

NIAGARA FALLS STORAGE SITE

FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM

Balance of Plant
and Groundwater
Operable Units
Proposed Plan

Public Meeting
October 21, 2020



US Army Corps
of Engineers®



WELCOME!



Niagara Falls Storage Site

Agenda

- Introduction
- Background Information
- Feasibility Study Information
- Evaluation of Remedial Alternatives
- Preferred Remedial Alternative
- Comments



Tonight's focus is: Balance of Plant and Groundwater Operable Units

Tonight's agenda is on this slide. We are here to discuss the Niagara Falls Storage Site which is being addressed under the Formerly Utilized Sites Remedial Action Program, or FUSRAP. Our priority when implementing the program is to ensure we are protective of human health and the environment. We implement FUSRAP following the Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA. The process requires that we conduct a public meeting to receive comments on our preferred alternative, which is the most important part of tonight's public meeting. We are here to receive your comments!

As you are aware, a record of decision was signed for the Interim Waste Containment Structure in 2019. The selected remedy was to completely remove the contents of the Interim Waste Containment Structure, the most significant source of contamination at the site. Since then, the district has actively pursued the development of the remedial design contract to remediate the site. We expect to award this design contract in 2021 and our efforts have not been delayed or impacted by the ongoing COVID-19 pandemic.

Tonight our focus is on the remainder of the site – the proposed plan and preferred alternative for the Balance of Plant and Groundwater Operable Units. Releasing this proposed plan brings us one step closer to the site's remediation.



PREFERRED ALTERNATIVE: ALTERNATIVE 3 – REMOVAL WITH BUILDING DECONTAMINATION



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

Our preferred alternative, which is shown on this slide, proposes a remedy for addressing contaminated soils, buildings and building foundations, utilities, roads and roadbeds, and contaminated groundwater. The Corps preferred alternative will be protective of human health and the environment; complies with applicable or relevant and appropriate requirements; is cost-effective; and utilizes permanent solutions that will preclude any future environmental impact.

Thank you again for being with us virtually tonight! I will now turn this meeting over to the Niagara Falls Storage Site Project Manager to provide an update on the progress we have made in planning for the cleanup of the site and to talk about our preferred alternative for the site's Balance of Plant and Groundwater Operable Units.



BACKGROUND INFORMATION

Thank you Sir.



ACRONYMS



BOP	Balance of plant
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
FUSRAP	Formerly Utilized Sites Remedial Action Program
IWCS	Interim Waste Containment Structure
NFSS	Niagara Falls Storage Site
O&M	Operations and maintenance
OU	Operable unit
PAHs	Polycyclic aromatic hydrocarbons
PCBs	Polychlorinated biphenyls
VOCs	Volatile organic compounds

We tried to keep our use of acronyms to a minimum in this presentation. Some of our more frequently used acronyms in regard to Niagara Falls Storage Site are on this slide. We will explain these terms as we come across them in the presentation. Further information about these terms is available in the fact sheets on the project website. The web address will be on the final slide of the presentation.



FUSRAP OBJECTIVES

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Identify and evaluate sites



Clean up or control
FUSRAP-related
material



Protect human health and the environment

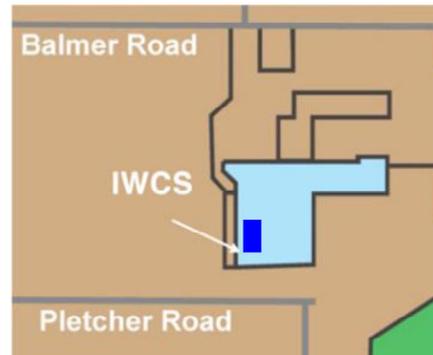
The work we are doing at Niagara Falls Storage Site is authorized under the Formerly Utilized Sites Remedial Action Program or FUSRAP. The program was initiated in 1974 to identify, investigate, and, if necessary, clean up or control sites throughout the United States contaminated as a result of Manhattan 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 protection of human health and the environment and the safety of the community, and site workers during the cleanup.



