

039-0300

**ORIGINAL**

P/WMD/94-01

Rev. 1

**MARTIN MARIETTA**

**PORTSMOUTH  
GASEOUS  
DIFFUSION  
PLANT**

**Waste Acceptance Criteria for  
Storage Facilities at the  
Portsmouth Gaseous Diffusion Plant**

**Martin Marietta Energy Systems, Inc.**

**Waste Management Division**

MANAGED BY  
MARTIN MARIETTA ENERGY SYSTEMS, INC.  
FOR THE UNITED STATES  
DEPARTMENT OF ENERGY

Signature Page

Waste Acceptance Criteria for Storage Facilities at the  
Portsmouth Gaseous Diffusion Plant

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## **LIMITS OF EFFECTIVENESS**

Approved generators' waste management plans for waste streams that contain radioactive, PCB, asbestos, or RCRA constituents and are already being generated on a regular basis by ongoing processes or projects will be completed by July 1, 1995.

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December 22, 1994

**Martin Marietta Energy Systems, Inc.  
Waste Management Division**

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## ABBREVIATIONS

DOE	Department of Energy
EPA	Environmental Protection Agency
ERWM	Environmental Restoration and Waste Management
MMES	Martin Marietta Energy Systems, Inc.
MMUS	Martin Marietta Utility Services, Inc.
PCB	polychlorinated biphenyl
PORTS	Portsmouth Gaseous Diffusion Plant
RCRA	Resource Conservation and Recovery Act
RFD	form for "request for disposal" or storage of waste materials and equipment
TSCA	Toxic Substances Control Act
USEC	United States Enrichment Corporation
WAC	waste acceptance criteria
WC/OSDD	the Waste Certification and Off-Site Disposal Department of WMD
WMD	the Waste Management Division of MMES at PORTS

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## EXECUTIVE SUMMARY

The Department of Energy (DOE) owns and operates waste storage units at the Portsmouth Gaseous Diffusion Plant (PORTS); the co-operator for these units is Martin Marietta Energy Systems, Inc. (MMES). The units are regulated under the provisions of the Resource Conservation and Recovery Act, Ohio hazardous-waste laws, and the Toxic Substances Control Act. The handling and storage of low-level waste is regulated by DOE under the Atomic Energy Act of 1954.

This document was developed to establish requirements that generators (DOE/MMES, United States Enrichment Corporation/Martin Marietta Utility Services, and their subcontractors) must meet to send waste to DOE-operated storage facilities at PORTS. Requirements include proper characterization, proper containerization, and compliance with radiological guidelines. Additionally, in accordance with Procedure ERWM/PO-WM-P1601, *Generator's Waste Management Plan*, generators must develop a waste management plan that addresses the generation and characterization of each waste stream so that the waste streams sent to PORTS storage facilities can be identified. Waste management plans must be approved by the Waste Management Division and must address physical and chemical characterization, incompatibility considerations, treatment options, expected duration of storage, and special handling, packaging, and phase separation requirements. Waste management plans for waste streams that contain radioactive, PCB, asbestos, or RCRA constituents and are already being generated on a regular basis by ongoing processes or projects must be reviewed and if necessary revised annually from the date of approval; plans for other waste streams must be reviewed and if necessary revised whenever the scope of work for the generating activity changes.

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## 1. PURPOSE

This document and the referenced policies and procedures describe the requirements for the storage of approved waste materials at the Portsmouth Gaseous Diffusion Plant (PORTS) site in compliance with applicable federal and state requirements, Department of Energy (DOE) Orders, and Martin Marietta Energy Systems (MMES) policies. The waste acceptance criteria (WAC) in this document apply to all wastes that ultimately will be stored at PORTS, including those categorized as mixed or low-level radioactive wastes and those regulated by the Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA), including RCRA/radioactive mixed wastes, TSCA/radioactive wastes, and RCRA/TSCA/radioactive wastes. All generators [DOE/MMES, the United States Enrichment Corporation (USEC)/ Martin Marietta Utility Services (MMUS), and their subcontractors] must meet the requirements of this document to store or dispose of wastes at DOE-operated facilities at PORTS.

## 2. RECORDS

Hazardous waste stored at PORTS is tracked from origin to disposition via an internal system based on the "request for disposal" (RFD) (Form A-2522) and the "uniform hazardous waste manifest" (Form 8700-22). (Appendix A contains examples of RFD and manifest forms.) Generators must complete an RFD or manifest form, as appropriate, to request that waste be accepted for storage.

## 3. RESPONSIBILITIES

### 3.1. Waste Generator

The waste generator is the individual responsible for generating the waste and meeting the WAC, including segregating, characterizing, packaging, labeling, documenting, and initiating an RFD or manifest form for the waste. Specifically, the generator must:

1. Write a waste management plan and submit it to the PORTS MMES Waste Management Division (WMD) for signature approval, per Procedure ERWM/PO-WM-P1601, *Generator's Waste Management Plan*, prior to initiating waste-generating activities (plans for current and ongoing activities must be submitted within 90 days of the publication date of this document). Waste management plans must be approved by WMD and must address physical and chemical characterization, incompatibility considerations, treatment options, expected duration of storage, and special handling, packaging, and phase separation requirements. Waste management plans for waste streams that contain radioactive, PCB, asbestos, or RCRA constituents and are already being generated on a regular basis by ongoing processes or projects must be reviewed and if necessary revised annually from the date of approval; plans for other waste streams must be reviewed and if necessary revised whenever the scope of work for the generating activity changes. (See Appendix B for further guidance on generators' waste management plans.)

2. Manage the waste during all phases of generation, collect it at the point of origin, and ensure compliance with standards, policies, and strategies regarding
  - segregation by physical state and segregation based on contaminant constituents;
  - waste minimization and pollution prevention;
  - container integrity, filling, and labeling (in accordance with Procedure ERWM/PO-WM-P1612, *Waste Container Labeling and Verification*);
  - sampling and characterization (in accordance with Procedure ERWM/PO-WM-P1607, *Waste Characterization*);
  - waste acceptance criteria (local and off site); and
  - applicable restrictions and requirements for collection and storage areas.
3. Identify external support activities and responsible departments required to perform sampling and analysis, characterization, and designation of waste as applicable.
  - Identify procedural needs and associated documents.
  - Initiate the required forms and associated paperwork.
4. Identify the departments/divisions needed to identify, register, inspect, and manage the intended 90-day or satellite accumulation area, per Procedure ERWM/PO-WM-P1603, *Management of Hazardous Waste in Satellite Accumulation Areas and 90-Day Accumulation Areas at PORTS*.
  - Coordinate activities required to prepare the accumulation area.
  - Maintain a list of all identified accumulation areas.
5. Initiate, upon completion of waste generation, the request for storage and/or disposal of the waste by completing the applicable portion of the RFD (Form A-2522) or manifest form (Form 8700-22).

Generator responsibilities are iterated in further detail in Sections 4.1.1, 4.2.1, and 4.3.1.

### **3.2. Waste Management Division**

WMD is responsible for (1) managing on behalf of generators wastes received at the PORTS storage facilities and (2) maintaining full compliance with all applicable federal, state, and local environmental, safety, and health regulations in a manner that protects the health and safety of on-site personnel, the public, and the environment. All liability, however, lies with generators, in accordance with 40 CFR.

### **3.3. Waste Certification and Off-Site Disposal Department**

The Waste Certification and Off-Site Disposal Department (WC/OSDD) of WMD approves generators' waste management plans and provides guidance on the safe and compliant packaging, transportation, storage, treatment, characterization, and disposal of MMES-managed wastes at PORTS.

#### **3.3.1. Waste acceptance engineer**

The WC/OSDD waste acceptance engineer determines waste storage locations and disposal methods.

### **3.3.2. Shipment coordinator**

The WC/OSDD shipment coordinator inspects, approves, and authorizes off-site shipments of waste.

### **3.4. Waste Operations Department**

The Waste Operations Department is an operating department within WMD that is responsible for the safe and compliant handling and storage of wastes managed by MMES at PORTS.

## **4. WASTE ACCEPTANCE CRITERIA**

These WAC apply to all wastes that ultimately will be stored at PORTS, including those characterized in the RCRA or TSCA regulations or DOE Order 5820.2A, "Radioactive Waste Management." Wastes can be solid, liquid, gas, or sludge in form and can be categorized as low-level, hazardous, polychlorinated biphenyl (PCB), mixed (hazardous and radioactive), mixed PCB, or sanitary/industrial.

### **4.1 GENERAL REQUIREMENTS**

1. The sample collection and handling methods that will be used for wastes received at the PORTS storage units will follow the sampling protocols in EPA SW-846, *Test Methods for Evaluating Solid Wastes*, which are approved by the Environmental Protection Agency (EPA). Composite liquid waste samplers (coliwasa samplers) must be used for sampling liquid waste in drums; core samplers must be used for sampling sludges and solid waste in drums. Tanks must be sampled with bailers or from sampling ports.
2. Wastes may be stored in Buildings X-7725, X-7725A, X-330, X-333, and X-326 (the latter of which is intended for the storage of high-assay uranium-bearing hazardous and/or PCB wastes) as indicated in Table 1.
3. Waste must be properly characterized and identified, in accordance with Procedure ERWM/PO-WM-P1607, *Waste Characterization*.
4. WMD personnel shall compare the generator's waste management plan and the checklists in Appendix C with the RFD or manifest form and other information submitted for each waste stream shipped to ensure that all preparatory tasks have been properly completed and the wastes have been properly identified, packaged, and labeled.
5. Waste will continue to be stored at PORTS facilities only if generators properly perform the responsibilities assigned to them in this document.
6. Generators' waste programs and associated documents (e.g., procedures and waste management plans) shall be subject to semi-annual audits by operators of facilities to which the waste is sent.
7. Mercury must be drained from all glass mercury manometers, the tubing segments of which must not exceed 2.5 ft in length. Free liquid mercury must be placed in approved containers, the volume of which must not exceed 1 liter.

