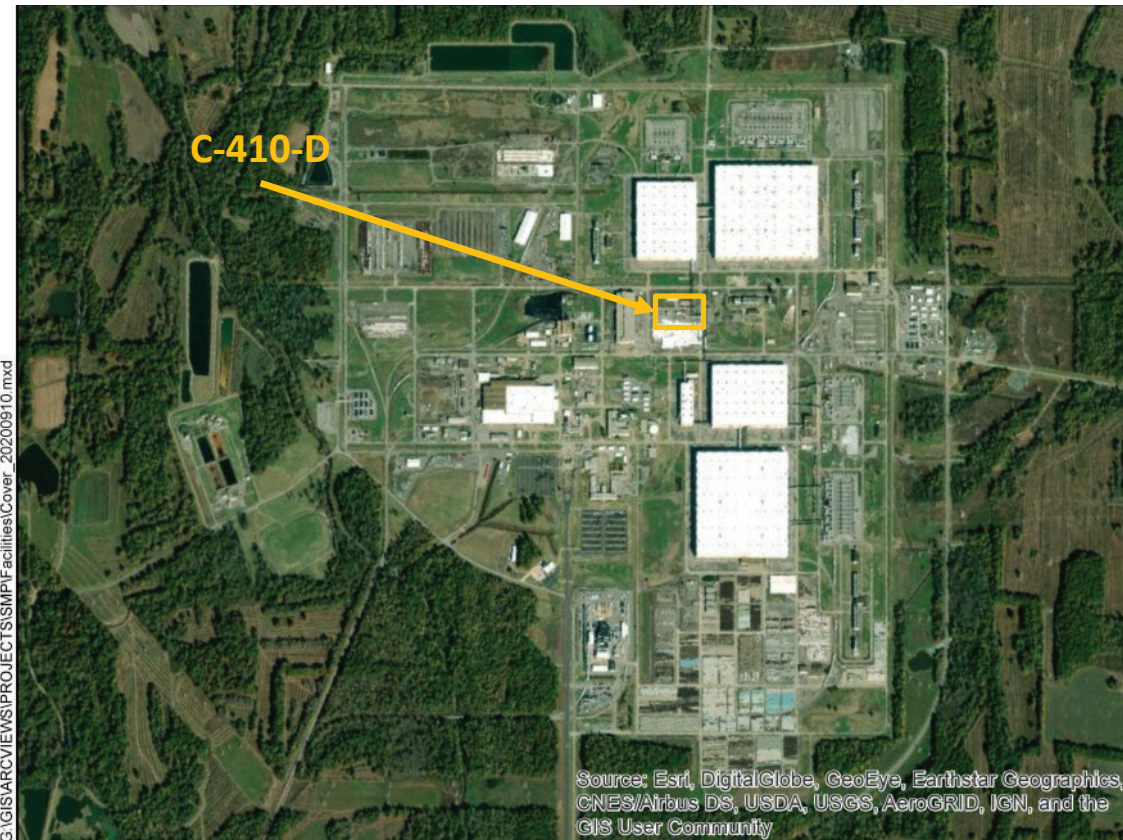


C-410-D Fluorine Storage Building



Facility Overview Briefing

March 4, 2021

Reflects consultation with EPA and Kentucky in accordance with the Site Management Plan that occurred on February 22, 2021.

