



Good evening. Please be seated; once everyone is seated, we will begin tonight's presentation.

I would like to introduce the, Chief of the Special Projects Branch for the Buffalo District.

Good evening! Thank you for being here tonight. We would like to acknowledge the agency representatives that are here tonight. Please stand up and I will introduce you.



WELCOME!



Agenda

- Introductions
- Background Information
- Site Status
- Feasibility Study
- Feasibility Study Alternatives
- Questions at Posters

Tonight's agenda is on the slide. The team will be available to answer your questions at the posters when the presentation is finished.



BACKGROUND INFORMATION



ACRONYMS



BOP	Balance of Plant
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
FUSRAP	Formerly Utilized Sites Remedial Action Program
IWCS	Interim Waste Containment Structure
NFSS	Niagara Falls Storage Site
OU	Operable Unit
VOC	Volatile Organic Compound

We tried to keep our use of acronyms to a minimum in this presentation, but some of our more frequently used acronyms are on this slide.



FUSRAP OBJECTIVES

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Identify and evaluate sites



Protect human health and the environment

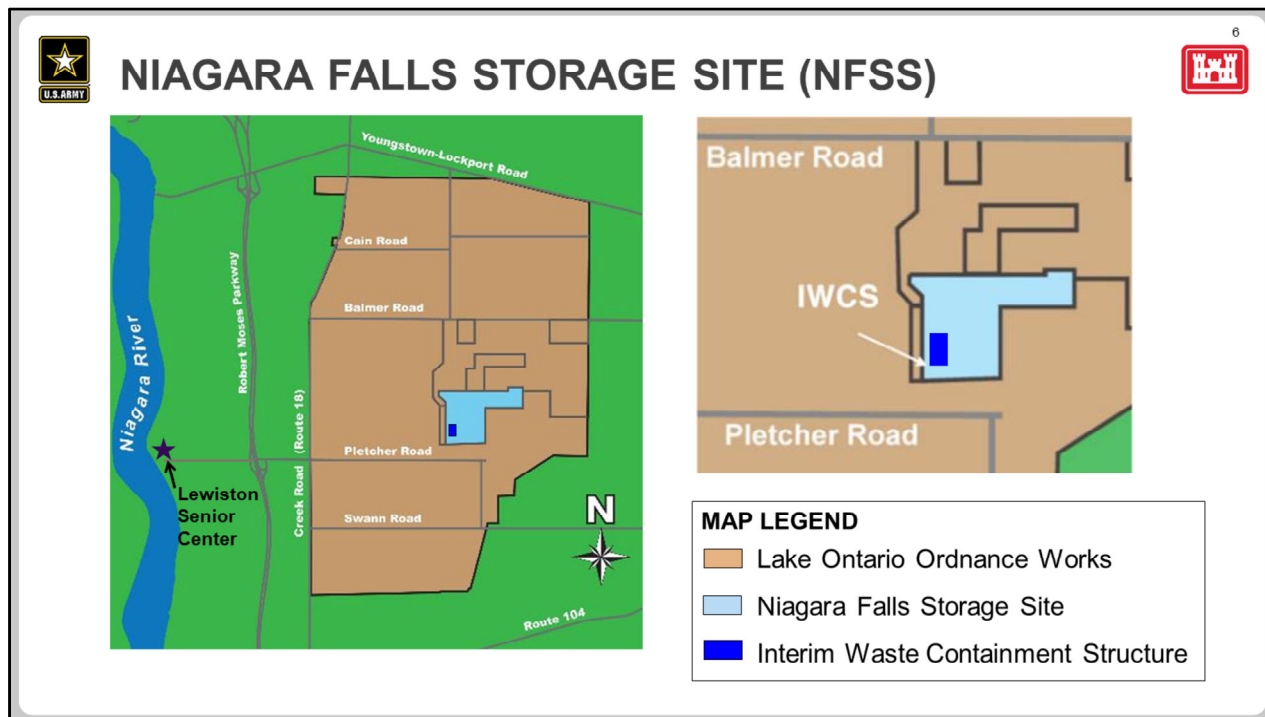


Clean up or control
FUSRAP-related
material

The work we are doing at Niagara Falls Storage Site is authorized under the Formerly Utilized Sites Remedial Action Program or FUSRAP. The program 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 or early Atomic Energy Commission activities.

The objectives for FUSRAP are identified on this slide.

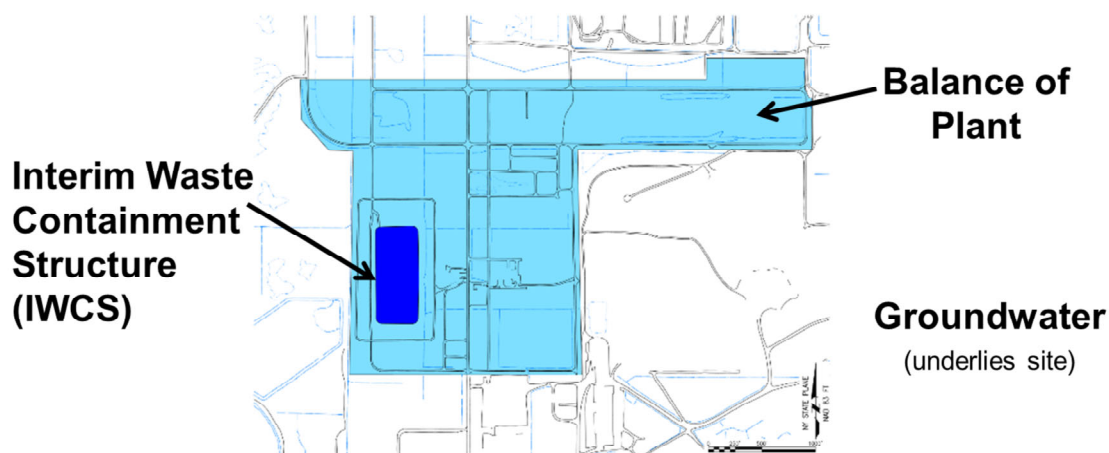
Our number one priority while performing activities at the site is the safety of the community, site workers, and the environment.



