

**PRELIMINARY ASSESSMENT/SITE INSPECTION REPORT
AND SWMU ASSESSMENT REPORT**

UNIT NUMBER: 508

UNIT NAME: C-410/420 Complex – Settling Basin

DATE: 12/20/01

REGULATORY STATUS: Solid Waste Management Unit (SWMU)

LOCATION: Settling Basin is located in the C-410/420 Complex at Column X-1&2

APPROXIMATE DIMENSION: 5 ft x 3 ft x 5 ft, 3 in.

FUNCTION: Served as a neutralization vat in the cell neutralization room for preparing fluorine cells for maintenance work. As electrolyte sludge would tend to accumulate in the bottom of the vat, it served as a settling basin as well.

BRIEF HISTORY: The C-410 complex was constructed to produce uranium hexafluoride from uranium trioxide by a series of reduction, hydrofluorination, and fluorination reactions. The complex began operation in 1953 and, with the exception of a four-year shutdown from 1964 to 1968, operated continuously until 1977. Fluorine was provided by an electrolytic process.

Cells requiring servicing were first emptied of electrolyte. This was accomplished at the filling area, with electrolyte forced from the removed cell via air pressure into a repaired cell to be conditioned. The cell head was removed and the cell body was submerged in the settling basin (SWMU 508) and allowed to soak to remove/neutralize any remaining electrolyte. The basin contained a soda ash solution, which was replenished as needed to maintain appropriate pH levels, until such time as a complete changeout of solution was necessary. The head was attached to the nearby inverter mechanism and sprayed with water to wash off any residual electrolyte. The body was subsequently removed from the settling basin and sprayed off in a similar fashion to remove any adhering materials.

The inverter trough drained continuously to the sludge pit (SWMU 513) located outside the C-410 facility, ultimately flowing to the holding pond (SWMU 19). The discharge was primarily water with some electrolyte residual. As noted above, the settling basin was periodically emptied of spent soda ash solution. This material, which contained electrolyte sludge, discharged to the sludge pit. The sludge was collected here, with the liquid component flowing on to the holding pond.

OPERATIONAL STATUS: Inactive

DATES OPERATED: July 1953 to July 1964 and July 1968 to May 1977

SITE/PROCESS DESCRIPTION: Periodically, the electrolyte in the fluorine production cells would require replacement. The cells were removed from service, air purged to remove the majority of the electrolyte, and moved to the Cell Neutralization room. This area provided the capability to clean (i.e., purge/neutralize) F₂ cells in two large vats prior to maintenance work in C-411. The procedure was to remove the cell head and attach it to the inverter mechanism over the inverter vat (SWMU 497). It was subsequently spray washed using a water hose to remove any residual electrolyte. The cell body was lowered into the neutralization vat (settling basin) to neutralize/remove residual electrolyte remaining for the air purging operation. Once neutralized, the body was transferred to the inverter station for spray washing.

A soda ash solution was used in the settling basin to neutralize the electrolyte. Soda ash was periodically added to maintain acceptable pH levels. When the solution was spent, it was discharged via underground piping to a sludge pit (SWMU 513), where the solids accumulated, while the liquids flowed on to the holding pond (SWMU 19). The discharge pipe is located in the sidewall of the basin. No other discharge is illustrated. On a somewhat infrequent basis, the sludge was removed from the pit; however, its ultimate disposition is unknown.

WASTE DESCRIPTION: The waste consisted of spent soda ash solution and neutralized cell electrolyte. The latter contained sodium bifluoride and lithium fluoride, along with residual HF.

WASTE QUANTITY: Visual inspection of the settling basin in the neutralization room showed it to be empty.

SUMMARY OF ENVIRONMENTAL SAMPLING DATA: NA

DESCRIPTION OF RELEASE AND MEDIA AFFECTED: No releases from this SWMU have been documented.

GROUNDWATER: There are no known groundwater impacts from this SWMU.

SURFACE WATER: There are no known surface water impacts from this SWMU.

SOIL: There is no known impact on surface soils from this SWMU.

ECOLOGY AFFECTED (i.e., threatened/endangered species): No known impacts. No federal or state listed T&E plant or animal species have been identified. The federally endangered Indiana bat (*Myotis sodalis*) potentially occurs in the vicinity, but the C-410 complex does not provide a suitable habitat.

