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# Lake Ontario Ordnance Works

Lewiston, New York

## Remedial Investigation Fact Sheet:

Occidental Chemical Corporation Property

### U.S. Army Corps of Engineers Buffalo District

May 2013

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### Site Description

The Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS) – Former Lake Ontario Ordnance Works (LOOW) (**Figure 1**) is a 7,500-acre property located in the towns of Lewiston and Porter, New York, that was used as a World War II trinitrotoluene (TNT) manufacturing facility.

The focus of this Remedial Investigation (RI) is the Occidental Chemical Corporation Property (OCCP) parcel (**Figure 1**); a 304-acre portion of the former LOOW. The parcel is bounded to the north by Balmer Road and to the east by the former LOOW wastewater treatment plant (WWTP). The OCCP is situated in what historically has been known as the Buffer Zone of the former LOOW. The Buffer Zone, or “undeveloped area”, refers to that area of the former LOOW where no manufacturing or development took place. No significant former Department of Defense (DoD) structures are located in this area, with the exception of a former fenced storage area. Besides these structures, various types of ground disturbances of unknown origin are visible in 1940s era aerial photographs of the buffer zone. The largely undeveloped buffer zone of the former LOOW (including the current OCCP) was transferred to the General Services Administration (GSA) in 1945 to be sold to private landowners. The Hooker Chemicals and Plastics Corporation (now the Occidental Chemical Corporation) purchased the land from a private landowner in 1975.