**Table 1. Types of wastes accepted at PORTS facilities**

Buildings X-7725 and X-326 L Cage	Buildings X-326, X-330, X-333, and X-7725A
<ul style="list-style-type: none"> <li>• Low-level radioactive<sup>a</sup></li> <li>• TSCA (PCB and asbestos)</li> <li>• RCRA characteristic (prefixed as D)</li> <li>• RCRA listed (prefixed as F, P, or U))</li> <li>• Combinations                             <ul style="list-style-type: none"> <li>– RCRA/LLR (mixed)<sup>a</sup></li> <li>– TSCA/LLR<sup>a</sup></li> <li>– RCRA/TSCA</li> <li>– RCRA/TSCA/LLR<sup>a</sup></li> </ul> </li> <li>• Nonregulated</li> </ul>	<ul style="list-style-type: none"> <li>• TSCA (PCB and asbestos)<sup>a,b</sup></li> <li>• TSCA/LLR<sup>a</sup></li> </ul>

<sup>a</sup>The primary radionuclides present on site are naturally occurring isotopes of <sup>234</sup>U, <sup>235</sup>U, and <sup>238</sup>U. Two trace impurities from recycled uranium, <sup>236</sup>U and <sup>99</sup>Tc, are present, along with equilibrium concentrations of daughters <sup>234</sup>Th, <sup>231</sup>Th, and <sup>234</sup>Pa. Most radioactive wastes generated on site should therefore contain only these radionuclides.

TSCA = Toxic Substances Control Act; PCB = polychlorinated biphenyl; RCRA = Resource Conservation and Recovery Act; LLR = low-level radioactive.

8. All mercury-containing thermometers must be double packaged and properly labeled.
9. Waste must be accompanied by a completed RFD or manifest form that has been approved and signed by the WMD waste acceptance engineer or shipment coordinator, as appropriate. In emergency situations, RFDs or manifest forms will be hand carried through the review and approval system to prevent noncompliances.
10. DOE wastes should also meet the WAC of the intended final-destination treatment, storage, or disposal facility (presently the Hanford Site, Envirocare, or the K-25 TSCA incinerator). (USEC wastes need to meet only PORTS WAC.)
11. Data reporting formats and requirements will be specified by WMD as part of the approval process for generators' waste management plans.
12. To be accepted, classified material must be accompanied by written consent from the appropriate MMES personnel in the Facilities Management and Security divisions, with concurrent DOE approval.

#### **4.1.1. Requirements for Waste Generators**

1. Generators must develop a waste management plan in accordance with Procedure ERWM/PO-WM-P1601, *Generator's Waste Management Plan*. Waste management plans must be approved by WMD and must address physical and chemical characterization, incompatibility considerations, treatment options, expected duration of storage, and special handling, packaging, and phase separation requirements. Waste management plans for waste streams that contain radioactive, PCB,

asbestos, or RCRA constituents and are already being generated on a regular basis by ongoing processes or projects must be reviewed and if necessary revised annually from the date of approval; plans for other waste streams must be reviewed and if necessary revised whenever the scope of work for the generating activity changes. (See Appendix B for further guidance.)

2. Generators must use the parameters and analytical methods shown in Appendix D to characterize all waste streams unless WMD grants permission to use process knowledge or other acceptable methods. If equivalent methods are proposed, they will be reviewed for adequate quality assurance, quality control, and detection limits.
3. Generators must provide to WMD all requested information necessary to ensure compliance with applicable federal, state, and local requirements; DOE Orders; and MMES policies. WMD will reject waste that may jeopardize compliance.
4. Generators must complete the checklists in Appendix C and submit them with the RFD or manifest form.
5. Waste streams generated as a by-product of an ongoing operation (e.g., heavy metal sludge from Building X-705) may be characterized on the basis of WMD-approved process knowledge and may be validated by an ongoing statistical sampling plan.
6. The generator must schedule with WMD any waste shipment to PORTS.
7. The generator must provide documentation of nuclear criticality safety approval before fissile materials will be received by PORTS storage facilities.
8. Generators must follow WMD instructions for packaging laboratory packs. To obtain instructions, generators should attach to the RFD or manifest form an itemized inventory of laboratory pack quantities of individual containers. WMD will provide written packaging instructions with the approval-to-ship documentation.
9. Generators must comply with applicable procedures and WMD's audit recommendations.
10. Generators must comply with the transportation requirements of DOE/OR/ 111267 & D1, *Portsmouth Gaseous Diffusion Plant Siting Criteria Document*, and Procedure WM-OP-13.01, *Handling Non-sanitary Waste*.
11. If a waste-generating process changes, the generator must immediately notify WMD in writing that the change occurred and must update the waste management plan for each affected waste stream prior to or concurrently with the implementation of the change.
12. Generators must certify that they have complied with their own waste management plan, that the WAC in this document have been met, and that the information in their waste management plan and on the RFD or manifest form is accurate and complete. (A certification statement such as the one in Appendix E must accompany each RFD or manifest form.)

13. Generators must provide to WMD at least 24 hours in advance written notification of planned shipments of waste to PORTS storage facilities. (Intent to ship may be communicated to WMD via telephone in emergencies.)
14. Generators wishing to deliver to PORTS storage facilities after 2:00 p.m. must obtain written approval from WMD at least 24 hours in advance.
15. Generators must perform the functions in the waste analysis plan, which is contained in Appendix F.
16. Generators must recharacterize at least annually those waste streams that are generated on a regular basis by ongoing processes or projects. Wastes generated during environmental restoration activities will be characterized on the basis of process knowledge and need not be further characterized.
17. Generators must identify wastes as "listed" or "characteristic" in accordance with 40 CFR. For characteristic wastes, generators must supply validated analytical data; for listed wastes, generators must identify the listed hazardous constituents, the characteristically hazardous constituents, and the suspected characteristically hazardous constituents. For *all* wastes, regardless of listed or characteristic components, generators must supply the information in Table 2.
18. Generators must allow WMD to review their procedures and associated documents and must resolve conflicts to the satisfaction of WMD.

#### 4.2 CONTAINER REQUIREMENTS

1. All containers must comply with the applicable requirements of:
  - Department of Transportation shipping regulations (HM 181) or approved alternatives;
  - MMES standard operating procedures and policies;
  - DOE Order 5820.2A, "Radioactive Waste Management";
  - 40 CFR 761.65(c)(6) or allowances under the TSCA Federal Facilities Compliance Act, which pertain to the packaging of PCB materials (including PCBs < 50 ppm);
  - the PORTS *RCRA Part B Permit Application* (see Table 3);
  - the requirements of the PORTS Part B draft permit conditions; and
  - RCRA.
2. All drums containing liquids must have at least 3 inches of void space.
3. The outside of each container must be free of radioactive or chemical surface contamination, with no oily residue or debris around the lid, bung, or sides.
4. Free or drainable liquids (identified by a paint filter test) must be placed in only containers that are approved for liquids.

**Table 2. Parameters and analytical methods for all waste streams**

Parameter	Analytical methods SW-846 method number	
	Primary	Alternate
Corrosivity	1110	
Flash point <sup>a</sup>	1010	1020
Specific gravity	ASTM D-287	ASTM D-1429
Reactivity		
Cyanide	9010	9012
Sulfide	9030	
Free liquids <sup>b</sup> (paint filter test)	9095	
Polychlorinated biphenyls as aroclors <sup>c,d</sup>	8080	8250
Total activity <sup>e</sup>		
Total uranium <sup>e,e</sup>		
Uranium 235 <sup>e,f</sup>		

<sup>a</sup> Measure and report to 210°F.

<sup>b</sup> Solids only.

<sup>c</sup> Not required if generator submits certification that none is in the waste.

<sup>d</sup> PCB concentration is the sum of the aroclors.

<sup>e</sup> Analyze in duplicate. (A split is not a duplicate; a duplicate is two samples.)

<sup>f</sup> Required only if total uranium is >1 µg/g; report <sup>235</sup>U as wt%.

Note: The requirements of this table shall be updated by revisions promulgated in the *Federal Register* without revision of this plan. The change shall be made by the effective date, not the publication date.

5. Containers must be in good condition, as specified in an approved waste management plan, with no visible cracks, holes, bulges, dents, significant corrosion, missing rings or bolts, or other damage that could compromise container integrity.
6. Materials that will generate gas pressure from decay must be stored in approved containers that either can contain the contents without sustaining structural damage or are equipped with a Department of Transportation–approved pressure relief device.

#### 4.2.1. Requirements for Waste Generators

1. The generator must place waste in containers that are compatible with it, as determined by testing, literature, or past operating experience and as defined in an approved waste management plan.
2. The generator must package all materials in accordance with DOT, EPA, and other applicable state and federal regulations.

**Table 3. Container specifications**

Volume	Type	Material	Dimensions*	Specifications	Thickness
110 gal.	Drum	Steel	30" id, 41" ih	49 CFR 178, Subpart D	16 gauge
85 gal.	Drum	Steel	26" id, 36.375" ih	49 CFR 178, Subpart D	16 gauge
55 gal.	Drum	Steel Steel Stainless steel Polyethylene	22.5" id, 35" ih 22.5" id, 35" ih 22.5" id, 35" ih 22.5" id, 35" ih	HM-181, 1A2 DOT 17c, h, e DOT 17c, e DOT 34	16 gauge 16 & 18 gauge
1, 2, 13, 30 gal.	Drum	Polyethylene	18.5" id, 29.75" oh (typically 30 gal.)	DOT 34	0.1875"
30 gal.	Drum	Steel Polyethylene	18.25" id, 29" od 18.5" id, 31.875" oh	DOT 17h DOT 34	0.18"
20 gal.	Drum	Polyethylene	21.25" id, 17.5" oh	49 CFR 178, Subpart D	0.1875"
5 gal.	Pail	Steel Polyethylene	11.25" id, 13" oh	DOT 17c, e DOT 34	0.2"
10 liter (2.64 gal.)	Bottle	Polyethylene	5" id, 50" ih	Drawing no. DX-761-2340-M	0.195"
1.7 gal.	Can	Tin	5" id by 15" ih	Drawing no. DX-761-2331-M	0.010" head 0.015" body
83.7 cu. ft.	Box	Steel	4' by 4' by 6'	Drawing no. DX-761-2265-M (liner—10mil polyethylene)	12 gauge
96 cu. ft.	Box	Steel	4' by 4' by 6'	49 CFR, Subpart D	12 gauge
275 cu. ft.	Box	Steel	6' by 6' by 8'	Drawing no. DX-761-2286-M	12 gauge
Various	Cylinder	Steel	Various	49 CFR 178, Subpart C	Various
Various	Bulk	Stainless steel	Various	49 CFR 178, Subpart H	Various
Various	Bottle	Glass	Various	NA	Various
Various	Box	Cardboard	Various	NA	Various
Various	Battery casing	Plastic	Various	NA	Various

NOTE: id = inside diameter; od = outside diameter; ih = inside height; oh = outside (overall) height.

