MARTIN MARIETTA

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**RESOURCE CONSERVATION AND
RECOVERY ACT (RCRA)
PART B PERMIT APPLICATION
FOR
PRODUCTION ASSOCIATED UNITS
AT THE OAK RIDGE Y-12 PLANT**

Building 9206 Container Storage Unit
Building 9212 Container Storage Unit
Building 9720-12 Container Storage Unit
Cyanide Treatment Unit

Environmental Management Department

Health, Safety, Environment, and
Accountability Organization

May 1995

Prepared by
Oak Ridge Y-12 Plant
Oak Ridge, Tennessee 37831
Managed by
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
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MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

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LIST OF ACRONYMS

CFR	Code of Federal Regulations
COD	chemical oxygen demand
CWSA	Containerized Waste Storage Area
DARA	Disposal Area Remedial Action
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
Energy Systems	Lockheed Martin Energy Systems, Inc.
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
HP	Health Physics
HSWA	Hazardous and Solid Waste Amendments
IH	Industrial Hygiene
IRWTA	Interim Reactive Waste Treatment Area
LDR	Land Disposal Restrictions
NaK	sodium potassium
OJT	On-The-Job Training
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
OSHA	Occupational Safety and Health Act
PED	Plant Emergency Director
PCB	polychlorinated biphenyl
PSS	Plant Shift Superintendent
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments Reauthorization Act
SID	Stream Identification
TCLP	Toxicity Characteristic Leaching Procedure
TDEC	Tennessee Department of Environment and Conservation
TOC	total organic carbon
UCN	Uniform Control Number

SECTION B

FACILITY DESCRIPTION

This section of the application provides a general description of the hazardous waste management facility as required by 40 CFR Part 270.14(b)(1) and Rules Governing Hazardous Waste Management in Tennessee, Rule 1200-1-11-.07(5)(a). This description is intended to provide guidance and facility orientation to the permit application reviewer and the permit writer for the Oak Ridge Y-12 Plant.

B-1 GENERAL DESCRIPTION

The Oak Ridge Y-12 Plant was built by the U.S. Army Corps of Engineers in 1943 as part of the Manhattan Project and was given the original mission to separate the fissionable isotope of uranium by the electromagnetic process. After World War II, the electromagnetic separation process was discontinued in favor of the more economical gaseous diffusion process. In recent years the Y-12 Plant staff has developed this facility into a highly sophisticated manufacturing and developmental engineering organization.

The U.S. Department of Energy (DOE) owns and operates the Y-12 Plant. Personnel from Lockheed Martin Energy Systems, Inc., (Energy Systems) co-operate and manage the Y-12 Plant. Since 1984, the facility has been managed by Energy Systems personnel under a prime contract with DOE. The contract is administered by personnel at the DOE, Oak Ridge Operations Office.

The Y-12 Plant occupies approximately 800 acres in Anderson County, Tennessee, and is located southwest of the City of Oak Ridge. The site employs approximately 4,000 people including employees of the Oak Ridge National Laboratory assigned to the Y-12 Plant. Two surface streams, East Fork Poplar Creek and Bear Creek, border the facility on the south, east, and southwest sides of the Plant. There is access to the Y-12 Plant, that is controlled on Bear Creek Road on the north side of the facility; indirect access from Scarboro Road on the east side of the facility; and indirect access to the facility on the south side via Bethel Valley Road. A controlled access road from Bethel Valley Road by way of Mt. Vernon Road is located on the southwest side of the site.

It is the mission of the Y-12 Plant to serve as a key manufacturing technology center for the development and demonstration of unique materials, components, and services of importance to DOE and the nation. This is accomplished through the reclamation and

storage of nuclear materials, manufacture of nuclear materials, manufacture of components for the defense capabilities of the nation, support to national security programs, and services provided to other customers as approved by DOE.

This application covers a treatment unit with a container storage area and three other container storage areas. These units can be located on Map 2 in Appendix B-1. The four units included in this application are as follows:

1. Building 9206 Container Storage Area
2. Building 9212 Container Storage Area
3. Building 9720-12 Classified Container Storage Area
4. Cyanide Treatment Unit

All four of these units are associated with the recovery of enriched uranium and other metals from wastes generated during the processing of nuclear materials.

Building 9206 Container Storage Area

Building 9206 is one of two buildings at the Y-12 Plant that process enriched uranium-bearing materials, including organic solutions, for recovery of the uranium. Residues were generated during past recovery processes in which solid wastes, such as gloves, shoe scuffs, lab coats, etc., that were contaminated with enriched uranium, were burned. The resulting residue or ash is now stored for future recovery of the uranium contained in the ash. The ash is classified as a mixed (hazardous and radioactive) waste due to the presence of F-listed solvents in the original solid waste.

Also stored in Building 9206 are organic solutions and lab salvage, such as phosphoric acid, Freon, etc., all containing enriched uranium. These wastes are characterized as mixed waste due to the presence of F-listed solvents and the characteristics of toxicity and corrosivity. The areas have a total storage capacity of 3,975 gallons.

Building 9212 Container Storage Area

Building 9212, located on the north side of the protected area, south of Bear Creek Road is the other building at the Y-12 Plant that processes enriched uranium bearing-materials including organic solutions. Process operations within the building also generate solid waste contaminated with uranium. Similar to Building 9206, the solid waste was burned and the resulting ash stored in cans for future recovery of the enriched uranium.

Also stored in Building 9212 are organic solutions and lab salvage, such as phosphoric acid, Freon, etc., containing enriched uranium. These wastes are characterized as mixed waste due to the presence of F-listed solvents and the characteristics of toxicity and corrosivity. The areas have a total storage capacity of 3,814 gallons.

Building 9720-12 Classified Container Storage Area

Building 9720-12 is a storage area for hazardous, low-level radioactive, and mixed waste. Waste is stored at this building until appropriate recycle techniques can be scheduled. Wastes stored at this facility are contaminated with enriched uranium. Total storage capacity of Building 9720-12 container storage area is 32,500 gallons.

Cyanide Treatment Unit

The Cyanide Treatment Unit is located in Building 9201-5N in the northwest corner of the building's basement. The cyanide treatment--or destruction--operation consists of a cyanide treatment exhaust hood and a drum storage area which can store up to 2,200 gallons.

At present, the treatment process takes place in DOT-approved, plastic-lined drums. Drums of waste are placed under the cyanide treatment hood where the treatment takes place. The treatment capacity of the Cyanide Treatment Unit is 195 gallons per day.

B-2 TOPOGRAPHIC MAP

B-2a General Information

This section discusses the maps which comply to the requirements of 40 CFR Part 270.14(b)(19) and Tennessee Rule 1200-1-11-.07(5)(a)17. Appendix B-1 contains the maps that show the locations of these units as well as the general site plan, facility property boundaries, locations of buildings, and the contour of the site to show surface water flow. Due to the large number of units at the Y-12 Plant, several maps have been utilized to give the permit reviewer and writer a clearer understanding of the location of the four units in this package. The following maps are included in Appendix B-1 and have been provided to facilitate review:

Map 1: The Oak Ridge Y-12 Emergency Facilities Directory shows the general site plan. This map shows the locations of major plant buildings and other structures, the facility property boundaries, the legal boundaries of the site, the locations of portal controlled access roads, exclusion and protected areas of the plant, guard towers and

vehicular check points. The plant access roads as well as internal roads are also shown on this map. (Scale: 1 inch = 400 feet).

Map 2: The Oak Ridge Y-12 Plant Waste Unit Identification Key illustrates the storage, treatment, and disposal facilities located at the Y-12 Plant. Due to the large number of these facilities, a separate map has been used to give the permit writer and reviewer a clearer understanding of the locations of these facilities. (Scale: 1 inch = 800 feet).

Map 3: The Y-12 Plant Loading and Shipping Docks Map illustrates the loading and unloading docks and shipping docks around the plant. (Scale: 1 inch = 400 feet).

Map 4: The Y-12 Plant Floodplain Map shows the East Fork Poplar Creek 100-year floodplain and the surrounding surface waters. The 500-year floodplain and maximum probable flood is also shown for the Y-12 Plant. The four units in this package are not located within the 100-year floodplain of either Bear Creek or East Fork Poplar Creek. Flood control and drainage barriers are, therefore, not necessary. (Scale: 1 inch = 400 feet).

Maps 5 & 6: Y-12 Plant Sanitary Sewer System Master Plan and Y-12 Plant Storm Sewer Master Plan Maps. These maps illustrate the sanitary sewer system and the detailed storm water drainage system for the Y-12 Plant. (Scale: Sanitary Sewers - 1 inch = 530 feet, Storm Sewers - 1 inch = 200 feet).

A variance under Tennessee Rule 1200-1-11-.07(5) is necessary for the required map scale of one inch equals 200 feet for these maps. The size of the Y-12 Plant makes the use of the required scale difficult to utilize for review. A variance has been approved for alternate map scales to be used in the application. A copy of the approval letter is included in Appendix B-1.

Information required to be submitted in this section also includes the following areas:

- Solid Waste Management Units are addressed in Section M.

- Wind rose - Appendix B-2 includes information provided by wind roses taken from the data gathered from the two meteorological towers located at the east and west end of the plant.
- Injection and withdrawal wells. Not applicable. There are no injection wells or withdrawal wells at the facility. Therefore, there are none shown on the permit maps.
- Land Use. The surrounding land use around the Y-12 Plant is primarily wooded forest with some commercial development east of the plant.
- Loading and unloading areas. The loading and unloading areas for the container storage and treatment areas in this application are illustrated on Map 3 and also in the facility drawings referenced in Section D.

