessment Guidance for Superfund sites. The Corps is responsible for determining the nature and extent of contamination to determine if and how people may ever be exposed to the contamination at the site, under both current and future conditions. From these present and projected future exposure assessments, the Corps evaluates the potential for harmful health effects to occur. The primary purpose of a risk assessment is to determine whether or not an area of contamination poses an unacceptable risk to the public. If the risk of potential human health effects is unacceptable, then this risk assessment information is used to devise a solution that will reduce this risk. This can be done by (1) treating or removing the contamination, or by (2) ensuring that no one becomes exposed. A public health assessment can only be conducted by an agency with a mandate to do so, such as the NYDOH, or the federal Agency for Toxic Substances and Disease Registry (ATSDR), which is part of the U.S. Department of Health and Human Services. The U.S. Army Corps of Engineers does not have a Congressional mandate to do a public health assessment, only to do risk assessments that support remedial action decisions at the hazardous waste sites that it is responsible for managing. A public health assessment (as conducted by ATSDR) begins with an exposure assessment, in order to determine whether or not people are actually being exposed to contamination from a hazardous waste site. If there is no route of exposure from the waste site, then the public health assessment does not progress any further.

The public health assessment is more focused on actual, rather than potential health effects, to the existing community. A full public health assessment may include the results of medical, toxicologic, and epidemiologic studies and the data collected in disease registries.

13. How were sites chosen to represent background for radiation in soils?

There are two sites chosen for this purpose – the National Guard Training Site and the Lew-Port School property. They were chosen because records indicate that no radiological activities have taken place in the survey areas. According to Corps health physicists, radiation levels observed were typical for regional geology and for types of surfaces surveyed (soil, concrete, and gravel). During the Remedial Investigation, the Corps took many background samples on and around the LOOW and NFSS properties.

14. Do you have reports from Bechtel National, prime contractor to the USDOE?

These reports are easily accessible in the Administrative Record File (located at the Lewiston Public Library, 305 South Eighth Street, Lewiston, NY; Youngstown Free Library, 240 Lockport St., Youngstown, NY; and the Buffalo District office of the U.S. Army Corps of Engineers at 1776 Niagara St., Buffalo, NY).

Rochester Burial Area

1. There are rumors that there are contaminated animal carcasses buried in the Rochester Burial Area (on Vicinity Property G) from former radiological testing at the University of Rochester.

We performed geophysical studies on this property to detect whether there are any buried materials there, and trenched around all anomalies. There are no buried animals in these areas. The anomalies were soil fill and historic lab debris that had no radioactivity associated with them.

2. I've also heard rumors about a train being buried there.

We have done metal scans as part of our investigation. We have not picked up anything that sizeable and do not believe that a train is buried at the site.

Waste Containment Structure

1. How is the waste containment structure maintained to prevent radon emissions?

The waste containment cell is regularly mowed and irrigated to ensure no cracking of the clay cap occurs. Also, as part of the annual surveillance program, the radon emissions from the cap are measured and have remained below background.

3. Will the geophysical study of the cap help determine the remaining lifetime of it?

Yes, it will help determine both the lifetime of the cap and the base of the waste containment structure. It will also help determine the impact of potential threats to the cap.

4. Will the geophysical means of investigation indicate to you the status of the cell that contains the radioactive residues?

Yes. To determine if the cell would be susceptible to an earthquake, seismic surveys were performed. The investigation found no seismic faults in the area. It also told us that there was no pooled water underneath, which tells us that the landfill clay cap is working as designed.

5. What is the current determination of the cap life?

The U.S. Department of Energy had actually said 25-50 years – the 25-year lifespan concludes in 2011. We inspect the cap and monitor its condition each day, ensuring that no cracks or other breaches have occurred in the three-foot thick clay, and that the grass cover is well maintained and hydrated.