3. The generator must label all containers in accordance with an approved waste management plan and Procedure ERWM/PO-WM-P1612, *Waste Container Labeling and Verification*. The generator must label the containers as either USEC or DOE waste.
4. The generator must ensure that containers for materials that generate gas pressure during decay are approved in writing by WMD. (Prior approval may be obtained from the waste acceptance engineer by telephone in emergency situations.)

#### **4.3 ADDITIONAL REQUIREMENTS FOR MANIFESTED WASTE**

1. WMD will accept requests for storage of returned residues from off-site treatment of PORTS waste. However, WMD will not accept any shipment of manifested waste before reviewing and approving the shipping documentation, the methods used to analyze the waste, and the analytical results.
2. Manifested, low-level, radioactive waste materials must be accompanied by
  - a "radioactive material" shipping document (UCN-9778) (attachment),
  - an RFD form (Form A-2522), and
  - a "uranium accountability" form (Form 741) if an assay indicates that the waste contains more than 0.71% uranium.
3. Manifested, hazardous, and PCB-contaminated waste materials must be accompanied by
  - a "uniform hazardous waste manifest" form (Form 8700-22),
  - an RFD form (A-2522), and
  - a "uranium accountability" form (Form 741) if an assay indicates that the waste contains more than 0.71% uranium.
4. Mixed waste must meet the requirements for both low-level radioactive wastes and hazardous/PCB wastes. (See Items 2 and 3 above.)

##### **4.3.1. Requirements for Waste Generators**

1. The generator must sample and analyze wastes that are to be shipped to the PORTS site. The analyses may be based on WMD-approved process knowledge of the waste stream. Unknown samples must be analyzed for the parameters presented in Appendix D. The analytical data and method of analysis must be submitted to and approved in writing by WMD prior to shipment. Use of protocols other than those of EPA SW-846 requires additional prior review and written approval by WMD.
2. Generators must characterize their own wastes and must comply with the following requirements:
  - If the generator has a consistent waste stream and only a statistical portion of the containers will be sampled, the generator must seal the containers as they are filled and provide a copy of the statistical sampling plan as part of the waste management plan.

- Immediately after containerized waste is sampled, a chain-of-custody seal that displays an identification number must be adhered to each container in such a position that the container cannot be opened without breaking the seal.
  - The identification number from the chain-of-custody seal must be recorded on the waste analysis form and the RFD form or attachment.
  - The sampling plan must be pre-approved by WMD.
3. The generator and transporter of manifested waste must check, sign, and date the "uniform hazardous waste manifest" form (Form 8700-22) before the transporter departs.
  4. The generator or transporter must submit a written request to ship and must receive written authorization from WMD before shipping any waste to the PORTS site. The request for authorization to ship waste to the PORTS site must
    - State the date of shipment.
    - State the estimated arrival time.
    - State the number and type of containers in the shipment.
    - State the corresponding RFD number or numbers.
    - Include waste characterization data.
    - State the weight and volume of waste to be shipped.
    - State whether the waste is listed in Appendix A or Appendix B of the Land Disposal Restrictions Federal Facilities Compliance Act.
    - List any land disposal restrictions or universal treatment standards that apply to the waste.
    - List the treatment standards for any wastes to which land disposal restrictions apply. Treatment standards can be either concentration based [constituent concentrations in waste extract (CCWE) or constituent concentrations in the waste (CCW)] or technology based [best demonstrated available technology (BDAT)].
    - State whether waste was characterized by analytical knowledge, process knowledge, or a combination of those two.
    - Include analytical data generated by the waste analysis plan (see Appendix F).
    - Include accountability documentation and nuclear criticality safety analysis data, if required.
    - Include a copy of the manifest (Form 8700-22).

This detailed request and subsequent review will allow for resolution of discrepancies before departure and will speed up the receipt process after the shipment arrives.

#### **4.4 HEALTH PHYSICS REQUIREMENTS**

1. The radiological surface contamination levels of the container must not exceed the limits specified in Article 423 of *U.S. Department of Energy Radiological Control Manual (DOE/EH-0256T; see Appendix G)* or in the applicable sections of the *PORTS/Paducah Gaseous Diffusion Plant Radiological Control Manual (UEO-1013)*.
2. The dose rate from any container must not exceed 5 mrem/hour at 30 cm from any surface. Higher dose rates require that the Safety and Health Division determine radiological controls.

## BIBLIOGRAPHY

1. U.S. Department of Energy and Martin Marietta Energy Systems, Inc., 1993. *RCRA Part B Permit Application*, July 26.
2. Title 40 Code of Federal Regulations (CFR) Parts 260–264, 268, 270, and 761.
3. Title 49 CFR Parts 171 and 173.
4. Ohio Administrative Code 3745.
5. EPA/SW-846, *Test Methods for Evaluating Solid Wastes*, U.S. Environmental Protection Agency (EPA), Office of Solid Waste, Washington, D.C., 1984.
6. DOE Order 5820.2A, *Radioactive Waste Management*, September 26, 1988.
7. DOE/EH-0256T, *U.S. Department of Energy Radiological Control Manual*, Assistant Secretary for Environment, Safety and Health, Washington, D.C., June 1992.

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**Appendix A**

**EXAMPLES OF SHIPPING FORMS**

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**REQUEST FOR DISPOSAL****GENERATOR'S SECTION**

(Only one container type and one waste type per RFD.)

RFD No. **28286**

1. Waste location:	2. Waste origin:	3. Number of containers:
4. Activity generating waste:		
5. Container type: <input type="checkbox"/> 55 Gallon open top <input type="checkbox"/> 55 Gallon closed top <input type="checkbox"/> Other (Specify):		
6. Physical state: <input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Sludge <input type="checkbox"/> Gas		
7. Fully describe waste, including all known chemicals present in waste:		
8. For RCRA Hazardous wastes, the date the container(s) was filled (accumulation start date):		
9. For PCB waste, the date the container was first placed into use:		
10. For PCB equipment, the date removed from service:		
11. For PCB waste, the PCB concentration if known:		
12. Certification: this certifies that I have properly described the waste indicated above, and have disclosed all known information about the hazardous, toxic, and radioactive characteristics of the waste, and I certify that the waste has been properly containerized, at the location stated above.		
Name: _____ Badge No.: _____ Today's Date: _____		
Phone: _____ Dept No.: _____ MS: _____ Cost Center: _____ Work Order: _____		

Block No. 13 on the RFD form must be signed by the Generator's Field Services representative prior to sending the RFD to Waste Management, MS7550, X-7715.

**WASTE MANAGEMENT'S SECTION**

13. Field Services signature:	14. Date RFD form received:
15. Waste labels: <input type="checkbox"/> RCRA Haz <input type="checkbox"/> PCB ML <input type="checkbox"/> PCB <50 <input type="checkbox"/> Rad <input type="checkbox"/> Asbestos <input type="checkbox"/> Nonregulated	
16. Other labels: <input type="checkbox"/> Flammable <input type="checkbox"/> Corrosive <input type="checkbox"/> Oxidizer <input type="checkbox"/> Poison <input type="checkbox"/> Other (Specify):	
17. Waste type:	
18. Special instructions:	
19. EPA ID. No.:	
20. Waste Stream ID No.:	21. Sampling requested? <input type="checkbox"/> Yes <input type="checkbox"/> No
22. <input type="checkbox"/> Storage locations:	23. <input type="checkbox"/> Disposal location
24. Name:	Date:

**WASTE TRANSPORTER'S SECTION**

25. Date RFD form received:	26. Gross weight (lbs.):
27. Storage location:	28. Storage date:
29. Disposal location:	30. Disposal date:
31. Labels and bar codes placed on containers? <input type="checkbox"/> Yes <input type="checkbox"/> No	
32. If waste shipped for treatment/disposal, the date, and manifest number:	
33. If RFD is voided, state reason:	
34. Name:	Date:

DISTRIBUTION: WHITE - WASTE MGT., BLUE - STORAGE FACILITY, GREEN - GENERATOR

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# WASTE ITEM DESCRIPTION

## WASTE ITEM IDENTIFICATION

11. Waste Item ID Number	12. Generator's Name (Print)	13. Badge No.	14. Generator's Phone No.	15. Charge Number/WO
16. Origin Date	17. Origin Site	18. Origin Div.	19. Origin Facility	110. Origin Room/Area
111. Radiological Area?	<input type="checkbox"/> Yes <input type="checkbox"/> No			
112. Est. Net Volume	113. Units	114. Est. Net Weight	115. Units	(Reserved)

## CONTAINER INFORMATION (1 of ) If more than one attach Waste Container List (TX-5746)

C1. Container ID. No.	C2. Container Type	C3. Holding Site	C4. Holding Facility	C5. Holding Room/Area
-----------------------	--------------------	------------------	----------------------	-----------------------

## WASTE CATEGORY

W1. Process Stream ID	W2. Process Category	W3. Process Activity	W7. Waste Category (Check all)			
W4. Physical Form	W5. Material Type		Yes	No	Yes	No
W6. Waste Description	Chemicals				Biological	
	Radioactive				Accountable	
	Asbestos				Carcinogen	
	San/Lnd				Compactible	
	Const. Debris				Recyclable	
					Classified	