B-2b Additional Topographic Requirements for Land Storage, Treatment and Disposal Facilities and Post Closure Permits for Closed Land Units.

Not Applicable. None of these four units are hazardous waste land storage, treatment, or disposal units. Additional topographic information is not required of these hazardous waste management units in order to comply with the permit application regulations.

B-3 LOCATION INFORMATION

The locations of the four units in this permit application at the Y-12 Plant are illustrated in Map 2 of Appendix B-1. The specific identifying key numbers are summarized in Section B-1.

B-3a Seismic Considerations

Not Applicable. Since the Y-12 Plant is an existing facility and is not located in a political jurisdiction as specified in 40 CFR Part 264, Appendix VI, seismic considerations need not be addressed.

B-3b Floodplain Standard

Not Applicable. The units in this application are not located within the 100-year floodplain, therefore, this section is not required.

B-4 TRAFFIC INFORMATION

The Y-12 Plant is a major industrial type facility operated under contract to the U.S. Department of Energy. The road system and its construction are typical of an industrial complex or military facility with numerous production, storage, administrative, maintenance, and utility buildings. These roads can easily bear the weight of the waste hauling vehicles used for each hazardous waste management unit. Roads are mostly two-way and built of asphalt to accommodate heavy and light traffic including automobiles, light trucks, armored security vehicles, heavy trucks, and tractor trailers (including those used to move nuclear material). There are also some constructed gravel roads capable of carrying the intended traffic. Entry and exit are controlled by guarded, locked gates. Internal traffic is controlled by marked lanes and stop signs at intersections typical of municipal or industrial complex surface streets. Hazardous wastes transported within the Plant or off-site generally consist of dump truck loads of soils and drums on pallets, and may periodically include tanker loads of liquids such as oils.

The minimum requirement for construction of existing paved roads at Y-12 is 1.5 to 14.0 inches of asphaltic concrete pavement overlaid on 6.0 to 18.0 inches of compacted aggregate base. All new paved roads are constructed with a minimum of 1.5 inches of asphaltic concrete pavement overlaid on 8.0 inches of stabilized aggregate base course. All paved roads to be used for access to and exit from hazardous waste management unit areas are capable of bearing loads up to allowable state highway limitations.

Other roads used for access to and exit from hazardous waste management unit areas are constructed of crushed stone surfaces and are designed to provide all-weather utilization throughout the Y-12 Plant. These gravel access roads are constructed with a minimum of 6.0 inches of crushed stone on a prepared subgrade and are useable on a year-round basis. These gravel roads are designed to support the anticipated traffic to and from the hazardous waste management unit areas.

The access roads to the units are useable on a year-round basis to authorized personnel only. The types of vehicles typically used during operations are flatbed and pickup trucks. The fully loaded flatbed and pickup trucks will weigh about 16,000 and 8,500 pounds, respectively. The load bearing capacities of all access roads meet or exceed DOT, Bureau of Highways standards which are 33,000 lb per axle or 24,000 lb per axle for tandems or a maximum limit of 90,000 lb.

Building 9206 Container Storage Area

Access to Building 9206 is from First Street at the north entrance of the facility. The building is located at the intersection of E Road and First Street. These streets are typical paved streets and meet the minimum requirements as specified for a Y-12 Plant paved road. These roads are capable of handling traffic associated with the servicing of this facility.

Building 9212 Container Storage Area

Access to Building 9212 is from G Street on the west side of the facility. The facility is just south of Bear Creek Road in the protected area. G Street is designed to meet the minimum construction requirements as specified for paved roads at the Y-12 Plant. The street is capable of handling the anticipated traffic associated with the servicing of this unit.

Building 9720-12 Classified Container Storage Area

Building 9720-12 is located on Second Street at the intersection with K Road. All these roads are paved roads and are designed and constructed to meet the minimum requirements for the Y-12 Plant paved roads. These roads are capable of handling the associated traffic necessary to service this unit.

Cyanide Treatment Unit

The Cyanide Treatment Unit is housed in Building 9201-5N is located on the north side of First Street, at the intersection with J Road. All roads servicing this facility are paved roads and meet the minimum requirements for Y-12 Plant paved roads. These roads are capable of handling the associated traffic necessary to service this unit.

SECTION C

WASTE CHARACTERISTICS

This section of the application describes the chemical and physical nature of the hazardous wastes handled and stored in each of the following storage and treatment units:

1. Building 9206 Container Storage Area
2. Building 9212 Container Storage Area
3. Building 9720-12 Classified Container Storage Area
4. Cyanide Treatment Unit

This section also includes the waste analysis plan for sampling, testing, and evaluating the waste to assure that sufficient information is available for proper waste management. This information is submitted in response to the RCRA Part B Permit application requirements, as specified in 40 CFR Part 270.14(b)(2); and in Rules Governing Hazardous Waste Management in Tennessee, Rule 1200-1-11-.07(5)(a)2.

C-1 CHEMICAL AND PHYSICAL ANALYSIS

General Description

Buildings 9206 and 9212

Buildings 9206 and 9212 Container Storage Areas provide storage for mixed waste residues or ash. This ash resulted from the burning of solvent- and uranium-contaminated solid wastes. This ash does not contain free liquids. Uranium-bearing solutions generated during the uranium recovery process and laboratory analysis, are also stored in these areas. These solutions, as well as the residues, are considered mixed (hazardous and radioactive) wastes and are being stored prior to further uranium recovery. Occasionally, uranium bearing materials, generated off-site, may be stored in building 9206 and 9212 prior to uranium recovery.

Building 9720-12

Building 9720-12 provides storage for mixed (hazardous and radioactive) waste residues or ash. This ash resulted from the burning of solvent- and uranium-contaminated wastes. Unburned, solvent- and uranium-contaminated solid wastes are also stored in Building 9720-12. The wastes at Building 9720-12 contain no free liquids and are generated during the uranium recovery process.

Cyanide Treatment Unit

The Cyanide Treatment Unit provides storage and treatment of liquid waste solutions of metallic cyanide compounds from spent plating baths and other cyanide solutions. The pH of the cyanide wastes ranges from 5 to 11. The total cyanide concentration of untreated cyanide wastes ranges from 1 to 60,000 ppm. Typically, wastes generated on-site are received and treated in 55-gallon plastic lined drums. These wastes are characterized as mixed (hazardous and radioactive) wastes. Occasionally, cyanide-bearing wastes, generated off-site, may be treated at the Cyanide Treatment Unit.

The cyanide oxidation (destruction) occurs as a two-stage aqueous batch process, which converts dissolved cyanide from various sources to nitrogen and carbon dioxide gases. The chemical reagents used are sodium hypochlorite for chlorination/oxidation and caustic soda and sulfuric acid for pH adjustment.

At a pH of above 11.0, the cyanide is oxidized to a cyanate by adding sodium hypochlorite until there is no positive cyanide test (Prussian Blue Test) and the oxidation-reduction potential (ORP) is satisfied (greater than +300 mV). The second step follows by lowering the pH to 8.0 - 8.5 using sulfuric acid and then adding sodium hypochlorite until a second ORP condition is satisfied (+600 mV or greater). At that point the material is sampled for concentration of cyanide. If the level is less than 1 ppm, the cyanide treatment is complete. If the concentration of cyanide is greater than or equal to 1 ppm, the material would be retreated at the unit.

As an alternative, with the chemistry of cyanide decomposition remaining the same, a patented device marketed as a "Brine Cell" may be used to treat the cyanide. The only difference is that sodium hypochlorite is created in situ. The advantage of this method is that there is little increase in volume of waste, as there is with adding sodium hypochlorite.

Hazardous Characteristics

The storage and treatment units receive and treat only the following listed and characteristic wastes as defined in 40 CFR Part 261:

Building 9206 Container Storage Area	F001, F002, F005, D002, D004-D011, D018, D019, D021-D030, D032-D043
Building 9212 Container Storage Area	F001, F002, F005, D002, D004-D011, D018, D019, D021-D030, D032-D043
Building 9720-12 Classified Container Storage Area	F001, F002, F005, D002, D004-D011, D018, D019, D021-D030, D032-D043
Cyanide Treatment Unit	D002 - D011, F001, F007 - F012, P029, P030, P033, P098, P104, P106

F005-wastes are listed only for the toxicity characteristic for those storage units that do not store ignitable waste. A summary of the types of waste stored and/or treated at these units is shown in Table C-1.

Basis for Hazardous Designation

The hazard designation is based on process knowledge of the on-site generated liquid and solid waste streams and analytical data for cyanide solutions or uranium-bearing materials generated off-site. Data for wastes generated on-site are considered classified for reasons of national security and are available for review by "Q" cleared regulatory personnel. The information indicates the presence of F-listed solvents and TCLP metals in wastes at all the units. Specific P-listed wastes may also be present at the Cyanide Treatment Unit along with the characteristics of corrosivity and reactivity. See Appendix C-1 for typical unclassified analytical data.

