



®

Lake Ontario Ordnance Works

Lewiston, New York

Phase IV Remedial Investigation Fact Sheet: Former Wastewater Treatment Plant

U.S. Army Corps of Engineers Buffalo District

Building Strong®

October 2011
Site Description

The Defense Environmental Restoration Program (DERP) for Formerly Used Defense Site (FUDS) - Lake Ontario Ordnance Works (LOOW) is a 7,500-acre site located in the towns of Lewiston and Porter, New York that was formerly used as a World War II trinitrotoluene (TNT) manufacturing facility (see Figure 1). The former wastewater treatment plant (WWTP) was comprised of several treatment structures that received sanitary, TNT processing, and acid processing wastes during operation of LOOW and other Department of Defense (DoD) facilities that operated subsequent to the closing of LOOW (see Figure 2 below). The current owner of the former WWTP is the Town of Lewiston. The town currently does not utilize the property for any particular operation. However, the town has taken the precautionary steps of securing the site by demolishing various unsecure pits and vaults, and erecting competent security fencing around the property.

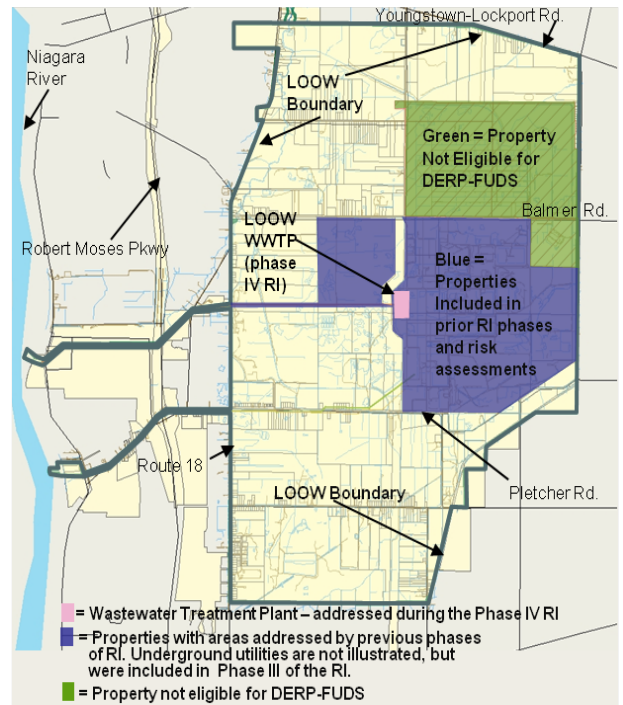


Figure 1: Former LOOW Site

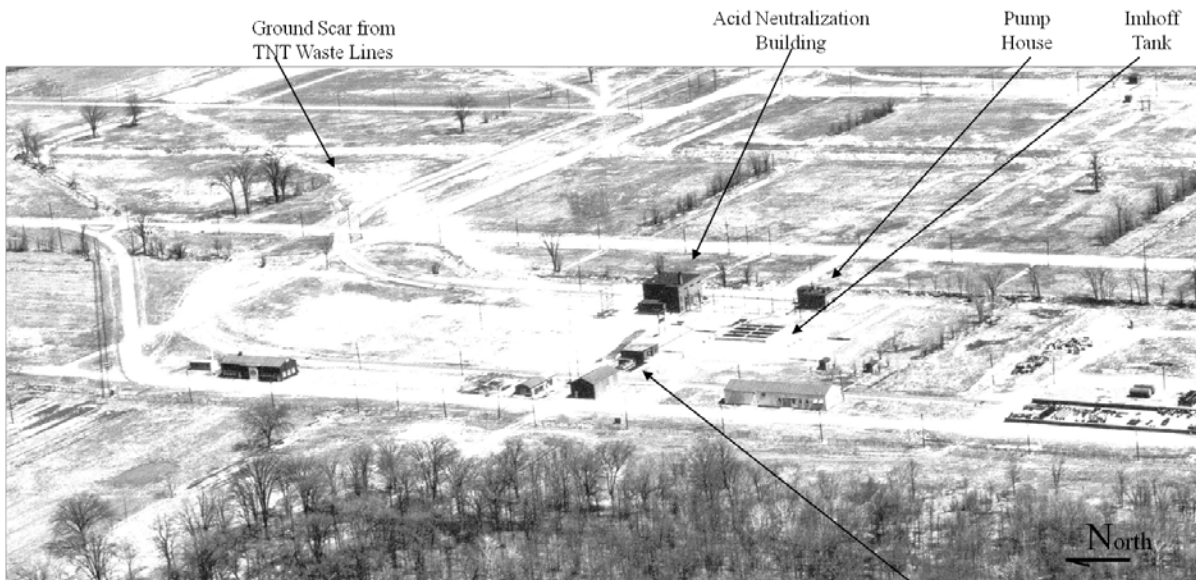


Image Source: NARA, Record Group 373, 16DPU-4M587-1320 - Lake Ontario Ord., N.Y. (N.E.), 1944.