Purpose

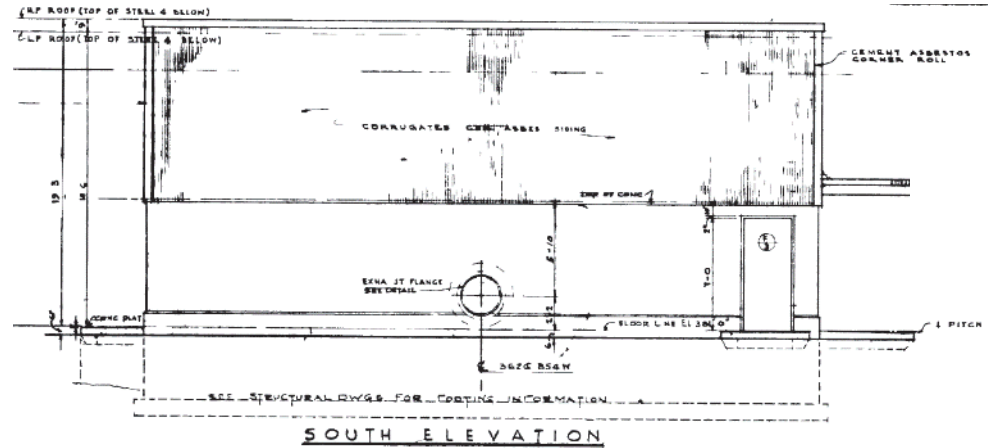
- The C-410-D Fluorine Storage Building is a candidate for future demolition and disposal, contingent upon funding priorities.
- Listed in Appendix 6 of the Site Management Plan (SMP); requires consultation with EPA and Kentucky for CERCLA screening prior to demolition.
- This presentation is intended to serve as consultation, providing the basis for demolition and disposal of the aboveground structure outside of the FFA/CERCLA process.
- The remaining slab/soils will be subject to a future CERCLA evaluation under Geographical Area (GA) 13.



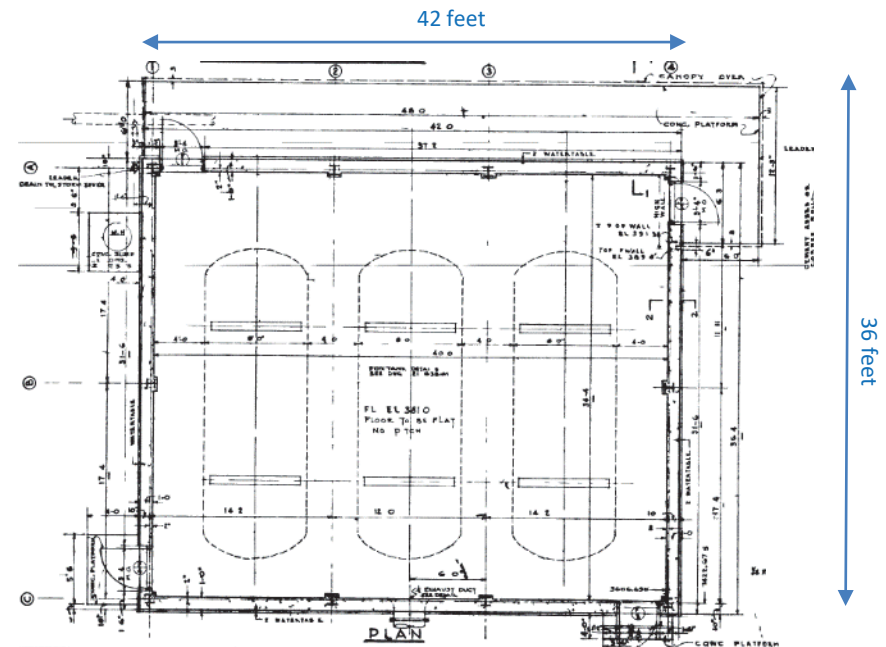
C-410-D Facility Photo: 8/2020

Construction History

- C-410-D is located within the Paducah Site security fence, north of C-410 and east of C-400.
- Construction was completed in 1953.
- The facility consists of a concrete base structure with an upper portion of structural steel and corrugated siding.
- The facility is approximately 1,512 ft².
 - ❑ Measuring ~42 ft x ~36 ft.



Side View: Excerpt from Engineering Drawing E1-33-A, Rev E dated 1951



Floor Plan View: Excerpt from Engineering Drawing E1-33-A, Rev E dated 1951

Operational History

- C-410-D operated as a support facility to the C-410 Feed Plant and was used to store fluorine needed for routine site operations from 1953 to 2019.
- The cylinder located on the east side of C-410-D is one of the two known cylinders that were used to supply the laboratory with fluorine from 1954 to approximately 1966.
- During USEC lease of the facility in the early 1990s, USEC continued to use C-410-D to store fluorine needed for routine site operations and in the mid-1990s added a Criticality Accident Alarm System (CAAS) system that included horns, an air tank, and an air compressor.



