



000015045

DRAFT

**BASIS FOR LOCATION OF
SOLID WASTE MANAGEMENT UNITS
AT ROCKY FLATS PLANT**

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant
Golden, Colorado

June 1990

DRAFT

**BASIS FOR LOCATION OF SOLID WASTE MANAGEMENT UNITS
AT THE ROCKY FLATS PLANT**

**ROCKY FLATS PLANT
GOLDEN, COLORADO**

JUNE, 1990

Prepared for:

EG&G, Inc.
Rocky Flats Plant
Golden, Colorado 80401

Prepared by:

ROY F. WESTON, INC.
215 Union Boulevard
Suite 550
Lakewood, Colorado 80228

TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
1.0	INTRODUCTION	1-1
2.0	DOCUMENTATION USED FOR REMAPPING OF SOLID WASTE MANAGEMENT UNITS (SWMUS)	2-1
3.0	PHOTOGRAPHS AND BUILDING LOCATION MAP USED FOR REMAPPING OF SWMUS	3-1
4.0	UNCHANGED SWMU LOCATIONS FROM PREVIOUS INTERPRETATIONS	4-1
4.1	Solid Waste Management Units Map, 11/17/89	4-1
4.2	881 Hillside Phase III RI/FS Work Plan	4-2
4.3	903 Pad, Mound, and East Trenches Phase II, RI/FS Work Plan	4-2
5.0	CHANGED SWMU LOCATIONS RESULTING FROM THIS INVESTIGATION	5-1
5.1	SWMU 114: Present Landfill	5-1
5.2	SWMU 115: Original Landfill	5-1
5.3	SWMU 116: Multiple Solvent Spills	5-2
	5.3.1 SWMU 116.1: West Loading Dock Site	5-2
	5.3.2 SWMU 116.2: South Loading Dock Site	5-2
5.4	SWMU 117: Chemical Storage	5-2
5.5	SWMU 118: Multiple Solvent Spills	5-2
5.6	SWMU 120: Fiberglassing Sites	5-3
	5.6.1 SWMU 120.1: North of Building 664	5-3
	5.6.2 SWMU 120.2: South-Southwest of Building 664	5-3
5.7	SWMU 122: Underground Concrete Tank	5-3
5.8	SWMU 124: Radioactive Liquid Waste Storage Tanks	5-3
5.9	SWMU 125: Holding Tank	5-4
5.10	SWMU 126: Out-of-Service Process Waste Tanks	5-4
5.11	SWMU 128: Oil Burn Pit No.1	5-4
5.12	SWMU 131: Radioactive Site - 700 Area Site No. 1	5-4
	5.12.1 SWMU 131.1: North Area	5-4
	5.12.2 SWMU 131.2: West Area	5-5
5.13	SWMU 132: Radioactive Site - 700 Area Site No. 4	5-5
5.14	SWMU 133: Ash Pits	5-5
5.15	SWMU 134: Lithium Metal Destruction Site	5-6

TABLE OF CONTENTS
(continued)

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
5.16	SWMU 135: Cooling Tower Blowdown	5-6
5.16.1	SWMU 135.1: South Area	5-6
5.16.2	SWMU 135.2: North Area	5-6
5.17	SWMU 136: Cooling Tower Ponds	5-7
5.17.1	SWMU 136.1: East of Building 444	5-7
5.17.2	SWMU 136.2: West of Building 444	5-7
5.17.3	SWMU 136.3: East of Building 460, West of Building 444	5-7
5.18	SWMU 137: Cooling Tower Blowdown - Building 774	5-7
5.18.1	SWMU 137.1: Cooling Towers	5-8
5.18.2	SWMU 137.2: Cooling Tower Drainage	5-8
5.19	SWMU 138: Cooling Tower Blowdown - Building 779	5-8
5.19.1	SWMU 138.1: Cooling Towers	5-8
5.19.2	SWMU 138.2: Cooling Tower Drainage	5-8
5.20	SWMU 139: Caustic/Acid Spills	5-9
5.21	SWMU 141: Sludge Dispersal	5-9
5.22	SWMU 142: Retention Ponds A, B, and C Series	5-9
5.22.1	SWMU 142.7: B-3 Pond	5-9
5.22.2	SWMU 142.10: C-1 Pond	5-9
5.22.3	SWMU 142.12: A-5 Pond	5-10
5.23	SWMU 143: Old Outfall	5-10
5.24	SWMU 144: Sewer Line Break	5-10
5.24.1	SWMU 144.1: Sanitary Sewer Line	5-10
5.24.2	SWMU 144.2: Hillside	5-10
5.25	SWMU 146: Concrete Process Waste Tanks	5-10
5.25.1	SWMU 146.1 through 146.6: Process Waste Tanks	5-10
5.25.2	SWMU 146.7: Leak Migration	5-11
5.26	SWMU 156: Radioactive Soil Burial	5-11
5.26.1	SWMU 156.2: Soil Dump Area (East Triangle)	5-11
5.26.2	SWMU 156.3: Building 334 Parking Lot (North)	5-11
5.27	SWMU 157: Radioactive Site	5-12
5.27.1	SWMU 157.1: North Area	5-12
5.27.2	SWMU 157.2: South Area	5-12
5.28	SWMU 158: Radioactive Site - Building 551	5-12
5.29	SWMU 159: Radioactive Site - Building 559	5-12
5.30	SWMU 160: Radioactive Site - Building 444 Parking Lot	5-12
5.31	SWMU 163: Radioactive Site - 700 Site No. 3	5-13

TABLE OF CONTENTS
(continued)

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
5.32	SWMU 164: Radioactive Site - 800 Area Site No. 2	5-13
5.32.1	SWMU 164.1: Concrete Slab	5-13
5.32.2	SWMU 164.2: Building 886 Spills	5-13
5.32.3	SWMU 164.3: Building 889 Storage Pad	5-13
5.33	SWMU 165: Triangle Area	5-14
5.34	SWMU 166: Trenches	5-14
5.35	SWMU 167: Spray Fields - Three Areas	5-14
5.36	SWMU 170: P.U. and D. Storage Yard	5-15
5.37	SWMU 171: Solvent Burning Ground	5-15
5.38	SWMU 173: Radioactive Site - 900 Area	5-15
5.39	SWMU 174: P. U. and D. Container Storage Facilities (2)	5-15
5.40	SWMU 175: S and W Building 980 Container Storage Facilities	5-16
5.41	SWMU 176: S and W Container Storage Yard	5-16
5.42	SWMU 185: Solvent Spill	5-16
5.43	SWMU 187: Acid Leaks (2)	5-16
5.43.1	SWMU 187.1: Inside Building 443	5-16
5.43.2	SWMU 187.2: North of Building 444	5-17
5.44	SWMU 189: Multiple Acid Spill	5-17
5.44.1	SWMU 189.1: North of Building 881	5-17
5.44.2	SWMU 198.2: West of Building 881	5-17
5.45	SWMU 192: Antifreeze Discharge	5-17
5.46	SWMU 195: Nickel Carbonyl Disposal	5-18
5.47	SWMU 198: VOCs in Ground Water	5-18
5.48	SWMU 199: Contamination of the Land Surface	5-18
5.49	SWMU 200: Great Western Reservoir	5-18
5.50	SWMU 201: Standley Lake	5-18
5.51	SWMU 202: Mower Reservoir	5-19
5.52	SWMU 203: Inactive Hazardous Waste Storage Area	5-19
5.53	SWMU 207: Inactive 444 Acid Dumpster	5-19
5.54	SWMU 209: Surface Disturbance Southeast of Building 881	5-19
5.55	SWMU 211: Unit 26, Building 881 Drum Storage	5-19

TABLE OF CONTENTS
(continued)

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
5.56	SWMU 213: Unit 15, 904 Pad Pondcrete Storage	5-20
5.57	SWMU 214: Unit 25, 750 Pad Pondcrete and Saltcrete Storage	5-20
5.58	SWMU 216: East Spray Field	5-20
6.0	ADDITIONAL AREAS OF CONCERN	6-1
6.1	Discoloration Northeast of SWMU 117	6-1
6.2	Berm East of 903 Pad (SWMU 112)	6-1
6.3	Discoloration West of 903 Pad (SWMU 112)	6-1
6.4	Discoloration Southeast of 903 Pad (SWMU 112)	6-2
6.5	Three Soil Scrapes East of 903 Pad (SWMU 112)	6-2
6.6	Sites North of South Firing Range	6-2
6.7	Sites South and Southeast of the East Trenches (SWMU 111)	6-2
6.8	Site North of Radioactive Soil Dump Area (SWMU 130)	6-3
6.9	Discolorations on Seventh and Eighth Streets	6-3
6.10	Discoloration on Sixth Street	6-3
6.11	Area Northeast of SWMUs 128, 134, and 171	6-3
6.12	Excavations South of Present Landfill	6-3
6.13	The Landfill Pond	6-4
6.14	Site Northwest of SWMU 195	6-4
6.15	Soil Scrapes South of Lindsay Ranch	6-4
6.16	Soils Dumping Associated with SWMUs 137.2, 144.2, 146.7, and 163	6-4
7.0	REFERENCES	7-1

LIST OF PLATES

Plate 1	Location of Solid Waste Management Units
Plate 2	Potential Solid Waste Management Units

LIST OF APPENDICES

Appendix 1

Table 1 Chemicals of Concern and Reference Documentation

Table 2 Inactive Waste Units

Appendix 2

Letter to T.C. Greengard - 11/09/89

Letter to T.C. Greengard - 10/25/89

Letter to T.C. Greengard - 11/17/89

Letter to T.C. Greengard - 11/13/89

Location of Permitted Units

SECTION 1.0
INTRODUCTION

This document provides a summary of aerial photograph observations that form the basis for the accompanying updated Solid Waste Management Units (SWMU) map for the Rocky Flats Plant (Plate 1). The purpose of this study is to accurately map the SWMUs using aerial photograph interpretation. The first SWMU map was prepared by Chen and Associates based on aerial photographs and the Comprehensive Environmental Assessment and Response Program (CEARP) Phase I results. Several maps have been prepared since then that indicate revised boundaries for some of the SWMUs (remedial investigation plans and reports, closure plans, etc.). The previous work presented limited documentation on how the work was performed. This revised SWMU map is based on a comprehensive archival aerial photograph review with aerial photographs enlarged at a scale of 1" = 200', for better resolution of SWMU boundaries. The work is documented herein.

Upon extensive review of the aerial photographs, several disturbed sites not associated with documented potential hazardous substance releases were observed (Plate 2). A review of Plant records is necessary to ascertain the nature of the activities resulting in these disturbances.

It should be noted that as-built diagrams were not used in this investigation. These diagrams would be quite useful for determining the accurate locations of numerous SWMUs associated with underground engineering structures such as underground storage tanks and process waste lines.

SECTION 2.0

DOCUMENTATION USED FOR REMAPPING OF SOLID WASTE MANAGEMENT UNITS (SWMUS)

This investigation was performed using aerial photo interpretation and reviewing several references to obtain a description of the SWMU location and type of unit. Three major documents were used: 1) CEARP, Phase 1: Installation Assessment of Rocky Flats Plant, Draft (DOE 1986a); 2) RCRA-Regulated Hazardous and Radioactive Mixed Waste Units, Solid Waste Management Units, and CERCLA areas, Draft Appendix: Waste Management Units (DOE, 1986b); and 3) RCRA Part B Permit Application for Hazardous and Low-Level Mixed Waste (DOE 1987). The Phase 1 CEARP report findings were based on a records search, open literature survey, interviews with Rockwell International employees, preliminary assessments, and site inspections. The two RCRA reports organize the CEARP documentation into distinct numbered SWMUs and present a map of their locations. Table 1 in Appendix 1 of this report has reference documentation used to help locate the individual SWMUs. Chemicals of concern are also included in Table 1 for each SWMU.

Four letters addressed to Mr. Thomas Greengard pertaining to the Rocky Flats Plant SWMUs were also referred to during this study. These references are provided in the following order in Appendix 2: 1) Doty and Associates, letter from Mr. Frank Blaha, November 9, 1989, 2) Roy F. Weston, Inc., letter from Mr. Mike Anderson and Ms. Janell Bergman, October 25, 1989, 3) Roy F. Weston, Inc., letter from Mr. Mike Anderson and Ms. Janell Bergman, November 17, 1989, and 4) Roy F. Weston, Inc., letter from Mr. Mike Anderson and Ms. Janell Bergman, November 13, 1989.

SECTION 3.0
PHOTOGRAPHS AND BUILDING LOCATION MAP USED
FOR REMAPPING OF SWMUs

Nine inch aerial photos were used to examine the potential SWMUs in three dimension. Each SWMU is listed in Appendix 1, Table 2 and noted whether the SWMU changed location based on this investigation. Aerial photographs taken on the following dates were extensively used for interpretation of SWMU locations: 09/21/53, 05/11/55, 07/09/59, 08/11/62, 05/13/63, 04/29/65, 04/15/66, 04/29/67, 04/10/68, 05/24/69, 08/07/69, 03/30/71, 04/24/72, 04/27/74, 10/15/75, 10/08/76, 05/12/79, 05/28/80, 11/04/85, and 10/06/86. Other years were also used but provided limited information. For example, the aerial photo of year 05/20/86 is of good resolution, but a stereo pair does not exist. The photo of year 04/25/70 is also of good resolution, but the stereo pair is of poor quality due to reproduction from a print. The photos of 08/06/71, 10/12/77, 10/15/78, 10/19/80, 10/19/81, 10/04/82, 10/05/83, 11/18/84, 10/05/85, 09/30/87, 04/11/88, and 09/15/89 were available for viewing, but the scale limited their usefulness (approximately 1" = 4,000').

Twelve photographic years were enlarged to 1" = 200' for delineation of SWMU locations. None of the photographs were orthographically corrected. These years include: 05/11/55, 07/09/59, 05/05/63, 04/29/65, 04/29/67, 04/10/68, 05/24/69, 03/30/71, 04/27/74, 05/12/79, 05/28/80, and 11/04/85. Only the eastern half of the photos was included in years 07/09/59 and 05/05/63. The photos collected in 1980 were taken on two different dates; the eastern half on 05/28/80 and the western half on 06/03/80.

A building location map was used from the RCRA Part B Permit Application. This map which illustrates the location of permitted units is included in Appendix 2. This was helpful in locating SWMUs associated with buildings.