Figure 2: Former LOOW WWTP - 1944

Phase IV Remedial Investigation (RI)

Scope

A Phase IV RI was recently completed to address the structures and the surroundings of the former WWTP. The intent of the Phase IV RI was to obtain analytical data that sufficiently characterized surface soil, subsurface soil, and groundwater across the former WWTP and in areas adjacent to former WWTP structures (Figure 3 on the next page). In addition, the analytical data were used to confirm whether there were chemicals in the vicinity of the former TNT waste lines, or whether a previously completed removal action was sufficient with regard to potential subsurface soil impact. In total, 45 soil borings were advanced. 86 soil samples and two sediment samples were collected and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (including polycyclic aromatic hydrocarbons [PAHs]), pesticides, polychlorinated biphenyls (PCB), explosives, and metals. The soil borings were distributed in both a systematic and location-specific fashion to investigate potential site-wide and structure-specific impacts to the environment.

In addition, three groundwater monitoring wells (MWs) were installed down gradient (based on regional groundwater flow) of the former acid neutralization building, the Imhoff tank, and the chlorination tank. Groundwater samples were collected and analyzed from each of the newly installed MWs.

Results

- The constituents detected in the environmental samples were compared to screening levels developed by the U.S. Environmental Protection Agency (USEPA) and New York State to be protective of human health and the environment. A comparison to naturally occurring levels of metals in soil and groundwater was also performed. Main findings from the research and investigations performed during the RI include: Results of the Phase IV RI indicate that DoD contaminants have not migrated from structures or pipelines to the surrounding soil.
- Of over 16,000 results obtained from 86 soil samples and 3 ground water samples, less than 1-percent exceeded both risk-based screening criteria (USEPA Regional Screening Levels and New York State Class GA water quality standards [groundwater]) and background levels.
- Constituents that exceeded screening criteria included: metals in surface soil, subsurface soil, and groundwater, volatile organic compounds (VOCs) in groundwater, and polycyclic aromatic hydrocarbons (PAHs) in surface soil and groundwater. These constituents were evaluated further in the Human Health Risk Assessment (HHRA) and Screening Level Environmental Risk Assessment (SLERA).

Phase IV RI – Risk Assessment

A risk assessment is an integral component of the RI within the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) framework. General information on how risk assessments are performed can be found in the September 2008 fact sheet entitled “Fact Sheet, Risk Assessment,” located at www.lrb.usace.army.mil/fusrap/docs/fusrap-fs-risk-2008-09.pdf. The risk assessment was performed in accordance with USEPA guidance.

The risk assessment was performed on the constituents listed above which exceeded screening levels. In addition, PCBs and PAHs were detected in sludge within underground utility lines at the WWTP property during a previous investigation of the underground utilities conducted between 2005 and 2007. These results were also incorporated into the risk assessment.

The objective of the risk assessment was to estimate the nature and probability of adverse effects on human health and the environment from exposure to chemicals at the site.

The risk assessment evaluated the potential sources of contamination, routes of migration, and exposure pathways that can occur now, or have a potential to occur in the future, at the WWTP.

