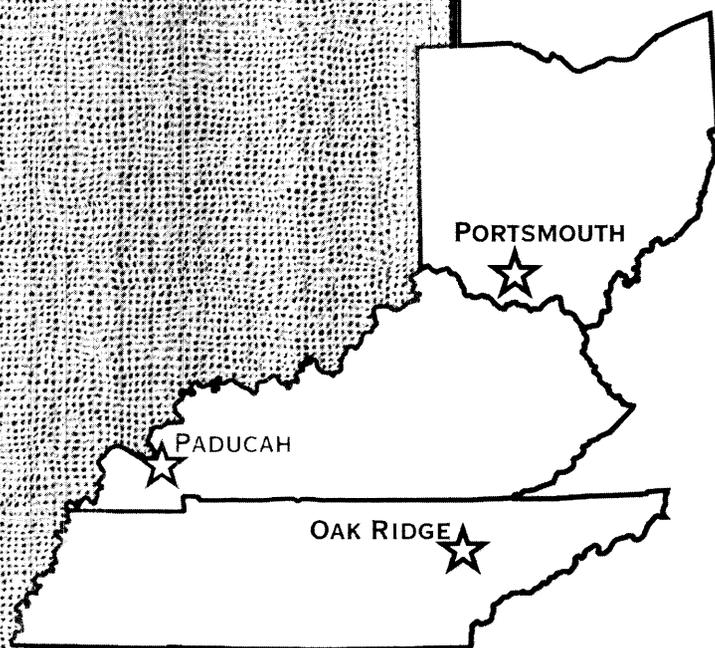


UNCLASSIFIED

BJC/PAD-527

ENVIRONMENTAL MANAGEMENT
& ENRICHMENT FACILITIES
MANAGEMENT AND INTEGRATION CONTRACT

**Final Inventory/Characterization
Report for the C-337-24
Department of Energy
Material Storage Area at the
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**



MANAGED BY
BECHTEL JACOBS COMPANY LLC
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

This document has received the appropriate reviews
for release to the public.

UNCLASSIFIED

**Final Inventory/Characterization Report for the C-337-24
Department of Energy Material Storage Area (DMSA)
at the Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**

Date Issued -- April 24, 2003

Prepared by
WESKEM, LLC
Under subcontract 23900-BA-RMOO5F
Prepared for the
US Department of Energy
Office of Environmental Management

BECHTEL JACOBS COMPANY LLC
managing the
Environmental Management Activities at the
East Tennessee Technology Park
Oak Ridge Y-12 Plant *Oak Ridge National Laboratory*
Paducah Gaseous Diffusion Plant Portsmouth Gaseous Diffusion Plant
Under contract DE-AC05-98OR22700
for the
U.S. DEPARTMENT OF ENERGY

CONTENTS

ACRONYMS	v
EXECUTIVE SUMMARY	vii
PHOTOGRAPHS	
REUSABLE MATERIAL INVENTORY	

ACRONYMS

ACM	Asbestos Containing Material
DMSA	Department of Energy Material Storage Area
ft ²	Square Feet
ft ³	Cubic Feet
HP	Health Physics
IH	Industrial Hygiene
lbs	Pounds
LLW	Low Level Waste
NCS	Nuclear Criticality Safety
PCB	Polychlorinated Biphenyl
PEL	Permissible Exposure Limits
RCRA	Resource Conservation and Recovery Act
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
UF ₄	Uranium Tetrafluoride

