DMSA OS-04
Solid Waste Management Unit (SWMU) Assessment Report

SWMU/AOC NUMBER: 215

DATE OF ORIGINAL SAR: 12/01/00

DATE OF SAR REVISIONS: 01/15/11

REGULATORY STATUS: SWMU

LOCATION: Northwest of the intersection of 4th and Ohio Streets on the west side of the plant.

APPROXIMATE DIMENSION OR CAPACITY: 480 ft^2

FUNCTION: Temporary storage of materials.

BRIEF HISTORY: This area was used as a storage area for a rail tank car with a small amount of liquid. The history of the rail tank car could not be definitively ascertained; however, liquid in the tank was generated as a result of fire training exercises during which the plant fire department ignited the rail tank car and extinguished it with water. This area was deleased by the United States Enrichment Corporation to the U.S. Department of Energy (DOE) as a DOE Material Storage Area (DMSA) on December 31, 1996.

From May 1999 to August 2005, DOE characterized materials in this DMSA in accordance with the DMSA Characterization/Remediation Plan, which was incorporated as Appendix E of the 2003 Agreed Order. The liquid in the tank, which resulted from the fire extinguishing training exercises, was characterized in May 1999. A tamper-indicating device was placed on the top hatch and bottom valve following the 1999 sampling event. Samples of the soil/gravel were taken within the DMSA during the characterization activities in April 2002, while evaluation of the data from May 1999 indicated no need for additional sampling of the liquid. The *Final Inventory and Characterization Report* (FI/CR) was submitted to the Kentucky Division of Waste Management (KDWM) on September 12, 2002. A second soil/gravel sampling event occurred in December 2002, subsequent to issuance of the FI/CR. The second sampling event was performed to provide information on additional analytes for environmental site characterization. Comments, questions, and conditional approval to the FI/CR were provided by KDWM on two occasions, April 15, 2004, and July 28, 2005, and DOE responded on May 21, 2004, and August 25, 2005, respectively. The August 25, 2005, response was in a form of an addendum to the FI/CR and included copies of the assessments and analytical data from both soil/gravel sampling events. Interviews with personnel indicate that ballast rock and dirt were removed in October 2005.

Per the 2003 Agreed Order, Resource Conservation and Recovery Act (RCRA) closure was not required for this SWMU because no hazardous wastes were discovered in this unit.

PRESENT OPERATIONAL STATUS: Inactive

DATES OPERATED: Unknown to 2005

SITE/PROCESS DESCRIPTION: An outside DOE storage area located within the Paducah Gaseous Diffusion Plant fenced security area.

WASTE DESCRIPTION: The SWMU currently is empty. Low-level waste formerly stored included the rail tank car and the liquid in the tank. A detailed description of the characterized waste formerly stored can be found in the FI/CR and its addendum.

WASTE QUANTITY: Currently 0 ft^3; waste quantity removed 3,248 ft^3

SUMMARY OF ENVIRONMENTAL SAMPLING DATA: The ground beneath the rail tank car was surveyed for radiological contamination on April 21, 1999. Results indicated 684,000 disintegrations per minute (dpm)/100 cm^2 and 13,200 dpm/100 cm^2 in randomly selected rock from beneath the valve on the bottom/middle of the railcar. As a result, this SWMU was posted as a Contaminated Area (CA). The soil/gravel under and surrounding the rail tank car was sampled in April and December 2002 to determine the presence of RCRA, Toxic Substances and Control Act, or radiological contaminants. A detailed assessment on the contaminated soil/gravel, including the analytical results of the 2002 sampling events, can be found in the FI/CR and its addendum.

A gamma walk-over survey within the CA was conducted on September 8, 2005, by Radiological Control Technicians. Results indicated that the beta/gamma readings were less than the background level on the eastern portion of the CA. The highest beta/gamma reading of the ground with gravel cover was 89,757 dpm/100 cm^2 taken on the western side of the CA.