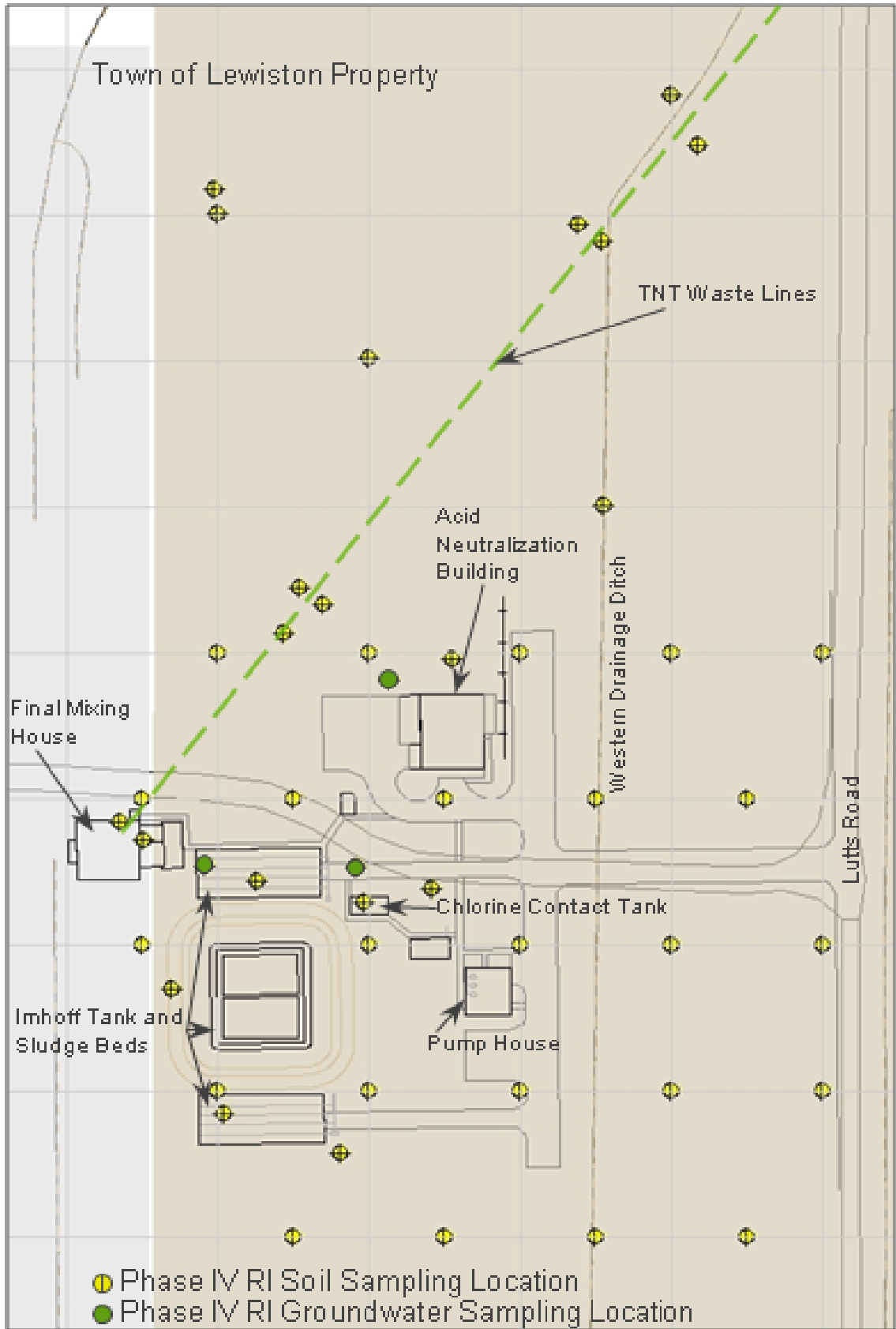


Figure 3: Phase IV RI Sampling Locations

Hypothetical human receptors evaluated in the HHRA included: adult trespasser, adolescent trespassers (6 to 12 years), commercial workers (i.e. work within a building), construction workers, operation/maintenance workers, adult resident, and child resident (0 to 6 years). The evaluation included potential current human receptors and potential future human receptors, and all results and conclusions are considered potential.

The media evaluated in the HHRA included surface soil (0 to 1 ft below ground surface), subsurface soil (below 1 ft), total soil (a mixture of surface and subsurface soil), groundwater, wastewater and sludge. The routes of exposure that were evaluated included some or all of the following: inhalation, ingestion, dermal contact, consumption of home grown produce, and consumption of game meat.

For the SLERA, surface soil was determined to be the only exposure medium for ecological receptors at the site. The SLERA indicated that the site did not contain sensitive environments or significant habitat (i.e., wetlands, presence of endangered species, etc.); and is not presently managed, nor expected to be managed for ecological purposes.

Phase IV RI and Risk Assessment Conclusions

- Based on the HHRA, there are no identified impacts related to human receptors associated with the former TNT lines.
- The HHRA identified elevated risks for hypothetical residential exposure to PAHs in soil and sludge, and to PCBs (Aroclor 1254) in sludge. (Future land use for residential development is unlikely due to land-use restrictions imposed by New York State Department of Health (NYSDOH), dating before the acquisition of the WWTP in 1975, which specify that the property cannot be used for residential purposes, schools, and hospitals, but may be used for industrial or commercial activities.)
- The HHRA identified elevated risks for construction worker exposure to PAHs and PCBs (Aroclor 1254) in sludge contained within various former WWTP structures. The risks for construction workers should be further evaluated in the feasibility study phase of this investigation.
- Based on the SLERA, there are no identified impacts to ecological receptors associated with the former WWTP.

Next Step

The recommended path forward for the former WWTP will be based on conclusions from the RI and the risk assessment. Both a no further action recommendation and Feasibility Study recommendation will be considered.

Administrative Record File

The Administrative Record File for the former LOOW Site contains the full RI Report and other CERCLA-related documentation for the former LOOW RI. Reports and documents in the Administrative Record may be viewed at the following locations:

Electronic and Paper Versions

US Army Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207
(by appointment)

Electronic Version

Youngstown Free Library
240 Lockport Street
Youngstown, NY 14174
Phone: (716) 745-3555

Electronic Version

Town of Lewiston Public
Library
305 South 8th Street
Lewiston, NY 14092
Phone: (716) 754-4720

U.S. ARMY CORPS OF ENGINEERS – BUFFALO DISTRICT DERP FUDS TEAM

1776 NIAGARA STREET, BUFFALO, N.Y. 14207

Phone: 800-833-6390 (Option 4)

Email: derpfuds@usace.army.mil

Website: www.lrb.usace.army.mil/derpfuds/loow/index.htm