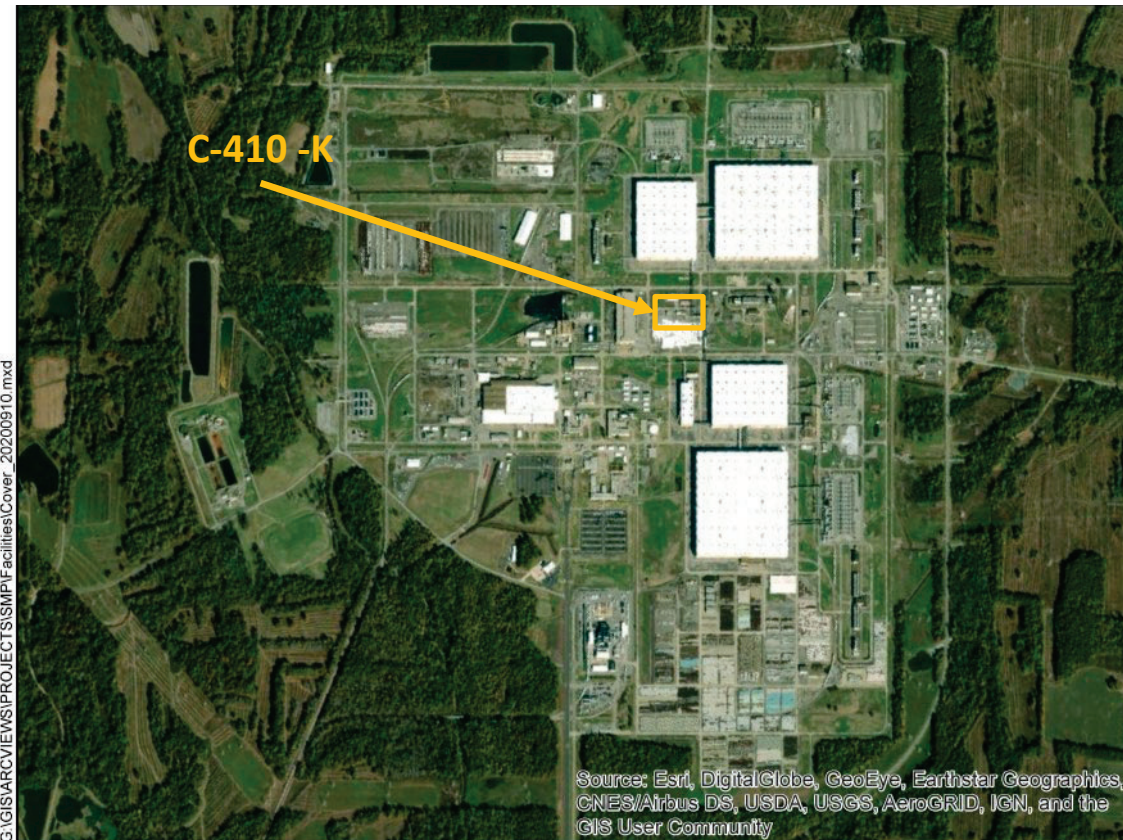


# C-410-K Fluorine Facility



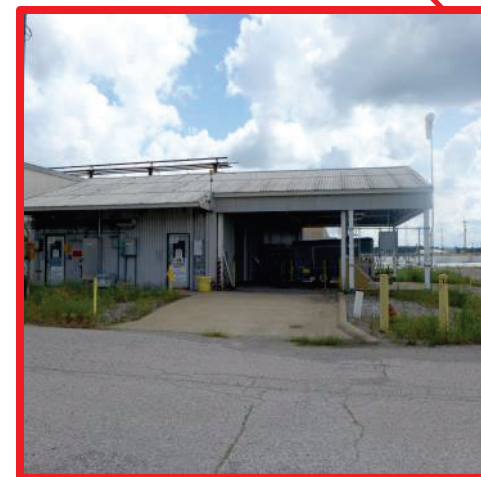
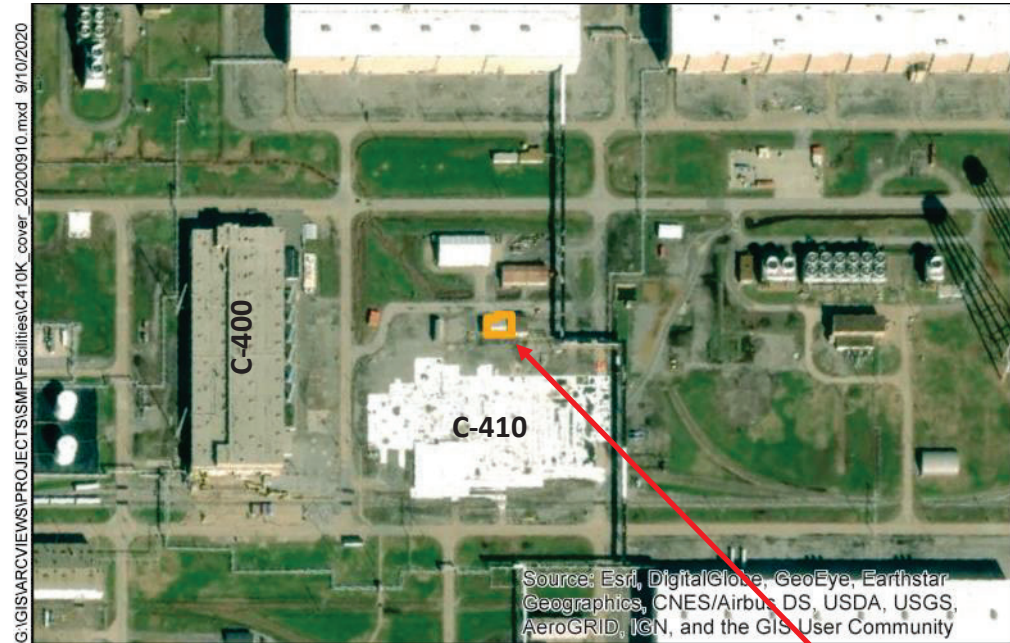
## Facility Overview Briefing