Following a removal of ballast rock and dirt, another gamma walk-over survey was conducted on October 28, 2005. No radiological readings were greater than the results of the surrounding background readings; therefore, SWMU 215 no longer was posted as a CA as of October 28, 2005. Attachment 1 includes the 2005 radiological survey results and locations in relation to the SWMU boundary.

DESCRIPTION OF RELEASE AND MEDIA AFFECTED: Radiologically contaminated liquids contained within the rail car leaked to the soil/gravel beneath it.

GROUNDWATER:	None known
SURFACE WATER:	None known
SOIL:	See above
ECOLOGY AFFECTED (i.e., threatened/endangered species)**:**	None known

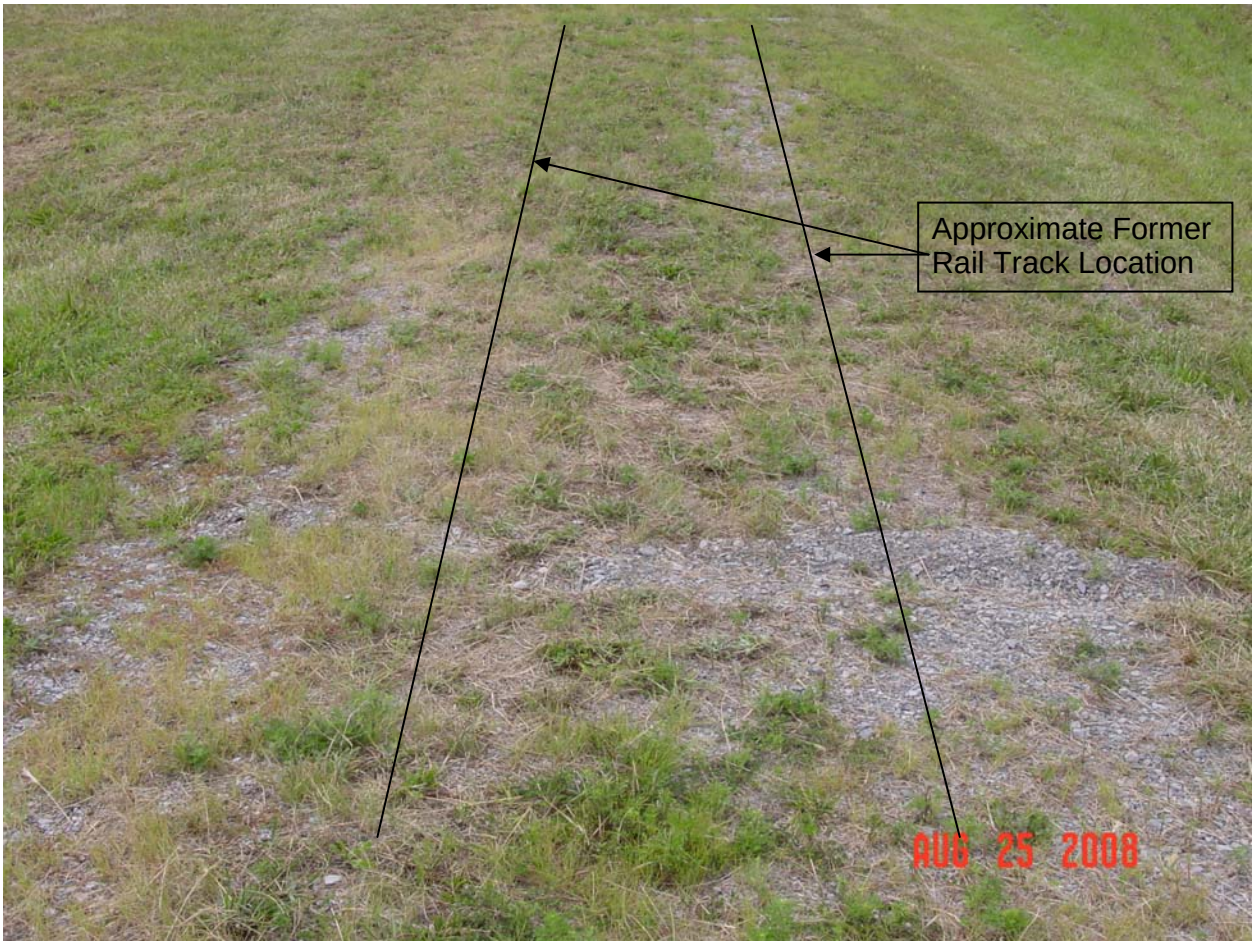
DOCUMENTATION OF NO RELEASE: See description of release and media affected above.