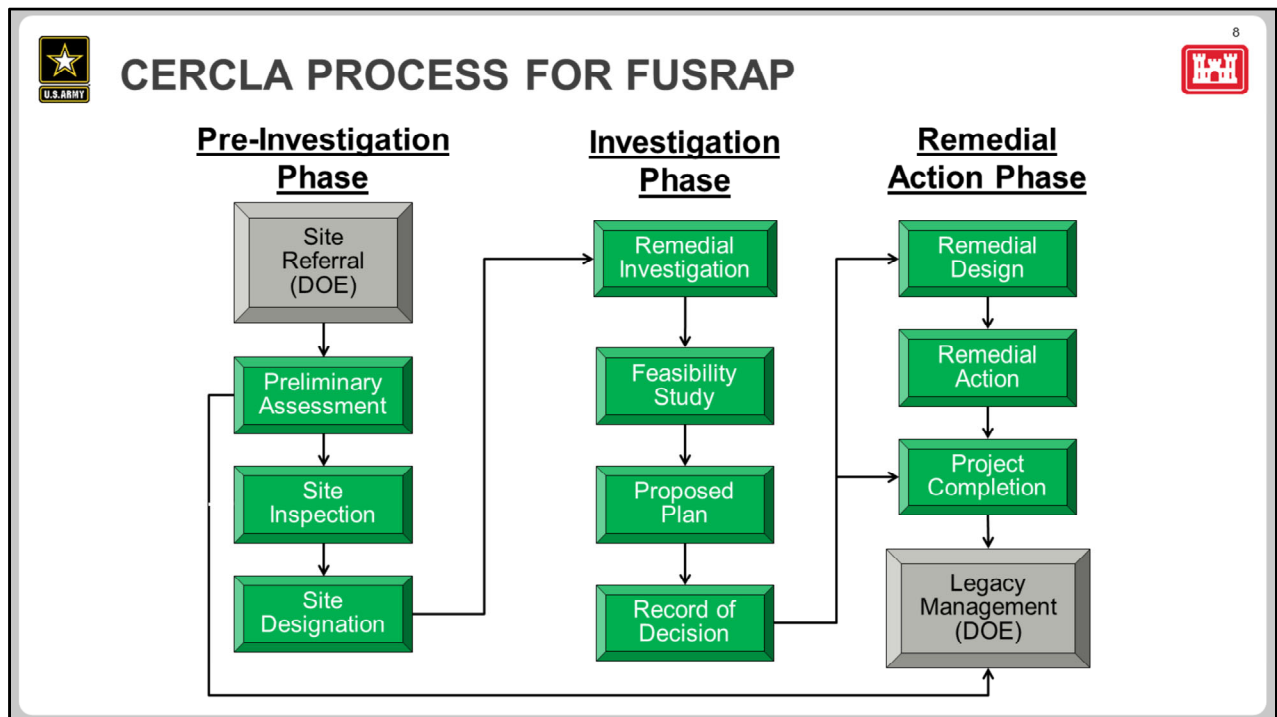
Niagara Falls Storage Site is situated within what was the Lake Ontario Ordnance Works; it was a TNT facility that came online in the early 1940's; it was decommissioned in 1943. Basically, we had a surplus of TNT during the World War II effort, so they no longer needed the operation of that facility. The Atomic Energy program started in the same timeframe, and residues and waste material was being generated as a result of that work, and it kind of found its way to Niagara Falls Storage Site where it was stored for a considerable length of time. If you hone in on the right-hand side there you can see the smaller Niagara Falls Storage Site. During the early 1980s, the Department of Energy consolidated the contaminated materials at the site into the Interim Waste Containment Structure or IWCS, which is the dark blue area.



NIAGARA FALLS STORAGE SITE OPERABLE UNITS (OUs)



For purposes of the feasibility study, the site was divided into three operable units or OUs. The Interim Waste Containment Structure OU is the engineered landfill within the diked area of the NFSS and applies to all of the material within the IWCS. The Balance of Plant or BOP OU includes all of the material at the NFSS not in the IWCS (soils, buildings and building foundations, utilities, roads, and roadbeds) and excludes groundwater. The Groundwater OU refers to groundwater contamination remaining after implementation of the selected remedy for the IWCS.



When implementing FUSRAP, the Corps of Engineers follows the Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA, as amended and the National Oil and Hazardous Substances Pollution Contingency Plan using the process that is outlined on the screen.



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SITE STATUS



SITE STATUS



Funding

- Congress **has not yet passed** legislation to fund the project this year
- We are operating on a **temporary funding allotment which expires** November 21st
- We expect a **year-long** series of **temporary funding allotments** through September

Scheduled Work in 2020

- **Ensure safety** through site operations, maintenance, security, and environmental surveillance
- **Continue** CERCLA process progress for Balance of Plant & Groundwater OUs
- **Continue** collaboration with the U.S. Department of Energy, the U.S. Environmental Protection Agency, the New York State Departments of Environmental Conservation and Health, the Niagara County Department of Health, the Town of Lewiston, and you the community members
- **Start** planning the remedial design phase

