07/11/1994
EDF-RWMC-676
WASTE GENERATOR QUESTIONNARE
0286.0000000403

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Project File Number________

EDF Serial Number RWMC-676

Functional File Number________

Date 07/11/94

ENGINEERING DESIGN FILE

Project/Task TRU Technology Programs
Subtask RCRA Hazardous Constituents

EDF Page 1 of 3

Subject : WASTE GENERATOR QUESTIONNAIRE

Abstract:

In an effort to improve process knowledge concerning Resource Conservation and Recovery Act (RCRA) hazardous constituents in transuranic (TRU) waste stored in the Radioactive Waste Management Complex (RWMC) Transuranic Storage Area (TSA), a questionnaire was prepared and sent to Argonne National Laboratory, Battelle Columbus, Bettis Atomic Power Laboratory, Grand Junction Project Office, and Mound Laboratories requesting additional information that may be available for TRU waste shipped to the Idaho National Engineering Laboratory (INEL). Responses from four of the generators indicated that no additional information concerning the waste is available, as characterization for RCRA constituents was not identified as a requirement when the waste was generated. Bettis identified two volatile organic compounds that may be present in three of their waste streams. This Engineering Design File (EDF) contains a copy of the questionnaire and the response received from each of the five non-INEL generators queried.

Distribution (complete package): R. D. Falconer, MS 2424; D. W. Parker, MS 2424; Project EDF File Log, MS 2424; EDF Serial Number Log, MS 4201

Distribution (complete package without appendices): T. L. Clements, Jr., MS 2424; M. J. Connolly, MS 2424; D. G. Pound, MS 2424; L. C. VanDeusen, MS 4201

Distribution (cover sheet only): J. T. Case, DOE-ID, MS 1118; D. G. Hinckley, DOE-ID, MS 1118;

Author R. D. Falconer	Dept. 3460	Reviewed D. G. Pound	Date 7/11/94	Approved T. L. Clements, Jr.	Date 7/11/94

Most TRU waste stored at the RWMC TSA was generated and placed in storage prior to DOE/EPA agreement that radioactive waste regulated under the Atomic Energy Act was also subject to RCRA regulation if RCRA hazardous constituents were present in the waste. This waste is now referred to as mixed waste. As characterization of waste for RCRA hazardous constituents was not of concern when the waste was generated, little information concerning these constituents was recorded. Process knowledge research plus sampling and analysis has greatly increased the available information concerning hazardous constituents for Rocky Flats waste, but only limited information is available for waste from other generators.

In an effort to gather additional information that may be available, a questionnaire was prepared and sent to the generators of non-Rocky Flats waste stored at RWMC TSA. The generators were Argonne National Laboratory, Battelle Columbus Laboratory, Bettis Atomic Power Laboratory, Grand Junction Project Office, and Mound Laboratory. The questionnaires included an inventory of the waste stored at RWMC, a description of the waste, and a checkoff sheet of possible RCRA hazardous constituents. The generators were requested to edit the waste description, if necessary, and to complete the checkoff sheets to indicate known or possible hazardous constituents in the various waste types. A copy of the questionnaire sent and the reply received from each of the five generators is attached to this EDF as follows:

Attachment 1. Argonne National Laboratory Questionnaire and Response
Attachment 2. Battelle Columbus Laboratory Questionnaire and Response
Attachment 3. Bettis Atomic Power Laboratory Questionnaire and Response
Attachment 4. Grand Junction Project Office Questionnaire and Response
Attachment 5. Mound Laboratory Questionnaire and Response.

<u>RESPONSES TO QUESTIONNAIRES</u>

All sites responded to the questionnaire. Summaries of these responses follow:

<u>Argonne National Laboratory</u>. Argonne responded that they are not able to add to the information that we currently have available. They stated that their waste streams were characterized to the standards in force at the time the waste was generated, but as they did not have any production-style processes, the ability to develop credible process knowledge is very limited.

<u>Battelle</u>. Battelle stated that the waste had not been classified or analyzed for hazardous/toxic constituents, as this was not required at the time the waste was generated. They did indicate that there may be some discrepancies between the INEL inventory of waste stored at RWMC TSA and the Battelle inventory of waste shipped. Resolution of these discrepancies will be pursued.

Bettis. Bettis stated that trace amounts of methylene chloride and 1,1,2-trichloro-1,2,2-trifluoroethane (freon) may be found in IDC 010 (combustibles), IDC 020 (noncombustibles), and IDC 030 (solidified grinding sludge). They do not believe RCRA hazardous constituents are present in other waste forms.

Grand Junction. Grand Junction stated that they did not generate TRU waste and provided no information concerning the one drum stored at RWMC TSA. This drum is identified as Bendix waste in the Transuranic Waste Management Information System (TWMIS), as Bendix Field Engineering Corporation was the Management and Operations (M&O) contractor at the time the waste was shipped to INEL.

Mound. Mound stated that no additional data was available, but if any new information did surface, they would contact EG&G Idaho.

SUMMARY

At the time most of the waste in question was generated, DOE did not require characterization for RCRA constituents, as it was not identified that waste regulated under the Atomic Energy Act was or would be regulated under RCRA. As this questionnaire has demonstrated, sites have limited knowledge of RCRA constituents that may be present in waste that was generated prior to DOE/EPA agreement that RCRA applied to DOE waste if hazardous constituents were present in the waste.

The limited information that was obtained by this questionnaire has been added to EDF RWMC-421, EPA HAZARDOUS WASTE CODES FOUND IN INEL STORED TRU WASTE CONTENT CODES.

Attachment 2
EDF RWMC-676
Battelle Columbus Laboratory
Questionnaire and Response
Page 1 of 58

INEL
Idaho National Engineering Laboratory

bcc: (w/o Attach/Encl)
D. J. Bright, MS 4201
D. L. Eaton, MS 1560
R. D. Falconer, MS 3950 RDF
D. L. French, MS 4201
K. McNeel, MS 1560
C. B. Ozaki, MS 3960
Central Files, MS 1651
Technical Support File, MS 3950
WETP Project File, MS 3950
T. L. Clements, Jr. File

March 10, 1993

Mr. J. T. Case
U.S. Department of Energy
Idaho Field Office
785 DOE Place, MS 1118
Idaho Falls, ID 83401-1562

TRANSURANIC (TRU) WASTE CHARACTERIZATION QUESTIONNAIRE - TLC-36-93

Dear Mr. Case:

Enclosed are questionnaire packages for transmittal to facilities other than EG&G Rocky Flats that have shipped TRU waste to the Idaho National Engineering Laboratory (INEL) for storage. The purpose of the questionnaire is to improve INEL knowledge of hazardous constituents in stored waste. In conversations with Mr. D. G. Hinckley, it was agreed that these questionnaires would elicit the best response if they were transmitted through the U.S. Department of Energy, rather than from a Management and Operations (M&O) contractor to another M&O contractor.

A draft transmittal letter and address for each of the questionnaires is included. Please transmit these packages to the appropriate facilities.

If you have any questions, please contact either R. D. Falconer at 526-2960 or me at 526-0664.

Sincerely,

T. L. Clements, Jr.

T. L. Clements, Jr., Manager
Transuranic Waste Programs

RDF:lap

Attachment/Enclosure:
As Stated

cc: (w/o Attach/Encl)
D. G. Hinckley, DOE-ID, MS 1118
J. L. McAnally, EG&G Idaho, MS 3940
J. C. Okeson, EG&G Idaho, MS 3590

Department of Energy
Idaho Field Office
785 DOE Place
Idaho Falls, Idaho 83401-1562

April 7, 1993

Addressees

Subject: Transuranic (TRU) Waste Characterization Questionnaire (AM/ERWM/WMOB 93-077)

New and/or expanding Resource Conservation and Recovery Act (RCRA), Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria (WAC), and No-Migration Determination for WIPP storage and disposal requirements necessitate more detailed characterization of radioactive waste for toxic and/or hazardous constituents than was required at the time the waste was generated. Cost and operational concerns mandate that process knowledge (i.e., what was the process that generated the waste and what are the toxic and/or hazardous constituents used that are likely to be found in the waste) be used to the maximum extent possible in performing this characterization.

To assist generators in supplying as much process knowledge as possible concerning toxic and/or hazardous waste constituents, the enclosed questionnaire package has been prepared for each TRU waste type that was shipped to the Idaho National Engineering Laboratory (INEL) for storage. The questionnaire package consists of the following.

1. Inventory by year received at INEL and type and number of containers.

2. A description of the waste and waste packaging, as given in "Content Code Assessments for INEL Contact-Handled Stored Transuranic Wastes, WM-F1-82-021, October 1982" by T. L. Clements, Jr.

3. Checklist for RCRA, WIPP Quality Assurance Program Plan (QAPP), WIPP-WAC, and Toxic Substances Control Act (TSCA) hazardous and toxic waste constituents for each Item Description Code (IDC).

For each IDC, the waste descriptions should be checked for completeness and accuracy; any corrections or additions can be handwritten on the description sheets supplied. If a waste description is not included, please provide a brief description of the waste source, possible constituents, and packaging. Items on the checklist for RCRA, WIPP QAPP, WIPP-WAC, and TSCA hazardous and/or toxic waste constituents should be checked as appropriate, with a concentration estimate for items checked as being present in the waste. Additional space is provided to add any known RCRA constituents present in the waste that are not included on the list.

It is realized that knowledge of these historical wastes may be sketchy at best. It is the intention of this questionnaire to gather, on a best effort basis, existing knowledge from long-term employees, review of process,

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available records, etc. For continued storage of the waste, and prior to disposal, a certain percentage of the waste containers will be opened and the waste characterized to determine if it compiles with all storage and disposal requirements. If process knowledge, as already known and to be improved on by this questionnaire, proves to be sufficiently accurate, the percentage of waste containers to be opened and characterized can be kept to a minimum, at great cost savings to the U.S. Department of Energy and the taxpayer.

Please complete this questionnaire by May 17, 1993 and return to the following address.

EG&G Idaho, Inc.
P.O. Box 1625, Mail Stop 3950
Idaho Falls, Idaho 83415-3950

ATTN: Ralph D. Falconer

If you have any questions concerning the information required, please call Mr. D. G. Hinckley of my staff at (208) 526-0173.

Jeffrey T Shoaly For JTC

J. T. Case, Branch Chief
Waste Management Operations Branch

Enclosure

cc: (w/o Encl)
N. L. Harris, Bettis Atomic Power Laboratory
T. L. Clements, Jr., EG&G Idaho
R. D. Falconer, EG&G Idaho
R. Finney, EG&G Mound Applied Technologies

Addressee List

Mr. Evet L. Gonzalez, Manager
Waste Management Program
U.S. Department of Energy
Argonne Area Office
9800 South Cass Avenue
Argonne, IL 60439

Mr. Ben Maiden, Director
Hazardous Waste Management Division
Battelle Columbus Laboratory
505 King Avenue
Columbus, OH 43201

Mr. E. D. Shollenberger
U.S. Department of Energy
Pittsburgh Naval Reactors Office
PO Box 109
West Mifflin, PA 15122-0109

Mr. Richard F. Sena
U.S. Department of Energy
Albuquerque Field Office
PO Box 5400
Albuquerque, NM 87185-5400

Mr. Bennett Young
U.S. Department of Energy
Grand Junction Project Office
P.O. Box 2597
Grand Junction, CO 81503

INVENTORY OF WASTE RECEIVED FROM BATTELLE COLUMBUS LABORATORY

IDC	WASTE DESCRIPTION	DRUMS	BOXES	BINS	INSERTS	OTHER
201	NONCOMBUSTIBLE SOLIDS	54	-	45	-	-
202	COMBUSTIBLE SOLIDS, PAPER, CLOTH	3	-	5	-	-
203	PAPER, CLOTH, METALS, GLASS	26	-	6	-	-
204	SOLIDIFIED SOLIDS	7	-	-	-	-
	TOTALS	90	-	56	-	-

INVENTORY OF WASTE RECEIVED FROM BATTELLE COLUMBUS LABORATORY
IDC 201, NONCOMBUSTIBLE SOLIDS

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	54	-	-	-	-
1979	-	-	18	-	-
1980	-	-	13	-	-
1981	-	-	14	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	54	-	45	-	-

INVENTORY OF WASTE RECEIVED FROM BATTELLE COLUMBUS LABORATORY
IDC 202, COMBUSTIBLE SOLIDS, PAPER, CLOTH

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	3	-	-	-	-
1979	-	-	4	-	-
1980	-	-	1	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	3	-	5	-	-

INVENTORY OF WASTE RECEIVED FROM BATTELLE COLUMBUS LABORATORY
IDC 203, PAPER, CLOTH, METALS, GLASS

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	26	-	-	-	-
1979	-	-	4	-	-
1980	-	-	-	-	-
1981	-	-	2	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	26	-	6	-	-

INVENTORY OF WASTE RECEIVED FROM BATTELLE COLUMBUS LABORATORY
IDC 204, SOLIDIFIED SOLIDS

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	5	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	2	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	7	-	-	-	-

3.27 Content Code 201

Content Description: Noncombustible Solids

Waste Generator: Battelle Columbus Laboratories (BCL)

Waste Description: Waste contains noncombustible items such as tools, crucibles, piping, valves, pieces of equipment, lead bricks, Plexiglas, and filters.

Generation Source: All waste generated by BCL is from decontamination and decommissioning of the Plutonium Laboratory.

Recovery Method: None.

Waste Handling and Packaging:

Drums

Each waste item is given a smear test and then either triple-wrapped in nylon-reinforced plastic sheeting, or triple-bagged in polyethylene bags. The waste is then placed in a 17C 55-gal drum fitted with a 90-mil polyethylene liner. The drum is surveyed, the liner lid glued on, and the drum lid clamped on.

Bins

Type M-III bins with nonremovable plywood liners are used by BCL. Waste is triple-bagged before being placed in the bins. Recently (1981), M-III bins have also been used as overpacks for 17H drums that do not meet INEL packaging criteria.

Waste Generator Contacts:

D. McCarty

D. G. Freas

B. White

H. M. Faust

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Bins
Total Containers		54	45
Container Weight (lb)			
	Maximum:	514	3100
	Minimum:	174	1675
	Average:	325	2500
Contact Dose Rate (mR/h)			
	<10:	53	45
	10-200:	1	0.0
	Maximum:	30.0	0.2
	Minimum:	0.1	0.1
	Average:	1.3	0.1
Radionuclide Inventory			
^{239}Pu (g)			
	Maximum:	19.0	39.0
	Minimum:	0.4	0.0
	Average:	4.0	5.0
^{235}U (g)			
	Maximum:	41.0	51.0
	Minimum:	0.0	0.0
	Average:	3.1	5.0

Waste Form Evaluation:

Gas Generation--The waste items in this content code are not organic, and therefore are not subject to gas generation. Excluding the 90-mil drum liner, organic packaging material in the drums will average less than 10 lb per drum (1.4 lbs/ft^3). The M-III bins contain less than 300 lb of organic packaging, including the plywood box liner (~250 lb).

Combustibility--Including packaging, this waste contains less than 25 volume percent combustibles. Color coding is not necessary.

Immobilization--This waste form will not generate fines during shipping or storage. The only significant source of particulate is in filters and is not expected to exceed the limits established in the WIPP-WAC.

Sludges--No sludges have been identified in this waste.

Free Liquid--The waste is dry prior to packaging; no free liquids are present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

3.28 Content Code 202

Content Description: Combustible Solids

Waste Generator: Battelle Columbus Laboratories

Waste Description: Waste contains combustible items such as wood, plastic suits, nylon-reinforced plastic tent structures, shoe covers, rubber gloves, and air hose.

Generation Source: All waste generated by BCL is from decontamination and decommissioning of the Plutonium Laboratory.

Recovery Method: None.

Waste Handling and Packaging:

Drums

Each waste item is given a smear test and then either triple-wrapped in nylon-reinforced plastic, or triple-bagged in polyethylene bags. The waste is then placed in a 17C 55-gallon drum fitted with a 90-mil polyethylene liner. The drum is surveyed, the liner lid glued on, and the drum lid clamped on.

Bins

Type M-III bins with nonremovable plywood liners are used by BCL. Waste is triple-bagged before being placed in the bins. Recently (1981), M-III bins have also been used as overpacks for 17H drums that do not meet INEL packaging criteria.

Waste Generator Contacts:

D. McCarty

D. G. Freas

B. White

H. M. Faust

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		8	5
Container Weight (lb)			
	Maximum:	255	2100
	Minimum:	120	1200
	Average:	171	1538
Contact Dose Rate (mR/h)			
	<10:	8	5
	10-200:	0	0
	Maximum:	0.6	0.1
	Minimum:	0.1	0.1
	Average:	0.2	0.1
Radionuclide Inventory			
^{239}Pu (g)			
	Maximum:	5.0	9.0
	Minimum:	0.0	0.0
	Average:	1.9	2.0
^{235}U (g)			
	Maximum:	4.0	0.0
	Minimum:	0.0	0.0
	Average:	0.6	0.0

Waste Form Evaluation:

Gas Generation--The waste items in this content code are subject to gas generation. Excluding the 90-mil drum liner, the average organic content in the drums is 60 lb or about 8 lb/ft^3. The M-III bins have an average organic content, including the plywood liner, of 700 lb or about 6 lb/ft^3.

Combustibility--Including packaging, this waste contains greater than 25 volume percent combustibles. Color coding will be required.

Immobilization--This waste form will not generate fines during shipping or storage. No significant quantity of fines is anticipated in this content code.

Sludges--No sludges have been identified in this waste.

Free Liquids--The waste is dry when packaged. No free liquids are present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment--Waste is certifiable.

3.29 Content Code 203

Content Description: Paper, Metals, Glass

Waste Generator: Battelle Columbus Laboratories

Waste Description: Waste contains a mixture of combustible and noncombustible items in roughly equal weights. Combustibles are primarily paper and paper products. Noncombustibles are primarily metal and some glass.

Generation Source: All waste generated by BCL is from decontamination and decommissioning of the Plutonium Laboratory.

Recovery Method: None.

Waste Handling and Packaging:

Drums

Each waste item is given a smear test and then either triple-wrapped in nylon-reinforced plastic, or triple-bagged in polyethylene bags. The waste is then placed in a 17C 55-gal drum fitted with a 90-mil polyethylene liner. The drum is surveyed, the liner lid glued on, and the drum lid clamped on.

Bins

Type M-III bins with nonremovable plywood liners are used by BCL. Waste is triple-bagged before being placed in the bins. Recently (1981), M-III bins have also been used as overpacks for 17H drums that do not meet INEL packaging criteria.

Waste Generator Contacts:

- D. McCarty
- D. G. Freas
- B. White
- H. M. Faust

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Bins
Total Containers		26	6
Container Weight (lb)			
	Maximum:	303	1750
	Minimum:	129	1400
	Average:	208	1600
Contact Dose Rate (mR/h)			
	<10:	26	6
	10-200:	0	0
	Maximum:	4.5	0.1
	Minimum:	0.1	0.1
	Average:	1.1	0.1
Radionuclide Inventory			
^{239}Pu (g)			
	Maximum:	15.0	0.4
	Minimum:	0.4	0.0
	Average:	3.1	0.1
^{235}U (g)			
	Maximum:	34.0	0.0
	Minimum:	0.0	0.0
	Average:	4.7	0.0

Waste Form Evaluation:

Gas Generation--The noncombustible portion of this waste form is not subject to gas generation. The combustible waste in drums is about 9 lb/ft^3; and in M-III bins about 5 lb/ft^3.

Combustibility--Waste packages may contain greater than 25 volume percent combustibles. Color coding may be necessary.

Immobilization--This waste form will not generate fines during shipping or storage. The only significant source of particulate is in filters and is not expected to exceed the limits established in the WIPP-WAC.

Sludges--No sludges have been identified in this waste.

Free Liquid--The waste is dry prior to packaging. No free liquids are present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

3.30 Content Code 204

Content Description: Solidified Solutions

Waste Generator: Battelle Columbus Laboratories

Waste Description: Waste contains solidified solutions from washing gloveboxes. Approximately 30 gallons of water with Turco soap is mixed with 250 pounds of Plaster-of-Paris and allowed to cure in the drum.

Generation Source: All waste generated by BCL is from decontamination and decommissioning of the Plutonium Laboratory.

Recovery Method: None.

Waste Handling and Packaging: After the water/Plaster-of-Paris mixture has cured, the drum is surveyed and examined for free liquid. About 5 pounds of Plaster-of-Paris is added on top of the solidified solution. The drum is then sealed for shipment.

Waste Generator Contacts:

D. McCarty
D. G. Freas
B. White
H. M. Faust

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		28	0
Container Weight (lb)	Maximum:	685	
	Minimum:	380	
	Average:	564	
Contact Dose Rate (mR/h)	<10:	28	
	10-200:	0	
	Maximum:	0.5	
	Minimum:	0.1	
	Average:	0.1	
Radionuclide Inventory			
^{239}Pu (g)	Maximum:	0.4	
	Minimum:	0.0	
	Average:	0.3	
^{235}U (g)	Maximum:	0.0	
	Minimum:	0.0	
	Average:	0.0	

Waste Form Evaluation:

Gas Generation--This waste form is not susceptible to gas generation; organic content is less than 0.5 lb/ft^3.

Combustibility--Including packaging, this waste will contain less than 25 percent combustibles. Color coding is not necessary.

Immobilization--The solidified water will not contain or generate respirable or dispersible fines. The 5 pounds of Plaster-of-Paris added on top as absorbent is not considered particulate material.

Sludges--No sludges have been identified in this waste form.

Free Liquid--The waste package is inspected for free liquids prior to shipment to the INEL. No free liquids have been found during inspection.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

40 CFR 261, Subpart C. - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)	___	___		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)	___	___	pH ______(1)	
Reactive (D003)	___	___		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	___	________
Barium (D005)	___	___	________
Cadmium (D006)	___	___	________
Chromium (D007)	___	___	________
Lead (D008)	___	___	________
Mercury (D009)	___	___	________
Selenium (D010)	___	___	________
Silver (D011)	___	___	________
Benzene (D018)	___	___	________
Carbon tetrachloride (D019)	___	___	________
Chlordane (D020)	___	___	________
Chlorobenzene (D021)	___	___	________
Chloroform (D022)	___	___	________
o-Cresol (D023)	___	___	________
m-Cresol (D024)	___	___	________
p-Cresol (D025)	___	___	________
Cresol (D026)	___	___	________
2,4-D (D016)	___	___	________
1,4-Dichlorobenzene (D027)	___	___	________
1,2-Dichloroethane (D028)	___	___	________
1,1-Dichloroethylene (D029)	___	___	________
2,4-Dinitrotoluene (D030)	___	___	________
Endrin (D012)	___	___	________
Heptachlor (D031) (and its epoxide)	___	___	________
Hexachlorobenzene (D032)	___	___	________
Hexachlorobutadiene (D033)	___	___	________
Hexachloroethane (D034)	___	___	________
Lindane (D013)	___	___	________
Methoxychlor (D014)	___	___	________
Methyl ethyl ketone (D035)	___	___	________
Nitrobenzene (D036)	___	___	________
Pentachlorophenol (D037)	___	___	________
Pyridine (D038)	___	___	________
Tetrachloroethylene (D039)	___	___	________
Toxaphene (D015)	___	___	________
Trichloroethylene (D040)	___	___	________
2,4,5-Trichlorophenol (D041)	___	___	________
2,4,6-Trichlorophenol (D042)	___	___	________
2,4,5-TP (Silvex) (D017)	___	___	________
Vinyl chloride (D043	___	___	________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT,
WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN,
WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA,
AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene	___	___	___
Bromoform	___	___	___
Carbon Tetrachloride	___	___	___
Chlorobenzene	___	___	___
Chloroform	___	___	___
Cyclohexane	___	___	___
1,1-Dichloroethane	___	___	___
1,2-Dichloroethane	___	___	___
1,1-Dichloroethene	___	___	___
cis-1,2-Dichloroethene	___	___	___
Ethyl Benzene	___	___	___
Ethyl Ether	___	___	___
Methylene Chloride	___	___	___
1,1,2,2-Tetrachloroethane	___	___	___
Tetrachloroethene	___	___	___
Toluene	___	___	___
1,1,1-Trichloroethane	___	___	___
Trichloroethene	___	___	___
1,1,2-Trichloro-1,2,2-trifluoroethane	___	___	___
1,3,5-Trimethylbenzene	___	___	___
1,2,4-Trimethylbenzene	___	___	___
m-Xylene	___	___	___
o-Xylene	___	___	___
p-Xylene	___	___	___
Acetone	___	___	___
1-Butanol	___	___	___
2-Butanone	___	___	___
Methanol	___	___	___
4-Methyl-2-pentanone	___	___	___

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	___	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	___	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	___	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	___	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	___	____________
Asbestos	___	___	____________

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
______________________________	____________
______________________________	____________
______________________________	____________
______________________________	____________

		1	2	3	4
(1)	pH Ranges	1	2	3	4
	pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges	1	2	3	4
	Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

Battelle

505 King Avenue
Columbus, Ohio 43201-2693
Telephone (614) 424-6424
Facsimile (614) 424-5263

May 24, 1993

EG&G Idaho, Inc.
P.O. Box 1625, Mail Stop 3950
Idaho Falls, Idaho 83415-3950

Attention: Ralph D. Falconer

Dear Mr. Falconer:

Subject: **Transuranic (TRU) Waste Characterization Questionnaire (AM/ERWM/WMOB 93-077)**

Battelle Columbus Laboratories (BCL) is herein responding to the above referenced memorandum dated April 7, 1993. To the best of our knowledge, the description of the waste as presented under each waste category (IDC-201,-202,-203,-204) appears to be accurate and based on previous information presented by BCL. However, as you suspected, the waste was not classified or analyzed for hazardous and/or toxic waste constituents. Therefore, no attempt was made to complete the three page WIPP WAC questionnaires.

A thorough review of the BCL shipping records has brought out some discrepancies in the inventories presented by EG&G Idaho. Our data indicates that 124 drums and 55 bins were shipped, versus EG&G Idaho records of 90 drums and 56 bins. As shown in the attached, the BCL inventory records for each category of waste has been incorporated into the individual EG&G Idaho IDC inventories. If additional information is required to track the waste at EG&G Idaho, please contact me for further assistance.

Sincerely,

Kathy A. Lawson

Kathy A. Lawson
Manager, Waste Management and Transportation
D&D Operations

KAL/ksr

INVENTORY OF WASTE RECEIVED FROM BATTELLE COLUMBUS LABORATORY

IDC	WASTE DESCRIPTION	DRUMS	BOXES	BINS	INSERTS	OTHER
201	NONCOMBUSTIBLE SOLIDS	54 (52)	-	45 (22)	-	-
202	COMBUSTIBLE SOLIDS, PAPER, CLOTH	3 (8)	-	5 (4)	-	-
203	PAPER, CLOTH, METALS, GLASS	26 (26)	-	6 (1)	-	-
204	SOLIDIFIED SOLIDS	7 (20)	-	-	-	-
	TOTALS	90 (124)*	-	56 (55)*	-	-

* Unclassified (no backup data) (20) (28)

BCL inventory indicated in parentheses ( ).

INVENTORY OF WASTE RECEIVED FROM BATTELLE COLUMBUS LABORATORY
IDC 201, NONCOMBUSTIBLE SOLIDS

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	54 (42)	-	-	-	-
1979	-	-	18 (8)	-	-
1980	-	-	13 (8)	-	-
1981	- (10)	-	14 (6)	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	54 (52)	-	45 (22)	-	-

BCL inventory indicated in parentheses ( ).

3.27 Content Code 201

Content Description: Noncombustible Solids

Waste Generator: Battelle Columbus Laboratories (BCL)

Waste Description: Waste contains noncombustible items such as tools, crucibles, piping, valves, pieces of equipment, lead bricks, Plexiglas, and filters.

Generation Source: All waste generated by BCL is from decontamination and decommissioning of the Plutonium Laboratory.

Recovery Method: None.

Waste Handling and Packaging:

Drums

Each waste item is given a smear test and then either triple-wrapped in nylon-reinforced plastic sheeting, or triple-bagged in polyethylene bags. The waste is then placed in a 17C 55-gal drum fitted with a 90-mil polyethylene liner. The drum is surveyed, the liner lid glued on, and the drum lid clamped on.

Bins

Type M-III bins with nonremovable plywood liners are used by BCL. Waste is triple-bagged before being placed in the bins. Recently (1981), M-III bins have also been used as overpacks for 17H drums that do not meet INEL packaging criteria.

Waste Generator Contacts:

D. McCarty

D. G. Freas

B. White

H. M. Faust

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Bins
Total Containers		54	45
Container Weight (lb)			
	Maximum:	514	3100
	Minimum:	174	1675
	Average:	325	2500
Contact Dose Rate (mR/h)			
	<10:	53	45
	10-200:	1	0.0
	Maximum:	30.0	0.2
	Minimum:	0.1	0.1
	Average:	1.3	0.1
Radionuclide Inventory			
^{239}Pu (g)			
	Maximum:	19.0	39.0
	Minimum:	0.4	0.0
	Average:	4.0	5.0
^{235}U (g)			
	Maximum:	41.0	51.0
	Minimum:	0.0	0.0
	Average:	3.1	5.0

Waste Form Evaluation:

Gas Generation--The waste items in this content code are not organic, and therefore are not subject to gas generation. Excluding the 90-mil drum liner, organic packaging material in the drums will average less than 10 lb per drum (1.4 lbs/ft^3). The M-III bins contain less than 300 lb of organic packaging, including the plywood box liner (~250 lb).

Combustibility--Including packaging, this waste contains less than 25 volume percent combustibles. Color coding is not necessary.

Immobilization--This waste form will not generate fines during shipping or storage. The only significant source of particulate is in filters and is not expected to exceed the limits established in the WIPP-WAC.

Sludges--No sludges have been identified in this waste.

Free Liquid--The waste is dry prior to packaging; no free liquids are present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ____________________ Date ____________
Waste Description ____________________ IDC ____________

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)	___	___		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)	___	___	pH ______(1)	
Reactive (D003)	___	___		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	___	________
Barium (D005)	___	___	________
Cadmium (D006)	___	___	________
Chromium (D007)	___	___	________
Lead (D008)	___	___	________
Mercury (D009)	___	___	________
Selenium (D010)	___	___	________
Silver (D011)	___	___	________
Benzene (D018)	___	___	________
Carbon tetrachloride (D019)	___	___	________
Chlordane (D020)	___	___	________
Chlorobenzene (D021)	___	___	________
Chloroform (D022)	___	___	________
o-Cresol (D023)	___	___	________
m-Cresol (D024)	___	___	________
p-Cresol (D025)	___	___	________
Cresol (D026)	___	___	________
2,4-D (D016)	___	___	________
1,4-Dichlorobenzene (D027)	___	___	________
1,2-Dichloroethane (D028)	___	___	________
1,1-Dichloroethylene (D029)	___	___	________
2,4-Dinitrotoluene (D030)	___	___	________
Endrin (D012)	___	___	________
Heptachlor (D031) (and its epoxide)	___	___	________
Hexachlorobenzene (D032)	___	___	________
Hexachlorobutadiene (D033)	___	___	________
Hexachloroethane (D034)	___	___	________
Lindane (D013)	___	___	________
Methoxychlor (D014)	___	___	________
Methyl ethyl katone (D035)	___	___	________
Nitrobenzene (D036)	___	___	________
Pentachlorophenol (D037)	___	___	________
Pyridine (D038)	___	___	________
Tetrachloroethylene (D039)	___	___	________
Toxaphene (D015)	___	___	________
Trichloroethylene (D040)	___	___	________
2,4,5-Trichlorophenol (D041)	___	___	________
2,4,6-Trichlorophenol (D042)	___	___	________
2,4,5-TP (Silvex) (D017)	___	___	________
Vinyl chloride (D043	___	___	________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT,
WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN,
WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA,
AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ____________________ Date __________
Waste Description ____________________ IDC __________

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	PRESENT IN WASTE? NO	CONCENTRATION RANGE(2)
Benzene	___	___	________
Bromoform	___	___	________
Carbon Tetrachloride	___	___	________
Chlorobenzene	___	___	________
Chloroform	___	___	________
Cyclohexane	___	___	________
1,1-Dichloroethane	___	___	________
1,2-Dichloroethane	___	___	________
1,1-Dichloroethene	___	___	________
cis-1,2-Dichloroethene	___	___	________
Ethyl Benzene	___	___	________
Ethyl Ether	___	___	________
Methylene Chloride	___	___	________
1,1,2,2-Tetrachloroethane	___	___	________
Tetrachloroethene	___	___	________
Toluene	___	___	________
1,1,1-Trichloroethane	___	___	________
Trichloroethene	___	___	________
1,1,2-Trichloro-1,2,2-trifluoroethane	___	___	________
1,3,5-Trimethylbenzene	___	___	________
1,2,4-Trimethylbenzene	___	___	________
m-Xylene	___	___	________
o-Xylene	___	___	________
p-Xylene	___	___	________
Acetone	___	___	________
1-Butanol	___	___	________
2-Butanone	___	___	________
Methanol	___	___	________
4-Methyl-2-pentanone	___	___	________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________

Waste Description ______________________ IDC ____________

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	___	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	___	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	___	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	___	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	___	___________
Asbestos	___	___	___________

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
______________________________	___________
______________________________	___________
______________________________	___________
______________________________	___________

		1	2	3	4
(1)	pH Ranges	1	2	3	4
	pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges	1	2	3	4
	Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

INVENTORY OF WASTE RECEIVED FROM BATTELLE COLUMBUS LABORATORY
IDC 204, SOLIDIFIED SOLIDS

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	5 (5)	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	2 (13)	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	7 (18)	-	-(0)	-	-

BCL inventory indicated by parentheses ( ).