NIAGARA FALLS STORAGE SITE (NFSS)

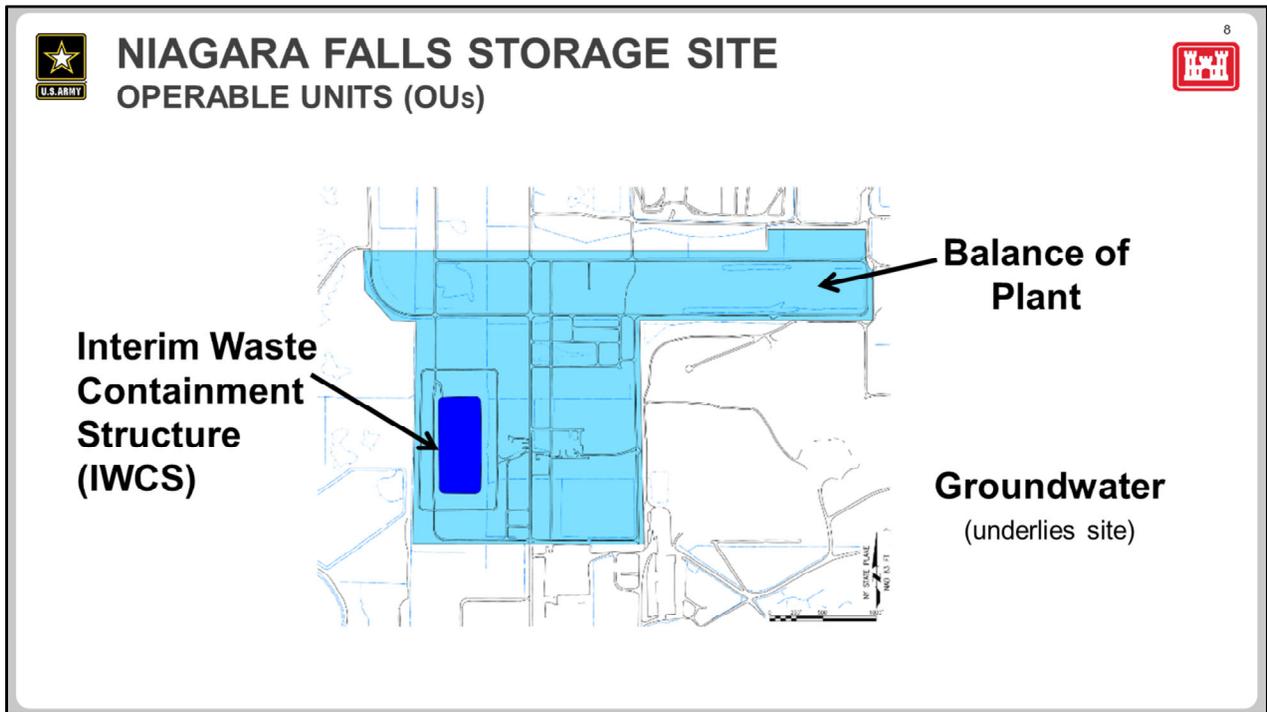


MAP LEGEND

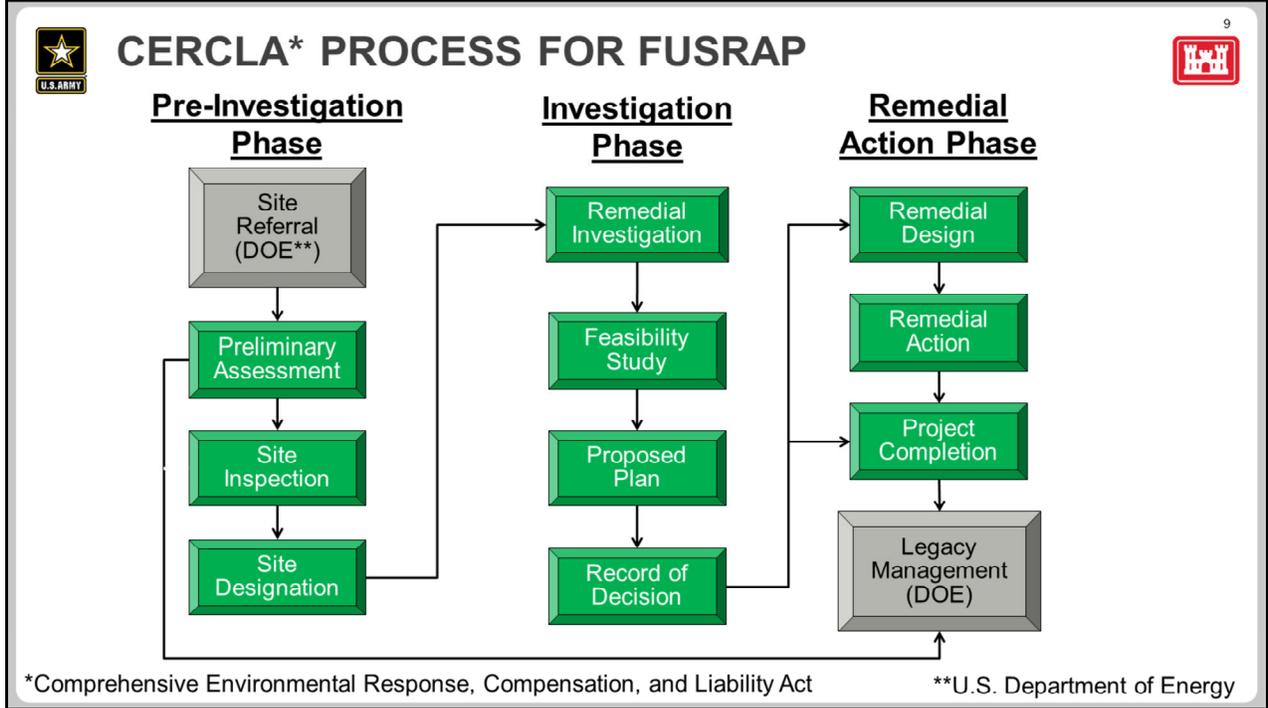
- Lake Ontario Ordnance Works
- Niagara Falls Storage Site
- Interim Waste Containment Structure