SECTION 4.0
UNCHANGED SWMU LOCATIONS

This study has determined that numerous SWMU locations were accurately mapped for three previous projects. These projects include: 1) Location of Solid Waste Management Units Map, November 17, 1989 (herein considered the "original SWMU map") (Rockwell International, 1989); 2) 881 Hillside Phase III RI/FS Work Plan, Operable Unit No. 1, (EG&G, 1990a); and 3) 903 Pad, Mound and East Trenches Phase II RI/FS Work Plan, Operable Unit No. 2, (EG&G, 1990b). These unchanged SWMU locations are discussed below with reference to the previous projects where first accurately mapped.

4.1 SOLID WASTE MANAGEMENT UNITS MAP DATED 11/17/89

Numerous SWMU locations were unchanged from the SWMU Map dated 11/17/89. Table 2 in Appendix 1 provides a quick reference to the SWMU changes (or lack of changes) and dates associated with SWMU activity. The SWMUs that were added or changed during this investigation are further discussed in Section 5.0.

Although several SWMU locations remain unchanged as a result of this investigation, some SWMU numbers were changed in order add SWMUs to the series based on the aerial photograph examination. These include: SWMU 135 was changed to SWMU 135.1, and SWMU 135.2 was added; SWMU 144 was changed to SWMU 144.1, and SWMU 144.2 was added; and SWMU 146 was changed to SWMU 146.1 through SWMU 146.6, and SWMU 146.7 was added. SWMU 139.1 and 139.2 are still the same, but SWMU 139.3 was added. SWMUs 142.1 through 142.11 remain the same except for SWMU 142.7 and SWMU 142.10. SWMU 156.1 remains the same, but SWMU 156.2 was changed, and SWMU 156.3 was added. The rationale for the renumbering and SWMU additions is provided in Section 5.0.

The boundaries of SWMUs 179 and 180 changed slightly to encompass Buildings 865 and 883, respectively. SWMU 211 is not on the 11/89 SWMU map, but it coincides with SWMU 178.

SWMUs 190 and 192 were spills that flowed in ditches or drains, and their locations remain the same except they are now shown extending to Pond B-1. This site is labeled SWMU 190 and 192, not just SWMU 190 as was labeled on the original SWMU map.

4.2 881 HILLSIDE PHASE III RI/FS WORK PLAN SWMU MAP

Several SWMU locations were reinvestigated within Operable Unit No. 1 during the Phase III Sampling Plan study. These appear to be accurately mapped based on this investigation. These SWMUs include: 102, 103, 104, 105, 106, 107, 119, 130, 145, and 177.

4.3 903 PAD, MOUND AND EAST TRENCHES PHASE II RI/FS WORK PLAN SWMU MAP

For preparation of the Phase II RI/FS Work Plan, the SWMUs in Operable Unit No. 2 were remapped. These SWMUs, which include 108, 109, 110, 111, 112, 113, 140, 153, 154, 155, 183, 216.1, and 216.3, were accurately mapped based on this investigation. The extent of SWMU 216.2 (see Section 5.58) was expanded based on the aerial photograph review.

SECTION 5.0

CHANGED SWMU LOCATIONS RESULTING FROM THIS INVESTIGATION

This section provides a brief discussion of each SWMU location that has been changed and/or SWMUs that have been added in the vicinity of the original SWMU. The SWMU location changes and additions are based on the referenced documents and the aerial photographs that were reviewed for this study. Appendix 1, Table 1 provides rationale for the SWMU location changes. Table 2 gives dates of operation and the dates of the aerial photographs used to locate each SWMU. Descriptions of SWMU locations in this section are from the RCRA Part B Permit Application, Revision No. 1.0, 12/15/87, unless otherwise noted.

5.1 SWMU 114: PRESENT LANDFILL

Excavation of the present landfill was first observed on the aerial photograph dated 05/24/69. As this SWMU is still active, the SWMU boundary is based on the 11/04/85 photo as a base and 09/15/89 as a reference photograph. Also, a site west-northwest of the present landfill was disturbed on aerial photo 09/15/89, but this site was not included on this SWMU map because refuse storage was not visible.

5.2 SWMU 115: Original Landfill

Numerous photographic years were used to observe the changes taking place in the original landfill. The central lobe of the landfill observed in the 04/29/65 photo was included as part of the original landfill. This is positively identified when comparing the 05/11/55 and 05/24/69 photos. On 04/29/67, much excavation was performed in the central part of the landfill. Extensive discoloration was observed in the drainage below the landfill at this time. A pit was observed in the east center of the site in the 04/29/67 photograph, and by 04/10/68 the pit was not present, but a discoloration was observed. The landfill expanded further east and west when comparing 04/10/68 and 05/24/69 with previous years. More soil dumping activity occurred in 05/24/69 in the eastern section of the original landfill.

5.3 SWMU 116: MULTIPLE SOLVENT SPILLS

5.3.1 SWMU 116.1: West Loading Dock Site

The West Loading Dock Site was expanded to include the whole alcove formed by the western edge of Building 444 and the northern edge of Building 447. Photos 04/29/65 and 04/10/68 were used as base photos. The entrances to the loading docks can be observed on these photos.

5.3.2 SWMU 116.2: South Loading Dock Site

SWMU 116.2 was expanded to include the loading docks located on the eastern edge of Building 447 and the southeastern corner of Building 444. Photos 04/29/65 and 04/10/68 were used as base photos.

5.4 SWMU 117: CHEMICAL STORAGE

Storage in this area was first observed on photograph 05/11/55 and expanded each year until 04/29/65. The south site was abandoned some time before 04/15/66. Much of the storage of SWMU 117 was removed by 10/15/75. Storage started occurring again before 10/08/76 in what appears to be cargo trailers.

5.5 SWMU 118: MULTIPLE SOLVENT SPILLS

SWMU 118.1: West of Building 730

Building 730 is not on the SWMU Map, but is located just east of Building 701 as indicated on the photo from 04/27/74. The SWMU was drawn to encompass the entire site around the building.

5.6 SWMU 120: FIBERGLASSING SITES

SWMU 120 was described as being sites north and west of Building 664. Using the photo from 04/24/72 as a base photograph, the SWMUs appear to be more northeast and south-southwest.

5.6.1 SWMU 120.1: North of Building 664

A loading dock was observed on the northeast corner of Building 664 in photo 04/24/72 and was used to outline the SWMU.

5.6.2 SWMU 120.2: South-Southwest of Building 664

Storage containers were observed south of Building 664 in photo 04/24/72. The ground surface appears to be discolored west of Building 664 near the railroad track spur. These sites were included in the new SWMU location.

5.7 SWMU 122: UNDERGROUND CONCRETE TANK

Building 429 was not included on the SWMU map, but is located directly south of Building 441. The SWMU location was mapped to include the circumference of Building 429 using photo 04/27/74.

5.8 SWMU 124: RADIOACTIVE LIQUID WASTE STORAGE TANKS

The previous description of SWMU 124 stated that three storage tanks were located in the east wing of the south side of Building 774, and the overflow migrated toward the front of Building 774. The SWMU location was moved to where the tank locations are described using photo 04/24/72 as a base. As stated earlier, no as-built information was used for this study. Also, it was unclear which side of Building 774 is considered to be the front. Therefore, no attempt to map this spill migration was performed.

5.9 SWMU 125: HOLDING TANK

Tank No. 66 is included in the discussion of SWMU 124 (SWMU 124.2), therefore, SWMU 125 overlaps SWMU 124 on this map. Again, no attempt was made to map the spill migration.

5.10 SWMU 126: OUT-OF-SERVICE PROCESS WASTE TANKS

Building 728 is not on the SWMU map, but is located north of Building 771. The perimeter of Building 728 was used to define the SWMU location using photo 04/27/74 as a base.

5.11 SWMU 128: OIL BURN PIT NO. 1

Building 335 was described as being located over SWMU 128. Using photo 04/29/65 as a base, it was determined to be located slightly to the northeast of Building 335.

5.12 SWMU 131: RADIOACTIVE SITE - 700 AREA SITE NO. 1

The description of SWMU 131 states that sites north and west of Building 776 were radioactively contaminated. Only the northern site was included in the original SWMU map.

5.12.1 SWMU 131.1: North Area

The north area was relocated to include the entire alcove adjacent to Building 776 using photo 05/24/69 as a base. This area corresponds closely to SWMU 118.1, but also includes a small site to the west.

5.12.2 SWMU 131.2: West Area

A new western area was created based on the previous description. The site corresponds to the northern part of SWMU 162 and the southern part of SWMU 150.2 using photo 05/24/69 as a base.

5.13 SWMU 132: RADIOACTIVE SITE - 700 AREA SITE NO. 4

Four out-of-service tanks exist in Building 730, south of Building 771. Aerial photo 04/27/74 was used to locate Building 730 and SWMU 132 was moved to surround Building 730.

5.14 SWMU 133: ASH PITS

Based on aerial photo interpretation, four new SWMU sites were added to this general SWMU area: 1) SWMU 133.7: Ash Pit I-5; 2) SWMU 133.8: Ash Dump; 3) SWMU 133.9: Disturbed Area; and 4) SWMU 133.10: Western Lip Area. SWMUs 133.4 and 133.6 were the only two SWMUs that remained in the general proximity of their location on the original SWMU map. Ash Pits I-2 and I-3 were expanded to each include two separate pit sites. The incinerator was also expanded to include the incinerator itself (SWMU 133.5a) and the disturbed area around the incinerator (SWMU 133.5b). Aerial photographs 05/11/55, 04/29/65, 04/29/67, and 05/24/69 were used as base photographs.

A brief chronology of the SWMU 133 area is discussed below. On the 05/11/55 photograph, five SWMUs existed, SWMUs 133.5, 133.6, 133.8, 133.9, and 133.10. SWMU 133.10 was a possible dump area before the pits were used. By 05/13/63, seven SWMU sites can be observed, SWMUs 133.1, 133.3a, 133.5, 133.6, 133.8, 133.9, and 133.10. Two pits clearly existed on the 05/13/63 photograph, SWMU 133.1 and 133.3a. Probable dumping over the edge was occurring at SWMU 133.8.

Photograph 04/29/65 also showed seven disturbed sites. SWMU 133.10 was off the edge of the photograph. A third pit, SWMU 133.4, was visible southwest of SWMU 133.1. By 04/15/66, nine SWMU locations can be noted. Photograph 04/15/66 shows SWMUs 133.1, 133.3a and 133.4 covered with soil.

Ash pit I-3 has moved to the north a little creating SWMU 133.3b. Several disturbed areas to the south and west can be observed but were not included on this SWMU map.

By 04/29/67, ten SWMU locations can be noted. On photograph 04/29/67, a new ash pit can be observed to the east, SWMU 133.2a. Ash pits I-1, I-3a, I-3b, and I-4 were covered with soil. The ash pit area was off the edge of photograph 04/10/68. By 04/24/69, all thirteen SWMU locations can be noted. On photograph 04/24/69, three new SWMU locations can be observed. Ash pit I-2a was expanded to the south and below the dirt road creating SWMU 133.2b. Also another ash pit can be observed southwest of SWMU 133.4, creating SWMU 133.7. The disturbed site south of the incinerator looked like possible disposal over the lip area creating SWMU 133.5b.

5.15 SWMU 134: LITHIUM METAL DESTRUCTION SITE

Using photo 04/29/67 as a base, SWMU 134 was drawn to correspond with SWMU 128, northeast of Building 335.

5.16 SWMU 135: COOLING TOWER BLOWDOWN

5.16.1 SWMU 135.1: South Area

The site south of Building 374 was originally the only site outlined on the SWMU map. This study changed the SWMU number from 135 to 135.1.

5.16.2 SWMU 135.2: North Area

The SWMU discussion states that the closest cooling tower was located north of Building 374 in Building 373. SWMU 135.2 was added using aerial photo 05/12/79 as a base. The SWMU completely surrounds Building 373.

5.17 SWMU 136: COOLING TOWER PONDS

All three ponds were moved or expanded based on aerial photo interpretation and were visible on photo 04/10/68.

5.17.1 SWMU 136.1: East of Building 444

The previous description of SWMU 136.1 stated that the SWMU is a pond located near the northeast corner of Building 460 from 1963 through 1969. The original SWMU map located SWMU 136.1 in a parking lot during 1963 through 1969. After review of those photographs, no evidence of this pond was observed. However, a pond was observed on the east side of Building 444 on the 04/29/67 photograph adjacent to the railroad spurs. The SWMU location was moved to encompass this pond.

5.17.2 SWMU 136.2: West of Building 444

The previous discussion of SWMU 136.2 located the pond west of Building 460, but the original SWMU map located the pond west of Building 444. Photograph 04/29/65 was used as a base to locate SWMU 136.2 west of Building 444.

5.17.3 SWMU 136.3: East of Building 460, West of Building 444

Aerial photo 08/11/62 was used as a base to locate this cooling tower pond.

5.18 SWMU 137: COOLING TOWER BLOWDOWN - BUILDING 774

The description of SWMU 137 states that a cooling tower blowdown occurred south of Building 774 and drained northward into North Walnut Creek (unknown dates). Two SWMUs were located based on the source and the migration of the contaminant.

5.18.1 SWMU 137.1: Cooling Towers

The cooling towers were located in Buildings 712 and 713. SWMU 137.1 was drawn to encompass the entire perimeters of these two buildings using 04/29/65 as a base.

5.18.2 SWMU 137.2: Cooling Tower Drainage

The vegetation north of this site in the North Walnut Creek drainage looks disturbed on aerial photos 04/29/65 and 04/29/67. However, on photo 08/11/62 the vegetation in this site was lush. This site was interpreted to be where the cooling tower blowdown migrated and was designated SWMU 137.2. Note that SWMUs 144.2 and 146.7 correspond to this same location.

5.19 SWMU 138: COOLING TOWER BLOWDOWN - BUILDING 779

This SWMU was also broken into two SWMUs (138.1 and 138.2) based on the previous description of this SWMU. The spill occurred in December, 1976.

5.19.1 SWMU 138.1: Cooling Towers

The spill originated from the cooling towers in Buildings 784, 785 and 786. Aerial photo 04/27/74 was used to outline the perimeter of the buildings.

5.19.2 SWMU 138.2: Cooling Tower Drainage

Aerial photographs 03/30/71 and 04/27/74 were used to observe the topography near Buildings 784, 785 and 786. A storm ditch was located and this drain was probably where the blowdown water migrated.

5.20 SWMU 139: CAUSTIC/ACID SPILLS

No conflicting data was uncovered to change the locations of SWMUs 139.1 and 139.2, however as-built construction maps for these tanks were not reviewed and the locations were based entirely on the previous location description.

SWMU 139.3: Hydrofluoric Acid Area - Building 714

The hydrofluoric acid (HF) was handled at the HF storage site, Building 714. The periphery of Building 714 was included in the SWMU location. Photo 04/10/68 was used as a base.