3.30 Content Code 204

Content Description: Solidified Solutions

Waste Generator: Battelle Columbus Laboratories

Waste Description: Waste contains solidified solutions from washing gloveboxes. Approximately 30 gallons of water with Turco soap is mixed with 250 pounds of Plaster-of-Paris and allowed to cure in the drum.

Generation Source: All waste generated by BCL is from decontamination and decommissioning of the Plutonium Laboratory.

Recovery Method: None.

Waste Handling and Packaging: After the water/Plaster-of-Paris mixture has cured, the drum is surveyed and examined for free liquid. About 5 pounds of Plaster-of-Paris is added on top of the solidified solution. The drum is then sealed for shipment.

Waste Generator Contacts:

D. McCarty
D. G. Freas
B. White
H. M. Faust

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		28	0
Container Weight (lb)	Maximum:	685	
	Minimum:	380	
	Average:	564	
Contact Dose Rate (mR/h)	<10:	28	
	10-200:	0	
	Maximum:	0.5	
	Minimum:	0.1	
	Average:	0.1	
Radionuclide Inventory			
^{239}Pu (g)	Maximum:	0.4	
	Minimum:	0.0	
	Average:	0.3	
^{235}U (g)	Maximum:	0.0	
	Minimum:	0.0	
	Average:	0.0	

Waste Form Evaluation:

Gas Generation--This waste form is not susceptible to gas generation; organic content is less than 0.5 lb/ft^3.

Combustibility--Including packaging, this waste will contain less than 25 percent combustibles. Color coding is not necessary.

Immobilization--The solidified water will not contain or generate respirable or dispersible fines. The 5 pounds of Plaster-of-Paris added on top as absorbent is not considered particulate material.

Sludges--No sludges have been identified in this waste form.

Free Liquid--The waste package is inspected for free liquids prior to shipment to the INEL. No free liquids have been found during inspection.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________

Waste Description ______________________ IDC ____________

40 CFR 261, Subpart C. - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO	
Ignitable (D001)	___	___	See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)	___	___	pH ______(1)
Reactive (D003)	___	___	

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	___	________
Barium (D005)	___	___	________
Cadmium (D006)	___	___	________
Chromium (D007)	___	___	________
Lead (D008)	___	___	________
Mercury (D009)	___	___	________
Selenium (D010)	___	___	________
Silver (D011)	___	___	________
Benzene (D018)	___	___	________
Carbon tetrachloride (D019)	___	___	________
Chlordane (D020)	___	___	________
Chlorobenzene (D021)	___	___	________
Chloroform (D022)	___	___	________
o-Cresol (D023)	___	___	________
m-Cresol (D024)	___	___	________
p-Cresol (D025)	___	___	________
Cresol (D026)	___	___	________
2,4-D (D016)	___	___	________
1,4-Dichlorobenzene (D027)	___	___	________
1,2-Dichloroethane (D028)	___	___	________
1,1-Dichloroethylene (D029)	___	___	________
2,4-Dinitrotoluene (D030)	___	___	________
Endrin (D012)	___	___	________
Heptachlor (D031) (and its epoxide)	___	___	________
Hexachlorobenzene (D032)	___	___	________
Hexachlorobutadiene (D033)	___	___	________
Hexachloroethane (D034)	___	___	________
Lindane (D013)	___	___	________
Methoxychlor (D014)	___	___	________
Methyl ethyl ketone (D035)	___	___	________
Nitrobenzene (D036)	___	___	________
Pentachlorophenol (D037)	___	___	________
Pyridine (D038)	___	___	________
Tetrachloroethylene (D039)	___	___	________
Toxaphene (D015)	___	___	________
Trichloroethylene (D040)	___	___	________
2,4,5-Trichlorophenol (D041)	___	___	________
2,4,6-Trichlorophenol (D042)	___	___	________
2,4,5-TP (Silvex) (D017)	___	___	________
Vinyl chloride (D043	___	___	________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT,
WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN,
WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA,
AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ____________________ Date __________
Waste Description ____________________ IDC __________

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene	___	___	___________
Bromoform	___	___	___________
Carbon Tetrachloride	___	___	___________
Chlorobenzene	___	___	___________
Chloroform	___	___	___________
Cyclohexane	___	___	___________
1,1-Dichloroethane	___	___	___________
1,2-Dichloroethane	___	___	___________
1,1-Dichloroethene	___	___	___________
cis-1,2-Dichloroethene	___	___	___________
Ethyl Benzene	___	___	___________
Ethyl Ether	___	___	___________
Methylene Chloride	___	___	___________
1,1,2,2-Tetrachloroethane	___	___	___________
Tetrachloroethene	___	___	___________
Toluene	___	___	___________
1,1,1-Trichloroethane	___	___	___________
Trichloroethene	___	___	___________
1,1,2-Trichloro-1,2,2-trifluoroethane	___	___	___________
1,3,5-Trimethylbenzene	___	___	___________
1,2,4-Trimethylbenzene	___	___	___________
m-Xylene	___	___	___________
o-Xylene	___	___	___________
p-Xylene	___	___	___________
Acetone	___	___	___________
1-Butanol	___	___	___________
2-Butanone	___	___	___________
Methanol	___	___	___________
4-Methyl-2-pentanone	___	___	___________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ________________________ IDC ____________

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	___	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	___	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	___	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	___	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	___	__________
Asbestos	___	___	__________

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
______________________________	__________
______________________________	__________
______________________________	__________
______________________________	__________

		1	2	3	4
(1)	pH Ranges	1	2	3	4
	pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges	1	2	3	4
	Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

INVENTORY OF WASTE RECEIVED FROM BATTELLE COLUMBUS LABORATORY
IDC 203, PAPER, CLOTH, METALS, GLASS

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	26 (26)	-	-	-	-
1979	-	-	4 (1)	-	-
1980	-	-	-	-	-
1981	-	-	2	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	26 (26)	-	6 (1)	-	-

BCL inventory indicated by parentheses ( ).

3.29 Content Code 203

Content Description: Paper, Metals, Glass

Waste Generator: Battelle Columbus Laboratories

Waste Description: Waste contains a mixture of combustible and noncombustible items in roughly equal weights. Combustibles are primarily paper and paper products. Noncombustibles are primarily metal and some glass.

Generation Source: All waste generated by BCL is from decontamination and decommissioning of the Plutonium Laboratory.

Recovery Method: None.

Waste Handling and Packaging:

Drums

Each waste item is given a smear test and then either triple-wrapped in nylon-reinforced plastic, or triple-bagged in polyethylene bags. The waste is then placed in a 17C 55-gal drum fitted with a 90-mil polyethylene liner. The drum is surveyed, the liner lid glued on, and the drum lid clamped on.

Bins

Type M-III bins with nonremovable plywood liners are used by BCL. Waste is triple-bagged before being placed in the bins. Recently (1981), M-III bins have also been used as overpacks for 17H drums that do not meet INEL packaging criteria.

Waste Generator Contacts:

D. McCarty

D. G. Freas

B. White

H. M. Faust

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Bins
Total Containers		26	6
Container Weight (lb)			
	Maximum:	303	1750
	Minimum:	129	1400
	Average:	208	1600
Contact Dose Rate (mR/h)			
	<10:	26	6
	10-200:	0	0
	Maximum:	4.5	0.1
	Minimum:	0.1	0.1
	Average:	1.1	0.1
Radionuclide Inventory			
^{239}Pu (g)			
	Maximum:	15.0	0.4
	Minimum:	0.4	0.0
	Average:	3.1	0.1
^{235}U (g)			
	Maximum:	34.0	0.0
	Minimum:	0.0	0.0
	Average:	4.7	0.0

Waste Form Evaluation:

Gas Generation--The noncombustible portion of this waste form is not subject to gas generation. The combustible waste in drums is about 9 lb/ft^3; and in M-III bins about 5 lb/ft^3.

Combustibility--Waste packages may contain greater than 25 volume percent combustibles. Color coding may be necessary.

Immobilization--This waste form will not generate fines during shipping or storage. The only significant source of particulate is in filters and is not expected to exceed the limits established in the WIPP-WAC.

Sludges--No sludges have been identified in this waste.

Free Liquid--The waste is dry prior to packaging. No free liquids are present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)	___	___		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)	___	___	pH _____(1)	
Reactive (D003)	___	___		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	___	________
Barium (D005)	___	___	________
Cadmium (D006)	___	___	________
Chromium (D007)	___	___	________
Lead (D008)	___	___	________
Mercury (D009)	___	___	________
Selenium (D010)	___	___	________
Silver (D011)	___	___	________
Benzene (D018)	___	___	________
Carbon tetrachloride (D019)	___	___	________
Chlordane (D020)	___	___	________
Chlorobenzene (D021)	___	___	________
Chloroform (D022)	___	___	________
o-Cresol (D023)	___	___	________
m-Cresol (D024)	___	___	________
p-Cresol (D025)	___	___	________
Cresol (D026)	___	___	________
2,4-D (D016)	___	___	________
1,4-Dichlorobenzene (D027)	___	___	________
1,2-Dichloroethane (D028)	___	___	________
1,1-Dichloroethylene (D029)	___	___	________
2,4-Dinitrotoluene (D030)	___	___	________
Endrin (D012)	___	___	________
Heptachlor (D031) (and its epoxide)	___	___	________
Hexachlorobenzene (D032)	___	___	________
Hexachlorobutadiene (D033)	___	___	________
Hexachloroethane (D034)	___	___	________
Lindane (D013)	___	___	________
Methoxychlor (D014)	___	___	________
Methyl ethyl ketone (D035)	___	___	________
Nitrobenzene (D036)	___	___	________
Pentachlorophenol (D037)	___	___	________
Pyridine (D038)	___	___	________
Tetrachloroethylene (D039)	___	___	________
Toxaphene (D015)	___	___	________
Trichloroethylene (D040)	___	___	________
2,4,5-Trichlorophenol (D041)	___	___	________
2,4,6-Trichlorophenol (D042)	___	___	________
2,4,5-TP (Silvex) (D017)	___	___	________
Vinyl chloride (D043	___	___	________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT,
WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN,
WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA,
AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE?		
	YES	NO	CONCENTRATION RANGE(2)
Benzene	___	___	________
Bromoform	___	___	________
Carbon Tetrachloride	___	___	________
Chlorobenzene	___	___	________
Chloroform	___	___	________
Cyclohexane	___	___	________
1,1-Dichloroethane	___	___	________
1,2-Dichloroethane	___	___	________
1,1-Dichloroethene	___	___	________
cis-1,2-Dichloroethene	___	___	________
Ethyl Benzene	___	___	________
Ethyl Ether	___	___	________
Methylene Chloride	___	___	________
1,1,2,2-Tetrachloroethane	___	___	________
Tetrachloroethene	___	___	________
Toluene	___	___	________
1,1,1-Trichloroethane	___	___	________
Trichloroethene	___	___	________
1,1,2-Trichloro-1,2,2-trifluoroethane	___	___	________
1,3,5-Trimethylbenzene	___	___	________
1,2,4-Trimethylbenzene	___	___	________
m-Xylene	___	___	________
o-Xylene	___	___	________
p-Xylene	___	___	________
Acetone	___	___	________
1-Butanol	___	___	________
2-Butanone	___	___	________
Methanol	___	___	________
4-Methyl-2-pentanone	___	___	________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Date ____________
IDC ____________

Waste Generator Site ______________________________
Waste Description ______________________________

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	PRESENT IN WASTE? NO	WIPP-WAC Requirements
Particulates	___	___	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	___	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	___	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	___	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	PRESENT IN WASTE? NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	___	____________
Asbestos	___	___	____________

List any known additional RCRA hazardous constituents that my be in waste.

CONCENTRATION RANGE(2)

______________________________ ____________

______________________________ ____________

______________________________ ____________

______________________________ ____________

		1	2	3	4
(1)	pH Ranges pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

INVENTORY OF WASTE RECEIVED FROM BATTELLE COLUMBUS LABORATORY
IDC 202, COMBUSTIBLE SOLIDS, PAPER, CLOTH

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	3 (3)	-	-	-	-
1979	-	-	4 (3)	-	-
1980	-	-	1 (1)	-	-
1981	- (5)	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	3(8)	-	5 (4)	-	-

BCL inventory indicated by parentheses ( ).

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________________ Date ____________

Waste Description ________________________________ IDC ____________

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)	___	___		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)	___	___	pH ______(1)	
Reactive (D003)	___	___		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	___	____________
Barium (D005)	___	___	____________
Cadmium (D006)	___	___	____________
Chromium (D007)	___	___	____________
Lead (D008)	___	___	____________
Mercury (D009)	___	___	____________
Selenium (D010)	___	___	____________
Silver (D011)	___	___	____________
Benzene (D018)	___	___	____________
Carbon tetrachloride (D019)	___	___	____________
Chlordane (D020)	___	___	____________
Chlorobenzene (D021)	___	___	____________
Chloroform (D022)	___	___	____________
o-Cresol (D023)	___	___	____________
m-Cresol (D024)	___	___	____________
p-Cresol (D025)	___	___	____________
Cresol (D026)	___	___	____________
2,4-D (D016)	___	___	____________
1,4-Dichlorobenzene (D027)	___	___	____________
1,2-Dichloroethane (D028)	___	___	____________
1,1-Dichloroethylene (D029)	___	___	____________
2,4-Dinitrotoluene (D030)	___	___	____________
Endrin (D012)	___	___	____________
Heptachlor (D031) (and its epoxide)	___	___	____________
Hexachlorobenzene (D032)	___	___	____________
Hexachlorobutadiene (D033)	___	___	____________
Hexachloroethane (D034)	___	___	____________
Lindane (D013)	___	___	____________
Methoxychlor (D014)	___	___	____________
Methyl ethyl ketone (D035)	___	___	____________
Nitrobenzene (D036)	___	___	____________
Pentachlorophenol (D037)	___	___	____________
Pyridine (D038)	___	___	____________
Tetrachloroethylene (D039)	___	___	____________
Toxaphene (D015)	___	___	____________
Trichloroethylene (D040)	___	___	____________
2,4,5-Trichlorophenol (D041)	___	___	____________
2,4,6-Trichlorophenol (D042)	___	___	____________
2,4,5-TP (Silvex) (D017)	___	___	____________
Vinyl chloride (D043	___	___	____________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene	___	___	__________
Bromoform	___	___	__________
Carbon Tetrachloride	___	___	__________
Chlorobenzene	___	___	__________
Chloroform	___	___	__________
Cyclohexane	___	___	__________
1,1-Dichloroethane	___	___	__________
1,2-Dichloroethane	___	___	__________
1,1-Dichloroethene	___	___	__________
cis-1,2-Dichloroethene	___	___	__________
Ethyl Benzene	___	___	__________
Ethyl Ether	___	___	__________
Methylene Chloride	___	___	__________
1,1,2,2-Tetrachloroethane	___	___	__________
Tetrachloroethene	___	___	__________
Toluene	___	___	__________
1,1,1-Trichloroethane	___	___	__________
Trichloroethene	___	___	__________
1,1,2-Trichloro-1,2,2-trifluoroethane	___	___	__________
1,3,5-Trimethylbenzene	___	___	__________
1,2,4-Trimethylbenzene	___	___	__________
m-Xylene	___	___	__________
o-Xylene	___	___	__________
p-Xylene	___	___	__________
Acetone	___	___	__________
1-Butanol	___	___	__________
2-Butanone	___	___	__________
Methanol	___	___	__________
4-Methyl-2-pentanone	___	___	__________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	___	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	___	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	___	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	___	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	___	____________
Asbestos	___	___	____________

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
______________________	____________
______________________	____________
______________________	____________
______________________	____________

	1	2	3	4
(1) pH Ranges pH	0-2	2-7	7-12.5	12.5-14
(2) Concentration Ranges Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

3.28 Content Code 202

Content Description: Combustible Solids

Waste Generator: Battelle Columbus Laboratories

Waste Description: Waste contains combustible items such as wood, plastic suits, nylon-reinforced plastic tent structures, shoe covers, rubber gloves, and air hose.

Generation Source: All waste generated by BCL is from decontamination and decommissioning of the Plutonium Laboratory.

Recovery Method: None.

Waste Handling and Packaging:

Drums

Each waste item is given a smear test and then either triple-wrapped in nylon-reinforced plastic, or triple-bagged in polyethylene bags. The waste is then placed in a 17C 55-gallon drum fitted with a 90-mil polyethylene liner. The drum is surveyed, the liner lid glued on, and the drum lid clamped on.

Bins

Type M-III bins with nonremovable plywood liners are used by BCL. Waste is triple-bagged before being placed in the bins. Recently (1981), M-III bins have also been used as overpacks for 17H drums that do not meet INEL packaging criteria.

Waste Generator Contacts:

D. McCarty

D. G. Freas

B. White

H. M. Faust

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		8	5
Container Weight (lb)			
	Maximum:	255	2100
	Minimum:	120	1200
	Average:	171	1538
Contact Dose Rate (mR/h)			
	<10:	8	5
	10-200:	0	0
	Maximum:	0.6	0.1
	Minimum:	0.1	0.1
	Average:	0.2	0.1
Radionuclide Inventory			
^{239}Pu (g)			
	Maximum:	5.0	9.0
	Minimum:	0.0	0.0
	Average:	1.9	2.0
^{235}U (g)			
	Maximum:	4.0	0.0
	Minimum:	0.0	0.0
	Average:	0.6	0.0

Waste Form Evaluation:

Gas Generation--The waste items in this content code are subject to gas generation. Excluding the 90-mil drum liner, the average organic content in the drums is 60 lb or about 8 lb/ft^3. The M-III bins have an average organic content, including the plywood liner, of 700 lb or about 6 lb/ft^3.

Combustibility--Including packaging, this waste contains greater than 25 volume percent combustibles. Color coding will be required.

Immobilization--This waste form will not generate fines during shipping or storage. No significant quantity of fines is anticipated in this content code.

Sludges--No sludges have been identified in this waste.

Free Liquids--The waste is dry when packaged. No free liquids are present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment--Waste is certifiable.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ____________________ Date ____________
Waste Description ____________________ IDC ____________

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)	___	___		See 40 CFR 261.21/ .22/.23 for definitions of these terms.
Corrosive (D002)	___	___	pH ______(1)	
Reactive (D003)	___	___		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	___	____________
Barium (D005)	___	___	____________
Cadmium (D006)	___	___	____________
Chromium (D007)	___	___	____________
Lead (D008)	___	___	____________
Mercury (D009)	___	___	____________
Selenium (D010)	___	___	____________
Silver (D011)	___	___	____________
Benzene (D018)	___	___	____________
Carbon tetrachloride (D019)	___	___	____________
Chlordane (D020)	___	___	____________
Chlorobenzene (D021)	___	___	____________
Chloroform (D022)	___	___	____________
o-Cresol (D023)	___	___	____________
m-Cresol (D024)	___	___	____________
p-Cresol (D025)	___	___	____________
Cresol (D026)	___	___	____________
2,4-D (D016)	___	___	____________
1,4-Dichlorobenzene (D027)	___	___	____________
1,2-Dichloroethane (D028)	___	___	____________
1,1-Dichloroethylene (D029)	___	___	____________
2,4-Dinitrotoluene (D030)	___	___	____________
Endrin (D012)	___	___	____________
Heptachlor (D031) (and its epoxide)	___	___	____________
Hexachlorobenzene (D032)	___	___	____________
Hexachlorobutadiene (D033)	___	___	____________
Hexachloroethane (D034)	___	___	____________
Lindane (D013)	___	___	____________
Methoxychlor (D014)	___	___	____________
Methyl ethyl ketone (D035)	___	___	____________
Nitrobenzene (D036)	___	___	____________
Pentachlorophenol (D037)	___	___	____________
Pyridine (D038)	___	___	____________
Tetrachloroethylene (D039)	___	___	____________
Toxaphene (D015)	___	___	____________
Trichloroethylene (D040)	___	___	____________
2,4,5-Trichlorophenol (D041)	___	___	____________
2,4,6-Trichlorophenol (D042)	___	___	____________
2,4,5-TP (Silvex) (D017)	___	___	____________
Vinyl chloride (D043	___	___	____________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date __________

Waste Description ______________________ IDC __________

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene	___	___	__________
Bromoform	___	___	__________
Carbon Tetrachloride	___	___	__________
Chlorobenzene	___	___	__________
Chloroform	___	___	__________
Cyclohexane	___	___	__________
1,1-Dichloroethane	___	___	__________
1,2-Dichloroethane	___	___	__________
1,1-Dichloroethene	___	___	__________
cis-1,2-Dichloroethene	___	___	__________
Ethyl Benzene	___	___	__________
Ethyl Ether	___	___	__________
Methylene Chloride	___	___	__________
1,1,2,2-Tetrachloroethane	___	___	__________
Tetrachloroethene	___	___	__________
Toluene	___	___	__________
1,1,1-Trichloroethane	___	___	__________
Trichloroethene	___	___	__________
1,1,2-Trichloro-1,2,2-trifluoroethane	___	___	__________
1,3,5-Trimethylbenzene	___	___	__________
1,2,4-Trimethylbenzene	___	___	__________
m-Xylene	___	___	__________
o-Xylene	___	___	__________
p-Xylene	___	___	__________
Acetone	___	___	__________
1-Butanol	___	___	__________
2-Butanone	___	___	__________
Methanol	___	___	__________
4-Methyl-2-pentanone	___	___	__________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date __________

Waste Description ______________________ IDC __________

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	___	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	___	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	___	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	___	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	___	__________
Asbestos	___	___	__________

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
______________________	__________
______________________	__________
______________________	__________
______________________	__________

		1	2	3	4
(1)	pH Ranges	1	2	3	4
	pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges	1	2	3	4
	Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

Attachment 3
EDF RWMC-676
Bettis Atomic Power Laboratory
Questionnaire and Response
Page 1 of 92

INEL
Idaho National Engineering Laboratory

bcc: (w/o Attach/Encl)
D. J. Bright, MS 4201
D. L. Eaton, MS 1560
R. D. Falconer, MS 3950 RDF
D. L. French, MS 4201
K. McNeel, MS 1560
C. B. Ozaki, MS 3960
Central Files, MS 1651
Technical Support File, MS 3950
WETP Project File, MS 3950
T. L. Clements, Jr. File

March 10, 1993

Mr. J. T. Case
U.S. Department of Energy
Idaho Field Office
785 DOE Place, MS 1118
Idaho Falls, ID 83401-1562

TRANSURANIC (TRU) WASTE CHARACTERIZATION QUESTIONNAIRE - TLC-36-93

Dear Mr. Case:

Enclosed are questionnaire packages for transmittal to facilities other than EG&G Rocky Flats that have shipped TRU waste to the Idaho National Engineering Laboratory (INEL) for storage. The purpose of the questionnaire is to improve INEL knowledge of hazardous constituents in stored waste. In conversations with Mr. D. G. Hinckley, it was agreed that these questionnaires would elicit the best response if they were transmitted through the U.S. Department of Energy, rather than from a Management and Operations (M&O) contractor to another M&O contractor.

A draft transmittal letter and address for each of the questionnaires is included. Please transmit these packages to the appropriate facilities.

If you have any questions, please contact either R. D. Falconer at 526-2960 or me at 526-0664.

Sincerely,

T. L. Clements, Jr.

T. L. Clements, Jr., Manager
Transuranic Waste Programs

RDF:lap

Attachment/Enclosure:
As Stated

cc: (w/o Attach/Encl)
D. G. Hinckley, DOE-ID, MS 1118
J. L. McAnally, EG&G Idaho, MS 3940
J. C. Okeson, EG&G Idaho, MS 3590

Department of Energy
Idaho Field Office
785 DOE Place
Idaho Falls, Idaho 83401-1562

April 7, 1993

Addressees

Subject: Transuranic (TRU) Waste Characterization Questionnaire (AM/ERWM/WMOB 93-077)

New and/or expanding Resource Conservation and Recovery Act (RCRA), Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria (WAC), and No-Migration Determination for WIPP storage and disposal requirements necessitate more detailed characterization of radioactive waste for toxic and/or hazardous constituents than was required at the time the waste was generated. Cost and operational concerns mandate that process knowledge (i.e., what was the process that generated the waste and what are the toxic and/or hazardous constituents used that are likely to be found in the waste) be used to the maximum extent possible in performing this characterization.

To assist generators in supplying as much process knowledge as possible concerning toxic and/or hazardous waste constituents, the enclosed questionnaire package has been prepared for each TRU waste type that was shipped to the Idaho National Engineering Laboratory (INEL) for storage. The questionnaire package consists of the following.

1. Inventory by year received at INEL and type and number of containers.

2. A description of the waste and waste packaging, as given in "Content Code Assessments for INEL Contact-Handled Stored Transuranic Wastes, WM-F1-82-021, October 1982" by T. L. Clements, Jr.

3. Checklist for RCRA, WIPP Quality Assurance Program Plan (QAPP), WIPP-WAC, and Toxic Substances Control Act (TSCA) hazardous and toxic waste constituents for each Item Description Code (IDC).

For each IDC, the waste descriptions should be checked for completeness and accuracy; any corrections or additions can be handwritten on the description sheets supplied. If a waste description is not included, please provide a brief description of the waste source, possible constituents, and packaging. Items on the checklist for RCRA, WIPP QAPP, WIPP-WAC, and TSCA hazardous and/or toxic waste constituents should be checked as appropriate, with a concentration estimate for items checked as being present in the waste. Additional space is provided to add any known RCRA constituents present in the waste that are not included on the list.

It is realized that knowledge of these historical wastes may be sketchy at best. It is the intention of this questionnaire to gather, on a best effort basis, existing knowledge from long-term employees, review of process,

262421

available records, etc. For continued storage of the waste, and prior to disposal, a certain percentage of the waste containers will be opened and the waste characterized to determine if it compiles with all storage and disposal requirements. If process knowledge, as already known and to be improved on by this questionnaire, proves to be sufficiently accurate, the percentage of waste containers to be opened and characterized can be kept to a minimum, at great cost savings to the U.S. Department of Energy and the taxpayer.

Please complete this questionnaire by May 17, 1993 and return to the following address.

EG&G Idaho, Inc.
P.O. Box 1625, Mail Stop 3950
Idaho Falls, Idaho 83415-3950

ATTN: Ralph D. Falconer

If you have any questions concerning the information required, please call Mr. D. G. Hinckley of my staff at (208) 526-0173.

Jeffrey T Shadley For JTC

J. T. Case, Branch Chief
Waste Management Operations Branch

Enclosure

cc: (w/o Encl)
N. L. Harris, Bettis Atomic Power Laboratory
T. L. Clements, Jr., EG&G Idaho
R. D. Falconer, EG&G Idaho
R. Finney, EG&G Mound Applied Technologies

Addressee List

Mr. Evet L. Gonzalez, Manager
Waste Management Program
U.S. Department of Energy
Argonne Area Office
9800 South Cass Avenue
Argonne, IL 60439

Mr. Ben Maiden, Director
Hazardous Waste Management Division
Battelle Columbus Laboratory
505 King Avenue
Columbus, OH 43201

Mr. E. D. Shollenberger
U.S. Department of Energy
Pittsburgh Naval Reactors Office
PO Box 109
West Mifflin, PA 15122-0109

Mr. Richard F. Sena
U.S. Department of Energy
Albuquerque Field Office
PO Box 5400
Albuquerque, NM 87185-5400

Mr. Bennett Young
U.S. Department of Energy
Grand Junction Project Office
P.O. Box 2597
Grand Junction, CO 81503

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY

IDC	WASTE DESCRIPTION	DRUMS	BOXES	BINS	INSERTS	OTHER
010	RAGS, GLOVES, POLY, COMBUSTIBLE	940	-	-	-	-
012	MISCELLANEOUS SOURCES	1	-	-	-	-
015	NEUTRON SOURCES	3	-	-	-	-
020	NONCOMPRESSIBLE, NONCOMBUSTIBLE	794	-	-	-	-
030	SOLIDIFIED GRINDING SLUDGE, ETC.	45	-	-	2	-
040	SOLID BINARY SCRAP POWDER, ETC.	95	-	-	-	77
050	SOLIDIFIED SOLUTIONS	1	-	-	-	-
081	METAL-METAL SAMPLES FISSILE	17	-	-	-	-
	TOTALS	1896	-	-	2	77

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 010, RAGS, GLOVES, POLY, COMBUSTIBLES

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	89	-	-	-	-
1974	254	-	-	-	-
1975	269	-	-	-	-
1976	254	-	-	-	-
1977	21	-	-	-	-
1978	26	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	27	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	940	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 012, MISCELLANEOUS SOURCES

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	1	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	1	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 015, NEUTRON SOURCES

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	3	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	3	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 020, NONCOMPRESSIBLE, NONCOMBUSTIBLE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	29	-	-	-	-
1974	156	-	-	-	-
1975	315	-	-	-	-
1976	276	-	-	-	-
1977	13	-	-	-	-
1978	2	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	1	-	-	-	-
1982	-	-	-	-	-
1983	2	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	794	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 030, SOLIDIFIED GRINDING SLUDGE, ETC.

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	1	-	-	-	-
1974	35	-	-	-	-
1975	2	-	-	-	-
1976	3	-	-	-	-
1977	3	-	-	-	-
1978	1	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	2	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	45	-	-	2	-

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 040, SOLID BINARY SCRAP POWDER, ETC.

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	1	-	-	-	-
1975	1	-	-	-	-
1976	10	-	-	-	-
1977	5	-	-	-	-
1978	10	-	-	-	-
1979	56	-	-	-	-
1980	12	-	-	-	77
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	95	-	-	-	77

INEL

Idaho National Engineering Laboratory

bcc: (w/o Attach/Encl)
D. J. Bright, MS 4201
D. L. Eaton, MS 1560
R. D. Falconer, MS 3950 RDF
D. L. French, MS 4201
K. McNeel, MS 1560
C. B. Ozaki, MS 3960
Central Files, MS 1651
Technical Support File, MS 3950
WETP Project File, MS 3950
T. L. Clements, Jr. File

March 10, 1993

Mr. J. T. Case
U.S. Department of Energy
Idaho Field Office
785 DOE Place, MS 1118
Idaho Falls, ID 83401-1562

TRANSURANIC (TRU) WASTE CHARACTERIZATION QUESTIONNAIRE - TLC-36-93

Dear Mr. Case:

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A draft transmittal letter and address for each of the questionnaires is included. Please transmit these packages to the appropriate facilities.

If you have any questions, please contact either R. D. Falconer at 526-2960 or me at 526-0664.

Sincerely,

T. L. Clements, Jr.

T. L. Clements, Jr., Manager
Transuranic Waste Programs

RDF:lap

Attachment/Enclosure:
As Stated

cc: (w/o Attach/Encl)
D. G. Hinckley, DOE-ID, MS 1118
J. L. McAnally, EG&G Idaho, MS 3940
J. C. Okeson, EG&G Idaho, MS 3590

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)	___	___		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)	___	___	pH ______(1)	
Reactive (D003)	___	___		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	___	__________
Barium (D005)	___	___	__________
Cadmium (D006)	___	___	__________
Chromium (D007)	___	___	__________
Lead (D008)	___	___	__________
Mercury (D009)	___	___	__________
Selenium (D010)	___	___	__________
Silver (D011)	___	___	__________
Benzene (D018)	___	___	__________
Carbon tetrachloride (D019)	___	___	__________
Chlordane (D020)	___	___	__________
Chlorobenzene (D021)	___	___	__________
Chloroform (D022)	___	___	__________
o-Cresol (D023)	___	___	__________
m-Cresol (D024)	___	___	__________
p-Cresol (D025)	___	___	__________
Cresol (D026)	___	___	__________
2,4-D (D016)	___	___	__________
1,4-Dichlorobenzene (D027)	___	___	__________
1,2-Dichloroethane (D028)	___	___	__________
1,1-Dichloroethylene (D029)	___	___	__________
2,4-Dinitrotoluene (D030)	___	___	__________
Endrin (D012)	___	___	__________
Heptachlor (D031) (and its epoxide)	___	___	__________
Hexachlorobenzene (D032)	___	___	__________
Hexachlorobutadiene (D033)	___	___	__________
Hexachloroethane (D034)	___	___	__________
Lindane (D013)	___	___	__________
Methoxychlor (D014)	___	___	__________
Methyl ethyl ketone (D035)	___	___	__________
Nitrobenzene (D036)	___	___	__________
Pentachlorophenol (D037)	___	___	__________
Pyridine (D038)	___	___	__________
Tetrachloroethylene (D039)	___	___	__________
Toxaphene (D015)	___	___	__________
Trichloroethylene (D040)	___	___	__________
2,4,5-Trichlorophenol (D041)	___	___	__________
2,4,6-Trichlorophenol (D042)	___	___	__________
2,4,5-TP (Silvex) (D017)	___	___	__________
Vinyl chloride (D043	___	___	__________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene	___	___	________
Bromoform	___	___	________
Carbon Tetrachloride	___	___	________
Chlorobenzene	___	___	________
Chloroform	___	___	________
Cyclohexane	___	___	________
1,1-Dichloroethane	___	___	________
1,2-Dichloroethane	___	___	________
1,1-Dichloroethene	___	___	________
cis-1,2-Dichloroethene	___	___	________
Ethyl Benzene	___	___	________
Ethyl Ether	___	___	________
Methylene Chloride	___	___	________
1,1,2,2-Tetrachloroethane	___	___	________
Tetrachloroethene	___	___	________
Toluene	___	___	________
1,1,1-Trichloroethane	___	___	________
Trichloroethene	___	___	________
1,1,2-Trichloro-1,2,2-trifluoroethane	___	___	________
1,3,5-Trimethylbenzene	___	___	________
1,2,4-Trimethylbenzene	___	___	________
m-Xylene	___	___	________
o-Xylene	___	___	________
p-Xylene	___	___	________
Acetone	___	___	________
1-Butanol	___	___	________
2-Butanone	___	___	________
Methanol	___	___	________
4-Methyl-2-pentanone	___	___	________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT,
WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN,
WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA,
AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ____________________ Date __________
Waste Description ____________________ IDC __________

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	___	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	___	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	___	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	___	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	___	__________
Asbestos	___	___	__________

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
______________________________	__________
______________________________	__________
______________________________	__________
______________________________	__________

		1	2	3	4
(1)	pH Ranges pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

3.77 Content Code 801

Content Description: Rags, Paper, Wood, etc.

