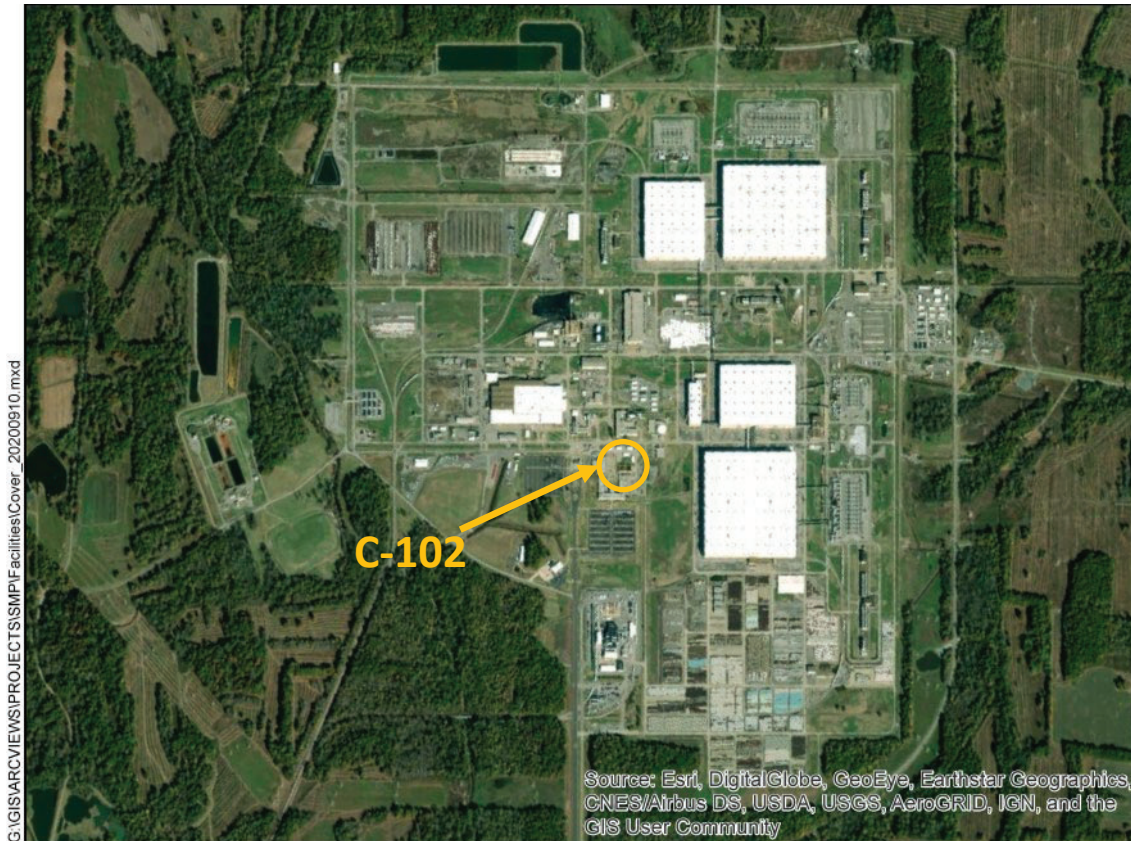




C-102 Hospital



G:\GIS\ARCVIEW\PROJECTS\SMPI\Facilities\Cover_20200910.mxd

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Facility Overview Briefing

November 9, 2021

Reflects consultation with EPA and Kentucky in accordance with the Site Management Plan that occurred on November 8, 2021.

Purpose

- The C-102 Hospital 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 slab/soils will remain and be subject to further CERCLA evaluation as part of a future site evaluation conducted under Appendix 4 of the SMP.