Niagara Falls Storage Site is located in Lewiston, New York, situated within what was the Lake Ontario Ordnance Works. The Lake Ontario Ordnance Works was a trinitrotoluene, or TNT, facility that came online in the early 1940's; it was decommissioned in 1943. The United States had a surplus of TNT during the World War II effort, so the country no longer needed the operation of that facility. The Atomic Energy program started in the same timeframe, and residues and waste materials being generated as a result of their work found its way to Niagara Falls Storage Site where they were stored for a considerable length of time.

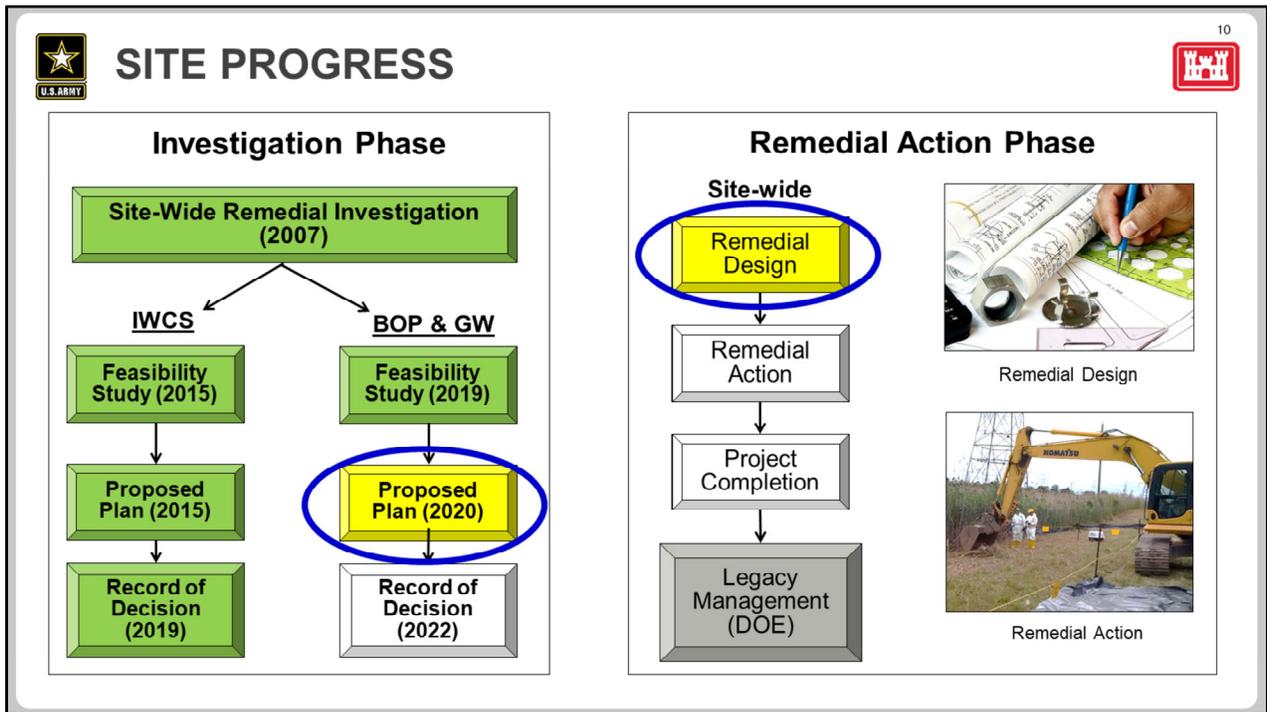
If you focus on the right-hand side of your screen, you can see the smaller Niagara Falls Storage Site. During the early 1980s, the Department of Energy consolidated the contaminated materials at the site and its vicinity properties into the Interim Waste Containment Structure or IWCS, which is the dark blue area. The site is currently owned by the federal government. The Buffalo District maintains the site and performs environmental surveillance to ensure the protectiveness of the Interim Waste Containment Structure.