C-410-D Facility Photos: 8/2020

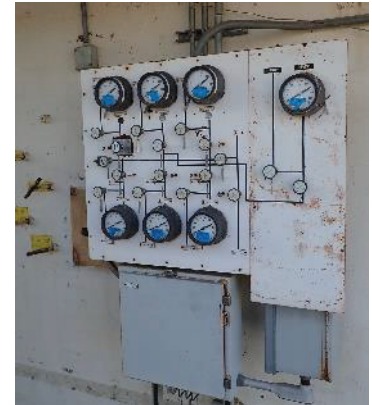
Operational History

- C-410-D transitioned from USEC to DOE in 2014 and continued to operate until 2019, when the system components, fluorine tanks, and lines were evacuated; and the system was air gapped at C-350.
 - ❑ Industrial Hygiene instrumentation for hydrogen fluoride and fluorine detection registered no detectable material remaining in the system components or lines.
- In 2019, the CAAS system was converted to an electronic system and the air tank and air compressor where taken out-of-service.
- The cylinder located outside of C-410-D also was evacuated in 2019 when the installed system components and lines in C-410-D and C-410-K were evacuated.
 - ❑ Industrial Hygiene instrumentation for hydrogen fluoride and fluorine detection registered no detectable material remaining.



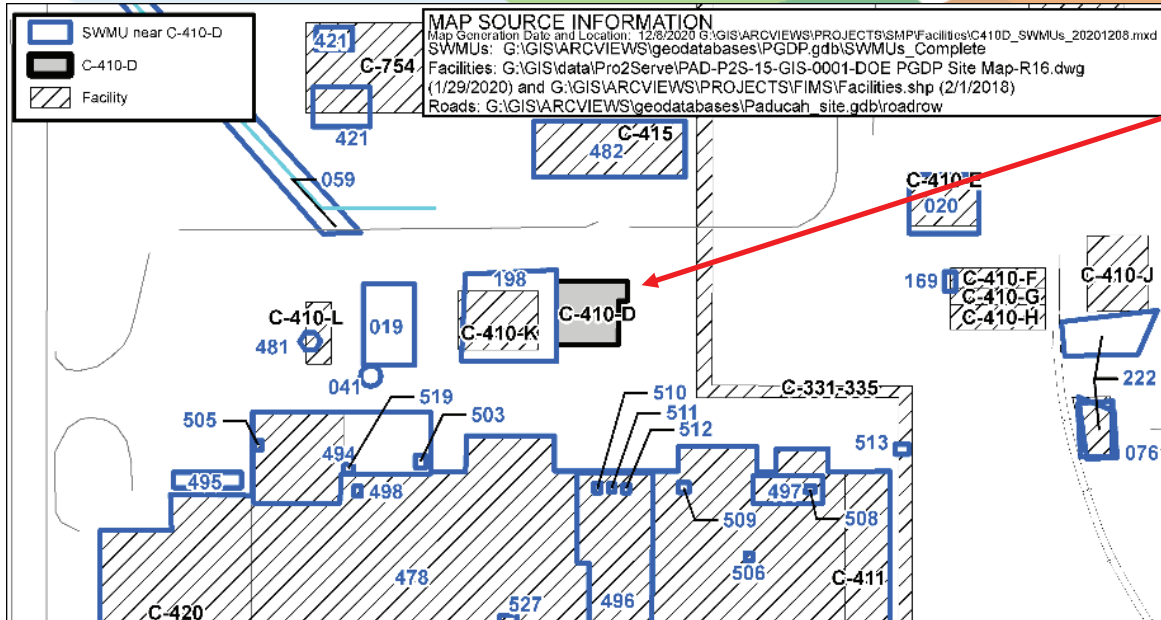
Current Status

- C-410-D is no longer operational; the fluorine tanks, CAAS air tank, and system components have been evacuated, lines have been purged and air gapped.
- C-410-D currently supports CAAS horns.
- Walkdown inspection conducted in October 2020 confirmed no unusual conditions.
 - No floor sumps or floor drains.
 - Household type products were stored and used at the facility.
 - Small oil stain from a small historical air compressor leak.
 - Fluorine tanks and CAAS air tank evacuated, lines purged and air gapped.
 - Asbestos containing materials are present in the transite panels and roof.
 - Instrument panels present.
 - Due to the presence of fixed contamination on some of the piping, the entire facility is designated as a radioactive material area (RMA).
 - Historical atmospheric releases of fluorine gas have occurred.