C-102 Facility Photo: 9/2021

Operational History

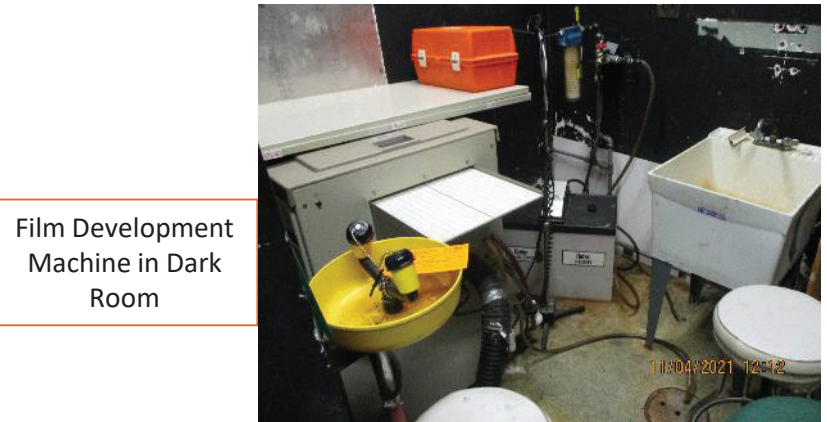
- C-102 was originally built and operated as a hospital from its construction in 1953 to present.
 - ❑ Waiting Area/Offices/Conference Room
 - ❑ Medical Laboratory
 - ❑ Exam Rooms (General, EKG, Hearing)/Bed Wards
 - ❑ First Aid Room/Decontamination/Treatment Room
 - ❑ Men's and Women's Restrooms, Showers, and Lockers

- An x-ray and a darkroom were operated from 1975 to 2010.
 - ❑ Used for developing x-rays of plant personnel.
 - ❑ Lead shielding panels and lead aprons were historically used in the facility; no visible signs of lead shielding panels or lead aprons were identified during the facility walkdown.
 - ❑ Process equipment used in the developing of x-rays was a number of stop baths that contained fixers and developers.
 - ❑ Spent solutions contained silver and would most likely have been considered a hazardous waste material.
 - ❑ Silver was recovered from x-ray and photographic solutions in the darkroom from the early 1980's until 1990 (SWMU 532).
 - Two units were used to remove and recover silver.
 - Both units were continuous flow and were operated in series.
 - The system had a combined tank capacity of 40 gallons (20 gallons/unit).
 - All solutions were drummed inside C-102 with no potential release to the environment from operations.
 - ❑ The 1992 air permit application identified the C-102 air pollutant of concern as acetic acid.

x-ray Machine



Technician's Protective Enclosure



Film Development Machine in Dark Room

Operational History

- On January 19, 1985, approximately 1,400 gallons of chromated water from the chilled water system located in the basement leaked to the storm water system.
 - ❑ The leak was due to a failure of a chilled water coil.
 - ❑ The total chromium discharge was calculated to be 3.8 lb.
 - ❑ The average concentration at NPDES discharge point 001 (now KPDES Outfall 001) was calculated to be 0.1 mg/l.
- USEC leased the facility in the early 1990s and continued to use it until USEC ceased operations in 2014.
- The facility was transitioned from USEC to DOE in 2014.



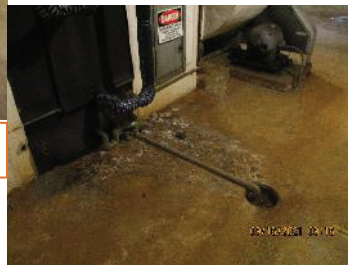
Laboratory Work Station



Middle Hallway Work Station



Basement Sump and Drain



Emergency Medical Equipment Storage Room



Current Status

- C-102 remains operational and is used as a hospital.
- Walkdown inspections conducted in September and November 2021 and employee interviews confirmed no unusual conditions.
 - ❑ Medical supplies and cleaning supplies are stored in the facility in small quantities and in accordance with regulatory requirements and site procedures.
 - ❑ Current waste streams include bio-hazardous wastes and office waste.
 - ❑ Lead shielding panels were not visibly identified; however, the door and thick concrete walls in the former x-ray room may contain lead.
 - ❑ Floor drains in the hospital tie into the sanitary sewer system.
 - ❑ Floor drains in the basement tie into the storm water system.
 - ❑ Asbestos-containing materials (ACM) and lead-based paint are located throughout the facility.
 - ❑ Ventilation duct gaskets impregnated with concentrations of PCBs which exceed 500 ppm are located in the facility, but no evidence of leaking.
 - ❑ One known chromated water spill that occurred in 1985.
 - ❑ Staining on the former dark room and basement floors.
 - ❑ Empty chemical boxes remain in the dark room.
 - ❑ Not used for radiological storage; however, the facility is in a Radiological Controlled Area.
 - ❑ No satellite accumulation areas (SAA) or generator staging areas (GSA).
 - ❑ No flammable storage cabinets.