Generator: Mound Laboratory

Waste Description: Content Code 801 waste containers consist of line-generated cloth rags and Kimwipes, and limited amounts of wood and cardboard tubes. Limited amounts of other combustible wastes (gloves,plastic, etc.) may also be included (see Content Codes 802, 804, and 812).

Generation Source: Initial decontamination and decommissioning operations at the Plutonium Processing and Research buildings. Waste was shipped in 1977 only.

Recovery Method: Incineration.

Waste Packaging and Handling: Combustible wastes were packaged in 1-gallon, plastic-coated cardboard cartons. Each carton was labeled for content and placed in a polyethylene bag, which was sealed with tape. Each carton of waste was then assayed for plutonium content and bagged out of the glovebox line into a PVC or polyethylene "sleeve" bag. The sleeve bag, which contains up to five cartons of waste, was sealed with tape and placed into a prepared waste drum. Up to eight sleeve bags will fit into a drum.

Drum Preparation: Each 55-gallon drum was lined with a 90-mil rigid polyethylene drum liner. The drum liner was lined with a polyethylene drum bag. After being filled with waste packages, the drum bag was sealed with tape and the rigid liner lid installed. Plywood spacers (1/4 to 3/4 in. thick) were placed between the rigid liner lid and the drum lid before the drum lid was installed on the drum.

Assay: Each carton of waste was assayed prior to removal from the glovebox line. Assay information for each waste drum was obtained by cumulating the assay results for all cartons placed in the drum.

Inspection: Each waste-generating area was responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers were then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Exceptions: Limited amounts of waste may be damp.

Waste Generator Contacts:

W. H. Bond
A. B. Combs
T. C. Elswick
R. L. Goss
W. R. Harold

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		31	0
Container Weight (lb)	Maximum:	227	
	Minimum:	94	
	Average:	116	
Contact Dose Rate (mR/h)	<10:	31	
	10-200:	0	
	Maximum:	0.5	
	Minimum:	0.5	
	Average:	0.5	
Radionuclide Inventory			
^{238}Pu (g)	Maximum:	1.0	
	Minimum:	0.6	
	Average:	0.8	
^{239}Pu (g)	Maximum:	0.0	
	Minimum:	0.0	
	Average:	0.0	

Waste Form Evaluation:

Gas Generation--Waste consists almost entirely of organic material. Organic content usually exceeds 14 lb/ft^3.

Combustibles--Waste contains more than 25 volume percent combustibles. Color coding will be required.

Immobilization--Some particulate materials from cleaning the gloveboxes may exist in the waste. However, it is not expected that these particulates contain respirable or dispersible fines in amounts that would exceed WIPP-WAC limits.

Sludges--This waste contains no identified sludges.

Free Liquid--The waste was dry when packaged. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable. Color coding for combustible content will be required.

3.78 Content Code 802

Content Description: Dry Box Gloves and O-Rings

Generator: Mound Laboratory

Waste Description: Content Code 802 waste containers will primarily consist of neoprene dry box (glovebox) gloves, neoprene O-Rings (approximately 7-in. diameter by 1/4 in. thick), and lead-lined glovebox gloves. The lead-lined gloves are coated with Hypalon (trade name) and/or neoprene. Limited amounts of other combustible wastes (see Content Codes 801, 804, and 812) may be included.

Generation Source: Decontamination and decommissioning operations at the Plutonium Processing and Research buildings.

Recovery Method: Gloves contaminated with above-discard amounts of plutonium were leached with nitric acid, ultrasonically cleaned, and dried prior to packaging.

Waste Packaging and Handling: Wastes are packaged in 1-gallon, plastic-coated cardboard cartons, each carton labeled for content and placed in a polyethylene bag. The bag is sealed with tape. Each carton of waste is then assayed for plutonium content and bagged out of the glovebox line into a PVC or polyethylene "sleeve" bag. The sleeve bag, which contains up to five cartons of waste, is sealed with tape and placed into a prepared waste drum. Up to eight sleeve bags fit into a drum.

Drum Preparation: Each 55-gallon drum is lined with a 90-mil rigid polyethylene drum liner. The drum liner is lined with a polyethylene drum bag. After being filled with waste packages, the drum bag is sealed with tape and the rigid liner lid installed. Plywood spacers (1/4 to 3/4 in. thick) are placed between the rigid liner lid and the drum lid before the drum lid is installed.

Assay: Each carton of waste is assayed prior to removal from the glovebox line. Assay information for each waste drum is obtained by cumulating the assay results for all cartons placed in the drum.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

W. H. Bond
A. B. Combs
T. C. Elswick
R. L. Goss
W. R. Harold

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		110	0
Container Weight (lb)	Maximum:	264	
	Minimum:	88	
	Average:	124	
Contact Dose Rate (mR/h)	<10:	110	
	10-200:	0	
	Maximum:	7.0	
	Minimum:	0.1	
	Average:	0.9	

Information (1971-81)		Drums	Boxes
Radionuclide Inventory[a]			
^{238}Pu (g)	Maximum:	157.6	
	Minimum:	0.4	
	Average:	3.5	
^{239}Pu (g)	Maximum:	10.1	
	Minimum:	0.0	
	Average:	0.1	

a. General information only. Other isotopes are present.

Waste Form Evaluation:

Gas Generation--Organic content of waste generally exceeds 14 lb/ft^3.

Combustibles--Waste generally contains more than 25 volume percent combustibles. Color coding may be required.

Immobilization--Respirable or dispersible fines should not be present in significant amounts. Any particulate matter in the waste would be particles adhering to the gloves.

Sludges--This waste contains no identified sludges.

Free Liquid--The waste is dry when packaged. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable. Color coding for combustible content may be required.

3.79 Content Code 803

Content Description: Metal, Equipment, Pipes, Valves, etc.

Generator: Mound Laboratory

Waste Description: Content Code 803 waste containers primarily consist of stainless steel, carbon steel, and small amounts of aluminum metal wastes in the form of valves, piping, wrenches, nuts, bolts, stainless steel tubing, spatulas, pans, hotplates, ringstands, etc. Limited amounts of other noncombustible wastes (see Content Codes 805, 810, 811, 813, 814, 826, and 832) may be included.

Generation Source: Primarily from decontamination and decommissioning operations at the Plutonium Processing and Research buildings. Early wastes (approximately 1977) may include waste generated from final processing and recovery operations.

Recovery Method: Metal waste contaminated with above-discard amounts of plutonium was leached with nitric acid, ultrasonically cleaned, and dried prior to packaging.

Waste Packaging and Handling: Wastes are packaged in 1-gallon, plastic-coated cardboard cartons, each carton labeled for content and placed in a polyethylene bag. The bag is sealed with tape. Each carton of waste is then assayed for plutonium content and bagged out of the glovebox line into a PVC or polyethylene "sleeve" bag. The sleeve bag, which contains up to five cartons of waste, is sealed with tape and placed into a prepared waste drum. Up to eight sleeve bags fit into a drum.

A limited number of waste drums may contain larger waste items that do not fit into cartons. These items are usually bundled together, bagged out of the glovebox into single or double plastic bags and placed into a prepared waste drum. Sharp edges on waste items are taped before those items are removed from the glovebox line.

Drum Preparation: Each 55-gallon drum is lined with a 90-mil rigid polyethylene drum liner.. The drum liner is lined with a polyethylene drum bag. After being filled with waste packages, the drum bag is sealed with tape, and the rigid drum liner lid installed. Plywood spacers (1/4 to 3/4 in. thick) are placed between the rigid drum liner lid and the drum lid before the drum lid is installed.

Assay: Each carton of waste was assayed prior to removal from the glovebox line. Assay information for each waste drum was obtained by cumulating the assay results for all cartons placed in the drum.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

W. H. Bond
A. B. Combs
T. C. Elswick
R. L. Goss
W. R. Harold

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		160	0
Container Weight (lb)	Maximum:	299	
	Minimum:	88	
	Average:	161	

Information (1971-81)		Drums	Boxes
Contact Dose Rate (mR/h)	<10:	88	
	10-200:	72	
	Maximum:	90.0	
	Minimum:	0.0	
	Average:	16.1	
Radionuclide Inventory			
^{238}Pu (g)	Maximum:	17.2	
	Minimum:	0.0	
	Average:	8.0	
^{239}Pu (g)	Maximum:	3.0	
	Minimum:	0.0	
	Average:	1.5	

Waste Form Evaluation:

Gas Generation--Organic content should be less than 14 lb/ft^3.

Combustibles--Waste contains less than 25 volume percent combustibles including packaging. Color coding is not required.

Immobilization--No significant amounts of respirable or dispersible fines should exist in the waste.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste is dry when packaged. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

3.80 Content Code 804

Content Description: Plastic, Tygon, Manipulator Boots, etc.

Generator: Mound Laboratory

Waste Description: Content Code 804 waste containers primarily consist of various types of plastics (PVC, polyethylene, Tygon, etc.) in the form of tubing, piping, sample vials, gaskets, manipulator boots, etc. Limited amounts of other combustible wastes (see Content Codes 801, 802, and 812) may be included.

Generation Source: Primarily from decontamination and decommissioning operations at the Plutonium Processing and Research buildings. Early wastes (approximately 1977) may include waste generated from final processing and recovery operations.

Recovery Method: Plastics contaminated with above-discard amounts of plutonium were leached with nitric acid, ultrasonically cleaned, and dried prior to packaging.

Waste Packaging and Handling: Wastes are packaged in 1-gallon, plastic-coated cardboard cartons, each carton labeled for content and placed in a polyethylene bag. The bag is sealed with tape. Each carton of waste is then assayed for plutonium content and bagged out of the glovebox line into a PVC or polyethylene "sleeve" bag. The sleeve bag, which contains up to five cartons of waste, is sealed with tape and placed into a prepared waste drum. Up to eight sleeve bags will fit into a drum.

Drum Preparation: Each 55-gallon drum is lined with a 90-mil rigid polyethylene drum liner. The drum liner is lined with a polyethylene drum bag. After being filled with waste packages, the drum bag is sealed with tape and the rigid liner lid is installed. Plywood spacers (1/4 to 3/4 in. thick) are placed between the rigid liner lid and the drum lid before the drum lid is installed.

Assay: Each carton of waste is assayed prior to its removal from the glovebox line. Assay information for each waste drum is obtained by cumulating the assay results for all cartons placed in the drum.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

W. H. Bond
A. B. Combs
T. C. Elswick
R. L. Goss
W. R. Harold

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		210	0
Container Weight (lb)	Maximum:	209	
	Minimum:	81	
	Average:	112	
Contact Dose Rate (mR/h)	<10:	207	
	10-200:	3	
	Maximum:	20.1	
	Minimum:	0.2	
	Average:	1.5	

Information (1971-81)		Drums	Boxes
Radionuclide Inventory			
^{238}Pu (g)	Maximum:	11.0	
	Minimum:	0.4	
	Average:	1.2	
^{239}Pu (g)	Maximum:	0.0	
	Minimum:	0.0	
	Average:	0.0	

Waste Form Evaluation:

Gas Generation--Organic content may exceed 14 lb/ft^3. Some gas generation may occur. Pressurized drums will be vented prior to shipping.

Combustibles--Waste will generally contain more than 25 volume percent combustibles. Color coding will be required for these containers.

Immobilization--No significant amounts of respirable or dispersible fines have been identified in this waste.

Sludges--This waste contains no identified sludges.

Free Liquid--The waste is dry when packaged. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixture, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable. Color coding for combustible content may be required.

3.81 Content Code 805

Content Description: Asbestos Filters

Generator: Mound Laboratory

Waste Description: Content Code 805 waste containers primarily consist of 6 in. high x 6 in. diameter and 6 in. high x 3 in. diameter high efficiency particulate air (HEPA) filters. Other filter sizes may be included. The majority of filters have pressed hardboard frames and asbestos filter media. Some filters may have metal frames. Wastes may include limited amounts of other combustibles (see Content Codes 803, 810, 811, 813, 814, 825, and 832).

Generation Source: Primarily from decontamination and decommissioning operations at the Plutonium Processing and Research buildings. Early wastes (1977) may include waste generated from final processing and recovery operations.

Recovery Method: Filters contaminated with above-discard amounts of plutonium were split and the filter media were leached with nitric acid. The media were dried prior to packaging.

Waste Packaging and Handling: Wastes are packaged in 1-gallon, plastic-coated cardboard cartons (one or two filters per carton, depending on size). Each carton is labeled for content and placed in a polyethylene bag, which is sealed with tape. Each carton of waste is then assayed for plutonium content and bagged out of the glovebox line into a PVC or polyethylene "sleeve" bag. The sleeve bag, which will contain up to five cartons of waste, is sealed with tape and placed into a prepared waste drum. Up to eight sleeve bags will fit into a drum.

Filter media generated from recovery operations were placed in a plastic bag and packaged as previously described.

Drum Preparation: Each 55-gallon drum is lined with a 90-mil rigid polyethylene drum liner. The drum liner is lined with a polyethylene drum bag. After being filled with waste packages, the drum bag is sealed with tape.

Assay: Each carton of waste was assayed prior to removal from the glovebox line. Assay information for each waste drum was obtained by cumulating the assay results for all cartons placed in the drum.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

W. H. Bond
A. B. Combs
T. C. Elswick
W. R. Harold

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		34	0
Container Weight (lb)	Maximum:	198	
	Minimum:	85	
	Average:	145	
Contact Dose Rate (mR/h)	<10:	16	
	10-200:	18	
	Maximum:	110.0	
	Minimum:	0.1	
	Average:	16.9	

Information (1971-81)		Drums	Boxes
Radionuclide Inventory			
^{238}Pu (g)	Maximum:	16.7	
	Minimum:	0.1	
	Average:	6.4	
^{239}Pu (g)	Maximum:	3.0	
	Minimum:	0.0	
	Average:	1.1	

Waste Form Evaluation:

Gas Generation--Organic content is less than 14 lb/ft^3.

Combustibles--Waste should contain less than 25 volume percent combustibles.

Immobilization--The possibility exists that significant amounts of respirable or dispersible fines exist in the waste. Fines would be in the form of particles adhering to the filter media.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste is dry when packaged. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic materials (49CFR173, Subpart H) have been identified in this waste. Some residual nitric acid may exist in the waste. Corrosion protection is provided by plastic used for containment of the waste.

Certification Assessment: At present, this waste cannot be certified due to the lack of information concerning the quantity and size of particulate materials adhered to the filters.

3.82 Content Code 810

Content Description: Glass, Flasks, Sample Vials, etc.

Generator: Mound Laboratory

Waste Description: Content Code 810 waste containers primarily consist of whole and broken glassware and glass vials. The majority of the glassware is Pyrex (trademark). Limited amounts of other noncombustible wastes (see Content Codes 803, 805, 811, 813, 814, 826, and 832) may also be present.

Generation Source: Primarily from the Plutonium Processing (PP) Analytical Laboratory. Early wastes (1977) may include waste generated from final processing and recovery operations at PP Building.

Recovery Method: Nitric acid leach.

Waste Packaging and Handling: Glassware is usually broken into pieces (approximately 1 in. diameter) to increase packaging efficiency. The glassware is then packaged in 1- or 2-quart metal cans with press-on lids. Each can is labeled for content and placed in a polyethylene bag, which is sealed with tape. Each can of waste is then assayed for plutonium content and bagged out of the glovebox line into a PVC or polyethylene "sleeve" bag. The sleeve bag, which contains up to five cans of waste, is sealed with tape and placed into a prepared waste drum. Up to eight sleeve bags will fit into a drum.

Drum Preparation: Each 55-gallon drum is lined with a 90-mil rigid polyethylene drum liner. The drum liner is lined with a polyethylene drum bag. After being filled with waste packages, the drum bag is sealed with tape and the rigid drum liner lid is installed. Plywood spacers (1/4 to 3/4 in. thick) are placed between the rigid liner lid and the drum lid before the drum lid is installed.

Assay: Each can of waste is assayed prior to its removal from the glovebox line. Assay information for each waste drum is obtained by cumulating the assay results for all cans placed in the drum.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

W. H. Bond
T. C. Elswick
R. L. Goss

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		13	0
Container Weight (lb)	Maximum:	211	
	Minimum:	94	
	Average:	164	
Contact Dose Rate (mR/h)	<10:	4	
	10-200:	9	
	Maximum:	55.0	
	Minimum:	0.5	
	Average:	20.8	

Information (1971-81)		Drums	Boxes
Radionuclide Inventory			
^{238}Pu (g)	Maximum:	16.1	
	Minimum:	1.4	
	Average:	7.3	
^{239}Pu (g)	Maximum:	3.0	
	Minimum:	0.0	
	Average:	1.4	

Waste Form Evaluation:

Gas Generation--This waste is inert and will not represent a gas generation potential. The organic content, including packaging, is expected to be less than 14 lb/ft^3.

Combustibles--Including packaging, this waste contains less than 25 volume percent combustibles. Color coding will not be required.

Immobilization--This waste may contain some fines from broken glass, but is not expected to exceed the WIPP-WAC limits for respirable or dispersible fines.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste is dry when packaged. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste form.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

3.83 Content Code 811

Content Description: Evaporator and Dissolver Sludge

Generator: Mound Laboratory

Waste Description: Waste primarily consists of dry evaporator and dissolver sludge generated from various processing and recovery operations. The consistency of the sludge or insoluble residue generated from these operations will range from powder to sand-like particles. Limited amounts of other noncombustible wastes (see Content Codes 803, 805, 810, 813, 814, 826, and 832) may be included.

Generation Source: Plutonium Processing Building. Waste drums labeled as Content Code 811 were shipped to the INEL in 1977 only.

Recovery Method: None. Sludge was generated as a byproduct of processing and recovery operations.

Waste Packaging and Handling: The insoluble residue or sludge removed from the bottom of dissolver pots was rinsed with 0.35N HNO_3 and dried on a hotplate. Dried sludges were either packaged in 1/2-gallon metal cans, each can labeled for content; or in 1/2-gallon metal cans, each can then placed into a 1-gallon, plastic-coated cardboard carton, which was labeled for content. In either case, the can or carton was placed in a polyethylene bag, which was sealed with tape. Each container of waste was then assayed for plutonium content and bagged out of the glovebox line into a PVC or polyethylene "sleeve" bag. The sleeve bag, which contains up to five containers of waste, was sealed with tape and placed into a prepared waste drum. Up to eight sleeve bags will fit into a drum.

Drum Preparation: Each 55-gallon drum was lined with a 90-mil rigid polyethylene drum liner. The drum liner was lined with a polyethylene drum bag. After being filled with waste packages, the drum bag was sealed with tape and the rigid drum liner lid was installed. Plywood spacers (1/4 to

3/4 in. thick) were placed between the rigid drum liner lid and the drum lid before the drum lid was installed.

Assay: Each carton or can of waste was assayed prior to removal from the glovebox line. Assay information for each waste drum was obtained by cumulating the assay results for all containers placed in the drum.

Inspection: Each waste-generating area was responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers were then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Exceptions: Approximately one to three 1-gallon cartons of beryllium-contaminated wastes (glass, paper, gloves, and sample precipitates) are generated each year by analytical operations. The unsegregated wastes, which were labeled as Content Code 811, were packaged as previously described. Each carton contains less than 0.05 g (estimated) of beryllium.

Waste Generator Contacts:

W. H. Bond
R. L. Goss
W. R. Harold

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		4	0
Container Weight (lb)	Maximum:	182	
	Minimum:	156	
	Average:	167	

Information (1971-81)		Drums	Boxes
Contact Dose Rate (mR/h)	<10:	1	
	10-200:	3	
	Maximum:	26.0	
	Minimum:	4.1	
	Average:	16.9	
Radionuclide Inventory			
^{238}Pu (g)	Maximum:	15.8	
	Minimum:	3.7	
	Average:	9.7	
^{239}Pu (g)	Maximum:	3.0	
	Minimum:	1.0	
	Average:	2.0	

Waste Form Evaluation:

Gas Generation--Organic content is expected to be less than 14 lb/ft^3 per drum.

Combustibles--Including packaging, this waste contains less than 25 volume percent combustibles. Color coding will not be necessary.

Immobilization--This waste contains packaged powders and fines that may exceed the WIPP-WAC limits for respirable or dispersible fines. Each carton of Content Code 811 waste may contain up to an estimated 2 pounds of evaporator and dissolver sludge.

Sludges--This waste form contains no identified wet sludges. All sludges were dry when packaged.

Free Liquid--The waste was dry when packaged. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: This waste form is uncertifiable due to the lack of sufficient information concerning particulate size. Any drums or boxes containing Content Code 811 sludge will be considered uncertifiable. The following is a list of drums and boxes that contain cartons of Content Code 811 waste:

Box Number	Cartons of 811 Waste/Box	Shipment Number
72	4	37
78	5	
79	2	
80	2	
108	1	
112	5	
85	3	38
102	1	

Drum Number	Cartons of 811 Waste/Drum	Shipment Number
1645 CD 76	1	34
1646 CD 76	1	
1655 CD 76	1	
1666 CD 76	1	
1667 CD 76	1	
1674 CD 76	1	
1679 CD 76	1	
1689 CD 76	3	
1690 CD 76	5	
1695 CD 76	3	

Drum Number	Cartons of 811 Waste/Drum	Shipment Number
13500 CD 76	1	36
13513 CD 76	1	
13519 CD 76	5	
13520 CD 76	5	
13521 CD 76	6	
13523 CD 76	2	
13524 CD 76	1	
13530 CD 76	1	
13531 CD 76	1	
13532 CD 76	1	
13533 CD 76	2	
13537 CD 76	3	
13545 CD 76	2	
13553 CD 76	1	
13592 CD 76	3	
13593 CD 76	1	
13594 CD 76	5	
13597 CD 76	2	
13601 CD 76	1	
13603 CD 76	1	
13607 CD 76	2	
13610 CD 76	1	
1658 CD 76	2	39
13710 CD 76	6	
13757 CD 76	8	
13764 CD 76	10	
13765 CD 76	5	
13766 CD 76	8	
13791 CD 76	7	42
13802 CD 76	2	
13812 CD 76	4	
13815 CD 76	3	
13830 CD 76	1	
13780 CD 76	7	
13783 CD 76	4	
13786 CD 76	12	
13813 CD 76	1	
13851 CD 76	2	43
13856 CD 76	2	
13857 CD 76	1	
13861 CD 76	2	
13836 CD 76	1	
13882 CD 76	4	46
13560 CD 76	2	
13565 CD 76	1	

Drum Number	Cartons of 811 Waste/Drum	Shipment Number
13566 CD 76	1	
13605 CD 76	2	
13758 CD 76	5	
13831 CD 76	1	
13883 CD 76	3	
13894 CD 76	4	
13895 CD 76	1	
13896 CD 76	1	
13941 CD 76	1	49
13891 CD 76	2	
13930 CD 76	2	
13946 CD 76	3	
13954 CD 76	3	
13965 CD 76	2	
13973 CD 76	4	57
13911 CD 76	1	
14006 CD 76	2	

3.84 Content Code 812

Note: Content code is not listed in the INEL-TCWCIS

Content Description: Spent Ion Exchange Resin

Generator: Mound Laboratory

Waste Description: Waste consists of spent ion exchange resins generated from plutonium recovery operations. The resin was an organic-based polymer produced by Dow Chemical Company. A total of 28 cartons of resin waste have been shipped to the INEL. The cartons of waste were placed in drums containing other combustible wastes (see Content Codes 801, 802, and 804). Content Code 812 does not appear in INEL records due to the small volume of resin waste generated.

Generation Source: Believed to be the Plutonium Processing (PP) Building. Waste was generated from recovery operations and was shipped as a result of direct recovery operations and/or during decontamination and decommissioning operations at the PP Building.

Record Information: None available for Content Code 812 wastes.

Waste Packaging and Handling: It is believed all resin waste was washed with water before packaging. Resin waste was usually packaged in 1-gallon, plastic-coated cardboard cartons. Each carton was labeled for content and placed in a polyethylene bag, which was sealed with tape. Each carton was then assayed for plutonium content and bagged out of the glovebox line into a PVC or polyethylene "sleve" bag. The sleeve bag, which contains up to five cartons of waste, was sealed with tape and placed into a prepared waste drum. Up to eight sleeve bags will fit into a drum.

Drum Preparation: Each 55-gallon drum was lined with a 90-mil rigid polyethylene drum liner. The drum liner was lined with a polyethylene drum bag. After being filled with waste packages, the drum bag was sealed with tape.

Assay: Each carton of waste was assayed prior to removal from the glovebox line. Assay information for each waste drum was obtained by cumulating the assay results for all cartons placed in the drum.

Inspection: Each waste-generating area was responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers were then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

A. B. Combs
T. C. Elswick

Waste Form Evaluation and Certification Assessment: At present, drums containing resin waste are not certifiable due to lack of information concerning the stability of the resin waste. During recovery operations, the resins were exposed to various concentrations of nitric acid. It is believed the resin wastes were washed in water before packaging. It is not presently possible to determine if the resin waste represents a hazard. A record search conducted by Mound located the 28 cartons of resin waste in the following containers:

Container Identification[a]	Cartons/Drums	Shipment Number
Drum 13667 CD 76	9	34
Drum 13562 CD 76	1	36
Drum 13689 CD 76	1	

Container Identification[a]	Cartons/Drums	Shipment Number
Box 76	4	37
Box 109	2	
Box 113	9	38
Drum 13856 CD 76	1	43
Drum 13965 CD 76	1	49
Total	28	

a. The boxes contain waste drums (up to five drums/box). The drums contain a mixture of combustible and noncombustible line-generated wastes in cartons.

3.85 Content Code 813

Content Description: Glass Filters and Fiberglass

Generator: Mound Laboratory

Waste Description: Content Code 813 drums will primarily consist of spun-glass filters (10 in. length x 3 in. diameter) used to filter solutions and fiberglass prefilters (6 in. diameter x 0.5 in. thick) on gloveboxes. Limited amounts of other noncombustible wastes (see Content Codes 803, 805, 810, 811, 814, 826, and 832) may be included.

Generation Source: Plutonium Processing Building.

Recovery Method: Nitric acid leach.

Waste Packaging and Handling: Wastes are packaged in 1-gallon, plastic-coated cardboard cartons, each carton labeled for content and placed in a polyethylene bag, which is sealed with tape. Each carton of waste is then assayed for plutonium content and bagged out of the glovebox line into a PVC or polyethylene "sleeve" bag. The sleeve bag, which contains up to five cartons of waste, is sealed with tape and placed into a prepared waste drum. Up to eight sleeve bags fit into a drum.

Drum Preparation: Each 55-gallon drum is lined with a 90-mil rigid polyethylene drum liner. The drum liner is lined with a polyethylene drum bag. After being filled with waste packages, the drum bag is sealed with tape and the rigid drum liner lid is installed. Plywood spacers (1/4 to 3/4 in. thick) are placed between the rigid liner lid and the drum lid before the drum lid is installed.

Assay: Each carton of waste is assayed prior to removal from the glovebox line. Assay information for each waste drum is obtained by cumulating the assay results for all cartons placed in the drum.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

A. B. Combs
T. C. Elswick
R. L. Goss

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		3	0
Container Weight (lb)	Maximum:	182	
	Minimum:	88	
	Average:	121	
Contact Dose Rate (mR/h)	<10:	1	
	10-200:	2	
	Maximum:	105.0	
	Minimum:	6.0	
	Average:	58.5	
Radionuclide Inventory			
^{238}Pu (g)	Maximum:	13.0	
	Minimum:	2.8	
	Average:	9.5	
^{239}Pu (g)	Maximum:	3.0	
	Minimum:	1.0	
	Average:	2.3	

Waste Form Evaluation:

Gas Generation--The glass and fiberglass filters are inert and will not represent a gas generation potential. The organic content is expected to be less than 14 lb/ft^3.

Combustibles--Including packaging, this waste contains less than 25 volume percent combustibles. Color coding will not be necessary.

Immobilization--Prefilters will contain some particulate material. The amount of particulate is not expected to exceed the WIPP-WAC limits for respirable or dispersible fines.

Sludges--This waste form contains no identified sludges.

Free Liquid--This waste may contain some damp spun-glass filters. Free liquids are not expected.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

3.86 Content Code 814

Content Description: Current description in the INEL-TCWCIS is listed as contaminated mercury. Information provided by Mound Laboratory indicates that the drums contain cartons of graphite waste.

Generator: Mound Laboratory

Waste Description: Waste consists of graphite crucibles and electrodes used in analytical procedures. The crucibles are approximately 1/2 in. diameter by 3/4 in. high. The graphite electrodes are in the shape of rods that are approximately 1/8 in. diameter by approximately 1 in. length (electrode lengths may vary).

Generation Source: Analytical Laboratory at Plutonium Processing Building.

Recovery Method: None identified.

Waste Packaging and Handling: Graphite crucibles and electrodes are packaged in 1-gallon, plastic-coated cardboard cartons and/or 1/2-gallon metal cans, and bagged out of the glovebox in plastic bags. Each metal can might have been placed inside a larger can and the larger can lid then sealed to the can with a roll seam. Waste cans or cartons were then placed into prepared waste drums. Two Content Code 814 waste drums were shipped to the INEL in 1978. Each drum contains four cartons and/or cans of graphite waste. No other wastes were included.

Drum Preparation: Each 55-gallon drum is lined with a 90-mil rigid polyethylene drum liner and the drum liner was lined with a polyethylene drum bag. After being filled with waste packages, the drum bag is sealed with tape and the rigid drum liner is installed. Plywood spacers (1/4-3/4 in. thick) are placed between the rigid liner lid and the drum lid before the drum lid is installed.

Assay: Drums are assayed for plutonium content at the T-Building drum counter.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contact:

R. Sieler

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		2	0
Container Weight (lb)	Maximum:	158	
	Minimum:	110	
	Average:	134	
Contact Dose Rate (mR/h)	<10:	2	
	10-200:	0	
	Maximum:	0.5	
	Minimum:	0.4	
	Average:	0.4	
Radionuclide Inventory			
^{239}Pu (g)	Maximum:	84.0	
	Minimum:	27.0	
	Average:	55.5	
^{240}Pu (g)	Maximum:	5.0	
	Minimum:	2.0	
	Average:	3.5	

Waste Form Evaluation:

Gas Generation--Organic content should be less than 14 lb/ft^3. The graphite crucibles and electrodes are inert and not subject to gas generation.

Combustibles--Waste is 100% combustible. Color coding will be required.

Immobilization--Respirable and dispersible fines should not be present in amounts that exceed WIPP-WAC limits.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste is dry when packaged. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable. Color coding for combustible content will be required.

3.87 Content Code 824

Content Description: Equipment Boxes

Generator: Mound Laboratory

Waste Description: Waste primarily consists of large, noncombustible wastes such as tanks (stainless steel and tantalum), piping, ducting, conduit, electric motors, pumps, metallurgical presses, lathes, dissolvers, evaporators, furnaces, ladders, vacuum sweepers, 24 x 24 x 12-in. high efficiency air particulate (HEPA) filters, fume hoods, gloveboxes, Plexiglas glovebox windows, and floor tile. Limited amounts of combustible wastes (plastic tanks, fiberglass gloveboxes, plastic contamination control tents, etc.) have also be included in the waste.

Generation Source: Waste shipped to the INEL in 1975 and through mid- or late-1977 was primarily generated from normal operations and general maintenance at the Plutonium Processing (PP) and Research (R) buildings. Since then, the majority of waste has been generated from decontamination and decommissioning operations at PP and R buildings.

Recovery Method: Equipment is usually wiped clean with wet rags. The rags are either incinerated and the ash is processed offsite for plutonium recovery or packaged as combustible waste, depending on contamination levels.

Waste Packaging and Handling: All waste items are either packaged in standard size or oversize boxes. Only stainless steel glovebox sections are packaged in oversize boxes.

Standard Size Boxes Standard size boxes (4 x 4 x 7 ft) are used for packaging all large waste items except stainless steel glovebox sections that require larger boxes. Waste items are generally single- or double-contained in plastic before placement in a box. Some waste items, such as pipes or tanks, are closed or the ends sealed and placed directly into the waste box. All liquids, such as lubricants and oils, are drained from pumps, lathes, etc. Between 50 to 100 pounds of Florco absorbent is placed on the bottom of each standard box as a precautionary measure to absorb any liquid. Some waste boxes may contain a single heavy piece of equipment and polyurethane foam. The foam is used to provide shoring. Standard boxes that contain gloveboxes are packaged as described below (see oversize boxes).

