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EG&G SAMPLING PROGRAM RESULTS FY 1989

L. E. Watson

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Rocky Flats Plant
P. O. Box 464
Golden, Colorado 80402-0464

U.S. DEPARTMENT OF ENERGY
CONTRACT DE-AC04-90DE62349

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SUBJECT DESCRIPTORS

TRU Waste
Waste Certification

EG&G ROCKY FLATS, INC.
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MASTER

PREPARED UNDER CONTRACT DE-AC04-90DE62349
FOR THE
ALBUQUERQUE OPERATIONS OFFICE
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ABSTRACT

Thirty-three waste drums were returned to Rocky Flats in support of EG&G Idaho's quality control program for the Stored Waste Examination Pilot Plant. The drums were opened and examined in the size reduction facility at the Rocky Flats Plant.

Contents of each drum were consistent with the Item Description Codes; however, four sludge drums and one combustible drum contained free liquids. These five drums failed to meet the Waste Isolation Pilot Plant and the Department of Transportation criteria.

The proper amount of cement was not used in the sludge drums. A cemented layering process, which also contributed to accumulation of free liquid, is no longer used when cementing sludges at the Rocky Flats Plant.

The drum of combustibles contained a polyethylene bottle with a small amount of liquid sludge inside.

INTRODUCTION

This document reports the results of examinations to supplement studies performed from 1984 through 1989. Drums of stored transuranic (TRU) waste were examined to support an EG&G sampling program at the Idaho National Engineering Laboratory. Information on procedures and results of earlier studies can be obtained by consulting the previous reports.^{1,2}

The purpose of the EG&G Drum Sampling Program is to provide verification of the Stored Waste Examination Pilot Plant (SWEPP) capability

to certify waste for shipment to the Waste Isolation Pilot Plant (WIPP).

During 1988, 33 waste drums selected by Idaho National Engineering Laboratory (INEL) were returned to the Rocky Flats Plant for visual examination. The task description from EG&G asks for a visual inspection and documentation of the following:

- Drum identification number
- Date of visual examination
- Date originally packaged
- Waste form category (original and actual)
- Content Code (original and actual)
- Physical description of the waste form
- Packaging description
- Type of liner
- Particulate (<200 microns; <10 microns)
- Volume and location of liquids formed
- Explosives
- Compressed gasses
- Pyrophoric materials
- Hazardous materials
- Weight and volume percent of organic materials
- WIPP certifiable (if not, reason to be listed)
- Additional comments
- Signature of examiner

All of the drums were generated at the Rocky Flats Plant.

PROCEDURE

A visual inspection of each drum was conducted in the Size Reduction facility at the Rocky Flats Plant. The drums were placed in the size reduction vault, and the drum and rigid liner lids were removed. The waste packaging method was

recorded. The contents were then removed, and a physical description of the waste was recorded. The organic materials, including the rigid liner, were segregated and weighed. An inspection was then conducted for compliance with Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria (WAC). That criteria includes the following:

- Particulates (limited amounts and size allowed)
- Free liquids (no measurable amounts allowed in process waste; two cups allowed in non-processed waste)
- Sludges (allowed with corrosion protection)
- Pyrophoric materials (limited amounts of same types allowed)
- Explosives/compressed gases (none allowed)
- Toxic and corrosive materials (allowed with controls)

RESULTS AND DISCUSSION

The results of this inspection are summarized in Table 1. All contents were in agreement with the original Item Description Codes (IDCs). Five of the 33 were not in compliance with the WIPP-WAC. Four sludge drums contained free liquid and did not meet WIPP criteria for uncemented sludges. One drum containing combustibles (Item Description Code 332) also failed to meet WIPP criteria due to presence of free liquid. See Table 2. The particulates did not exceed one percent of the total waste matrix weight in any of the drums. During the inspection, each liner (90-mil polyethylene) and the inside of each drum were found in various conditions. Generally, the liners and inside surface of the drums were in good condition.

CONCLUSIONS

Conclusions on the certifiability of waste for the SWEPP facility must be drawn by the responsible contractor, EG&G Idaho. Inspection of the 33 waste drums, together with transmittal of data sheets, supports the objective of verification for certification of INEL waste and completes the FY1988 examination effort for the SWEPP Certified Sampling Program.

Examination of the data did reveal that the process of layering cement with the sludge does not guarantee compliance with WIPP criteria. Real-time Radiography of the inspected drums found free liquid in the drums processed by cement layering and in one combustible waste drum. The new process, which uses diatomite and thorough mixing rather than layering, appears to eliminate the free liquid problem in the sludge drums.

Waste Operations has also taken steps to ensure that free liquids do not get into waste drums. Training classes and packaging procedures emphasize the importance of removing any containers or other waste that may result in accumulation of free liquid.

REFERENCES

1. P. M. Arnold, *EG&G Drum Sampling Program Results FY 1986*, RFP-4250, Rockwell International, Rocky Flats Plant, Golden, CO.
2. L. E. Watson, *EG&G Drum Sampling Program Results FY 1987*, RFP-4251, Rockwell International, Rocky Flats Plant, Golden, CO.