Trauma Center Room

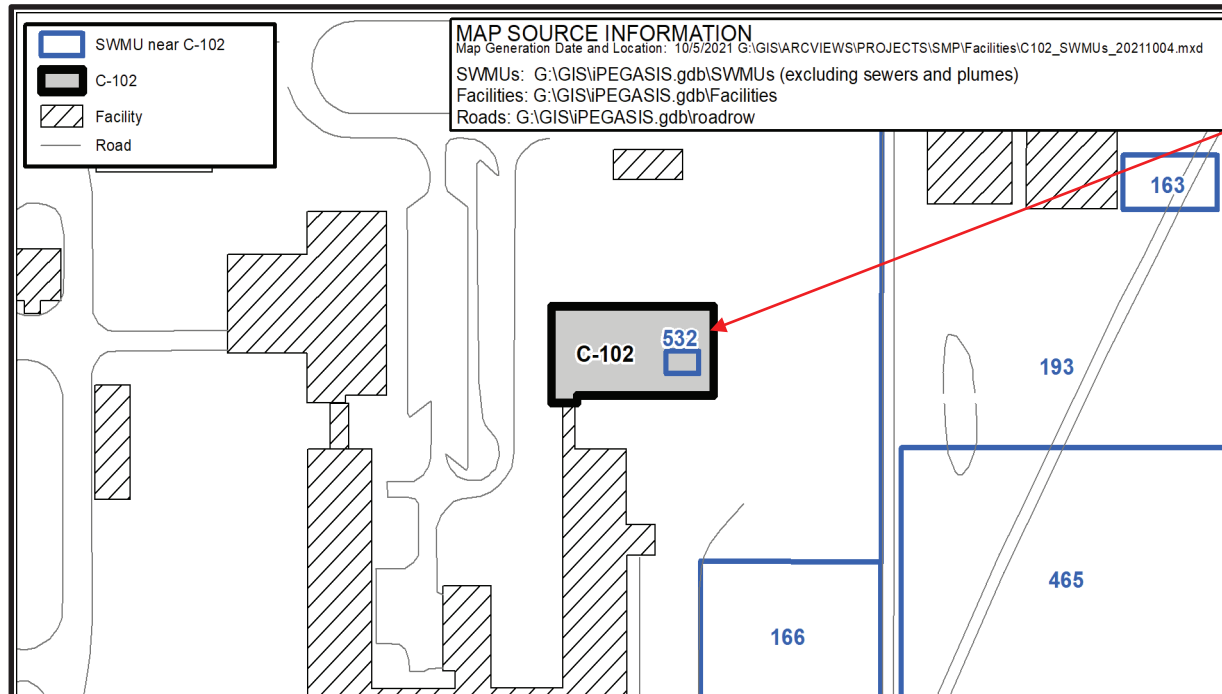
Nurses Station Supply Room



Emergency Decontamination Room



Environmental Impacts (Solid Waste Management Units)



- The C-102 Hospital is not designated as a SWMU/AOC.
- SWMU 532 (located in the former dark room) was used to recover silver from x-ray and photographic processing solutions. There has been no recovery of silver since 1990.