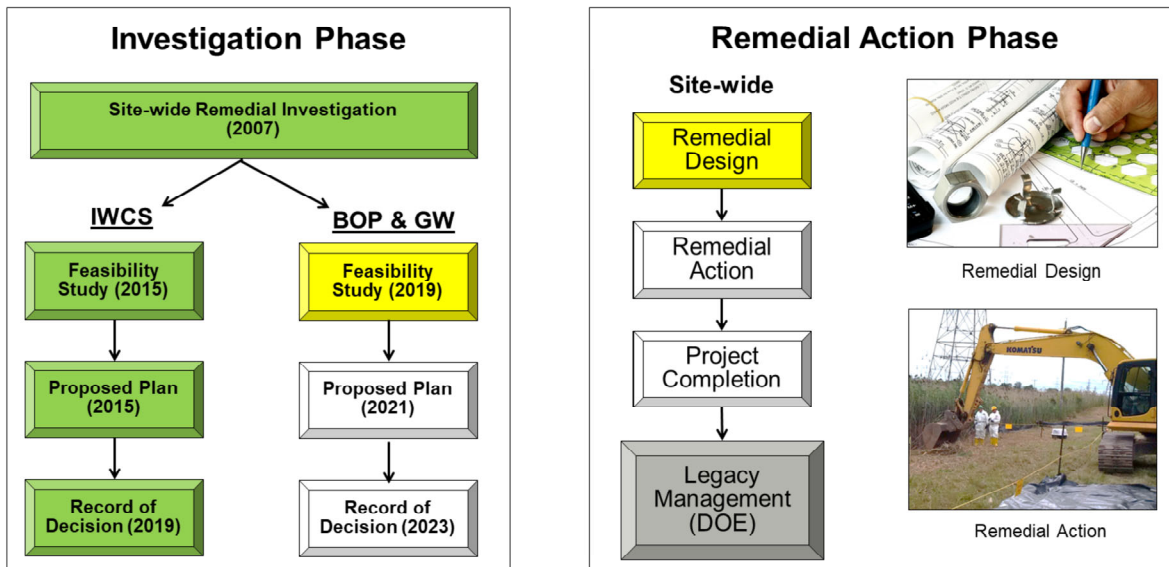
Environmental Surveillance

- Our 2018 report is complete and available on our website
- The site remains protective of human health and the environment

I promise that this is the only slide with a lot of words. I want to go over each bullet with you.



SITE STATUS



Niagara Falls Storage Site was divided into three operable units for the feasibility study phase of the CERCLA process. The record of decision for the Interim Waste Containment Structure was signed this past March, with complete removal of the contents of the IWCS as the selected remedy. The Balance of Plant and Groundwater Operable Units are why we are here tonight. We have completed the feasibility study for those two operable units and will be describing the potential alternatives to mitigate risks presented by small areas of remaining contamination on the site. We will develop a proposed plan which will outline a preferred alternative for the operable units. A public meeting will be conducted to receive your comments on the proposed plan during a public comment period. After consideration of your comments, a record of decision will be signed outlining the selected remedy.

The remedial action phase is also outlined on this slide. I will go into more detail in regard to this on the next slides.



SITE STATUS

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Remedial Design

- Procure the design contract
- Complete/update planning documents
 - Detailed location inventory of the IWCS
 - Value Engineering study
 - Waste Transportation Assessment
 - Detailed remediation & construction cost estimates
 - Construction cost and schedule controls
- Complete 100% design plans & specifications for remediation & construction
- Estimated 5+ year effort (with sufficient funding every year)



When funding becomes available in the national program, we will begin going through the steps outlined on this slide.



SITE STATUS

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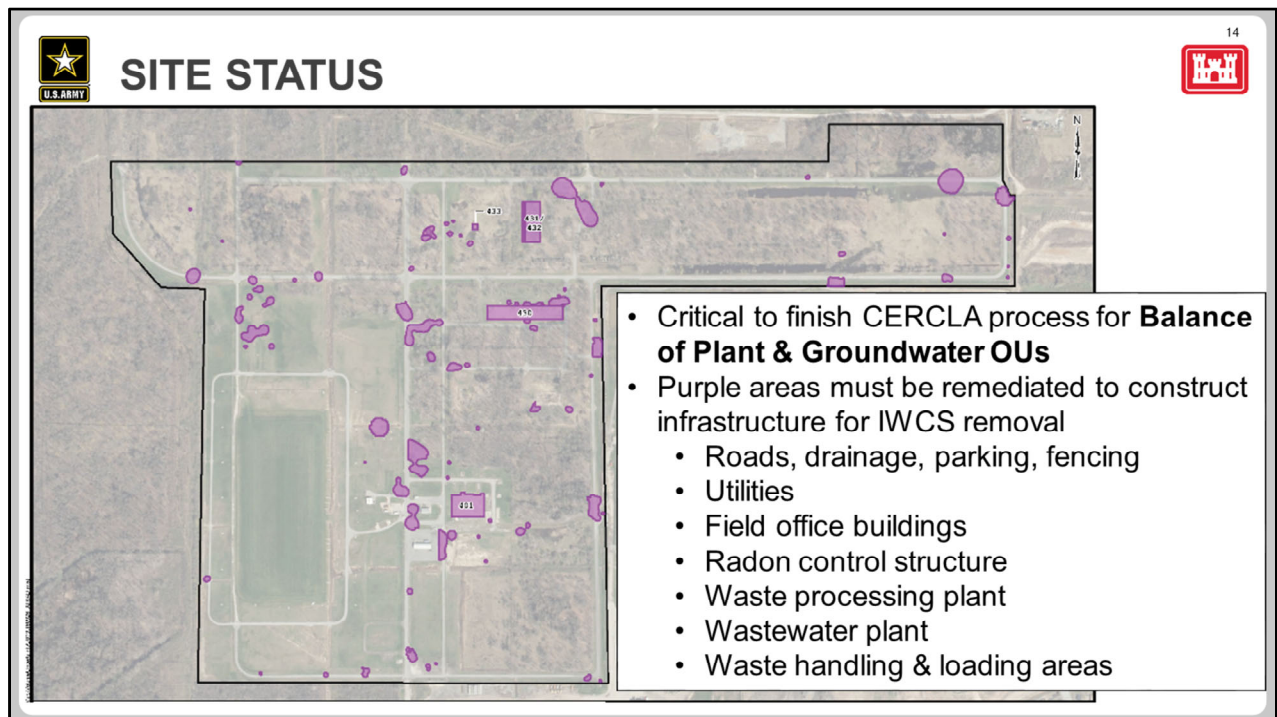


Remedial Action

- Procure the construction & remediation contracts
- Remediate - Balance of Plant & Groundwater
- Mobilize - equipment & field office
- Construct - infrastructure
- Construct - radon control structure
- Construct - waste processing plant
- Develop - work & safety plans
- Excavate - the IWCS
- Process, package & transport wastes to out of state disposal facility
- Turnover site to US Department of Energy Office of Legacy Management
- Estimated 8-10 year process (with sufficient funding every year)



When remedial design is complete then these remedial action steps can begin.