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. As mentioned, we have a record of decision for the IWCS. Tonight we will focus on the remaining operable units. 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). The Groundwater OU refers to contaminated groundwater.



We follow the processes outlined in the Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA, as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan. That process is outlined on the screen.



This slide shows where the Niagara Falls Storage Site Operable Units are in the CERCLA process. The record of decision for the Interim Waste Containment Structure was signed in March 2019, with complete removal of the contents of the IWCS as the selected remedy. Last fall we released the feasibility study for the Balance of Plant and Groundwater Operable Units. Tonight we will be discussing the proposed plan for those operable units and describing the Corps' preferred alternative to mitigate risks presented by small areas of remaining contamination on the site.

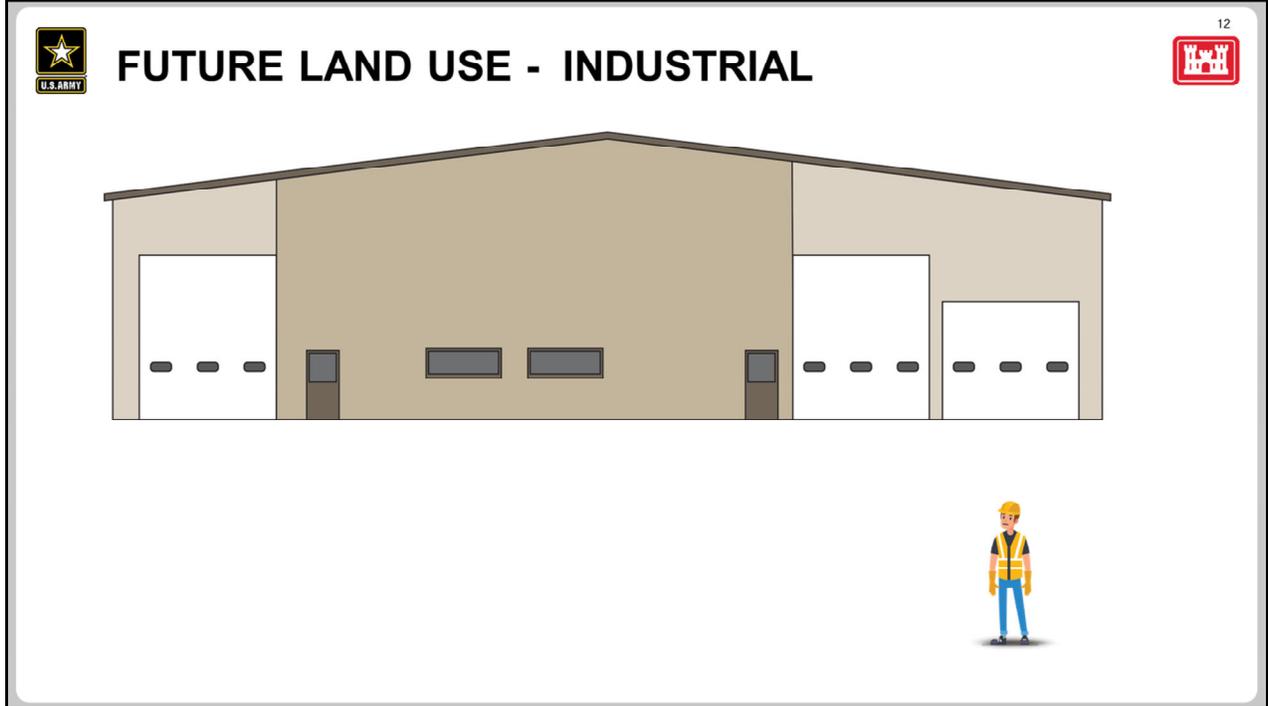
The site-wide remedial action phase is also outlined on the right of this slide. During fiscal year 2021, we will award [an architect-engineer services remedial design and construction oversight](#) contract and begin the work to ultimately clean up the site.