SWMU No.	Facility Name	Current Status	NFA Approval By
163	C-304 Bldg./HVAC Piping System (Soil Backfill)	Soils OU	
166	C-100 Trailer Complex Soil Contamination (East Side)	Soils and Slabs OU	
193	McGraw Construction Facilities (Southside Cylinder Yards)	DUF6 Footprint Underlying Soils OU	
465	Yard Rubble Pile and Crushate Storage Area (G-Yard)	NFA	KDWM 10/13/2009
532	Photographic Solution Treatment Area in the C-102 Building	NFA	KDWM 5/21/2003

Environmental Impacts

- No information to indicate a release or threatened release of a hazardous substance that would require a CERCLA evaluation for a potential response action for demolition of the aboveground structure to protect future public health or welfare or the environment.
 - ❑ C-102 was originally constructed and operated as a hospital from its construction in 1953 to present.
 - ❑ The former x-ray room may contain lead in the door, thick concrete walls and/or lead shielding panels.
 - ❑ C-102 is identified in the TSCA Compliance Agreement as potentially having impregnated PCBs in ventilation duct gaskets.
 - Confirmed not to be leaking; gaskets can be evaluated for removal during deactivation prior to demolition.
 - ❑ Building materials used for construction contain lead-based paints and ACM, both of which can be effectively verified during a pre-demolition inspection and properly managed using standard demolition and waste management practices.
 - ❑ On January 19, 1985, approximately 1,400 gallons of chromated water from the chilled water system leaked to the storm sewer system. The maximum chromium discharge was calculated to be 3.8 lb, and the average concentration at NPDES discharge point 001 (now KPDES Outfall 001) was calculated to be 0.1 mg/l. This was slightly in excess of the maximum permitted daily discharge of 0.08 mg/l.

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 lead aprons and any lead in the door, thick concrete wall or shielding panels in or near the former x-ray room) and ventilation duct gaskets (to the extent practicable) prior to demolition.
 - ❑ Any floor drains and sumps will be delineated, documented, and isolated prior to demolition.
 - ❑ An evaluation will be made to determine if any measures may be appropriate to stabilize and/or isolate the basement (or portions thereof) from the main floor prior to demolition.
- Pending ceasing of operation, deactivation, and availability of funding, proceeding with demolition and disposal of the C-102 facility (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.