TABLE 1. Summary of Visual Examination*

Date Examined	Container ID Number	Original Code	New Code	Description	Free Liquids	Explosives	Compressed Gasses	Pyrophoric	Hazardous Materials	Particulate	WIPP Criteria
11/27/89	RF002500484	3	Same	Uncemented Sludge	----	----	----	----	----	----	Y
01/30/89	RF003201048	312	Same	Nonmetal Molds & Crucibles	----	----	----	----	----	Dusting	Y
01/30/89	RF003201073	300	Same	Nonmetal Molds & Crucibles	----	----	----	----	----	----	Y
10/04/88	RF074316881	3	Same	Uncemented Sludge	----	----	----	----	----	----	Y
10/04/88	RF074317069	3	Same	Uncemented Sludge	Y	----	----	----	----	----	N
09/12/88	RF074317139	3	Same	Uncemented Sludge	----	----	----	----	----	----	Y
01/30/89	RF000242533	480	Same	Metals	----	----	----	----	----	----	Y
01/27/89	RF074316930	3	Same	Uncemented Sludge	----	----	----	----	----	----	Y
09/15/88	RF074317192	3	Same	Uncemented Sludge	----	----	----	----	----	----	Y
10/06/88	RF074702644	7	Same	Uncemented Sludge	----	----	----	----	----	----	Y
11/04/88	RF074703446	7	Same	Uncemented Sludge	----	----	----	----	----	----	Y
09/15/88	RF741202917	1	Same	Uncemented Sludge	----	----	----	----	----	----	Y
09/15/88	RF741203492	1	Same	Uncemented Sludge	Y	----	----	----	----	----	N
01/27/89	RF741203670	1	Same	Uncemented Sludge	----	----	----	----	----	----	Y
01/30/89	RF741203698	1	Same	Uncemented Sludge	----	----	----	----	----	----	Y
01/30/89	RF741203755	1	Same	Uncemented Sludge	----	----	----	----	----	----	Y
09/14/88	RF741203850	1	Same	Uncemented Sludge	----	----	----	----	----	----	Y
10/06/88	RF741204577	1	Same	Uncemented Sludge	----	----	----	----	----	----	Y
11/03/88	RF741204889	1	Same	Uncemented Sludge	----	----	----	----	----	----	Y
01/30/89	RF741204912	1	Same	Uncemented Sludge	----	----	----	----	----	----	Y
11/03/88	RF741205032	1	Same	Uncemented Sludge	----	----	----	----	----	----	Y
10/06/88	RF741205085	1	Same	Uncemented Sludge	----	----	----	----	----	----	Y
11/10/88	RF741205120	1	Same	Uncemented Sludge	----	----	----	----	----	----	Y
09/12/88	RF000240658	442	Same	Glass	----	----	----	----	----	----	Y
01/30/89	RF002800658	440	Same	Glass	----	----	----	----	----	----	Y
11/03/88	RF074112429	1	Same	Uncemented Sludge	Y	----	----	----	----	----	N
11/03/88	RF074112466	1	Same	Uncemented Sludge	----	----	----	----	----	----	Y
09/14/88	RF074112578	1	Same	Uncemented Sludge	Y	----	----	----	----	----	Y
09/12/88	RF074112579	1	Same	Uncemented Sludge	Y	----	----	----	----	----	N
09/14/88	RF074112808	1	Same	Uncemented Sludge	Y	----	----	----	----	----	Y
09/12/88	RF074112825	1	Same	Uncemented Sludge	N	----	----	----	----	----	Y
09/12/88	RF074402387	337	Same	Combustible	Y	----	----	----	----	----	N
02/13/89	RF000234906	480	Same	Metal	N	----	----	----	----	----	Y

*Examination indicated no evidence of explosives, compressed gasses, pyrophoric materials, or hazardous materials

TABLE 2. Effect of Process Material on Free Liquid

Drum Number	Date Generated	IDC Number	Material Used In Process	Free Liquid
RF000234906	02/21/84	480	-----	No
RF000242533	01/21/84	480	-----	No
RF992500484	04/17/85	3	Layered Cement	No
RF003201048	11/08/83	312	-----	No
RF003201073	12/05/83	300	-----	No
RF074316881	04/03/84	3	Layered Cement	No
RF074316930	05/25/84	3	Layered Cement	No
RF074317069	12/05/84	3	Layered Cement	Yes*
RF074317139	03/11/85	3	Layered Cement	No
RF074317192	05/30/85	3	Layered Cement	No
RF074702644	06/06/84	7	Layered Cement	No
RF074703446	01/07/85	7	Layered Cement	No
RF741202917	09/19/83	1	Layered Cement	No
RF741203492	03/23/84	1	Layered Cement	Yes*
RF741203670	05/15/84	1	Layered Cement	No
RF741203698	05/18/84	1	Layered Cement	No
RF741203755	06/01/84	1	Layered Cement	No
RF741203850	08/02/84	1	Layered Cement	No
RF741204577	03/26/85	1	Layered Cement	No
RF741204889	07/18/85	1	Layered Cement	No
RF741204912	07/23/85	1	Layered Cement	No
RF741205032	09/10/85	1	Layered Cement	No
RF741205085	10/15/85	1	Layered Cement	No
RF741205120	10/30/85	1	Layered Cement	No
RF000240658	06/22/83	442	-----	No
RF002800658	09/28/82	440	-----	No
RF074112429	01/08/73	1	Layered Cement	Yes*
RF074112466	01/16/73	1	Layered Cement	No
RF074112578	02/09/73	1	Layered Cement	Yes
RF074112579	92/09/73	1	Layered Cement	Yes*
RF074112808	04/09/73	1	Layered Cement	Yes
RF074112825	04/13/73	1	Layered Cement	No
RF074402387	01/22/73	337	-----	Yes*

*Not WIPP Certifiable