Tonight, after the presentation we will receive your comments on the proposed plan. The comment period ends on December 5, 2020, so please provide your comments tonight, email fusrap@usace.army.mil or mail them to the district. The district's email and mailing address will be provided at the end of the presentation. The preferred alternative may be modified based on any new information acquired during the designated public comment period. Responses to comments received will be provided in the record of decision, which will identify the selected remedy to be implemented.



FEASIBILITY STUDY INFORMATION

We discussed the feasibility study and went over the remedial alternatives with you during our information session last fall. The presentation and posters from that meeting are available on the project website. The following slides give an overview of what was covered.



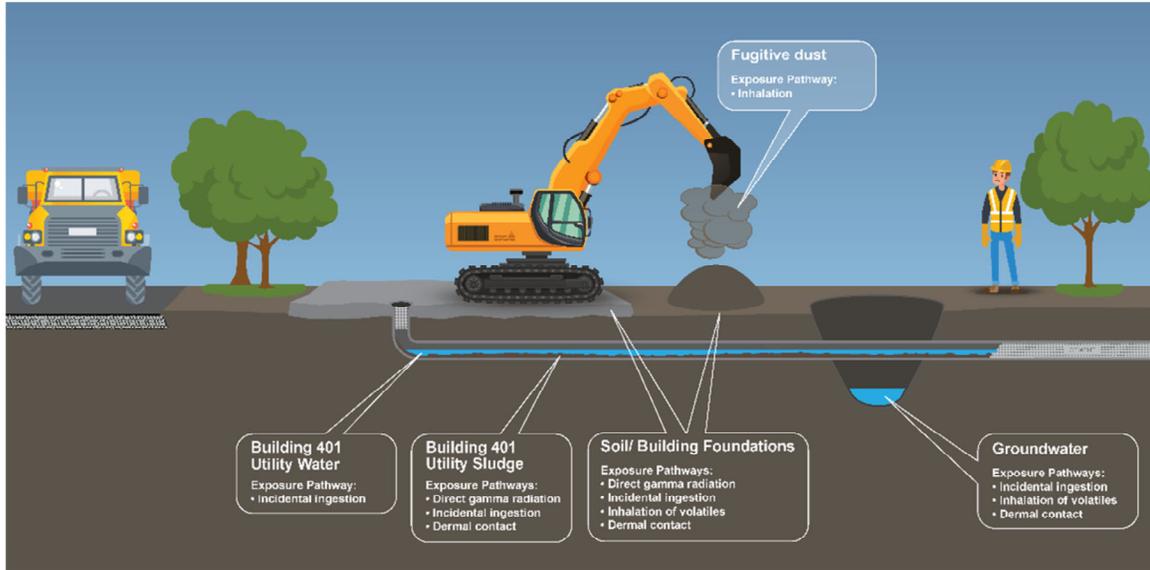
The Niagara Falls Storage Site is currently zoned for light industrial use, which is intended as a transition zone between residential and heavy industrial areas. The land uses for the properties immediately surrounding the site are either heavy industrial or industrial. Light industrial use includes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

At NFSS with an industrial land use, the construction worker is the type of worker with the greatest potential exposure to contaminated media. Preliminary remediation goals or preliminary cleanup goals were developed based on risks to the construction worker, and would be considered protective for all types of worker exposure.