C-410-D Facility Photos: 10/2020

Environmental Impacts (Solid Waste Management Units)



- The C-410-D Fluorine Storage Building is not designated as a SWMU/AOC.
 - It should be noted that AOC 198 (C-410-D Area Soil Contamination) is located west of C-410-D and beneath C-410-K and exhibits detectable radiological and PCB contamination. These two contaminants are the result of legacy contamination and not related to the C-410-D or C-410-K facility.

SWMU No.	Facility Name	Current Status
019	C-410-B HF Neutralization Lagoon	Soils Remedial
020	C-410-E HF Emergency Holding Pond slab and underlying soils	Soils and Slabs OU
041	C-410-C Neutralization Tank slab and underlying soils	Soils and Slabs OU
059	NSDD (Inside)	Final CSOU
076	C-632-B Sulfuric Acid Storage Tank	Soils Remedial
169	C-410-E HF Vent Surge Protection Tank	Soils Remedial
198	C-410-D Area Soil Contamination slab and underlying soils	Soils and Slabs OU
222	OS-11	Soils Remedial
421	G-754-01	NFA (KDWM 1/4/2006)
478	C-410/420 Feed Plant building slab and underlying soils	Soils and Slabs OU
481	C-410-A Hydrogen Holder	NFA (KDWM 4/2/2002)
482	C-415 Feed Plant Storage Building slab and underlying soils	Soils and Slabs OU and Remaining D&D
494	Ash Receiver Area in C-410/420	NFA (KDWM 6/3/2016; EPA 6/9/2016)
495	C-410-I Ash Receiver Shed	NFA (KDWM 6/3/2016; EPA 6/9/2016)

SWMU No.	Facility Name	Current Status
496	C-410 Fluorine/Hydrogen Filters (Northeast Mezzanine)	NFA (KDWM 6/3/2016; EPA 6/9/2016)
497	C-410/420 F ₂ Cell Neutralization Room Vats	NFA (KDWM 6/3/2016; EPA 6/9/2016)
498	C-410/420 Sump at Column D & E-1&2 slab and underlying soils	Soils and Slabs OU
503	C-410/420 Sump at Column G-1 slab and underlying soils	Soils and Slabs OU
505	C-410/420 Sump at Column A-3N slab and underlying soils	Soils and Slabs OU
506	C-410/420 Sump at Column Wa-9 slab and underlying soils	Soils and Slabs OU
508	C-410/420 Settling Basin slab and underlying soils	Soils and Slabs OU
509	C-410/420 Drain pit slab and underlying soils	Soils and Slabs OU
510	C-410/420 Sump at Column P&Q-2 slab and underlying soils	Soils and Slabs OU
511	C-410/420 Sump at Column Q&R-2 slab and underlying soils	Soils and Slabs OU
512	C-410/420 Sump at Column R-2 slab and underlying soils	Soils and Slabs OU
513	C-411 Cell Maintenance Room Sump slab and underlying soils	Soils and Slabs OU
519	C-410 Sulfuric Acid Tank (C-634-B)	NFA (KDWM 1/10/2003)
527	C-410 GSA/SAA at Column J-6	NFA (KDWM 8/28/2007)

Environmental Impacts

- No information to indicate a release or threatened release of a hazardous substance that would require an evaluation for a potential response action to protect future public health or welfare or the environment.

- ❑ C-410-D was operated as a support facility to the C-410 Feed Plant and was used to store fluorine needed for routine site operations from 1953 to 2019.
 - Due to the presence of fixed contamination on some of the piping the entire facility is designated as an RMA.