This figure is very hard to see on the screen, but we have printed it for you in the fact sheet that was handed out when you came in. Keep in mind that the site was cleaned up by the Department of Energy in the early 1980s. The areas that you see in purple, are the small areas that remain to be addressed. It is important to note that these areas need to be cleaned up before construction of the infrastructure for removal of the IWCS can be started.

With that, I will turn it over to the Niagara Falls Storage Site Project Manager.

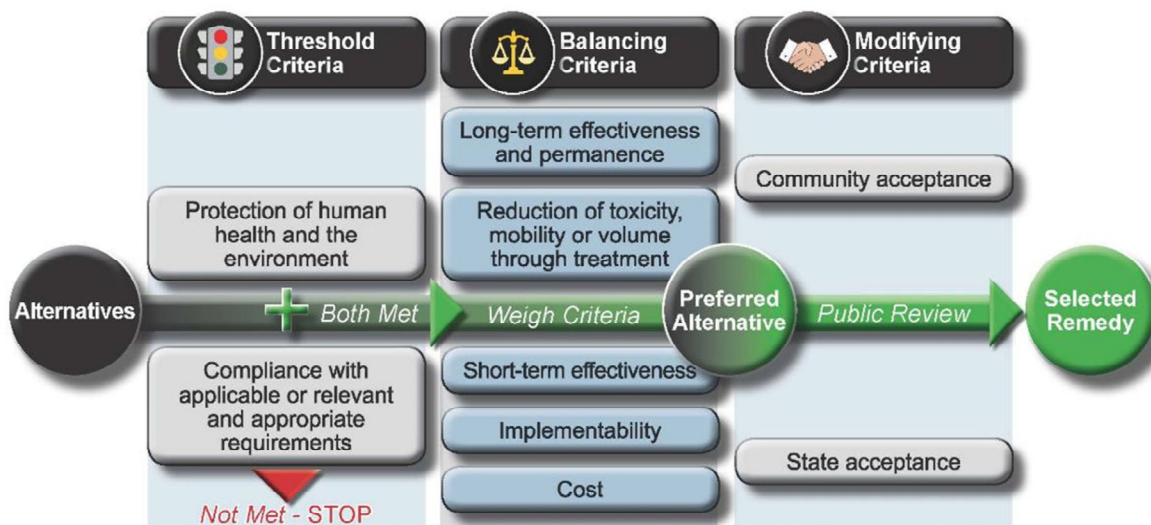
Thank you.



FEASIBILITY STUDY



MANDATED CERCLA EVALUATION CRITERIA

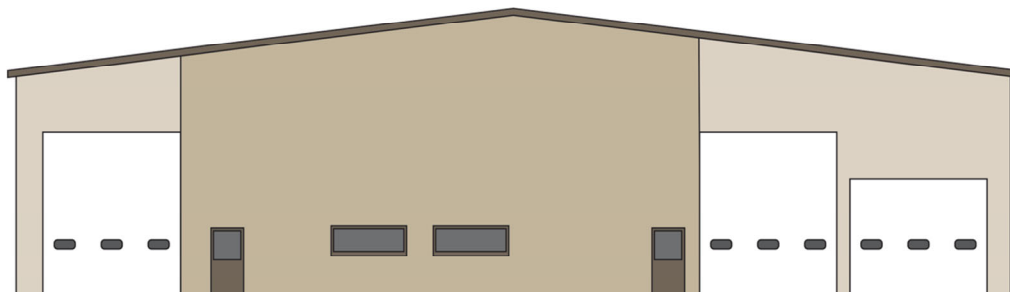


A feasibility study is performed to identify, develop, and evaluate remedial alternatives, analyzing in detail each remedial alternative for its:

- Overall protection of human health and the environment
- Compliance with applicable or relevant and appropriate requirements
- Long-term effectiveness and permanence
- Reduction of Toxicity, mobility, or volume through treatment
- Short-term effectiveness
- Implementability
- Cost.