March 4, 2021

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

# Purpose

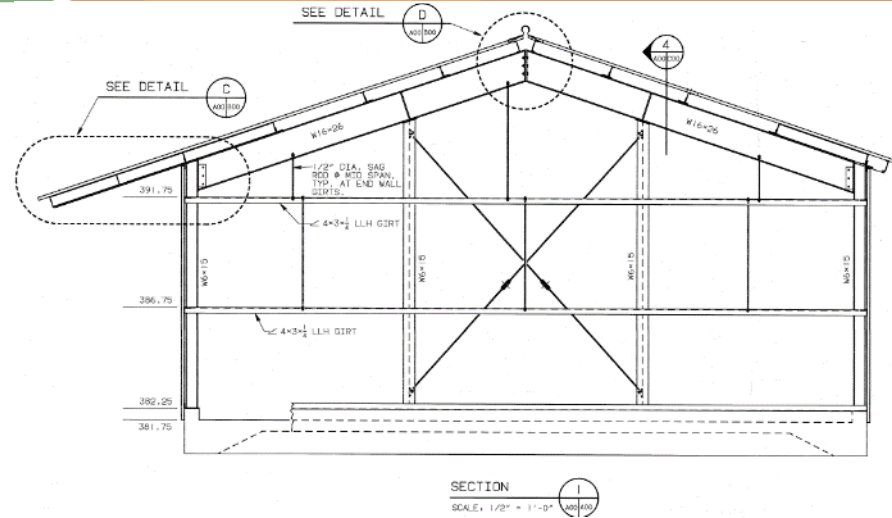
- The C-410-K Fluorine Facility is a candidate for future demolition and disposal, contingent upon funding priorities.
- Listed in Appendix 6 of the Site Management Plan (SMP); requires consultation with EPA and Kentucky for CERCLA screening prior to demolition.
- This presentation is intended to serve 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.



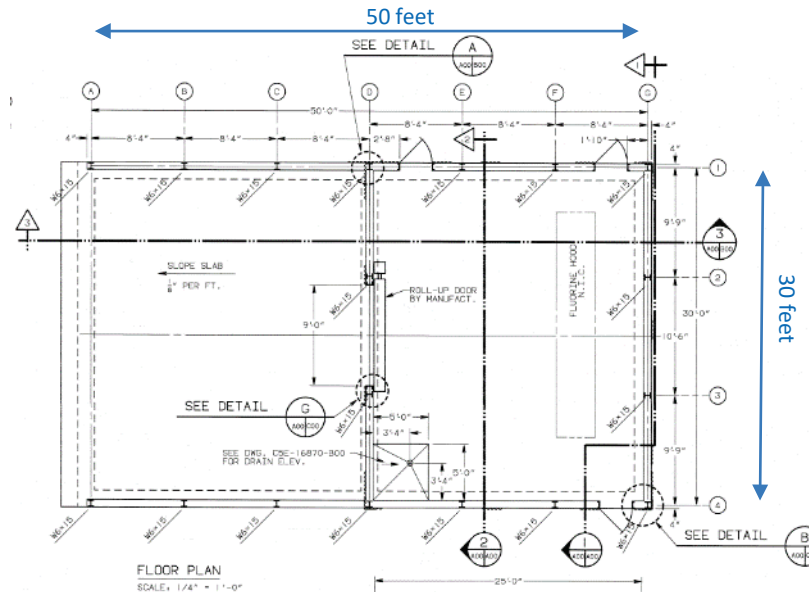
C-410-K Facility Photo: 8/2020

# Construction History

- C-410-K is located within the Paducah Site security fence, north of C-410 and east of C-400.
- Construction was completed in 1993.
- The facility consists of structural steel and corrugated siding with fiberglass insulation.
- The facility is approximately 1,500 ft<sup>2</sup>.
  - ❑ Measuring ~50 ft x ~30 ft.
- During construction of the facility, characterization sampling of the construction area identified detectable levels of PCBs and radionuclides associated with legacy contamination not related to the facility; as a result of the contamination, the area underneath C-410-K was designated as Area of Concern (AOC) 198.