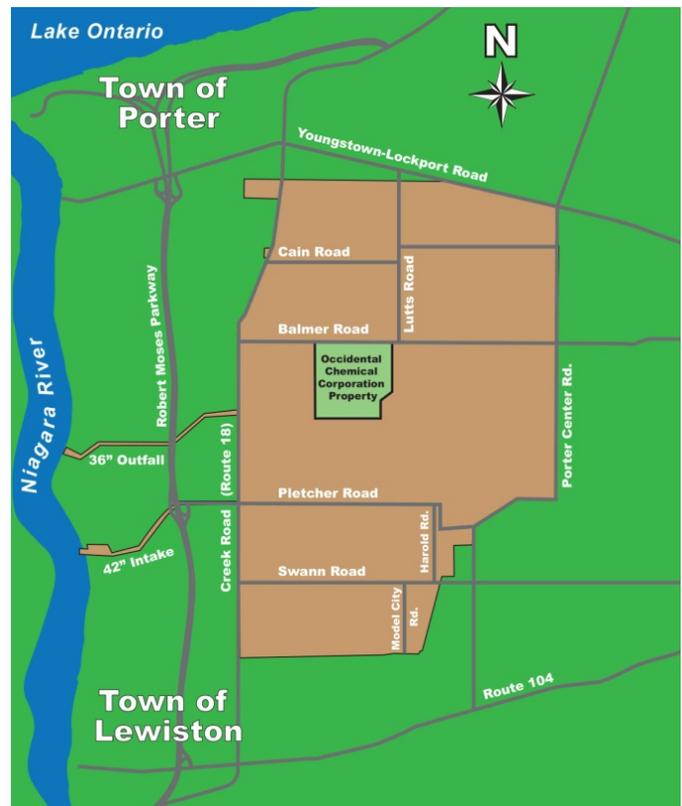


Figure 1: Former LOOW Site

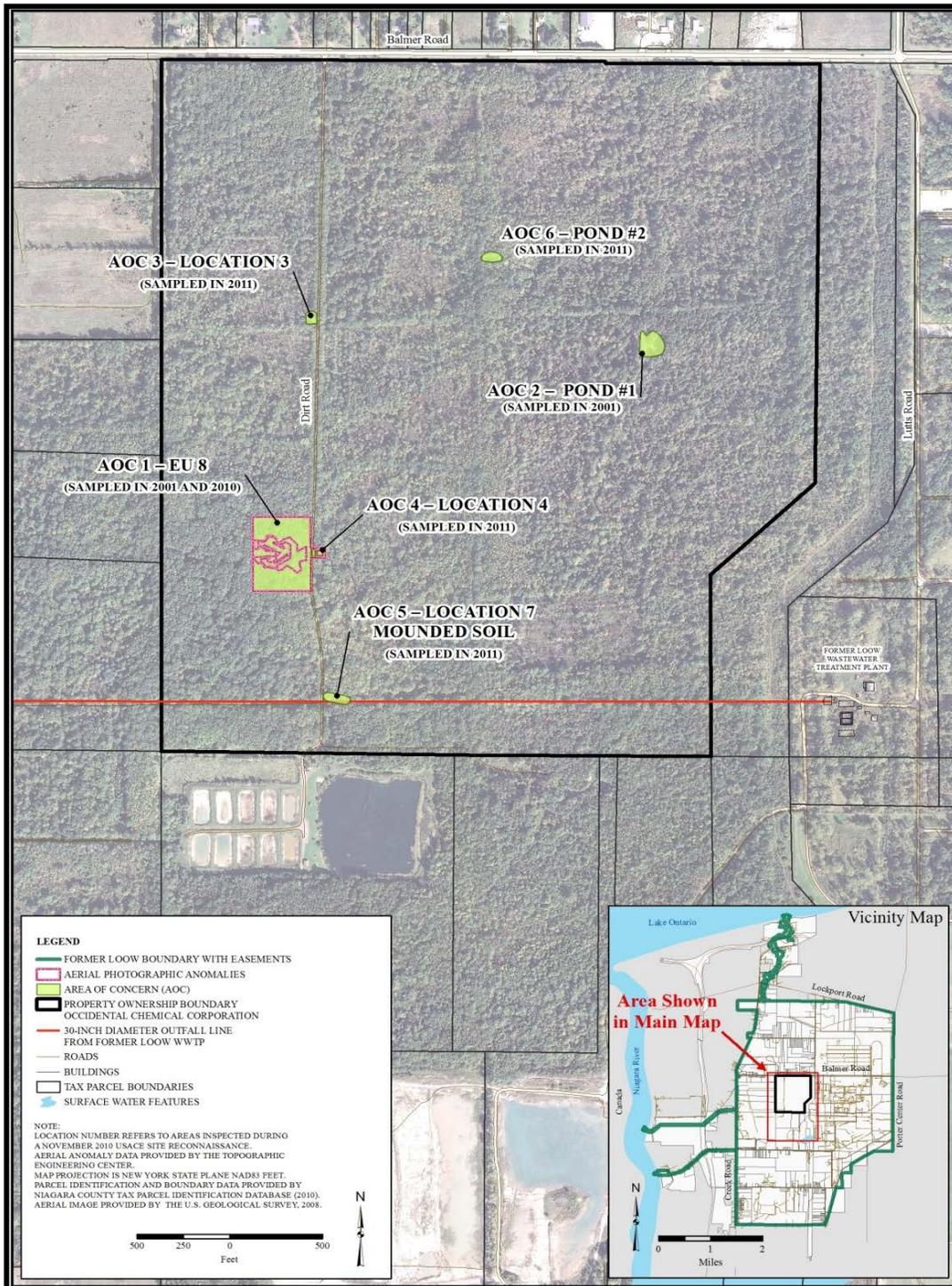


Figure 2: Occidental Chemical Corporation Property (OCCP) Investigation Areas

## OCCP Remedial Investigation (RI)

### Scope

Based on a historic aerial photo analysis (*Examination of Historical Aerial Photography – Selected Sites, Former LOOW* (U.S. Army Topographic Engineering Center [U.S. Army TEC], 2002), 39 ground disturbances or areas of interest (AOIs) were prioritized and preliminarily assessed for evidence of environmental impacts from former DoD operations. Based upon this preliminary assessment, six areas of concern (AOCs) were selected for investigation. These AOCs, labeled AOC 1 through AOC 6, contained the following features (**Figure 2**):