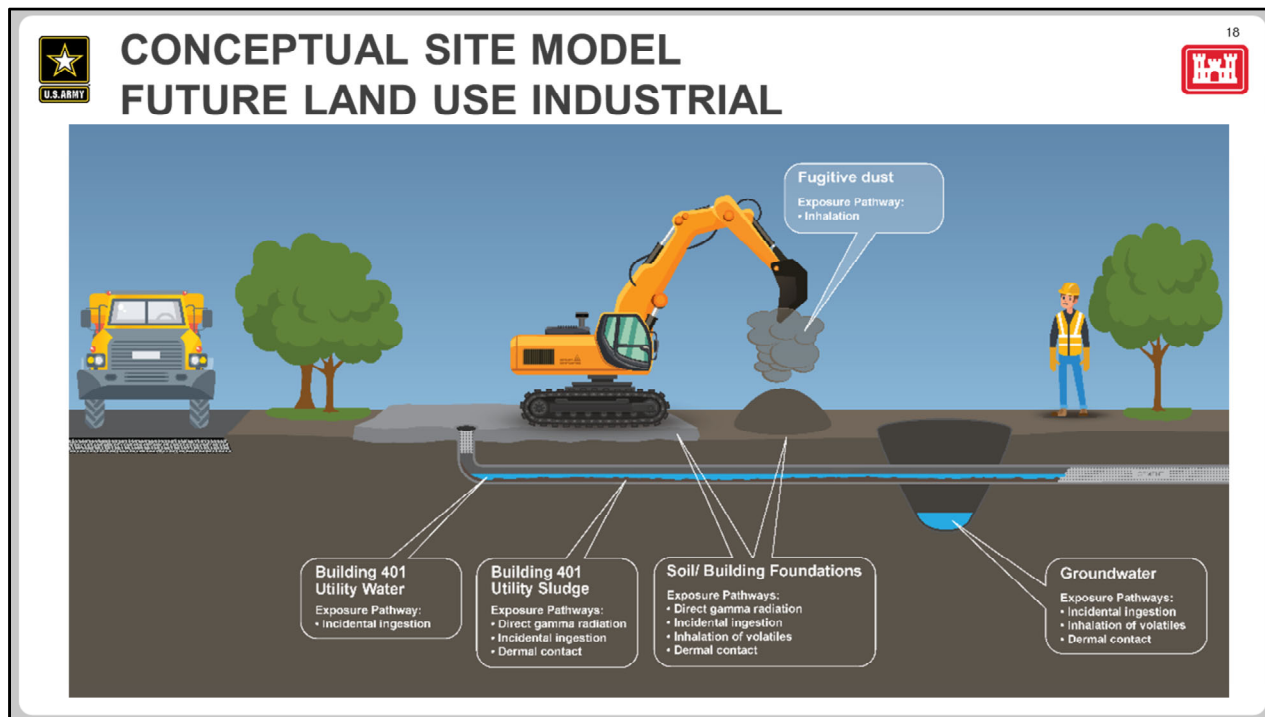


FUTURE LAND USE - INDUSTRIAL

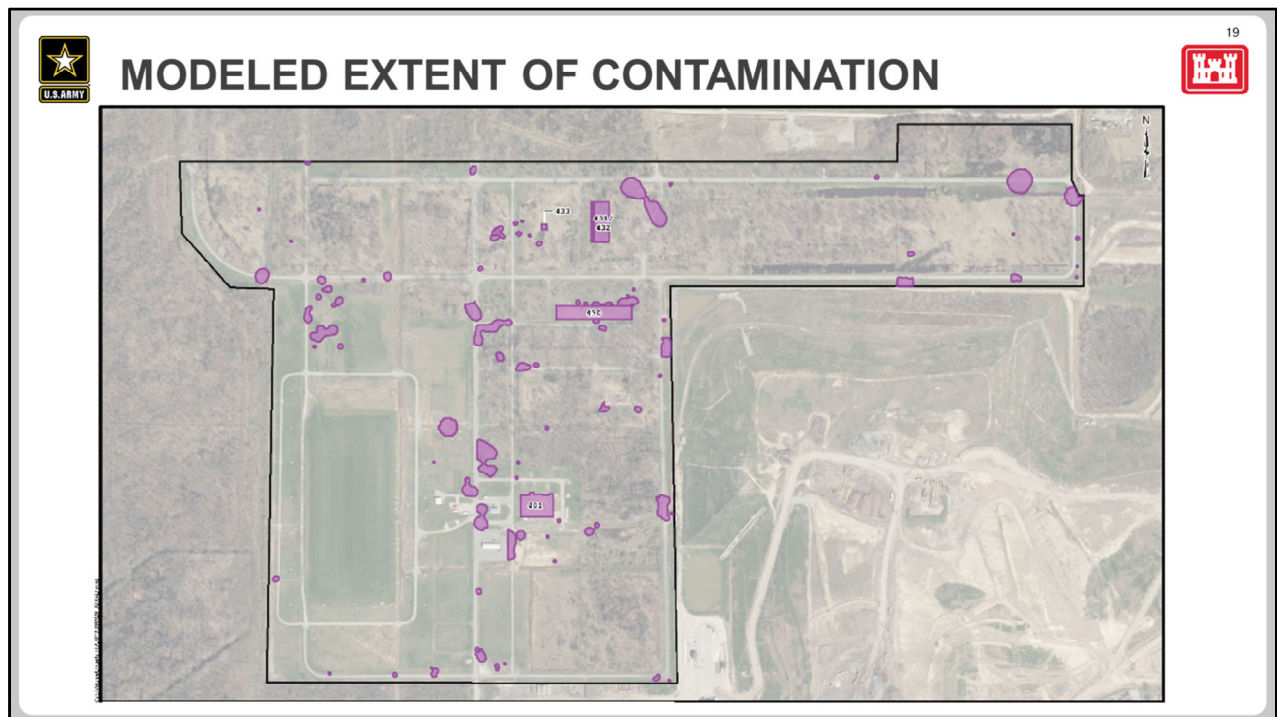


The Niagara Falls Storage Site is currently zoned for light industrial use, which is intended as a transition zone between residential and heavy industrial areas. The land uses for the properties immediately surrounding the site are either heavy industrial or industrial. Light industrial use includes manufacturing, processing, and wholesale/warehousing.

At NFSS with an industrial land use, the construction worker is the person potentially at risk for exposure. Preliminary remediation goals or preliminary cleanup goals were developed based on risks to the construction worker.



This graphic shows the construction worker's potential exposure pathways when working at the site in its current conditions. The site media are soil, building foundations, road bedding, and volatile organic compound-impacted soil and groundwater. These site media exhibit radionuclides of concern and/or chemicals of concern greater than the preliminary remediation goals for the construction worker.



The fact sheet that we provided has a copy of this figure.

These are the areas of the site that present a potential risk to the construction worker.

Radionuclides of concern for which preliminary remediation goals were developed for soil, Building 433, and building foundations are: uranium-238, thorium-230, and radium-226 and their long-lived daughter products.

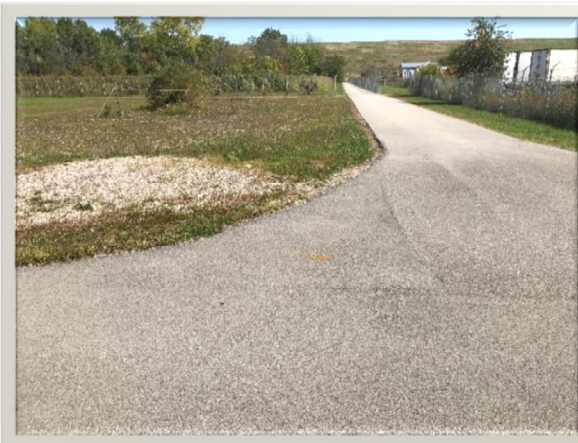
Chemicals of concern, based on risks to the construction worker are: volatile organic compounds in soil and groundwater, polychlorinated biphenols in pipeline sediments, water in drains for Building 401 and the concrete foundation of Building 401; and polycyclic aromatic hydrocarbons in surface and near surface soil and building foundations.