IMPACT ON OR BY OTHER SWMU/AOC: There is no evidence that this SWMU impacts or is being impacted by other SWMUs.

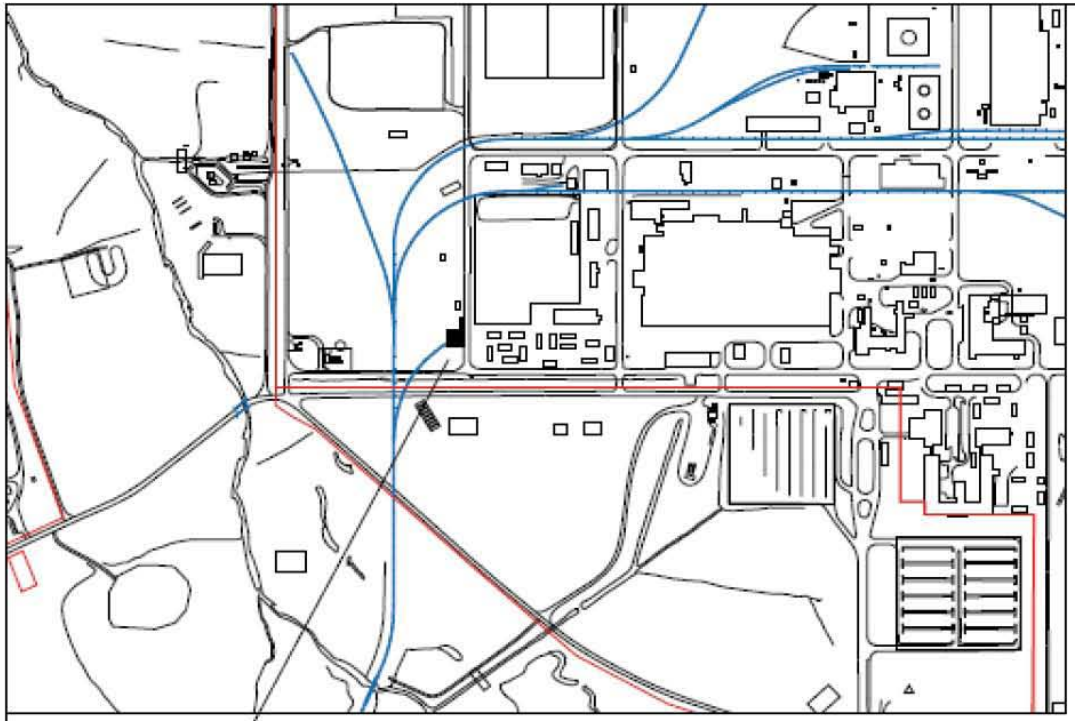
PRG COMPARISON: N/A

RFI NECESSARY: No. This unit is being proposed for no further action under RCRA because it no longer is active, has no evidence of releases of RCRA hazardous constituents to the environment, and is not believed to pose a risk to human health or the environment.