TABLE C-1. TYPICAL TYPES OF WASTE STORED AND/OR TREATED

Location	Example ⁽¹⁾	Parameter	EPA Waste Code
9206 and 9212	Ash, solutions	Halogenated and non-halogenated solvents, TCLP metals	F001, F002, F005, D002, D004-D011, D018, D019, D021-D030, D032-D043
9720-12	Ash and solid combustible material	Halogenated and non-halogenated solvents, TCLP metals	F001, F002, F005, D002, D004-D011, D018, D019, D021-D030, D032-D043
Cyanide Treatment Unit	Spent plating solutions, cyanide solutions	Cyanide and TCLP metals	D002 - D011, F001, F007 - F012, P029, P030, P033, P098, P104, P106

(1) All of these wastes could potentially be contaminated with enriched or depleted uranium.

C-1a Containers

Buildings 9206 and 9212 Container Storage Areas

Buildings 9206 and 9212 Container Storage Areas provide storage for mixed waste residues or ash. This ash resulted from the burning of solvent- and uranium-contaminated solid wastes. This ash does not contain free liquids and is considered a mixed waste. The containers holding the ash are made of galvanized tin and are typically 7 inches in diameter and 14 inches in height. Each can will hold approximately 2 gallons of residue. Each of the cans has a lid that slides down over the sides of the can. The seam between the lid and the side is then taped to prevent opening and the can is labeled with a recycle batch card, for uranium accountability, and a hazardous waste tag (UCN-2114A)(see Appendix C-2). The can is then placed, single-stacked, on a steel shelf with adequate spacing to prevent criticality. The storage racks are typically constructed of steel using bolted and/or welded connections. The racks have been anchored to the floors and have been analyzed for seismic conditions. The storage shelves are equipped with rings to secure the containers in place. The shelves are normally 3 to 7 racks high with 6 to 11 cans on each shelf. Movement of all cans to and from the storage racks is done by hand. The cans are compatible with the residues being stored.

Uranium-bearing solutions generated during the uranium recovery process and during laboratory analysis are also stored in these areas. These solutions are considered mixed waste and are being stored prior to further uranium recovery. The solutions are stored in polyethylene bottles which are typically 5 inches in diameter and 52 inches in height; these bottles hold approximately 3 gallons. The bottles are labeled with a recycle batch card, for uranium accountability, and a hazardous waste tag (UCN-2114A)(see Appendix C-2). The bottle is then placed in a steel rack with adequate spacing to prevent criticality. The storage racks are typically constructed of steel using bolted and/or welded connections. The racks have been anchored to the floors and have been analyzed for seismic conditions. Each safe bottle rack is equipped with chains, or other applicable device, to secure the containers in place. The storage racks/shelves vary in length depending upon the required storage capacity for the area. Movement of all bottles to and from the storage racks is done by hand. The bottles are compatible with the solutions being stored. All containers of hazardous waste are labeled with the words "Hazardous Waste."

Occasionally, uranium-bearing waste may be received from off-site generators. Containers received from off-site must be in the appropriate DOT-specification containers which are compatible with the waste stored in them.

Building 9720-12 Classified Container Storage Area

Some storage is provided for ash containers from the Building 9206 and 9212 Container Storage Areas; these containers are described above. However, wastes typically arrive and are stored at Building 9720-12 in 55-gallon drums. Drums are moved by fork truck and hand carts. The drums and cans are stored in the designated area at the west end of the building.

The waste is characterized as a solid material contaminated with enriched uranium, TCLP metals and F-listed solvents. The containers contain no free liquids and are compatible with the waste stored in them. The containers are labeled with recycle batch cards and hazardous waste tags. All containers of hazardous waste are labeled with the words "Hazardous Waste."

Cyanide Treatment Unit

Cyanide wastes from on-site generators typically arrive, are stored, and can be treated in DOT-specification 55-gallon, plastic-lined drums. These containers are compatible with the wastes stored in them. The drums can be stored in the adjacent storage area. All drums of hazardous waste are labeled with the words "Hazardous Waste" (typically UCN-2114A). After treatment, if the cyanide levels are less than 1 ppm, the drums are shipped to the West End Treatment Facility or other acceptable facility for treatment, storage, or disposal.

Occasionally, cyanide waste may be received from off-site generators. Containers received from off-site must be in the appropriate DOT-specification container which are compatible with the waste stored in them.

The specific parameters to be used for the proper management of the stored and treated wastes is the concentration of enriched uranium. The Cyanide Treatment Unit is an exception, since the concentration of cyanide is the major concern. Other considerations at these units include the presence of F-listed solvents and TCLP metals based on process knowledge. Specific P-listed and characteristic wastes defined in Section C-1 are also of concern at the Cyanide Treatment Unit. The safe handling of waste is of primary importance. Handling of a waste will occur only when material is being transferred to or removed from a storage or treatment area. All equipment used to transfer waste is

compatible with the waste.

Waste acceptance criteria precludes the storage of reactive, incompatible, or ignitable waste at Buildings 9206, 9212, and 9720-12. Reactive waste (D003) is treated at the Cyanide Treatment Unit. Ignitable waste is not processed at the Cyanide Treatment Unit.

C-1b Tanks

Not applicable. The units covered in this permit application are not tanks; therefore, the requirements of this section do not apply.

C-1c Waste Piles

Not applicable. The units covered in this permit application are not waste piles; therefore, the requirements of this section do not apply.

C-1d Surface Impoundments

Not applicable. The units covered in this permit application are not surface impoundments; therefore, the requirements of this section do not apply.

C-1e Incinerators

Not applicable. The units covered in this permit application are not incinerators; therefore, the requirements of this section do not apply.

C-1f Landfills

Not applicable. The units covered in this permit application are not landfills; therefore, the requirements of this section do not apply.

C-1g Land Treatment

Not applicable. The units covered in this permit application are not land treatment facilities; therefore, the requirements of this section do not apply.

C-1h Additional Requirements for Land Storage, Treatment, and Storage Facilities

Not applicable. The units covered in this permit application are not land storage, treatment, or disposal facilities; therefore, the requirements of this section do not apply.

C-2 WASTE ANALYSIS PLAN

The waste analysis plan is included to describe the procedures for obtaining the chemical

and physical characteristics of a waste. Characterization is necessary to ensure proper management of the waste and compliance with the EPA land disposal restrictions.

Due to the nature of Y-12 operations, all chemicals used in the various operations are identified either from original, manufacturer-labeled containers or by laboratory analysis requested by the individual generator. Mixtures of substances originate in the same fashion, and therefore are identifiable by means of the identifying tag system shown in Appendix C-2.

C-2a Parameters and Rationales

Buildings 9206, 9212, and 9720-12 Container Storage Areas

Most uranium-bearing material is generated on-site, however, on occasion, such materials may be received from off-site. These materials are transported in compatible, DOT-specification containers to the building 9206, 9212, or 9720-12 containers storage areas. All waste sent to each of these locations is analyzed for enriched uranium. Process knowledge is used to determine the presence of other RCRA constituents.

Cyanide Treatment Unit

The cyanide waste solutions are generated in plating shops and other Y-12 Plant operations. On occasion, cyanide waste solutions may be received from off-site. These solutions are transported in compatible, DOT-specification containers to the Cyanide Treatment Unit where the cyanide is decomposed prior to further treatment. All drums of untreatable cyanide solutions are tested using the Prussian Blue Test.

The cyanide oxidation (destruction) occurs as a two-stage aqueous batch process, which converts dissolved cyanide from various sources to nitrogen and carbon dioxide gases. The chemical reagents used are sodium hypochlorite for chlorination/oxidation and caustic soda and sulfuric acid for pH adjustment.

At a pH of above 11.0, the cyanide is oxidized to a cyanate by adding sodium hypochlorite until there is no positive cyanide test (Prussian Blue Test) and the oxidation-reduction potential (ORP) is satisfied (greater than +300 mV). The second step follows by lowering the pH to 8.0 - 8.5 using sulfuric acid and then adding sodium hypochlorite until a second ORP condition is satisfied (+600 mV or greater).

After cyanide decomposition, each drum is sampled and analyzed for free cyanide, total cyanide, and cyanate concentrations to verify the effectiveness of treatment. Treated wastes found to have a cyanide concentration of 1 ppm or below are sent to the West End Treatment Facility or other acceptable facility for treatment, storage or disposal. Treated waste with a cyanide concentration greater than 1 ppm is processed in the treatment unit again. Treated cyanide solutions are typically analyzed for the parameters shown in Table C-2 as part of the waste analysis plan for any wastes to be treated at West End Treatment Facility. The cyanide solutions treated at this facility are not ignitable liquids.

C-2b Test Methods

The analytical methods are summarized in Table C-3.

If additional analysis is deemed necessary, wastes will be analyzed using methods described in EPA SW-846, EPA 600/4-79-020, or "Environmental and Effluent Analysis Manual, Nuclear Division Environmental Control."

C-2c Sampling Methods

Sampling:

The contents of each container of waste will be characterized by either process knowledge or analysis prior to transfer to the container. The characterization will remain valid until the process changes.

Container sampling of liquids will be performed by use of an all glass Coliwasa drum sampler as described in SW-846. The use of the Coliwasa sampler will provide a representative vertical cross section of the contents of the drum or container and thereby address any anomalies that could develop due to vertical stratification.

Solid wastes are sampled using the methods shown in Table C-4.