6. When constructing the original cap, the USDOE predicted cell life was up to fifty years. USDOE predicted that by adding four more feet of clay and gravel on top that they could extend it actually to 200 to 1,000 years. Did the USDOE add to the cell?

The answer is no. Three feet of clay still exists, and more material was added onto the cap in 1991. The Department of Energy cut into the top foot of compacted clay, placed the material on top, and then placed more compacted clay on top of that. The DOE was initially considering a permanent cap, which included stone coverage atop the landfill cap. However, due to the objections of the USEPA, DOE agreed not to make the cap permanent until all options were considered. At this time, the Corps is evaluating all options for long-term management in the Feasibility Study, including the possibility of leaving the materials in place with a long-term cap, extracting the materials, then treating and disposing of them, and/or extracting materials and removing them for disposal at a properly licensed facility. The data collected from the Remedial Investigation will be used to properly evaluate the options during the Feasibility Study. A proposed, preferred alternative will, of course, take into consideration the protection of human health and the environment.

7. Is there a build-up of radon gas within the waste containment structure at the NFSS? Is the radon gas being released either intentionally through vents or through cap fissures?

Radon is slowly generated and begins to move through the 5-½ feet of soil covering the buried material. Radon has a half-life of 3.62 days. By the time it moves through all the soil to the surface, almost all of it is no longer radon – it is harmless.

8. I would like a health study to be conducted.

This is a good idea, but the Corps does not do health studies. We have no health personnel because we are not authorized by Congress to do health work. People with health concerns should contact the New York State Health Department at (518) 402-7550 or the Niagara County Health Department at (716) 439-7595. Additionally, you may call the U.S. Department of Labor's Energy Employees Occupational Illness Compensation Program at 1-866-888-3322. These contacts can provide information on the health studies that have been performed.

9. What is the function of the Restoration Advisory Board?

Restoration Advisory Boards (RABs) are the cornerstones to involving stakeholders in the cleanup process. RABs allow members of the community, the U.S. Army Corps of Engineers, other federal agencies, state regulatory agencies, and local governments to work together towards a common goal.

RABs are formed to become knowledgeable about and provide input to the Corps' environmental restoration program as it impacts a specific site. Stakeholders may raise peripheral issues, such as future land use, health and economic factors, but there are more appropriate forums in which to address those issues.

The LOOW RAB has several purposes. First, the RAB provides a forum to discuss and exchange information about the environmental restoration program. Second, the RAB gives stakeholders the opportunity to participate in the cleanup process and make their views known to decision-makers. The membership of the RAB reflects the diversity of the community and its range of perspectives. One of their most important roles is to serve as a liaison between the community and the government, to help the government understand the community's concerns and to help the community understand the cleanup process.

10. How can I get more information about the NFSS and LOOW sites?

The U.S. Army Corps of Engineers welcomes inquiries about the NFSS. Call us toll-free at 1-800-833-6390 with your questions or to be included on the site's mailing list to receive information about site activities, release of documents for public review and comment, and/or upcoming public meetings. By mail, contact us at: U.S. Army Corps of Engineers, 1776 Niagara St., Buffalo, NY 14207-3199. Also, reports and documents in the Administrative Record File may be viewed at the Lewiston Public Library, 305 South Eighth Street, Lewiston, NY; Youngstown Free Library,

240 Lockport St., Youngstown, NY; and the Buffalo District office of the U.S. Army Corps of Engineers at 1776 Niagara St., Buffalo, NY.

11. How can I become involved?

The Corps is committed to partnering with the community to effectively conduct environmental restoration. The Restoration Advisory Board (RAB) for LOOW serves as a forum for discussion and exchange of information between the Department of Defense and affected communities. It is an opportunity for stakeholders to have a voice and actively participate in the review of technical documents, to review restoration progress, and to provide individual advice to decision-makers regarding restoration activities. RAB membership is open to the public, and interested citizens can become involved by contacting RAB Membership Committee Chair Bill Choboy at 716-745-3400 or by email at: Billc313@yahoo.com.