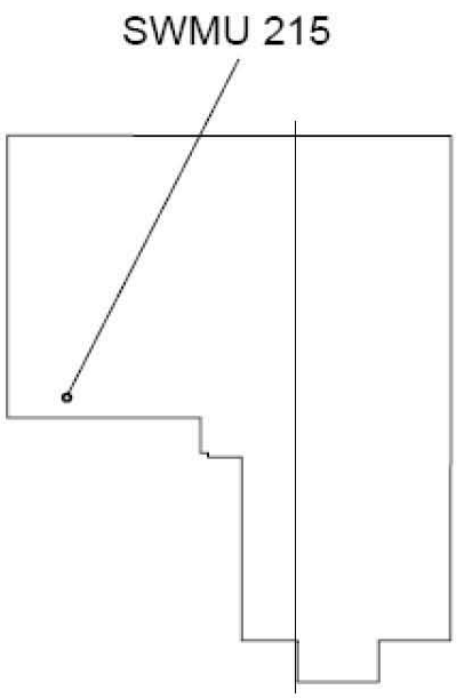
OPERABLE UNIT ASSIGNMENT: N/A



SWMU 215 (Looking Southwest)
DMSA OS- 04
August 25, 2008



SWMU 215
Outside
DWSA-4



Paducah Gaseous Diffusion Plant

LEGEND

OFFICIAL DOE DMSA's PER 12/01/96
AGREEMENT BETWEEN DOE AND USEC

U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services
of Kentucky, LLC

Outside Areas - SWMU 215

ATTACHMENT 1

RADIOLOGICAL SURVEY RESULTS AND MAP ILLUSTRATING SURVEY LOCATION FOR SWMU 215

COPY

Radiological Survey Form

Survey No.: 05-DM-1165-S Date: 090805 Time: 0845 RWP NO.: PAA-DM-25965 R1

Location of Survey-General (Site/Bldg.) DMSA Specific (Room/Area/Item): 0/S 4

Purpose of Survey: ☐ Routine ☒ Special ☐ Off-Site Release ☐ Radioactive Shipment Receipt ☐ Radioactive Pre- Shipment ☐ Radioactive Shipment

Material Description: Investigative Survey of Ground Conditions

Technician:	CPeters / CPeters		Badge:	30731	Technician:	N/A		Badge:	NA				
Technician:	Steve Wheeler / Steve Wheeler		Badge:	071545	Technician:			Badge:					
Model#	Ludlum 3	Serial#	87933	Cal Due Date:	061306	Probe Model#	44-9	Bkgd (cpm):	550	CFPt:	4.67	CF Plane:	30.13
Model#	Ludlum 2221	Serial#	211800	Cal Due Date:	021506	Probe Model#	5XM-0639	Bkgd (cpm):	Avg 609	CFPt:	NA	CF Plane:	NA
Model#		Serial#		Cal Due Date:		Probe Model#		Bkgd (cpm):		CFPt:		CF Plane:	
Model#	N/A	Serial#	N/A	Cal Due Date:	N/A	Probe Model#	N/A	Bkgd (cpm):	N/A	CFPt:	N/A	CF Plane:	N/A
Model#		Serial#		Cal Due Date:		α Bkgd:(cpm)		B/γ Bkgd(cpm):		αCF:		B/γCF:	
Model#		Serial#		Cal Due Date:		α Bkgd:(cpm)		B/γ Bkgd(cpm):		αCF:		B/γCF:	

Laboratory Results Attached? Yes ____ No ✓ (If yes, see attached results)

Item No.	Removable α dpm/100cm²	Total α dpm/100cm²	Removable B/γ dpm/100cm²	Total B/γ dpm/100cm²	LAW α dpm/wipe	LAW β dpm/wipe	If either result is > 2x Bkg.	Sample Location and/or Remarks	RCT Initials
L_c	NA	NA	NA	496.35	NA	NA	2x Bkg 12418	NA	NA
1-18	NA	NA	NA	NA	NA	NA	< 2x Bkg	ground	CP SW
19	NA	NA	NA	15698	NA	NA	22620	ground with gravel cover	CP SW
19	NA	NA	NA	4670	NA	NA	NA	ground without gravel cover	CP SW
20-22	NA	NA	NA	NA	NA	NA	<2x Bkg	ground	CP SW
23	NA	NA	NA	89757	NA	NA	50902	ground with gravel cover	CP SW
23	NA	NA	NA	6056	NA	NA	NA	ground without gravel cover	CP SW
24	NA	NA	NA	4610	NA	NA	<2x Bkg	ground with gravel cover	CP SW
25-30	NA	NA	NA	NA	NA	NA	<2x Bkg	ground	CP SW
31	NA	NA	NA	18530	NA	NA	NA	ground with gravel cover	CP SW
31	NA	NA	NA	19464	NA	NA	NA	ground without gravel cover	CP SW
		N/A				N/A		N/A	