**TABLE C-2. TYPICAL ANALYTICAL PARAMETERS FOR
TREATED CYANIDE SOLUTIONS**

pH	
Nitrates	
TOC	
U	Cl
	Total residual Cl
	F
As	PCB
Ba	Phosphates
Cd	Sulfates
Cr	Cyanide
Pb	COD
Hg	Suspended solids
Se	Dissolved solids
Ag	Alkalinity (as CaCO ₃)
Cl hydrocarbons	Acidity
	Density
Al	Alpha activity
B	Beta activity
Be	Gamma activity
Ca	
Ce	Methylene chloride
Co	Methyl chloroform
Cu	Trichloroethylene
Fe	Perchloroethylene
Ga	Freon 113
K	Chlorobenzene
La	1,1-Dichloroethane
Li	1,1-Dichloroethylene
Mg	Chloroform
Mn	1,2-Dichloroethylene
Mo	1,1,2-Trichloroethane
Na	1,2-Dichloroethane
Nb	Carbon tetrachloride
Ni	
P	Acetone
Sc	Ethanol
Si	Methyl ethyl ketone
Sr	Phenol
Th	Carbon disulfide
Ti	Toluene
V	
Y	
Zn	
Zr	

TABLE C-3. TEST METHODS FOR PRODUCTION ASSOCIATED WASTES*

Analyte	Analytical Method
Uranium	2100
TCLP	1311
Volatile organics	5030, 8740
Semi-volatile organics	8250, 8270
Aqueous phase pH	9040

* Methods referenced from "Test Methods for Evaluating Solid Waste" (SW-846)

TABLE C-4. SAMPLING EQUIPMENT FOR PARTICULAR WASTE TYPES^a

Waste Type	Waste location or container							
	Drum	Sacks and bags	Open-bed truck	Closed-bed truck	Storage tanks or bins	Ponds, lagoons and pits	Conveyor belt	Pipe
Moist powders or granules	Trier	Trier	Trier	Trier	Trier	Trier	Shovel	Dipper
Dry powders or granules	Thief	Thief	Thief	Thief	Thief	Trier	Shovel	Dipper
Sand or packed powders and granules	Auger	Auger	Auger	Auger	b	b	Dipper	Dipper
Large-grained solids	Large trier	Large trier	Large trier	Large trier	Large trier	Large trier	Trier	Dipper

^a Source -- EPA-SW-846; sampling methods described therein will be utilized.

^b This type of sampling situation can present significant logistical sampling problems; therefore, sampling equipment must be specifically selected or designed based on site and waste conditions. No general statement about appropriate sampling equipment can be made.

Sample Handling:

Once the sample is transferred to the sample container, the lid is closed tightly and taped closed. The exterior of the sample container is washed, dried, and a sample identification tag attached. At a minimum, the tag identifies the sample, the sample location, time of sample, sampler, preservatives, and a unique sample identification number. The sample containers are placed in a plastic bag, tied closed, and placed in a sample ice chest with ice or equivalent. An analytical request form and chain-of-custody form will accompany the sample to the laboratory. The analytical request form identifies the sample number with the tag that is affixed to the sample container(s).

Reporting:

All analytical results, generator information, and sample chain-of-custody documentation will be maintained in the operating record.

C-2d Frequency of Analysis

Buildings 9206, 9212, and 9720-12 Container Storage Areas

Sampling and analysis are not conducted for waste in containers which already have proper labels identifying the source of their contents and associated hazard classification. Generators are responsible for analyzing wastes when process changes occur to ensure accurate and up-to-date information for the storage unit operators. The contents of each unique batch of waste is characterized by either analysis or by process knowledge, before shipment to the storage areas.

If analytical results are not available, process knowledge will be used to determine the appropriate storage area to be used for the waste shipment. Characterization necessary to ensure safe handling, regulatory compliance, and compatibility will be required before a waste is transferred off-site. Characterization required for land disposal must be complete before the waste is removed. A waste characterization will remain valid until the generating process changes.

Cyanide Treatment Unit

Each drum or batch of waste is sampled and analyzed before and after treatment. Characterization necessary to ensure safe handling, regulatory compliance, and compatibility will be required before the treated waste is transferred off-site for final disposal.

C-2e Additional Requirements for Waste Generated Off-Site

The generator will be responsible for supplying all information required for each parameter identified by this waste analysis plan. No waste will be accepted into these units until all the required information has been adequately provided.

In order to minimize the exposure of personnel to radiation and hazardous wastes, the containers of waste will not be routinely resampled for the purpose of complying with the waste analysis requirements. Chain-of-custody seals will be used to ensure that the wastes have not been tampered with after sampling by the generator. The chain-of-custody procedures for shipping and receiving off-site generated wastes include the following:

- The generator will sample and analyze the wastes for verification parameters specified in Table C-2 prior to shipping the waste to Building 9206, 9212, or the Cyanide Treatment Unit.
- Immediately after sampling, the waste container will be sealed by the generator and a chain-of-custody seal will be affixed to the container, with the identification number of the chain-of-custody seal recorded on the waste analysis sheet.
- The manifest will be given to the transporter. The transporter and generator will check the identification number on the chain-of-custody seal with the number recorded on the waste analysis sheet to ensure that they are the same. Both the generator and transporter will check, sign, and date the manifest before the shipment and transporter depart the generator site.
- Upon arrival at the Y-12 Plant, the transporter will give the manifest and waste analysis sheet to the operations supervisor of Building 9206, 9212 or the Cyanide Treatment Unit (whichever is applicable). The transporter and the operations supervisor will check the number on the waste analysis sheet and on the manifest to ensure that they are the same. An operations supervisor will inspect the load and will match the identification number of the chain-of-custody seal and the waste containers to those recorded on the waste analysis sheet. An operations supervisor and transporter will then sign and date the manifest. Significant discrepancies are defined as a difference in the number of containers reported and the number received or a difference in the type of waste identified and that received. Any significant discrepancies will be handled

in accordance with Tennessee Rule 1200-1-11-.06(5)(c), and copies of all discrepancy reports and resolutions will be entered in the site operating records. The waste will not be off-loaded during resolutions of the discrepancies and if the discrepancy cannot be resolved within 10 days, the waste will be returned to the generator.

The hazardous waste generator will be responsible for characterizing their waste. Waste received from off-site generators will be accompanied by an LDR-notification that has been prepared in accordance with Tennessee Rule 1200-1-11-.10 and 40 CFR Part 268.7(a)1, 3, or 5 and signed by the generator.

See Section J for additional information regarding the written operating record.

C-2f Additional Requirements for Facilities Handling Ignitable, Reactive, or Incompatible Waste

Waste characteristics have been reviewed for compatibility using a Y-12 Plant hazardous waste compatibility table similar to the list found in Tennessee Rule 1200-1-11-.06, Appendix .06/B, Examples of Potentially Incompatible Waste. See Appendix C-3 and Sections C-1, C-3, C-5 for additional information.

Mixing of incompatible wastes will also be prevented by requirements that the on-site generators provide information based on process knowledge or on testing describing the waste contents and characteristics. A compatibility review is an element of the waste acceptance criteria. Personnel will determine compatibility using waste handling history and other available data.

Based on waste handling history, and a review of the incompatible groupings, wastes stored at Buildings 9206, 9212, and 9720-12 normally will not be reactive, ignitable, or incompatible.

Wastes stored and treated at the Cyanide Treatment Unit are considered to be reactive due to the presence of cyanide. Once the treatment process has been completed, the waste material is no longer considered reactive. Section F-5a discusses the procedures used to prevent accidental reaction of wastes.

C-3 LAND DISPOSAL RESTRICTIONS

C-3a Waste Characteristics

Specific data must be submitted by the generator to the owner/operator of a treatment or

disposal facility to document whether the waste is restricted under the 40 CFR Part 268 requirements. This data will be obtained by analysis of container contents and by knowledge of process. Waste determined to be restricted will be stored separately from non-restricted waste.

C-3a(1) Solvent Wastes and Dioxin-Containing Wastes

The wastes generated at the Y-12 Plant do not contain dioxin or dioxin-containing constituents based on knowledge of the processes. The wastes could contain solvents in the F-listed solvent classification. Since the exact composition of the solvent constituents will vary, the wastes will be considered to be F001, F002, and/or F005 wastes. This characterization is based on analytical data and on knowledge of solvent use at the Y-12 Plant. The wastes stored or treated in each of the units meet the definition of nonwastewater as defined in 40 CFR Part 268.2.

C-3a(2) California List Wastes

The California List places restrictions on liquid hazardous wastes containing PCBs greater than or equal to 50 ppm, over 1,000 ppm halogenated organic constituents, and liquids testing less than or equal to a pH of 2. All of the wastes stored at these units could contain constituents exceeding the halogenated organic criteria. Based on knowledge of process, liquids testing less than or equal to 2 pH could be stored in containers. Testing will be conducted to ensure that PCBs are not present above 0.1 ppm. Wastes received in containers will be limited to those waste codes listed in Section C-1.

C-3a(3) First-Second-and-Third-Third Waste

Based on knowledge of the waste characteristics, the Cyanide Treatment Unit may receive P-listed wastes, and TCLP wastes, which are subject to land disposal restrictions under 40 CFR Part 268 (Tennessee Rule 1200-1-11-10). Wastes received at this unit will be limited to those waste codes listed in Section C-1. The wastes meet the definition of nonwastewater as defined in 40 CFR Part 268.2.