- ❑ Building materials used for construction may contain lead-based paints and asbestos materials, both of which can be effectively verified during a predemolition inspection and properly managed using standard demolition and waste management practices.
 - C-410-D has asbestos containing materials present in the transite panels and roof.

- ❑ No history or records of chemical use or spills that would pose environmental release threat.
 - Historical releases of fluorine gas have occurred; fluorine is no longer present in the facility; nor were any historical atmospheric releases expected to have resulted in unacceptable environmental contamination.

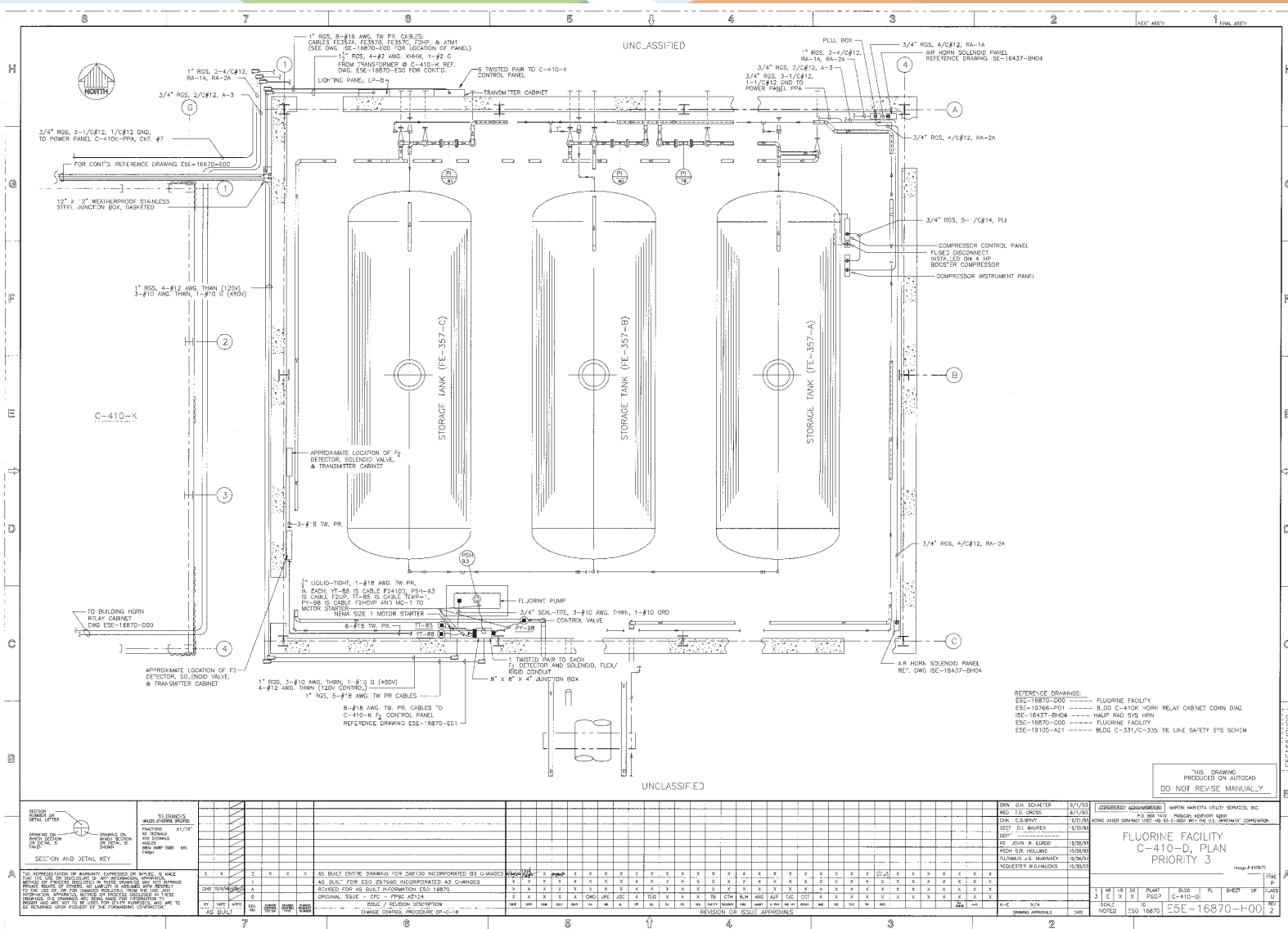
Conclusion and Recommendations

- Walkdown inspection of the facility, employee interviews, and other reviewed historical information did not identify any unusual conditions that would pose a potential threat of environmental release during future demolition of the aboveground structure.
 - ❑ Deactivation will include removal of any accessible loose items being stored, including those areas designated as RMAs, to the extent practicable, prior to demolition.
- Subject to completion of deactivation and availability of funding, proceeding with demolition and disposal of C-410-D (aboveground structure) outside of the FFA/CERCLA process, contingent upon the fact that no additional changes have occurred that would affect the CERCLA determination of the facility prior to demolition, is recommended.
- All applicable laws, regulations, and DOE procedures/protocols will be followed to ensure the demolition and disposal of the aboveground structure occurs in a safe, compliant manner, including conducting any additional radiological characterization through confirmation radiological surveys (as necessary) to support demolition and waste disposition.
- Removal of the C-410-D facility will be documented in the appropriate annual SMP revision.
- The future evaluation conducted for GA 13 will further evaluate the potential threat of release associated with the concrete pad/soils from the C-410-D facility.