Comments: #1-18; 20-22; 25-30 are of the ground with no gravel removed.
#19, 23, & 31 show readings with gravel and without gravel

Note: Any response to the instrument that is above the critical detection level(L_c) is considered to be above background.

Released to: NA

HP Supervisor Review: Mark Mc / 090705
Signature/Date

PAD/RCO-081A Rev. 6 (5/05)

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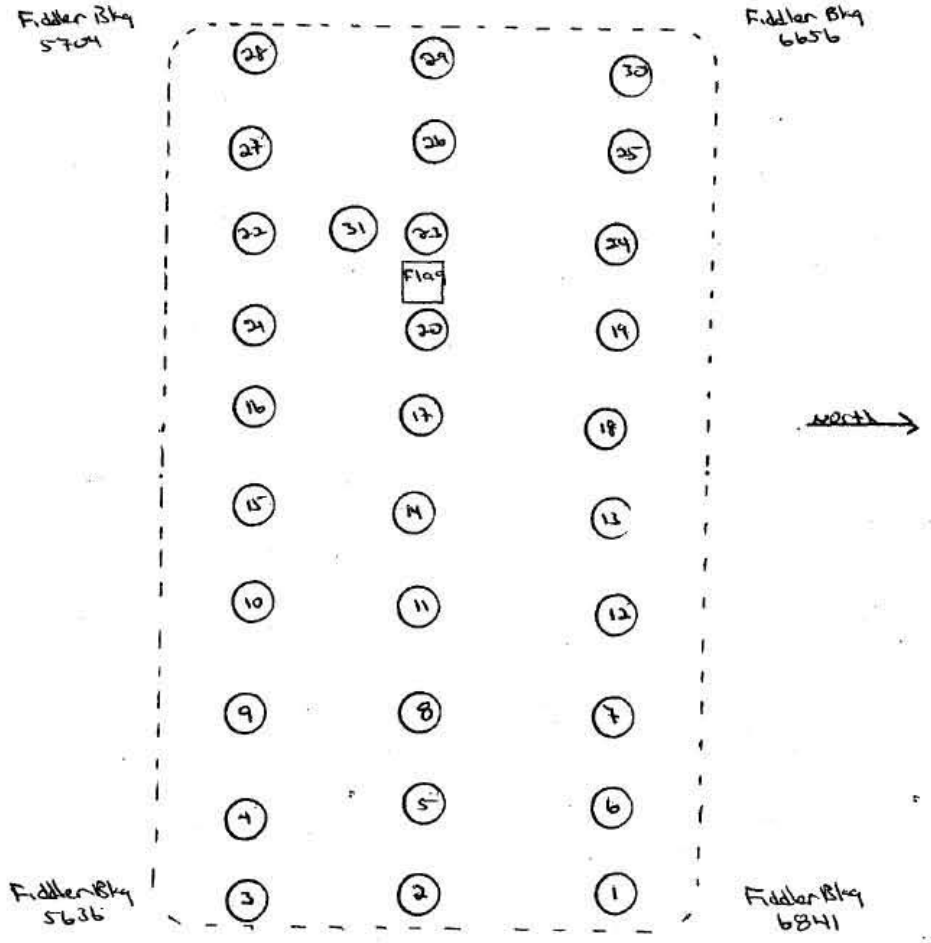
RADIOLOGICAL SURVEY MAP FORM

COPY

SURVEY MAP	SURVEY NO.: 05-AM-1165-S ~~PAB-BCA-CR080805~~

Legend:
A Air Sample Location
Smear
Beta or Gamma Dose Rate
Neutron Dose Rate
LAW