EXECUTIVE SUMMARY

Department of Energy Material Storage Area (DMSA) C-337-24 is located at columns U47-V47 on the ground floor in the C-337 process building. It occupies approximately 306 square feet (ft²). This DMSA has been used for years as a storage area for drums of uranium tetrafluoride (UF₄). The UF₄ was originally packaged in 55-gallon drums but were overpacked into 85-gallon drums at some time prior to the DMSA characterization project. In 1998, the overpacked drums were removed from the four-foot wooden pallets and rearranged on five-foot metal pallets. This provided a safer, more stable configuration to support the weight of the heavy material. The drums are stored four per pallet and double stacked. There are a total of 88 drums in the DMSA. Research of historical documentation related to the UF₄ provided evidence that the material could be classified as Nuclear Criticality Safety (NCS) exempt. Documentation of the research is included in this report with the DMSA NCS Characterization Forms. The UF₄ was also classified as reusable material since it is being held in reserve in the event of its possible use in the future. There were approximately 1,553 cubic feet (ft³) of reusable material. The estimated weight of this material was 176,000 pounds (lbs). This DMSA was originally classified as a Phase 1 DMSA since it had been inspected and no fissionable materials were identified; however, all materials had not been fully characterized. It now qualifies as a Phase 3 DMSA since the material has been designated as reusable material and it is NCS exempt. Numerous photographs of the DMSA were taken during the characterization program. Several are included in this report.

RCRA

There were no Resource Conservation Recovery Act (RCRA) hazardous wastes identified in DMSA C-337-24.

TSCA

There were no Toxic Substance Control Act (TSCA) polychlorinated biphenyl (PCB) waste or any asbestos containing materials (ACM) identified in DMSA C-337-24.

LLW

There were no low level wastes (LLW) identified in this DMSA. The UF₄ was classified as reusable material.

NCS

There were no Nuclear Criticality Safety (NCS) wastes or concerns identified in DMSA C-337-24. The UF₄ reusable material was classified as NCS exempt.

REUSABLE MATERIAL

The federal government has in the past used UF₄ for specific applications. The material in **DMSA** C-337-24 has been classified as reusable material in the event of its possible future use.

IH

All Industrial Hygiene (IH) data to date has been reviewed. All quality control samples were within normal acceptable guidelines. No personnel were exposed to any airborne concentrations above a permissible exposure limit (PEL) or threshold limiting value (TLV).

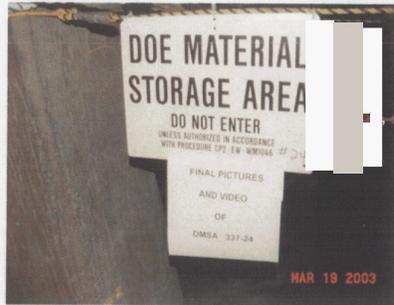
HP

The Health Physics (HP) surveys which are generally conducted include smears, direct readings and air samples. Air samples are normally taken only in contamination areas and/or when opening containers with unknown contents. Direct readings were not taken in DMSA C-337-24 due to high background readings from the UF₄. Dose rates were taken for gamma only. The highest dose rate recorded was 5.0 millirem per hour (contact) from a pallet with four containers #E00762. Smears taken from the outside of the containers were less than the limit of detection.

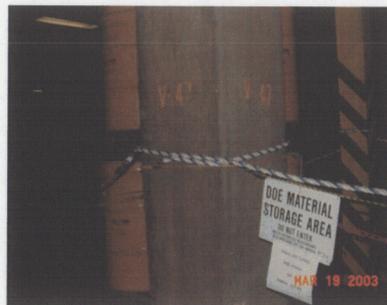
SAFETY

There were no safety related events during the characterization program. Pre-job briefings were held with all entry and support personnel to ensure that individual responsibilities were understood. A safety officer was in attendance during all phases of work to evaluate conditions and provide safety related input to workers. All workers had stop work authority to ensure unusual or unexpected events were evaluated before work was allowed to proceed.