C-410-D Fluorine Storage Building

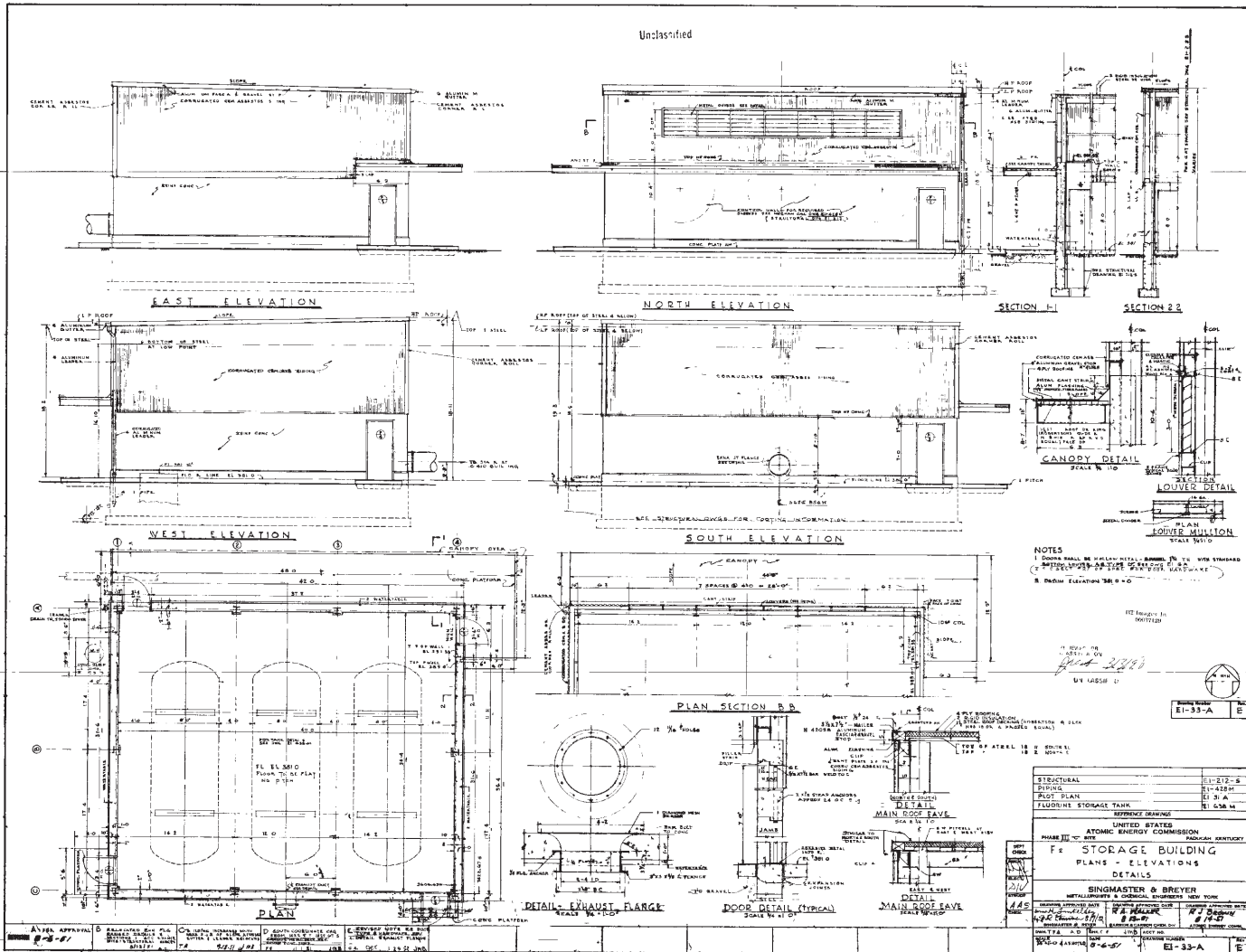
BACKUP INFORMATION

C-410-D Engineering Drawings



ESE-16870-H00, Rev 2

C-410-D Engineering Drawings