5.21 SWMU 141: SLUDGE DISPERSAL

Using aerial photo 03/30/71 as a base, SWMU 141 was expanded to include the Building 995 complex, where airborne sludge could have migrated during strong winds.

5.22 SWMU 142: RETENTION PONDS A,B, AND C SERIES

5.22.1 SWMU 142.7: B-3 Pond

SWMU 142.7 was expanded to the south to include the entire pond.

5.22.2 SWMU 142.10: C-1 Pond

SWMU 142.10 was expanded to the west to include the entire pond.

5.22.3 SWMU 142.12: A-5 Pond

SWMU 142.12 was not included on the original SWMU map. Pond A-5 is located in the far east buffer zone. This SWMU is located outside this map boundary, but is retained in the CAD data base.

5.23 SWMU 143: OLD OUTFALL

Building 773 is a tiny building located northwest of Building 771. SWMU 143 was expanded to the northeast of where it was originally mapped using 04/24/72 as a base.

5.24 SWMU 144: SEWER LINE BREAK

5.24.1 SWMU 144.1: Sanitary Sewer Line

The original SWMU 144 was mapped where the source of the sanitary sewer line occurred. This study changed SWMU 144 to SWMU 144.1.

5.24.2 SWMU 144.2: Hillside

The sewer line break migrated to the hillside about 500' north of the source location at an unknown date. SWMU 144.2 corresponds with SWMUs 137.2 and 146.7 using photos 04/29/65 and 04/29/67 as bases.

5.25 SWMU 146: CONCRETE PROCESS WASTE TANKS

5.25.1 SWMU 146.1 through 146.6: Process Waste Tanks

Six concrete storage tanks were described as being located on the west wing of the south side of Building 774. The original SWMU map shows these tanks located on the south side of Building 774. There

is no way of knowing where the storage tanks actually were located unless as-built drawings or documentation of their removal in the 1980s was reviewed. This study left the tank location where it was originally mapped.

5.25.2 SWMU 146.7: Leak Migration

It was documented that the tanks frequently overflowed, and that one overflowed down the east road toward North Walnut Creek. This spill site corresponds to SWMUs 137.2 and 144.2, and denotes the SWMU 146.7 location for this study. Aerial photos 04/29/65 and 04/29/67 were used as bases.

5.26 SWMU 156: RADIOACTIVE SOIL BURIAL

SWMU 156.1 remains in the same location as it was in the original SWMU map. Building 334 parking lot was described as being the location of SWMU 156.1. However, based on aerial photo interpretation, the parking lot was built north of Building 334 not west; therefore, SWMU 156.3 was added to encompass the north parking lot.

5.26.1 SWMU 156.2: Soil Dump Area (East Triangle)

The site was first shown to be disturbed on photo 04/10/68. Photo 05/24/69 was also used as a base to outline SWMU 156.2.

5.26.2 SWMU 156.3: Building 334 Parking Lot (North)

Building 334 parking lot was built between 04/10/68 and 05/24/69 to the north of Building 334. A soil dump was located north of the parking lot on photo 05/24/69. This site may have been part of the contaminated soil collected from around Building 774, part of the parking lot fill, and/or Building 371 construction that was visible on 04/27/74. SWMU 156.3 was drawn to encompass the parking lot and the soil dump site north of the parking lot using aerial photo 05/24/69 as a base.

5.27 SWMU 157: RADIOACTIVE SITE

5.27.1 SWMU 157.1: North Area

Photographs 05/13/63, 04/29/65 and 04/10/68 show barrels stored on the southwest corner of Central and 6th Streets. SWMU 157.1 was moved to encompass these sites.

5.27.2 SWMU 157.2: South Area

SWMU 157.2 was expanded to include the northwest part of Building 444 using aerial photo 04/10/68 as a base.

5.28 SWMU 158: RADIOACTIVE SITE - BUILDING 551

SWMU 158 was expanded to the north using 04/29/65 and 04/29/67 as base photographs.

5.29 SWMU 159: RADIOACTIVE SITE - BUILDING 559

A waste collection tank was in Building 528, located on the southeast side of Building 559. SWMU 159 was expanded further south to include Building 528 using photo 04/27/74 as a base.

5.30 SWMU 160: RADIOACTIVE SITE - BUILDING 444 PARKING LOT

Waste drums and boxes were located on photographs 04/29/65, 04/10/68, 03/30/71, and 04/27/74. SWMU 160 was expanded further east when compared to the original SWMU map.

5.31 SWMU 163: RADIOACTIVE SITE - 700 SITE NO. 3

There has been of activity north of Building 774 through the years as indicated on the aerial photographs, yet it is not clear whether the activity is associated with the SWMU description. SWMUs 163.1 and 163.2 were not moved based on this study, but questionable sites exist north of Buildings 771 and 774. Photographs 04/29/65 and 04/29/67 showed disturbed vegetation to the north-northeast of Building 774 associated with SWMUs 137.2, 144.2, and 146.7. Questionable soil dumping was visible on aerial photos 08/07/69, 03/30/71, 04/24/72, and 04/27/74 to the north-northeast of Building 774. This soil dump site is not associated with the current SWMUs, but is included with the additional sites of concern (Site 16 Plate 2).

5.32 SWMU 164: RADIOACTIVE SITE - 800 AREA SITE NO. 2

5.32.1 SWMU 164.1: Concrete Slab

The original mapped SWMUs 164 and 164.1 were combined into one SWMU 164.1.

5.32.2 SWMU 164.2 - Building 886 Spills

The date of the spill is unknown, however on the 05/11/55 photograph, there is a discoloration on the ground before Building 886 was built. The new SWMU location was drawn to include this discoloration with the original SWMU 164.2 outline.

5.32.3 SWMU 164.3: Building 889 Storage Pad

The dates of operation are not clear based on the previous description of SWMU 164.3. Extensive storage near Building 889 (within the whole 800 complex) was noted on aerial photos 04/29/65, 04/29/67, 04/10/68, and 05/24/69, and these sites were included in the new SWMU location.

5.33 SWMU 165: TRIANGLE AREA

Extensive storage of equipment and barrels was noted on photographs 04/10/69, 05/24/69, 03/30/71, and 04/27/74. During March 1970, three to five inches of soil were removed for off-site disposal. By 1971, all the drums had been transferred to cargo containers. No visual evidence of soil removal was observed on the 03/30/71 photograph; however, the cargo containers were observed on the 03/30/71 photograph in the eastern part of the SWMU. After viewing these photographs, the western edge of SWMU 165 is unclear because it joins SWMU 176. For this investigation, SWMU 165 was expanded west into SWMU 176 and also south.

5.34 SWMU 166: TRENCHES

It should be noted that no accurate building references are in the area, therefore, the accuracy of these SWMU locations based on aerial photo interpretation was slightly compromised compared to the rest of the SWMU map.

The original SWMU map had two trenches labeled SWMU 166.3. This investigation separated those two trenches and created SWMU 166.4 to the east of the other three trenches. All four trench locations were adjusted slightly from the original SWMU map based on photographs 04/29/65 and 04/10/68. A brief chronology of events follows. Photograph 05/13/63 shows the first evidence for SWMU 166.1. By 04/29/65, excavation of all four trenches had begun (three west and one east). Photographs 04/15/66 and 04/29/67 show distinct trenches in the four sites.

5.35 SWMU 167: SPRAY FIELDS - THREE AREAS

On the 04/27/74 photo, the first site of the pond in the landfill was observed. The irrigation pipe in the northern area can barely be seen. Using photograph 05/12/79, there is not enough evidence to confirm or change the SWMU boundary.

5.36 SWMU 170: P.U. AND D. STORAGE YARD

The storage yard is referenced as being located southeast of the present landfill (SWMU 114). However, the original SWMU map showed SWMU 170 to be to the southwest of the landfill. Using photographs 05/12/79, 06/03/80, and 11/04/85 as bases, SWMU 170 expanded to the east but also included a slightly smaller version of the original SWMU location. It is unclear whether some of these sites should be part of the Present Landfill or part of the storage yard, but since the sites had the visual characteristics of a storage yard, they were included with SWMU 170.

5.37 SWMU 171: SOLVENT BURNING GROUND

Using 04/29/67 and 04/10/68 photos as bases, SWMU 171 was located southeast of Building 335. The Solvent Burning Ground was also visible on photos 08/11/62 and 05/13/63.

5.38 SWMU 173: RADIOACTIVE SITE - 900 AREA

SWMU 173 was expanded slightly west of Building 991 and was extended to 10th Street where Tunnel 997 was located using photo 04/27/74 as a base.

5.39 SWMU 174: P.U. AND D. CONTAINER STORAGE FACILITIES (2)

After observing the aerial photographs, there was no evidence to move SWMU 174, since the visual characteristics of SWMU 174 are the same as SWMU 170. The western site was decreased slightly because SWMU 170 was determined to be smaller than originally mapped using aerial photographs 05/12/79, 06/03/80, and 11/04/85 as bases.

5.40 SWMU 175: S AND W BUILDING 980 CONTAINER STORAGE FACILITY

No time constraints were used in the previous discussion of SWMU 175. Using photographs 04/10/68, 04/27/74, 05/12/79, 05/28/80, and 11/04/85 as references, it was observed that debris were stored in an site south, east, and west of Building 980. SWMU 175 expanded from the original SWMU map.

5.41 SWMU 176: S AND W CONTAINER STORAGE YARD

Using photograph 05/28/80 as a base, SWMU 176 was expanded to the south.

5.42 SWMU 185: SOLVENT SPILL

There was no real evidence to change the location of SWMU 185, however, the SWMU description states SWMU 185 is located on the southeast loading dock of Building 707. On the original SWMU map, SWMU 185 is not located on the southeast loading dock of Building 707, but the narrative stated that the spill occurred on 11/10/86. This recent date suggests an accurate knowledge of where the accident occurred. Therefore, the location has not been changed. This should be investigated further.

5.43 SWMU 187: ACID LEAKS (2)

The CEARP Phase 1 SWMU descriptions were reviewed for this investigation.

5.43.1 SWMU 187.1: Inside Building 443

In September 1970, a spill occurred inside Building 443 and drained eastward from the building. The acid was captured in an earthen trap dug in an open field and neutralized with lime. The trap is now covered by buildings. Based on this discussion and using aerial photo 03/30/71 as a base, SWMU 187.1 was located

on the east side of Building 443. No attempt was made to map the migration of the spill into the field across Fifth Street.

5.43.2 SWMU 187.2: North of Building 444

At some unknown date a spill occurred north of Building 444 and flowed along Central Avenue in the drainage ditch. Using photo 03/30/71 as a reference, SWMU 187.2 was drawn on the north side of Building 444, including the ditch on the south side of Central Avenue.

5.44 SWMU 189: MULTIPLE ACID SPILLS

The CEARP Phase 1 SWMU descriptions were used to help locate these SWMUs. Persons interviewed mentioned that there had been acid spills both north and west of Building 881 at some unknown date. No attempt was made to locate this SWMU on the original SWMU map.

5.44.1 SWMU 189.1: North of Building 881

Using photograph 03/30/71 as a base, SWMU 189.1 was drawn north of Building 881.

5.44.2 SWMU 189.2: West of Building 881

Using photograph 03/30/81 as a base, SWMU 189.2 was drawn west of Building 881.

5.45 SWMU 192: ANTIFREEZE DISCHARGE

SWMU 192 is an antifreeze discharge to a storm runoff ditch, and the location was changed only slightly from the original SWMU map, by continuing the SWMU to Pond B-1. Thus the eastern part of the original SWMU 190 is now also part of SWMU 192.

5.46 SWMU 195: NICKEL CARBONYL DISPOSAL

Reference 4 (Doty and Associates, letter from Frank Blaha, November 9, 1989) states that Mr. Farrel Hobbs, Manager of the Environmental Management group, clearly remembered the general location of the nickel carbonyl destruction activities. No date of the nickel carbonyl disposal was given in the references. SWMU 195 was left in the same location as the original SWMU map even though no evidence for its location in that area was visually noted with aerial photo interpretation. However, it should be noted that a site north and downhill from the SWMU 195 location was disturbed on the 08/11/62 photograph. Perhaps this is the real SWMU location, and should be investigated further. This site is included in Section 6.0 as Site 13 (Plate 2).

5.47 SWMU 198: VOCS IN GROUND WATER

This SWMU was not outlined on the original SWMU map. No documentation was obtained to locate the high VOC concentrations in ground water for this study. Therefore, SWMU 198 was also not included in this SWMU map. However, based on the concentrations noted in SWMU 198 description, this SWMU should be investigated further.

5.48 SWMU 199: CONTAMINATION OF THE LAND SURFACE

The discussion of SWMU 199 in Reference 4 is a general statement, not necessarily addressing a specific SWMU. Therefore, this SWMU was not included on the SWMU map for this investigation.

5.49 SWMU 200: GREAT WESTERN RESERVOIR

SWMU 200 is not included on this SWMU map.

5.50 SWMU 201: STANDLEY LAKE

SWMU 201 is not included on this SWMU map.

5.51 SWMU 202: MOWER RESERVOIR

SWMU 202 is not included on this SWMU map.

5.52 SWMU 203: INACTIVE HAZARDOUS WASTE STORAGE AREA

Based on aerial photograph 11/04/85, SWMU 203 location was moved slightly to encompass the whole drive-in loading dock site.

5.53 SWMU 207: INACTIVE 444 ACID DUMPSTER

Aerial photograph 11/04/85 indicates that two 500 gallon stainless steel acid dumpsters are located outside to the east of Building 444. The original SWMU map had located SWMU 207 on the Railroad track. This investigation moved SWMU 207 into the container storage fenced site adjacent to Building 444 using photograph 11/04/85 as a base.

5.54 SWMU 209: SURFACE DISTURBANCE SOUTHEAST OF BUILDING 881

Several small pits or trenches were observed on photograph 04/10/68. Aerial photograph 04/27/74 was used as a reference to locate SWMU 209. A pond was also visible in this photo.

5.55 SWMU 211: UNIT 26, BUILDING 881 DRUM STORAGE

SWMU 211 was not included on the original SWMU map. This investigation indicates SWMU 211 corresponds to SWMU 178. Aerial photo 11/04/85 was used as a base.

5.56 SWMU 213: UNIT 15, 904 PAD PONDCRETE STORAGE

Based on photographs 11/04/85, 05/20/86 and 10/06/86, there is no evidence to move or expand SWMU 213, and the SWMU location remains the same. However, this site has greatly expanded in the recent past and should be surveyed for accurate dimensions.

5.57 SWMU 214: UNIT 25, 750 PAD PONDCRETE AND SALTCRETE STORAGE

This site was expanded slightly north using 11/04/85 as a base.