A limited number of waste boxes will contain smaller plywood boxes of various sizes. The smaller boxes are used for easier handling of smaller waste items and greater contamination controls, when necessary. Up to six smaller boxes may be found in a standard box.

In 1977, 18 standard-size boxes containing a total of 74 55-gallon drums (up to five drums/box) were shipped to the INEL (Shipments 37 and 38). The drums contain cartons and cans of combustible and noncombustible line-generated wastes. The drums were placed in boxes because of high ^{238}Pu content or because the drum or drum liner was rejected by quality assurance. Polyurethane foam was sprayed onto the box bottom to provide shoring for the drums. The following information concerning the type of waste included in the boxes was provided:

	Total Cartons/Shipment	
Content Code	Shipment 37 (11 Boxes)	Shipment 38 (7 Boxes)
801	69	38
802	226	153
803	141	68
804	390	243
805	118	84
810	49	23
811	19	4
812	6	9
813	45	30
Total	1063	652

Oversize Boxes: Oversize boxes are used for packaging large sections of stainless steel gloveboxes. All equipment is removed from the glovebox (with the exception of Box #241 in which the glovebox has two attached tanks) and the glovebox interior is coated with approximately 2-3/4 in. of polyurethane foam to "fix" the contamination.

The glovebox is then cut, or, if possible, unbolted from the glovebox line. If the glovebox is cut from the glovebox line, a piece of 16-gauge sheet metal is sealed to the exposed end of the glovebox with rubber cement and tape. Glovebox sections are either placed directly into a prepared waste box or wrapped in one or more layers of plastic, depending on contamination levels. Polyurethane foam is sprayed into the corners of the waste box for shoring and on top of the glovebox at the center-point to provide support for the waste box lid. The foam is allowed to cure for approximately 16 hours before the box is sealed. No waste items are placed inside the gloveboxes.

Box Preparation: All plywood waste boxes are coated with fiberglass-reinforced polyester. Florco absorbent (Floridin Company product) is added to any waste box that contains, or is suspected of containing, damp waste. Prior to 1981, standard boxes (4 x 4 x 7 ft) were lined with a plastic liner and then a corrugated cardboard liner. Use of the cardboard liner ceased in 1981. As previously described, polyurethane foam is used for shoring in oversize boxes and some standard-size boxes.

Four different oversize boxes are used for packaging glovebox sections. The dimensions of the boxes are as follows:

Oversize Box Type	Width	Height	Length
I	5 ft, 11-1/2 in.	9 ft	11 ft, 4-1/2 in.
III	5 ft, 1/2 in.	8 ft, 8-1/2 in.	9 ft, 1/2 in.
IV	4 ft	5 ft, 6 in.	8 ft
V	5 ft, 1/2 in.	5 ft, 2-1/8 in.	8 ft, 7-1/2 in.

Oversize boxes are not lined with plastic or cardboard liners.

Assay: Boxes are assayed for plutonium content at the Building 39 box counter. Assay values for boxes containing drums were obtained by cumulating the assay information for each drum placed in a box.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

A. B. Combs
T. C. Elswick
D. R. Fidler
D. R. Hopkins

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		0	201
Container Weight (lb)[a]	Maximum:		7050
	Minimum:		983
	Average:		2500
Contact Dose Rate (mR/h)	<10:		195
	10-200:		6
	Maximum:		130.4
	Minimum:		0.0
	Average:		2.2

Information (1971-81)		Drums	Boxes
Radionuclide Inventory			
^{238}Pu (g)	Maximum:		44.7
	Minimum:		0.0
	Average:		3.8
^{239}Pu (g)	Maximum:		8.0
	Minimum:		0.0
	Average:		0.6

a. Approximate values.

Waste Form Evaluation:

Gas Generation--Organic content may exceed 6 lb/ft^3 for boxes containing plastic tanks, fiberglass gloveboxes, etc.

Combustibles--Some waste boxes will contain in excess of 25 volume percent combustibles; color coding will be required.

Immobilization--A limited number of boxes may be filled with HEPA filters. These boxes may exceed the WIPP-WAC limits for respirable or dispersible fines. Boxes containing limited numbers of filters are not expected to exceed WIPP-WAC limits for fines.

Sludges--This waste contains no identified sludges.

Free Liquid--The waste is usually dry when packaged. Florco absorbent is added to the waste container if the waste is suspected of containing damp waste. No free liquids should be present.

Explosives/Compressed Gases--No explosives (49CFR173, Subpart C) have been identified in this waste. Gas cylinders and aerosol cans have been identified as existing in this waste. Approximately 12 cylinders from R Building were placed in two or three boxes. The cylinders, which contained inert gases, were depressurized and the cylinder valves left in an open position. A limited number of aerosol cans have periodically been included in the waste. The cans were punctured before being placed in a waste container.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable with the following exceptions:

Any boxes filled with HEPA filters are presently uncertifiable due to lack of information concerning the quantity and size of particulate material adhered to the filters.

Some boxes contain drums of uncertifiable waste forms and are not certifiable. These boxes are identified under the appropriate content code (see Content Codes 811, 812, 826, and 832) assessments.

3.88 Content Code 825

Content Description: Equipment

Generator: Mound Laboratory

Waste Description: Waste primarily consists of noncombustible wastes such as small tanks, dissolvers, motors, pumps, piping, small valves, tools, hotplates, presses, grinders, metallurgical polishers, ringstands, concrete, floor tile, sheet metal, vacuum sweeper filters, sweeper hose, and glass. The wastes are similar to Content Code 824, but are smaller and are packaged in drums. Limited amounts of combustible wastes, such as plastic tanks, will be present.

See "Exceptions" for information concerning the single box of waste.

Generation Source: Majority of waste is generated from normal maintenance and decontamination and decommissioning operations at the Plutonium Processing Building, and lesser amounts are from the Research Building.

Recovery Method: None.

Waste Packaging and Handling: Some waste items are wiped down with damp rags prior to packaging. Waste items are usually packaged in one or two plastic bags when they are removed from the glovebox line. Each bag is sealed with tape before being placed in a prepared waste drum.

Drum Preparation: Each 55-gallon drum is lined with a 90-mil rigid polyethylene drum liner. The drum liner is then lined with a polyethylene drum bag. Approximately 20 to 25 pounds of Florco (Floridin Company product) absorbent is placed on the bottom of the drum bag as a precautionary measure before any waste is placed in the drum. After being filled with waste packages, the drum bag is sealed with tape and the rigid drum liner lid is installed. Plywood spacers (1/4 to 3/4 in. thick) are placed between the rigid drum liner lid and the drum lid before the drum lid is installed.

Assay: Each waste drum is assayed for plutonium content at the T Building drum counter.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Exceptions: In July 1981, a single standard-size box of waste (Box No. 250-BX-81) was labeled and shipped as Content Code 825 waste. The proper content code for the box is 824. Please refer to the Waste Content Code Assessment for Content Code 824 waste for additional information.

Waste Generator Contacts:

A. B. Combs
T. C. Elswick
D. R. Hopkins

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes[a]
Total Containers		169	1
Container Weight (lb)	Maximum:	672	1809
	Minimum:	85	1809
	Average:	194	1809
Contact Dose Rate (mR/h)	<10:	159	0
	10-200:	10	1

Information (1971-81)		Drums	Boxes [a]
	Maximum:	56.0	13.0
	Minimum:	0.1	13.0
	Average:	2.0	13.0
Radionuclide Inventory[b]			
^{238}Pu (g)	Maximum:	32.0	7.7
	Minimum:	0.0	7.7
	Average:	1.3	7.7
^{239}Pu (g)	Maximum:	2.0	2.0
	Minimum:	0.0	2.0
	Average:	0.1	2.0

a. See "Exceptions."

b. General information only; other isotopes present.

Waste Form Evaluation:

Gas Generation--Organic content is less than 14 lb/ft^3.

Combustibles--Waste contains less than 25 volume percent combustibles. Color coding will not be required.

Immobilization--Respirable and dispersible fines should not be present in amounts that exceed the WIPP-WAC limits.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste is usually dry when packaged. Florco absorbent is added to all waste drums. No free liquids should be present.

Explosives/Compressed Gases--No explosives or explosive mixtures (49CFR173, Subpart C) have been identified in this waste. Some waste drums may contain fire extinguishers or small gas cylinders. All cylinders were depressurized.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste form.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

3.89 Content Code 826

Content Description: Floor Sweepings/Rust

Generator: Mound Laboratory

Waste Description: Waste consists of glovebox floor sweepings and rust. Prior to 1981, Content Code 826 does not appear in INEL records due to the small volume of sweepings and rust waste generated. A total of 34 cartons of waste have been included in other noncombustible waste drums (see Content Codes 803, 805, 810, 811, 813, and 814).

Since 1980, Content Code 826 has been used for "Equipment Boxes--Combustible" wastes.

Generation Source: Believed to be the Plutonium Processing Building.

Record Information: None available for pre-1981 Content Code 826 wastes.

Recovery Method: Unknown.

Waste Packaging and Handling: Glovebox floor sweepings and rust were usually packaged in 1-gallon, plastic-coated cardboard cartons, each carton labeled for content and placed in a polyethylene bag, which was sealed with tape. Each carton of waste was then assayed for plutonium content and bagged out of the glovebox line into a PVC or polyethylene "sleeve" bag. The sleeve bag, which contains up to five cartons of waste, was sealed with tape and placed into a prepared waste drum. Up to eight sleeve bags will fit into a drum.

Drum Preparation: Each 55-gallon drum was lined with a 90-mil rigid polyethylene drum liner. The drum liner was lined with a polyethylene drum bag. After being filled with waste packages, the drum bag was sealed with tape.

Assay: Each carton of waste was assayed prior to its removal from the glovebox line. Assay information for each waste drum was obtained by cumulating the assay results for all cartons placed in the drum.

Inspection: Each waste-generating area was responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers were then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

A. B. Combs
T. C. Elswick

Waste Form Evaluation and Certification Assessment: Drums containing floor sweepings or rust may not be certifiable. Information concerning particle size distribution or the weight of waste contained in a single carton is not available. A record search conducted by Mound located the 34 cartons of waste in the following drums:

Drum Number	Cartons/Drums	Shipment Number
13858 CD 76	1	43
13882 CD 76	1	46
13831 CD 76	1	
13883 CD 76	2	
13895 CD 76	8	
13896 CD 76	2	
13941 CD 76	1	49
13891 CD 76	2	
13910 CD 76	1	

Drum Number	Cartons/Drums	Shipment Number
13914 CD 76	2	
13915 CD 76	1	
13937 CD 76	2	
13946 CD 76	3	
13948 CD 76	1	
13949 CD 76	1	
13964 CD 76	1	57
13966 CD 76	1	
13979 CD 76	1	
13990 CD 76	2	
Total	34	

3.90 Content Code 826

Content Description: Equipment Boxes--Combustible

Generator: Mound Laboratory

Waste Description: Waste consists of large, combustible waste items such as plastic tanks, Plexiglas shielding and windows, wood, and fiberglass conveyor glovebox sections. The waste may also include limited amounts of smaller combustible items such as shoe covers and surgeons' gloves.

Prior to 1981, these types of wastes were included in Content Code 824, "Equipment Boxes." Content Code 826 was established to allow better segregation of large waste items.

It should be noted that two Content Code 826 drums were shipped to the INEL in 1981. Information provided by Mound indicates both drums were mislabeled. Correction to the proper content code will be made in the future. The drums will not be further addressed in this assessment.

Generation Source: Decontamination and decommissioning operations at the Plutonium Processing and Research buildings.

Recovery Method: None.

Waste Packaging and Handling: Waste items such as plastic tanks or fiberglass conveyor gloveboxes are rinsed out with water or wiped down with damp rags. Wastes are usually contained in one or more plastic bags or wrapped in one or more layers of plastic sheeting before being placed into prepared waste boxes. Some waste items may be placed directly into prepared boxes without additional containment, depending on contamination levels.

Box Preparation: All boxes are standard-size (4 x 4 x 7 ft) waste boxes coated with fiberglass-reinforced polyester. Each box is lined with plastic. Approximately 50 to 100 pounds of Florco absorbent (Floridin Company product) are then placed in the bottom of the box if the waste is suspected of being damp.

Assay: All boxes are assayed for plutonium content at the Building 39 box counter.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

A. B. Combs
D. R. Fidler
D. R. Hopkins

Record Information: INEL-TCWCIS

Information (1971-81)		Boxes	Drums
Total Containers		7	0
Container Weight (lb)	Maximum:	2325	
	Minimum:	1318	
	Average:	1863	
Contact Dose Rate (mR/h)	<10:	7	
	10-200:	0	
	Maximum:	0.5	
	Minimum:	0.1	
	Average:	0.4	

Information (1971-81)		Boxes	Drums
Radionuclide Inventory			
^{238}Pu (g)	Maximum:	0.1	
	Minimum:	0.0	
	Average:	0.07	
^{239}Pu (g)	Maximum:	0.0	
	Minimum:	0.0	
	Average:	0.0	

Waste Form Evaluation:

Gas Generation--Organic content of the waste exceeds 6 lb/ft^3.

Combustibles--Waste is 100% combustible. Color coding will be required.

Immobilization--No respirable or dispersible fines have been identified in this waste.

Sludges--This waste contains no identified sludges.

Free Liquid--The waste is usually dry when packaged. Absorbent is placed in the box if the waste is damp. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste form.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable. Color coding for combustible content will be required.

3.91 Content Code 832

Content Description: Contaminated Mercury

Generator: Mound Laboratory

Waste Description: Content Code 832 is not listed in the INEL-TCWCIS due to the small amount of waste generated. Cartons of mercury waste were placed in other noncombustible waste drums (see Content Codes 803, 805, 810, 811, 813, 814, and 826). A total of 61 cartons of contaminated elemental mercury have been included in wastes shipped to the INEL.

Generation Source: Plutonium Processing Analytical Laboratory.

Record Information: None available for Content Code 832 wastes.

Recovery Method: None.

Waste Packaging and Handling: The mercury is contained in plastic bottles (probably pint size) inside 1/2-gallon metal cans. Some of the bottles might have been placed inside 1-gallon, plastic-coated cardboard cartons. In either case, the can or carton was labeled for content and placed in a polyethylene bag, which was sealed with tape. Each container of waste was then assayed for plutonium content and bagged out of the glovebox line into a PVC or polyethylene "sleeve" bag. The sleeve bag, which contains up to five containers of waste, was sealed with tape and placed into a prepared waste drum. Up to eight sleeve bags will fit into a drum.

Drum Preparation: Each 55-gallon drum was lined with a 90-mil rigid polyethylene drum liner. The drum liner was lined with a polyethylene drum bag. After being filled with waste packages, the drum bag was sealed with tape.

Assay: Each carton of waste was assayed prior to removal from the glovebox line. Assay information for each waste drum was obtained by cumulating the assay results for all cartons placed in the drum.

Inspection: Each waste-generating area was responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers were then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

R. L. Goss

Waste Form Evaluation and Certification Assessment: Drums containing mercury waste will not be certifable since the free liquid criterion cannot be met. A record search conducted by Mound located the 61 cartons of mercury waste in the following drums:

Drum Number	Cartons/Drums	Shipment Number
13714 CD 76	2	36
13593 CD 76	1	
13594 CD 76	2	
13597 CD 76	2	
13601 CD 76	3	
13603 CD 76	2	
13610 CD 76	3	
13615 CD 76	1	
13620 CD 76	5	
13637 CD 76	5	
13579 CD 76	6	39
13632 CD 76	1	
13746 CD 76	1	
13766 CD 76	3	
13767 CD 76	2	

Drum Number	Cartons/Drums	Shipment Number
13791 CD 76	1	42
13783 CD 76	1	
13786 CD 76	1	
13805 CD 76	1	
13740 CD 76	2	43
13855 CD 76	1	
13856 CD 76		
13605 CD 76	3	46
13631 CD 76	1	
13720 CD 76	3	
13910 CD 76	1	49
13914 CD 76		1
13990 CD 76	1	57
Total	61	

3.92 Content Code 834

Content Description: High Level Acid

Generator: Mound Laboratory

Waste Description: Waste consists of contaminated acidic liquid waste absorbed on clay (Floridin Company product Florco).

Generation Source: Acidic liquid waste was primarily generated from processing and recovery operations at the Plutonium Processing (PP) Building and was processed at the Waste Solidification facility. Recovery operations ended in late 1975 and the volume of acidic liquid waste has greatly decreased since then. Since December 1976, any acidic liquid wastes have been combined with caustic liquid wastes for processing (see Content Code 835). It should be noted that waste drums containing absorbed acidic wastes have been shipped to the INEL since 1976. These drums were generated by the same operations, as previously described, during 1974 to 1975 but were stored at Mound for repackaging due to pressurization problems.

Limited amounts of acidic waste are generated and processed at the Research Building.

Waste Form: An estimated 95% of all acidic waste is HNO_3 with trace amounts of HF, HCl, H_2SO_4 and oxalic acids.

Florco absorbent is a naturally occurring clay called Montmorillonite wi.. a blend of Attapulgite. The clay is an aluminum-magnesium-iron silicate with traces of other metals. The density of Florco is 26 to 28 lbs/ft^3. The absorptive capacity of Florco is 0.99 liters/kg (17.7 gallons of liquid waste/150 lb), based on small-scale experiments.

Particle-size analysis of Florco indicates approximately 0.7% is less than 200 μm and 0.0% is less than 10 μm in diameter.

Recovery Method: Acidic liquids are required to contain discardable amounts of plutonium before processing and absorption.

Waste Packaging and Handling:

Waste Solidification Facility (July 1975 to December 1976): Each batch of acidic liquid waste was sampled for analytical determination of normality and ^{238}Pu content. After the analytical results were obtained, the liquid was transferred to a holding tank. The holding tank was vacuum or air "sparged" to ensure suspension of the plutonium throughout the liquid batch. After sparging, a 10-gallon aliquot was transferred into a calibrated tank and gravity-fed into a prepared 55-gallon drum. Each drum was filled with 150 pounds of Florco. After being filled, the drums were kept under negative pressure for a minimum of 16 hours for off-gassing before they were sealed.

Repackaged Drums: As previously discussed, acidic waste drums have been shipped to the INEL since 1976. These drums were generated during 1974 to 1975 but were stored at Mound for repackaging due to pressurization. Drum pressurization problems occurred from the use of a diatomaceous earth absorbent (trade name Auto-Dri and/or Dri-Rite) that contained calcium carbonate ($CaCO_3$). Reaction between $CaCO_3$ and the acidic liquid waste resulted in the production of primarily carbon dioxide (CO_2) gas. After the pressurization problem was identified, use of Auto-Dri and/or Dri-Rite was suspended; use of Florco, which does not contain $CaCO_3$, began in July 1975. Drums suspected of being pressurized were repackaged by dividing the contents of a drum into two drums and refilling each drum with Florco, storing the drums for approximately three months, rechecking for pressurization, and dividing the drum contents again if necessary. The final shipment of repackaged absorbed acidic waste drums was made in December 1980. They were stored during early 1981 at the INEL.

Research Building: Limited amounts of acidic and caustic wastes are currently being generated from ^{234}U separation projects. The liquid waste is absorbed on 1.5 pounds of Florco contained in a 1/2-gallon plastic (wide-mouth) bottle. Approximately 0.16 gallon (600 ml) of liquid waste is added to each bottle. Each bottle contains either acidic or caustic waste. Bottles are allowed to off-gas for a minimum of 16 hours before being capped. Each bottle is then placed in a plastic bag, which is sealed with tape and placed into a prepared waste drum. A total of 45 bottles fit into a drum. A drum filled prior to February 1982 may contain a mixture of absorbed acidic or caustic (see Content Code 835) bottles.

Since February 1982, all acidic wastes have been neutralized, made basic, and combined with caustic wastes before processing. These waste drums are shipped as Content Code 835.

Drum Preparation: Each 55-gallon drum is lined with a 90-mil rigid polyethylene drum liner. The drum liner is lined with a polyethylene drum bag. After addition of the liquid waste and the time allowed for off-gassing, the drum bag is sealed with tape and the rigid drum liner lid is installed. Plywood spacers (1/4 to 3/4 in. thick) are placed between the rigid liner lid and the drum lid before the drum lid is installed.

Assay: Liquid wastes are analyzed for plutonium content prior to processing. Assay values for each waste drum are based on the analytical results. Repackaged drums were assayed at the T Building drum counter.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

A. B. Combs
T. C. Elswich
D. R. Hopkins
P. L. Keister

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		901	0
Container Weight (lb)[a]	Maximum:	423	
	Minimum:	196	
	Average:	320	
Contact Dose Rate (mR/h)	<10:	896	
	10-200:	5	
	Maximum:	65.0	
	Minimum:	0.1	
	Average:	0.7	
Radionuclide Inventory			
^{238}Pu (g)	Maximum:	17.8	
	Minimum:	0.0	
	Average:	0.1	
^{239}Pu (g)	Maximum:	1.0	
	Minimum:	0.0	
	Average:	0.0	

a. Approximate values.

Waste Form Evaluation:

Gas Generation--Organic content is less than 14 lb/ft^3. Some older (1974-75) containers may be pressurized due to acid reaction with the absorbent. These drums may require venting. Drums received since July 1975 contain a different type of absorbent and should not have any gas generation problems.

Combustibles--Waste is not combustible.

Immobilization--Analysis shows that the absorbent does not have significant amounts of respirable or dispersible fines.

Sludges--None identified in this waste.

Free Liquid--The waste is absorbed on excess clay. Small-scale tests conducted by Mound determined the absorptive capacity of Florco to be 0.99 liters/kg Florco. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic materials (49CFR173, Subpart H) have been identified in this waste. The liquid waste absorbed on Florco is corrosive. Corrosion protection has been provided by the 90-mil rigid polyethylene drum liner and other plastic used for containment of the waste.

Certification Assessment: Waste is certifiable.

3.93 Content Code 835

Content Description: High Level Caustic

Generator: Mound Laboratory

Waste Description: Waste consists of contaminated caustic liquid waste absorbed on clay (Floridin Company product Florco).

Generation Source: Caustic liquid waste is primarily generated from the corrosive vapor scrubber system at the Plutonium Processing (PP) Building. The system is charged with a caustic solution (sodium hydroxide) to scrub acidic fumes from all PP operations. Since December 1976, any acidic liquid wastes have been combined with the caustic waste for processing (see Content Code 834). Caustic liquid wastes are processed at the Waste Solidification facility.

Limited amounts of caustic waste are generated and processed at the Research Building.

Waste Form: Caustic waste is primarily in the form of NaOH and limited amounts of $NH_4(OH)_2$. Since December 1976, acidic wastes (HNO_3, HF, HCl, etc.) have been combined and processed with caustic wastes.

Florco absorbent is a naturally occurring clay called Montmorillonite with a blend of Attapulgite. The clay is an aluminum-magnesium-iron silicate with traces of other metals. The density of Florco is 26 to 28 lbs/ft^3. The absorptive capacity is 17.7 gallons of liquid waste/150 pounds of Florco.

Particle size analysis of Florco indicates approximately 0.7% is less than 200 µm and 0.0% is less than 10 µm in diameter.

Recovery Method: Caustic liquids are required to contain discardable amounts of plutonium before processing.

Waste Packaging and Handling:

Waste Solidification Facility: Each batch of caustic liquid waste is sampled for analytical determination of normality and ^{238}Pu content. After the analytical results are obtained, the liquid is transferred to a holding tank. The holding tank is vacuum or air "sparged" to ensure suspension of the plutonium throughout the liquid batch. After the sparging, a 10-gallon aliquot is transferred into a calibrated tank and gravity-fed into a prepared 55-gallon drum. Each drum is filled with 150 pounds of absorbent clay (Floridin Company product Florco). After being filled, the drums are kept under negative pressure for a minimum of 16 hours for off-gassing before they are sealed.

Research Building: Limited amounts of acidic and caustic wastes are currently being generated from ^{234}U separation projects. The liquid waste is absorbed on 1.5 pounds of Florco contained in 1/2-gallon plastic (wide-mouth) bottles. Approximately 0.16 gallon (600 ml) of liquid waste is added to each bottle. Each bottle contains either acidic or caustic waste. Bottles are allowed to off-gas for a minimum of 16 hours before they are capped. Each bottle is then placed in a plastic bag, which is sealed with tape and placed into a prepared waste drum. A total of 45 bottles fit into a drum. A drum filled prior to February 1982 may contain a mixture of absorbed acidic and caustic (see Content Code 834) bottles.

Since February 1982, all acidic wastes have been neutralized, made basic, and combined with caustic wastes before processing. These waste drums are shipped as Content Code 835.

Drum Preparation: Each 55-gallon drum is lined with a 90-mil rigid polyethylene drum liner. The drum liner is lined with a polyethylene drum bag and filled with 150 pounds of Florco. After the liquid has been added and the drum allowed to off-gas, the drum bag is sealed with tape and the rigid drum liner lid is installed. Plywood spacers (1/4 to 3/4 in. thick) are placed between the rigid liner lid and the drum lid, and the drum lid is then installed.

Assay: Liquid wastes are analyzed for plutonium content prior to processing. Assay values for each waste drum are based on the analytical results.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

A. B. Combs
T. C. Elswick
D. R. Hopkins
P. L. Keister

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		1486	0
Container Weight (lb)[a]	Maximum:	632	
	Minimum:	317	
	Average:	330	
Contact Dose Rate (mR/h)	<10:	1486	
	10-200:	0	
	Maximum:	4.4	
	Minimum:	0.1	
	Average:	0.3	

Information (1971-81)		Drums	Boxes
Radionuclide Inventory			
^{238}Pu (g)	Maximum:	3.0	
	Minimum:	0.0	
	Average:	0.0	
^{239}Pu (g)	Maximum:	1.0	
	Minimum:	0.0	
	Average:	0.0	

a. Adjusted values.

Waste Form Evaluation:

Gas Generation--Organic content of the drums is less than 14 lb/ft^3.

Combustibles--Including packaging, this waste contains less than 25 volume percent combustibles. Color coding will not be necessary.

Immobilization--This waste form is not expected to contain respirable or dispersible fines in quantities that would exceed the WIPP-WAC limits, based on particle size analysis.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste is adsorbed on excess clay. Small-scale tests conducted by Mound determined the absorptive capacity of Florco to be 0.99 liters/kg Florco. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste form.

Toxic/Corrosive Materials--No toxic materials (49CFR173, Subpart H) have been identified in this waste. The liquid waste absorbed on Florco is an alkaline corrosive. Corrosion protection has been provided by the 90-mil rigid liner and other plastic used for containment of the waste.

Certification Assessment: Waste is certifiable.

3.94 Content Code 836

Content Description: High Level Sludge/Cement

Generator: Mound Laboratory

Waste Description: Waste consists of sludge solidified in cement. The sludge is generated from treatment of all low-level, alpha-contaminated liquid wastes (shower water and soap, decontamination water, cooling water, some acids and caustics, etc.) generated by Mound operations.

Generation Source: Liquid wastes are generated from the Plutonium Processing, Research, H (laundry), and Waste Disposal (WD) buildings. The waste is treated and cemented at WD Building.

Recovery Method: None.

Waste Packaging and Handling: Liquid wastes are collected in tanks, sampled for radioactivity, and prepared for treatment. The wastewater is treated with calcium chloride, amorphous carbon, and sodium hydroxide. The treated water is then pumped into a clariflocculator where the radionuclides and other impurities are removed by coprecipitation and absorption. The precipitate is collected as a sludge.

The sludge is dewatered and sampled for percent solids and radionuclide content. After being sampled, the sludge is prepared for disposal by solidification. Approximately 40 gallons of sludge are homogeneously mixed with 2 to 2-1/2 bags of Portland cement in a prepared waste drum. The sludge/cement mixture is cured for 24 hours before the drum is sealed. The physical form of the waste is a solid block or plug of hardened cement in a drum.

Drum Preparation: Each 55-gallon drum is lined with a 90-mil rigid polyethylene drum liner. The sludge and cement are added to the drum and mixed. After the sludge/cement mixture has cured, the rigid drum liner lid is installed. Plywood spacers (1/4 to 3/4 in. thick) are placed between the rigid liner lid and the drum lid, and the drum lid is then installed.

Assay: Assay values for waste drums are obtained from a homogenous sludge sample taken from each batch of sludge produced from the treatment process. The sample is assayed; the assay results are used to calculate the radionuclide content of all waste drums generated from solidification of the sludge batch.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Exceptions: Generally, sludge/cement drums weigh between 600 and 650 pounds. Periodically, light waste drums will be encountered. These drums will contain a small quantity of cemented sludge and plastic, paper, and gloves generated from cleanup operations.

Waste Generator Contacts:

R. L. Deaton
D. R. Hopkins
F. A. Traino

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		3760	0
Container Weight (lb)	Maximum:	767	
	Minimum:	134	
	Average:	628	

Information (1971-81)		Drums	Boxes
Contact Dose Rate (mR/h)	<10:	3760	
	10-200:	0	
	Maximum:	8.0	
	Minimum:	0.0	
	Average:	1.3	
Radionuclide Inventory[a]			
^{238}Pu (g)	Maximum:	8.0	
	Minimum:	0.0	
	Average:	0.0	
^{239}Pu (g)	Maximum:	257.0	
	Minimum:	0.0	
	Average:	0.1	

a. General information only; other radionuclides are present.

Waste Form Evaluation:

Gas Generation--Organic content is less than 14 lb/ft^3 in most drums. Waste drums that contain combustible waste from cleanup operations may contain more than 14 lb/ft^3 of organic material.

Combustibles--Majority of drums will contain less than 25 volume percent combustibles. Some waste drums may contain more than 25 volume percent combustibles and may require color coding.

Immobilization--No respirable or dispersible fines that would excee_ WIPP-WAC limits should exist in the waste.

Sludges--The waste sludge has been solidified with Portland cement. Corrosion protection is provided by the 90-mil rigid polyethylene drum liner.

Free Liquid--Portland cement is added to absorb any free liquids or moisture. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

3.95 Content Code 838

Content Description: <10 nCi/g Noncombustible

Generator: Mound Laboratory

Waste Description: Unknown. Information concerning the contents of the drum is not available. The drum was accidentally shipped to the INEL instead of to a commercial burial ground in 1975. Mound records indicate the drum contains combustible waste.

Waste Generator Contacts:

R. K. Blauvelt
D. R. Hopkins

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		1	0
Container Weight (lb)	Maximum:	335	
	Minimum:	335	
	Average:	335	
Contact Dose Rate (mR/h)	<10:	1	
	10-200:	0	
	Maximum:	1.0	
	Minimum:	1.0	
	Average:	1.0	
Radionuclide Inventory			
^{238}Pu (g)	Maximum:	0.0	
	Minimum:	0.0	
	Average:	0.0	

Information (1971-81)		Drums	Boxes
^{239}Pu (g)	Maximum:	0.0	
	Minimum:	0.0	
	Average:	0.0	

Waste Form Evaluation: Insufficient information to complete.

Certification Assessment: Drum was shipped to the INEL as <10 nCi/g waste and, depending on assay results, should be disposed of as low-level waste.

3.96 Content Code 842

Content Description: Contaminated Soil

Generator: Mound Laboratory

Waste Description: Waste consists of contaminated soil, including small rocks and pebbles, generated from cleanup of spills and leaks. All soil waste was dry when packaged. The soil may range in size from fines to chunks. A few waste boxes also include picks, shovels, metal cans, rubber gloves, booties, respirators, plastic, and possibly an air hammer and chisel.

Generation Source: At present, all waste boxes in storage at the INEL were generated from cleanup of a leak that occurred in an acid/caustic transfer line between the Plutonium Processing and Waste Disposal buildings near the pump station. All waste boxes were received in 1975.

Recovery Method: None.

Waste Packaging and Handling: Contaminated soil was packaged in small (42 x 20 x 39-in.) plastic-lined plywood boxes. Other waste, such as gloves and shovels, was placed on top of the soil before the box was sealed. The plastic box liner was sealed with tape, and the box lid was nailed on and caulked with sealant. Two boxes were banded together; two sets of banded boxes were then placed into a prepared standard waste box. All four boxes were then banded together before the standard waste box was sealed. Pieces of lumber (2 x 4 in.) were placed between the waste box and smaller boxes as blocking.

Box Preparation: All waste boxes were standard size (4 x 4 x 7 ft). Each plywood box was coated with fiberglass-reinforced polyester. The boxes were not lined with plastic or cardboard liners.

Assay: Assay values for each waste box were calculated from either radiochemical analysis or assay results of core samples taken from the contaminated area.

Inspection: Each waste-generating area was responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers were then transferred to Waste Management for final inspection (application of permanent seals, touch-up printing, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

R. K. Blauvelt
D. R. Hopkins

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		0	36
Container Weight (lb)	Maximum:		4861
	Minimum:		3628
	Average:		4444
Contact Dose Rate (mR/h)	<10:		36
	10-200:		0
	Maximum:		0.5
	Minimum:		0.0
	Average:		0.4

Information (1971-81)		Drums	Boxes
Radionuclide Inventory			
^{238}Pu (g)	Maximum:		0.1
	Minimum:		0.0
	Average:		0.0
^{239}Pu (g)	Maximum:		1.0
	Minimum:		0.0
	Average:		0.0

Waste Form Evaluation:

Gas Generation--Organic content of the waste will not exceed 6 lb/ft^3.

Combustibles--Including packaging, this waste contains less than 25 volume percent combustibles. Color coding will not be necessary.