DMSA 337-24 Overall View of Overpacked Drums



DSC00095



DSC00096



DSC00097



DSC00098



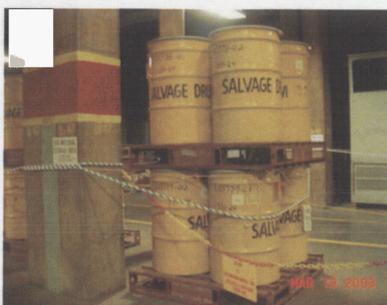
DSC00099



DSC00100



DSC00101



DSC00102



DSC00103

DMSA 337-24 Overall View of Overpacked Drums



DSC00104



DSC00105



DSC00106



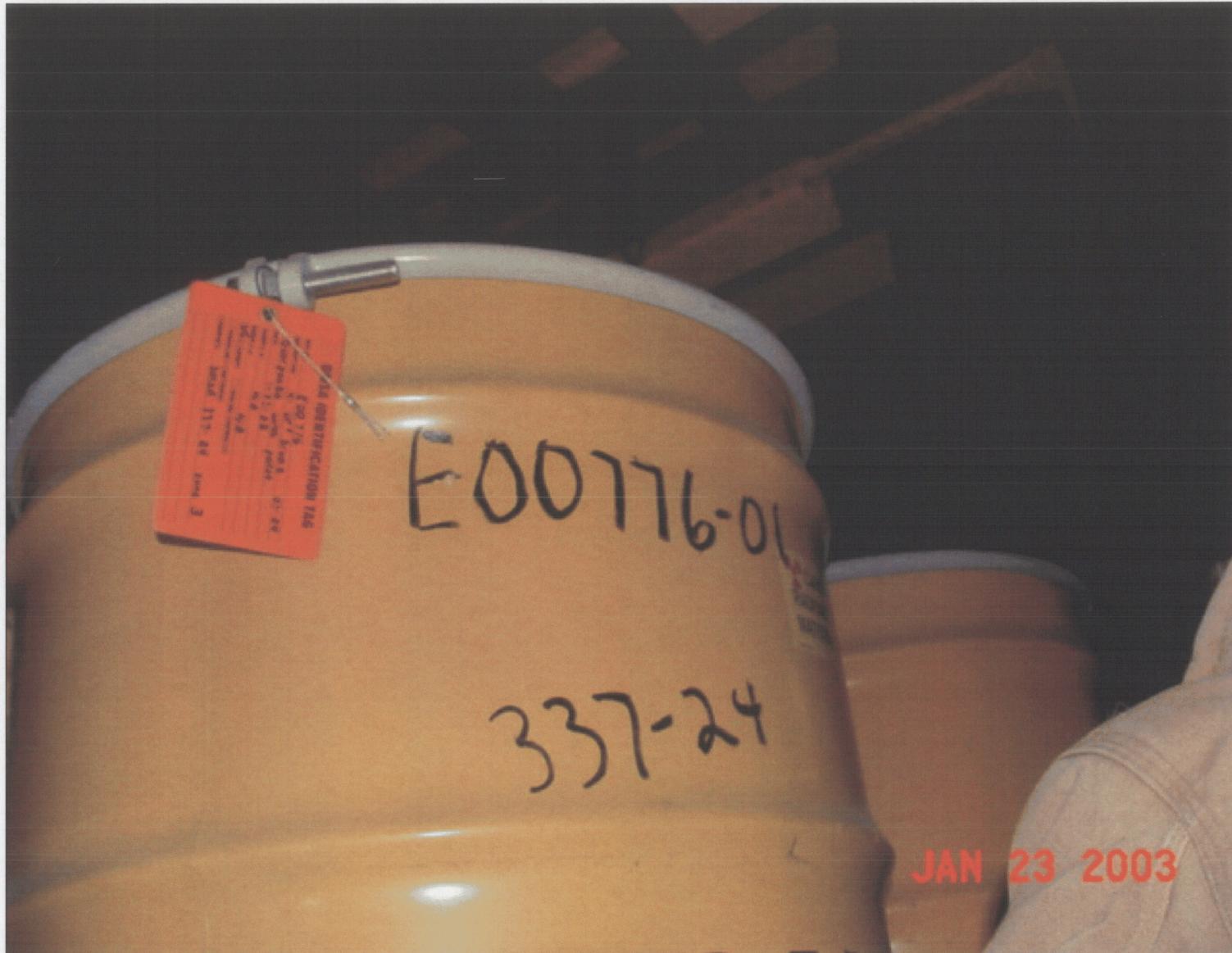
DSC00107



DSC00108

12

DMSA 337-24 Tags/Markings on Drums of UF4 Material



13

DMSA C-337-24 REUSABLE MATERIAL INVENTORY								
Description	Original E#	Material Classification	Column #	Barcode	# Items	Estimated Volume (ft³)	Estimated Weight (lbs)	Material Transferred to USEC
4 UF ₄ drums; over pack with pallet	E00758	Reusable	Zone 1	DMSA0305499	1	70.6	8,000	No
4 UF ₄ drums; over pack with pallet	E00759	Reusable	Zone 1	DMSA0305500	1	70.6	8,000	No
4 UF ₄ drums; over pack with pallet	E00760	Reusable	Zone 1	DMSA0305501	1	70.6	8,000	No
4 UF ₄ drums; over pack with pallet	E00761	Reusable	Zone 1	DMSA0305502	1	70.6	8,000	No
4 UF ₄ drums; over pack with pallet	E00762	Reusable	Zone 1	DMSA0305503	1	70.6	8,000	No
4 UF ₄ drums; over pack with pallet	E00763	Reusable	Zone 1	DMSA0305504	1	70.6	8,000	No
4 UF ₄ drums; over pack with pallet	E00764	Reusable	Zone 1	DMSA0305505	1	70.6	8,000	No
4 UF ₄ drums; over pack with pallet	E00765	Reusable	Zone 1	DMSA0305506	1	70.6	8,000	No
4 UF ₄ drums; over pack with pallet	E00766	Reusable	Zone 2	DMSA0305507	1	70.6	8,000	No