BALANCE OF PLANT AND GROUNDWATER OPERABLE UNIT IMPACTED SITE MEDIA



Impacted Soil and Road Bedding



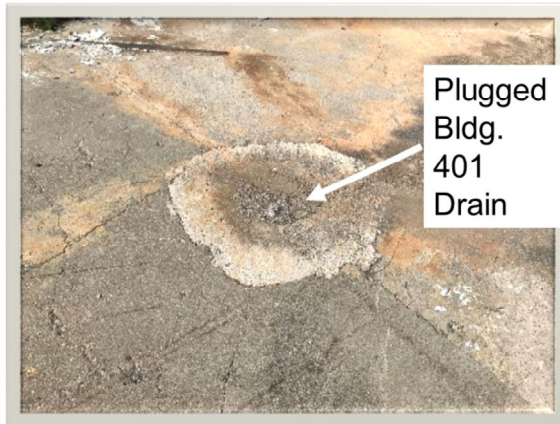
Based on the information gathered from numerous investigations, monitoring events, and studies of the site, the media in the Balance of Plant OU are impacted:
5,900 cubic yards of impacted soil and road bedding,



BALANCE OF PLANT AND GROUNDWATER OPERABLE UNIT IMPACTED SITE MEDIA



Building 401 Foundation and Drains



Includes Water and Sludge in Building 401 Drain System

The Building 401 foundation and utilities (drain system) are estimated to be 725 cubic yards of impacted material. As shown in the photo the building drains in Bldg. 401 have been plugged.



BALANCE OF PLANT AND GROUNDWATER OPERABLE UNIT IMPACTED SITE MEDIA



Building 430, 431, 432 Foundations



Building 433



Building 430, 431/432 foundations and Building 433 are estimated to be 2,000 cubic yards of material.

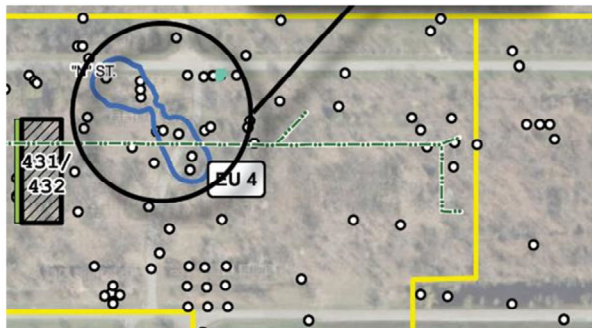


BALANCE OF PLANT AND GROUNDWATER OPERABLE UNIT IMPACTED SITE MEDIA



Volatile Organic Compound Contaminated Groundwater

North Portion of Site
Exposure Unit 4



The estimate for impacted groundwater is 3,300 gallons



FEASIBILITY STUDY ALTERNATIVES



FEASIBILITY STUDY ALTERNATIVES

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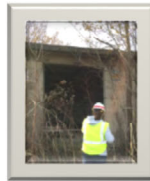
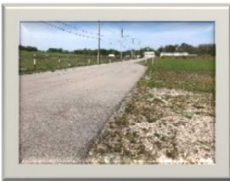
Alternative 1 – No Action (Required for comparison purposes, but not protective)

Alternative 2 – Complete Removal

Alternative 3 – Removal with Building Decontamination

Alternative 4 – Removal with Building Decontamination and *In Situ* Remediation

Alternative 5 – Removal with Building Decontamination and *Ex Situ* Remediation



These are the alternatives outlined in the feasibility study. Since Alternative 1 is No Action there is no need to explain it further.

The remaining four alternatives will be discussed in the next few slides.



ALTERNATIVE 2 – COMPLETE REMOVAL



Removal of all materials exceeding preliminary remediation goals:

- ✓ Soil
- ✓ Road bedding
- ✓ Building 401 foundations and drains
- ✓ Building 433, Building 430, 431/432 foundations
- ✓ Volatile organic compounds in groundwater

In alternative 2 all impacted soil, contaminated building foundations, and the Building 401 foundation and impacted drains that exceed the preliminary remediation goals would be removed and disposed at a permitted off-site facility. Volatile organic compound-contaminated soil and groundwater in the plume in the north area of the site would be removed and backfill will be amended to promote degradation of residual, dissolved-phase impacts.

For Alternatives 2 through 5, following removal of all materials exceeding the feasibility study preliminary remediation goals, the excavated areas would be backfilled, the site would be restored and would be suitable for industrial land use.



ALTERNATIVE 3 – REMOVAL WITH BUILDING DECONTAMINATION

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Removal of

- ✓ Soil
- ✓ Road bedding
- ✓ Building 401 foundations and drains
- ✓ Volatile organic compounds in groundwater



Scarification of

- ✓ Building 433, Building 430, and 431/432 foundations



Building foundations
decontaminated

In Alternative 3, is the same as Alternative 2 except in this alternative, Building 433 and Building 430, 431/432 foundations would be left in place, and would be decontaminated to remove the risk associated with these media.