C-3b Additional Requirements for Treatment Facilities

Cyanide Treatment Unit

All cyanide wastes treated at the Cyanide Treatment Unit are tested after each batch to ensure that the cyanide concentration is less than 1 ppm. If it is not, the batch is recycled for further treatment. All analytical test results are considered part of the operating records.

C-3c Additional Requirements for Disposal Facilities

Not applicable. The units covered in this permit application are not disposal facilities; therefore, the requirements for this section do not apply.

C-3d Additional Requirements for Surface Impoundments Exempted from Land Disposal Restrictions

Not applicable. The units covered in this permit application are not surface impoundments; therefore, the requirements for this section do not apply.

C-3e Requirements for Land Disposal Facilities With an Approved Exemption or Extension

Not applicable. The units covered in this permit application are not land disposal facilities; therefore, the requirements for this section do not apply.

SECTION D

PROCESS INFORMATION

This section discusses specific process information for the storage and treatment of hazardous wastes at four container storage areas and one treatment unit at the Y-12 Plant. These four units can be located on Map 2 in Appendix B-1. The four units addressed in this application include the following:

1. Building 9206 Container Storage Area
2. Building 9212 Container Storage Area
3. Building 9720-12 Classified Container Storage Area
4. Cyanide Treatment Unit

As required by 40 CFR Part 270.15 and Rules Governing Hazardous Waste Management in Tennessee, Rule 1200-1-11-.07(5)(b)1., this section describes the hazardous waste management processes used at the four areas.

Building 9206 Container Storage Area

Container storage at Building 9206 consists of storage and staging areas located on the first and second floors of the building. The container storage areas store residues and uranium-bearing solutions. Containers are stored in steel racks or on shelves. The total storage capacity of the container storage area at Building 9206 is 3,975 gallons.

Building 9212 Container Storage Area

Container storage at Building 9212 consists of storage and staging areas located on the first floor and mezzanine level. The container storage areas store residues and uranium-bearing solutions. Containers are stored in steel racks or on shelves. The total storage capacity of the container storage area at Building 9212 is 3,814 gallons.

Building 9720-12 Classified Container Storage Area

The Classified Container Storage Area is used for the storage of solid, mixed (radioactive and hazardous) wastes. The stored materials include combustible, solid wastes contaminated with enriched uranium and listed wastes. The total storage capacity of the container storage area at Building 9720-12 is 32,500 gallons.

Cyanide Treatment Unit

The Cyanide Treatment Unit is located in the northwest corner of the basement in Building 9201-5N. The cyanide treatment process converts cyanide in solution to carbon dioxide and nitrogen. This occurs as a two-stage aqueous batch process, which converts dissolved cyanide from various sources to nitrogen and carbon dioxide gases. The chemical reagents used are sodium hypochlorite for chlorination/oxidation and caustic soda and sulfuric acid for pH adjustment.

At a pH of above 11.0, the cyanide is oxidized to a cyanate by adding sodium hypochlorite until there is no positive cyanide test (Prussian Blue Test) and the oxidation-reduction potential (ORP) is satisfied (greater than +300 mV). The second step follows by lowering the pH to 8.0 - 8.5 using sulfuric acid and then adding sodium hypochlorite until a second ORP condition is satisfied (+600 mV or greater). At that point the material is sampled for concentration of cyanide. If the level is less than 1 ppm, the cyanide treatment is complete. If the concentration of cyanide is greater than or equal to 1 ppm, the material would be retreated at the unit. The waste is currently treated in the drums in which it is stored.

As an alternative, with the chemistry of cyanide decomposition remaining the same, a patented device marketed as a "Brine Cell" may be used to treat the cyanide. The only difference is that sodium hypochlorite is created in situ. The advantage of this method is that there is little increase in volume of waste, as there is with adding sodium hypochlorite.

The treatment capacity of the unit is 195 gallons per day and the storage capacity is 2,200 gallons.

D-1 CONTAINER SYSTEMS

This section describes the storage and treatment capabilities of each unit.

D-1a Containers with Free Liquids

Some containers at Buildings 9206, 9212, and the Cyanide Treatment Unit have free liquids. The containers at Building 9720-12 do not have free liquids.

Wastes stored at Building 9206, 9212, and 9720-12 are characterized by the waste codes F001, F002, F005, D002, D004-D011, D018, D019, D021-D030, D032-D043. The waste stored at these units is in the form of residues and uranium-bearing solutions. Waste stored

and treated at the Cyanide Treatment Unit are characterized as D002 - D011, F001, F007 - F012, P029, P030, P033, P098, P104, and P106, and are in the form of cyanide solutions.

D-1a(1) Basic Design Parameters, Dimensions and Materials of Construction
9206

Plan views of the container storage areas within Building 9206 are shown in Appendix D-1. The container storage areas contain the following number of storage racks:

Areas in 9206	Solutions Spaces	Residue Spaces
First Floor	138	166
Second Floor	0	185
Butler Building	72	1,068

Building 9206 is a major industrial-type building at the Y-12 Plant. Its construction is typical of an industrial or military facility. The building is capable of bearing the load of numerous types of production, storage, utility, and maintenance equipment, as well as personnel. The floors of the rooms on the first floor are constructed of concrete and covered with sheets of stainless steel. Seams in the stainless steel floor are welded which provides an impervious floor that is free of cracks and gaps. The floor on the second floor is concrete, covered with asphalt tile and the floors in the Butler Building and the staging area are concrete. The concrete floors of the storage units are free of cracks and gaps and are sufficiently impervious to contain spills. All galvanized tin cans and polyethylene bottles are stored on steel shelves or racks. The storage racks are typically constructed of steel using bolted and/or welded connections. The racks have been anchored to the floors and have been analyzed for seismic conditions. Each safe bottle rack is equipped with chains, or other applicable device, and the storage shelves are equipped with rings to secure the containers in place. The storage racks/shelves vary in length and width depending upon the required storage capacity for the area. The shelves and racks are capable of supporting the weight of the waste containers. The racks, shelves, and floors are compatible with the wastes stored. The storage capacity of this area is 3,975 gallons.

9212

Plan views of the container storage areas within Building 9212 are shown in Appendix D-1. The container storage areas contain the following number of storage racks:

Areas in 9212	Solutions Spaces	Residue Spaces
C-1 Wing	188	0
D-Wing	127	0
C-1 Wing Mezzanine	163	588
C-1 Wing Corridor	0	216
Headhouse	0	161
Staging	0	12

Building 9212 is a major industrial-type building at the Y-12 Plant. Its construction is typical of an industrial or military facility. The building is capable of bearing the load of numerous types of production, storage, utility, and maintenance equipment, as well as personnel. The floor in the storage areas is stainless steel. Seams in the stainless steel floor are welded which provides an impervious floor that is free of cracks and gaps. The floor of the staging area is made of concrete and is free of cracks and gaps and is sufficiently impervious to contain spills. The racks, shelves, and floors are compatible with the wastes stored and are capable of supporting the weight of the waste containers. All galvanized tin cans and polyethylene bottles are stored on steel shelves or racks. The storage racks are typically constructed of steel using bolted and/or welded connections. The racks have been anchored to the floors and have been analyzed for seismic conditions. Each safe bottle rack is equipped with chains, or other applicable device, and the storage shelves are equipped with rings to secure the containers in place. The storage racks/shelves vary in length and width depending upon the required storage capacity for the area. The storage capacity of this area is 3,814 gallons.

9720-12

A plan view of the Classified Container Storage Area is shown in Appendix D-1. The container storage area measures 93 by 50 feet. The base of the storage area is the concrete floor of the building. All drums are stored on pallets, double-stacked, and contain no free liquids. Storage spaces for 384 galvanized tin cans are provided as well. The cans are stored

on elevated racks and contain no free liquids. The storage racks are typically constructed of steel using bolted and/or welded connections. The racks have been anchored to the floors and have been analyzed for seismic conditions. The storage shelves are equipped with rings to secure the containers in place. The storage racks/shelves vary in length and width depending upon the required storage capacity for the area. The shelves and racks are capable of supporting the weight of the waste containers. The floor of the storage unit is free of cracks and gaps and is sufficiently impervious to contain spills. The racks, shelves, and floors are compatible with the wastes stored. The base of the storage area is sufficient to support the weight of the waste containers in the unit. The storage capacity for this area is 32,500 gallons.

Cyanide Treatment Unit

The Cyanide Treatment Unit is shown in plan view in Appendix D-1. The storage area can store up to forty, 55-gallon drums of cyanide waste. The area has a 2-inch curb on a concrete base floor that is free of gaps and cracks. Asphalt tiles have been applied to floor surface to prevent spills from migrating. All drums are stored single-stacked on pallets. The floor is capable of supporting the weight of the waste containers. The treatment capacity of the unit is 195 gallons/day; the storage capacity of the unit is 2,200 gallons.

Building 9201-5N is a major industrial-type building at the Y-12 Plant. Its construction is typical of an industrial or military facility. The building is capable of bearing the load of numerous types of production, storage, utility, and maintenance equipment, as well as personnel. The floor of the Cyanide Treatment Unit is the first floor, eight-inch concrete slab of Building 9201-5N. A 2-inch high, coated concrete ramp separates the Cyanide Treatment Unit from the other portion of the shared room. A 4-inch high concrete curb installed along the base storage cabinets also separates the Cyanide Treatment Unit from the rest of the room.