Side View: Excerpt from Engineering Drawing S5E-16870-A00, Rev 0 dated 1993



Floor Plan View: Excerpt from Engineering Drawing S5E-16870-A00, Rev 0 dated 1993



# Operational History

- C-410-K operated as a support facility to supply fluorine to the fluorine storage tanks located in C-410-D.
- C-410-K replaced the C-410 facility which had previously supplied fluorine to C-410-D prior to ceasing operations in 1993.
- During USEC lease of the facility in the early 1990s, USEC continued to use C-410-K to supply fluorine to the fluorine storage tanks located in C-410-D.
- C-410-K transitioned from USEC to DOE in 2014 and continued to operate until 2019, when the system components 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.
- C-410-K is currently used to store clean PPE in support of C-400 deactivation work.



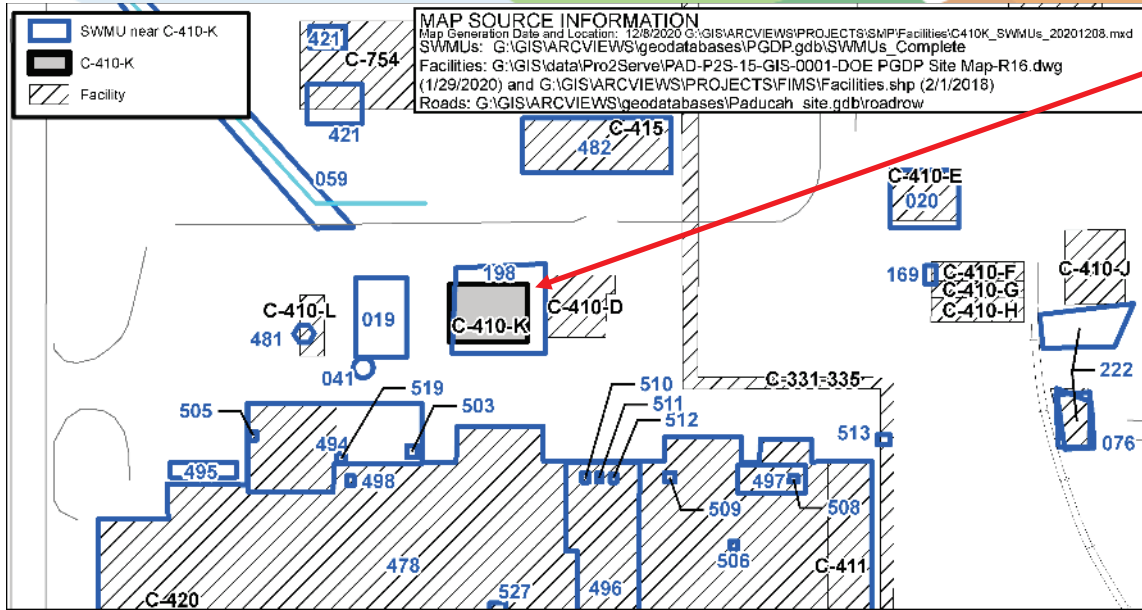
C-410-K Facility Photos: 10/2020

# Current Status

- C-410-K is no longer operational; the lines have been purged and air gapped.
- Walkdown inspection conducted in October 2020 confirmed no unusual conditions.
  - ❑ No floor sumps.
  - ❑ Single floor drain that supports safety shower.
  - ❑ Helium and potassium iodine were stored and used to detect/evaluate potential fluorine system leaks.
  - ❑ Acetone and DuPont Vertrel MCA were stored and used to clean and degrease cylinder connections ensuring areas were oil free.
  - ❑ No known chemical spills.
  - ❑ Lines purged and air gapped.
  - ❑ Household type products were stored and used at the facility.
  - ❑ Due to the presence of fixed contamination on some of the cabinets used for storage of material and some of the associated piping, portions of the facility are designated as radioactive material areas (RMAs).
  - ❑ Historical atmospheric releases of fluorine gas have occurred.



# Environmental Impacts (Solid Waste Management Units)



The C-410-K Fluorine Facility is not designated as a SWMU/AOC.