4 UF ₄ drums; over pack with pallet	E00767	Reusable	Zone 2	DMSA0305508	1	70.6	8,000	No
4 UF ₄ drums; over pack with pallet	E00768	Reusable	Zone 2	DMSA0305509	1	70.6	8,000	No
4 UF ₄ drums; over pack with pallet	E00769	Reusable	Zone 2	DMSA0305510	1	70.6	8,000	No
4 UF ₄ drums; over pack with pallet	E00770	Reusable	Zone 2	DMSA0305511	1	70.6	8,000	No
4 UF ₄ drums; over pack with pallet	E00771	Reusable	Zone 2	DMSA0305512	1	70.6	8,000	No

Subtotal **Subtotal**
Estimated ft³ **Estimated lbs**
988.4 **112,000**

Description	Original E#	Material Classification	Column #	Barcode	# Items	Estimated Volume (ft ³)	Estimated Weight (lbs)	Material Transferred to USEC
4 UF4 drums; over pack with pallet	E00772	Reusable	Zone 3	DMSA0305513	1	70.6	8,000	No
4 UF4 drums; over pack with pallet	E00773	Reusable	Zone 3	DMSA0305514	1	70.6	8,000	No
4 UF4 drums; over pack with pallet	E00774	Reusable	Zone 3	DMSA0305515	1	70.6	8,000	No
4 UF4 drums; over pack with pallet	E00775	Reusable	Zone 3	DMSA0305516	1	70.6	8,000	No
4 UF4 drums; over pack with pallet	E00776	Reusable	Zone 3	DMSA0305517	1	70.6	8,000	No
4 UF4 drums; over pack with pallet	E00777	Reusable	Zone 3	DMSA0305518	1	70.6	8,000	No
4 UF4 drums; over pack with pallet	E00778	Reusable	Zone 3	DMSA0305519	1	70.6	8,000	No
4 UF4 drums; over pack with pallet	E00779	Reusable	Zone 3	DMSA0305520	1	70.6	8,000	No

Subtotal	Subtotal
Estimated ft³	Estimated lbs
564.8	64,000
Total	Total
Estimated ft³	Estimated lbs
7,553.20	776,000