DOCUMENTATION OF NO RELEASE: NA

IMPACT ON OR BY OTHER SWMU/AOC: The following SWMUs are in the vicinity of the C-410/420 complex:

SWMU 11	SWMU 19	SWMU 20	SWMU 26
SWMU 40	SWMU 41	SWMU 47	SWMU 78
SWMU 169	SWMU 198	SWMU 203	

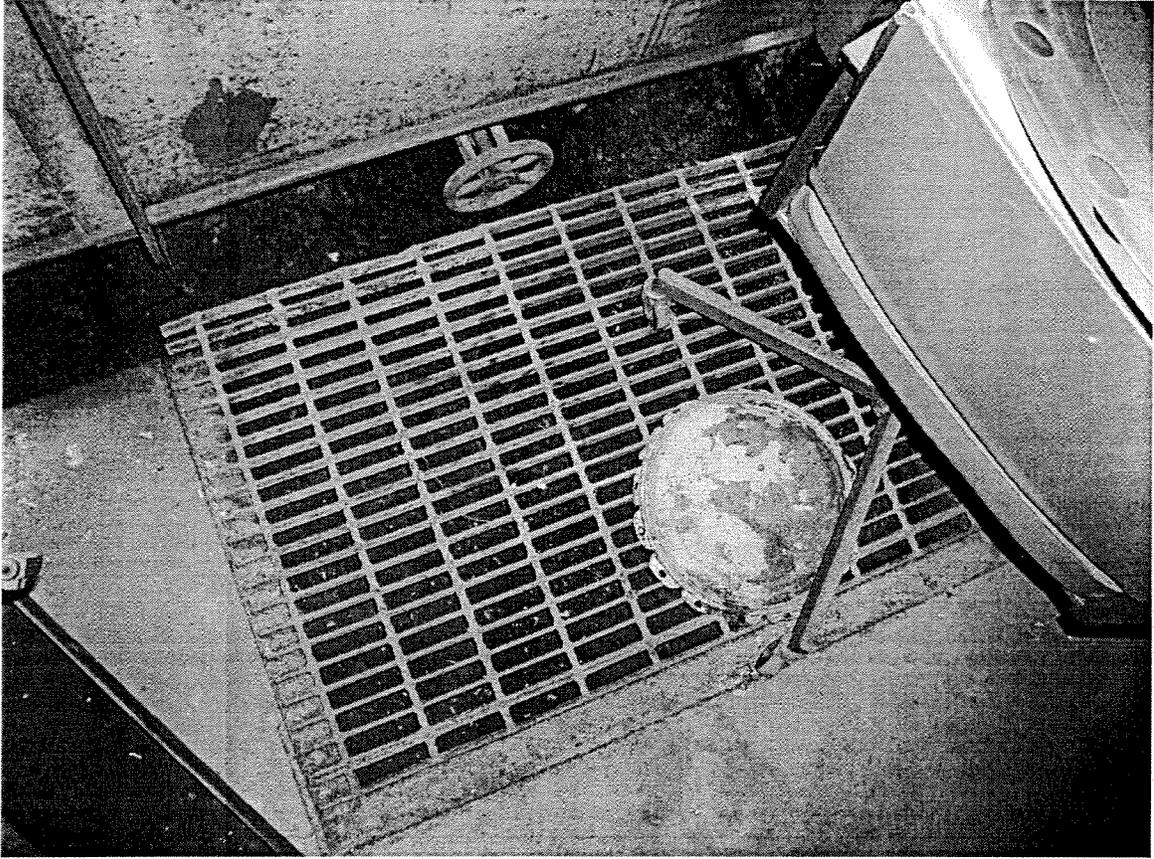
PRG COMPARISON: NA

RFI NECESSARY: This area is associated with an inactive facility that is included in the decontamination and decommissioning (D&D) program. Site evaluation work is underway at this time, along with planning associated with the infrastructure D&D phase. The need for a Remedial Investigation/Feasibility Study will be evaluated as part of the facility structure D&D phase.