## CHEMICAL WASTE

M1. RCRA?	M2. RCRA 90-day Start Date	M3. PCB?	M4. PCB Start Date	M5. PCB Conc. (PPM)
<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No		
M6. Determination Method (Check ONE)	<input type="checkbox"/> Analysis	M7. Determination Document Number(s)		M8. Flash Pt.
<input type="checkbox"/> Process Knowledge <input type="checkbox"/> Reference		M10. EPA Waste Code Numbers		M9. pH
M11. Substance ID	M12. Vol %	M13. Substance Name		

## RADIOACTIVE WASTE

R1. RAD Category (Check ONE)				R2. RAD Handling Type		R3. GCN 2681 No.	
<input type="checkbox"/> TRU	<input type="checkbox"/> High-Level	<input type="checkbox"/> Low-Level	<input type="checkbox"/> Special	<input type="checkbox"/> VLA	<input type="checkbox"/> Contact	<input type="checkbox"/> Remote	
R4. Determination Method (Check ONE)		R5. Determination Document Number(s)					
<input type="checkbox"/> Analysis	<input type="checkbox"/> Process Knowledge <input type="checkbox"/> Reference	R6. Chemical Form		(Reserved)			
R7. Isotope	R8. Est. Qty	R9. Units	R7. Isotope	R8. Est. Qty	R9. Units	R7. Isotope	R8. Est. Qty

## HANDLING INFORMATION

H1. Handling Instructions		H4. HP Tag Color	Surface Contamination (dpm/100 cm <sup>2</sup> )	Dose Rate At Surface (mrem/hr)	Dose Rate at 1 Meter (mrem/hr)	Instrument Identification
		Alpha				
		Beta/Gamma				
H2. Respirator	H3. Cartridge Type	Neutron				
<input type="checkbox"/> None <input type="checkbox"/> Half <input type="checkbox"/> Full						
H5. Pickup Site		H6. Pickup Facility		H7. Pickup Area		

## SIGNATURES and APPROVALS

\*This information is true, accurate, complete, and complies with all company requirements to the best of my knowledge.

S1. Generator	Badge	Date	S2. HP Technician	Badge	Date
S3. Verification Officer	Badge	Date	S4.	Badge	Date

# WASTE ITEM/CONTAINER LIST

(Continuation Page \_\_\_ of \_\_\_)



Sequence Number <b>1</b>	Referenced from WID (TX-5745)*	
	11. Waste Item ID Number	C1. Container ID. No.

\*ALL WASTE ITEM/CONTAINERS ON THIS FORM HAVE THE SAME CHARACTERISTICS AS ITEM/CONTAINER NUMBER 1

Sequence Number	11. Waste Item ID Number	C1. Container ID. No.	16. Origin Date	M2. RCRA 90-day Start Date	M4. PCB Start Date		
	112. Est. Net Volume	113. Units	H4. HP Tag Color	Surface Contamination (dpm/100 cm <sup>2</sup> )	Dose Rate At Surface (mrem/hr)	Dose Rate at 1 Meter (mrem/hr)	Instrument Identification
	114. Est. Net Weight	115. Units	Alpha				
Comments			Beta/Gamma				
			Neutron				

Sequence Number	11. Waste Item ID Number	C1. Container ID. No.	16. Origin Date	M2. RCRA 90-day Start Date	M4. PCB Start Date		
	112. Est. Net Volume	113. Units	H4. HP Tag Color	Surface Contamination (dpm/100 cm <sup>2</sup> )	Dose Rate At Surface (mrem/hr)	Dose Rate at 1 Meter (mrem/hr)	Instrument Identification
	114. Est. Net Weight	115. Units	Alpha				
Comments			Beta/Gamma				
			Neutron				

Sequence Number	11. Waste Item ID Number	C1. Container ID. No.	16. Origin Date	M2. RCRA 90-day Start Date	M4. PCB Start Date		
	112. Est. Net Volume	113. Units	H4. HP Tag Color	Surface Contamination (dpm/100 cm <sup>2</sup> )	Dose Rate At Surface (mrem/hr)	Dose Rate at 1 Meter (mrem/hr)	Instrument Identification
	114. Est. Net Weight	115. Units	Alpha				
Comments			Beta/Gamma				
			Neutron				

Sequence Number	11. Waste Item ID Number	C1. Container ID. No.	16. Origin Date	M2. RCRA 90-day Start Date	M4. PCB Start Date		
	112. Est. Net Volume	113. Units	H4. HP Tag Color	Surface Contamination (dpm/100 cm <sup>2</sup> )	Dose Rate At Surface (mrem/hr)	Dose Rate at 1 Meter (mrem/hr)	Instrument Identification
	114. Est. Net Weight	115. Units	Alpha				
Comments			Beta/Gamma				
			Neutron				

Sequence Number	11. Waste Item ID Number	C1. Container ID. No.	16. Origin Date	M2. RCRA 90-day Start Date	M4. PCB Start Date		
	112. Est. Net Volume	113. Units	H4. HP Tag Color	Surface Contamination (dpm/100 cm <sup>2</sup> )	Dose Rate At Surface (mrem/hr)	Dose Rate at 1 Meter (mrem/hr)	Instrument Identification
	114. Est. Net Weight	115. Units	Alpha				
Comments			Beta/Gamma				
			Neutron				

## SIGNATURES and APPROVALS

This information is true, accurate, complete, and complies with all company requirements to the best of my knowledge.

S1. Generator	Badge	Date	S2. HP Technician	Badge	Date
S3. Verification Officer	Badge	Date	S4.	Badge	Date

TX-5746 (DMEC) 4/26/93



Attach Container Packing List and/or Barcode Labels Here (staple)

WASTE MANAGEMENT SECTION					
EPA Codes					
DOT Rad > =2000 <input type="checkbox"/> Yes <input type="checkbox"/> No		Required Labels/Markings/Tags Correct <input type="checkbox"/> Yes <input type="checkbox"/> No		DOT Shipping Name	
Hazard Class/Division	DOT ID Number	Packing Group	Sample Request Number	Date Sampled	Sampling Code Number
1 Yr. Storage Deadline for RCRA (Date)		9 Month/1 Year PCB Date		Required Protective Equipment	
Field Review Signature (TSD)			Badge Number	Date	
Onsite TSD Facility	Date Waste Received	Bay	Shelf	Column	Row
Operator's Signature			Badge Number	Date	
Movement History			Date Moved		
Operator's Signature			Badge Number	Date	
Disposal Method/Code		Disposal Facility/Company		Transporter's Name/Company	
Waste Manifest Number		CD Receipt Date		Waste Destination	
Shipping Coordinator's Signature			Badge Number	Date	
Disposal Instructions:					
Certification Officer Signature			Badge Number	Date	

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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No		Manifest Document No		2. Page 1 of		Information in the shaded areas is not required by Federal law.		
3. Generator's Name and Mailing Address						A. State Manifest Document Number				
4. Generator's Phone ( )						B. State Generator's ID				
5. Transporter 1 Company Name				6. US EPA ID Number		C. State Transporter's ID				
7. Transporter 2 Company Name				8. US EPA ID Number		D. Transporter's Phone				
9. Designated Facility Name and Site Address				10. US EPA ID Number		E. State Transporter's ID				
						F. Transporter's Phone				
						G. State Facility's ID				
						H. Facility's Phone				
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)						12. Containers		13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
						No. Type				
a.										
b.										
c.										
d.										
J. Additional Descriptions for Materials Listed Above						K. Handling Codes for Wastes Listed Above				
15. Special Handling Instructions and Additional Information										
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.										
Printed/Typed Name				Signature		Month Day Year				
17. Transporter 1 Acknowledgement of Receipt of Materials										
Printed/Typed Name				Signature		Month Day Year				
18. Transporter 2 Acknowledgement of Receipt of Materials										
Printed/Typed Name				Signature		Month Day Year				
19. Discrepancy Indication Space										
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.										
Printed/Typed Name				Signature		Month Day Year				

ORIGINAL-RETURN TO GENERATOR

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**Appendix B**

**WORKSHEETS FOR DEVELOPING  
A GENERATOR'S WASTE MANAGEMENT PLAN**

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Prepared by: \_\_\_\_\_ Phone No: \_\_\_\_\_ Date Prepared: \_\_\_/\_\_\_/\_\_\_

Waste Generation Start Date: \_\_\_/\_\_\_/\_\_\_ Project Name: \_\_\_\_\_

**Waste Generation/Origin**

Y N

- Area has the potential for contamination due to the presence of unencapsulated or unconfined radioactive material or is an area that is exposed to beams or other sources of particles (neutrons, protons, etc.) capable of causing activation.

**Project Description**

Give a brief description on the project, including equipment and processes to be used.

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**Wastestream Description**

Describe the wastestream(s) including secondary wastes by completing the following areas:

Explain the process for waste generation \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Describe how much waste is generated, including secondary waste \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

List all materials involved in waste generation \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Provide the material balance or process flow diagram for the wastestream(s) \_\_\_\_\_  
\_\_\_\_\_



**Wastestream Management**

Following generation, the wastestream is initially: (circle) Stored - Treated - Disposed

Provide appropriate information:

- 1. Identify the intended Treatment Storage/Disposal Facility

Name and location: \_\_\_\_\_

- 2. Accumulated Quantity: \_\_\_ ft<sup>3</sup>/m<sup>3</sup> \_\_\_ lb/kg Other: \_\_\_\_\_

- 3. Briefly describe treatment, storage, and/or disposal process: \_\_\_\_\_  
\_\_\_\_\_

- 4. Describe the Waste Acceptance Criteria for the above TSDF: \_\_\_\_\_  
\_\_\_\_\_

- 5. Waste minimization and reduction techniques to be implemented (Check and discuss ALL that apply)

- |                            |   |
|----------------------------|---|
| ___ Segregation            | ___ Waste Handling (Spill Control)          |
| ___ Decontamination        | ___ Material Recycle (Solvents, Containers) |
| ___ Compaction             | ___ Material Reuse (Solvents, Wash Waters)  |
| ___ Solvent Substitution   | ___ Cutting Fluids Recovery                 |
| ___ Sludge Dewatering      | ___ Selection of Equipment                  |
| ___ Selection of PPE       |   |
| ___ Other (Describe) _____ |   |

Discussion of minimization techniques:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### **Waste Area Identification**

Identify the Waste Storage Area.