Immobilization--This waste may contain quantities of respirable and dispersible fines that exceed the WIPP-WAC limits.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste was dry when packaged. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: This waste is uncertifiable due to a lack of soil particle size information.

3.97 Content Code 847

Content Description: LSA <100nCi/g Combustible

Generator: Mound Laboratory

Waste Description: Waste consists of nonline-generated combustible wastes such as plastic sheeting, paper, rags, gloves (rubber, cloth), plastic bottles, wood, paper suits, and shoe covers. An estimated 75% of the waste is compacted. The waste may be either dry or damp.

Generation Source: Normal maintenance, cleanup, and decontamination and decommissioning operations at the Plutonium Processing and Research buildings.

Recovery Method: Not applicable.

Waste Packaging and Handling: Wastes are packaged in a plastic bag, which is sealed with tape. Bags of waste are then placed into prepared waste drums and compacted. The compaction ratio is approximately 4:1. Approximately 25% of the drums are not compacted. The waste is not compacted if it contains a noncompactible item such as a piece of wood.

Drum Preparation: Each 55-gallon drum is lined with a 90-mil rigid polyethylene drum liner. Approximately 20 to 25 pounds of absorbent clay (Floridin Company product Florco) are placed in the bottom of the rigid liner. The waste is then placed in the drum and compacted (unless the waste contains a noncompactible item). The rigid drum liner lid is installed, and plywood spacers (1/4 to 3/4 in. thick) are placed between the rigid liner lid and the drum lid before the drum lid is installed.

Assay: Prior to January 1982, drums were scanned with portable, gamma-detecting instrumentation. If any readings above background were observed, the drum was transported to the T-Building drum counter for assaying. Since then, all drums have been assayed for plutonium content at the T-Building drum counter.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Products Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

R. K. Blauvelt
A. B. Combs
T. C. Elswick
D. R. Hopkins

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		664	0
Container Weight (lb)	Maximum:	447	
	Minimum:	108	
	Average:	251	
Contact Dose Rate (mR/h)	<10:	659	
	10-200:	5	
	Maximum:	54.0	
	Minimum:	0.0	
	Average:	0.6	
Radionuclide Inventory			
^{238}Pu (g)	Maximum:	0.0	
	Minimum:	0.0	
	Average:	0.0	
^{239}Pu (g)	Maximum:	0.0	
	Minimum:	0.0	
	Average:	0.0	

Waste Form Evaluation:

Gas Generation--Organic content exceeds 14 lb/ft^3.

Combustibles--Waste is 100% combustible. Color-coding will be required.

Immobilization--No significant amounts of respirable or dispersible fines have been identified in the waste.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste is dry or damp when packaged. An absorbent is added to absorb any excess moisture. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste form.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable. However, it is anticipated that the majority of this waste will be of low specific activity (<100 nCi/g) and will not require shipment to the WIPP. Waste contaminated with >100 nCi/g may require color coding for combustible content.

3.98 Content Code 848

Content Description: LSA <100nCi/g Noncombustible

Generator: Mound Laboratory

Waste Description: Waste consists of nonline-generated noncombustible wastes such as tools, pipe, equipment, metal, glass, concrete, plaster, bricks, and dirt. Limited amounts of combustible wastes (paper, rags, etc.) may be included.

Generation Source: Majority of waste, which was shipped to the INEL in 1975, was generated from routine maintenance and normal processing operations at the Plutonium Processing (PP) and Research (R) buildings. Wastes shipped since 1975 have been generated primarily from decontamination and decommissioning operations at PP and R buildings.

Recovery Method: Not applicable.

Waste Packaging and Handling: Depending on contamination levels and size of the waste item, the wastes may be packaged in one or two plastic bags or placed directly into a prepared waste drum.

Drum Preparation:Each 55-gallon drum is lined with a 90-mil rigid polyethylene drum liner, and the drum liner is lined with a plastic drum bag. Approximately 20-25 pounds of Florco absorbent (Floridin Company product) is placed in the bottom of the drum bag if the waste that will be placed in the drum is damp or suspected of being damp. After being filled with waste packages, the drum bag is sealed with tape and the rigid drum liner lid is installed. Plywood spacers (1/4-3/4 in. thick) are placed between the rigid liner lid and the drum lid before the drum lid is installed.

Assay: Prior to January 1982, drums were scanned with portable, gamma-detecting instrumentation. If any readings above background were observed, the drums were transported to the T-Building drum counter for assaying. Since then, all drums have been assayed for plutonium content at the T-Building drum counter.

Inspection: Each waste-generating area is responsible for packaging, filling, sealing, and labeling waste containers; and completing information sheets for each container. Waste containers are then transferred to Waste Management for final inspection (application of permanent seals, touch-up painting, and spot radiation and contamination checks) and preparation for shipment. The Quality Control Engineering, Nuclear Product Group, conducts periodic compliance audits of all waste management practices.

Waste Generator Contacts:

A. B. Combs
T. C. Elswick
D. R. Hopkins

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		129	0
Container Weight (lb)	Maximum:	798	
	Minimum:	108	
	Average:	205	
Contact Dose Rate (mR/h)	<10:	129	
	10-200:	0	
	Maximum:	3.0	
	Minimum:	0.1	
	Average:	1.6	

Information (1971-81)		Drums	Boxes
Radionuclide Inventory			
^{238}Pu (g)	Maximum:	0.3	
	Minimum:	0.0	
	Average:	0.0	
^{239}Pu (g)	Maximum:	0.0	
	Minimum:	0.0	
	Average:	0.0	

Waste Form Evaluation:

Gas Generation--Organic content should be less than 14 lb/ft^3.

Combustibles--Including packaging, combustibles should comprise less than 25 volume percent of the waste.

Immobilization--The waste contains soil, plaster, and some concrete chips and fines. It is possible that some of the drums exceed WIPP-WAC limits for respirable or dispersible fines.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste is dry when packaged. An absorbent was added if any moisture was suspected to be in the waste. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: At present, the waste is not certifiable due to the possible presence of respirable or dispersible fines in excess of WIPP-WAC limits. Any drums containing TRU amounts of contamination will require processing.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________

Waste Description ______________________ IDC ____________

40 CFR 261, Subpart C. - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)	___	___		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)	___	___	pH ______(1)	
Reactive (D003)	___	___		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	___	________
Barium (D005)	___	___	________
Cadmium (D006)	___	___	________
Chromium (D007)	___	___	________
Lead (D008)	___	___	________
Mercury (D009)	___	___	________
Selenium (D010)	___	___	________
Silver (D011)	___	___	________
Benzene (D018)	___	___	________
Carbon tetrachloride (D019)	___	___	________
Chlordane (D020)	___	___	________
Chlorobenzene (D021)	___	___	________
Chloroform (D022)	___	___	________
o-Cresol (D023)	___	___	________
m-Cresol (D024)	___	___	________
p-Cresol (D025)	___	___	________
Cresol (D026)	___	___	________
2,4-D (D016)	___	___	________
1,4-Dichlorobenzene (D027)	___	___	________
1,2-Dichloroethane (D028)	___	___	________
1,1-Dichloroethylene (D029)	___	___	________
2,4-Dinitrotoluene (D030)	___	___	________
Endrin (D012)	___	___	________
Heptachlor (D031) (and its epoxide)	___	___	________
Hexachlorobenzene (D032)	___	___	________
Hexachlorobutadiene (D033)	___	___	________
Hexachloroethane (D034)	___	___	________
Lindane (D013)	___	___	________
Methoxychlor (D014)	___	___	________
Methyl ethyl ketone (D035)	___	___	________
Nitrobenzene (D036)	___	___	________
Pentachlorophenol (D037)	___	___	________
Pyridine (D038)	___	___	________
Tetrachloroethylene (D039)	___	___	________
Toxaphene (D015)	___	___	________
Trichloroethylene (D040)	___	___	________
2,4,5-Trichlorophenol (D041)	___	___	________
2,4,6-Trichlorophenol (D042)	___	___	________
2,4,5-TP (Silvex) (D017)	___	___	________
Vinyl chloride (D043	___	___	________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene	___	___	___________
Bromoform	___	___	___________
Carbon Tetrachloride	___	___	___________
Chlorobenzene	___	___	___________
Chloroform	___	___	___________
Cyclohexane	___	___	___________
1,1-Dichloroethane	___	___	___________
1,2-Dichloroethane	___	___	___________
1,1-Dichloroethene	___	___	___________
cis-1,2-Dichloroethene	___	___	___________
Ethyl Benzene	___	___	___________
Ethyl Ether	___	___	___________
Methylene Chloride	___	___	___________
1,1,2,2-Tetrachloroethane	___	___	___________
Tetrachloroethene	___	___	___________
Toluene	___	___	___________
1,1,1-Trichloroethane	___	___	___________
Trichloroethene	___	___	___________
1,1,2-Trichloro-1,2,2-trifluoroethane	___	___	___________
1,3,5-Trimethylbenzene	___	___	___________
1,2,4-Trimethylbenzene	___	___	___________
m-Xylene	___	___	___________
o-Xylene	___	___	___________
p-Xylene	___	___	___________
Acetone	___	___	___________
1-Butanol	___	___	___________
2-Butanone	___	___	___________
Methanol	___	___	___________
4-Methyl-2-pentanone	___	___	___________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	___	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	___	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	___	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	___	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	___	____________
Asbestos	___	___	____________

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
______________________________	____________
______________________________	____________
______________________________	____________
______________________________	____________

		1	2	3	4
(1)	pH Ranges pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

EG&G MOUND APPLIED TECHNOLOGIES
P.O. BOX 3000 MIAMISBURG, OHIO 45343-3000 • TEL (513) 865-4020

Mr. Ralph D. Falconer
EG&G Idaho, Inc.
P.O. Box 1625, Mail Stop 3950
Idaho Falls, Idaho 83415-3950

Dear Mr. Falconer:

Transuranic (TRU) Waste Characterization Questionnaire

This letter transmits EG&G Mound's response to the correspondence from the Idaho Field Office, from J. T. Case to Evet L. Gonzalez et. al., dated April 7, 1993 requesting additional characterization data for the Mound transuranic (TRU) wastes stored at the Idaho National Engineering Laboratory.

The TRU waste inventory questionnaire package was received by Mound Waste Management the week of May 3, 1993. The contents of the package have been reviewed with those personnel at Mound who were involved with the development of characterization data for these wastes. This review has revealed that no additional data can be obtained, in the time frame provided, to further characterize these wastes. In addition, retired employees who were involved in the original characterization efforts have been contacted to determine the basis for the information provided to Idaho; this effort has confirmed the lack of readily available additional data.

This lack of additional information was communicated to Daniel Hinckley as directed in the April 7 correspondence; Mr. Hinckley indicated that the gathering of any additional information, if possible, past the requested May 17, 1993 due date would be helpful to the effort to develop more detailed characterization. It is possible that an exhaustive review of records and further interviews of personnel, coordinated by an individual knowledgeable in waste characterization issues, could result in some additional characterization information being developed. We will continue to pursue such additional data, as time and resources allow, and communicate the results to you as they become available.

Please feel free to contact me at (513) 865-3428 for additional information concerning this response.

Very truly yours,

Mary L. Alexander

Mary L. Alexander
Supervisor, Radioactive
Waste Management

MLA:137

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 848, LSA <100NCI/GM, NONCOMBUSTIBLE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	110	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	5	-	-	-	-
1979	-	-	-	-	-
1980	10	-	-	-	-
1981	4	-	-	-	-
1982	-	-	-	-	-
1983	5	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	134	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 847, LSA <100NCI/GM, COMBUSTIBLE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	70	-	-	-	-
1976	33	-	-	-	-
1977	146	-	-	-	-
1978	159	-	-	-	-
1979	-	-	-	-	-
1980	116	-	-	-	-
1981	140	-	-	-	-
1982	61	-	-	-	-
1983	16	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	741	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 842, CONTAMINATED SOIL

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	36	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	3	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	-	39	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 838, <10NCI/GM, NONCOMBUSTIBLE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	1	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	1	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 836, HIGH LEVEL CEMENT/SLUDGE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	1616	-	-	-	-
1976	510	-	-	-	-
1977	128	-	-	-	-
1978	225	-	-	-	-
1979	513	-	-	-	-
1980	192	-	-	-	-
1981	576	-	-	-	-
1982	216	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	202	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	4178	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 835, HIGH LEVEL CAUSTIC

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	331	-	-	-	-
1976	360	-	-	-	-
1977	115	-	-	-	-
1978	316	-	-	-	-
1979	91	-	-	-	-
1980	25	-	-	-	-
1981	248	-	-	-	-
1982	60	-	-	-	-
1983	124	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	5	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	1675	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 834, HIGH LEVEL ACID

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	209	-	-	-	-
1976	26	-	-	-	-
1977	127	-	-	-	-
1978	3	-	-	-	-
1979	494	-	-	-	-
1980	42	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	901	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 832, CONTAMINATED MERCURY

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	THIS WASTE CONTAINED IN IDC 803, IDC 805, IDC 810, IDC 811, IDC 813, IDC 814, AND IDC 826 DRUMS				

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 827, EQUIPMENT DRUMS, COMBUSTIBLE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	1	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	8	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	9	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 826, EQUIPMENT BOXES, COMBUSTIBLE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	2	7	-	-	-
1982	-	2	-	-	-
1983	3	11	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	5	-	-	-
1988	-	3	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	5	28	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 825, EQUIPMENT DRUMS, NONCOMBUSTIBLE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	23	-	-	-	-
1978	15	-	-	-	-
1979	41	-	-	-	-
1980	-	-	-	-	-
1981	90	1	-	-	-
1982	7	-	-	-	-
1983	19	-	-	-	-
1984	-	-	-	-	-
1985	-	10	-	-	-
1986	-	-	-	-	-
1987	-	30	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	195	41	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 824, EQUIPMENT BOXES, NONCOMBUSTIBLE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	12	-	-	-
1976	-	20	-	-	-
1977	-	28	-	-	-
1978	-	4	-	-	-
1979	-	28	-	-	-
1980	-	23	-	-	-
1981	-	86	-	-	-
1982	-	64	-	-	-
1983	-	39	-	-	-
1984	-	14	-	-	-
1985	-	24	-	-	-
1986	-	-	-	-	-
1987	-	30	-	-	-
1988	-	9	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	-	381	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 815, MISCELLANEOUS WASTE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	2	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	2	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 814, GRAPHITE WASTE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	2	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	2	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 813, GLASS FILTERS AND FIBERGLAS

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	3	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	3	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 812, SPENT ION EXCHANGE RESIN

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	THIS WASTE CONTAINED IN IDC 801, IDC 802, and IDC 804 DRUMS				

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 811, EVAPORATOR AND DISSOLVE SLUDGE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	4	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	4	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 810, GLASS, FLASKS, SAMPLE VIALS, ETC.

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	5	-	-	-	-
1978	-	-	-	-	-
1979	4	-	-	-	-
1980	3	-	-	-	-
1981	1	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	13	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 805, ASBESTOS FILTERS

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	12	-	-	-	-
1978	16	-	-	-	-
1979	3	-	-	-	-
1980	-	-	-	-	-
1981	3	-	-	-	-
1982	2	-	-	-	-
1983	2	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	38	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 804, PLASTIC, TYGON, MANI-BOOTS, ETC.

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	65	-	-	-	-
1978	48	-	-	-	-
1979	43	-	-	-	-
1980	29	-	-	-	-
1981	25	-	-	-	-
1982	8	-	-	-	-
1983	2	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	220	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 803, METAL, EQUIP, PIPES, VALVES, ETC.

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	63	-	-	-	-
1978	44	-	-	-	-
1979	22	-	-	-	-
1980	15	-	-	-	-
1981	16	-	-	-	-
1982	11	-	-	-	-
1983	5	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	4	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	180	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 802, DRY-BOX GLOVES AND O-RINGS

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	32	-	-	-	-
1978	36	-	-	-	-
1979	21	-	-	-	-
1980	6	-	-	-	-
1981	15	-	-	-	-
1982	11	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	121	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY
IDC 801, RAGS, PAPER, WOOD, ETC.

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	31	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	1	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	3	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	35	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM MOUND LABORATORY

IDC	WASTE DESCRIPTION	DRUMS	BOXES	BINS	INSERTS	OTHER
801	RAGS, PAPER, WOOD, ETC	35	-	-	-	-
802	DRY-BOX GLOVES AND O-RINGS	121	-	-	-	-
803	METAL, EQUIP, PIPES, VALVES, ETC.	180	-	-	-	-
804	PLASTIC, TYGON, MANI-BOOTS, ETC.	220	-	-	-	-
805	ASBESTOS FILTERS	38	-	-	-	-
810	GLASS, FLASKS, SAMPLE VIALS, ETC.	13	-	-	-	-
811	EVAPORATOR AND DISSOLVE SLUDGE	4	-	-	-	-
812	SPENT ION EXCHANGE RESIN	-	-	-	-	-
813	GLASS FILTERS AND FIBERGLAS	3	-	-	-	-
814	GRAPHITE WASTE	2	-	-	-	-
815	MISCELLANEOUS WASTE	2	-	-	-	-
824	EQUIPMENT BOXES, NONCOMBUSTIBLE	-	381	-	-	-
825	EQUIPMENT DRUMS, NONCOMBUSTIBLE	195	41	-	-	-
826	EQUIPMENT BOXES, COMBUSTIBLE	5	28	-	-	-
827	EQUIPMENT DRUMS, COMBUSTIBLE	9	-	-	-	-
832	CONTAMINATED MERCURY	-	-	-	-	-
834	HIGH LEVEL ACID	901	-	-	-	-
835	HIGH LEVEL CAUSTIC	1675	-	-	-	-
836	HIGH LEVEL CEMENT/SLUDGE	4178	-	-	-	-
838	<10 NCI/GM, NONCOMBUSTIBLE	1	-	-	-	-
842	CONTAMINATED SOIL	-	39	-	-	-
847	LSA <100 NCI/GM, COMBUSTIBLE	741	-	-	-	-
848	LSA <100 NCI/GM, NONCOMBUSTIBLE	134	-	-	-	-
	TOTALS	8457	489	-	-	-

Addressee List

Mr. Evet L. Gonzalez, Manager
Waste Management Program
U.S. Department of Energy
Argonne Area Office
9800 South Cass Avenue
Argonne, IL 60439

Mr. Ben Maiden, Director
Hazardous Waste Management Division
Battelle Columbus Laboratory
505 King Avenue
Columbus, OH 43201

Mr. E. D. Shollenberger
U.S. Department of Energy
Pittsburgh Naval Reactors Office
PO Box 109
West Mifflin, PA 15122-0109

Mr. Richard F. Sena
U.S. Department of Energy
Albuquerque Field Office
PO Box 5400
Albuquerque, NM 87185-5400

Mr. Bennett Young
U.S. Department of Energy
Grand Junction Project Office
P.O. Box 2597
Grand Junction, CO 81503

available records, etc. For continued storage of the waste, and prior to disposal, a certain percentage of the waste containers will be opened and the waste characterized to determine if it compiles with all storage and disposal requirements. If process knowledge, as already known and to be improved on by this questionnaire, proves to be sufficiently accurate, the percentage of waste containers to be opened and characterized can be kept to a minimum, at great cost savings to the U.S. Department of Energy and the taxpayer.

Please complete this questionnaire by May 17, 1993 and return to the following address.

EG&G Idaho, Inc.
P.O. Box 1625, Mail Stop 3950
Idaho Falls, Idaho 83415-3950

ATTN: Ralph D. Falconer

If you have any questions concerning the information required, please call Mr. D. G. Hinckley of my staff at (208) 526-0173.

Jeffrey T Shadley For JTC

J. T. Case, Branch Chief
Waste Management Operations Branch

Enclosure

cc: (w/o Encl)
N. L. Harris, Bettis Atomic Power Laboratory
T. L. Clements, Jr., EG&G Idaho
R. D. Falconer, EG&G Idaho
R. Finney, EG&G Mound Applied Technologies

Department of Energy
Idaho Field Office
785 DOE Place
Idaho Falls, Idaho 83401-1562

April 7, 1993

Addressees

Subject: Transuranic (TRU) Waste Characterization Questionnaire (AM/ERWM/WMOB 93-077)

New and/or expanding Resource Conservation and Recovery Act (RCRA), Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria (WAC), and No-Migration Determination for WIPP storage and disposal requirements necessitate more detailed characterization of radioactive waste for toxic and/or hazardous constituents than was required at the time the waste was generated. Cost and operational concerns mandate that process knowledge (i.e., what was the process that generated the waste and what are the toxic and/or hazardous constituents used that are likely to be found in the waste) be used to the maximum extent possible in performing this characterization.

To assist generators in supplying as much process knowledge as possible concerning toxic and/or hazardous waste constituents, the enclosed questionnaire package has been prepared for each TRU waste type that was shipped to the Idaho National Engineering Laboratory (INEL) for storage. The questionnaire package consists of the following.

1. Inventory by year received at INEL and type and number of containers.

2. A description of the waste and waste packaging, as given in "Content Code Assessments for INEL Contact-Handled Stored Transuranic Wastes, WM-F1-82-021, October 1982" by T. L. Clements, Jr.

3. Checklist for RCRA, WIPP Quality Assurance Program Plan (QAPP), WIPP-WAC, and Toxic Substances Control Act (TSCA) hazardous and toxic waste constituents for each Item Description Code (IDC).

For each IDC, the waste descriptions should be checked for completeness and accuracy; any corrections or additions can be handwritten on the description sheets supplied. If a waste description is not included, please provide a brief description of the waste source, possible constituents, and packaging. Items on the checklist for RCRA, WIPP QAPP, WIPP-WAC, and TSCA hazardous and/or toxic waste constituents should be checked as appropriate, with a concentration estimate for items checked as being present in the waste. Additional space is provided to add any known RCRA constituents present in the waste that are not included on the list.

It is realized that knowledge of these historical wastes may be sketchy at best. It is the intention of this questionnaire to gather, on a best effort basis, existing knowledge from long-term employees, review of process,

262421

INEL

Idaho National Engineering Laboratory

bcc: (w/o Attach/Encl)
D. J. Bright, MS 4201
D. L. Eaton, MS 1560
R. D. Falconer, MS 3950
D. L. French, MS 4201
K. McNeel, MS 1560
C. B. Ozaki, MS 3960
Central Files, MS 1651
Technical Support File, MS 3950
WETP Project File, MS 3950
T. L. Clements, Jr. File

March 10, 1993

Mr. J. T. Case
U.S. Department of Energy
Idaho Field Office
785 DOE Place, MS 1118
Idaho Falls, ID 83401-1562

TRANSURANIC (TRU) WASTE CHARACTERIZATION QUESTIONNAIRE - TLC-36-93

Dear Mr. Case:

Enclosed are questionnaire packages for transmittal to facilities other than EG&G Rocky Flats that have shipped TRU waste to the Idaho National Engineering Laboratory (INEL) for storage. The purpose of the questionnaire is to improve INEL knowledge of hazardous constituents in stored waste. In conversations with Mr. D. G. Hinckley, it was agreed that these questionnaires would elicit the best response if they were transmitted through the U.S. Department of Energy, rather than from a Management and Operations (M&O) contractor to another M&O contractor.

A draft transmittal letter and address for each of the questionnaires is included. Please transmit these packages to the appropriate facilities.

If you have any questions, please contact either R. D. Falconer at 526-2960 or me at 526-0664.

Sincerely,

T. L. Clements, Jr.

T. L. Clements, Jr., Manager
Transuranic Waste Programs

RDF:lap

Attachment/Enclosure:
As Stated

cc: (w/o Attach/Encl)
D. G. Hinckley, DOE-ID, MS 1118
J. L. McAnally, EG&G Idaho, MS 3940
J. C. Okeson, EG&G Idaho, MS 3590

Attachment 5
EDF RWMC-676
Mound Laboratory
Questionnaire and Response
Page 1 of 123

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ____________________ Date ____________
Waste Description ____________________ IDC ____________

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	___	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	___	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	___	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	___	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	___	____________
Asbestos	___	___	____________

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
______________________________	____________
______________________________	____________
______________________________	____________
______________________________	____________

		1	2	3	4
(1)	pH Ranges pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ____________________ Date ____________
Waste Description ____________________ IDC ____________

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene	___	___	________
Bromoform	___	___	________
Carbon Tetrachloride	___	___	________
Chlorobenzene	___	___	________
Chloroform	___	___	________
Cyclohexane	___	___	________
1,1-Dichloroethane	___	___	________
1,2-Dichloroethane	___	___	________
1,1-Dichloroethene	___	___	________
cis-1,2-Dichloroethene	___	___	________
Ethyl Benzene	___	___	________
Ethyl Ether	___	___	________
Methylene Chloride	___	___	________
1,1,2,2-Tetrachloroethane	___	___	________
Tetrachloroethene	___	___	________
Toluene	___	___	________
1,1,1-Trichloroethane	___	___	________
Trichloroethene	___	___	________
1,1,2-Trichloro-1,2,2-trifluoroethane	___	___	________
1,3,5-Trimethylbenzene	___	___	________
1,2,4-Trimethylbenzene	___	___	________
m-Xylene	___	___	________
o-Xylene	___	___	________
p-Xylene	___	___	________
Acetone	___	___	________
1-Butanol	___	___	________
2-Butanone	___	___	________
Methanol	___	___	________
4-Methyl-2-pentanone	___	___	________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ____________________ Date ____________
Waste Description ____________________ IDC ____________

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)	___	___		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)	___	___	pH _______(1)	
Reactive (D003)	___	___		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	___	___________
Barium (D005)	___	___	___________
Cadmium (D006)	___	___	___________
Chromium (D007)	___	___	___________
Lead (D008)	___	___	___________
Mercury (D009)	___	___	___________
Selenium (D010)	___	___	___________
Silver (D011)	___	___	___________
Benzene (D018)	___	___	___________
Carbon tetrachloride (D019)	___	___	___________
Chlordane (D020)	___	___	___________
Chlorobenzene (D021)	___	___	___________
Chloroform (D022)	___	___	___________
o-Cresol (D023)	___	___	___________
m-Cresol (D024)	___	___	___________
p-Cresol (D025)	___	___	___________
Cresol (D026)	___	___	___________
2,4-D (D016)	___	___	___________
1,4-Dichlorobenzene (D027)	___	___	___________
1,2-Dichloroethane (D028)	___	___	___________
1,1-Dichloroethylene (D029)	___	___	___________
2,4-Dinitrotoluene (D030)	___	___	___________
Endrin (D012)	___	___	___________
Heptachlor (D031)	___	___	___________
(and its epoxide)			
Hexachlorobenzene (D032)	___	___	___________
Hexachlorobutadiene (D033)	___	___	___________
Hexachloroethane (D034)	___	___	___________
Lindane (D013)	___	___	___________
Methoxychlor (D014)	___	___	___________
Methyl ethyl ketone (D035)	___	___	___________
Nitrobenzene (D036)	___	___	___________
Pentachlorophenol (D037)	___	___	___________
Pyridine (D038)	___	___	___________
Tetrachloroethylene (D039)	___	___	___________
Toxaphene (D015)	___	___	___________
Trichloroethylene (D040)	___	___	___________
2,4,5-Trichlorophenol (D041)	___	___	___________
2,4,6-Trichlorophenol (D042)	___	___	___________
2,4,5-TP (Silvex) (D017)	___	___	___________
Vinyl chloride (D043	___	___	___________

INVENTORY OF WASTE RECEIVED FROM BENDIX FIELD ENGINEERING CORPORATION
IDC 111, SOLIDIFIED WET SLUDGE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	1	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	1	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM BENDIX FIELD ENGINEERING CORPORATION

IDC	WASTE DESCRIPTION	DRUMS	BOXES	BINS	INSERTS	OTHER
111	SOLIDIFIED WET SLUDGE	1	-	-	-	-
	TOTALS	1	-	-	-	-

Addressee List

Mr. Evet L. Gonzalez, Manager
Waste Management Program
U.S. Department of Energy
Argonne Area Office
9800 South Cass Avenue
Argonne, IL 60439

Mr. Ben Maiden, Director
Hazardous Waste Management Division
Battelle Columbus Laboratory
505 King Avenue
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West Mifflin, PA 15122-0109

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U.S. Department of Energy
Albuquerque Field Office
PO Box 5400
Albuquerque, NM 87185-5400

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P.O. Box 1625, Mail Stop 3950
Idaho Falls, Idaho 83415-3950

ATTN: Ralph D. Falconer

If you have any questions concerning the information required, please call Mr. D. G. Hinckley of my staff at (208) 526-0173.

Jeffrey T Shadley For JTC

J. T. Case, Branch Chief
Waste Management Operations Branch

Enclosure

cc: (w/o Encl)
N. L. Harris, Bettis Atomic Power Laboratory
T. L. Clements, Jr., EG&G Idaho
R. D. Falconer, EG&G Idaho
R. Finney, EG&G Mound Applied Technologies

Department of Energy
Idaho Field Office
785 DOE Place
Idaho Falls, Idaho 83401-1562

April 7, 1993

Addressees

D1135

Subject: Transuranic (TRU) Waste Characterization Questionnaire (AM/ERWM/WMOB 93-077)

New and/or expanding Resource Conservation and Recovery Act (RCRA), Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria (WAC), and No-Migration Determination for WIPP storage and disposal requirements necessitate more detailed characterization of radioactive waste for toxic and/or hazardous constituents than was required at the time the waste was generated. Cost and operational concerns mandate that process knowledge (i.e., what was the process that generated the waste and what are the toxic and/or hazardous constituents used that are likely to be found in the waste) be used to the maximum extent possible in performing this characterization.

To assist generators in supplying as much process knowledge as possible concerning toxic and/or hazardous waste constituents, the enclosed questionnaire package has been prepared for each TRU waste type that was shipped to the Idaho National Engineering Laboratory (INEL) for storage. The questionnaire package consists of the following.

1. Inventory by year received at INEL and type and number of containers.

2. A description of the waste and waste packaging, as given in "Content Code Assessments for INEL Contact-Handled Stored Transuranic Wastes, WM-F1-82-021, October 1982" by T. L. Clements, Jr.

3. Checklist for RCRA, WIPP Quality Assurance Program Plan (QAPP), WIPP-WAC, and Toxic Substances Control Act (TSCA) hazardous and toxic waste constituents for each Item Description Code (IDC).

For each IDC, the waste descriptions should be checked for completeness and accuracy; any corrections or additions can be handwritten on the description sheets supplied. If a waste description is not included, please provide a brief description of the waste source, possible constituents, and packaging. Items on the checklist for RCRA, WIPP QAPP, WIPP-WAC, and TSCA hazardous and/or toxic waste constituents should be checked as appropriate, with a concentration estimate for items checked as being present in the waste. Additional space is provided to add any known RCRA constituents present in the waste that are not included on the list.

It is realized that knowledge of these historical wastes may be sketchy at best. It is the intention of this questionnaire to gather, on a best effort basis, existing knowledge from long-term employees, review of process, United States Government

Department of Energy

memorandum

Grand Junction Projects Office

DATE: 4/15/93

RECEIVED

SUBJECT: **DOE/GJPO Document Transmittal**

APR 1 . 1(

TO: J. T. Case, Branch Chief
Waste Management Operations Branch

WA... ...MENT
OPERATIONS BRANCH

The following subject of information/comments have been requested by your office from GJPO:

Transuranic (TRU) Waste Characterization Questionnaire (AM/ERWM/WMOB 93-077) (D1135)

This facility has no "TRU" waste generated or stored on site.

These documents are attached.