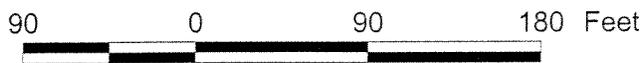
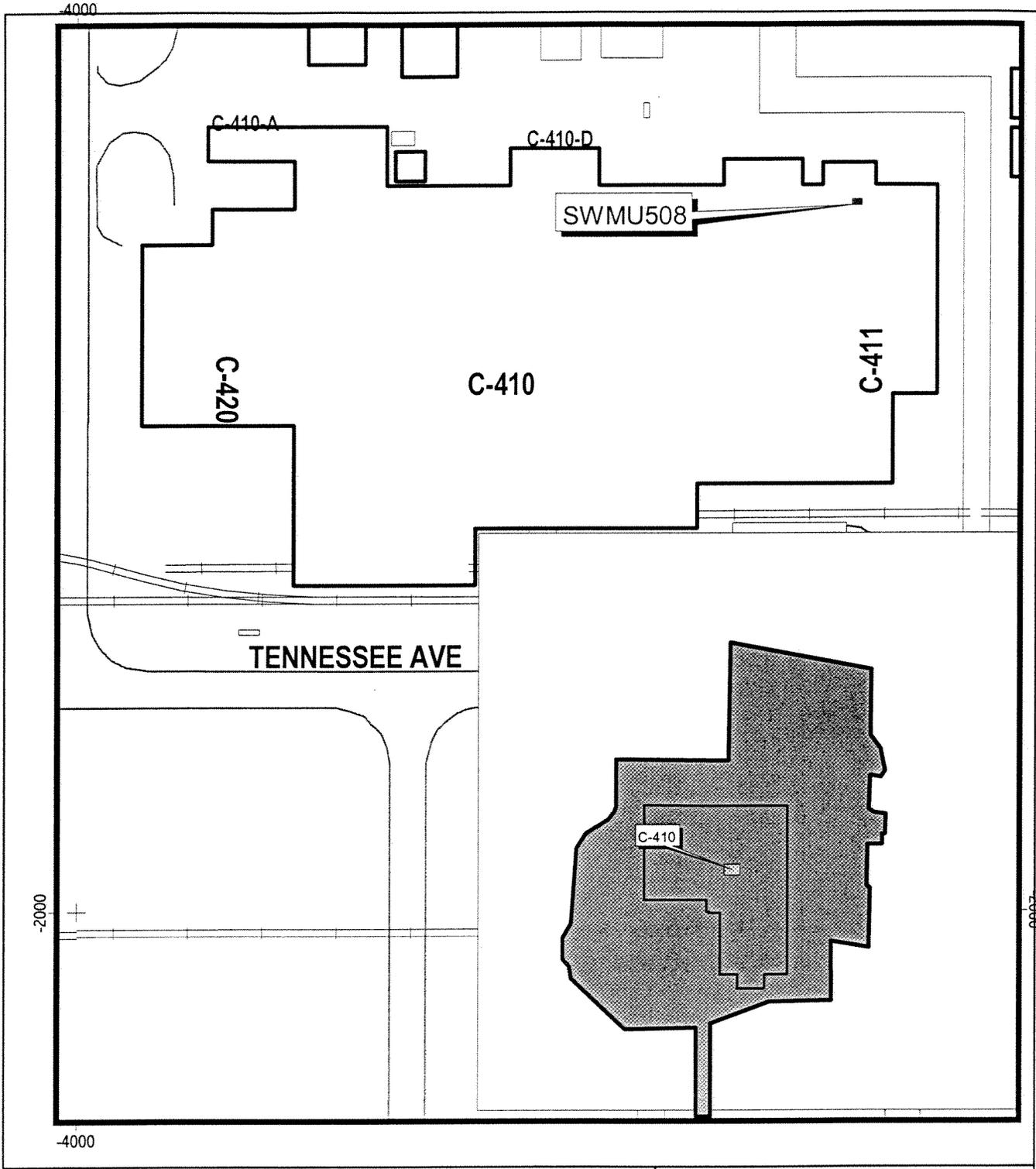
NOTE: Elements included in this outline shall be considered and incorporated, as appropriate, when developing the above referenced document.



SWMU 508



SWMU 508 East Side



U.S. DEPARTMENT OF ENERGY
DOE OAK RIDGE OPERATIONS
PADUCAH GASEOUS DIFFUSION PLANT

BECHTEL JACOBS
BECHTEL JACOBS COMPANY LLC
MANAGED FOR THE US DEPARTMENT OF ENERGY UNDER
US GOVERNMENT CONTRACT DE-AC-05-98OR22700
Oak Ridge, Tennessee • Paducah, Kentucky • Portsmouth, Ohio

SWMU 508 at C410.



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FIGURE No. c5ac90001sk234.apr
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