ALTERNATIVE 4 – REMOVAL WITH BUILDING DECONTAMINATION AND *IN SITU* REMEDIATION

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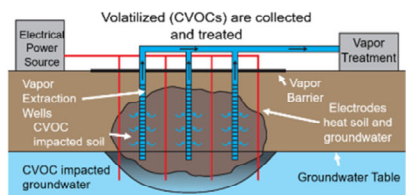


Removal of

- ✓ Soil
- ✓ Road bedding
- ✓ Building 401 foundations and drains

Scarification of

- ✓ Building 433, Building 430, and 431/432 foundations



In situ treatment of

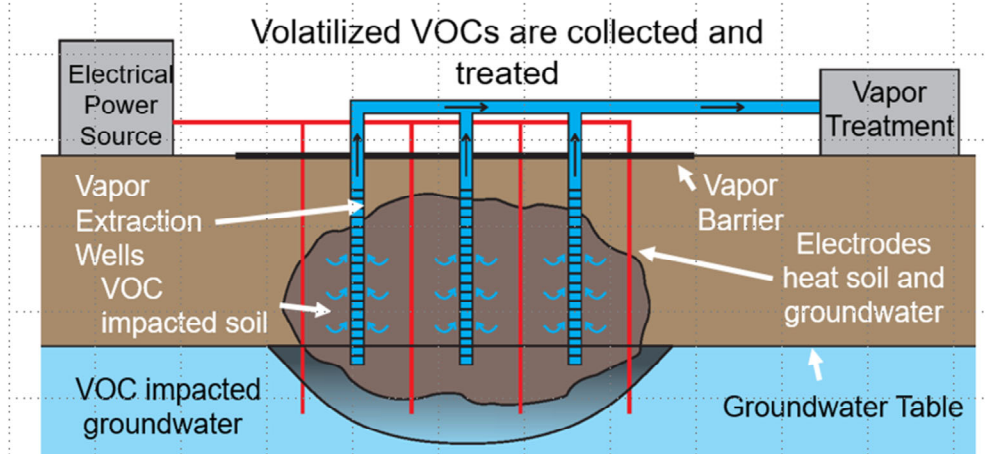
- ✓ Volatile organic compounds in soil and groundwater

Alternative 4 is similar to Alternative 3 in that soil and road bedding that exceeds the feasibility study preliminary remediation goals and the Building 401 foundation and drains will be removed. Building 433 and Building 430, 431/432 foundations would be left in place, but would be decontaminated (scarified) to remove the risk associated with these media.

In this alternative the volatile organic compound contaminated soil and groundwater in the north portion of the site would be treated via *in situ* thermal treatment methods. Our next slide goes into more detail in regard to the *in situ* treatment.



ALTERNATIVE 4 – REMOVAL WITH BUILDING DECONTAMINATION AND *IN SITU* REMEDIATION



Extraction well network recovers heated vapors containing volatile organic compounds (VOCs)

This graphic depicts the *in situ* thermal treatment method. It is available in a poster in the back of the room. Electrodes heat the impacted soil to temperatures that would remove volatile organic compounds. Treated soil and groundwater would remain in place and not require off-site disposal. The vapors are collected in the vapor extraction wells and treated to destroy the contaminants.



ALTERNATIVE 5 – REMOVAL WITH BUILDING DECONTAMINATION AND *EX SITU* REMEDIATION

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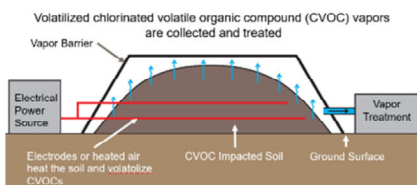


Removal of

- ✓ Soil
- ✓ Road bedding
- ✓ Building 401 foundations and drains

Scarification of

- ✓ Building 433, Building 430, and 431/432 foundations



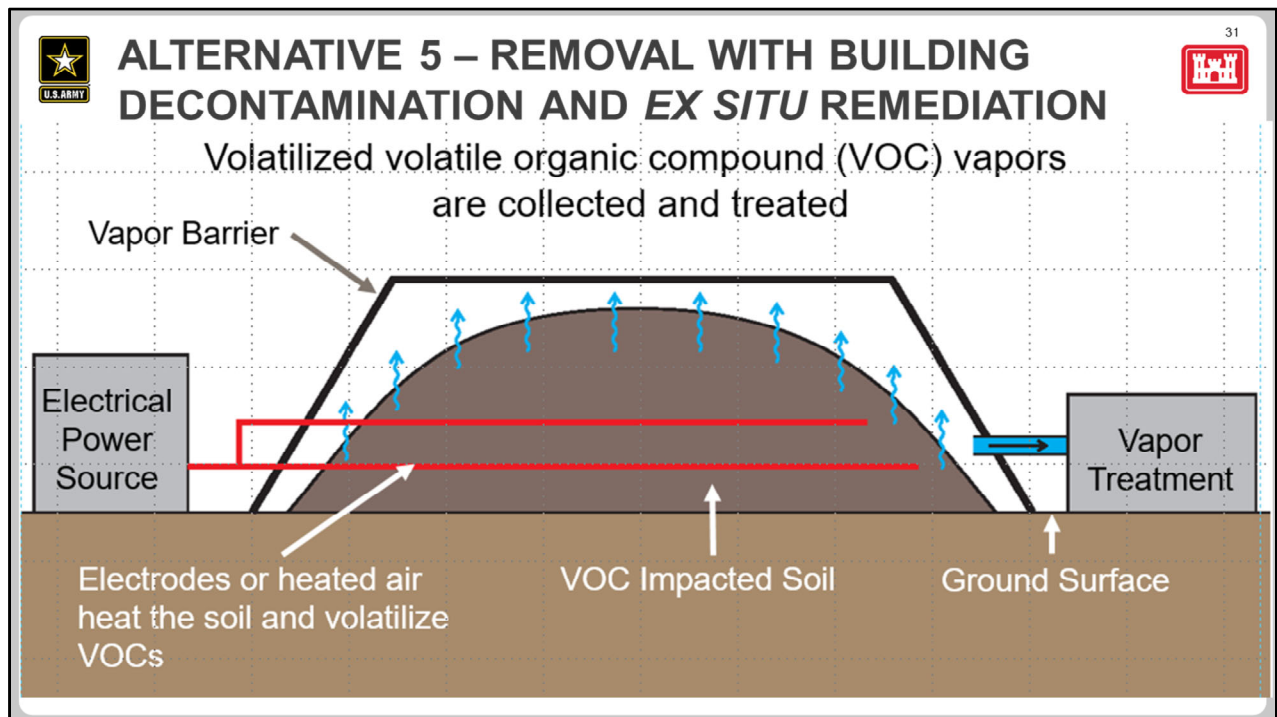
Ex situ treatment of

- ✓ Volatile organic compounds in soil and groundwater



Alternative 5 is similar to Alternative 3 in that soil and road bedding that exceeds the feasibility study preliminary remediation goals and the Building 401 foundation and drains will be removed. The Building 433 and Building 430, 431/432 foundations would be left in place, but would be decontaminated (scarified) to remove the risk associated with these media.