If you have questions, please contact Me at
303-248-6010

Signed DOE/GJPO Staff

Attachments

50th Anniversary GJPO

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	___	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	___	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	___	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	___	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	___	____________
Asbestos	___	___	____________

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
______________________________	____________
______________________________	____________
______________________________	____________
______________________________	____________

(1) pH Ranges	1	2	3	4
pH	0-2	2-7	7-12.5	12.5-14
(2) Concentration Ranges	1	2	3	4
Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT,
WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN,
WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA,
AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE?		
	YES	NO	CONCENTRATION RANGE(2)
Benzene			
Bromoform			
Carbon Tetrachloride			
Chlorobenzene			
Chloroform			
Cyclohexane			
1,1-Dichloroethane			
1,2-Dichloroethane			
1,1-Dichloroethene			
cis-1,2-Dichloroethene			
Ethyl Benzene			
Ethyl Ether			
Methylene Chloride			
1,1,2,2-Tetrachloroethane			
Tetrachloroethene			
Toluene			
1,1,1-Trichloroethane			
Trichloroethene			
1,1,2-Trichloro-1,2,2-trifluoroethane			
1,3,5-Trimethylbenzene			
1,2,4-Trimethylbenzene			
m-Xylene			
o-Xylene			
p-Xylene			
Acetone			
1-Butanol			
2-Butanone			
Methanol			
4-Methyl-2-pentanone			

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

40 CFR 261, Subpart C. - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)	___	___		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)	___	___	pH ______(1)	
Reactive (D003)	___	___		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	___	________
Barium (D005)	___	___	________
Cadmium (D006)	___	___	________
Chromium (D007)	___	___	________
Lead (D008)	___	___	________
Mercury (D009)	___	___	________
Selenium (D010)	___	___	________
Silver (D011)	___	___	________
Benzene (D018)	___	___	________
Carbon tetrachloride (D019)	___	___	________
Chlordane (D020)	___	___	________
Chlorobenzene (D021)	___	___	________
Chloroform (D022)	___	___	________
o-Cresol (D023)	___	___	________
m-Cresol (D024)	___	___	________
p-Cresol (D025)	___	___	________
Cresol (D026)	___	___	________
2,4-D (D016)	___	___	________
1,4-Dichlorobenzene (D027)	___	___	________
1,2-Dichloroethane (D028)	___	___	________
1,1-Dichloroethylene (D029)	___	___	________
2,4-Dinitrotoluene (D030)	___	___	________
Endrin (D012)	___	___	________
Heptachlor (D031) (and its epoxide)	___	___	________
Hexachlorobenzene (D032)	___	___	________
Hexachlorobutadiene (D033)	___	___	________
Hexachloroethane (D034)	___	___	________
Lindane (D013)	___	___	________
Methoxychlor (D014)	___	___	________
Methyl ethyl ketone (D035)	___	___	________
Nitrobenzene (D036)	___	___	________
Pentachlorophenol (D037)	___	___	________
Pyridine (D038)	___	___	________
Tetrachloroethylene (D039)	___	___	________
Toxaphene (D015)	___	___	________
Trichloroethylene (D040)	___	___	________
2,4,5-Trichlorophenol (D041)	___	___	________
2,4,6-Trichlorophenol (D042)	___	___	________
2,4,5-TP (Silvex) (D017)	___	___	________
Vinyl chloride (D043	___	___	________

INVENTORY OF WASTE RECEIVED FROM BENDIX FIELD ENGINEERING CORPORATION
IDC 111, SOLIDIFIED WET SLUDGE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	1	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	1	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM BENDIX FIELD ENGINEERING CORPORATION

IDC	WASTE DESCRIPTION	DRUMS	BOXES	BINS	INSERTS	OTHER
111	SOLIDIFIED WET SLUDGE	1	-	-	-	-
	TOTALS	1	-	-	-	-

Addressee List

Mr. Evet L. Gonzalez, Manager
Waste Management Program
U.S. Department of Energy
Argonne Area Office
9800 South Cass Avenue
Argonne, IL 60439

Mr. Ben Maiden, Director
Hazardous Waste Management Division
Battelle Columbus Laboratory
505 King Avenue
Columbus, OH 43201

Mr. E. D. Shollenberger
U.S. Department of Energy
Pittsburgh Naval Reactors Office
PO Box 109
West Mifflin, PA 15122-0109

Mr. Richard F. Sena
U.S. Department of Energy
Albuquerque Field Office
PO Box 5400
Albuquerque, NM 87185-5400

Mr. Bennett Young
U.S. Department of Energy
Grand Junction Project Office
P.O. Box 2597
Grand Junction, CO 81503

available records, etc. For continued storage of the waste, and prior to disposal, a certain percentage of the waste containers will be opened and the waste characterized to determine if it compiles with all storage and disposal requirements. If process knowledge, as already known and to be improved on by this questionnaire, proves to be sufficiently accurate, the percentage of waste containers to be opened and characterized can be kept to a minimum, at great cost savings to the U.S. Department of Energy and the taxpayer.

Please complete this questionnaire by May 17, 1993 and return to the following address.

EG&G Idaho, Inc.
P.O. Box 1625, Mail Stop 3950
Idaho Falls, Idaho 83415-3950

ATTN: Ralph D. Falconer

If you have any questions concerning the information required, please call Mr. D. G. Hinckley of my staff at (208) 526-0173.

Jeffrey T Shadley For JTC

J. T. Case, Branch Chief
Waste Management Operations Branch

Enclosure

cc: (w/o Encl)
N. L. Harris, Bettis Atomic Power Laboratory
T. L. Clements, Jr., EG&G Idaho
R. D. Falconer, EG&G Idaho
R. Finney, EG&G Mound Applied Technologies

Department of Energy
Idaho Field Office
785 DOE Place
Idaho Falls, Idaho 83401-1562

April 7, 1993

Addressees

Subject: Transuranic (TRU) Waste Characterization Questionnaire (AM/ERWM/WMOB 93-077)

New and/or expanding Resource Conservation and Recovery Act (RCRA), Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria (WAC), and No-Migration Determination for WIPP storage and disposal requirements necessitate more detailed characterization of radioactive waste for toxic and/or hazardous constituents than was required at the time the waste was generated. Cost and operational concerns mandate that process knowledge (i.e., what was the process that generated the waste and what are the toxic and/or hazardous constituents used that are likely to be found in the waste) be used to the maximum extent possible in performing this characterization.

To assist generators in supplying as much process knowledge as possible concerning toxic and/or hazardous waste constituents, the enclosed questionnaire package has been prepared for each TRU waste type that was shipped to the Idaho National Engineering Laboratory (INEL) for storage. The questionnaire package consists of the following.

1. Inventory by year received at INEL and type and number of containers.

2. A description of the waste and waste packaging, as given in "Content Code Assessments for INEL Contact-Handled Stored Transuranic Wastes, WM-FI-82-021, October 1982" by T. L. Clements, Jr.

3. Checklist for RCRA, WIPP Quality Assurance Program Plan (QAPP), WIPP-WAC, and Toxic Substances Control Act (TSCA) hazardous and toxic waste constituents for each Item Description Code (IDC).

For each IDC, the waste descriptions should be checked for completeness and accuracy; any corrections or additions can be handwritten on the description sheets supplied. If a waste description is not included, please provide a brief description of the waste source, possible constituents, and packaging. Items on the checklist for RCRA, WIPP QAPP, WIPP-WAC, and TSCA hazardous and/or toxic waste constituents should be checked as appropriate, with a concentration estimate for items checked as being present in the waste. Additional space is provided to add any known RCRA constituents present in the waste that are not included on the list.

It is realized that knowledge of these historical wastes may be sketchy at best. It is the intention of this questionnaire to gather, on a best effort basis, existing knowledge from long-term employees, review of process,

262421

Idaho National Engineering Laboratory

bcc: (w/o Attach/Encl)
D. J. Bright, MS 4201
D. L. Eaton, MS 1560
R. D. Falconer, MS 3950 RDF
D. L. French, MS 4201
K. McNeel, MS 1560
C. B. Ozaki, MS 3960
Central Files, MS 1651
Technical Support File, MS 3950
WETP Project File, MS 3950
T. L. Clements, Jr. File

March 10, 1993

Mr. J. T. Case
U.S. Department of Energy
Idaho Field Office
785 DOE Place, MS 1118
Idaho Falls, ID 83401-1562

TRANSURANIC (TRU) WASTE CHARACTERIZATION QUESTIONNAIRE - TLC-36-93

Dear Mr. Case:

Enclosed are questionnaire packages for transmittal to facilities other than EG&G Rocky Flats that have shipped TRU waste to the Idaho National Engineering Laboratory (INEL) for storage. The purpose of the questionnaire is to improve INEL knowledge of hazardous constituents in stored waste. In conversations with Mr. D. G. Hinckley, it was agreed that these questionnaires would elicit the best response if they were transmitted through the U.S. Department of Energy, rather than from a Management and Operations (M&O) contractor to another M&O contractor.

A draft transmittal letter and address for each of the questionnaires is included. Please transmit these packages to the appropriate facilities.

If you have any questions, please contact either R. D. Falconer at 526-2960 or me at 526-0664.

Sincerely,

T. L. Clements, Jr.

T. L. Clements, Jr., Manager
Transuranic Waste Programs

RDF:lap

Attachment/Enclosure:
As Stated

cc: (w/o Attach/Encl)
D. G. Hinckley, DOE-ID, MS 1118
J. L. McAnally, EG&G Idaho, MS 3940
J. C. Okeson, EG&G Idaho, MS 3590

Attachment 4
EDF RWMC-676
Grand Junction Project Office (Bendix)
Questionnaire and Response
Page 1 of 19

bcc: Dan McNamee
File (WM)
File (RMS)

ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue, Argonne, Illinois 60439-4815 Telephone 708/252-2744

May 18, 1993

Ralph D. Falconer
E G & G Idaho, Inc.
P.O. Box 1625, M/S 3950
Idaho Falls, ID 83415

Subject: Transuranic (TRU) Waste Characterization Questionnaire

Dear Mr. Falconer:

Environment and Waste Management Program personnel have reviewed your request of April 7, 1993 on the subject of TRU waste characterization of ANL-E waste stored at the Idaho National Engineering Laboratory. We are not able to add any meaningful information to that currently available to your organization. At best, any new information would be very sketchy, subject to conjecture, and not reliably verifiable.

As a major research center for DOE, ANL-E has historically had a varied set of small waste streams coming from single experiments and laboratories. All such waste streams were characterized to the standards in force at that time. However, additional data meeting today's standards were not documented in a retrievable or accountable fashion. Since ANL-E did not have routine production-style processes which generated waste materials, our ability to develop credible process knowledge data is very limited.

If you need further assistance, please contact me at (708) 252-3233 or R. M. Schletter at (708) 252-2744.

Sincerely,

F. A. Brunner
Manager,
Environment & Waste Management Program

FAB/RMS:dh

cc: E. Vera, DOE-AAO

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT,
WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN,
WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA,
AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	___	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	___	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	___	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	___	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	___	____________
Asbestos	___	___	____________

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
______________________	____________
______________________	____________
______________________	____________
______________________	____________

		1	2	3	4
(1)	pH Ranges pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT,
WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN,
WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA,
AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene	___	___	____________
Bromoform	___	___	____________
Carbon Tetrachloride	___	___	____________
Chlorobenzene	___	___	____________
Chloroform	___	___	____________
Cyclohexane	___	___	____________
1,1-Dichloroethane	___	___	____________
1,2-Dichloroethane	___	___	____________
1,1-Dichloroethene	___	___	____________
cis-1,2-Dichloroethene	___	___	____________
Ethyl Benzene	___	___	____________
Ethyl Ether	___	___	____________
Methylene Chloride	___	___	____________
1,1,2,2-Tetrachloroethane	___	___	____________
Tetrachloroethene	___	___	____________
Toluene	___	___	____________
1,1,1-Trichloroethane	___	___	____________
Trichloroethene	___	___	____________
1,1,2-Trichloro-1,2,2-trifluoroethane	___	___	____________
1,3,5-Trimethylbenzene	___	___	____________
1,2,4-Trimethylbenzene	___	___	____________
m-Xylene	___	___	____________
o-Xylene	___	___	____________
p-Xylene	___	___	____________
Acetone	___	___	____________
1-Butanol	___	___	____________
2-Butanone	___	___	____________
Methanol	___	___	____________
4-Methyl-2-pentanone	___	___	____________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)	___	___		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)	___	___	pH ______(1)	
Reactive (D003)	___	___		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	___	__________
Barium (D005)	___	___	__________
Cadmium (D006)	___	___	__________
Chromium (D007)	___	___	__________
Lead (D008)	___	___	__________
Mercury (D009)	___	___	__________
Selenium (D010)	___	___	__________
Silver (D011)	___	___	__________
Benzene (D018)	___	___	__________
Carbon tetrachloride (D019)	___	___	__________
Chlordane (D020)	___	___	__________
Chlorobenzene (D021)	___	___	__________
Chloroform (D022)	___	___	__________
o-Cresol (D023)	___	___	__________
m-Cresol (D024)	___	___	__________
p-Cresol (D025)	___	___	__________
Cresol (D026)	___	___	__________
2,4-D (D016)	___	___	__________
1,4-Dichlorobenzene (D027)	___	___	__________
1,2-Dichloroethane (D028)	___	___	__________
1,1-Dichloroethylene (D029)	___	___	__________
2,4-Dinitrotoluene (D030)	___	___	__________
Endrin (D012)	___	___	__________
Heptachlor (D031) (and its epoxide)	___	___	__________
Hexachlorobenzene (D032)	___	___	__________
Hexachlorobutadiene (D033)	___	___	__________
Hexachloroethane (D034)	___	___	__________
Lindane (D013)	___	___	__________
Methoxychlor (D014)	___	___	__________
Methyl ethyl ketone (D035)	___	___	__________
Nitrobenzene (D036)	___	___	__________
Pentachlorophenol (D037)	___	___	__________
Pyridine (D038)	___	___	__________
Tetrachloroethylene (D039)	___	___	__________
Toxaphene (D015)	___	___	__________
Trichloroethylene (D040)	___	___	__________
2,4,5-Trichlorophenol (D041)	___	___	__________
2,4,6-Trichlorophenol (D042)	___	___	__________
2,4,5-TP (Silvex) (D017)	___	___	__________
Vinyl chloride (D043	___	___	__________

Immobilization--ANL-E uses a well-graded form of vermiculite with fines representing a very small portion of total. Particle size analysis of vermiculite indicates 1.7 and 0.0% of the particles are less than 200 and 10μ in diameter, respectively. Since this is unlikely to change during transport or storage, immobilization would not be required.

Sludges--The small quantity of sludges (as wet vermiculite) present will be contained within the bottles and the 90-mil rigid polyethylene liner. Therefore, sludges should not pose a problem.

Free Liquids--Because of the vermiculite used in this waste form, there should be no free liquids.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No reportable quantities of toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		3	0
Container Weight (lb)	Maximum:	128	
	Minimum:	117	
	Average:	124	
Contact Dose Rate (mR/h)	<10:	1	
	10-200:	2	
	Maximum:	50.0	
	Minimum:	5.0	
	Average:	24.3	
Radionuclide Inventory			
^{239}Pu (g)	Maximum:	8.1	
	Minimum:	8.1	
	Average:	8.1	
^{240}Pu (g)	Maximum:	1.0	
and other TRU isotopes	Minimum:	1.0	
	Average:	1.0	

Waste Form Evaluation:

Gas Generation--The organic content of the waste drums is estimated at less than 5 lb/ft^3.

Combustibility--Including packaging, this waste contains less than 25 percent combustibles. Color coding is not necessary.

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 020, NONCOMPRESSIBLE, NONCOMBUSTIBLE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	29	-	-	-	-
1974	156	-	-	-	-
1975	315	-	-	-	-
1976	276	-	-	-	-
1977	13	-	-	-	-
1978	2	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	1	-	-	-	-
1982	-	-	-	-	-
1983	2	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	794	-	-	-	-

3.9 Content Code 20

Content Description: Noncompressible, Noncombustible

Generator: Bettis Atomic Power Laboratory

Waste Description: This waste contains noncompressible and noncombustible items such as absolute filters, solidified chemical waste, contaminated metal equipment, furnace brick, and highly contaminated glovebox equipment.

Generation Source: The majority of waste was generated in the L-Building manufacturing facility.

Waste Form: Metal scrap could include bars, sheet, fixtures, small equipment, tools, etc. made of carbon steel, stainless steel, Inconel, aluminum, cooper, brass, and zirconium.

Chemical residues were spent chemical solutions and associated solids resulting from the isotopic and isotopic dilution analysis performed on nuclear fuel specimens. These residues were neutralized before being either mixed with absorbent material or solidified.

Most Content Code 20 drums contain less than 10% by volume of Content Code 10 (Combustibles) waste.

Recovery Method: No recovery methods were used to process this waste.

Waste Packaging and Handling:

1. Small items were wrapped in plastic and then placed into a 3-1/4-inch diameter by 7-inch-high, tin-plated steel can with a screw top. This can was then placed into a juice can and the juice can top was sealed onto the can with a roll seam.

2. Larger items were wrapped in plastic and placed in 4-3/8-inch-diameter by either 20-inches or 24-inches-high, tin-plated steel cans. The cover of the can was installed and the entire can was bagged in plastic.

3. All bagged cans were then placed into a type 17C or 6M drum along with other cans of waste.

4. Larger contaminated metal items that did not fit into the cans were wrapped in plastic before being placed into the Type 17C drum.

5. Neutralized chemical solutions with a pH between 6 and 8 were mixed with "Absorbal" and packaged in polyethylene bottles or solidified in metal cans. The bottles were placed into metal cans and wrapped in plastic before being placed into the Type 17C drum. Metal cans were wrapped in plastic before being placed into the Type 17C drum.

Drum Preparation: Individual items were single or double wrapped in plastic and placed in 17C 55-gallon drums. A 90-mil polyethylene liner was used in each drum.

Assay: Fissile content was determined by calculating weight differences, by chemical analysis, or by the use of an assay gauge.

Waste Generator Contact:

P. R. Gray

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		793	
Container Weight (lb)	Maximum:	543	
	Minimum:	92	
	Average:	237	
Contact Dose Rate (mR/h)	<10:	790	
	10-200:	3	
	Maximum:	32.0	
	Minimum:	0.0	
	Average:	2.2	
Radionuclide Inventory			
^{233}U (g)	Maximum:	405.0	
	Minimum:	0.0	
	Average:	9.6	
^{232}Th (g)	Maximum:	8692.0	
	Minimum:	0.0	
	Average:	289.5	

Waste Form Evaluation:

Gas Generation--The organic content of this waste will be less than 14 lb/ft^3.

Combustibles--Including packaging, this waste will contain less than 25 volume percent combustibles. Color coding will not be necessary.

Immobilization--Absolute filters are the primary source of particulate material. However, the quantity of respirable or dispersible fines contained in a Content Code 20 drum would not exceed the WIPP-WAC limits.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste is dry when packaged, except for absorbed or solidified solutions. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No reportable quantities of toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste. Residual nitric acid may be present in some waste packages.

Certification Assessment: Waste is certifiable.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site BETTIS ATOMIC POWER LAB   Date 5/12/93
Waste Description NONCOMPRESSIBLE, NONCOMBUSTIBLE   IDC 020

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)		X		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)		X	pH ____(1)	
Reactive (D003)		X		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)		X	
Barium (D005)		X	
Cadmium (D006)		X	
Chromium (D007)		X	
Lead (D008)		X	
Mercury (D009)		X	
Selenium (D010)		X	
Silver (D011)		X	
Benzene (D018)		X	
Carbon tetrachloride (D019)		X	
Chlordane (D020)		X	
Chlorobenzene (D021)		X	
Chloroform (D022)		X	
o-Cresol (D023)		X	
m-Cresol (D024)		X	
p-Cresol (D025)		X	
Cresol (D026)		X	
2,4-D (D016)		X	
1,4-Dichlorobenzene (D027)		X	
1,2-Dichloroethane (D028)		X	
1,1-Dichloroethylene (D029)		X	
2,4-Dinitrotoluene (D030)		X	
Endrin (D012)		X	
Heptachlor (D031) (and its epoxide)		X	
Hexachlorobenzene (D032)		X	
Hexachlorobutadiene (D033)		X	
Hexachloroethane (D034)		X	
Lindane (D013)		X	
Methoxychlor (D014)		X	
Methyl ethyl ketone (D035)		X	
Nitrobenzene (D036)		X	
Pentachlorophenol (D037)		X	
Pyridine (D038)		X	
Tetrachloroethylene (D039)		X	
Toxaphene (D015)		X	
Trichloroethylene (D040)		X	
2,4,5-Trichlorophenol (D041)		X	
2,4,6-Trichlorophenol (D042)		X	
2,4,5-TP (Silvex) (D017)		X	
Vinyl chloride (D043		X	

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site Bettis Atomic Power Lab   Date 5/12/92
Waste Description Noncompressible, Noncombustible   IDC 020

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene		X	
Bromoform		X	
Carbon Tetrachloride		X	
Chlorobenzene		X	
Chloroform		X	
Cyclohexane		X	
1,1-Dichloroethane		X	
1,2-Dichloroethane		X	
1,1-Dichloroethene		X	
cis-1,2-Dichloroethene		X	
Ethyl Benzene		X	
Ethyl Ether		X	
Methylene Chloride	X		1 (Trace Amounts)
1,1,2,2-Tetrachloroethane		X	
Tetrachloroethene		X	
Toluene		X	
1,1,1-Trichloroethane		X	
Trichloroethene		X	
1,1,2-Trichloro-1,2,2-trifluoroethane	X		1 (Trace Amounts)
1,3,5-Trimethylbenzene		X	
1,2,4-Trimethylbenzene		X	
m-Xylene		X	
o-Xylene		X	
p-Xylene		X	
Acetone		X	
1-Butanol		X	
2-Butanone		X	
Methanol		X	
4-Methyl-2-pentanone		X	

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site BETTIS ATOMIC POWER LAB. Date 5/12/93
Waste Description NONCOMPRESSIBLE, NONCOMBUSTIBLE IDC 020

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates		X	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids		X	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials		X	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases		X	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)		X	
Asbestos		X	

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)

		1	2	3	4
(1) pH Ranges	pH	0-2	2-7	7-12.5	12.5-14
(2) Concentration Ranges	Concentration	1	2	3	4
		<0.1%	0.1-1%	1.0-10%	10-100%

TRANSURANIC WASTE CHARACTERIZATION QUESTIONNAIRE

Bettis Atomic Power Laboratory

Content Code 030

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 030, SOLIDIFIED GRINDING SLUDGE, ETC.

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	1	-	-	-	-
1974	35	-	-	-	-
1975	2	-	-	-	-
1976	3	-	-	-	-
1977	3	-	-	-	-
1978	1	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	2	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	45	-	-	2	-

3.10 Content Code 30

Content Description: Solidified Grinding Sludge, etc.

Generator: Bettis Atomic Power Laboratory

Waste Description: Solidified grinding sludge and associated filters, rags, etc.

Generation Source: The majority of waste was generated in the L-Building, Fuel Manufacturing Facility.

Waste Form: The grinding sludge was composed of abrasive materials from grinding wheels, which included diamond dust, aluminum oxide, carborundum, and rubber. The form of the sludge when packaged was either powder or cake. It is estimated that not more than 10% of other waste items would be found in this waste.

Recovery Method: Burnable filter bags were incinerated, and recoverable fissile materials shipped for reprocessing.

Waste Packaging and Handling: The grinding sludge was dried in a CO_2 atmosphere at 950°C, cooled, and packaged into 3-1/4-inch-diameter by 7-inch-high, tin-plated steel cans. These cans were wrapped in plastic before being placed in the shipment drum.

Drum Preparation: Both 17C and 6M 55-gallon drums were used for packaging this waste. The 90-mil polyethylene drum liner was used in all 17C waste drums.

Assay: Fissile content was determined by calculating weight difference by chemical analysis or by use of an assay gauge.

Waste Generator Contact:

C. K. Gaddis

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		45	
Container Weight (lb)	Maximum:	256	
	Minimum:	233	
	Average:	241	
Contact Dose Rate (mR/h)	<10:	28	
	10-200:	17	
	Maximum:	60.0	
	Minimum:	0.4	
	Average:	12.4	
Radionuclide Inventory			
^{233}U (g)	Maximum:	273.0	
	Minimum:	1.4	
	Average:	136.2	
^{232}Th (g)	Maximum:	6500.0	
	Minimum:	44.0	
	Average:	2384.0	

Waste Form Evaluation:

Gas Generation--It is estimated that the average weight of organic material in Content Code 30 drums, excluding the drum liner or plywood, would not exceed 1 pound for either type of drum.

Combustibles--Including the 90-mil drum liner, lid, and plastic used to wrap cans of waste inside a 17C drum, the combustibles within the drum would not exceed 25 volume percent. Including the plywood spacers and plastic used to wrap cans of waste inside a 6M drum, the combustibles within the drum would exceed 25 volume percent. The 6M drums will require color coding.

Immobilization--No specific data are available as to the size of the particulate material contained in Content Code 30 drums. However, since the sludge was produced from grinding operations, it is estimated that the quantity of particulate material would exceed the limits of the WIPP-WAC.

Sludges--This waste form is a dried sludge.

Free Liquid--The waste is dry when packaged. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No reportable quantities of toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: This waste is uncertifiable due to the presence of respirable and dispersible fines in excess of the WIPP-WAC.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site BETTIS ATOMIC POWER LAB Date 5/12/93
Waste Description SOLIDIFIED GRINDING SLUDGE, ETC IDC 030

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)		X		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)		X	pH ______(1)	
Reactive (D003)		X		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)		X	
Barium (D005)		X	
Cadmium (D006)		X	
Chromium (D007)		X	
Lead (D008)		X	
Mercury (D009)		X	
Selenium (D010)		X	
Silver (D011)		X	
Benzene (D018)		X	
Carbon tetrachloride (D019)		X	
Chlordane (D020)		X	
Chlorobenzene (D021)		X	
Chloroform (D022)		X	
o-Cresol (D023)		X	
m-Cresol (D024)		X	
p-Cresol (D025)		X	
Cresol (D026)		X	
2,4-D (D016)		X	
1,4-Dichlorobenzene (D027)		X	
1,2-Dichloroethane (D028)		X	
1,1-Dichloroethylene (D029)		X	
2,4-Dinitrotoluene (D030)		X	
Endrin (D012)		X	
Heptachlor (D031) (and its epoxide)		X	
Hexachlorobenzene (D032)		X	
Hexachlorobutadiene (D033)		X	
Hexachloroethane (D034)		X	
Lindane (D013)		X	
Methoxychlor (D014)		X	
Methyl ethyl ketone (D035)		X	
Nitrobenzene (D036)		X	
Pentachlorophenol (D037)		X	
Pyridine (D038)		X	
Tetrachloroethylene (D039)		X	
Toxaphene (D015)		X	
Trichloroethylene (D040)		X	
2,4,5-Trichlorophenol (D041)		X	
2,4,6-Trichlorophenol (D042)		X	
2,4,5-TP (Silvex) (D017)		X	
Vinyl chloride (D043		X	

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site BETTIS ATOMIC POWER LAB
Waste Description SOLIDIFIED GRINDING SLUDGE, ETC.

Date 5/12/93
IDC 030

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE?		
	YES	NO	CONCENTRATION RANGE(2)
Benzene		X	
Bromoform		X	
Carbon Tetrachloride		X	
Chlorobenzene		X	
Chloroform		X	
Cyclohexane		X	
1,1-Dichloroethane		X	
1,2-Dichloroethane		X	
1,1-Dichloroethene		X	
cis-1,2-Dichloroethene		X	
Ethyl Benzene		X	
Ethyl Ether		X	
Methylene Chloride	X		1 (TRACE AMOUNTS)
1,1,2,2-Tetrachloroethane		X	
Tetrachloroethene		X	
Toluene		X	
1,1,1-Trichloroethane		X	
Trichloroethene		X	
1,1,2-Trichloro-1,2,2-trifluoroethane	X		1 (TRACE AMOUNTS)
1,3,5-Trimethylbenzene		X	
1,2,4-Trimethylbenzene		X	
m-Xylene		X	
o-Xylene		X	
p-Xylene		X	
Acetone		X	
1-Butanol		X	
2-Butanone		X	
Methanol		X	
4-Methyl-2-pentanone		X	

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT,
WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN,
WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA,
AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site Bettis Atomic Power Lab — Date 5/12/93
Waste Description Solidified Grinding Sludge, Etc. — IDC 030

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
* Particulates * Best estimate. Size of particulates is unkmown.	___	X	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	X	Only residual liquids; as a guideline, residyal liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	X	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	X	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	X	___
Asbestos	___	X	___

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
___	___
___	___
___	___
___	___

		1	2	3	4
(1)	pH Ranges pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges Concentration	1 <0.1%	2 0.1-1%	3 1.0-10%	4 10-100%

TRANSURANIC WASTE CHARACTERIZATION QUESTIONNAIRE

Bettis Atomic Power Laboratory

Content Code 040

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 040, SOLID BINARY SCRAP POWDER, ETC.

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	1	-	-	-	-
1975	1	-	-	-	-
1976	10	-	-	-	-
1977	5	-	-	-	-
1978	10	-	-	-	-
1979	56	-	-	-	-
1980	12	-	-	-	77
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	95	-	-	-	77

3.11 Content Code 40

Content Description: Solid Binary Scrap Powder

Generator: Bettis Atomic Power Laboratory

Waste Description: Waste consists of solid binary scrap in the form of powder, pellets, or rods. The waste will also include "Kilorods" or fuel rods constructed of fuel pellets within hollow, zirconium tubes.

Generation Source: The majority of waste was generated by C-Area-Experimental Physics Facility and TRX Facility.

Waste Form: Binary scrap consists of unusable fuel material in the form of powder, pellets, or rods. The material is made of ceramic-based UO_2 and ThO_2.

Recovery Method: No recovery methods were used.

Waste Packaging and Handling: Binary scrap powder and pellets were packaged in 3-1/4-inch-diameter by 7-inch-high, tin-plated steel cans or in 4-3/8-inch-diameter by either 20- or 24-inch-high, tin-plated steel cans. These cans were wrapped in plastic before being placed in the 6M shipment drums. Three cans were placed in each drum.

Kilorods were placed into a plastic-lined, 5-inch-diameter pipe installed within a 6M drum, with either 55- or 100-gallon capacity. Between 18 and 20 Kilorods were placed in each 55-gallon drum, and 10 or 11 Kilorods were placed in each 100-gallon drum.

Drum Preparation: Drums containing Kilorods contained lead shielding. A 1-inch-thick lead cylinder was installed within the 2R container in 55-gallon drums, and a 3/4-inch-thick lead cylinder was installed within the 2R container in 100-gallon drums.

Assay: Fissile content was determined by calculating weight differences, by chemical analysis, by use of an assay gauge, or by values assigned to each fuel rod.

Waste Generator Contact:

C. K. Gaddis
P. R. Gray

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		172	0
Container Weight (lb)	Maximum:	600	
	Minimum:	175	
	Average:	486	
Contact Dose Rate (mR/h)	<10:	16	
	10-200:	156	
	Maximum:	135.0	
	Minimum:	0.1	
	Average:	75.8	
Radionuclide Inventory			
^{233}U (g)	Maximum:	287.0	
	Minimum:	16.0	
	Average:	208.6	
^{232}Th (g)	Maximum:	9300.0	
	Minimum:	0.0	
	Average:	4703.3	

Waste Form Evaluation:

Gas Generation--It is estimated that the average weight of organic material, excluding the plywood, in this waste would not exceed 1 pound per drum.

Combustibles--Including the plywood spacers, Celotex rings, and plastic used to wrap cans of waste inside a 6M drum, the combustibles within the drum would exceed 25 volume percent. Color coding will be required.

Immobilization--Drums containing Kilorods would not exceed the WIPP-WAC limits for particulate material. No specific data are available as to the particulate size of scrap powder. However, it is estimated that this material would exceed the WIPP-WAC limits for particulate material.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste is dry when packaged. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No reportable quantities of toxic materials (49CFR173, Subpart H) have been identified in this waste. Residual nitric acid may be present in some waste packages.

Certification Assessment: Fuel rods (Kilorods) contained in 6M drums are certifiable. Drums containing binary scrap powder or a mixture of powder and pellets are not certifiable due to the presence of particulate material in quantities that would exceed the WIPP-WAC limits.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site Bettis Atomic Power Lab Date 5/12/93
Waste Description Solid Binary Scrap Powder, Etc. IDC 040

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)		X		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)		X	pH ______(1)	
Reactive (D003)		X		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)		X	
Barium (D005)		X	
Cadmium (D006)		X	
Chromium (D007)		X	
Lead (D008)		X	*
Mercury (D009)		X	
Selenium (D010)		X	
Silver (D011)		X	
Benzene (D018)		X	
Carbon tetrachloride (D019)		X	
Chlordane (D020)		X	
Chlorobenzene (D021)		X	
Chloroform (D022)		X	
o-Cresol (D023)		X	
m-Cresol (D024)		X	
p-Cresol (D025)		X	
Cresol (D026)		X	
2,4-D (D016)		X	
1,4-Dichlorobenzene (D027)		X	
1,2-Dichloroethane (D028)		X	
1,1-Dichloroethylene (D029)		X	
2,4-Dinitrotoluene (D030)		X	
Endrin (D012)		X	
Heptachlor (D031) (and its epoxide)		X	
Hexachlorobenzene (D032)		X	
Hexachlorobutadiene (D033)		X	
Hexachloroethane (D034)		X	
Lindane (D013)		X	
Methoxychlor (D014)		X	
Methyl ethyl ketone (D035)		X	
Nitrobenzene (D036)		X	
Pentachlorophenol (D037)		X	
Pyridine (D038)		X	
Tetrachloroethylene (D039)		X	
Toxaphene (D015)		X	
Trichloroethylene (D040)		X	
2,4,5-Trichlorophenol (D041)		X	
2,4,6-Trichlorophenol (D042)		X	
2,4,5-TP (Silvex) (D017)		X	
Vinyl chloride (D043		X	

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT,
WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN,
WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA,
AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site Bettis Atomic Power Lab. Date 5/12/93
Waste Description Solid Binary Scrap Powder Etc. IDC 040

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene		X	
Bromoform		X	
Carbon Tetrachloride		X	
Chlorobenzene		X	
Chloroform		X	
Cyclohexane		X	
1,1-Dichloroethane		X	
1,2-Dichloroethane		X	
1,1-Dichloroethene		X	
cis-1,2-Dichloroethene		X	
Ethyl Benzene		X	
Ethyl Ether		X	
Methylene Chloride		X	
1,1,2,2-Tetrachloroethane		X	
Tetrachloroethene		X	
Toluene		X	
1,1,1-Trichloroethane		X	
Trichloroethene		X	
1,1,2-Trichloro-1,2,2-trifluoroethane		X	
1,3,5-Trimethylbenzene		X	
1,2,4-Trimethylbenzene		X	
m-Xylene		X	
o-Xylene		X	
p-Xylene		X	
Acetone		X	
1-Butanol		X	
2-Butanone		X	
Methanol		X	
4-Methyl-2-pentanone		X	

* Lead inside container used as shielding as identified in content code description.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site BETTIS ATOMIC POWER LAB.　　Date 5/12/93
Waste Description SOLID BINARY SCRAP POWDER, ETC.　　IDC 040

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
* Particulates * Best estimate. Size of particulates is unknown.	___	X	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	X	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	X	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	X	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	X	___
Asbestos	___	X	___

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
___	___
___	___
___	___
___	___

		1	2	3	4
(1)	pH Ranges pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

TRANSURANIC WASTE CHARACTERIZATION QUESTIONNAIRE

Bettis Atomic Power Laboratory

Content Code 050

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 050, SOLIDIFIED SOLUTIONS

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	1	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	1	-	-	-	-

Content Code 050

Content Description: Solidified Solutions

Generator: Bettis Atomic Power Laboratory

Waste Description: The waste consists of plutonium and neptunium-bearing salts each separately solidified in a Pyrex beaker.