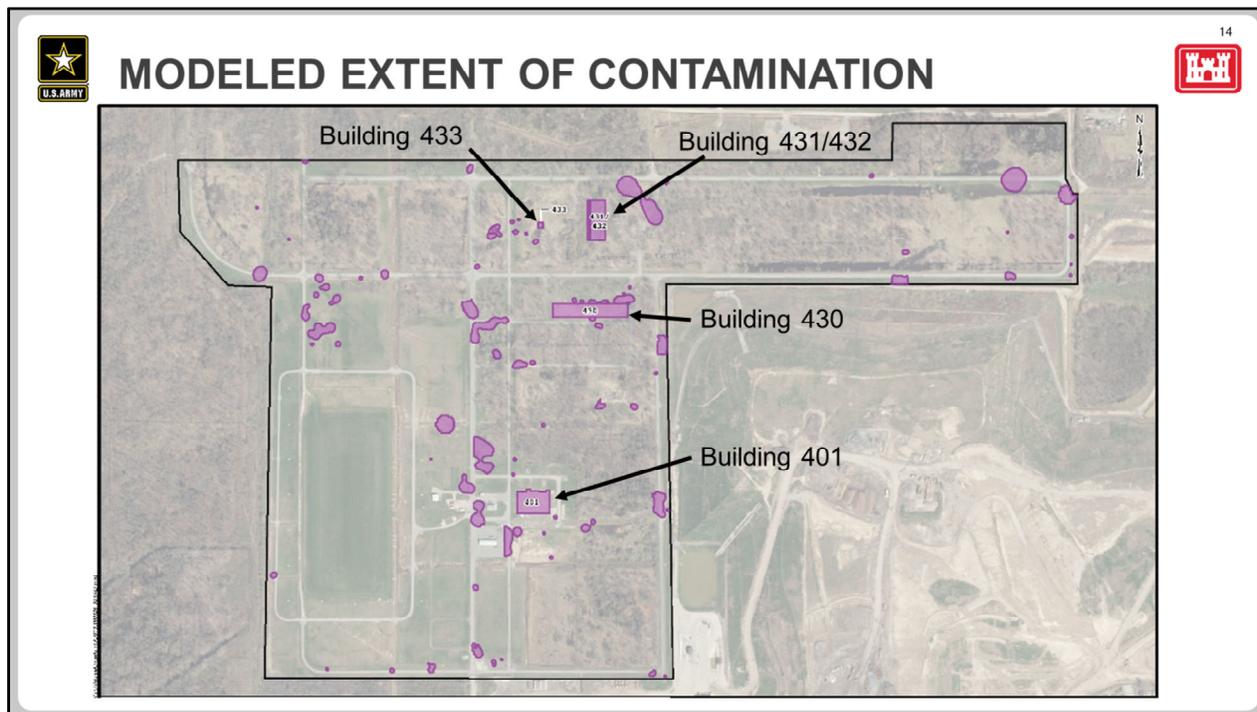


CONCEPTUAL SITE MODEL FUTURE LAND USE - INDUSTRIAL

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



The light purple areas indicate areas of contaminated media with concentrations above preliminary remediation goals that warrant cleanup. A more detailed map of the areas with contamination is available in the fact sheet on the project website.

Radionuclides of concern for which preliminary remediation goals were developed for soil, Building 433, and the foundations of former Buildings 430 and 431/432 are: uranium-238, thorium-230, and radium-226. The preliminary remediation goals for these radionuclides of concern also cover their long-lived daughter products.

Chemicals of concern for which preliminary remediation goals were developed are: volatile organic compounds in soil and groundwater, polychlorinated biphenyls 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 UNITS IMPACTED SITE MEDIA



Impacted Soil and Road Bedding



Based on the information gathered from numerous investigations, monitoring events, and studies of the site, the next couple of slides discuss the impacted media at the site.

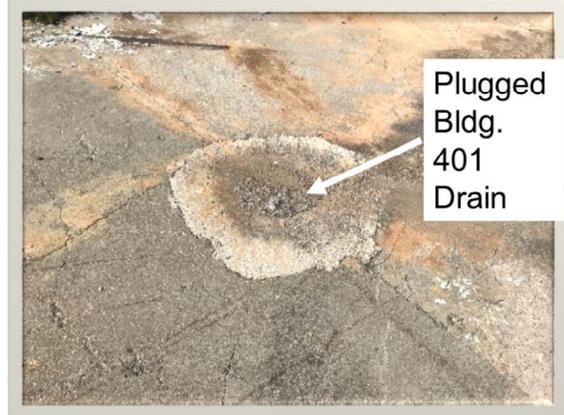
There is an estimated 5,400 cubic yards of impacted soil and road bedding, and there is a trench along the side of the Building 431/432 foundations that is estimated to contain 1,000 cubic yards of contaminated soil and concrete.



BALANCE OF PLANT AND GROUNDWATER OPERABLE UNITS 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 contain 727 cubic yards of impacted material. As shown in the photo, the building drains in former Building 401 have been plugged.