Conclusion and Recommendations

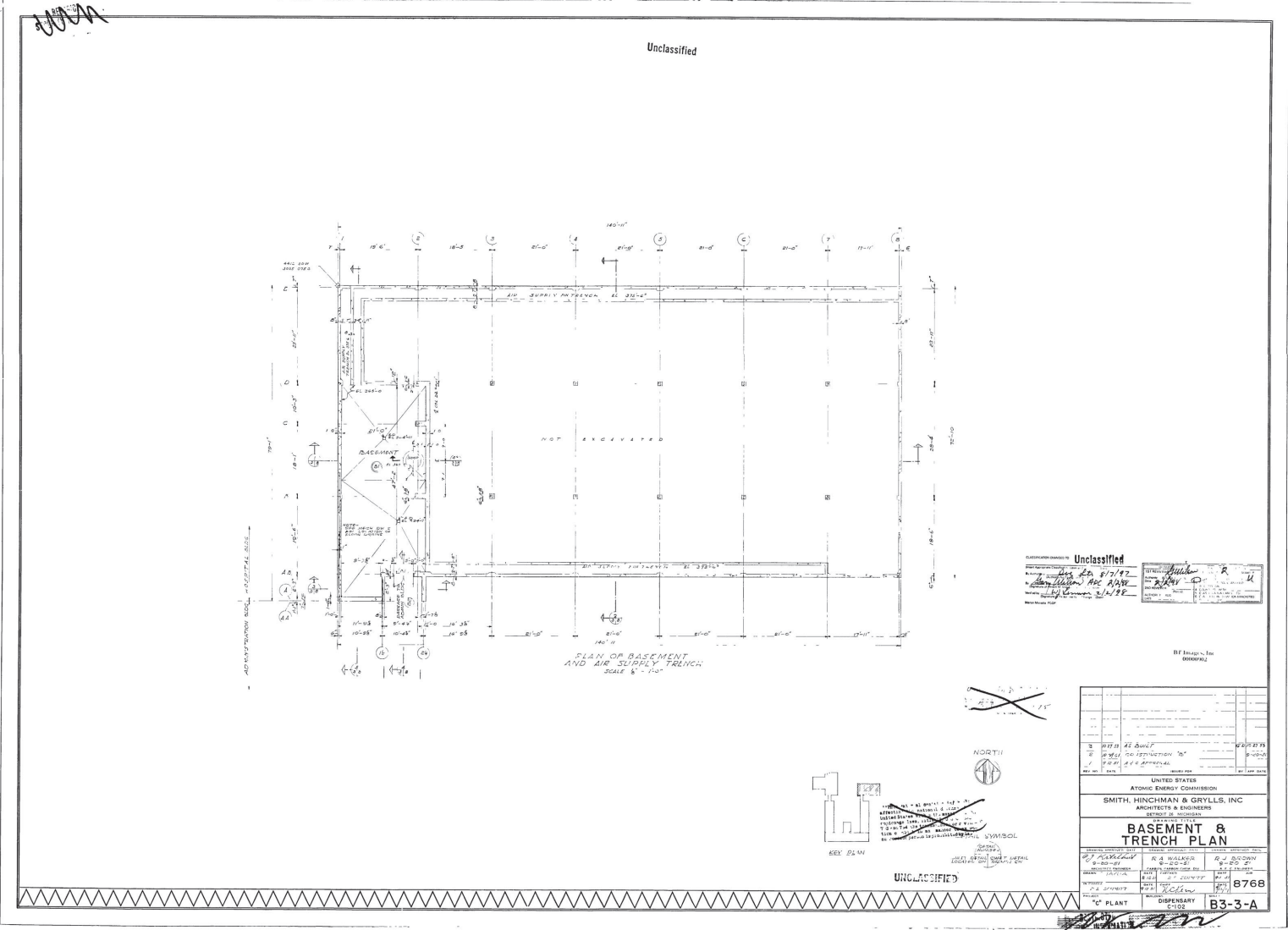
- As part of the demolition of the aboveground structure, the appropriate best management practices (BMPs) will be evaluated and implemented (as needed) to prevent/minimize the pooling and/or migration of storm water that may come into contact with any contamination that may exist on the pad/subsurface structure(s). For example, the following BMPs will be implemented as necessary:
 - ❑ Radiological surveying will occur following demolition.
 - ❑ Decontamination and/or application of fixatives and/or barriers to contaminated surfaces above regulatory posting limits.
 - ❑ Isolation measures and other types of barriers to minimize and/or control runoff/pooling of contaminated storm water [e.g., seal inlets to drains/sumps/subsurface structure(s)].

- Based on the leak of approximately 1,400 gallons of chromated water from the chilled water system to the storm sewer system, it is recommended that the underlying slab and soils undergo further CERCLA evaluation as part of a future site evaluation conducted under Appendix 4 of the SMP.
 - ❑ Consideration will be given to coordinate the timing of the future C-102 site evaluation to occur prior to removal of the C-102 aboveground structure. The development of a schedule for future site evaluations, including C-102, will be addressed as part of the fiscal year 2022 or 2023 SMP scoping.

- Removal of the C-102 facility will be documented in the appropriate annual SMP revision.