5.58 SWMU 216: EAST SPRAY FIELDS

There was no visual evidence to confirm or change SWMUs 216.1 and 216.3 locations.

SWMU 216.2: East Area

SWMU 216.2 was expanded to the east based on irrigation pipe that was visible on aerial photograph 05/28/80.

SECTION 6.0
ADDITIONAL DISTURBED SITES

Sixteen additional disturbed sites were observed through aerial photograph interpretation. Note that these sites are included on Plate 2 and are given sequential numbers for ease of referencing the sites. Further investigation should be performed for these sites. A brief discussion of each site follows.

6.1 DISCOLORATION NORTHEAST OF SWMU 117 (SITE 1)

A highly visible discoloration was observed near SWMU 117 on photograph 04/29/67. This site could be a possible spill location. By 04/10/68, a parking lot was built over the site.

6.2 BERM EAST OF 903 PAD (SWMU 112) (SITE 2)

A berm was made in the northeast corner of the 881 Hillside, west of the south perimeter road after 05/11/55 and before 07/09/59. It may be part of SWMU 119, or similar to the land disposal unit of the Mound Area. It is highly visible on photographs 04/10/68, 05/24/69, and 08/07/69. Photograph 05/24/69 was used as a base to outline the affected area.

6.3 DISCOLORATION WEST OF 903 PAD (SWMU 112) (SITE 3)

A dark discolored area was first visible on the 08/11/62 photograph west of the 903 Pad and south of Central Avenue. The discoloration is also discernible on photographs 05/13/63, 04/29/65, 04/15/66, 04/29/67, and 04/10/68. This area may be an old oil burn pit, based on similar visual characteristics to SWMU 153. Also, a large distinct discoloring west of this area was observed on the 05/13/63 photograph, but was not included on Plate 2.

6.4 DISCOLORATION SOUTHEAST OF 903 PAD (SWMU 112) (SITE 4)

On photograph 04/10/68, a dark discoloration was noted southeast of the corner of SWMU 112. This area is encompassed by the 903 Lip Area (SWMU 155). Based on the SWMU descriptions, it may best be considered part of SWMU 112.

6.5 THREE SOIL SCRAPES EAST OF 903 PAD (SWMU 112) (SITE 5)

On photograph 03/30/71, three soil scraped area can be noted just east of the 903 Pad. No description of soil removal occurring near this area is documented in the Part B under SWMU 112 or 155. These areas are currently encompassed by the 903 Lip Area (SWMU 155).

6.6 AREAS NORTH OF SOUTH FIRING RANGE (SITE 6)

A area north of the south Firing Range has been disturbed as early as 04/29/65. The area is still devoid of vegetation. Photograph 05/24/69 was used as a reference.

6.7 AREAS SOUTH AND SOUTHEAST OF THE EAST TRENCHES (SWMU 111) (SITE 7)

Two areas south and southeast of the East Trenches were disturbed in the mid-60s. These areas may be part of the gravel/clay pits in the vicinity, but the disturbance is extensive. Photographs 04/29/65 and 04/29/67 show the east area as disturbed, while no activity has occurred at the south area. In 04/29/65, a possible trench existed on the west side of the east area. On the 04/29/67 photograph, the surface of the eastern area is highly irregular. By 05/24/69, the south area is also disturbed and possible soil dumping (or soil storage) took place. Photograph 08/07/69 shows possible barrel storage in the south area, and possibly some land disposal or storage in the southeast area as well. By 03/30/71, revegetation is occurring in the southeast area, and possible soil storage was still taking place in the southern area. Photographs 04/29/65 and 03/30/71 were used to outline the disturbed areas. These activities at Site 7 correlate with the dates when activity was occurring in the East Trenches.

6.8 SITE NORTH OF RADIOACTIVE SOIL DUMP AREA (SWMU 130) (SITE 8)

On photograph 04/29/65, an area north of SWMU 130 and surrounding SWMU 104, soil dumping was occurring. SWMU 130s description states that the soil dumping was associated with the 05/11/69 fire of Building 776. Site 8 soil dumping was occurring before this date.

6.9 DISCOLORATIONS ON SEVENTH AND EIGHTH STREETS (SITE 9)

On photograph 04/29/67, dark discolorations were highly visible on Seventh and Eighth Streets south of Central Avenue. The roads appear to be paved at this time.

6.10 DISCOLORATION ON SIXTH STREET (SITE 10)

On photograph 08/11/62, a dark discoloration was visible on Sixth Street west of Building 552. This discoloration is also associated with the railroad spur. The discoloration on the railroad spur was still visible on the 04/29/65 photograph.

6.11 AREA NORTHEAST OF SWMUS 128, 134, AND 171 (SITE 11)

A disturbed area was noted on photo 08/11/62, northeast of SWMUs 128, 134 and 171. This small disturbed area was also noted on photographs 05/13/63. The area was expanded before 04/29/65, and then on 04/15/66 the area appeared unused. The 04/29/67 photograph again shows activity in this area. By 04/10/68, activity had ceased at the area. Photograph 04/29/65 was used as a base. Several disturbed areas southwest of disturbed Site 11 were observed on photograph 04/29/67, however these areas were not included on Plate 2.

6.12 EXCAVATIONS SOUTH OF PRESENT LANDFILL (SITE 12)

One large excavated area was first visible southeast of the present landfill on photograph 04/29/67. This area can still be seen on photographs 04/10/68 and 03/30/71. The east-southeastern part of the

excavation has a dark discoloration visible on photograph 04/29/65. Soil scraping was observed on the western section on photo 04/10/68. Aerial photo 04/29/67 was used as a base.

6.13 THE LANDFILL POND (SITE 13)

The landfill pond was first observed on aerial photograph 04/27/74, but was quite small until 05/12/79. This pond should be considered as part of SWMU 114, or as a separate SWMU designation.

6.14 SITE NORTHWEST OF SWMU 195 (SITE 14)

An area northwest of SWMU 195 was mentioned in the description of SWMU 195. On photograph 08/11/62, an area northwest and downhill of SWMU 195 was disturbed. The area was undisturbed on photo 04/29/65. Also on photographs 05/24/69 and 08/07/69 an area downhill on the road northwest of SWMU 195 was disturbed.

6.15 SOIL SCRAPES SOUTH OF LINDSAY RANCH (SITE 15)

On photographs 04/29/67, 04/10/68, 05/24/69, and 08/07/69, unidentifiable scrape markings are visible on the surface south of Lindsay Ranch. On 04/10/68 photograph, a mound was visible in the middle of each disturbed area. The disturbed area expanded eastward with each successive year. There are roads leading to these areas, suggesting possible borrow pit usage.

6.16 SOIL DUMPING ASSOCIATED WITH SWMUS 137.2, 144.2, 146.7, AND 163 (SITE 16)

Numerous photographic years were examined for this area. As noted previously, photos 04/29/65 and 04/29/67 showed disturbed vegetation north-north east of Building 774 in this general area associated with SWMUs 137.2, 144.2 and 146.7. A straw or soil dump was visible on photos 08/07/69, 03/30/71, 04/24/72, and 04/27/74 approximately 500' north of Buildings 779 and 777, greatly expanding the disturbed area. The revised map does not include the soil (or straw) dump area as part of SWMUs 137.2, 144.2, and 146.7. Photographs 03/30/71 and 04/27/74 were used as bases and 08/07/69 was used as a reference. It should

be noted that no soil dumping was occurring at Site 16 on the 05/24/69 photograph, suggesting that the dumping may be associated with the 05/11/69 fire in Building 776.

SECTION 7.0

REFERENCES

- DOE, 1986a, Comprehensive Environmental Assessment and Response Program Phase 1: Draft Installation Assessment, Rocky Flats Plant; U.S. Department of Energy, unnumbered draft report, 04/86.
- DOE, 1986b, Appendix, Waste Management Units: RCRA-Regulated Hazardous and Radioactive Mixed Waste Units, Solid Waste Management Units, and CERCLA Areas; U.S. Department of Energy, unnumbered draft report, 10/17/86.
- DOE, 1987, RCRA-Part B, Permit Application, 3004(u), Appendix 1: Inactive Waste Unit Summary Sheets; U.S. Department of Energy, Revision No. 1, 12/15/87.
- DOE, 1988, RCRA-Closure Plan, Container Storage Facilities; U.S. Department of Energy, Revision No. 1, 04/05/88.
- EG&G, 1990a, Phase III RI/FS Work Plan, Rocky Flats Plant, 881 Hillside Area, Operable Unit No. 1; U.S. Department of Energy, Unnumbered Draft Report, 02/90.
- EG&G, 1990b, Phase II RI/FS Work Plan, Rocky Flats Plant, 903 Pad, Mound and East Trenches Areas, Operable Unit No. 2; U.S. Department of Energy, Final Report, 04/12/90.
- Rockwell International, 1989, Location of Solid Waste Management Units Map, 11/17/89.

APPENDIX 1

TABLE 1
CHEMICALS OF CONCERN AND REFERENCE DOCUMENTATION

References *			SMMU Number	SMMU Name	Chemicals of Concern	Comments **
1	2	3				
V19	72	1	101	207 Solar Evaporation Ponds	rads, organics, inorganics	
V37	73	2	102	Oil Sludge Pit	no. 6 fuel oil sludge	
V40	75	3	103	Chemical Burial Area	unknown chemical	
V40	76	4	104	Liquid Dumping Pit	unknown liquids, empty drums	5
V41	77	5	105	Out-of-Service Fuel Tanks	asbestos, no. 6 fuel oil sludge	
V41	78	6	106	Outfall	cooling tower clean out water	
V37	79	7	107	Hillside Oil Leak	no. 6 fuel oil	
V17	81	8	108	Trench T-1	U, Pu, hydraulic oil, carbon tetrachloride	
V18	83	10	109	Trench T-2	U, Pu, sewage sludge, flattened drums	
V18	85	12	110	Trench T-3	U, Pu, sewage sludge, flattened drums	
V18	87	14	111	Trenches T-4 to T-11	U, Pu, sewage sludge, empty drums, asphalt	
V21	91	17	112	903 Drum Storage Area	U, Pu, hydraulic oil, carbon tetrachloride, trichloroethylene, perchloroethylene, silicone oils and acetone stillbottoms	
V22	94	20	113	Mound Area	U, Pu, Be, hydraulic oil, carbon tetrachloride, perchlene	
V17	96	22	114	Present Landfill	U, ash, unk. non-rad. hazardous chemical wastes	
V12	97	23	115	Original Landfill	unk. solvents and hydrocarbons	6
V44	99	25	116	Multiple Solvent Spills	unk. types of acids, oils, soaps and solvents	
V39	101	27	117	Chemical Storage		

11/09/89
11/25/89
11/17/89
11/13/89

4 - Doty & Associates
5 - WESTON
6 - WESTON
7 - WESTON

** Letter references used:

April '86
10/17/86
12/15/87

* Page number of reference used:
1 - CEARP Phase 1
2 - RCRA - Regulated
3 - RCRA Part B Appendix I

TABLE 1
CHEMICALS OF CONCERN AND REFERENCE DOCUMENTATION

References *			SWMU Number	SWMU Name	Chemicals of Concern	Comments **
1	2	3				
V44	103	29	118	Multiple Solvent Spills	carbon tetrachloride, possible trichloroethylene	
V45	105	31	119	Multiple Solvent Spills	unk. solvents	
V40	107	32	120	Fiberglassing Areas	polyester resin, peroxide catalysts and unk. solvents	
V12	108	33	121	Original Process Waste Lines		
V31	109	34	122	Underground Concrete Tank	nitrates and possible radionuclides	
V25	111	35	123	Valve Vault 7	possible U, solvents, oils, Be, nitric acid, hydrochloric acid and fluoride	
V23	113	37	124	Radioactive Liquid Waste Storage Tank	Pu, Am and possibly Ur in aqueous solution	
V24	115	38	125	Holding Tank	Pu, U and nitrates	
V22	117	40	126	Out-of-Service Process Waste Tanks	unk. process wastes	
V27	118	41	127	Low-Level Radioactive Waste Leak	Pu and nitrates	5
V29	119	42	128	Oil Burn Pit No. 1	waste oil containing depleted U	
V37	120	43	129	Oil Leak	no. 6 fuel oil, no. 2 diesel oil and 1,1,1-trichloroethane	
	122	45	130	Radioactive Site - 800 Area Site No. 1	Pu contaminated soil and asphalt	7
	124	47	131	Radioactive Site - 700 Area Site No. 1	possible Pu contaminated soil	7
	125	48	132	Radioactive Site - 700 Area Site #4	unk. radioactive compounds	
V28	126	49	133	Ash Pits	depleted U chips	
V39	128	51	134	Lithium Metal Destruction Site	Li metal	

* Page number of reference used: 1 - CEARP Phase 1 April '86
2 - RCRA - Regulated 10/17/86
3 - RCRA Part B Appendix 1 12/15/87

** Letter references used: 4 - Doty & Associates 11/09/89
5 - WESTON 11/25/89
6 - WESTON 11/17/89
7 - WESTON 11/13/89

TABLE 1
CHEMICALS OF CONCERN AND REFERENCE DOCUMENTATION

References *			SMU Number	SMU Name	Chemicals of Concern	Comments **
1	2	3				
V32	129	52	135	Cooling Tower Blowdown	chromates and algicides	
V21	130	53	136	Cooling Tower Ponds	Li, chromates, algicides, possible U and hexavalent Cr	
V32	131	54	137	Cooling Tower Blowdown - Bldg. 774	chromates and algicides in aqueous solution	
	132	55	138	Cooling Tower Blowdown - Bldg. 779	chromates and algicides in aqueous solution	
V43	133	56	139	Caustic/Acid Spills	potassium hydroxide, sodium hydroxide and hydrofluoric acids	
V39	135	58	140	Reactive Metal Destruction Site	Li, Na, Ca, Mg and solvents	
V30	137	59	141	Sludge Dispersal	radioactive contaminated soil and sewage sludge	5
V20	139	61	142	Retention Ponds (A,B,C-Series)	Pu, U and nitrate	
V28	142	64	143	Old Outfall	unk. rad. compounds, Na, K, sulfates and nitrates	
V25	144	66	144	Sewer Line Break	unk. rad. compounds and sewage sludge	
V31	146	68	145	Sanitary Waste Line Leak	unk. rad. compounds	
V23	147	69	146	Concrete Process Waste Tanks	Pu, U, acids, caustics, Na, K, S and nitrates	
V26	149	71	147	Process Waste Leaks	unk. process wastes	
V30	151	72	148	Waste Spills	unk. rad. compounds and nitrate wastes	
V27	152	73	149	Effluent Pipe	unk. rad. compounds, acids and caustics	
V26	154	75	150	Radioactive Liquid Leaks (8)	unk. rad. compounds, liquid mixed wastes containing caustics or acids	5
V38	156	77	151	Fuel Oil Leak	no. 2 fuel oil	