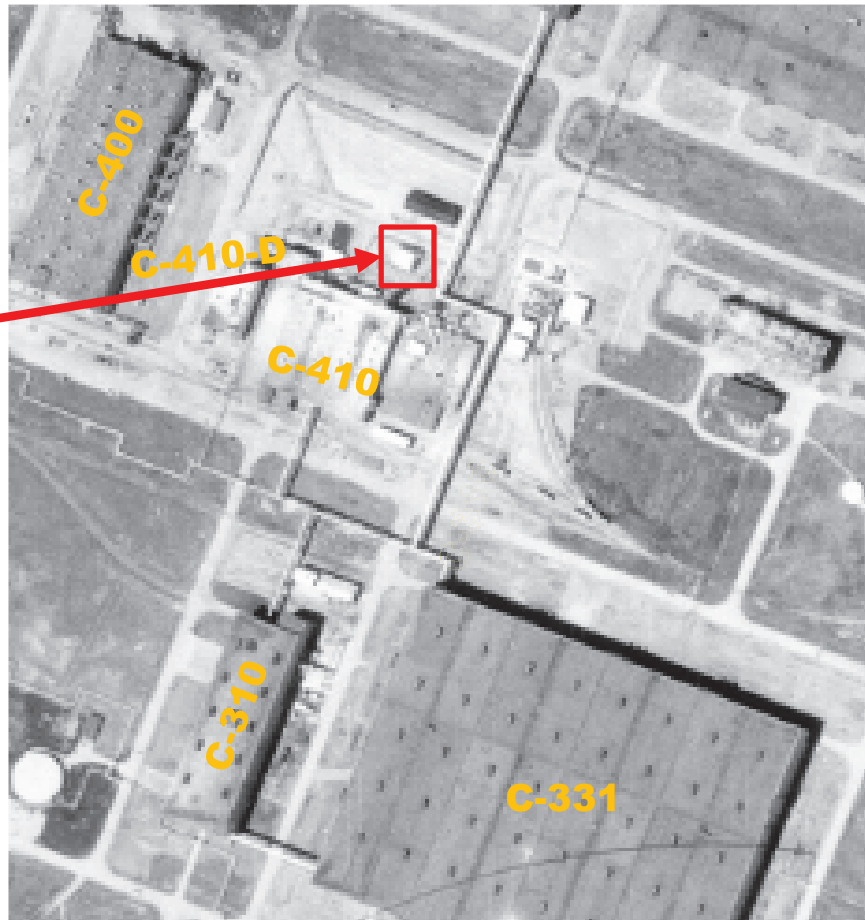
Unclassified

MACSHILL

E1-33-A, Rev E

C-410-D Aerial Photograph

C-410-D



Modified from Aerial Photo: May 14, 1971 (ADZ-4LL-7)