- Area is listed and registered as an RMA
- Area is listed and registered as a RCRA Satellite Accumulation Area
- Area is listed and registered as a RCRA 90-day Accumulation Area
- Area is listed and registered as a TSCA 30-day Storage Area

**Appendix C**

**WASTE ACCEPTANCE CRITERIA CHECKLISTS**

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### Generator's Checklist for Administrative Activities

Task	Done?
Generator's waste management plan approved for each waste stream prior to generation?	
EPA SW-846 sampling methods used for all wastes?	
Waste properly sampled, analyzed, and characterized before shipment?	
Use of process knowledge to characterize wastes approved by WMD?	
Analytical methods and data for manifested shipments reviewed and approved by WMD before transport?	
WMD instructions followed for packaging lab packs?	
DOE wastes meet WAC of intended final-destination TSDF?	
Written permission to ship received from WMD?	
Shipments scheduled with WMD at least 24 hours in advance?	
On-site deliveries after 2:00 p.m. approved by WMD?	

EPA = Environmental Protection Agency; WMD = Waste Management Division; DOE = Department of Energy; TSDF = treatment, storage, and disposal facility.

### Generator's Checklist for Operations Activities

Task	Done?
<i>General requirements</i>	
Mercury drained from glass mercury manometers?	
Mercury-containing thermometers double packaged and properly labeled?	
Each waste stream accompanied by a complete, accurate RFD?	
Certification statement signed?	
Checklists attached to RFD?	
<i>Container requirements</i>	
Drums containing liquids have at least 3 inches of void space?	
Outside of each container free of radioactive or chemical contamination, with no oily residues on top or sides?	
Free or drainable fluids placed in approved containers?	
Containers in good condition?	
Materials that will generate gas pressure from decay placed in approved containers?	
Containers labeled in accordance with Procedure ERWM/PO-WM-P1612?	
Wastes labeled as DOE or USEC?	
<i>Requirements for manifested waste</i>	
LLRW accompanied by Forms UCN-9978, A-2522, and 741 as appropriate?	
Hazardous and PCB-contaminated waste accompanied by Forms 8700-22, A-2522, and 741 as appropriate?	
Mixed waste accompanied by Forms UCN-9978, 8700-22, A-2522, and 741 as appropriate?	
Manifest (Form 8700-22) checked, signed, and dated by generator and transporter before departure?	
Radiological surface contamination levels of containers below regulatory limits in Table 2-2 of DOE/EH-0256T?	
Health Physics contacted if the dose rate from any container exceeds 5 mrem/hour at 30 cm from the surface?	

RFD = "request for disposal" form; USEC = United States Enrichment Corporation; DOE = Department of Energy; LLRW = low-level radioactive waste; PCB = polychlorinated biphenyl.

**Appendix D**  
**ANALYTICAL METHODS**

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**Table D-1. Required analytical methods**

Contaminant	Chemical Abstract Services number	SW-846 method number	
		Primary	Alternate
<i>Organics</i>			
Halogenated volatile organics		8010	
Carbon tetrachloride	56-23-5	8010	8240/8260
Chloroform	67-66-3	8010	8240/8260
1,4-Dichlorobenzene	106-47-7	8010	8240/8260
1,2-Dichloroethane	107-06-2	8010	8240/8260
1,1-Dichloroethylene	75-35-4	8010	8240/8260
Hexachloroethane	67-72-1	8010	8240/8260
Methoxychlor	72-43-5	8010	8240/8260
Tetrachloroethylene	127-18-4	8010	8240/8260
Trichloroethylene	79-01-6	8010	8240/8260
Vinyl chloride	75-01-4	8010	8240/8260
Nonhalogenated volatile organics		8015	
Methyl ethyl ketone	78-93-3	8015	8240/8260
Aromatic volatile organics		8020	
Benzene	71-43-2	8020	8240/8260
Chlorobenzene	108-90-7	8020	8240/8260
Phenols		8040	
o-Cresol	95-48-7	8040	8250/8270
m-Cresol	108-39-4	8040	8250/8270
p-Cresol	106-44-5	8040	8250/8270
Pentachlorophenol	87-86-5	8040	8250/8270
2,4,5-Trichlorophenol	95-95-4	8040	8250/8270
2,4,6-Trichlorophenol	88-06-2	8040	8250/8270
Organochlorine pesticides and PCBs as Aroclors		8080	
Chlordane	57-74-9	8080	8250/8270
Endrin	72-20-8	8080	8250/8270

Contaminant	Chemical Abstract Services number	SW-846 method number	
		Primary	Alternate
Heptachlor	76-44-8	8080	8250/8270
Toxaphene	8001-35-2	8080	8250/8270
PCB as Aroclors	1336-35-3	8080	8250/8270
Nitroaromatics and cyclic ketones		8090	
2,4-Dinitrotoluene	121-14-2	8090	8250/8270
Nitrobenzene	98-95-3	8090	8250/8270
Pyridine	110-86-3	8090	8250/8270
Chlorinated hydrocarbons		8120	
Hexachlorobenzene	118-74-1	8120	8250/8270
Hexachlorobutadiene	87-68-3	8120	8250/8270
Chlorinated herbicides		8150	
2,4-Dichlorophenoxyacetic acid	94-75-7	8150	8250/8270
2,4,5-Trichlorophenoxypropionic acid	93-72-1	8150	8250/8270
<i>Metals</i>			
Inductively coupled plasma atomic emission spectroscopy		6010	
Arsenic	7440-38-2	6010	7060/7061
Barium	7440-39-3	6010	7080
Cadmium	7440-43-9	6010	7130/7131
Chromium	7440-47-3	6010	7190/7191
Lead	7439-92-1	6010	7420/7421
Nickel (Calif. list)	7440-02-0	6010	7520/7521
Selenium	7782-49-2	6010	7740/7741
Silver	7440-22-4	6010	7760
Thallium	7440-28-0	6010	7840/7841
Manual cold vapor technique for mercury in liquid		6010	
Mercury	7438-97-6	7470/7471	

Note: The requirements of this table shall be updated by revisions promulgated in the *Federal Register* without revision of this plan. The change shall be made by the effective date, not the publication date.

**Table D-2. Chemical Abstract Services numbers for contaminants**

Contaminant	Chemical Abstract Services number
<i>Organics</i>	
Halogenated volatile organics	
Carbon tetrachloride	56-23-5
Chloroform	67-66-3
1,4-Dichlorobenzene	106-47-7
1,2-Dichloroethane	107-06-2
1,1-Dichloroethylene	75-35-4
Hexachloroethane	67-72-1
Methoxychlor	72-43-5
Tetrachloroethylene	127-18-4
Trichloroethylene	79-01-6
Vinyl chloride	75-01-4
Nonhalogenated volatile organics	
Methyl ethyl ketone	78-93-3
Aromatic volatile organics	
Benzene	71-43-2
Chlorobenzene	108-90-7
Phenols	
o-Cresol	95-48-7
m-Cresol	108-39-4
p-Cresol	106-44-5
Pentachlorophenol	87-86-5
2,4,5-Trichlorophenol	95-95-4
2,4,6-Trichlorophenol	88-06-2
Organochlorine pesticides and PCBs as Aroclors	
Chlordane	57-74-9
Endrin	72-20-8
Heptachlor	76-44-8
Lindane	58-89-9
Toxaphene	8001-35-2

Contaminant	Chemical Abstract Services number
<i>Organics</i>	
PCBs as Aroclors	1336-35-3
Nitroaromatics and cyclic ketones	
2,4-Dinitrotoluene	121-14-2
Nitrobenzene	98-95-3
Pyridine	110-86-3
Chlorinated hydrocarbons	
Hexachlorobenzene	118-74-1
Hexachlorobutadiene	87-68-3
Chlorinated herbicides	
2,4-Dichlorophenoxyacetic acid	94-75-7
2,4,5-Trichlorophenoxypropionic acid	93-72-1
<i>Metals</i>	
Inductively coupled plasma atomic emission spectroscopy	
Arsenic	7440-38-2
Barium	7440-39-3
Cadmium	7440-43-9
Chromium	7440-47-3
Lead	7439-92-1
Nickel (California list)	7440-02-0
Selenium	7782-49-2
Silver	7440-22-4
Thallium	7440-28-0
Manual cold vapor technique for mercury in liquid	
Mercury	7438-97-6

Note: The information in this table shall be updated by revisions promulgated in the *Federal Register* without revision of this plan. The change shall be made by the effective date, not the publication date.

**Appendix E**

**CERTIFICATION STATEMENT**

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**CERTIFICATION STATEMENT**

I certify to the best of my knowledge that (1) the waste associated with "request for disposal" (RFD) or manifest form number

---

meets the requirements of P/WMD/94-01, *Waste Acceptance Criteria for Storage Facilities at the Portsmouth Gaseous Diffusion Plant*, and the applicable waste management plan and (2) the information in that waste management plan and on the RFD or manifest form is accurate and complete.

If I am a large-quantity generator, I further certify that (1) I have a program in place to reduce the volume and toxicity of waste generated to the degree that I have determined is economically practicable and (2) I have selected the practicable method of treatment, storage, or disposal currently available to me that minimizes threats to human health and the environment.

If I am a small-quantity generator, I further certify that I have made a good faith effort to minimize my waste generation and select the best management method available to me that I can afford.