Waste Packaging and Handling: Each of the two beakers containing the solidified material was sealed in a PVC sleeve and placed in a wide mouth plastic bottle which was filled with dry cement and vermiculite. A screw cap was secured on the bottle. The plastic bottle was placed in a seamless, stainless steel can and a screw cap secured the can. The can was placed in a yellow PVC sleeve, sealed, and placed in a yellow PVC bag. The bag was placed in a metal can and a slip lid placed on the can. The dimensions of the can were 11-1/2" high x 4-1/2" dia.

The two cans were placed inside a 2R pipe which was centered in a 55 gallon 17C drum.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site Bettis Atomic Power Lab　　Date 5/12/93
Waste Description Solidified Solutions　　IDC 050

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)		X		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)		X	pH ______(1)	
Reactive (D003)		X		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)		X	
Barium (D005)		X	
Cadmium (D006)		X	
Chromium (D007)		X	
Lead (D008)		X	
Mercury (D009)		X	
Selenium (D010)		X	
Silver (D011)		X	
Benzene (D018)		X	
Carbon tetrachloride (D019)		X	
Chlordane (D020)		X	
Chlorobenzene (D021)		X	
Chloroform (D022)		X	
o-Cresol (D023)		X	
m-Cresol (D024)		X	
p-Cresol (D025)		X	
Cresol (D026)		X	
2,4-D (D016)		X	
1,4-Dichlorobenzene (D027)		X	
1,2-Dichloroethane (D028)		X	
1,1-Dichloroethylene (D029)		X	
2,4-Dinitrotoluene (D030)		X	
Endrin (D012)		X	
Heptachlor (D031) (and its epoxide)		X	
Hexachlorobenzene (D032)		X	
Hexachlorobutadiene (D033)		X	
Hexachloroethane (D034)		X	
Lindane (D013)		X	
Methoxychlor (D014)		X	
Methyl ethyl ketone (D035)		X	
Nitrobenzene (D036)		X	
Pentachlorophenol (D037)		X	
Pyridine (D038)		X	
Tetrachloroethylene (D039)		X	
Toxaphene (D015)		X	
Trichloroethylene (D040)		X	
2,4,5-Trichlorophenol (D041)		X	
2,4,6-Trichlorophenol (D042)		X	
2,4,5-TP (Silvex) (D017)		X	
Vinyl chloride (D043		X	

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site Bettis Atomic Power Lab
Waste Description Solidified Solutions

Date 5/12/93
IDC 050

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene		X	
Bromoform		X	
Carbon Tetrachloride		X	
Chlorobenzene		X	
Chloroform		X	
Cyclohexane		X	
1,1-Dichloroethane		X	
1,2-Dichloroethane		X	
1,1-Dichloroethene		X	
cis-1,2-Dichloroethene		X	
Ethyl Benzene		X	
Ethyl Ether		X	
Methylene Chloride		X	
1,1,2,2-Tetrachloroethane		X	
Tetrachloroethene		X	
Toluene		X	
1,1,1-Trichloroethane		X	
Trichloroethene		X	
1,1,2-Trichloro-1,2,2-trifluoroethane		X	
1,3,5-Trimethylbenzene		X	
1,2,4-Trimethylbenzene		X	
m-Xylene		X	
o-Xylene		X	
p-Xylene		X	
Acetone		X	
1-Butanol		X	
2-Butanone		X	
Methanol		X	
4-Methyl-2-pentanone		X	

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT,
WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN,
WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA,
AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site Bettis Atomic Power Lab Date 5/12/93
Waste Description Solidified Solutions IDC 050

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	X	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	X	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	X	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	X	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	X	___
Asbestos	___	X	___

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
___	___
___	___
___	___
___	___

	1	2	3	4
(1) pH Ranges pH	0-2	2-7	7-12.5	12.5-14
(2) Concentration Ranges Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

TRANSURANIC WASTE CHARACTERIZATION QUESTIONNAIRE

Bettis Atomic Power Laboratory

Content Code 081

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site Bettis Atomic Power Lab Date 5/12/93
Waste Description Metal-Metal Samples Fissile IDC 081

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)	___	X		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)	___	X	pH ______(1)	
Reactive (D003)	___	X		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	X	______
Barium (D005)	___	X	______
Cadmium (D006)	___	X	______
Chromium (D007)	___	X	______
Lead (D008)	___	X	______
Mercury (D009)	___	X	______
Selenium (D010)	___	X	______
Silver (D011)	___	X	______
Benzene (D018)	___	X	______
Carbon tetrachloride (D019)	___	X	______
Chlordane (D020)	___	X	______
Chlorobenzene (D021)	___	X	______
Chloroform (D022)	___	X	______
o-Cresol (D023)	___	X	______
m-Cresol (D024)	___	X	______
p-Cresol (D025)	___	X	______
Cresol (D026)	___	X	______
2,4-D (D016)	___	X	______
1,4-Dichlorobenzene (D027)	___	X	______
1,2-Dichloroethane (D028)	___	X	______
1,1-Dichloroethylene (D029)	___	X	______
2,4-Dinitrotoluene (D030)	___	X	______
Endrin (D012)	___	X	______
Heptachlor (D031) (and its epoxide)	___	X	______
Hexachlorobenzene (D032)	___	X	______
Hexachlorobutadiene (D033)	___	X	______
Hexachloroethane (D034)	___	X	______
Lindane (D013)	___	X	______
Methoxychlor (D014)	___	X	______
Methyl ethyl ketone (D035)	___	X	______
Nitrobenzene (D036)	___	X	______
Pentachlorophenol (D037)	___	X	______
Pyridine (D038)	___	X	______
Tetrachloroethylene (D039)	___	X	______
Toxaphene (D015)	___	X	______
Trichloroethylene (D040)	___	X	______
2,4,5-Trichlorophenol (D041)	___	X	______
2,4,6-Trichlorophenol (D042)	___	X	______
2,4,5-TP (Silvex) (D017)	___	X	______
Vinyl chloride (D043	___	X	______

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT,
WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN,
WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA,
AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site Bettis Atomic Power Lab Date 5/12/93
Waste Description Metal-Metal Samples Fissile IDC 081

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE?		
	YES	NO	CONCENTRATION RANGE(2)
Benzene		X	
Bromoform		X	
Carbon Tetrachloride		X	
Chlorobenzene		X	
Chloroform		X	
Cyclohexane		X	
1,1-Dichloroethane		X	
1,2-Dichloroethane		X	
1,1-Dichloroethene		X	
cis-1,2-Dichloroethene		X	
Ethyl Benzene		X	
Ethyl Ether		X	
Methylene Chloride		X	
1,1,2,2-Tetrachloroethane		X	
Tetrachloroethene		X	
Toluene		X	
1,1,1-Trichloroethane		X	
Trichloroethene		X	
1,1,2-Trichloro-1,2,2-trifluoroethane		X	
1,3,5-Trimethylbenzene		X	
1,2,4-Trimethylbenzene		X	
m-Xylene		X	
o-Xylene		X	
p-Xylene		X	
Acetone		X	
1-Butanol		X	
2-Butanone		X	
Methanol		X	
4-Methyl-2-pentanone		X	

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site BETTIS ATOMIC POWER LAB   Date 5/12/93
Waste Description METAL-METAL SAMPLES FISSILE   IDC 081

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	X	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	X	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	X	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	X	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	X	___
Asbestos	___	X	___

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
___	___
___	___
___	___
___	___

		1	2	3	4
(1)	pH Ranges				
	pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges				
	Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

Content Code 081

Content Description: Metal-Metal Samples Fissile

Generator: Bettis Atomic Power Laboratory

Waste Description: The waste consists of 17 drums of unirradiated fuel-bearing metallographic mounts. The mount material is identified as Quickmount Powder and Liquid which are non-hazardous materials per RCRA.

Waste Packaging and Handling: The metallographic mounts were placed in metal "juice can" and the juice can top was sealed to the can with a roll-seam. Packaged waste was placed in 17C 55-gallon drums with a 90-mil polyethylene drum liner. The number of cans per drum varied between 43 and 91.

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 081, METAL-METAL SAMPLES FISSILE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	17	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	17	-	-	-	-

Attachment I
EDF RWMC-676
Argonne National Laboratory
Questionnaire and Response
Page 1 of 36

INEL
Idaho National Engineering Laboratory

bcc: (w/o Attach/Encl)
D. J. Bright, MS 4201
D. L. Eaton, MS 1560
R. D. Falconer, MS 3950 RDF
D. L. French, MS 4201
K. McNeel, MS 1560
C. B. Ozaki, MS 3960
Central Files, MS 1651
Technical Support File, MS 3950
WETP Project File, MS 3950
T. L. Clements, Jr. File

March 10, 1993

Mr. J. T. Case
U.S. Department of Energy
Idaho Field Office
785 DOE Place, MS 1118
Idaho Falls, ID 83401-1562

TRANSURANIC (TRU) WASTE CHARACTERIZATION QUESTIONNAIRE - TLC-36-93

Dear Mr. Case:

Enclosed are questionnaire packages for transmittal to facilities other than EG&G Rocky Flats that have shipped TRU waste to the Idaho National Engineering Laboratory (INEL) for storage. The purpose of the questionnaire is to improve INEL knowledge of hazardous constituents in stored waste. In conversations with Mr. D. G. Hinckley, it was agreed that these questionnaires would elicit the best response if they were transmitted through the U.S. Department of Energy, rather than from a Management and Operations (M&O) contractor to another M&O contractor.

A draft transmittal letter and address for each of the questionnaires is included. Please transmit these packages to the appropriate facilities.

If you have any questions, please contact either R. D. Falconer at 526-2960 or me at 526-0664.

Sincerely,

T. L. Clements, Jr.

T. L. Clements, Jr., Manager
Transuranic Waste Programs

RDF:lap

Attachment/Enclosure:
As Stated

cc: (w/o Attach/Encl)
D. G. Hinckley, DOE-ID, MS 1118
J. L. McAnally, EG&G Idaho, MS 3940
J. C. Okeson, EG&G Idaho, MS 3590

Department of Energy
Idaho Field Office
785 DOE Place
Idaho Falls, Idaho 83401-1562

April 7, 1993

Addressees

Subject: Transuranic (TRU) Waste Characterization Questionnaire (AM/ERWM/WMOB 93-077)

New and/or expanding Resource Conservation and Recovery Act (RCRA), Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria (WAC), and No-Migration Determination for WIPP storage and disposal requirements necessitate more detailed characterization of radioactive waste for toxic and/or hazardous constituents than was required at the time the waste was generated. Cost and operational concerns mandate that process knowledge (i.e., what was the process that generated the waste and what are the toxic and/or hazardous constituents used that are likely to be found in the waste) be used to the maximum extent possible in performing this characterization.

To assist generators in supplying as much process knowledge as possible concerning toxic and/or hazardous waste constituents, the enclosed questionnaire package has been prepared for each TRU waste type that was shipped to the Idaho National Engineering Laboratory (INEL) for storage. The questionnaire package consists of the following.

1. Inventory by year received at INEL and type and number of containers.

2. A description of the waste and waste packaging, as given in "Content Code Assessments for INEL Contact-Handled Stored Transuranic Wastes, WM-F1-82-021, October 1982" by T. L. Clements, Jr.

3. Checklist for RCRA, WIPP Quality Assurance Program Plan (QAPP), WIPP-WAC, and Toxic Substances Control Act (TSCA) hazardous and toxic waste constituents for each Item Description Code (IDC).

For each IDC, the waste descriptions should be checked for completeness and accuracy; any corrections or additions can be handwritten on the description sheets supplied. If a waste description is not included, please provide a brief description of the waste source, possible constituents, and packaging. Items on the checklist for RCRA, WIPP QAPP, WIPP-WAC, and TSCA hazardous and/or toxic waste constituents should be checked as appropriate, with a concentration estimate for items checked as being present in the waste. Additional space is provided to add any known RCRA constituents present in the waste that are not included on the list.

It is realized that knowledge of these historical wastes may be sketchy at best. It is the intention of this questionnaire to gather, on a best effort basis, existing knowledge from long-term employees, review of process,

262421

available records, etc. For continued storage of the waste, and prior to disposal, a certain percentage of the waste containers will be opened and the waste characterized to determine if it compiles with all storage and disposal requirements. If process knowledge, as already known and to be improved on by this questionnaire, proves to be sufficiently accurate, the percentage of waste containers to be opened and characterized can be kept to a minimum, at great cost savings to the U.S. Department of Energy and the taxpayer.

Please complete this questionnaire by May 17, 1993 and return to the following address.

EG&G Idaho, Inc.
P.O. Box 1625, Mail Stop 3950
Idaho Falls, Idaho 83415-3950

ATTN: Ralph D. Falconer

If you have any questions concerning the information required, please call Mr. D. G. Hinckley of my staff at (208) 526-0173.

Jeffrey T Shadley For JTC

J. T. Case, Branch Chief
Waste Management Operations Branch

Enclosure

cc: (w/o Encl)
N. L. Harris, Bettis Atomic Power Laboratory
T. L. Clements, Jr., EG&G Idaho
R. D. Falconer, EG&G Idaho
R. Finney, EG&G Mound Applied Technologies

Addressee List

Mr. Evet L. Gonzalez, Manager
Waste Management Program
U.S. Department of Energy
Argonne Area Office
9800 South Cass Avenue
Argonne, IL 60439

Mr. Ben Maiden, Director
Hazardous Waste Management Division
Battelle Columbus Laboratory
505 King Avenue
Columbus, OH 43201

Mr. E. D. Shollenberger
U.S. Department of Energy
Pittsburgh Naval Reactors Office
PO Box 109
West Mifflin, PA 15122-0109

Mr. Richard F. Sena
U.S. Department of Energy
Albuquerque Field Office
PO Box 5400
Albuquerque, NM 87185-5400

Mr. Bennett Young
U.S. Department of Energy
Grand Junction Project Office
P.O. Box 2597
Grand Junction, CO 81503

INVENTORY OF WASTE RECEIVED FROM ARGONNE NATIONAL LABORATORY EAST

IDC	WASTE DESCRIPTION	DRUMS	BOXES	BINS	INSERTS	OTHER
100	GENERAL PLANT WASTE	2	1	325	-	-
101	CUT UP GLOVEBOXES	-	5	67	-	-
102	ABSORBED LIQUIDS	105	-	13	-	-
104	ALPHA HOT CELL WASTE	394	-	6	-	10
105	EMPTY BOTTLES AND ABSORBENT	6	-	-	-	1
106	SPECIAL SOURCE MATERIAL	1	-	-	-	-
107	ALPHA HOT CELL WASTE	30	-	-	-	-
110	WIPP PRECERTIFIED RGW COMPACTIBLE	2	1	-	-	-
111	SOLIDIFIED WET SLUDGE	6	-	-	-	-
120	WIPP PRECERTIFIED DDW COMPACTIBLE	2	-	-	-	-
121	TRU ORGANIC SOLID WASTE	-	8	-	-	-
	TOTALS	548	15	411	-	11

INVENTORY OF WASTE RECEIVED FROM ARGONNE NATIONAL LABORATORY EAST
IDC 100, GENERAL PLANT WASTE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	48	-	-
1975	-	-	22	-	-
1976	-	-	42	-	-
1977	-	-	36	-	-
1978	-	-	30	-	-
1979	-	-	48	-	-
1980	-	-	36	-	-
1981	-	-	12	-	-
1982	-	-	28	-	-
1983	-	-	20	-	-
1984	-	-	3	-	-
1985	-	1	-	-	-
1986	-	-	-	-	-
1987	2	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	2	1	325	-	-

INVENTORY OF WASTE RECEIVED FROM ARGONNE NATIONAL LABORATORY EAST
IDC 101, CUT UP GLOVEBOXES

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	13	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	7	-	-
1980	-	-	24	-	-
1981	-	-	-	-	-
1982	-	-	15	-	-
1983	-	-	3	-	-
1984	-	-	5	-	-
1985	-	5	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	-	5	67	-	-

INVENTORY OF WASTE RECEIVED FROM ARGONNE NATIONAL LABORATORY EAST
IDC 102, ABSORBED LIQUIDS

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	26	-	-	-	-
1981	-	-	-	-	-
1982	-	-	8	-	-
1983	32	-	3	-	-
1984	15	-	2	-	-
1985	-	-	-	-	-
1986	16	-	-	-	-
1987	16	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	105	-	13	-	-

INVENTORY OF WASTE RECEIVED FROM ARGONNE NATIONAL LABORATORY EAST
IDC 104, ALPHA HOT CELL WASTE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	40	-	-	-	-
1977	34	-	-	-	-
1978	50	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	60	-	-	-	10
1982	120	-	6	-	-
1983	30	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	60	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	394	-	6	-	10

INVENTORY OF WASTE RECEIVED FROM ARGONNE NATIONAL LABORATORY EAST
IDC 105, EMPTY BOTTLES AND ABSORBENT

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	2	-	-	-	1
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	4	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	6	-	-	-	1

INVENTORY OF WASTE RECEIVED FROM ARGONNE NATIONAL LABORATORY EAST
IDC 106, SPECIAL SOURCE MATERIAL

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	1	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	1	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM ARGONNE NATIONAL LABORATORY EAST
IDC 107, ALPHA HOT CELL WASTE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	30	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	30	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM ARGONNE NATIONAL LABORATORY EAST
IDC 110, WIPP CERTIFIED RGW COMPACTIBLE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	1	1	-	-	-
1987	1	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	2	1	-	-	-

INVENTORY OF WASTE RECEIVED FROM ARGONNE NATIONAL LABORATORY EAST
IDC 111, SOLIDIFIED WET SLUDGE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	5	-	-	-	-
1987	1	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	6	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM ARGONNE NATIONAL LABORATORY EAST
IDC 120, WIPP PRECERTIFIED DDW COMPACTIBLE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	2	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	2	-	-	-	-

INVENTORY OF WASTE RECEIVED FROM ARGONNE NATIONAL LABORATORY EAST
IDC 121, TRU ORGANIC SOLID WASTE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	8	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	-	8	-	-	-

3.14 Content Code 100

Content Description: General Plant Waste

Waste Generator: Argonne National Laboratory-East (ANL-E)

Waste Description: Waste contains combustible and noncombustible items such as paper, rags, rubber gloves, plastic bottles, glassware, small tools, balances, and empty metal cans. The waste is usually segregated into combustible and noncumbustible fractions. Prior to 1981, the waste included small, isolated quantities of absorbed organic wastes.

Generation Source: Waste in this content code is routinely generated by ANL-E operations. Major sources include Chemistry Division, Chemical Engineering Division, Special Materials Division, and decontamination and decommissioning projects.

Recovery Method: None.

Waste Handling and Packaging: All Content Code 100 wastes are packaged in 3- and 5-gallon paint cans with crimp-on lids, and in 17H 55-gallon drums. Waste placed in these containers may be double-contained in plastic; contained in 4-inch-diameter by 8-inch high aluminum cans; or contained in 1/2- and 1-gallon metal cans and polyethylene bottles.

The 3- and 5-gallon paint cans and 55-gallon drums are placed in M-III bins. Waste placed in M-III bins is usually segregated. Bins containing combustible wastes are labeled with a green triangle. Because of the difference in waste packaging, the bins should be considered as the second level of containment. The 55-gallon drums placed in bins will periodically contain 3- and 5-gallon paint cans.

Prior to 1981, small amounts of organic and toxic wastes generated by the Chemistry Division were periodically included in waste shipments to the INEL. These wastes, which included some ether-based scintillation liquids, were absorbed in vermiculite contained in 1-gallon polyethylene bottles and allowed to dry. The bottle was sealed, placed in a 3-gallon paint can, and the can was filled with vermiculite. The paint can was sealed and placed in a 55-gallon drum (several cans/drum).

Waste Generator Contacts:

- C. L. Cheever
- E. R. Taylor
- W. Tyrrell
- J. R. McCreary
- L. F. Coleman
- W. H. Livernash
- W. H. Kline

Record Information: INEL-TCWCIS

Information (1971-81)		Bins
Total Containers		262
Container Weight (lb)	Maximum:	3000
	Minimum:	1000
	Average:	2133
Contact Dose Rate (mR/h)	<10:	167
	10-200:	88
	>200	7
	Maximum:	700
	Minimum:	0.3
	Average:	37.3
Radionuclide Inventory		
^{239}Pu (g)	Maximum:	53.1
	Minimum:	0.4
	Average:	1.6
^{240}Pu (g) and other TRU isotopes	Maximum:	13.0
	Minimum:	0.0
	Average:	0.4

Waste Form Evaluation:

Gas Generation--Organic content will exceed 6 lb/ft^3 for bins containing combustible wastes.

Combustibility--Bins containing combustible waste will require color coding. Those containing noncombustibles should have less than 25 volume percent combustible waste. However, since past ANL-E waste segregation practices were not well regulated, bins packaged before 1981 should be confirmed by examination.

Immobilization--Dispersible or respirable fines in excess of WIPP-WAC are not anticipated.

Sludges--Small amounts of sludges are present. Liquid in the sludges should not be desorbable.

Free Liquids--No free liquids are identified in this waste form.

Explosives/Compressed Gases--Contaminated gas cylinders from cleanup of the Chemical Engineering Division's accidental hydrogen explosion have been included in waste shipments. The cylinders are reportedly empty and the valves were left in the open position. A limited number of aerosol cans will also be present in the waste.

Prior to 1981, potentially unstable materials such as nitrated organic ion exchange resins, and ether-based scintillation fluids were included in the waste. As previously described, the scintillation fluids and other organic wastes were absorbed on vermiculite and allowed to dry. Ether-based scintillation fluids, upon standing, might form peroxides and would be unstable. Although specific information is not available, absorbed liquids are generally present in small, isolated quantities. Since January 1981, all contaminated organics have been stored at ANL-E for future processing.

Pyrophoric Materials--Pyrophoric materials (49CFR173, Subparts D and E) are reportedly not included in this waste.

Toxic/Corrosive Materials--No reportable quantities of toxic or corrosive materials (49CFR173, Subparts H and F) have been found in this waste. Prior to 1981, as previously described, the waste included limited amounts of various absorbed organic laboratory wastes. The waste also includes machining, lubricating, and pump oils absorbed on vermiculite and contained in metal cans and polyethylene bottles. It is not known if any of the oils were contaminated with polychlorinated biphenyls.

Certification Assessment: At present, waste packaged prior to 1981 cannot be certified due to the presence of potentially unstable materials in the waste. Information concerning the location or quantity of these materials in the waste is currently not available.

Waste packaged since January 1981 is certifiable.

3.15 Content Code 101

Content Description: Cut-up Gloveboxes

Waste Generator: Argonne National Laboratory-East (ANL-E)

Waste Description: Waste contains glovebox sections and associated equipment from decontamination and decommissioning operations. The waste is predominantly noncombustible, although some combustible waste may be present.

Generation Source: Chemical Engineering Division Plutonium Laboratory explosion cleanup and Plutonium Fabrication Facility decommissioning operations.

Recovery Method: None.

Waste Handling and Packaging: This waste is shipped in type M-III bins with half- or full-size plywood box liners. Miscellaneous items such as machines, tools, glassware, piping, filters, and cinderblock are removed and bagged out of the glovebox in 20-mil PVC bags, heat-sealed, and placed in the plywood box liners. When empty, the gloveboxes are washed and then painted to fix contamination. Glovebox windows are removed, double-wrapped in polyethylene, and placed in the plywood box liners. The glovebox is dismantled, wrapped in one or more layers of polyethylene, and placed in plywood box liners.

Waste Generator Contacts:

C. L. Cheever
E. R. Taylor
W. Tyrrell
J. R. McCreary
L. F. Coleman
W. H. Livernash
W. H. Kline

Record Information: INEL-TCWCIS

Information (1971-81)		Bins
Total Containers		44
Container Weight (lb)	Maximum:	3000
	Minimum:	1200
	Average:	2427
Contact Dose Rate (mR/h)	<10:	41
	10-200:	3
	Maximum:	185.0
	Minimum:	0.1
	Average:	6.0
Radionuclide Inventory		
^{239}Pu (g)	Maximum:	55.0
	Minimum:	0.6
	Average:	5.7
^{240}Pu (g) and other TRU isotopes		
	Maximum:	55.0
	Minimum:	0.0
	Average:	5.2

Waste Form Evaluation:

Gas Generation--Most of this waste form is inorganic and not subject to gas generation. Organic content should be less than approximately 3 lb/ft^3.

Combustibility--The M-III bins should contain less than 25 volume percent combustibles. Color coding is not requied.

Immobilization--Respirable or dispersible fines should not represent a significant weight percent of the waste. Miscellaneous dust should not exceed one percent.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste is dry when packaged. No free liquids are present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

3.16 Content Code 102

Content Description: Absorbed Liquids

Waste Generator: Argonne National Laboratory-East (ANL-E)

Waste Description: Liquid waste is adjusted to a pH of 10 with NaOH. The liquid is then absorbed on vermiculite in 55-gallon drums.

Generation Source: This content code is used by all operations that generate liquid waste for disposal.

Recovery Method: None.

Waste Handling and Packaging: The Reclamation group gathers liquid waste in 1- to 5-gallon plastic bottles from all areas at ANL-E. Prior to 1980, liquid waste was absorbed on vermiculite in 1- to 5-gallon containers and included with Content Code 100 wastes. Current policy (1981) requires generators to identify the materials present in the liquids. The Reclamation group empties the plastic bottles into a holding tank. The liquid is pumped to the caustic system where NaOH is added to a pH of 10. Then a 17-gallon aliquot is added to a 55-gallon drum of vermiculite. Approximately 1 gallon of vermiculite is then spread on top of the mixture. The drum (fitted with a 90-mil polyethylene liner) is surveyed; then the liner and drum are sealed. The drum is placed in an M-III bin for shipment. Drums are unloaded from the bin at the INEL-RWMC and placed in storage. The bins are returned to ANL-E for reuse.

The plastic bottles are packaged for disposal as Content Code 105.

Waste Generator Contacts:

C. L. Cheever
E. R. Taylor
W. Tyrrell
J. R. McCreary
L. F. Coleman
W. H. Livernash
W. H. Kline

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		26	0
Container Weight (lb)			
	Maximum:	288	
	Minimum:	106	
	Average:	237	
Contact Dose Rate (mR/h)			
	<10:	16	
	10-200:	10	
	Maximum:	40.0	
	Minimum:	1.0	
	Average:	8.3	
Radionuclide Inventory			
^{239}Pu (g)			
	Maximum:	30.0	
	Minimum:	8.1	
	Average:	20.2	
^{240}Pu (g)			
	Maximum:	3.0	
	Minimum:	1.0	
	Average:	2.1	

Waste Form Evaluation:

Gas Generation--There is little organic material present in this waste (estimated to be less than 0.5 lb/ft^3).

Combustibility--Including packaging, this waste will contain less than 25 volume percent combustibles. Color coding is not required.

Immobilization--Particle size analysis of vermiculite indicates 1.7 and 0.0% of the particles are less than 200 and 10µ in diameter, respectively.

Sludges--This waste form contains no identified sludges.

Free Liquid--There should be no free liquids present within this waste form.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No reportable quantities of toxic materials (49CFR173, Subpart H) have been identified in this waste. The waste contains absorbed alkaline corrosives. Container protection is provided by the 90-mil rigid polyethylene drum liner.

Certification Assessment: Waste is certifiable.

3.17 Content Code 104

Content Description: Alpha Hot Cell Waste

Generator: Argonne National Laboratory-East

Waste Description: Alpha hot cell wastes are packaged in 17C 30-gallon drums and shipped to the INEL in lead-shielded casks. All drums have been stored in the Intermediate Level Transuranic Storage Facility (ILTSF) at the RWMC. These wastes are remote handled and will not be further assessed.

3.18 Content Code 105

Content Description: Empty Bottles

Waste Generator: Argonne National Laboratory-East (ANL-E)

Waste Description: Waste contains empty polyethylene and glass bottles used to transport liquid waste to the Reclamation group.

Generation Source: All areas at ANL-E.

Recovery Method: None.

Waste Handling and Packaging: Polyethylene and glass bottles used to collect liquid waste for disposal by the Reclamation group are emptied and filled with vermiculite to absorb any remaining liquid. The tops are replaced to contain the vermiculite, and the bottles are then placed in a 17C 55-gallon drum fitted with a 90-mil polyethylene liner. When the drum is full, vermiculite is poured in to fill voids between bottles. The liner and drum are then sealed; the drum is placed in a M-III bin for shipment. The drums are moved from the shipment bin at the INEL-RWMC and placed in storage. The bins are returned to ANL-E for reuse.

Waste Generator Contacts:

C. L. Cheever
E. R. Taylor
W. Tyrrell
J. R. McCreary
L. F. Coleman
W. H. Livernash
W. H. Kline

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 081, METAL-METAL SAMPLES FISSILE

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	17	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	17	-	-	-	-

3.8 Content Code 10

Content Description: Combustibles (rags, gloves, poly)

Generator: Bettis Atomic Power Laboratory

Waste Description: Waste primarily consists of rags, gloves, plastic, paper, Carbo-Wax, filters, oil absorbed with "Absorbal" (diatomaceous earth) and rubber. Waste may also include noncombustible items.

Generation Source: The majority of waste was generated in the L-Building Fuel Manufacturing Facility.

Recovery Method: Burnable micronizer bags were incinerated and recoverable fissile materials shipped out for reprocessing.

Waste Packaging and Handling: Small waste items were wrapped in plastic and placed into a 3-1/4-inch diameter by 7-inch-high, tin-plated steel can with a screw-on lid. This can was then placed in a "juice can" and the juice can top was sealed to the can with a roll-seam.

Larger waste items were wrapped in plastic and placed into a 4-3/8-inch-diameter by either 20- or 24-inches-high, tin-plated steel can. After the can was loaded, the can top was placed on, and the entire can was wrapped in plastic before placement in a Type 17C 55-gallon waste drum with other cans of waste.

Drum Preparation: Packaged waste was placed in 17C 55-gallon drums with a 90-mil polyethylene drum liner. No additional plastic drum liners were used. The number of cans per drum varied between 15 and 80.

Assay: Prior to 1974, drums were assayed by calculating weight differences to determine fissile content. After 1974, a ^{233}U assay gauge was used.

Waste Generator Contact:

P. R. Gray

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		912	0
Container Weight (lb)	Maximum:	331	
	Minimum:	69	
	Average:	190	
Contact Dose Rate (mR/h)	<10:	687	
	10-200:	225	
	Maximum:	80.0	
	Minimum:	0.0	
	Average:	8.1	
Radionuclide Inventory			
^{233}U (g)	Maximum:	198.4	
	Minimum:	0.0	
	Average:	44.4	
^{232}Th (g)	Maximum:	9715.0	
	Minimum:	0.0	
	Average:	1274.5	

Waste Form Evaluation:

Gas Generation--Organic material is present in this waste and may exceed 14 lb/ft^3 for drums.

Combustibles--This waste contains in excess of 25 volume percent combustibles. Drums will require color coding.

Immobilization--Limited amounts of particulates in the form of glovebox floor sweepings, grinding sludge, and binary powder are present in this waste but are not expected to exceed the WIPP-WAC limits for respirable or dispersible fires.

Sludges--No wet sludges have been identified in this waste.

Free Liquid--No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric material (49CFR173, Subparts D and E) has been identified in this waste.

Toxic/Corrosive Materials--No reportable quantities of toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

3.9 Content Code 20

Content Description: Noncompressible, Noncombustible

Generator: Bettis Atomic Power Laboratory

Waste Description: This waste contains noncompressible and noncombustible items such as absolute filters, solidified chemical waste, contaminated metal equipment, furnace brick, and highly contaminated glovebox equipment.

Generation Source: The majority of waste was generated in the L-Building manufacturing facility.

Waste Form: Metal scrap could include bars, sheet, fixtures, small equipment, tools, etc. made of carbon steel, stainless steel, Inconel, aluminum, cooper, brass, and zirconium.

Chemical residues were spent chemical solutions and associated solids resulting from the isotopic and isotopic dilution analysis performed on nuclear fuel specimens. These residues were neutralized before being either mixed with absorbent material or solidified.

Most Content Code 20 drums contain less than 10% by volume of Content Code 10 (Combustibles) waste.

Recovery Method: No recovery methods were used to process this waste.

Waste Packaging and Handling:

1. Small items were wrapped in plastic and then placed into a 3-1/4-inch diameter by 7-inch-high, tin-plated steel can with a screw top. This can was then placed into a juice can and the juice can top was sealed onto the can with a roll seam.

2. Larger items were wrapped in plastic and placed in 4-3/8-inch-diameter by either 20-inches or 24-inches-high, tin-plated steel cans. The cover of the can was installed and the entire can was bagged in plastic.

3. All bagged cans were then placed into a type 17C or 6M drum along with other cans of waste.

4. Larger contaminated metal items that did not fit into the cans were wrapped in plastic before being placed into the Type 17C drum.