PAD/RCO-081CRev.6 (5/05)

COPY

Radiological Survey Form

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Survey No.: 05-DM-1389 S Date: 10-28-05 Time: 1300 RWP NO.: ~~PAD-DM-1389-S~~ PAD-DM 26052

Location of Survey-General (Site/Bldg.): 0154 Specific (Room/Area/Item): 015-4

Purpose of Survey: [ ] Routine [X] Special [ ] Off-Site Release [ ] Radioactive Shipment Receipt [ ] Radioactive Pre-Shipment [ ] Radioactive Shipment

Material Description: Down Posting CA

Technician: Burkeen / [signature]	Badge: 635437	Technician: NA	Badge: NA
Technician: T Donald / [signature]	Badge: 707719	Technician: NA	Badge: NA
Model# Lud 2221 Serial# 211802	Cal Due Date: 9-15-06	Probe Model# 60005-002 / Fiddler 66 Bkgd (cpm): 10713	CFPt: NA CF Plane: NA
Model# Serial#	Cal Due Date:	Probe Model# Bkgd (cpm):	CFPt: CF Plane:
Model# Serial#	Cal Due Date:	Probe Model# Bkgd (cpm):	CFPt: CF Plane:
Model# Serial#	Cal Due Date: NA	Probe Model# Bkgd (cpm):	CFPt: CF Plane:
Model# Serial#	Cal Due Date:	α Bkgd (cpm) β/γ Bkgd(cpm):	αCF: β/γCF:
Model# Serial#	Cal Due Date:	α Bkgd (cpm) β/γ Bkgd(cpm):	αCF: β/γCF:

Laboratory Results Attached? Yes ____ No ✓ (If yes, see attached results)

Item No.	Removable α dpm/100cm²	Total α dpm/100cm²	Removable β/γ dpm/100cm²	Total β/γ dpm/100cm²	LAW α dpm/wipe	LAW β dpm/wipe	Sample Location and/or Remarks	RCT Initials
L_c	NA	NA	NA	NA	NA	NA	NA	NA
1				5396			Southwest Corner (See MAP)	[initials] TD
2				5141			West Side	[initials] TD
3				5396			Northwest Corner	[initials] TD
4				5412			North Side	[initials] TD
5				6091			Middle West	[initials] TD
6	NA		NA	4816	NA		Middle East	[initials] TD
7				4992			South Side	[initials] TD
8				4981			South East Corner	[initials] TD
9				4848			East Side	[initials] TD
10				5261			North East Corner	[initials] TD
							NA	

Comments: All Readings During Area Scan Less than Surrounding Background

Note: Any response to the instrument that is above the critical detection level(L_c) is considered to be above background.

Released to: NA

HP Supervisor Review: [signature] / 10/31/05
Signature/Date

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RADIOLOGICAL SURVEY MAP FORM

COPY

SURVEY MAP	SURVEY NO.: PAD-OM-1387-S

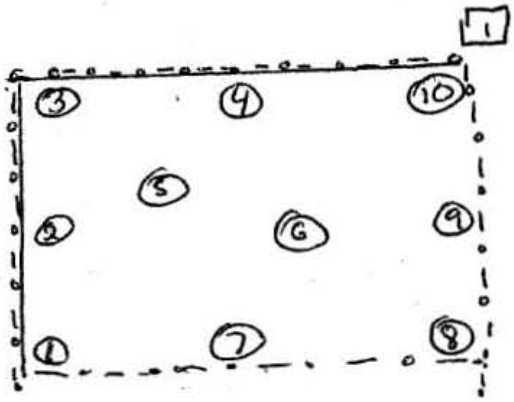
Legend:
A Air Sample Location
Smear
Beta or Gamma Dose Rate
Neutron Dose Rate
LAW

OLS-4

N

A 11274

A 10622



A 10243

— · — CONTAMINATED AREA Boundary (CA)
1 A:A Samples Location
○ Survey Points
Δ Background Points
Average Background Outside Area 10713 cpm

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