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

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**Appendix F**

**WASTE ANALYSIS PLAN**

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**WASTE ANALYSIS PLAN**

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>a</sup>
<b>ENVIRONMENTAL RESTORATION RELATED WASTES</b>					
Decontamination Water ER-1	Visual Inspection  pH Selected Volatile Organic Carbon (VOC) compound determination Trichloroethylene 1,1,1-Trichloroethane  Chemical composition and waste properties.	F001 F001	20% of containers.  20% of containers. Quarterly.  As required for TSD acceptance.	Storage in containers.  Treatment through granular activated carbon filters or incineration. Maximum feed concentration to filters 200 mg/l total TOX. <sup>b</sup>  Treatment or disposal.	Verification of waste description.  Selected monitoring wells are sampled on a quarterly basis. Contaminant concentrations based on groundwater sampling results. Hazardous waste derived from listed waste in OAC 3745-50-31 (40 CFR 261.31). Parameters represent positive results from Appendix VIII analyses. Treatment required to meet regulatory limits in OAC 3745-50-31 (40 CFR 268.41).  Determine chemical concentrations and waste properties for disposal.
Purge water and well development water ER-1	Visual Inspection  pH VOC determination Trichloroethylene 1,1,1-Trichloroethane  Chemical composition and waste properties.	F001 F001	20% of containers.  20% of containers. Quarterly.  As required for TSD acceptance.	Treatment through granular activated carbon filters or incineration. Maximum feed concentration to filters 200 mg/l total TOX.  Treatment or disposal.	Verification of waste description.  Selected monitoring wells are sampled on a quarterly basis. Contaminant concentrations based on groundwater sampling results. Hazardous waste derived from listed waste in OAC 3745-50-31 (40 CFR 261.31). Parameters represent positive results from Appendix VIII analyses. Treatment required to meet regulatory limits in OAC 3745-50-31 (40 CFR 268.41).  Determine chemical concentrations and waste properties for disposal.

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>a</sup>
ENVIRONMENTAL RESTORATION RELATED WASTES					
Closure wastes/cleanup wastes 700-1 SW-14 SW-15	Visual Inspection  TC test for metals. TC test for organic constituents.  Selected VOC determination. F001-F005 solvents  Chemical composition and waste properties.	D004-D011 D018-D043  TBD	20% of containers.  In accordance with approved closure plan.  In accordance with approved closure plan.  As required for TSD acceptance.	Storage in containers.  Storage in containers.  Treatment or disposal.	Verification of waste description.  Determine hazardous characteristics.  Determine waste constituents.  Treatment required to meet regulatory limits in OAC 3745-50-31 (40 CFR 268.41).

F-4

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE*
Drill cuttings (soil) ER-3	Visual Inspection  TC test for metals.  VOC determination Trichloroethylene 1,1,1-Trichloroethane  Chemical composition and waste properties.	D004-D011  F001 F001	20% of containers.  Samples collected during well/bore hole installation.  Samples collected during well/bore hole installation.  As required for TSD acceptance.	Storage in containers.  Storage in containers.  Treatment or disposal.  Land disposal in RCRA landfill.	Verification of waste description.  Determine hazardous characteristics.  Hazardous waste derived from listed waste in OAC 3745-50-31 (40 CFR 261.31). If any VOC analyte exceeds regulatory values in OAC 3745-59-41 and 43 (40 CFR 268.41 and 284.43). Treatment required to meet regulatory limits in OAC 3745-59-41 (40 CFR 268.41).  Determine chemical concentrations and waste properties for disposal.  Land disposal if all VOC analytes are less than regulatory values in OAC 3745-59-41 and 43 (40 CFR 268.41 and 268.43).

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>a</sup>
<b>ENVIRONMENTAL RESTORATION RELATED WASTES</b>					
Contaminated debris (rags, PPE, etc.) ER-2	Visual Inspection  Chemical composition and waste properties.  VOC determination Trichloroethylene 1,1,1-Trichloroethane Refrigerant-113	F001 F001 F001	20% of containers.  As required for TSD acceptance.  As required for TSD acceptance.	Storage in containers.   Incineration.	Verification of waste description.  Wastes are PPE and rags used during well installation and sampling. Contaminants are based on groundwater sampling results.  Hazardous waste derived from listed waste in OAC 3745-50-31 (40 CFR 261.31). If any VOC analyte exceeds regulatory values in OAC 3745-59-41 and 43 (40 CFR 268.41 and 284.43). Treatment required to meet regulatory limits in OAC 3745-59-41 (40 CFR 268.41).
(All groundwater related wastes <sup>b</sup> )	Uranium Technetium			Storage in containers. Final disposition to be determined. <sup>c</sup>	Determination of radioactive constituents. OAC 3745-59-41 and 43 (40 CFR 261.31).
Discarded light bulbs SW-5	Visual Inspection  Test for metals. Mercury Lead  Chemical composition and waste properties.  Uranium Technetium	D009 D008	20% of containers.  Process changes.  As required for TSD acceptance.	Storage in containers.   Storage in containers. Final disposition to be determined.	Verify waste description.  Verify waste description.  Determine component concentrations for disposal.  Determine radioactive constituents.

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WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE*
Metallic mercury wastes and clean up debris CASCADE-7 PUMP-1 SWITCH-3 608-1 608-3 611-2 700-11 705-8 720-3 770-1	Visual Inspection Test for metals Mercury Chemical composition and waste properties Uranium Technetium	D004-D011 D009	20% of containers 10% of containers As required for TSD acceptance	Storage in containers Storage in containers Final disposition to be determined.	Verify waste description. Determine component concentrations for disposal. Determine radioactive constituents.
Process and machine coolants SW-6 SW-10 720-15	Visual Inspection pH Test for metals. Test for organic constituents. Chemical composition and waste properties. Uranium Technetium	D004 D011 D018 D043	20% of containers 20% of containers 10% of containers As required for TSD acceptance	Storage in containers Storage in containers Final disposition to be determined.	Verify waste description. Verify waste description. Container and waste compatibility. Determine component concentrations for disposal. Determine radioactive constituents.

WASTE ANALYSIS PLAN

RATIONALE	DISPOSITION OF WASTES	FREQUENCY OF ANALYSIS	U.S. EPA WASTE CODE	PARAMETERS	WASTE STREAM TYPE AND IDENTIFICATION NUMBER
<p>Verification of waste description</p> <p>Verify waste description. Determine hazardous characteristics of waste and proper waste segregation.</p> <p>Determine component concentration for disposal.</p> <p>Determine radioactive constituents.</p>	<p>Storage in containers</p> <p>Storage in containers to be determined.</p>	<p>20% of containers</p> <p>10% of containers</p> <p>10% of containers</p> <p>As required for TSD acceptance</p>	<p>D001</p> <p>D004, D011</p> <p>D018, D043</p> <p>D001</p> <p>F003</p> <p>F005</p> <p>F003</p> <p>F005</p> <p>F003</p> <p>F005</p> <p>F003</p> <p>F005</p> <p>F003</p> <p>F005</p> <p>F003</p> <p>F004</p>	<p>Visual inspection</p> <p>Flash Point</p> <p>Test for metals.</p> <p>Test for organic constituents.</p> <p>Selected VOC determination</p> <p>Mineral spirits</p> <p>Naphtha</p> <p>Acetone</p> <p>Benzene</p> <p>iso Butyl alcohol</p> <p>n-Butyl alcohol</p> <p>Methyl ethyl ketone</p> <p>Methyl isobutyl ketone</p> <p>Cresylic acid</p> <p>Chemical composition and waste properties.</p> <p>Uranium</p> <p>Technetium</p>	<p>Nonhalogenated solvents</p> <p>CASCADE 2</p> <p>SW-1</p> <p>SW-8</p> <p>SW-9</p> <p>SW-9</p> <p>343-1</p> <p>344-2</p> <p>700-9</p> <p>705-5</p> <p>705-12</p> <p>710-3</p> <p>720-10</p> <p>720-19</p> <p>750-3</p> <p>760-1</p>

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE*
Halogenated solvents ER 6 344.2 600.1 700.2 700.9 710.3 720.4 720.12 750.3	Visual Inspection  Flash Point  Selected VOC determination. Trichloroethylene 1,1,1-Trichloroethane Refrigerant-113  Test for metals  Chemical composition and waste properties  Uranium Technetium	F001,F002	20% of containers  10% of containers  10% of containers  10% of containers  As required for TSD acceptance.	Storage in containers.  Storage in containers.  Solvent recovery, treatment, or disposal.	Verification of waste description.  Determine hazardous characteristics and proper waste segregation.  Determine waste constituents.  Determine component concentration for disposal.  Determine radioactive constituents.
Granular activated carbon filters ER-5 700.4	Visual Inspection  Selected VOC determination Trichloroethylene 1,1,1-Trichloroethane  Test for metals Test for organic compounds  Chemical composition and waste properties.  Uranium Technetium	F001 F001  D004-D011 D018 D043	20% of containers.  10% of containers.  10% of containers  As required for TSD acceptance.	Storage in containers.  Storage in containers.  Storage in containers. Final disposition to be determined.	Verify waste description.  Verify waste description.  Verify waste description and proper waste segregation.  Determine component concentrations for disposal.  Determination of radioactive constituents.

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WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>#</sup>
Chemical cleaning and decontamination solutions CASCADE-3 700-2 700-7 700-8 705-1	Visual Inspection  pH Test for metals. Test for organic constituents.  Chemical composition and waste properties.  Uranium Technetium	D002 D004-D011 D018-D043	20% of containers.  20% of containers. 10% of containers.  As required for TSD acceptance	Storage in containers.    Storage in containers. Final disposition to be determined.	Verify waste description.  Verify waste description. Determine characteristics of waste. Proper waste segregation.  Determine component concentrations for disposal.  Determine radioactive constituents.
Cleaning compounds SW-12 720-7 720-24	Visual Inspection  pH Test for metals.  Chemical composition and waste properties  Uranium Technetium	D002 D004-D011	20% of containers.  10% of containers.  As required for TSD acceptance	Storage in containers.    Final disposition to be determined.	Verify waste description.  Verify waste description and proper segregation of wastes.  Determine component concentrations for disposal.  Determination of radioactive constituents.