D-1a(2) Description of How Design Promotes Drainage or How Containers are Kept from Contact with Standing Liquids in Containment System

As was noted in Section B, the four container storage or treatment areas are located in buildings that are covered by roofs.

9206 and 9212

All Containers are stored on elevated racks or shelves to prevent contact with any liquids on the floor.

9720-12

Drummed wastes are stored upright on pallets to prevent possible contact with standing liquids. All cans stored are on elevated racks, similar to those in Buildings 9206 and 9212, to prevent possible contact with any liquid on the floor. Waste containing free liquids is not stored in Building 9720-12.

Cyanide Treatment Unit

The unit is located in the basement of a Building 9201-5N. Drummed wastes are stored upright on pallets to prevent possible contact with standing liquids. A maximum of 2,200 gallons of drummed waste is stored at the Cyanide Treatment Unit and the drums typically are not stacked. Two-inch high, coated concrete curbs and ramps exist to prevent the flow of liquids to adjoining areas and to contain any spills or leaks within the area until they are properly removed.

D-1a(3) Capacity of the Containment System Relative to the Number and Volume of the Containers to be Stored

Conventional secondary containment is not provided for liquid waste storage areas at Buildings 9206 and 9212 due to criticality safety concerns. Because the wastes contain enriched uranium, construction of diking or other conventional secondary containment would result in unsafe storage geometries that could potentially result in a nuclear criticality accident. The safe storage of liquid wastes at Buildings 9206 and 9212 is of primary importance due to criticality safety. The volume of the largest liquid container is approximately three gallons. Buildings 9206 and 9212 are designed to prevent these materials from contacting humans or the environment. For example, these buildings do not contain floor drains; and the liquid storage areas are located so as to prevent potential spills from migrating to the environment.

Free liquids are not stored at Building 9720-12. Secondary containment is not required since spills of liquid cannot occur.

Cyanide Treatment Unit

The maximum number of drums in this storage and treatment unit is 40, with a total capacity of 2,200 gallons. Calculations for secondary containment capacity are presented below:

Containment Volume

$$17.7 \text{ ft} \times 29.1 \text{ ft} \times 2/12 \text{ ft} \times 7.48 \text{ gal/ft}^3 = 642 \text{ gal}$$

$$17.7 \text{ ft} \times 15.8 \text{ ft} \times 2/12 \text{ ft} \times 7.48 \text{ gal/ft}^3 = 349 \text{ gal}$$

$$16.3 \text{ ft} \times 19.3 \text{ ft} \times 2/12 \text{ ft} \times 7.48 \text{ gal/ft}^3 = 392 \text{ gal}$$

$$1.2 \text{ ft} \times 3.3 \text{ ft} \times 2/12 \text{ ft} \times 7.48 \text{ gal/ft}^3 = 5 \text{ gal}$$

$$3.7 \text{ ft} \times 5.9 \text{ ft} \times 2/12 \text{ ft} \times 7.48 \text{ gal/ft}^3 = 27 \text{ gal}$$

$$1.3 \text{ ft} \times .8 \text{ ft} \times 2/12 \text{ ft} \times 7.48 \text{ gal/ft}^3 = 1 \text{ gal}$$

$$\text{Containment Volume} = 642 + 349 + 392 + 5 + 27 + 1 = 1,416 \text{ gal}$$

Drum Displacement

$$40 \times (2 \text{ ft})^2 \times \pi \times 0.25 \times 0.167 \text{ ft} = 21 \text{ ft}^3$$

$$21 \text{ ft}^3 \times 7.48 \text{ gal/ft}^3 = 157 \text{ gal}$$

Other Displacements

$$21.8 \text{ (diked area)} + 1.8 \text{ (ramp)} + 8.7 \text{ (curbed area)} + .4 \text{ (ramp)} + 1.8 \text{ (wall)} \\ + .7 \text{ (equipment)} = 35.2 \text{ ft}^3$$

$$35.2 \text{ ft}^3 \times 7.48 \text{ gal/ft}^3 = 263 \text{ gal}$$

Pallet Displacement

$$10 \times 12 \text{ gal/pallet} = 120 \text{ gal}$$

$$\text{Total Displacement} = 157 \text{ gal} + 263 \text{ gal} + 120 \text{ gal} = 540 \text{ gal}$$

Total Available Secondary Containment

$$1,416 \text{ gal} - 540 \text{ gal} = 876 \text{ gallons}$$

Excess Containment Capacity

$$10\% \text{ required} = 2,200 \text{ gal} \times 0.1 = 220 \text{ gal}$$

$$876 \text{ gal} - 220 \text{ gal} = 656 \text{ gallons}$$

Secondary containment volume is required to hold at least 10% of the volume of the containers. There is a 656-gallon excess of secondary containment capacity at the Cyanide Treatment Unit.

D-1a(4) Provisions for Preventing or Managing Run-On

The container storage areas at Buildings 9206, 9212, 9720-12, and the Cyanide Treatment Unit are completely enclosed with walls and a roof to prevent accumulation of rainfall in the

storage and treatment areas. In addition, the Cyanide Treatment Unit is diked to prevent run-on from adjacent areas.

D-1a(5) How Accumulated Liquids can be Analyzed and Removed to Prevent Overflow Buildings 9206 and 9212

Accumulated liquids would only be present at Buildings 9206 and 9212 as a result of a spill or leak from the containers. If the spill or leak can be traced to a particular container, the characterization of the waste may already be known. If the source of the liquid cannot be identified, the collected material will be sampled and analyzed. Spilled or leaked waste liquid would be stored at the unit.

Removal of spilled liquids will be accomplished by the use of criticality safety-approved methods. Accumulated liquids will be removed immediately upon their discovery. See Sections F-2c and G-5f for additional information in the event of a release.

Building 9720-12

Accumulated liquid at 9720-12 would be from wind-driven precipitation or utility leaks since no free liquids are stored in these containers.

Cyanide Treatment Unit

Accumulated liquids at the Cyanide Treatment Unit could be present as a result of a spill or leak from the container within the diked area. If the spill or leak can be traced to a particular drum, the analysis may already be known. If the source of the liquid cannot be identified, the collected material will be sampled and analyzed. Spilled or leaked waste liquid would be treated at the unit.

Removal of spilled liquids will be accomplished by the use of portable pumps or by the use of absorbent material depending on the quantity of material present. Accumulated liquids will be removed immediately after their discovery. See Section F-2c and G-5f for additional information in the event of a release.

D-1b Containers Without Free Liquids

All wastes stored at Building 9720-12 and some of the wastes at Building 9206 and 9212 will be without free liquids. These wastes will be clearly defined by tagging. The waste stored at 9720-12 is characterized as solid, mixed waste.

D-1c(1) Container Management

Residues stored at Buildings 9206, 9212, and 9720-12 are stored in specially fabricated galvanized tin cans. The cans are typically 14 inches in height and 7 inches in diameter. They will hold approximately 2 gallons of residue. The cans have slip-type lids that slide down over the top of the vessel approximately 1 inch. The lid is then sealed with tape.

The cans are placed single-stacked on steel racks, typically with 3 to 7 shelves. Usually 6 to 11 cans can be stored on a shelf depending on the length of the rack. The cans are kept approximately 2 feet apart for criticality safety spacing requirements. Cans are transferred to and from the shelves by hand. Cans will be moved to the staging areas in Buildings 9206 and 9212 only when they are being removed from the area. These staging areas are a holding area during material transfer. Containers are typically inspected/audited bi-monthly for uranium accountability.

Liquid storage bottles are approximately 52 inches in height and 5 inches in diameter. These containers are specially designed for criticality safe storage of nuclear materials. These bottles have a threaded lid and will hold approximately 3 gallons of waste. Bottles are transferred to and from the racks by hand. The bottles are stored approximately 2 feet apart for criticality safety.

Additional wastes at Building 9720-12 and the Cyanide Treatment Unit are typically stored in 55-gallon drums. The waste stored at Building 9720-12 is solid, mixed waste. A total of

144 pallets with 4 drums each can also be stored in the unit. Aisle spacing is typically 36 inches with a minimum of 24 inches.

Wastes stored at the Cyanide Treatment Unit are stored in DOT-specification drums, typically 55-gallons, compatible with the cyanide solutions. Aisle spacing is adequate to allow inspections and movement of equipment. Containers are usually single-stacked.

Several steps have been taken to prevent hazards during loading/unloading operations. Drum handling operations typically take place when drums are placed into storage during treatment operations. To minimize the potential for accidents involving other vehicles and pedestrians, traffic flow is limited around the loading area during operations. All drum handling equipment used (carts, lifts, etc.) are specifically designed to transport or lift drums safely and without damage. Ramps or roll-over dikes have been constructed to allow

wheeled vehicles (carts, forklifts, etc.) easy access to containers while still providing containment for spilled liquids.

All waste containers in the storage areas are sealed at all times except during filling operations (for solvents and other liquids), packing for shipment, or for sampling purposes. Containers are handled (i.e., moved, loaded onto trucks, filled, etc.) only under the direction of the production supervision. Funnels appropriately designed and fabricated are used with drums for pouring liquids. Wastes at the Cyanide Treatment Unit are treated in open containers. Procedures exist that detail the safe operation of the cyanide treatment process. See Section D-1c(2) for more information.