* Page number of reference used: 1 - CEARP Phase 1
2 - RCRA - Regulated
3 - RCRA Part B Appendix I

April '86
10/17/86
12/15/87

** Letter references used: 4 - Doty & Associates
5 - WESTON
6 - WESTON
7 - WESTON

11/09/89
11/25/89
11/17/89
11/13/89

TABLE 1
CHEMICALS OF CONCERN AND REFERENCE DOCUMENTATION

References *			SNMU Number	SNMU Name	Chemicals of Concern	Comments **
1	2	3				
V38	157	78	152	Fuel Oil Tank	no. 6 fuel oil	
V29	158	79	153	Oil Burn Pit No. 2	waste oil containing depleted U	
V31	160	81	154	Pallet Burn Site	unk. hazardous chemical and rad. compounds	
V10	161	82	155	903 Lip Area	Pu and unk. mixed wastes	
V3	163	84	156	Radioactive Soil Burial	Pu contaminated soil	
V3	165	86	157	Radioactive Site	U, Be and unk. chemicals (possibly solvents)	
V7	167	88	158	Radioactive Site - Bldg. 551	unk. mixed wastes	
V7	169	89	159	Radioactive Site - Bldg. 559	unk. mixed wastes	
V7	171	90	160	Radioactive Site - Bldg. 444 Pk. Lot	Pu and U wastes	
V7	171	90	161	Radioactive Site - Bldg. 664	Pu and U wastes	
V8	173	82	162	Radioactive Site - 700 Area Site No. 2	unk. rad. compounds	
	174	93	163	Radioactive Site - 700 Area Site No. 3	unk. rad. compounds and Am	
V10	176	94	164	Radioactive Site - 800 Area Site No. 2	unk. rad. compounds	
V11	178	96	165	Triangle Area	Pu contaminated waste, equipment and materials, from 1969 fire, nitric acid	
	181	99	166	Trenches near Landfill	sewage sludge contaminated with U and poss. Pu and unk. chemicals	
	182	100	167	Spray Fields - Three Sites	landfill pond water	
	184	102	168	West Spray Field		5
	185	103	169	Waste Drum Peroxide Burial	hydrogen peroxide	

* Page number of reference used: 1 - CEARP Phase 1
2 - RCRA - Regulated
3 - RCRA Part B Appendix I

April '86
10/17/86
12/15/87

** Letter references used: 4 - Doty & Associates
5 - WESTON
6 - WESTON
7 - WESTON

11/09/89
11/25/89
11/17/89
11/13/89

TABLE 1
CHEMICALS OF CONCERN AND REFERENCE DOCUMENTATION

References *		SMMU Number	SMMU Name	Chemicals of Concern	Comments **
1	2	3			
186	104	170	P.U.& D. Storage Yard - Waste Spills	spent solvents, metals shavings coated with lathe coolant, used oils and battery acid	Also Observed 11/04/85
187	106	171	Solvent Burning Ground	unk. solvents	
188	107	172	Central Avenue Waste Spill	Pu contaminated oils, hydraulic oil and carbon tetrachloride	
189	108	173	Radioactive Site - 900 Area	U, Pu and Be materials	Also Observed 11/04/85
190	109	174	P.U.& D. Container Storage facilities (2)		
110	175		S & W Bldg. 980 Container Storage Facility		
111	176		S & W Contractor Storage Yard		
112	177		Building 885 Drum Storage Area		5
113	178		Building 881 Drum Storage Area		5
114	179		Building 865 Drum Storage Area		
115	180		Building 883 Drum Storage Area		
116	181		Building 334 Cargo Container Area		
117	182		Building 444/453 Drum Storage Area		
118	183		Gas Detoxification Area	nitric oxide, chloride, hydrogen sulfide, sulfur tetrafluoride, methane, hydrogen fluoride and ammonia	
119	184		Building 991 Steam Cleaning Area	unk. rad. compounds	
120	185		Solvent Spill	1,1,1-trichloroethylene	

* Page number of reference used: 1 - CEARP Phase 1
2 - RCRA - Regulated
3 - RCRA Part B Appendix I

April 1986
10/17/86
12/15/87

** Letter references used: 4 - Doty & Associates
5 - WESTON
6 - WESTON
7 - WESTON

11/09/89
11/25/89
11/17/89
11/13/89

TABLE 1
CHEMICALS OF CONCERN AND REFERENCE DOCUMENTATION

References *		SWMU Number	SWMU Name	Chemicals of Concern	Comments **
1	2				
V41		186	Valve Vault 12	U contaminated process wastes, unk. chemicals	4,5,7
V42		187	Acid Leaks (2)		4,5
V42		188	Acid Leak		4,5,7
V43		189	Multiple Acid Spills		4,5
V44		190	Caustic Leak		4,5
V45		191	Hydrogen Peroxide Spill		4,5
V46		192	Antifreeze Discharge		4,5
V46		193	Steam Condensate Leak		4,5
V47		194	Steam Condensate Leak		4,5
V47		195	Nickel Carbonyl Disposal		4,5
V47		196	Water Treatment Plant Backwash Pond		4,5
V47		197	Scrap Metal Sites		5, Not on map
V48		198	VOC's in Ground Water		5, Not on map
V50		199	Contamination of the Land Surface		5, Not on map
V51		200	Great Western Reservoir		5, Not on map
V52		201	Standley Reservoir	5, Not on map	
		202	Hower Reservoir	5	
		122	Inactive Hazardous Waste Storage Area	misc. liquid and solid hazardous wastes	
		123	Original Uranium Chip Roaster	U chips contaminated with halogenated solvents	

4 - Doty & Associates 11/09/89
 5 - WESTON 11/25/89
 6 - WESTON 11/17/89
 7 - WESTON 11/13/89

** Letter references used:
 4 - Doty & Associates
 5 - WESTON
 6 - WESTON
 7 - WESTON

April '86
 10/17/86
 12/15/87

* Page number of reference used:
 1 - CEARP Phase 1
 2 - RCRA - Regulated
 3 - RCRA Part B Appendix I

TABLE 1
CHEMICALS OF CONCERN AND REFERENCE DOCUMENTATION

References *		SMU Number	SMU Name	Chemicals of Concern	Comments **
1	2				
		124	Bldg. 460 Sump #3 Acid Side	nitric and nitrad (containing HF) acids	
		125	Inactive D-836 Hazardous Waste Tank	off-spec. 374 bldg. product water	
		127	Inactive 444 Acid Dumpster	acidic waste	
		128	Inactive 444/447 Waste Storage Area	nitric acid with silver, NaF solution, plating acids, chromium plating solution, cadmium solution, nickel sulfamate and developer/fixer	
		209	Surface Disturbance Southeast of Bldg. 881		5
		210	Unit 16, Building 980 Cargo Container		5
		211	Unit 26, Building 881 Drum Storage		5
		212	Unit 63, Building 371 Drum Storage		5
		213	Unit 15, 904 Pad Pondcrete Storage		5
		214	Unit 25, 750 Pad Pondcrete and Saltcrete Storage		5
		215	Units 55.13, 55.14, 55.15, 55.16 - Tanks T-40, T-66, T-67, T-68		5
		216	East Spray Fields		5

* Page number of reference used: 1 - CEARP Phase 1
2 - RCRA - Regulated
3 - RCRA Part B Appendix I

** Letter references used: 4 - Doty & Associates
5 - WESTON
6 - WESTON
7 - WESTON

April '86
10/17/86
12/15/87

11/09/89
11/25/89
11/17/89
11/13/89

TABLE 2
INACTIVE WASTE UNITS

SMU NO.	SMU Name	Location	Dates of Operation	SMU Changed ?	Latest Reference Numbers*	Dates Observed On Aerial Photographs **
101	207 Solar Evaporation Ponds	900 Area	mid-50s to present	NO	1	
102	Oil Sludge Pit	800 Area	'58	NO	2	
103	Chemical Burial Area	800 Area	unknown	NO	2	
104	Liquid Dumping Pit	800 Area	Prior to 1969 (?)	NO	2	
105	Out-of-Service Fuel Tanks	800 Area	'58 - '76	NO	2	
	105.1 : Westernmost Tank			NO	2	
	105.2 : Easternmost Tank			NO	2	
106	Outfall	800 Area	unknown 12/77 (?)	NO	2	
107	Hillside Oil Leak	800 Area	'58 - '76	NO	2	
108	Trench T-1	Mound Area	12/54 - 12/62	NO	3	
109	Trench T-2	903 Lip Area	07/54 - 08/68	NO	3	
110	Trench T-3	East Trenches Area	07/54 - 08/68	NO	3	
111	Trenches T-4 to T-11	East Trenches Area	07/54 - 08/68	NO	3	
	111.1 : Trench T-4			NO	3	
	111.2 : Trench T-5			NO	3	
	111.3 : Trench T-6			NO	3	
	111.4 : Trench T-7			NO	3	
	111.5 : Trench T-8			NO	3	
	111.6 : Trench T-9			NO	3	
	111.7 : Trench T-10			NO	3	
	111.8 : Trench T-11			NO	3	

* No SMU change; latest reference showing location as shown on this map.

** Date SMU change observed on aerial photo.

1 - Solid Waste Management Units Map, 11/17/89

2 - 881 Hillside, Phase III RI/FS Work Plan, 02/90

3 - 903 Pad, Phase II RI/FS Work Plan, 04/12/90

+ USDOE, Rocky Flats Plant, Golden, Colorado
a Closure Plan, Container Storage Facilities, 4/5/88

TABLE 2
INACTIVE WASTE UNITS

SMU No.	SMU Name	Location	Dates of Operation	SMU Changed ?	Latest Reference Numbers*	Dates Observed On Aerial Photographs **
112	903 Drum Storage Area	903 Pad Area	10/58 - 06/68	NO	3	
113	Mound Area	Mound Area	04/54 - 09/58	NO	3	
114	Present Landfill	Landfill Area	'68 to present	YES		11/04/85 AND 09/15/89
115	Original Landfill	Ash Pits Area	'52 - '68	YES		04/29/65 AND 05/24/69
116	Multiple Solvent Spills	400 Area	prior to '79	YES		
	116.1 : West Loading Dock Area			YES		04/29/65 AND 04/10/68
	116.2 : South Loading Dock Area			YES		04/29/65 AND 04/10/68
117	Chemical Storage	500 Area	prior to mid 70's	YES		-----
	117.1 : North Site			YES		05/11/55 THROUGH 04/27/74
	117.2 : Middle Site			YES		05/11/55 THROUGH 04/27/74
	117.3 : South Site			YES		05/11/55 THROUGH 04/27/74
118	Multiple Solvent Spills	700 Area	late 70's to '81	YES		04/27/74
	118.1 : West of Building 730			NO	1	
	118.2 : South End of Building 776			NO	2	
119	Multiple Solvent Spills	800 Area	'67 - '71	NO	2	
	119.1 : West Area			NO	2	
	119.2 : East Area			YES		04/24/72
120	Fiberglassing Areas	600 Area	'72 - '79 (7)	YES		04/24/72
	120.1 : North of Building 664			YES		04/24/72
	120.2 : West of Building 664			YES		04/24/72
121	Original Process Waste Lines	Plant Area	'52 - '83	NO	1	

* USDOE, Rocky Flats Plant, Golden, Colorado
 @ Closure Plan, Container Storage Facilities, 4/5/88

* No SMU change; latest reference showing location as shown on this map.

** Date SMU change observed on aerial photo.

1 - Solid Waste Management Units Map, 11/17/89

2 - 881 Hillside, Phase III RI/FS Work Plan, 02/90

3 - 903 Pad, Phase II RI/FS Work Plan, 04/12/90

TABLE 2
INACTIVE WASTE UNITS

SMU No.	SMU Name	Location	Dates of Operation	SWMU Changed ?	Latest Reference Numbers*	Dates Observed On Aerial Photographs **
122	Underground Concrete Tank	400 Area	'53 - 06/82	YES		04/27/74
123	Valve Vault 7	700 Area	'52 - 03/84	NO	1	
	123.1 : Valve Vault 7			NO	1	
	123.2 : Valve Vault West of Building 707			NO	1	
124	Radioactive Liquid Waste Storage Tank	700 Area	'52 - present	YES		04/24/72
	124.1 : 30,000 Gallon Tank (No. 68)			YES		04/24/72
	124.2 : 14,000 Gallon Tank (No. 66)			YES		04/24/72
	124.3 : 14,000 Gallon Tank (No. 67)			YES		04/24/72
125	Holding Tank	700 Area	Early 80's	YES		04/27/74
126	Out-of-Service Process Waste Tanks	700 Area	'53 - '76 (?)	YES		04/27/74
	126.1 : Westernmost Tank			YES		04/27/74
	126.2 : Easternmost Tank			NO	1	
127	Low-Level Radioactive Waste Leak	700 Area	unknown	YES		04/29/65
128	Oil Burn Pit No. 1	300 Area	08/56			
129	Oil Leak	400 Area	'52 - present	NO	1	
130	Radioactive Site - 800 Area Site No. 1	800 Area	'69 - '72	NO	2	
131	Radioactive Site - 700 Area Site No. 1	700 Area	'69 - '??	YES		05/24/69
	131.1 : North Area			YES		05/24/69
	131.2 : West Area			YES		05/24/69
132	Radioactive Site - 700 Area Site #4	700 Area	unknown	YES		04/27/74
133	Ash Pits	Ash Pits Area	'52 - '68	YES		05/13/63 THROUGH 05/24/69

* No SMU change; latest reference showing location as shown on this map.
 ** Date SMU change observed on aerial photo.
 1 - Solid Waste Management Units Map, 11/17/89
 2 - 881 Hillside, Phase III RFI/FS Work Plan, 02/90
 3 - 903 Pad, Phase II RFI/FS Work Plan, 04/12/90

+ USDOE, Rocky Flats Plant, Golden, Colorado
 a Closure Plan, Container Storage Facilities, 4/5/88