BALANCE OF PLANT AND GROUNDWATER OPERABLE UNITS IMPACTED SITE MEDIA



Building 433



Buildings 430, 431/432 Foundations



Building 433 and the foundations of former Buildings 430, 431/432 are estimated to contain 1,482 cubic yards of contaminated material.



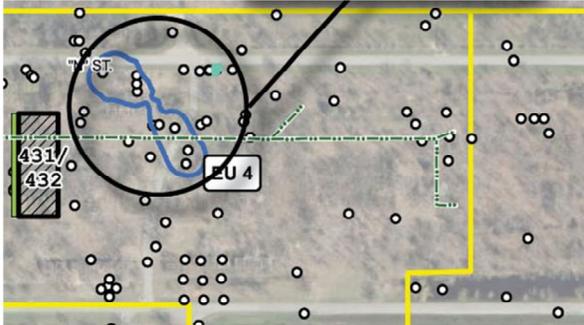
BALANCE OF PLANT AND GROUNDWATER OPERABLE UNITS IMPACTED SITE MEDIA

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Volatile Organic Compound Contaminated Groundwater

North Portion of Site
Exposure Unit 4



The estimated volume of impacted site groundwater is 3,302 gallons.



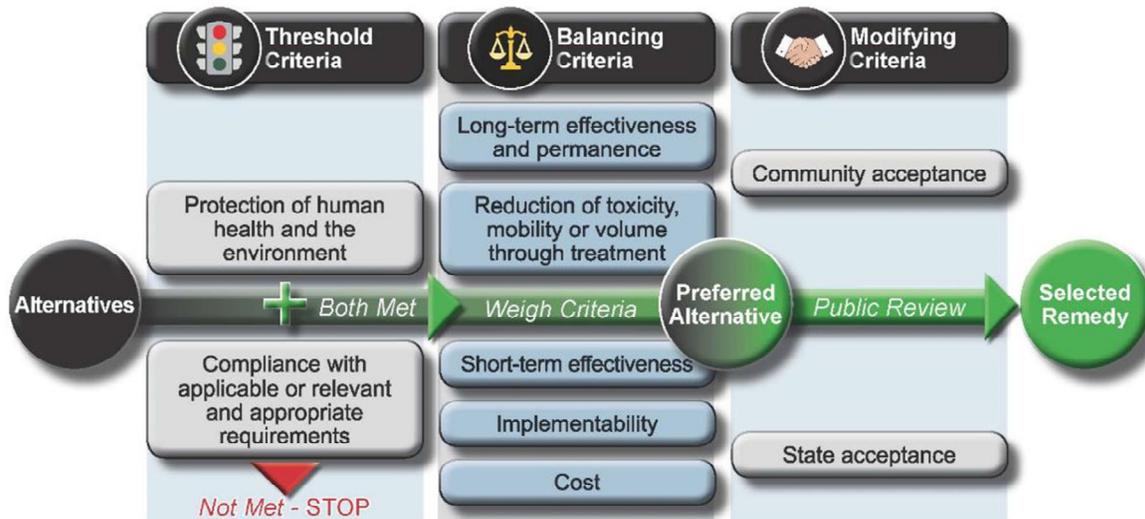
EVALUATION OF REMEDIAL ALTERNATIVES

We will now discuss the process for evaluating the alternatives developed in the feasibility study.



MANDATED CERCLA EVALUATION CRITERIA

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The feasibility study identifies, develops, and evaluates 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, and
- Cost



APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)



Radionuclides of concern in soil, road bedding, Building 433, and Buildings 430 and 431/432 foundations: Appendix A of Title 10 of the Code of Federal Regulations (CFR), Part 40, Criterion 6(6)

Polycyclic aromatic hydrocarbons (PAHs) in soil and building foundations: Title 6 New York Codes, Rules, and Regulations Part 375-6.8(b) for restricted industrial use

Polychlorinated biphenyls (PCBs) in the former Building 401 foundation and utility sediment: Toxic Substances Control Act, codified under Title 40 CFR 761

This slide identifies the applicable or relevant and appropriate requirements that all of the developed alternatives had to meet. Note that no state or federally promulgated chemical-specific regulations were identified that were either applicable, or relevant and appropriate for protection of construction worker exposure to VOC-contaminated soil and groundwater and to PCBs in Building 401 utility water. Therefore, the Corps relied on the CERCLA baseline risk assessment it conducted for the site to calculate risk-based cleanup goals for these contaminants that are protective of the construction worker exposure to groundwater and utility water.