Drums used for hazardous waste storage are either new, reconditioned, or cleaned (by rinsing or other appropriate measure) or contain new material that is known to be compatible with the waste to be added. Polyethylene drum liners are used for wastes not compatible with steel drums. Drums containing incompatible wastes are generally segregated by DOT hazard class and whenever possible, drums containing wastes known to be incompatible are stored in the different areas or kept separate via portable dikes.

All containers are observed during packing and loading operations. Also, all containers are inspected at least weekly on an individual basis for deterioration, corrosion, leakage, etc.; a listing, illustrative of the inspection technique for this facility, is given in Section F-2. Any container that does not pass inspection is usually replaced within 24 hours with one that meets the proper requirements.

The storage areas have aisles for the passage and maneuver of a drum dolly accessing the segregated waste storage area. This aisle is kept clear of drums or equipment; drums are sorted in the designated, segregated areas.

Aisle spacing is typically 3 feet to 5 feet wide with a minimum of 24 inches. Actual operating layouts of each of the areas is shown in D-1 through D-8.

Drums may be stacked only at Building 9720-12 and are stored on pallets. The maximum number of drums that could be stored in each unit is 576 at Building 9720-12, and 40 at the Cyanide Treatment Unit.

D-1c(2) Requirements for Ignitable or Reactive Wastes and Incompatible Wastes

The wastes stored at Buildings 9206, 9212, and 9720-12 are not ignitable, reactive, or incompatible (see Section C-1).

The cyanide wastes stored and treated at the Cyanide Treatment Unit are not ignitable or incompatible, but are considered to be reactive (D003). The treatment process eliminates the reactivity once it is complete.

The Cyanide Treatment Unit and the precious metals recovery operation share the same room; therefore, the possibility exists that the acids used in the precious metal recovery process and the cyanide wastes could, through accident, mix and generate hydrogen cyanide (HCN) gas. At present, curbing exists in the shared area to separate stored acids, stored cyanide wastes, acid exhaust hoods, and the cyanide treatment exhaust hoods. The exhaust hoods for these two processes are separate units with separate venting, and the drums of these incompatibles are physically separate in the room. Additionally, drums of acid and cyanide are clearly marked "ACID" or "CYANIDE". Only material with an appropriate label is processed or stored in a process-specified hood.

The unit personnel are fully trained in precautions to prevent mixing acids and cyanides, and this topic is discussed frequently in regular safety meetings. Personnel are also trained by means of a sniff test developed by DuPont to recognize the odor of hydrogen cyanide gas.

No ignitable wastes are stored or processed at the Cyanide Treatment Unit.

Building 9201-5N is located more than 15 meters (50 feet) from the plant boundary.

D-2 TANK SYSTEMS

Not applicable. The units covered in this permit application are not tank systems; therefore, the requirements of this section do not apply.

D-3 WASTE PILES

Not applicable. The units covered in this permit application are not waste piles; therefore, the requirements of this section do not apply.

SECTION E

GROUNDWATER MONITORING

Groundwater monitoring is not required for Building 9206, 9212, and 9720-12 Container Storage Areas and the Cyanide Treatment Unit as per the requirements of 40 CFR Part 264, Subpart F and Tennessee Rule 1200-1-11-.07(5)(c) which exclude container storage areas from the groundwater monitoring requirement.

SECTION F

PROCEDURES TO PREVENT HAZARDS

This section of the application provides information concerning procedures to prevent hazards required by 40 CFR Part 270.14 and Rules Governing Hazardous Waste Management in Tennessee, Rule 1200-1-11-.07(5)(a). The following subject areas are addressed in this section: general security provisions, inspection schedules and requirements, preparedness and prevention requirements, and prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes at Buildings 9206, 9212, and 9720-12 Container Storage Areas, and the Cyanide Treatment Unit.

F-1 SECURITY

F-1a Security Procedures and Equipment

The Y-12 Plant maintains security procedures and equipment that prevent the unknowing entry of persons or livestock onto the active portion of the facility which minimizes the possibility for unauthorized entry. The 24 hours per day, 7 days per week surveillance system is utilized at the Y-12 Plant, and one or more barriers are present to control entry.

F-1a(1) 24-Hour Surveillance System

The Y-12 Plant is a DOE facility which produces and handles nuclear materials. It is a fully secure facility completely surrounded by a barbed wire-topped, chain-linked fence eight feet in height. A security force and centralized security operations oversee the entire Y-12 Plant. The facility is continuously manned 24 hours per day, 7 days per week by armed guards from the Y-12 Plant Security Department. The perimeter of the facility is patrolled at intervals day and night via a system of patrol roads.

Most gates for pedestrian and vehicular access are manned by armed guards and only authorized personnel are admitted. All individuals entering the Y-12 Plant must be authorized by the Y-12 Plant Security Department.

The units in this permit application are all located within the fully secured (protected) area (see Map 1 in Appendix B-1). Access into the protected area is through continuously manned (24 hours per day) portals where ID badges are needed. Unauthorized personnel are not be permitted into the protected area.

F-1a(2) Barriers and Means to Control Entry

Controlled access through guarded portals limits the entry to the units in this permit application. Additional controls such as locked doors prevent the unauthorized entry to the units. See Section F-1a(1) for additional information.

F-1a(2)(a) Barrier

An eight foot high chain-linked fence topped with barbed wire completely surrounds all the units in this permit application. In addition, all the units are within the fully secured (protected) area. See Section F-1a(1) for additional information.

F-1a(2)(b) Means to Control Entry

Access to the units inside the protected area of the Y-12 Plant is controlled through guarded portals. Doors and gates to the units are locked during off-shift hours or when the authorized facility operator is not present. The gates or doors may be opened on off-shifts and weekends to allow overtime work. See Section F-1a(1) for additional information.

F-1a(3) Warning Signs

Individual RCRA units at the Y-12 Plant are posted with signs stating:

"Danger--Authorized Personnel Only"

or a similar message which indicates that only authorized personnel are allowed to enter and that entry onto the active portion can be dangerous. No languages other than English are necessary for the signs at this plant. All signs are located at each entrance and are legible from a distance of at least 25 feet and are visible from all angles of approach.

Signs are located on the sides of each unit that may be approached. They are either mounted on the unit or on boundary control devices at the edge of each unit.

F-1b Waiver

Not applicable. The Y-12 Plant does not request a waiver of the regulations stated in 40 CFR Part 264.14(a) and Tennessee Rule 1200-1-11.06(2)(e) concerning security of these units.

F-1b(1) Injury to Intruder

Not applicable. A waiver is not required; therefore, this section is not applicable.

F-1b(2) Violation Caused by Intruder

Not applicable. A waiver is not required; therefore, this section is not applicable.

F-2 INSPECTION SCHEDULE

F-2a General Inspection Requirements

Because of the diverse activities and the specialized nature of activities at the Y-12 Plant, authority and responsibility for inspections, record-keeping, and remedial actions are delegated among various groups and operating organizations. Inspection activities include coverage of the areas of fire control, emergency and spill response, health and safety, radiological safety, and specialized equipment unique to operations within the Y-12 Plant.

For the purposes of this application, the general inspection schedule for areas and/or equipment related to hazardous waste regulations is given in Appendix F-1. The schedule identifies the types and frequencies of inspections required by RCRA regulations, including monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment. Operating procedures exist for the units in this package which specify the types of inspection logs, frequency, and record-keeping requirements.

F-2a(1) Types of Problems

Types of problems to be looked for when inspecting monitoring equipment, safety and emergency equipment, security devices, operating and structural equipment, and areas subject to spills are listed in Appendix F-1.

F-2a(2) Frequency of Inspection

Inspection frequencies for plant-wide equipment and supplies are included in tables in Appendix F-1.

F-2b Specific Process Inspection Requirements

Inspection of each unit is conducted according to the inspection schedules in Appendix F-1 and/or the operating procedures. Results of each inspection are recorded on inspection log sheets. Information requested on the log sheets includes the inspector's name, date and time of inspection, items of inspection, types of problems encountered, status of the items, observations, and the date and nature of repairs and remedial actions. Typical problems encountered with each item on the inspection schedule are listed on the log sheet and serve as a reminder to the inspector to ensure a complete inspection. The inspector is required to check the status of each item and to indicate whether its condition is acceptable or

unacceptable. If the status of a particular item is unacceptable, appropriate and complete information is recorded, including date and nature of repairs and remedial action. Evaluation and/or correction of unacceptable items will be initiated within 24 hours of the inspection. Typical inspection log sheets are provided in Appendix F-2.

F-2b(1) Container Inspection

Inspections of the container storage areas are conducted according to the general description in Section F-2b and the inspection schedule in Appendix F-1. The container storage areas are inspected on a weekly basis, at a minimum, and recorded on the inspection logs. Typical logs are presented in Appendix F-2.

F-2b(2) Tank System Inspection

Not applicable. The units covered in this permit application are not tank systems; therefore, the requirements of this section do not apply.

F-2b(3) Waste Pile Inspection

Not applicable. The units covered in this permit application are not waste piles; therefore, the requirements for this section do not apply.

F-2b(4) Surface Impoundment Inspection

Not applicable. The units covered in this permit application are not surface impoundments; therefore, the requirements for this section do not apply.

F-2b(5) Incinerator Inspection

Not applicable. The units covered in this permit application are not incinerators; therefore, the requirements for this section do not apply.