TABLE 2
INACTIVE WASTE UNITS

SWMU No.	SWMU Name	Location	Dates of Operation	SWMU Changed ?	Latest Reference Numbers*	Dates Observed On Aerial Photographs **
133.1	: Ash Pit I-1			YES		05/13/63 THROUGH 05/24/69
133.2	: Ash Pit I-2			YES		05/13/63 THROUGH 05/24/69
133.3	: Ash Pit I-3			YES		05/13/63 THROUGH 05/24/69
133.4	: Ash Pit I-4			YES		05/13/63 THROUGH 05/24/69
133.5	: Incinerator			YES		05/13/63 THROUGH 05/24/69
133.6	: Concrete Wash Pad			YES		05/13/63 THROUGH 05/24/69
133.7	: Ash Pits			YES		05/13/63 THROUGH 05/24/69
133.8	: Ash Dump			YES		05/13/63 THROUGH 05/24/69
133.9	: Disturbed Area			YES		05/13/63 THROUGH 05/24/69
133.10	: Western Lip Area			YES		05/13/63 THROUGH 05/24/69
134	Lithium Metal Destruction Site	300 Area	unknown	NO	SWMU 11/89	04/29/67
135	Cooling Tower Blowdown	300 Area	unknown	YES		05/12/79
135.1	: South Area			YES		
135.2	: North Area			YES		
136	Cooling Tower Ponds	400 Area	'63 - '69	YES		04/29/67
136.1	: Northeast Corner of Building 460			YES		04/29/65
136.2	: West of Building 460			YES		08/11/62
136.3	: S. of Bldg. 460, W. of Bldg. 444			YES		
137	Cooling Tower Blowdown - Bldg. 774	700 Area	unknown	YES		04/29/65
137.1	: Cooling Towers			YES		04/29/65 AND 04/29/67
137.2	: Cooling Towers Drainage			YES		

* No SWMU change; latest reference showing location as shown on this map.
 ** Date SWMU change observed on aerial photo.
 1 - Solid Waste Management Units Map, 11/17/89
 2 - 881 Hillside, Phase III RI/FS Work Plan, 02/90
 3 - 903 Pad, Phase II RI/FS Work Plan, 04/12/90

+ USDOE, Rocky Flats Plant, Golden, Colorado
 @ Closure Plan, Container Storage Facilities, 4/5/88

TABLE 2
INACTIVE WASTE UNITS

SMMU No.	SMMU Name	Location	Dates of Operation	SMMU Changed ?	Latest Reference Numbers*	Dates Observed On Aerial Photographs **
138	Cooling Tower Blowdown - Bldg. 779	700 Area	unk, 12/76	YES		04/27/74
	138.1 : Cooling Towers			YES		
	138.2 : Cooling Towers Drainage			YES		03/30/71 AND 04/27/74
139	Caustic/Acid Spills	700 Area	unknown	NO	1	
	139.1 : Potassium Hydroxide Area - South of Bldg 771			NO	1	
	139.2 : Sodium Hydroxide Area - North of Bldg 774			NO	1	
	139.3 : Hydrofluoric Acid Area - Bldg 714			YES		04/10/68
140	Reactive Metal Destruction Site	903 Area	'56 - '70	NO	3	
141	Sludge Dispersal	900 Area	prior to '83	YES	1	03/30/71
142	Retention Ponds (A,B,C-Series)	Retention Ponds	'52 - present	NO	1	
	142.1 : A-1 Pond			NO	1	
	142.2 : A-2 Pond			NO	1	
	142.3 : A-3 Pond			NO	1	
	142.4 : A-4 Pond			NO	1	
	142.5 : B-1 Pond			NO	1	
	142.6 : B-2 Pond			NO	1	
	142.7 : B-3 Pond			YES		04/10/68
	142.8 : B-4 Pond			NO	1	
	142.9 : B-5 Pond			NO	1	

* + USDOE, Rocky Flats Plant, Golden, Colorado
 a Closure Plan, Container Storage Facilities, 4/5/88

* No SMMU change; latest reference showing location as shown on this map.

** Date SMMU change observed on aerial photo.

1 - Solid Waste Management Units Map, 11/17/89

2 - 881 Hillside, Phase III RI/FS Work Plan, 02/90

3 - 903 Pad, Phase II RI/FS Work Plan, 04/12/90

TABLE 2
INACTIVE WASTE UNITS

SWMU No.	SWMU Name	Location	Dates of Operation	SWMU Changed ?	Latest Reference Numbers*	Dates Observed On Aerial Photographs **
143	142.10: C-1 Pond	700 Area	mid 50's - '74	YES		04/10/68
	142.11: C-2 Pond	700 Area	unknown	NO	1	
	142.12: Newly Identified A-5 Pond	700 Area	unknown	NO	1	04/24/72
144	Old Outfall	700 Area	unknown	YES		
	Sewer Line Break	700 Area	unknown	NO	SWMU 11/89	
	144.1 : Sanitary Sewer Line			YES		04/29/65 AND 04/29/67
	144.2 : Hillside			NO		
145	Sanitary Waste Line Leak	800 Area	01/81	NO	881	
146	Concrete Process Waste Tanks	700 Area	late 50's-early 70's	NO	1	
	146.1 : 7,500 Gallon Tank (No. 31)			NO	1	
	146.2 : 7,500 Gallon Tank (No. 32)			NO	1	
	146.3 : 7,500 Gallon Tank (No. 34W)			NO	1	
	146.4 : 7,500 Gallon Tank (No. 34E)			NO	1	
	146.5 : 3,750 Gallon Tank (No. 30)			NO	1	
	146.6 : 3,750 Gallon Tank (No. 33)			NO	1	04/29/65 AND 04/29/67
	146.7 : Leak Migration			YES		
147	Process Waste Leaks	700 & 800 Areas	unknown	NO	1	
	147.1 : MAAS Area	700 Area		NO	1	
	147.2 : Owens Area	800 Area		NO	1	
148	Waste Spills	100 Area	unknown	NO	1	
149	Effluent Pipe	700 Area	prior to '80	NO	1	

* No SWMU change; latest reference showing location as shown on this map.
 ** Date SWMU change observed on aerial photo.
 1 - Solid Waste Management Units Map, 11/17/89
 2 - 881 Hillside, Phase III RFI/FS Work Plan, 02/90
 3 - 903 Pad, Phase II RFI/FS Work Plan, 04/12/90

+ USDOE, Rocky Flats Plant, Golden, Colorado
 a Closure Plan, Container Storage Facilities, 4/5/88

TABLE 2
INACTIVE WASTE UNITS

SWMU No.	SWMU Name	Location	Dates of Operation	SWMU Changed ?	Latest Reference Numbers*	Dates Observed On Aerial Photographs **
150	Radioactive Liquid Leaks (8)	700 Area	unknown	NO	1	
	150.1 : North of Building 771			NO	1	
	150.2 : West of Building 771			NO	1	
	150.3 : Between Buildings 771 and 774			NO	1	
	150.4 : East of Building 750			NO	1	
	150.5 : West of Building 707			NO	1	
	150.6 : South of Building 779			NO	1	
	150.7 : South of Building 776			NO	1	
	150.8 : Northeast of Building 779			NO	1	
151	Fuel Oil Leak	300 Area	unknown	NO	1	
152	Fuel Oil Tank	600 Area	'52 - present	NO	3	
153	Oil Burn Pit No. 2	Mound Area	03 - 04/57, 06/61 - 05/65	NO	3	
154	Pallet Burn Site	Mound Area	'65	NO	3	
155	903 Lip Area	903 Area	unknown	NO	3	
156	Radioactive Soil Burial	300 & E. Triangle	unknown	NO	1	
	156.1 : Building 334 Parking Lot (West)	300 Area		YES		04/16/68 AND 05/24/69
	156.2 : Soil Dump Area	E. Triangle		YES		05/24/69
	156.3 : Building 334 Parking Lot (North)	300 Area		YES		05/24/69
157	Radioactive Site	400 Area	prior to 1973	YES		05/13/63, 04/29/65
	157.1 : North Area			YES		04/10/68
	157.2 : South Area			YES		04/10/68

* USDOE, Rocky Flats Plant, Golden, Colorado
 a Closure Plan, Container Storage Facilities, 4/5/88

• No SWMU change; latest reference showing location as shown on this map.
 ** Date SWMU change observed on aerial photo.
 1 - Solid Waste Management Units Map, 11/17/89
 2 - 881 Hillside, Phase III RI/FS Work Plan, 02/90
 3 - 903 Pad, Phase II RI/FS Work Plan, 04/12/90

TABLE 2
INACTIVE WASTE UNITS

SMU No.	SMU Name	Location	Dates of Operation	SMU Changed ?	Latest Reference Numbers*	Dates Observed On Aerial Photographs **
158	Radioactive Site - Bldg. 551	500 Area	'63 - '70	YES		04/29/65, 04/29/67
159	Radioactive Site - Bldg. 559	500 Area	03/68 - present	YES		04/27/74
160	Radioactive Site - Bldg. 444 Pk. Lot	400 Area	unknown	YES		04/29/65 - 04/27/74
161	Radioactive Site - Bldg. 664	600 Area	unknown	NO	1	
162	Radioactive Site - 700 Area Site No. 2	8th Ave.	1974	NO	1	
163	Radioactive Site - 700 Area Site No. 3	700 Area	unknown	NO	1	
	163.1 : Wash Area			NO	1	
	163.2 : Buried Slab			NO	1	
164	Radioactive Site - 800 Area Site No. 2	800 Area	1958	YES		
	164.1 : Concrete Slab			YES		05/11/55
	164.2 : Building 886 Spills			YES		04/29/65 THROUGH 05/24/69
	164.3 : Building 889 Storage Pad			YES		04/10/69 THROUGH 04/27/74
165	Triangle Area	Triangle Area	'66 - '75	YES		04/29/65 THROUGH 04/10/68
166	Trenches near Landfill	Present Landfill	unknown	YES		04/29/65 THROUGH 04/10/68
	166.1 : Trench A			YES		04/29/65 THROUGH 04/10/68
	166.2 : Trench B			YES		04/29/65 THROUGH 04/10/68
	166.3 : Trench C			YES		04/29/65 THROUGH 04/10/68
	166.4 : Trench D			YES		04/29/65 THROUGH 04/10/68
167	Spray Fields - Three Sites	Present Landfill	'68(?) - present	NO	1	
	167.1 : North Area			NO	1	
	167.2 : Pond Area			NO	1	

* USDOE, Rocky Flats Plant, Golden, Colorado
 @ Closure Plan, Container Storage Facilities, 4/5/88

* No SMU change; latest reference showing location as shown on this map.

** Date SMU change observed on aerial photo.

1 - Solid Waste Management Units Map, 11/17/89

2 - 881 Hillside, Phase III RI/FS Work Plan, 02/90

3 - 903 Pad, Phase II RI/FS Work Plan, 04/12/90

TABLE 2
INACTIVE WASTE UNITS

SMU No.	SMU Name	Location	Dates of Operation	SMU Changed ?	Latest Reference Numbers*	Dates Observed On Aerial Photographs **
	167.3 : South Area					
168	West Spray Field	West Spray Field	04/82 - 10/85	NO	1	
169	Waste Drum Peroxide Burial	500 Area	unknown	NO	1	
170	P.U.& D. Storage Yard - Waste Spills	Present Landfill	'74 - 08/85 +	YES		05/12/79, 06/03/80, 11/04/85
171	Solvent Burning Ground	300 Area	60's - 70's	YES		04/29/67 AND 04/10/68
172	Central Avenue Waste Spill	Central & 6th Ave.	06/68	NO	1	
173	Radioactive Site - 900 Area	900 Area	'52 - present	YES		04/27/74
174	P.U.& D. Container Storage Facilities (2)	Present Landfill	'74 - 08/85 +	YES		05/12/79, 06/03/80, 11/04/85
175	S & W Bldg. 980 Container Storage Facility	900 Area	'80 - 09/86 +	YES		04/10/68 THROUGH 11/04/85
176	S & W Contractor Storage Yard	900 & Triangle Areas	'70 - '85 +	YES		05/28/80
177	Building 885 Drum Storage Area	800 Area	Mid-50's - Fall, '86 +	NO	2	
178	Building 881 Drum Storage Area	800 Area	Mid-50's - Fall, '86 +	NO	1	
179	Building 865 Drum Storage Area	800 Area	'70 - Fall, '86 +	NO	1	
180	Building 883 Drum Storage Area	800 Area	'81 - Fall, '86 +	NO	1	
181	Building 334 Cargo Container Area	300 Area	Summer '84 - 07/86 +	NO	1	
182	Building 444/453 Drum Storage Area	400 Area	Late-60's - Fall, '86 +	NO	1	
183	Gas Detoxification Area	903 Area	06/82 - 08/83	NO	3	
184	Building 991 Steam Cleaning Area	900 Area	'53 - '78	NO	1	
185	Solvent Spill	700 Area	11/19/86	NO	1	

* + USDOE, Rocky Flats Plant, Golden, Colorado
@ Closure Plan, Container Storage Facilities, 4/5/88

* No SMU change; latest reference showing location as shown on this map.
** Date SMU change observed on aerial photo.
1 - Solid Waste Management Units Map, 11/17/89
2 - 881 Hillside, Phase III RFI/IFS Work Plan, 02/90
3 - 903 Pad, Phase II RFI/IFS Work Plan, 04/12/90

TABLE 2
INACTIVE WASTE UNITS

SMU No.	SMU Name	Location	Dates of Operation	SMU Changed ?	Latest Reference Numbers*	Dates Observed On Aerial Photographs **
186	Valve Vault 12	500 Area	10/24/86	NO	1	03/30/71
187	Acid Leaks (2)	400 Area	10/70, Unknown	YES		03/30/71
	187.1 : inside Building 443			YES		03/30/71
	187.2 : North of Building 444			NO	1	
188	Acid Leak	300 Area	Unknown	YES		03/30/71
189	Multiple Acid Spills	800 Area	Unknown	YES		03/30/71
	189.1 : North of Building 881			YES		03/30/71
	189.2 : West of Building 881			NO	1	
190	Caustic Leak	Plant Area	'78	NO	1	
191	Hydrogen Peroxide Spill	400 Area	04/81	NO	1	
192	Antifreeze Discharge	Plant Area	12/80	NO	1	
193	Steam Condensate Leak	400 Area	11/79	NO	1	
194	Steam Condensate Leak	700 Area	09/79	NO	1	
195	Nickel Carbonyl Disposal	North Area	Unknown	NO	1	
196	Water Treatment Plant Backwash Pond	100 Area	Early-70's - Late-70's	NO	1	
197	Scrap Metal Sites	500 Area	Unknown - Early-80's	NO	1	
198	VOC's in Ground Water	Unknown	Unknown		NOT ON MAP	
199	Contamination of the Land Surface	Unknown	Unknown		NOT ON MAP	
200	Great Western Reservoir	Off Map	Unknown		NOT ON MAP	
201	Standley Reservoir	Off Map	Unknown		NOT ON MAP	
202	Mower Reservoir	Off Map	Unknown		NOT ON MAP	

+ USDOE, Rocky Flats Plant, Golden, Colorado
 a Closure Plan, Container Storage Facilities, 4/5/88

* No SMU change; latest reference showing location as shown on this map.