In this alternative the volatile organic compound contaminated soil and groundwater in the north area of the site would be treated via *ex situ* thermal treatment methods. The next slide will go into more detail regarding the *ex situ* treatment



This graphic is also in a poster in the back of the room. It shows the process for the *ex situ* treatment. The volatile organic compound soil is excavated and placed in a pile. A vapor barrier is placed over the pile. Electrodes or heated air heat the soil and turn the volatile organic compounds into vapor. The vapors are collected and treated to destroy the contaminants. Volatile organic compound groundwater is recovered during the excavation process and shipped off-site for treatment and disposal.



COMPARATIVE ANALYSIS



CERCLA Balancing Criteria	Alt 2	Alt 3	Alt 4	Alt 5
Long-term Effectiveness & Permanence	High	High	High	High
Reduction of Toxicity, Mobility or Volume through Treatment	Low	Low	Moderate	Moderate
Short-term Effectiveness	Low	Low	Low	Low
Implementability	High	High	Moderate	Moderate

This and the next slide show our analysis of each alternative in the feasibility study against the balancing criteria to compare them. This analysis is for the first four balancing criteria.



COMPARATIVE ANALYSIS



CERCLA Balancing Criteria	Alt 2	Alt 3	Alt 4	Alt 5
Cost Capital	\$23.8M	\$17.6M	\$17.2M	\$19.8M
Cost O&M*	\$414K	\$414K	\$414K	\$414K
Contingency Costs	\$11.4M	\$6.6M	\$5.3M	\$7.1M
Total Cost	\$35.7M	\$24.5M	\$22.9M	\$27.3M

*O&M - Operations and Maintenance

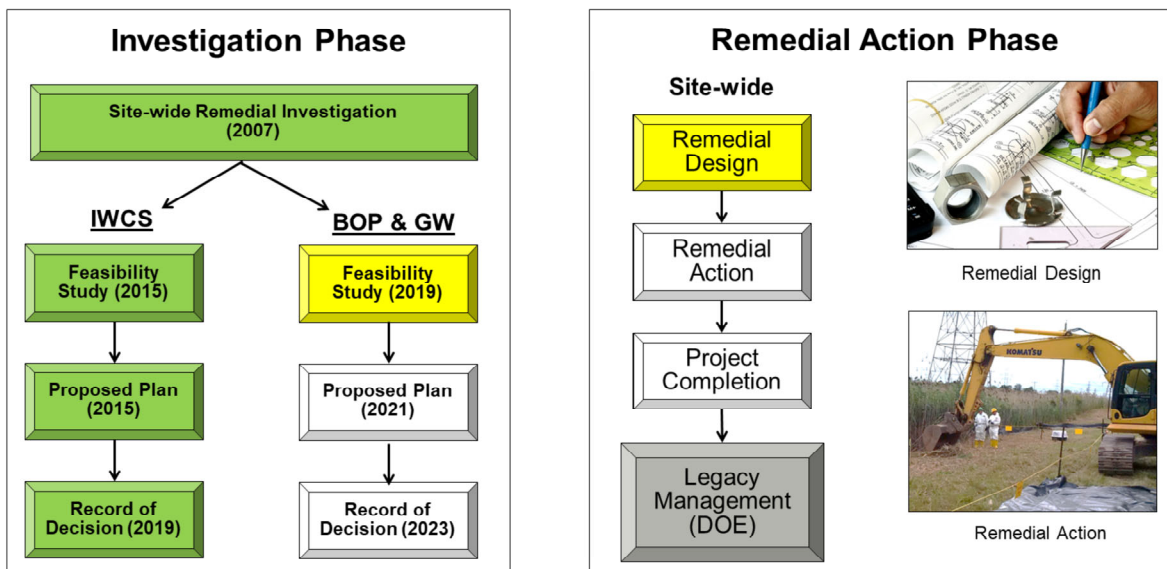
	Alt 2	Alt 3	Alt 4	Alt 5
Time to Complete (Months)	29	29	37	34

This slide covers the cost comparison. The comparative analysis on the last side and this one will be used when developing a proposed plan with a preferred alternative. A public meeting will be conducted when the proposed plan is released to obtain community and agency comments. Developing the proposed plan is the next step for the Balance of Plant and Groundwater Operable Units.



SITE STATUS

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For a quick review, we have a record of decision for the IWCS Operable Unit. We need to develop a proposed plan with a preferred alternative for the Balance of Plant and Groundwater Operable Units. The document will undergo public review, and your input will be evaluated before a record of decision is reached.

The remedial design phase is the next step for the site as a whole.



FOR MORE INFORMATION



Phone: 800-833-6390 (Option 4)

E-mail: fusrap@usace.army.mil

Web: <https://www.lrb.usace.army.mil/Missions/HTRW/FUSRAP/Niagara-Falls-Storage-Site/>

Administrative Record Locations

Lewiston Public Library
305 South Eighth Street
Lewiston, New York 14092

Youngstown Free Library
240 Lockport Street
Youngstown, New York 14174

Ransomville Free Library
3733 Ransomville Road
Ransomville, New York 14131

By Appointment:
U.S. Army Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

These are the ways and places you can receive additional information about the site.



QUESTIONS AT POSTER SESSION



Thank you for coming! Our team will be at the back of the room with the posters if you have additional questions.

Guest: U.S. Department of Energy Office of Legacy Management has a poster regarding their process for completed sites.