REMEDIAL 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 and it is not protective of human health and the environment and does not meet the applicable or relevant and appropriate requirements, the alternative is removed from consideration and is used only for comparison purposes. The remaining alternatives are discussed on the next few slides. 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, is our preferred alternative.



ALTERNATIVE 2 – COMPLETE REMOVAL

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Removal of all materials exceeding preliminary remediation goals:

- ✓ Soil
- ✓ Road bedding
- ✓ Building 401 foundations and drains
- ✓ Building 433
- ✓ Foundations of Buildings 430 and 431/432
- ✓ 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 backfilled. Prior to backfilling, an amendment would be added to promote degradation of residual, dissolved-phase impacts.



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, and the foundations of former Buildings 430 and 431/432



Building foundations decontaminated

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



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

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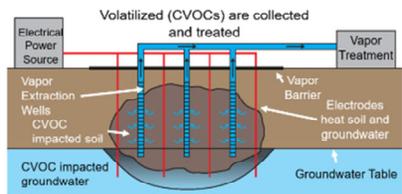


Removal of

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

Scarification of

- ✓ Building 433 and the foundations of former Buildings 430 and 431/432



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. There is a poster on our website from our feasibility study information session last year that shows *in situ* treatment in more detail.



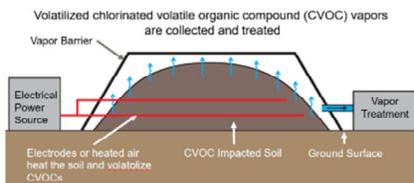
ALTERNATIVE 5 – REMOVAL WITH BUILDING DECONTAMINATION AND *EX SITU* REMEDIATION



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

Scarification of

- ✓ Building 433 and the foundations of former Buildings 430 and 431/432



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. Building 433 and the foundations of Building 430, 431/432 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. There is a poster on our website from our feasibility study information session last year that shows *ex situ* treatment in more detail.



COMPARATIVE ANALYSIS

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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

Each alternative in the feasibility study is evaluated against the balancing criteria for comparison purposes. This slide shows the first four balancing criteria. You can see that Alternatives 2 and 3 have the same rankings and Alternatives 4 and 5 have the same rankings. Alternative 3, Removal with building decontamination, is highlighted because it is our preferred alternative.



COMPARATIVE ANALYSIS

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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

A comparison of the cost estimates shows that the alternatives range in cost from approximately \$23 million to \$36 million and the times to complete each alternative vary. You can see from the analysis on the last chart and this chart that Alternative 3 achieves the same level of protectiveness for less money and in the same amount of time as Alternative 2.



PREFERRED ALTERNATIVE



REMEDIAL 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



To recap, Alternative 3 is the preferred alternative outlined in the Balance of Plant and Groundwater Operable Units proposed plan. The Corps of Engineers expects the preferred alternative to satisfy the following statutory requirements of CERCLA Section 121(b): (1) be protective of human health and the environment; (2) comply with applicable or relevant and appropriate requirements; (3) be cost-effective; and (4) utilize permanent solutions that will preclude any future environmental impact.



PREFERRED ALTERNATIVE: 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

Under Alternative 3, impacted soil, road bedding, and groundwater are removed; the Building 401 foundation and utilities are removed; and Building 433 and the foundations of Buildings 430, 431/432 are decontaminated by scarifying. FUSRAP-related material that is removed will be transported off-site for disposal at an appropriately permitted or licensed disposal facility. Following completion of Alternative 3, the site would be remediated to levels suitable for industrial use (i.e., protective of both construction and industrial workers).



COMMENTS



WRITTEN COMMENTS



Email your comments by close of business December 5, 2020 to:

fusrap@usace.army.mil

Written comments should be postmarked by December 5, 2020, and mailed to:

U.S. Army Corps of Engineers, Buffalo District
Environmental Project Management Section
1776 Niagara Street
Buffalo, NY 14207-3199

Please include "Niagara Falls Storage Site" in the subject line.

If you did not provide your comments tonight and you still would like to provide comments, please either email fusrap@usace.army.mil or submit written comments through the mail by December 5, 2020.



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/>

The full Administrative Record is available on the project website

These are the ways and places you can receive additional information about the site. This presentation is available on the web. Thank you, again everyone for participating in tonight's meeting. Please enjoy the remainder of your evening.