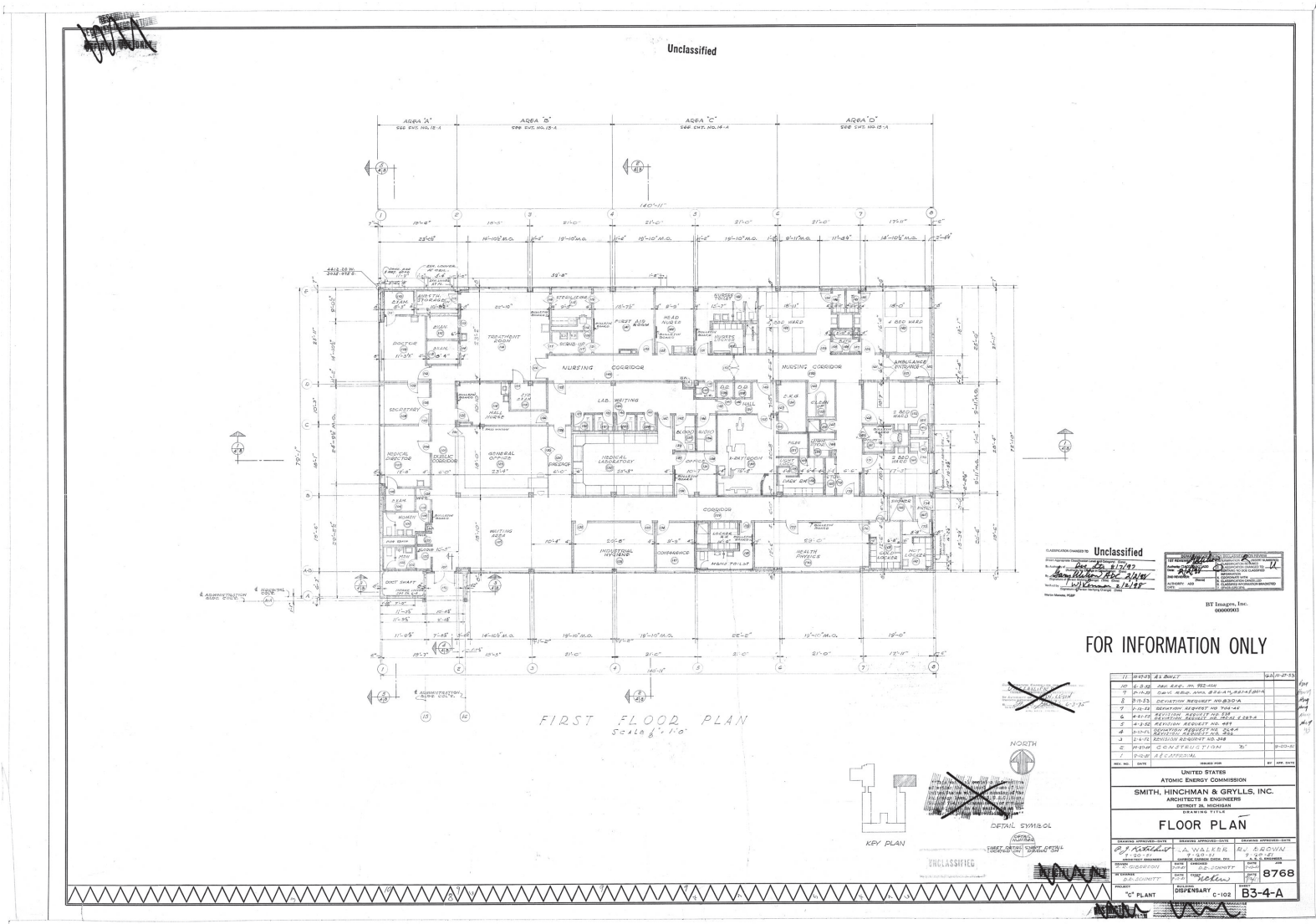
BACKUP INFORMATION

C-102 Engineering Drawings



B3-3-A_0001_0003, dated 1953

C-102 Engineering Drawings



B3-4-A_0001_0011, dated 1953

C-102 Sources

- Engineering Drawings:
 - Provided in presentation
- Databases:
 - USEC's BPS
 - Issues Management System
 - Regulatory Compliance Archive Spill Log (pre-2018)
 - PCB Database (1989 – 2021)
 - Active GSAs and SAAs Master List
- Employee Interviews:
 - Facility Manager (8 years plant expertise)
 - Compliance Subject Matter Expert (45 years plant expertise)
- Documents:
 - Paducah Gaseous Diffusion Plant Environmental Monitoring Report for 1985, KY-755, May 1986
 - Existing Source Operating Permit Application May 11, 1992
 - Report for Environmental Audit Supporting Transition of the Gaseous Diffusion Plants to the United States Enrichment Corporation, DOE/OR/1087&V5, June 1993
 - Paducah Gaseous Diffusion Plant Sitewide Strategy Facility Background Information, FPDP-RPT-0021, May 2016
 - Final TSCA FFCA Modification May 30, 2017