- AOC 198 (C-410-D Area Soil Contamination) is located 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-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 <sub>2</sub> 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-K was operated as a support facility to supply fluorine to the fluorine storage tanks located in C-410-D from 1993 to 2019.
  - Due to the presence of fixed contamination on some of the cabinets used for storage of material and some of the associated piping, portions of the facility are designated as an RMA.
  - Area beneath the facility contains detectable PCBs and radionuclides (AOC 198); will be evaluated as part of the Soils and Slabs OU.
  
- ❑ Building materials used for construction could 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.
  
- ❑ 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

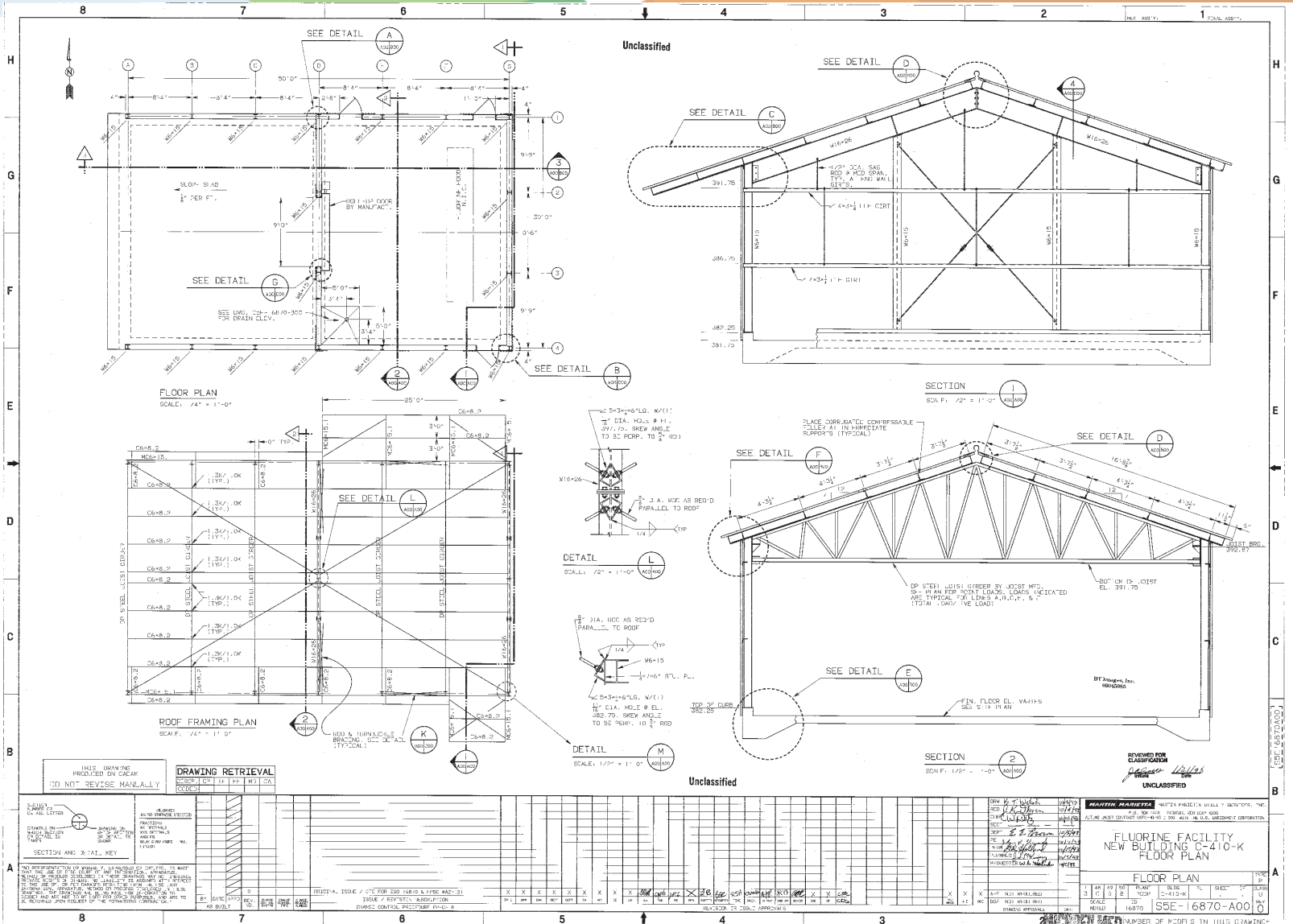
- Walkdown inspection of the facility, employee interviews, and other reviewed historical information did not identify any unusual conditions that would pose a potential threat of environmental release during future demolition of the aboveground structure.
  - ❑ Deactivation will include removal of any 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-K (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.
- The removal of the C-410-K 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 slab/soils from the C-410-K facility.



# C-410-K Fluorine Facility

## BACKUP INFORMATION

# C-410-K Engineering Drawings



# C-410-K Engineering Drawings