** Date SMU change observed on aerial photo.

1 - Solid Waste Management Units Map, 11/17/89

2 - 881 Hillside, Phase III RI/FS Work Plan, 02/90

3 - 903 Pad, Phase II RI/FS Work Plan, 04/12/90

TABLE 2
INACTIVE WASTE UNITS

SMU No.	SMU Name	Location	Dates of Operation	SMU Changed ?	Latest Reference Numbers*	Dates Observed On Aerial Photographs **
203	Inactive Hazardous Waste Storage Area	Present Landfill	'86 - '87	YES		11/04/85
204	Original Uranium Chip Roaster	400 Area	'56 - '87	NO	1	
205	Bldg. 460 Sump #3 Acid Side	400 Area	'84 - '87	NO	1	
206	Inactive D-836 Hazardous Waste Tank	300 Area	'75 - '87	NO	1	11/04/85
207	Inactive 444 Acid Dumpster	400 Area	'80 - '87	YES		
208	Inactive 444/447 Waste Storage Area	400 Area	'86 - '87	NO	1	
209	Surface Disturbance Southeast of Bldg. 881	800 Area	Unknown	YES		04/27/74
210	Unit 16, Building 980 Cargo Container	900 Area	Unknown	NO	1	
211	Unit 26, Building 881 Drum Storage	800 Area	Unknown	YES		11/04/85
212	Unit 63, Building 371 Drum Storage	300 Area	Unknown	NO	1	
213	Unit 15, 904 Pad Pondcrete Storage	900 Area	Unknown	NO	1	
214	Unit 25, 750 Pad Pondcrete and Saltcrete Storage	700 Area	Unknown	YES		11/04/85
215	Units 55.13, 55.14, 55.15, 55.16 - Tanks T-40, T-66, T-67, T-68	700 Area	Unknown	NO	1	
216	East Spray Fields	Unknown	Unknown	NO	3	
	216.1 : North of B Ponds	East Triangle		YES		05/28/80
	216.2 : West Area	East Trenches		NO	3	
	216.03 : East Area	East Trenches		NO	3	

+ USDOE, Rocky Flats Plant, Golden, Colorado
 @ Closure Plan, Container Storage Facilities, 4/5/88

* No SMU change; latest reference showing location as shown on this map.
 ** Date SMU change observed on aerial photo.
 1 - Solid Waste Management Units Map, 11/17/89
 2 - 881 Hillside, Phase III RI/FS Work Plan, 02/90
 3 - 903 Pad, Phase II RI/FS Work Plan, 04/12/90

APPENDIX 2

DOTY & ASSOCIATES
GEOTECHNICAL ENVIRONMENTAL AND GROUND-WATER ENGINEERS

1240 ORCHARD ROAD
GOLDEN, COLORADO 80401
(303) 233-0577

November 9, 1989
#1801-07

Mr. Thomas C. Greengard
Rockwell International
P.O. Box 464
Rocky Flats Plant
Building 250
Golden, Colorado 80402-0464

Subject: Locations of Inactive Solid Waste Management Units

Dear Mr. Greengard:

I recently provided Roy F. Weston location information for their use in updating a map identifying Solid Waste Management Units (SWMU's). The result of this work was a map, numbered RF500E-103089MB, dated October 30, 1989, titled "Location of Solid Waste Management Units," produced by Roy F. Weston. This memo serves to document the sources of information and locations identified on the above map as correct for SWMU's 187 through 197.

A common problem at Rocky Flats is that many people may know of a problem, but few have actual first-hand knowledge of the problem. Therefore, information used for this task was generally from personnel that had first-hand knowledge of the SWMU. In some cases the individuals with first-hand knowledge contradicted text prepared by the Albuquerque office of the Department of Energy (DOE) for the Comprehensive Environmental Assessment and Response Program (CEARP) Phase I. The information that DOE accumulated on this subject was at least partly obtained by interviews of personnel at the Rocky Flats Plant. These interviews were conducted under a promise of anonymity for the interviewees. The information was probably not cross-referenced, some second-hand knowledge of events was probably used, and so I believe that inaccuracies were introduced into the DOE text.

I list below the SWMU's for which locations were requested. I also provide information regarding the personnel contacted to identify locations. I note discrepancies between the original DOE text and current information, along with how these discrepancies were handled.

SWMU 187

No additional information was obtained on this unit.

Mr. Thomas C. Greengard

Page 2

Locations of SWMU's

November 9, 1989

SWMU 188

The SWMU location is expected to be at the old "contractor's gate" which had been located near building 374. Mr. Ralph Hawes, of the Environmental Management group at the Rocky Flats Plant, had knowledge of the gate, although he was not directly involved in the spill.

SWMU 189

No additional information was obtained on this unit.

SWMU 190

Mr. Daryl Hornbacher, retired from the Rocky Flats Plant, had first-hand knowledge of this unit. Mr. Hornbacher had been involved in all aspects of response to the sodium hydroxide spill. Mr. Hornbacher described the route of the spill and response to it. One of the complicating aspects of response to this spill was snowmelt which caused the caustic to flow in an eastward direction in the ditch located south of Central Avenue. The caustic contaminated runoff was finally contained and neutralized in Pond B-1.

SWMU 191

No additional information was obtained on this unit.

SWMU 192

Mr. Ralph Hawes had knowledge of the drains in this area, but was not directly involved in the antifreeze discharge. The route that flow would have taken to get into pond B-1 was outlined on the map.

SWMU 193

Mr. Ken Shirk, of the Rocky Flats Plant Utilities Department, had first-hand knowledge of an event generally fitting the time frame and description given in the DOE text.

Some discrepancies with the DOE text were identified. In particular, the DOE text makes reference to the leak occurring north of a gasoline storage tank near Building 443. There is not currently, and was not in 1979, any gasoline storage tank near 443. The closest gasoline storage tank is near the garage. The gasoline storage tank near the garage has no nearby valve pit that connects to 443. However, in 1979, a leak of steam condensate did occur north of the condensate storage tank which is due east of 443. The condensate storage tank has a valve pit north of it that does connect to 443. All other events and time frames are similar to the DOE text. The location of the event that Mr. Shirk had knowledge of was identified on the map.

Mr. Thomas C. Greengard

Page 3

Locations of SWMU's

November 9, 1989

SWMU 194

Mr. Hawes had knowledge of the steam condensate lines near Building 707, but was not directly involved in the condensate leak. The location at which this release would have occurred is outlined on the map.

SWMU 195

Mr. Farrel Hobbs, Manager of the Environmental Management group at Rocky Flats, was directly involved in the nickel carbonyl destruction which created this SWMU.

Some discrepancies with the DOE text were identified. When first shown the DOE text for this SWMU, Mr. Hobbs stated that the text was correct. When locating the area on an aerial photograph Mr. Hobbs identified an area that was not south of the Lindsay ranch. Mr. Hobbs clearly remembered the general location of the nickel carbonyl destruction activities. The exact locations used to vent the cylinders were not marked in any way. Mr. Hobbs was directly involved in the nickel carbonyl destruction activities, so the location he indicated was marked on the map.

SWMU 196

Mr. Ralph Hawes indicated the general location in which the water treatment plant backwash pond existed on a map. The exact location could be identified from engineering drawings at the Rocky Flats Engineering Department.

SWMU 197

Mr. Ralph Hawes had first-hand knowledge of the scrap metal sites. During construction of the Perimeter Secured Zone (PSZ), Mr. Hawes stated that he made frequent trips to this SWMU in order to inspect for the presence of dangerous materials. The general area of this SWMU was marked by Mr. Hawes on a map.

Other SWMU locations were not reviewed. As stated in previous conversations, the descriptive text that accompanies each SWMU identification should be updated to include recent events and to correct inconsistencies.

I trust that this adequate for your purposes. Please call if you have any questions or comments.

Sincerely,
DOTY & ASSOCIATES

Frank J. Blaha

Frank J. Blaha

cc: Janelle Bergman, Roy F. Weston



215 UNION BOULEVARD
SUITE 800
LAKEWOOD, CO 80228
PHONE: (303) 980-6800

25 October 1989

Mr. Thomas C. Greengard
RCRA/CERCLA Program
Rockwell International
Rocky Flats Plant
P.O. Box 464
Golden, Colorado 80402-0464

Subject:

Dear Mr. Greengard:

Per your request, the Solid Waste Management Unit (SWMU) map for the Ground Water Assessment Plan has been updated to include all the waste units on the list (attached) you telecopied to J.B. Bergman on Friday, October 20, 1989. The following SWMUs were added:

<u>Unit No.</u>	<u>Description</u>	<u>Location Reference</u>
104	Liquid Dumping	3
127	Low Level Radioactive Waste Leak	3
142.12	New A-5 Pond	5
150.1	Radioactive Leak (N. of Bldg. 771)	1
168	West Spray Field	4
177	Bldg. 885 Drum Storage Area	2
178	Bldg. 881 Drum Storage Area	2
188	Acid Leak	6
190	Caustic Leak	6
191	Hydrogen Peroxide Skill	6
192	Antifreeze Discharge	6
193	Stream Condensate Leak	6
194	Stream Condensate Leak	6
195	Nickel Carbonyl Disposal	6
196	Water Treatment Plant Backwash Pond	6
197	Scrap Metal Sites	6
204	Original Uranium Chip Roaster	4
209	Surface Disturbance SE of Bldg. 881	5
210	Unit 16, Bldg. 980 Cargo Container	3
211	Unit 26, Bldg. 881 Drum Storage (Same as #178)	2
212	Unit 63, Bldg. 371 Drum Storage	3
213	Unit 15, 904 Pad Pondercrete Storage	3
214	Unit 25, 750 Pad Pondercrete and Saltcrete Storage	3
215	Unit 55.13, 55.14, 55.15, 55.16-Tanks T-40, T-66, T-67, T-68	3



Mr. Thomas C. Greengard

-2-

25 October 1989

The following SWMUs were not added:

<u>Unit No.</u>	<u>Description</u>	<u>Location Reference</u>
187	Acid Leaks (2)	(insufficient information)
189	Multiple Acid Spills	(insufficient information)
198	VOCs in Ground Water	(unspecified location)
199	Contamination of the Land Surface	(unspecified location)
200	Great Western Reservoir	(off the map)
201	Standley Reservoir	(off the map)
202	Mower Reservoir	(off the map)

Sources of information:

- (1) Remedial Investigation and Feasibility Study Plans for Low Priority Sites, June 1, 1988.
- (2) Closure Plan for Container Storage Facilities: Property Utilization and Disposal Container Storage Facilities, Swenerton and Walberg Building 980 Container Storage Facility, Swenerton and Walberg Contractor Storage Yard, Building 885 Drum Storage Area, Building 881 Drum Storage Area, Building 865 Drum Storage Area, Building 883 Drum Storage Area, Building 334 Cargo Container Area, and Building 444/453 Drum Storage Area (April 5, 1988).
- (3) RCRA Part A Application.
- (4) RCRA Part B Permit Application.
- (5) B.R. Lewis
- (6) F. Blaha

I have requested from Mr. Blaha and Mr. Lewis a letter explaining the source of their information concerning the location of the units. These letters will be added to our master file containing SWMU information.

Please find enclosed 1 copy of the updated SWMU map for your review. Please inform us as to any changes to be made, the number of final copies you require, and the due date for the final map. Feel free to call either of us at any time if you have any questions or comments.

Sincerely,

ROY F. WESTON, INC.

Michael A. Anderson, Ph.D., P.E.
Project Director

Janell B. Bergman, P. G.
Site Manager

TABLE 1
INACTIVE WASTE UNITS

<u>UNIT</u>	<u>UNIT NAME</u>
101	207 SOLAR EVAPORATION PONDS
102	OIL SLUDGE PIT
103	CHEMICAL BURIAL
104	LIQUID DUMPING
105	OUT-OF-SERVICE FUEL TANKS
	105.1 - WESTERNMOST TANK
	105.2 - EASTERNMOST TANK
106	QUITALL
107	HILLSIDE OIL LEAK
108	TRENCH 1-1
109	TRENCH 1-2
110	TRENCH 1-3
111	TRENCHES 1-4 TO 1-11
	111.1 : TRENCH 1-4
	111-2 : TRENCH 1-5
	111-3 : TRENCH 1-6
	111-4 : TRENCH 1-7
	111-5 : TRENCH 1-8
	111-6 : TRENCH 1-9
	111-7 : TRENCH 1-10
	111-8 : TRENCH 1-11
112	103 DRUM STORAGE AREA
113	BOUND AREA
114	PRESENT LANDFILL
115	ORIGINAL LANDFILL
116	MULTIPLE SOLVENT SPILLS
	116.1 : WEST LOADING DOCK AREA
	116.2 : SOUTH LOADING DOCK AREA

Note: This information is based on the administrative record including the information submitted in the hazardous and low-level mixed waste Part B application dated November 1, 1985, as modified by the subsequent revision dated November 28, 1986, as modified by the subsequent revision dated December 15, 1987, and the transuranic mixed waste Part B application submitted July 1, 1988, [hereafter referred to as the applications]. This information is also based on independent review of historical aerial photographs of the facility and independent review of facility submittals.