- AOC 1 – Former dump area identified by U.S. Army TEC as a “presumed storage area” (1944 aerial photograph) and “disturbed ground” (1951 aerial photograph)
- AOC 2 – Pond located in the eastern section of the site
- AOC 3 – Small dump area identified by the U.S. Army Corps of Engineers during site reconnaissance performed in 2010
- AOC 4 – Location of two buildings and a small structure that were identified by U.S. Army TEC (1944 aerial photograph)
- AOC 5 – Mounded material at the intersection of a dirt road and 30-inch outfall line that was identified by the Corps of Engineers during site reconnaissance performed in 2010
- AOC 6 – Pond located in the north-central section of the site

Between 2010 and 2011, investigation activities were performed at the six AOCs to characterize surface soil, subsurface soil, surface water, and sediment (**Figure 3**) for potential DoD-related contaminants. Laboratory analysis was performed on 51 surface soil, 26 subsurface soil, 3 surface water, and 3 sediment samples. The samples were analyzed for some or all of the following: Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), explosive residue, Target Analyte List (TAL) metals, boron, and lithium. Following laboratory analysis the analytical data was validated and evaluated against established project screening criteria.



Figure 3: Sampling at the Occidental Chemical Corporation Property (OCCP) – 2011

## Results

- Chemicals detected in the environmental samples were compared to human health and environmental screening levels developed by the U.S. Environmental Protection Agency (USEPA) and New York State. A comparison to naturally occurring levels of metals in soil, sediment, and surface water was also performed.
- Of over 10,000 results, approximately 1 percent exceeded both the screening levels and background levels.
- VOCs, SVOCs, explosive residue, and metals that exceeded the screening levels were evaluated further in a Human Health Risk Assessment (HHRA) and Screening Level Ecological Risk Assessment (SLERA).

## 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 June 2012 Risk Assessment Fact Sheet located at <http://www.lrb.usace.army.mil/Portals/45/docs/FUSRAP/FactSheets/fusrap-fs-risk-2012-06.pdf>. The risk assessment was performed for the chemicals listed above that exceeded screening levels and in accordance with USEPA guidance.

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 OCCP. The HHRA evaluated the hypothetical risk to the following potential current and future human receptors: adult trespassers, adolescent trespassers (6 to 12 years old), commercial workers (i.e. work within a building), construction workers, operation/maintenance workers, adult resident, and child resident (0 to 6 years old).

The media evaluated in the HHRA included surface soil (0 to 2 ft below ground surface), subsurface soil (down to 25 ft below ground surface), surface water, and sediment. 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.

## RI and Risk Assessment Conclusions

- Based on the HHRA, there are no identified impacts related to human receptors or the environment at AOC 2, AOC 3, AOC 4, AOC 5, and AOC 6. No further environmental action or management is recommended for these AOCs.
- Risk associated with explosive residue (primarily TNT), lead, and hexavalent chromium in soil at AOC 1 requires further environmental action and management. Re-sampling and analysis for hexavalent chromium is recommended due to uncertainty with the analytical results for this constituent. A Feasibility Study is recommended for AOC 1, which should consider all fill materials and redistributed soil, to evaluate potential remedial alternatives to address DoD-related contaminants in AOC 1.
- The area of impacted soil in AOC 1 is approximately 3,300 square yards and is located in the vicinity of deteriorated steel 55-gallon drums. The impacted soils extend to a depth of approximately three feet below ground surface and represent a total estimated volume of 2,250 cubic yards.
- Based on the SLERA, there are no identified impacts to ecological receptors at the OCCP.

## Next Step

The path forward for OCCP will consider findings in the RI and be based on further evaluations and recommendations from the upcoming Feasibility Study.

## 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

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

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**U.S. ARMY CORPS OF ENGINEERS – BUFFALO DISTRICT  
ENVIRONMENTAL PROJECT MANAGEMENT TEAM**

1776 NIAGARA STREET, BUFFALO, N.Y. 14207

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Website: <http://www.lrb.usace.army.mil/Missions/HTRW/DERPFUDS/LakeOntarioOrdnanceWorks.aspx>