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WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>a</sup>
Contaminated debris (rags, wipes, floor sweepings, waste brass, canvas cooling tower curtain, bag filters, incinerator ash, filter cake, glass beads, metal shavings, and decontaminated waste solids)	Visual inspection		20% of containers		Verify waste description.
ASH-1 720-30	Test for metals	D004-D011		Storage in containers.	Verify waste description and proper waste segregation.
CASCADE 6 720-32	Test for organic compounds	D018-D043			
ER 2 7725-2	Selected VOC determination				
	1,1,1-Trichloroethane	F001			
	Acetone	F003			
	Methyl ethyl ketone	F005			
	Toluene	F005			
	Xylene	F003			
	Cresylic acid	F004			
PUMP 2					
STOR-1					
SW 2	Chemical composition and waste properties.		As required for TSD acceptance.		Determine component concentration for disposal.
SW 3					
104 4					
342 1	Uranium			Final disposition to be determined.	Determine radioactive constituents.
616 2	Technetium				
700 3					
700 5					
705 2					
705 3					
705 6					
705 7					
705 9					
705 10					
705 11					
705 14					
710 4					
720 2					
720 9					
720-14					
720-17					
720-18					
720-25					

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>a</sup>
Degreasing operations 700-12 720-13	Visual Inspection  Test for metals Test for organic compounds Selected VOC determination 1,1,1-Trichloroethane Acetone Refrigerant-113 Toluene Xylene Cresylic acid  Chemical composition and waste properties.  Uranium Technetium	D004-D011 D018-D043  F001 F003 F001 F005 F003 F004	20% of containers.  10% of containers.       As required for TSD acceptance.	Storage in containers.         Storage in containers. Final disposition to be determined.	Verify waste description.  Verify waste description and proper segregation of wastes.         Determine component concentrations for disposal.  Determine radioactive constituents.
Gas Cylinders SW-7	Acetylene Chlorine Trifluoride Hydrogen Cyanide	D001 D001,D003 P063		Storage in containers.	Reuse.  Treatment by technology specified in OAC 3745-59-42 (40 CFR 268.42) and to standards specified in OAC 3745-59-41 to 43 (40 CFR 268.41 to 268.43).



WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE*
Electrical test wastes 720-20	Visual Inspection  Flash point Test for metals Test for organic materials Selected VOC Determination Chloroform Methanol  Chemical composition and waste properties.  Uranium Technetium	D001 D004 D011 D018 D043  D022 D001	20% of containers  10% of containers.    As required for TSD acceptance.	Storage in containers.      Final disposition to be determined.	Verify waste description  Verify waste description. Proper waste segregation.    Determine waste properties and chemical concentration for disposal.  Determination of radioactive constituents.

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>a</sup>
Vent sampling wastes <sup>e</sup> Ethanol solution CASCADE-1 760-3	Visual Inspection		20% of containers.		Verify waste description.
	Uranium Technetium			Storage in containers.	Determine radioactive constituents.
	Flash point Test for metals Test for organic compounds	D001 D004-D011 D018-D043	10% of containers.	Storage in containers.	Verify waste description. Proper segregation of wastes.
	Selected VOC determination Ethanol	D001	10% of containers.		Verify waste description.
Indicator solution CASCADE-1	Chemical composition and waste properties.		As required for TSD acceptance.		
	Visual Inspection		20% of containers.		Verify waste description.
	pH Test for metals Test for organic compounds	D002 D004-D011 D018-D043	10% of containers.	Storage in containers.	Proper waste segregation.

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WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>a</sup>
Discarded laboratory chemicals and industrial products SW-1 SW-11 705-12 710-1 710-2 710-3 710-5 720-22	Visual Inspection  Characteristic compounds or solutions.	D001 D002 D003 D004 D005 D006 D007 D008 D009 D010 D011 D012 D013 D014 D015 D016 D017 D018 D019 D020 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D031 D032 D033 D034 D035 D036	All containers.  Not analyzed.	Storage in containers.	Verify waste description.  Knowledge of materials based on containers labels and/or MSDS.

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE*
Discarded laboratory chemicals and industrial products (cont)	Visual Inspection	D041 D042 D043	All containers.	Storage in containers.	Verify waste description.
	Characteristic compounds or solutions. Compounds listed in OAC 3745-51-33(E) (40 CFR 261.33(e)).	P001 P003 P004 P005 P008 P010 P011 P012 P013 P015 P016 P018 P020 P021 P022 P023 P024 P028 P029 P030 P031 P033 P037 P038 P041 P042	Not analyzed.  Not analyzed.	Storage in containers.  Storage in containers.	Knowledge of materials based on containers labels and/or MSDS.  Knowledge of materials based on containers labels and/or MSDS.

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>a</sup>
Discarded laboratory chemicals and industrial products (con't)	Visual Inspection Compounds listed in OAC 3745-51-33(E) [40 CFR 261.33(e)].	P046 P047 P048 P050 P051 P056 P058 P059 P060 P063 P072 P074 P075 P076 P077 P078 P082 P087 P089 P093 P095 P098 P099 P104 P105 P106 P108 P110 P111 P113 P114 P115 P116 P119 P120 P121	All containers. Not analyzed.	Storage in containers.	Verify waste description. Knowledge of materials based on containers labels and/or MSDS.

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE*
Discarded laboratory chemicals and industrial products (con t)	Visual inspection Compounds listed in OAC 3745-51-33(F) [40 CFR 261.33(f)]	U001 U002 U003 U004 U006 U007 U008 U012 U017 U018 U019 U020 U021 U022 U023 U026 U028 U029 U030 U031 U032 U033 U034 U036 U037 U039 U041 U042 U043 U044 U045 U046 U047 U048 U050 U051	All containers. Not analyzed.	Storage in containers.	Verify waste description. Knowledge of materials based on containers labels and/or MSDS.

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>a</sup>
Discarded laboratory chemicals and industrial products (con'l)	Visual Inspection Compounds listed in OAC 3745-51-33(F) (40 CFR 261.33(f)).	U055 U056 U057 U060 U061 U063 U064 U066 U067 U068 U069 U070 U071 U072 U073 U074 U075 U076 U077 U078 U079 U080 U081 U082 U083 U084 U086 U088 U092 U094 U096 U101 U102 U105 U106 U107	All containers. Not analyzed.	Storage in containers.	Verify waste description. Knowledge of materials based on containers labels and/or MSDS.

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>a</sup>
Discarded laboratory chemicals and industrial products (con't)	Visual Inspection Compounds listed in OAC 3745-51-33(F) [40 CFR 261.33(f)].	U109 U110 U112 U113 U117 U118 U120 U121 U122 U123 U126 U127 U128 U129 U130 U131 U133 U134 U135 U137 U138 U140 U141 U142 U144 U145 U146 U147 U149 U150 U151 U152 U153 U154 U159 U160	All containers. Not analyzed.	Storage in containers.	Verify waste description. Knowledge of materials based on containers labels and/or MSDS.

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE*
Discarded laboratory chemicals and industrial products (con't)	Visual Inspection  Compounds listed in OAC 3745-51-33(F) (40 CFR 261.33(f)).	U162 U165 U169 U170 U171 U182 U183 U184 U185 U188 U190 U196 U197 U201 U202 U204 U205 U206 U208 U209 U210 U211 U213 U214 U215 U216 U217 U218 U219 U220 U223 U225 U226 U227 U228 U234	All containers.  Not analyzed.	Storage in containers.	Verify waste description.  Knowledge of materials based on containers labels and/or MSDS.

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>a</sup>
Discarded laboratory chemicals and industrial products (con't)	Visual Inspection  Compounds listed in OAC 3745-51-33(F) [40 CFR 261.33(f)]	U236 U238 U239 U240 U243 U246 U247 U248 U328 U353 U359	All containers.  Not analyzed.	Storage in containers.	Verify waste description.  Knowledge of materials based on containers labels and/or MSDS.
Lead related debris SWITCH-1 104-1 104-2 104-3 720-21	Visual Inspection  pH  Test for metals Lead  Chemical composition and waste properties.  Uranium Technetium	D008	20% of containers.  20% of containers with liquids. 10% of containers.  As required for TSD acceptance.	Storage in containers.        Storage in containers. Final disposition to be determined.	Verify waste description.  Proper waste segregation.  Determine chemical concentrations and waste properties.   Determination of radioactive constituents.

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE*
Oil/solvent	Visual Inspection		20% of containers.		Verify waste description.
CASCADE-4	Flash point	D001	10% of containers.	Storage in containers.	Verify waste description. Proper waste segregation.
CASCADE-5	Test for metals	D004-D011			
ER-4	Cadmium	D006			
PUMP-3	Chromium	D007			
SWITCH-2	Lead	D008			
100-4	Test for organic compounds	D018-D043			
344-1	Selected VOC determination		10% of containers.	Storage in containers.	Verify waste description. Proper waste segregation.
600-2	Acetone	F003			
608-2	Carbon Tetrachloride	F001			
611-1	Methyl ethyl ketone	F001			
616-1	Methylene chloride	F001			
700-10	Mineral spirits	D001			
700-13	Tetrachloroethylene	F001			
705-4	Toluene	F005			
705-15	Trichloroethylene	F001			
710-1	1,1,1-Trichloroethane	F001			
720-1	Trichlorofluoromethane	F001			
720-8	Xylene	F003			
720-11	Cresylic acid	F004			
720-16	Chemical composition and waste properties.		As required for TSD acceptance.		Determine component concentrations for disposal.
720-23	Uranium			Storage in containers.	
720-31	Technetium				
750-1					
750-2					
7725-1					

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>a</sup>
Paint related materials 720-26 720-27 720-28 720-29	Visual Inspection		20% of containers.	Storage in containers.	Verify waste description.
	Flash point	D001	10% of containers.		Verify waste description. Proper waste segregation.
	Test for metals	D004-D011			
	Lead	D008			
	Test for organic compounds	D018-D043			
	Selected VOC determination		10% of containers.		Verify waste description.
	Acetone	F003			
	iso-Butyl alcohol	F005			
	n-Butyl alcohol	F003			
	Methanol	F003			
	Methyl ethyl ketone	F005			
	Methyl iso-butyl ketone	F003			
	Mineral spirits	D001			
Naphtha	D001				
Toluene	F005				
Trichloroethylene	F002				
Xylene	F003				
Chemical composition and waste properties.			As required for TSD acceptance.	Determine component concentrations for disposal.	
Uranium				Storage in containers.	Determine radioactive constituents.
Technetium				Final disposition to be determined.	