5. Neutralized chemical solutions with a pH between 6 and 8 were mixed with "Absorbal" and packaged in polyethylene bottles or solidified in metal cans. The bottles were placed into metal cans and wrapped in plastic before being placed into the Type 17C drum. Metal cans were wrapped in plastic before being placed into the Type 17C drum.

Drum Preparation: Individual items were single or double wrapped in plastic and placed in 17C 55-gallon drums. A 90-mil polyethylene liner was used in each drum.

Assay: Fissile content was determined by calculating weight differences, by chemical analysis, or by the use of an assay gauge.

Waste Generator Contact:

P. R. Gray

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		793	
Container Weight (lb)	Maximum:	543	
	Minimum:	92	
	Average:	237	
Contact Dose Rate (mR/h)	<10:	790	
	10-200:	3	
	Maximum:	32.0	
	Minimum:	0.0	
	Average:	2.2	
Radionuclide Inventory			
^{233}U (g)	Maximum:	405.0	
	Minimum:	0.0	
	Average:	9.6	
^{232}Th (g)	Maximum:	8692.0	
	Minimum:	0.0	
	Average:	289.5	

Waste Form Evaluation:

Gas Generation--The organic content of this waste will be less than 14 lb/ft^3.

Combustibles--Including packaging, this waste will contain less than 25 volume percent combustibles. Color coding will not be necessary.

Immobilization--Absolute filters are the primary source of particulate material. However, the quantity of respirable or dispersible fines contained in a Content Code 20 drum would not exceed the WIPP-WAC limits.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste is dry when packaged, except for absorbed or solidified solutions. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No reportable quantities of toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste. Residual nitric acid may be present in some waste packages.

Certification Assessment: Waste is certifiable.

3.10 Content Code 30

Content Description: Solidified Grinding Sludge, etc.

Generator: Bettis Atomic Power Laboratory

Waste Description: Solidified grinding sludge and associated filters, rags, etc.

Generation Source: The majority of waste was generated in the L-Building, Fuel Manufacturing Facility.

Waste Form: The grinding sludge was composed of abrasive materials from grinding wheels, which included diamond dust, aluminum oxide, carborundum, and rubber. The form of the sludge when packaged was either powder or cake. It is estimated that not more than 10% of other waste items would be found in this waste.

Recovery Method: Burnable filter bags were incinerated, and recoverable fissile materials shipped for reprocessing.

Waste Packaging and Handling: The grinding sludge was dried in a CO_2 atmosphere at 950°C, cooled, and packaged into 3-1/4-inch-diameter by 7-inch-high, tin-plated steel cans. These cans were wrapped in plastic before being placed in the shipment drum.

Drum Preparation: Both 17C and 6M 55-gallon drums were used for packaging this waste. The 90-mil polyethylene drum liner was used in all 17C waste drums.

Assay: Fissile content was determined by calculating weight difference by chemical analysis or by use of an assay gauge.

Waste Generator Contact:

C. K. Gaddis

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		45	
Container Weight (lb)	Maximum:	256	
	Minimum:	233	
	Average:	241	
Contact Dose Rate (mR/h)	<10:	28	
	10-200:	17	
	Maximum:	60.0	
	Minimum:	0.4	
	Average:	12.4	
Radionuclide Inventory			
^{233}U (g)	Maximum:	273.0	
	Minimum:	1.4	
	Average:	136.2	
^{232}Th (g)	Maximum:	6500.0	
	Minimum:	44.0	
	Average:	2384.0	

Waste Form Evaluation:

Gas Generation--It is estimated that the average weight of organic material in Content Code 30 drums, excluding the drum liner or plywood, would not exceed 1 pound for either type of drum.

Combustibles--Including the 90-mil drum liner, lid, and plastic used to wrap cans of waste inside a 17C drum, the combustibles within the drum would not exceed 25 volume percent. Including the plywood spacers and plastic used to wrap cans of waste inside a 6M drum, the combustibles within the drum would exceed 25 volume percent. The 6M drums will require color coding.

Immobilization--No specific data are available as to the size of the particulate material contained in Content Code 30 drums. However, since the sludge was produced from grinding operations, it is estimated that the quantity of particulate material would exceed the limits of the WIPP-WAC.

Sludges--This waste form is a dried sludge.

Free Liquid--The waste is dry when packaged. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No reportable quantities of toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: This waste is uncertifiable due to the presence of respirable and dispersible fines in excess of the WIPP-WAC.

3.11 Content Code 40

Content Description: Solid Binary Scrap Powder

Generator: Bettis Atomic Power Laboratory

Waste Description: Waste consists of solid binary scrap in the form of powder, pellets, or rods. The waste will also include "Kilorods" or fuel rods constructed of fuel pellets within hollow, zirconium tubes.

Generation Source: The majority of waste was generated by C-Area-Experimental Physics Facility and TRX Facility.

Waste Form: Binary scrap consists of unusable fuel material in the form of powder, pellets, or rods. The material is made of ceramic-based UO_2 and ThO_2.

Recovery Method: No recovery methods were used.

Waste Packaging and Handling: Binary scrap powder and pellets were packaged in 3-1/4-inch-diameter by 7-inch-high, tin-plated steel cans or in 4-3/8-inch-diameter by either 20- or 24-inch-high, tin-plated steel cans. These cans were wrapped in plastic before being placed in the 6M shipment drums. Three cans were placed in each drum.

Kilorods were placed into a plastic-lined, 5-inch-diameter pipe installed within a 6M drum, with either 55- or 100-gallon capacity. Between 18 and 20 Kilorods were placed in each 55-gallon drum, and 10 or 11 Kilorods were placed in each 100-gallon drum.

Drum Preparation: Drums containing Kilorods contained lead shielding. A 1-inch-thick lead cylinder was installed within the 2R container in 55-gallon drums, and a 3/4-inch-thick lead cylinder was installed within the 2R container in 100-gallon drums.

Assay: Fissile content was determined by calculating weight differences, by chemical analysis, by use of an assay gauge, or by values assigned to each fuel rod.

Waste Generator Contact:

C. K. Gaddis
P. R. Gray

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		172	0
Container Weight (lb)	Maximum:	600	
	Minimum:	175	
	Average:	486	
Contact Dose Rate (mR/h)	<10:	16	
	10-200:	156	
	Maximum:	135.0	
	Minimum:	0.1	
	Average:	75.8	
Radionuclide Inventory			
^{233}U (g)	Maximum:	287.0	
	Minimum:	16.0	
	Average:	208.6	
^{232}Th (g)	Maximum:	9300.0	
	Minimum:	0.0	
	Average:	4703.3	

Waste Form Evaluation:

Gas Generation--It is estimated that the average weight of organic material, excluding the plywood, in this waste would not exceed 1 pound per drum.

Combustibles--Including the plywood spacers, Celotex rings, and plastic used to wrap cans of waste inside a 6M drum, the combustibles within the drum would exceed 25 volume percent. Color coding will be required.

Immobilization--Drums containing Kilorods would not exceed the WIPP-WAC limits for particulate material. No specific data are available as to the particulate size of scrap powder. However, it is estimated that this material would exceed the WIPP-WAC limits for particulate material.

Sludges--This waste form contains no identified sludges.

Free Liquid--The waste is dry when packaged. No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric materials (49CFR173, Subparts D and E) have been identified in this waste.

Toxic/Corrosive Materials--No reportable quantities of toxic materials (49CFR173, Subpart H) have been identified in this waste. Residual nitric acid may be present in some waste packages.

Certification Assessment: Fuel rods (Kilorods) contained in 6M drums are certifiable. Drums containing binary scrap powder or a mixture of powder and pellets are not certifiable due to the presence of particulate material in quantities that would exceed the WIPP-WAC limits.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ____________________ Date ____________
Waste Description ____________________ IDC ____________

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)	___	___		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)	___	___	pH ______(1)	
Reactive (D003)	___	___		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	___	________
Barium (D005)	___	___	________
Cadmium (D006)	___	___	________
Chromium (D007)	___	___	________
Lead (D008)	___	___	________
Mercury (D009)	___	___	________
Selenium (D010)	___	___	________
Silver (D011)	___	___	________
Benzene (D018)	___	___	________
Carbon tetrachloride (D019)	___	___	________
Chlordane (D020)	___	___	________
Chlorobenzene (D021)	___	___	________
Chloroform (D022)	___	___	________
o-Cresol (D023)	___	___	________
m-Cresol (D024)	___	___	________
p-Cresol (D025)	___	___	________
Cresol (D026)	___	___	________
2,4-D (D016)	___	___	________
1,4-Dichlorobenzene (D027)	___	___	________
1,2-Dichloroethane (D028)	___	___	________
1,1-Dichloroethylene (D029)	___	___	________
2,4-Dinitrotoluene (D030)	___	___	________
Endrin (D012)	___	___	________
Heptachlor (D031) (and its epoxide)	___	___	________
Hexachlorobenzene (D032)	___	___	________
Hexachlorobutadiene (D033)	___	___	________
Hexachloroethane (D034)	___	___	________
Lindane (D013)	___	___	________
Methoxychlor (D014)	___	___	________
Methyl ethyl ketone (D035)	___	___	________
Nitrobenzene (D036)	___	___	________
Pentachlorophenol (D037)	___	___	________
Pyridine (D038)	___	___	________
Tetrachloroethylene (D039)	___	___	________
Toxaphene (D015)	___	___	________
Trichloroethylene (D040)	___	___	________
2,4,5-Trichlorophenol (D041)	___	___	________
2,4,6-Trichlorophenol (D042)	___	___	________
2,4,5-TP (Silvex) (D017)	___	___	________
Vinyl chloride (D043	___	___	________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________________ Date ____________
Waste Description ________________________________ IDC ____________

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene	___	___	____________
Bromoform	___	___	____________
Carbon Tetrachloride	___	___	____________
Chlorobenzene	___	___	____________
Chloroform	___	___	____________
Cyclohexane	___	___	____________
1,1-Dichloroethane	___	___	____________
1,2-Dichloroethane	___	___	____________
1,1-Dichloroethene	___	___	____________
cis-1,2-Dichloroethene	___	___	____________
Ethyl Benzene	___	___	____________
Ethyl Ether	___	___	____________
Methylene Chloride	___	___	____________
1,1,2,2-Tetrachloroethane	___	___	____________
Tetrachloroethene	___	___	____________
Toluene	___	___	____________
1,1,1-Trichloroethane	___	___	____________
Trichloroethene	___	___	____________
1,1,2-Trichloro-1,2,2-trifluoroethane	___	___	____________
1,3,5-Trimethylbenzene	___	___	____________
1,2,4-Trimethylbenzene	___	___	____________
m-Xylene	___	___	____________
o-Xylene	___	___	____________
p-Xylene	___	___	____________
Acetone	___	___	____________
1-Butanol	___	___	____________
2-Butanone	___	___	____________
Methanol	___	___	____________
4-Methyl-2-pentanone	___	___	____________

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT,
WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN,
WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA,
AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site ______________________ Date ____________
Waste Description ______________________ IDC ____________

WIPP WAC. WIPP DOE-069. Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	___	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	___	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	___	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	___	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	___	___________
Asbestos	___	___	___________

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
______________________________	___________
______________________________	___________
______________________________	___________
______________________________	___________

		1	2	3	4
(1)	pH Ranges	1	2	3	4
	pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges	1	2	3	4
	Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

FORM 73816
9/92

RECEIVED

WESTINGHOUSE ELECTRIC CORPORATION
Bettis Atomic Power Laboratory, Box 79, West Mifflin, PA 15122-0079

APR 14 1993

No. WAPD-DLO(RM)MC-1007T

WASTE MANAGEMENT OPERATIONS BRANCH

COPIES TO

IF TELECON IS WITH	COPIES MUST BE SENT TO: (SEE BMG 007) BETTIS GEN. MGR.	MGR. PNR.	APPROPRIATE NR SECT HEAD	APPROPRIATE PNR SECT HEAD
NR	X	X	X	X
PNR	X	X		X
PRIME CONTR	X	X		X
SUBCONTR/ VENDOR	X	X		

J. J. Mangeno - NR
J. M. Steele - NR
C. K. Gaddis - PNR
E. D. Shollenberger - PNR
B. H. Ruth - 02B
B. H. Hallett - 36EE
N. L. Harris - 08B
K. J. Joensen - 64C
R. M. Muzik - 62BB
T. L. Clements - EG&G
J. T. Case - DOE-ID
T. M. Bradley - IBO
R. W. Nieslanik - NRF

TELEPHONE CONFERENCE

TIME 2:10 pm DATE 4/2/93

☐ INCOMING ☒ OUTGOING

WITH
D. D. Taylor

REPRESENTING
EG&G Idaho Inc.

WITH
R. T. Esper

REPRESENTING
Bettis-Pittsburgh

COMMITMENT MADE
☐ YES ☒ NO

FILE
Transuranic Waste

PURPOSE OF TELECON

To provide EG&G Idaho, Inc. information on the presence of Volatile Organic Hydrocarbons (VOCs) in the containers of waste that originated at Bettis-Pittsburgh and are currently stored at the Radioactive Waste Management Complex (RWMC) at the Idaho National Engineering Laboratory (INEL).

TEXT OF TELECON

Reference: (a) Telecopier Transmittal Request to E. Shollenberger (PNR) from D. Taylor (EG&G Idaho, Inc.) dated March 23, 1993

D. Taylor was provided with information in response to Reference (a), which requested the information on the presence of VOCs in containers of the Bettis generated waste currently stored in the RWMC at INEL. The waste was shipped from Bettis in the period between the mid 1970s and the late 1980s. Bettis performed a review of the shipping files for all of the Bettis generated transuranic waste shipped to the RWMC and confirmed that the information provided on the content code sheets in Reference (a) is correct.

D. Taylor inquired as to which, if any, of the content code categories would be of concern relative to the presence of VOCs in the head space of the container. This information would be of value to them so they can concentrate their evaluation efforts on only these instead of all containers. It was stated that the nature of the waste identified as Content Codes 20 (Noncompressible, Noncombustible), 30 (Solidified Grinding Sludge, etc.), and 40 (Solid Binary Scrap Powder) would not have involved the use of volatile organic chemicals. Some VOCs were used in operations associated with Content Code 10 waste. However, it was emphasized that existing Bettis procedures at the time of packaging prohibited the presence of free liquids. Therefore, Bettis does not expect that the waste contains VOCs other than minor residual amounts absorbed on dried rags or absorbent material.

ACTIVITY R. T. Esper (TYPED NAME) — R. T. Esper (SIGNATURE) Signature certifies that secure communication equipment was used if applicable. — 4/5/93 (DATE)

TELEPHONE CONFERENCE MEMORANDUM

The following information is provided to clarify the unknowns in the remaining content codes included in Reference (a):

Content Code 012 - Miscellaneous sources. This consists of one drum containing two Ra-226 sources.

Content Code 015 - Neutron sources. This consists of three drums. Two contain one Pu-238--Be source each and the third contains a Pu-238--Li source.

Content Code 050 - Solidified Solutions. This consists of one drum of chemistry waste which contains neutralized, solidified Plutonium-238 and Neptunium-237 reference materials.

Content Code 081 - Metal - Metal Samples Fissile. This consists of 17 drums of unirradiated fuel bearing metallographic mounts.

These content codes did not involve operations utilizing VOCs.

D. Taylor concurred with the contents of this telecon.

Department of Energy
Pittsburgh Naval Reactors Office
P.O. Box 109
West Mifflin, Pennsylvania 15122-0109

May 17, 1993

Ralph D. Falconer
EG&G Idaho, Inc.
P.O. Box 1625
Idaho Falls, ID 83415-3950

Dear Mr. Falconer:

SUBJECT: TRANSURANIC WASTE CHARACTERIZATION QUESTIONNAIRES

Enclosed are completed transuranic waste questionnaires with waste stream descriptions as requested by the memorandum from J. T. Case, Branch Chief, Waste Management Operations Branch, U.S. Department of Energy Operations Office, dated April 7, 1993.

Sincerely,

for C. K. Gaddis
Manager

8 Enclosures:
As stated

cc w/o encls:
J. T. Case, DOE ID

TRANSURANIC WASTE CHARACTERIZATION QUESTIONNAIRE

Bettis Atomic Power Laboratory

Content Code 010

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 010, RAGS, GLOVES, POLY, COMBUSTIBLES

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	89	-	-	-	-
1974	254	-	-	-	-
1975	269	-	-	-	-
1976	254	-	-	-	-
1977	21	-	-	-	-
1978	26	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	27	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	940	-	-	-	-

3.8 Content Code 10

Content Description: Combustibles (rags, gloves, poly)

Generator: Bettis Atomic Power Laboratory

Waste Description: Waste primarily consists of rags, gloves, plastic, paper, Carbo-Wax, filters, oil absorbed with "Absorbal" (diatomaceous earth) and rubber. Waste may also include noncombustible items.

Generation Source: The majority of waste was generated in the L-Building Fuel Manufacturing Facility.

Recovery Method: Burnable micronizer bags were incinerated and recoverable fissile materials shipped out for reprocessing.

Waste Packaging and Handling: Small waste items were wrapped in plastic and placed into a 3-1/4-inch diameter by 7-inch-high, tin-plated steel can with a screw-on lid. This can was then placed in a "juice can" and the juice can top was sealed to the can with a roll-seam.

Larger waste items were wrapped in plastic and placed into a 4-3/8-inch-diameter by either 20- or 24-inches-high, tin-plated steel can. After the can was loaded, the can top was placed on, and the entire can was wrapped in plastic before placement in a Type 17C 55-gallon waste drum with other cans of waste.

Drum Preparation: Packaged waste was placed in 17C 55-gallon drums with a 90-mil polyethylene drum liner. No additional plastic drum liners were used. The number of cans per drum varied between 15 and 80.

Assay: Prior to 1974, drums were assayed by calculating weight differences to determine fissile content. After 1974, a ^{233}U assay gauge was used.

Waste Generator Contact:

P. R. Gray

Record Information: INEL-TCWCIS

Information (1971-81)		Drums	Boxes
Total Containers		912	0
Container Weight (lb)	Maximum:	331	
	Minimum:	69	
	Average:	190	
Contact Dose Rate (mR/h)	<10:	687	
	10-200:	225	
	Maximum:	80.0	
	Minimum:	0.0	
	Average:	8.1	
Radionuclide Inventory			
^{233}U (g)	Maximum:	198.4	
	Minimum:	0.0	
	Average:	44.4	
^{232}Th (g)	Maximum:	9715.0	
	Minimum:	0.0	
	Average:	1274.5	

Waste Form Evaluation:

Gas Generation--Organic material is present in this waste and may exceed 14 lb/ft^3 for drums.

Combustibles--This waste contains in excess of 25 volume percent combustibles. Drums will require color coding.

Immobilization--Limited amounts of particulates in the form of glovebox floor sweepings, grinding sludge, and binary powder are present in this waste but are not expected to exceed the WIPP-WAC limits for respirable or dispersible fires.

Sludges--No wet sludges have been identified in this waste.

Free Liquid--No free liquids should be present.

Explosives/Compressed Gases--No explosives, explosive mixtures, or compressed gases (49CFR173, Subparts C and G) have been identified in this waste.

Pyrophoric Materials--No pyrophoric material (49CFR173, Subparts D and E) has been identified in this waste.

Toxic/Corrosive Materials--No reportable quantities of toxic or corrosive materials (49CFR173, Subparts H and F) have been identified in this waste.

Certification Assessment: Waste is certifiable.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site Bettis Atomic Power Lab. Date 5/12/93
Waste Description Rags, Gloves, Poly, Combustibles IDC 010

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)		X		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)		X	pH ______(1)	
Reactive (D003)		X		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)		X	
Barium (D005)		X	
Cadmium (D006)		X	
Chromium (D007)		X	
Lead (D008)		X	
Mercury (D009)		X	
Selenium (D010)		X	
Silver (D011)		X	
Benzene (D018)		X	
Carbon tetrachloride (D019)		X	
Chlordane (D020)		X	
Chlorobenzene (D021)		X	
Chloroform (D022)		X	
o-Cresol (D023)		X	
m-Cresol (D024)		X	
p-Cresol (D025)		X	
Cresol (D026)		X	
2,4-D (D016)		X	
1,4-Dichlorobenzene (D027)		X	
1,2-Dichloroethane (D028)		X	
1,1-Dichloroethylene (D029)		X	
2,4-Dinitrotoluene (D030)		X	
Endrin (D012)		X	
Heptachlor (D031) (and its epoxide)		X	
Hexachlorobenzene (D032)		X	
Hexachlorobutadiene (D033)		X	
Hexachloroethane (D034)		X	
Lindane (D013)		X	
Methoxychlor (D014)		X	
Methyl ethyl ketone (D035)		X	
Nitrobenzene (D036)		X	
Pentachlorophenol (D037)		X	
Pyridine (D038)		X	
Tetrachloroethylene (D039)		X	
Toxaphene (D015)		X	
Trichloroethylene (D040)		X	
2,4,5-Trichlorophenol (D041)		X	
2,4,6-Trichlorophenol (D042)		X	
2,4,5-TP (Silvex) (D017)		X	
Vinyl chloride (D043		X	

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site BETTIS ATOMIC POWER LAB Date 5/12/93
Waste Description RAGS, GLOVES, POLY, COMBUSTIBLES IDC 010

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene		X	
Bromoform		X	
Carbon Tetrachloride		X	
Chlorobenzene		X	
Chloroform		X	
Cyclohexane		X	
1,1-Dichloroethane		X	
1,2-Dichloroethane		X	
1,1-Dichloroethene		X	
cis-1,2-Dichloroethene		X	
Ethyl Benzene		X	
Ethyl Ether		X	
Methylene Chloride	X		1 (TRACE AMOUNTS)
1,1,2,2-Tetrachloroethane		X	
Tetrachloroethene		X	
Toluene		X	
1,1,1-Trichloroethane		X	
Trichloroethene		X	
1,1,2-Trichloro-1,2,2-trifluoroethane	X		1 (TRACE AMOUNTS)
1,3,5-Trimethylbenzene		X	
1,2,4-Trimethylbenzene		X	
m-Xylene		X	
o-Xylene		X	
p-Xylene		X	
Acetone		X	
1-Butanol		X	
2-Butanone		X	
Methanol		X	
4-Methyl-2-pentanone		X	

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site Bettis Atomic Power Lab.
Waste Description Rags, Gloves, Poly, Combustibles

Date 5/12/93
IDC 010

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	X	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	X	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	X	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	X	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	X	___
Asbestos	___	X	___

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
___	___
___	___
___	___
___	___

		1	2	3	4
(1)	pH Ranges pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges Concentration	1 <0.1%	2 0.1-1%	3 1.0-10%	4 10-100%

TRANSURANIC WASTE CHARACTERIZATION QUESTIONNAIRE

Bettis Atomic Power Laboratory

Content Code 012

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 012, MISCELLANEOUS SOURCES

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	1	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	1	-	-	-	-

Content Code 012

Content Description: Miscellaneous Sources

Generator: Bettis Atomic Power Laboratory

Waste Description: The waste consists of two Ra-226 sources.

Waste Packaging and Handling: The two sources were placed inside of a 2R pipe. They were separated by and surrounded with lead shielding within the pipe to reduce the radiation level on the outside of the shipping container. The 2R pipe was placed inside of a 17C 55-gallon drum and surrounded with Celotex discs to center and maintain the 2R pipe in position.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site Bettis Atomic Power Lab
Waste Description Miscellaneous Sources
Date 5/12/93
IDC 012

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)		X		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)		X	pH ______(1)	
Reactive (D003)		X		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)		X	
Barium (D005)		X	
Cadmium (D006)		X	
Chromium (D007)		X	
Lead (D008)		X	*
Mercury (D009)		X	
Selenium (D010)		X	
Silver (D011)		X	
Benzene (D018)		X	
Carbon tetrachloride (D019)		X	
Chlordane (D020)		X	
Chlorobenzene (D021)		X	
Chloroform (D022)		X	
o-Cresol (D023)		X	
m-Cresol (D024)		X	
p-Cresol (D025)		X	
Cresol (D026)		X	
2,4-D (D016)		X	
1,4-Dichlorobenzene (D027)		X	
1,2-Dichloroethane (D028)		X	
1,1-Dichloroethylene (D029)		X	
2,4-Dinitrotoluene (D030)		X	
Endrin (D012)		X	
Heptachlor (D031) (and its epoxide)		X	
Hexachlorobenzene (D032)		X	
Hexachlorobutadiene (D033)		X	
Hexachloroethane (D034)		X	
Lindane (D013)		X	
Methoxychlor (D014)		X	
Methyl ethyl ketone (D035)		X	
Nitrobenzene (D036)		X	
Pentachlorophenol (D037)		X	
Pyridine (D038)		X	
Tetrachloroethylene (D039)		X	
Toxaphene (D015)		X	
Trichloroethylene (D040)		X	
2,4,5-Trichlorophenol (D041)		X	
2,4,6-Trichlorophenol (D042)		X	
2,4,5-TP (Silvex) (D017)		X	
Vinyl chloride (D043		X	

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site BETTIS ATOMIC POWER LAB Date 5/12/93
Waste Description MISCELLANEOUS SOURCES IDC 012

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	PRESENT IN WASTE? NO	CONCENTRATION RANGE(2)
Benzene		X	
Bromoform		X	
Carbon Tetrachloride		X	
Chlorobenzene		X	
Chloroform		X	
Cyclohexane		X	
1,1-Dichloroethane		X	
1,2-Dichloroethane		X	
1,1-Dichloroethene		X	
cis-1,2-Dichloroethene		X	
Ethyl Benzene		X	
Ethyl Ether		X	
Methylene Chloride		X	
1,1,2,2-Tetrachloroethane		X	
Tetrachloroethene		X	
Toluene		X	
1,1,1-Trichloroethane		X	
Trichloroethene		X	
1,1,2-Trichloro-1,2,2-trifluoroethane		X	
1,3,5-Trimethylbenzene		X	
1,2,4-Trimethylbenzene		X	
m-Xylene		X	
o-Xylene		X	
p-Xylene		X	
Acetone		X	
1-Butanol		X	
2-Butanone		X	
Methanol		X	
4-Methyl-2-pentanone		X	

* Lead inside container used as shielding as identified in content code description.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site BETTIS ATOMIC POWER LAB Date 5/12/93
Waste Description MISCELLANEOUS SOURCES IDC 012

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates		X	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids		X	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials		X	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases		X	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)		X	
Asbestos		X	

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)

		1	2	3	4
(1)	pH Ranges pH	0-2	2-7	7-12.5	12.5-14
(2)	Concentration Ranges Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

TRANSURANIC WASTE CHARACTERIZATION QUESTIONNAIRE

Bettis Atomic Power Laboratory

Content Code 015

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 015, NEUTRON SOURCES

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	3	-	-	-	-
1986	-	-	-	-	-
1987	-	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	3	-	-	-	-

Content Code 015

Content Description: Neutron Sources

Generator: Bettis Atomic Power Laboratory

Waste Description: The waste consists of two Pu-238--Be sources and one Pu-238--Li source.

Waste Packaging and Handling: Each of the three sources is double encapsulated in stainless steel. Each of the two Pu-238--Be sources was placed inside of a 1/2" steel pipe with a long poly plug snug fit in the pipe and a steel cap threaded on the pipe. This pipe was placed inside of a 2R pipe which was placed inside of a 6M drum. Celotex discs and annular segments of polyethylene surrounded the 2R pipe. The one Pu-238--Li source was similarly packaged.

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site BETTIS ATOMIC POWER LAB Date 5/12/93
Waste Description NEUTRON SOURCES IDC 015

40 CFR 261, Subpart C, - RCRA Characteristic Waste

	PRESENT IN WASTE? YES	NO		
Ignitable (D001)	___	X		See 40 CFR 261.21/.22/.23 for definitions of these terms.
Corrosive (D002)	___	X	pH ______(1)	
Reactive (D003)	___	X		

	YES	NO	CONCENTRATION RANGE(2)
Arsenic (D004)	___	X	______
Barium (D005)	___	X	______
Cadmium (D006)	___	X	______
Chromium (D007)	___	X	______
Lead (D008)	___	X	______
Mercury (D009)	___	X	______
Selenium (D010)	___	X	______
Silver (D011)	___	X	______
Benzene (D018)	___	X	______
Carbon tetrachloride (D019)	___	X	______
Chlordane (D020)	___	X	______
Chlorobenzene (D021)	___	X	______
Chloroform (D022)	___	X	______
o-Cresol (D023)	___	X	______
m-Cresol (D024)	___	X	______
p-Cresol (D025)	___	X	______
Cresol (D026)	___	X	______
2,4-D (D016)	___	X	______
1,4-Dichlorobenzene (D027)	___	X	______
1,2-Dichloroethane (D028)	___	X	______
1,1-Dichloroethylene (D029)	___	X	______
2,4-Dinitrotoluene (D030)	___	X	______
Endrin (D012)	___	X	______
Heptachlor (D031) (and its epoxide)	___	X	______
Hexachlorobenzene (D032)	___	X	______
Hexachlorobutadiene (D033)	___	X	______
Hexachloroethane (D034)	___	X	______
Lindane (D013)	___	X	______
Methoxychlor (D014)	___	X	______
Methyl ethyl ketone (D035)	___	X	______
Nitrobenzene (D036)	___	X	______
Pentachlorophenol (D037)	___	X	______
Pyridine (D038)	___	X	______
Tetrachloroethylene (D039)	___	X	______
Toxaphene (D015)	___	X	______
Trichloroethylene (D040)	___	X	______
2,4,5-Trichlorophenol (D041)	___	X	______
2,4,6-Trichlorophenol (D042)	___	X	______
2,4,5-TP (Silvex) (D017)	___	X	______
Vinyl chloride (D043	___	X	______

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site BETTIS ATOMIC POWER LAB Date 5/12/93
Waste Description NEUTRON SOURCES IDC 015

WIPP QAPP, DOE/EM/48063-1 - Listed Constituents

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Benzene		X	
Bromoform		X	
Carbon Tetrachloride		X	
Chlorobenzene		X	
Chloroform		X	
Cyclohexane		X	
1,1-Dichloroethane		X	
1,2-Dichloroethane		X	
1,1-Dichloroethene		X	
cis-1,2-Dichloroethene		X	
Ethyl Benzene		X	
Ethyl Ether		X	
Methylene Chloride		X	
1,1,2,2-Tetrachloroethane		X	
Tetrachloroethene		X	
Toluene		X	
1,1,1-Trichloroethane		X	
Trichloroethene		X	
1,1,2-Trichloro-1,2,2-trifluoroethane		X	
1,3,5-Trimethylbenzene		X	
1,2,4-Trimethylbenzene		X	
m-Xylene		X	
o-Xylene		X	
p-Xylene		X	
Acetone		X	
1-Butanol		X	
2-Butanone		X	
Methanol		X	
4-Methyl-2-pentanone		X	

CHECKLIST FOR RESOURCE CONSERVATION AND RECOVERY ACT, WASTE ISOLATION PILOT PLANT QUALITY ASSURANCE PROGRAM PLAN, WASTE ISOLATION PILOT PLANT WASTE ACCEPTANCE CRITERIA, AND TOXIC SUBSTANCES CONTROL ACT HAZARDOUS AND TOXIC WASTE CONSTITUENTS

Waste Generator Site BETTIS ATOMIC POWER LAB
Waste Description NEUTRON SOURCES
Date 5/12/93
IDC 015

WIPP WAC, WIPP DOE-069, Revision 4 - Restricted Items

	PRESENT IN WASTE? YES	NO	WIPP-WAC Requirements
Particulates	___	X	Waste materials shall be immobilized if >1% by weight is particulate material >10 microns in diameter, or if >15% by weight is particulate material <200 microns in diameter.
Liquids	___	X	Only residual liquids; as a guideline, residual liquid in well-drained internal containers to be restricted to approximately 1 volume % of the internal container; aggregate amount of residual liquid <1 volume % of external container.
Pyrophoric materials	___	X	No non-radionuclide pyrophorics permitted. Radionuclides in pyrophoric form are limited to <1% by weight in each waste package.
Explosives and Compressed Gases	___	X	No explosives (40 CFR Part 173, Subpart C) are permitted. No compressed gases are permitted.

40 CFR 761/763 - Toxic Substance Control Act

	PRESENT IN WASTE? YES	NO	CONCENTRATION RANGE(2)
Polychlorinated Biphenyls (PCB)	___	X	___
Asbestos	___	X	___

List any known additional RCRA hazardous constituents that my be in waste.

	CONCENTRATION RANGE(2)
___	___
___	___
___	___
___	___

	1	2	3	4
(1) pH Ranges pH	0-2	2-7	7-12.5	12.5-14
(2) Concentration Ranges Concentration	<0.1%	0.1-1%	1.0-10%	10-100%

TRANSURANIC WASTE CHARACTERIZATION QUESTIONNAIRE

Bettis Atomic Power Laboratory

Content Code 020

INVENTORY OF WASTE RECEIVED FROM BETTIS ATOMIC POWER LABORATORY
IDC 050, SOLIDIFIED SOLUTIONS

YEAR RECEIVED	DRUMS	BOXES	BINS	INSERTS	OTHER
1970	-	-	-	-	-
1971	-	-	-	-	-
1972	-	-	-	-	-
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	-	-	-	-	-
1978	-	-	-	-	-
1979	-	-	-	-	-
1980	-	-	-	-	-
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	-	-	-	-	-
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	1	-	-	-	-
1988	-	-	-	-	-
1989	-	-	-	-	-
1990	-	-	-	-	-
TOTALS	1	-	-	-	-