TABLE 1
INACTIVE WASTE UNITS

<u>REF. NO.</u>	<u>UNIT NAME</u>
117	CHEMICAL STORAGE 117.1 : NORTH SITE 117.2 : MIDDLE SITE 117.3 - SOUTH SITE
118	MULTIPLE SOLVENT SPILLS 118.1 : WEST OF BUILDING 730 118.2 : SOUTH END OF BUILDING 776
119	MULTIPLE SOLVENT SPILLS 119.1 : WEST AREA 119.2 : EAST AREA
120	FIBERGLASSING AREAS 120.1 : NORTH OF BUILDING 664 120.2 : WEST OF BUILDING 664
121	ORIGINAL PROCESS WASTE LINES
122	UNDERGROUND CONCRETE TANK
123	VALVE VAULT 7 123.1 : VALVE VAULT 7 123.2 : VALVE VAULT WEST OF BUILDING 707
124	RADACT LOD WASTE STORAGE TANK 124.1 : 30,000 GALLON TANK (#68) 124.2 : 14,000 GALLON TANK (#66) 124.3 : 14,000 GALLON TANK (#67)
125	HOLDING TANK
126	OUT-OF-SERVICE PROCESS WASTE TANKS 126.1 : WESTERNMOST TANK 126.2 : EASTERNMOST TANK
127	LOW-LEVEL RADIOACTIVE WASTE LEAK
128	OIL BURN PIT NO. 1
129	OIL LEAK
130	RADIOACTIVE SITE - 800 AREA SITE #1
131	RADIOACTIVE SITE - 700 AREA SITE #1
132	RADIOACTIVE SITE - 700 AREA SITE #4
133	ASH PITS 133.1 : ASH PIT 1-1 133.2 : ASH PIT 1-2 133.3 : ASH PIT 1-3 133.4 : ASH PIT 1-4 133.5 : INCINERATOR 133.6 : CONCRETE WASH PAD
134	LITHIUM METAL DESTRUCTION SITE
135	COOLING TOWER BLOWDOWN

TABLE 1
INACTIVE WASTE UNITS

<u>REF. NO.</u>	<u>UNIT NAME</u>
136	COOLING TOWER PONDS 136.1 : NORTHEAST CORNER OF BUILDING 460 136.2 : WEST OF BUILDING 460 136.3 : S. OF BLDG. 460, W. OF BLDG. 444
137	COOLING TOWER BLOWDOWN - BLDG. 774
138	COOLING TOWER BLOWDOWN - BLDG. 779
139	CAUSTIC/ACID SPILLS 139.1 : HYDROXIDE TANK AREA 139.2 : HYDROFLUORIC ACID TANKS
140	REACTIVE METAL DESTRUCTION SITE
141	SLUDGE DISPERSAL
142	RETENTION PONDS (A, B, C-SERIES) 142.1 : A-1 POND 142.2 : A-2 POND 142.3 : A-3 POND 142.4 : A-4 POND 142.5 : B-1 POND 142.6 : B-2 POND 142.7 : B-3 POND 142.8 : B-4 POND 142.9 : B-5 POND 142.10 : C-1 POND 142.11 : C-2 POND 142.12 NEWLY IDENTIFIED A-5 POND
143	OLD OUTFALL
144	SEWER LINE BREAK
145	SANITARY WASTE LINE LEAK
146	CONCRETE PROCESS WASTE TANKS 146.1 : 7,500 GALLON TANK (#31) 146.2 : 7,500 GALLON TANK (#32) 146.3 : 7,500 GALLON TANK (#34W) 146.4 : 7,500 GALLON TANK (#34E) 146.5 : 3,750 GALLON TANK (#30) 146.6 : 3,750 GALLON TANK (#33)
147	PROCESS WASTE LEAKS 147.1 : MAAS AREA 147.2 : OWEN AREA
148	WASTE SPILLS
149	EFFLUENT PIPE
150	RADIOACTIVE LIQUID LEAKS 150.1 : NORTH OF BUILDING 771 150.2 : WEST OF BUILDING 771 150.3 : BETWEEN BUILDINGS 771 and 774 150.4 : EAST OF BUILDING 750 150.5 : WEST OF BUILDING 707 150.6 : SOUTH OF BUILDING 779 150.7 : SOUTH OF BUILDING 776 150.8 : NORTHEAST OF BUILDING 779

TABLE 1
INACTIVE WASTE UNITS

<u>REF. NO.</u>	<u>UNIT NAME</u>
151	FUEL OIL LEAK
152	FUEL OIL TANK
153	OIL BURN PIT NO. 2
154	PALLET BURN SITE
155	903 LIP AREA
156	RADIOACTIVE SOIL BURIAL 156.1 : BUILDING 334 PARKING LOT 156.2 : SOIL DUMP AREA
157	RADIOACTIVE SITE 157.1 : NORTH AREA 157.2 : SOUTH AREA
158	RADIOACTIVE SITE - BLDG. 551
159	RADIOACTIVE SITE - BLDG. 559
160	RADIOACTIVE SITE - BLDG. 444 PK LOT
161	RADIOACTIVE SITE - BLDG. 664
162	RADIOACTIVE SITE - 700 AREA SITE #2
163	RADIOACTIVE SITE - 700 AREA SITE #3
164	RADIOACTIVE SITE - 800 AREA SITE #2 164.1 : CONCRETE SLAB 164.2 : BUILDING 886 SPILLS 164.3 : BUILDING 889 STORAGE PAD
165	TRIANGLE AREA
166	TRENCHES 166.1 : TRENCH A 166.2 : TRENCH B 166.3 : TRENCH C
167	SPRAY FIELDS - THREE SITES 167.1 : NORTH AREA 167.2 : POND AREA 167.3 : SOUTH AREA
168	WEST SPRAY FIELD
169	WASTE DRUM PEROXIDE BURIAL
170	P.U.&d. STORAGE YARD - WASTE SPILLS
171	SOLVENT BURNING GROUND
172	CENTRAL AVENUE WASTE SPILL
173	RADIOACTIVE SITE - 900 AREA
174	P.U.&d. CONTAINER STORAGE FACILITIES (2)
175	S&W BLDG. 980 CONTAINER STORAGE FACILITY
176	S&W CONTRACTOR STORAGE YARD
177	BUILDING 885 DRUM STORAGE AREA
178	BUILDING 881 DRUM STORAGE AREA
179	BUILDING 865 DRUM STORAGE AREA
180	BUILDING 883 DRUM STORAGE AREA

1031
603.2

TABLE 1
INACTIVE WASTE UNITS

<u>REF NO.</u>	<u>UNIT NAME</u>
161	BUILDING 334 CARGO CONTAINER AREA
182	BUILDING 444/453 DRUM STORAGE AREA
183	GAS DETOXIFICATION AREA
184	BUILDING 991 STEAM CLEANING AREA
185	SOLVENT SPILL
186	VALVE VAULT 12
187	ACID LEAKS (2) -
188	ACID LEAK
189	MULTIPLE ACID SPILLS -
190	CAUSTIC LEAK
191	HYDROGEN PEROXIDE SPILL
192	ANTIFREEZE DISCHARGE
193	STEAM CONDENSATE LEAK
194	STEAM CONDENSATE LEAK
195	NICKEL CARBONYL DISPOSAL
196	WATER TREATMENT PLANT BACKWASH POND
197	SCRAP METAL SITES
198	VOCs IN GROUND WATER
199	CONTAMINATION OF THE LAND SURFACE
200	GREAT WESTERN RESERVOIR
201	STANDLEY RESERVOIR
202	HOWER RESERVOIR
203	INACTIVE HAZARDOUS WASTE STORAGE AREA
204	ORIGINAL URANIUM CHIP ROASTER
205	BLDG. 460 SUMP #3 ACID SIDE
206	INACTIVE D-836 HAZARDOUS WASTE TANK
207	INACTIVE 444 ACID DUMPSTER
208	INACTIVE 444/447 WASTE STORAGE AREA
209	SURFACE DISTURBANCE SOUTHEAST OF BLDG. 881
210	UNIT 16, BUILDING 980 CARGO CONTAINER
211	UNIT 26, BUILDING 881 DRUM STORAGE <i>same as 178</i>
212	UNIT 63, BUILDING 371 DRUM STORAGE
213	UNIT 15, 904 PAD PONDCRETE STORAGE
214	UNIT 25, 750 PAD PONDCRETE AND SALTCRETE STORAGE
215	UNITS 55.13, 55.14, 55.15, 55.16 - TANKS T-40, T-66, T-67, T-68

*216, 1
" " 1030*

*East spray field (as per Bldg #11/16/89) - court lines
or spill from pond*



215 UNION BOULEVARD
SUITE 600
LAKEWOOD, CO 80228
PHONE: (303) 980-6800

17 November 1989

Mr. Thomas C. Greengard
RCRA/CERCLA Program
Rockwell International
Rocky Flats Plant
P.O. Box 464
Golden, Colorado 80402-0464

Subject: Solid Waste Management Unit Map

Dear Mr. Greengard:

Please find enclosed a vellum and 10 copies of the updated Solid Waste Management Unit (SWMU) map. Three additional copies of the updated map have been sent to Martin Hessmark of the Environmental Protection Agency as you requested. Included on the updated map are SWMU's 116.1, 116.2, and 116.3 (East Spray Field). This map dated November 17, 1989 replaces revision 2 on November 10, 1989.

Please call either of us if you should have any questions or comments.

Sincerely,

ROY F. WESTON, INC.

A handwritten signature in cursive script that reads "Michael A. Anderson".

Michael A. Anderson, Ph.D., P.E.
Project Director

A handwritten signature in cursive script that reads "Janell B. Bergman".

Janell B. Bergman, P.G.
Site Manager

MAA/klh

Enclosure

cc: Mike Arndt (Rockwell)
Martin Hessmark (EPA)



215 UNION BOULEVARD
SUITE 600
LAKEWOOD, CO 80228
PHONE: (303) 980-6800

13 November 1989

Mr. Thomas C. Greengard
RCRA/CERCLA Program
Rockwell International
Rocky Flats Plant
P.O. Box 464
Golden, Colorado 80402-0464

Subject: Solid Waste Management Unit Map

Dear Mr. Greengard:

Please find enclosed a vellum and 9 copies of the updated Solid Waste Management Unit (SWMU) map. Included on the updated map are SWMu's 131 and 132. Insufficient information is currently available to locate SWMu's 187 and 189 (Acid Spills). A review of aerial photographs is necessary to define the drainage patterns present when the spills occurred. Also included are the approximate state plane coordinates of the SWMUs. The coordinates represent the vertices of the SWMUs, and reflect the location of the SWMUs as shown on the map.

Please call either of us if you should have any questions or comments.

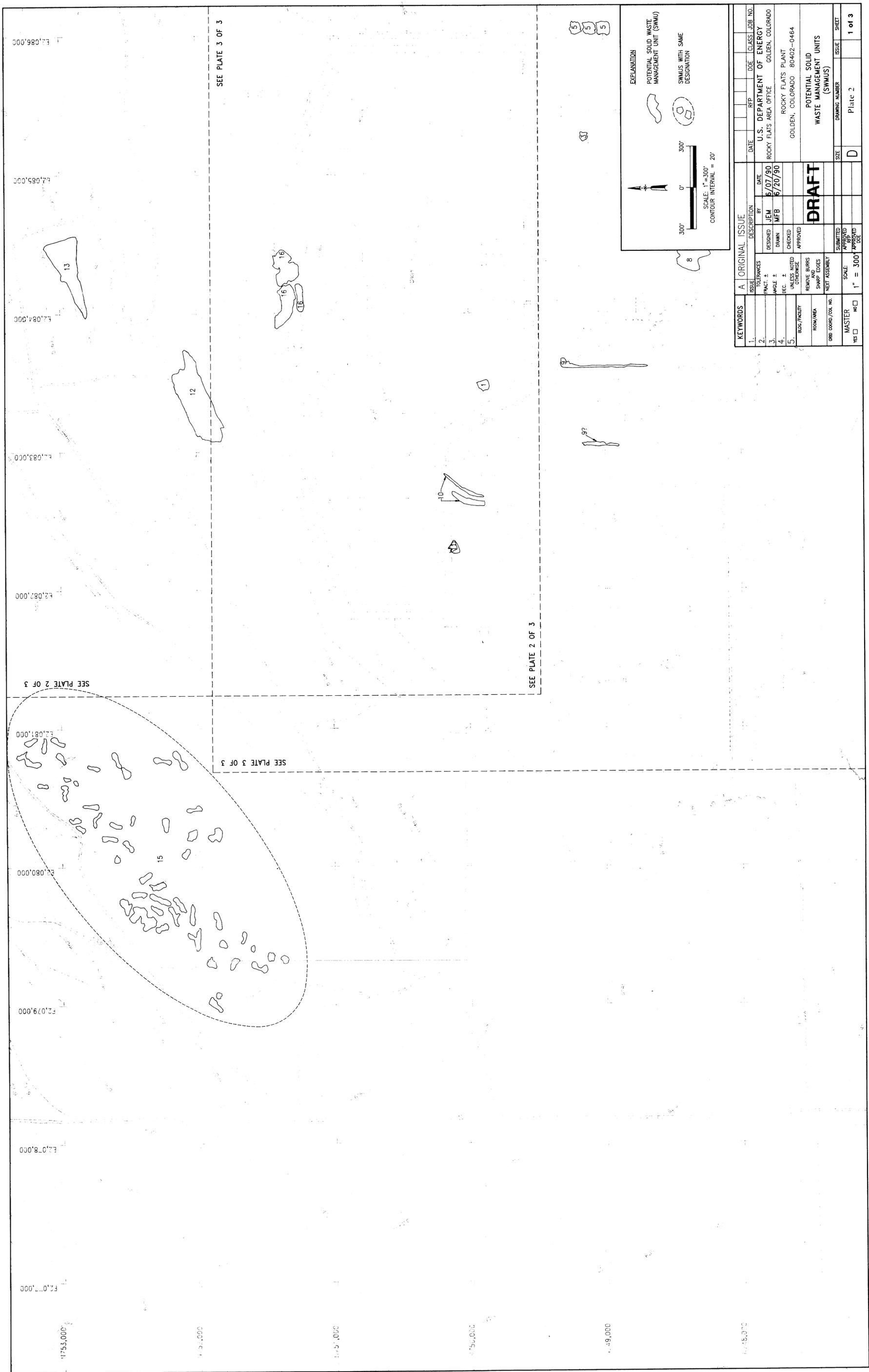
Sincerely,

ROY F. WESTON, INC.

Michael A. Anderson, Ph.D., P.E.
Project Director

Janell B. Bergman, P.G.
Site Manager

MAA/cjm
Enclosure
cc: Mike Arndt



EXPLANATION

POTENTIAL SOLID WASTE MANAGEMENT UNIT (SWMU)

SWMUS WITH SAME DESIGNATION

300' 0' 300'

SCALE: 1" = 300'
CONTOUR INTERVAL = 20'

KEYWORDS		A ORIGINAL ISSUE		DATE	RIP	DOE CLASS	JOB NO.
1.	ISSUE	DESCRIPTION	BY	5/07/90	U.S. DEPARTMENT OF ENERGY		
2.	TOLERANCES		DESIGNED	6/20/90	ROCKY FLATS AREA OFFICE		
3.	ANGLE ±		DRAWN				
4.	REC ±		CHECKED				
5.	BUS./FACTORY		UNLESS NOTED OTHERWISE				
	REMOVE BURRS AND SHARP EDGES		APPROVED				
	GRID COORD./CON. NO.		REMOVE BURRS AND SHARP EDGES				
	MASTER		NEXT ASSEMBLY				
YES <input type="checkbox"/>	NO <input type="checkbox"/>						
	SCALE:		SUBMITTED				
	1" = 300'		APPROVED				
			BY				
			DATE				
			SIZE				
			DRAWING NUMBER				
			ISSUE				
			SHEET				
			1 of 3				