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE*
Personal protective equipment ER-3 600-3 616-3	Visual inspection Test for metals Arsenic Test for organic compounds Selected VOC determination 1,1,1-Trichloroethane Trichloroethylene Chemical composition and waste properties. Uranium Technetium	D004-D011 D004 D018-D043  F001 F001	20% of containers. 10% of containers.	Storage in containers.	Verify waste description. Verify waste description. Proper waste segregation.
Pesticides SW-11	Visual inspection Pesticide determination Chlordane Chemical composition and waste properties.	U036	Not analyzed. As required for TSD acceptance.	Storage in containers. Incineration.	Determine properties and composition for disposal. Determine radioactive constituents.
Photographic solutions (includes x-ray development) 100-3 100-6 101-2	Visual inspection pH Test for metals Metals determination Silver Chemical composition and waste properties.	D002 D004 D011 D011	20% of containers. 10% of containers. As required for TSD acceptance.	Storage in containers.	Verify waste description. Verify waste description. Determine waste properties and composition for disposal or treatment.

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE*
Batteries SW-4	Visual Inspection  pH Test for metals Cadmium Lead	D002  D006 D008	20% of containers.  As necessary.	Storage in containers.	Verify waste description.  Verify waste description. Proper waste segregation.
Plating wastes 720.5 720.6	Visual Inspection  Test for metals Cyanide  Chemical composition and waste properties.  Visual Inspection  Discarded materials Copper cyanide Silver cyanide Sodium cyanide  Uranium Technetium	D004-D011 F007     P029 P104 P106	20% of containers.  10% of containers.  As required for TSD acceptance.  All containers.	Storage in containers.      Storage in containers.  Storage in containers. Final disposition to be determined.	Verify waste description.  Knowledge of materials used in process areas; product MSDS. Proper waste segregation.  Determine component concentrations for disposal.  Verify waste description.  Knowledge of materials used in process areas; product MSDS. Proper waste segregation.  Determine radioactive constituents.
Waste Sodium 760.4	Visual Inspection  Reactive hazardous waste sodium	D003	20% of containers	Storage in containers.	Verify waste description.  Verify waste description. Proper waste segregation.

WASTE ANALYSIS PLAN

WASTE STREAM TYPE AND IDENTIFICATION NUMBER	PARAMETERS	U.S. EPA WASTE CODE	FREQUENCY OF ANALYSIS	DISPOSITION OF WASTES	RATIONALE <sup>a</sup>
Printing wastes 100-1 100-2 100-5	Visual Inspection  Flash point Test for metals Test for organic materials  Selected VOC determination Naphtha 1,1,1-Trichloroethane  Chemical composition and waste properties.	D001 D004-D011 D018-D043  D001 F002	20% of containers.  10% of containers.  10% of containers.	Storage in containers.	Verify waste description.  Verify waste description. Proper waste segregation.   Determine component concentration for disposal.
Wastewater (miscellaneous) 342-2 342-3 700-6	Visual Inspection  pH Test for metals Arsenic Cadmium Chromium Lead Test for organic compounds  Chemical composition and waste properties.  Uranium Technetium	D002 D004-D011 D004 D006 D007 D008 D018-D043	20% of containers.  10% of containers.  As required for TSD acceptance.	Storage in containers.      Storage in containers. Final disposition to be determined.	Verify waste description.  Verify waste description. Proper waste segregation.   Determine waste properties and component concentrations for disposal.  Determine radioactive constituents.

## WASTE ANALYSIS PLAN

- <sup>a</sup> The rationale correlates to the purpose or reason that specific parameters are analyzed.
- <sup>b</sup> The sampling plan to determine breakthrough of organic contaminants in the activated carbon filters is based on a feedrate of 30 gpm and contaminant concentration of 200 mg/l TOX. If TOX exceeds 200 mg/l, prior approval is required in order to adjust the feedrate or increase sampling to determine contaminant breakthrough.
- <sup>c</sup> All hazardous wastes that are generated in areas where it can be reasonably be expected to be in contact with radioactive materials will be analyzed for those constituents. If contact with radioactive constituents is not expected, the waste will be spot checked for those constituents.
- <sup>d</sup> Hazardous wastes that are contaminated with radioactive constituents are termed as mixed wastes. Some of the currently generated mixed wastes may be TREATED at the Oak Ridge (TN) K-25 Site Incinerator when that facility becomes operational. Other mixed wastes are to be stored on-site until disposal options are available.
- <sup>e</sup> This waste stream is generated from the sampling the purge vents and recovery vents associated with the gaseous diffusion process. As a result, this waste stream will be managed as a mixed (hazardous and radioactive) waste prior to receiving analytical data.

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**Appendix G**

**DOE RADIOLOGICAL CONTROL MANUAL, ARTICLE 423**

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**423 Transportation of Radioactive Material**

1. 49 CFR 170 through 180 describe requirements for inspecting and surveying packages, containers and transport conveyances prior to off-site transport. The 49 CFR 173 contamination values shall be used as controlling limits for off-site shipments transported by non-DOE conveyances. These limits also apply to on-site transfers of shipments by non-DOE conveyances received from or destined to off-site locations.
2. Table 2-2 [See Table B.1] contamination values shall be used as controlling limits for on-site and off-site transportation when using a DOE conveyance. When a shipment is received from an off-site destination, in or on a non-DOE conveyance, the 49 CFR contamination values shall be used when transfers are made in a DOE conveyance from the on-site receiving location to the ultimate on-site destination.
3. On-site transfers over nonpublic thoroughfares or between facilities on the same site shall be performed in accordance with written procedures utilizing pre-approved routes. The procedures shall include requirements to ensure appropriate monitoring and control of the radioactive material and should be approved by the Radiological Control Organization.
4. On-site transfers over public thoroughfares shall be performed in accordance with Department of Transportation, state and local shipping requirements, and pre-approved agreements.
5. Off-site shipments of radioactive material, including subcontractors' handling of off-site shipments, shall be controlled and conducted in accordance with this Manual and applicable Federal, state, and local regulations.
6. Before shipment and upon receipt of a radioactive shipment, a visual inspection of packages should be performed to ensure that packages are not damaged. The inspection should identify dents, flaking paint, debris, package orientation, and any indication of leakage.
7. Before shipment and upon receipt of a radioactive shipment, a comparison of package count to the shipping manifest should be made to ensure accountability.
8. Transport conveyances should be visually inspected prior to loading to ensure the trailers are acceptable for the intended use.
9. Transport conveyances should be radiologically surveyed before loading, especially when using commercial carriers specializing in radioactive transport.

10. Transport of large volumes of radioactive material by non-DOE motor vehicles should be "exclusive use" to prevent commingling of DOE and other commercial shipments.
11. The site emergency plan should describe appropriate responses for potential on-site radioactive material transportation accidents.
12. Drivers of DOE and non-DOE motor vehicles should have a copy of their emergency response plan or the emergency response information required by 49 CFR 172.600 during transport on-site or during off-site transportation.

**Table G-1. Summary of Contamination Values**

Nuclide <sup>a</sup>	Removable (dpm/100 cm <sup>2</sup> ) <sup>b</sup>	Total (fixed + removable) (dpm/100 cm <sup>2</sup> )
U-natural, <sup>235</sup> U, <sup>238</sup> U, and associated decay products	1,000 alpha	5,000 alpha
Transuranics, <sup>226</sup> Ra, <sup>228</sup> Ra, <sup>230</sup> Th, <sup>228</sup> Th, <sup>231</sup> Pa, <sup>227</sup> Ac, <sup>125</sup> I, <sup>129</sup> I	20	500
Th-natural, <sup>232</sup> Th, <sup>90</sup> Sr, <sup>223</sup> Ra, <sup>224</sup> Ra, <sup>232</sup> U, <sup>126</sup> I, <sup>131</sup> I, <sup>133</sup> I	200	1000
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except <sup>90</sup> Sr and others noted above. Includes mixed fission products containing <sup>90</sup> Sr)	1,000 beta-gamma	5,000 beta-gamma
Tritium organic compounds, surfaces contaminated by HT, HTO, and metal tritide aerosols	10000	10000

Source: Adapted from DOE/EH-0256T, *U.S. Department of Energy Radiological Control Manual*, Assistant Secretary for Environment, Safety and Health, Washington, D.C., June 1992, Table 2-2.

<sup>a</sup>The values in this table apply to radioactive contamination deposited on, but not incorporated into, the interior of the contaminated item. Where contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for the alpha- and beta-gamma-emitting nuclides apply independently.

<sup>b</sup>The amount of removable radioactive material per 100 cm<sup>2</sup> of surface area should be determined by swiping the area with dry filter or soft absorbent paper while applying moderate pressure and then assessing the amount of radioactive material on the swipe with an appropriate instrument of known efficiency. For objects with a surface area less than 100cm<sup>2</sup>, the entire surface should be swiped, and the activity per unit area should be based on the actual surface area. Except for transuranics, <sup>228</sup>Ra, <sup>227</sup>Ac, <sup>228</sup>Th, <sup>230</sup>Th, <sup>231</sup>Pa, and alpha emitters, it is not necessary to use swiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual contamination levels are below the values for removable contamination.

The levels may be averaged over 1 m<sup>2</sup> provided that the maximum activity in any area of 100 cm<sup>2</sup> is less than three times the values in this table.

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