F-2b(6) Landfill Inspection

Not applicable. The units covered in this permit application are not landfills; therefore, the requirements for this section do not apply.

F-2b(7) Land Treatment Inspection

Not applicable. The units covered in this permit application are not land treatment units; therefore, the requirements for this section do not apply.

F-2b(8) Miscellaneous Unit Inspections

Not applicable. The units covered in this permit application are not miscellaneous units; therefore, the requirements for this section do not apply.

F-2b(9) Subpart AA - Inspection Requirements (Organic Emissions from Process Vents)

Not applicable. The units in this permit application (containers, tanks) are not required to be monitored for organic emissions from process vents.

F-2b(10) Subpart BB - Inspection Requirements (Organic Emissions from Equipment Leaks at RCRA Units)

Not applicable. The units in this permit application are not required to be monitored or inspected for organic emissions from equipment leaks.

F-2c Remedial Action

Operational supervisors and responsible technicians are responsible for initiating requests for required maintenance activities when unacceptable conditions or problems are discovered during inspections of these facilities. If inspections reveal that non-emergency maintenance is needed, it will be completed as soon as possible in accordance with a schedule noted in the log, to preclude further damage and reduce the need for emergency repairs. The inspector instructs the responsible maintenance organization on the remedial actions to be taken to correct these deficiencies.

If a problem is imminent or has already occurred during the course of an inspection or any time between inspections, remedial actions will be initiated within 24 hours. In the event of an emergency involving the release of hazardous constituents to the environment, efforts will be directed toward activating the contingency plan, containing the hazard, removing it, and subsequently decontaminating the affected area. Refer to Section G, Contingency Plan, for further details.

F-2d Inspection Log

Container storage areas are inspected and information is recorded on the typical log sheets shown in Appendix F-2. The logs include spaces for the date of the inspection, identity of the inspector, and the specific items to be inspected and provides for records of remedial action.

After an inspection, each log sheet is filed at the appropriate location (i.e., supervisors office), and these records are kept in accordance with Recordkeeping, Section J.

F-3 WAIVER OF PREPAREDNESS AND PREVENTION REQUIREMENTS

The Y-12 Plant does not request a waiver of the preparedness and prevention requirements. Requirements of this subpart are primarily addressed in Sections D, F, and G of this application.

F-3a Equipment Requirements

Additional internal and external communication systems, emergency equipment, and fire control equipment are discussed in Section G, Contingency Plan.

F-3a(1) Internal Communications

The Y-12 Plant does not request a waiver of the preparedness and prevention requirements. Requirements of this subpart are primarily addressed in Sections D, F, and G of this application.

F-3a(2) External Communications

The Y-12 Plant does not request a waiver of the preparedness and prevention requirements. Requirements of this subpart are primarily addressed in Sections D, F, and G of this application.

F-3a(3) Emergency Equipment

The Y-12 Plant does not request a waiver of the preparedness and prevention requirements. Requirements of this subpart are primarily addressed in Sections D, F, and G of this application.

F-3a(4) Water for Fire Control

The Y-12 Plant does not request a waiver of the preparedness and prevention requirements. Requirements of this subpart are primarily addressed in Sections D, F, and G of this application.

F-3b Aisle Space Requirement

The Y-12 Plant does not request a waiver of the preparedness and prevention requirements. Requirements of this subpart are primarily addressed in Sections D, F, and G of this application.

F-4 PREVENTATIVE PROCEDURES, STRUCTURES, AND EQUIPMENT

F-4a Unloading Operations

Wastes received at the Cyanide Treatment Unit and Building 9720-12 Container Storage Area are typically delivered in drums, whereas wastes at Buildings 9206 and 9212 Container Storage Areas are typically contained in tin cans or polyethylene bottles. Drums will normally be on pallets and are unloaded with a forklift or hand jack. In addition, adequate aisle space is maintained at all times. These unloading operations are conducted by trained facility personnel. Further information concerning spill or rupture or other emergency situations is found in Section G, Contingency Plan.

F-4b Run-Off

Run-off from the units is unlikely since each of the units are enclosed in buildings. In addition, precipitation is prevented from entering all buildings by the presence of roofs.

F-4c Water Supplies

By preventing run-off as described in F-4b, water supply contamination is prevented. Groundwater contamination is prevented by eliminating the discharge of hazardous materials onto the unprotected ground. Additionally, any spills or leaks would be contained by the design described in F-4b.

F-4d Equipment and Power Failure

Operations at the units should not be affected if a facility power outage occurs. If the lights, or other equipment should fail, personnel would cease loading, unloading, or transferring waste. The activities can be resumed when power is restored. No problems are anticipated from such a power interruption.

In the event of equipment failure such as truck or forklift breakdown, operations will be halted until a replacement is secured or repairs are completed. The majority of the operation is passive storage and containment. All plant-wide emergency alarms have backup power generators to insure continual power availability.

F-4e Personal Protection Equipment

The equipment appropriate for employees at specific facilities and areas of the plant is specified by qualified personnel trained in industrial hygiene and health physics. These personnel utilize hazardous chemical data, material safety data sheets, and radiological information necessary to determine the appropriate type of personnel protection needed.

They also consider the characteristics of the waste types to be handled, including toxicity, ignitability, reactivity, corrosivity, routes of exposure, and other information. The Plant Shift Superintendent is notified whenever the Contingency Plan is implemented, and the appropriate individuals assist him in specifying the protective equipment for affected personnel such as fire fighters, rescue teams, spill cleanup personnel, and equipment decontaminators. Available equipment is listed in Section G. See Section H, Personnel Training, for a description of employee training in this subject area.

Personnel exposure to hazardous waste is minimized through the use of protective equipment as well as by safe handling practices. At a minimum, personnel in the storage areas wear protective equipment as required by area procedures and posted signs. If actual handling of hazardous waste is necessary, personnel will wear the above items plus additional equipment, if applicable, required by qualified individuals trained in industrial hygiene practices for the specific chemical or chemical class being handled. Whenever required, other protective equipment is available, including but not limited to, hard hats with face shields, impermeable coveralls, self-contained breathing apparatuses, and acid suits. However, the actual requirement for specific safety equipment for the protection of personnel in the event of a spill or leak is determined on a case-by-case basis.

Good handling practices to prevent worker exposure include transferring hazardous wastes carefully, using proper equipment such as drum lifts, funnels, pumps, and pump adapters as well as sealing all containers before moving them. All operations are performed by fully trained laborers under the direction of the operating supervisor or the technician, who are familiar with the personnel protection procedures to be followed for the material being handled.

F-5 PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTES

F-5a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes

The wastes stored at Buildings 9206, 9212, and 9720-12 are neither reactive nor ignitable.

The wastes stored at the Cyanide Treatment Unit are reactive but not ignitable. Although reactive wastes may not be present at all times, a standard operating procedure for appropriate management of reactive wastes exists and is available for review. Accurate identification of waste at the source of generation ensures that wastes are managed so as to prevent reactions, fires, or releases of waste constituents.

Only wastes compatible with the containers are stored. Therefore, no reactions will occur and the only source of ignition will be external to the containers. Nonsparking tools and equipment are used at the Cyanide Treatment Unit and personnel use nonsparking clothing and personnel protective equipment. Sources of ignition or reaction, including open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks, and spontaneous ignition are prohibited in the area. "No Smoking" signs are conspicuously placed inside the buildings and at all entries. Cutting, welding, or other operations in which a potential hazard exists will only be permitted in this area if a special work permit has been issued. The special work permit will list all precautions necessary to prevent ignition of the waste.

F-5b General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste

There are no ignitable, reactive, or incompatible wastes accepted at Buildings 9206, 9212, and 9720-12. A compatibility review will be conducted before incompatible wastes are moved into a unit.

There are reactive wastes accepted at the Cyanide Treatment Unit. Sections F-5a, F-5c and F-5d discuss the precautions taken to prevent reactions which:

1. Generate extreme heat or pressure, fire or explosions, or violent reactions;
2. Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;
3. Produce uncontrolled flammable fumes, dusts, or gases in sufficient quantities to pose a risk of fire or explosions;
4. Damage the structural integrity of the device or facility; or
5. Through other like means, threaten human health or the environment.

Segregation of wastes on the basis of generator information minimizes placement of incompatible wastes in the same storage or staging area, and will prevent heat or pressure or cause violent reactions or other uncontrolled releases to the environment. All containers remain closed so that fumes, dusts, or gases are not released. Wastes are characterized in accordance with the Waste Analysis Plan in Section C.

F-5c Management of Ignitable or Reactive Wastes in Containers

The wastes stored at Buildings 9206, 9212, and 9720-12 Container Storage Areas are neither reactive nor ignitable.

The wastes stored at the Cyanide Treatment Unit may be reactive. Section F-5a discusses how reactive waste containers at this facility are protected from materials or conditions which could cause them to react. Wastes are characterized in accordance with the Waste Analysis Plan in Section C. Also, see Section D-1(c)(2).

Map 2 in Appendix B-1, Topographic Map, demonstrates that the Cyanide Treatment Unit is located at least 15 meters (50 feet) from the site property boundary.

F-5d Management of Incompatible Waste in Containers

The wastes stored at Buildings 9206, 9212, 9720-12 and the Cyanide Treatment Unit are not incompatible.

It is the responsibility of the generator to insure that incompatible wastes are not placed in the same container. Adequate aisle space is maintained to allow access for inspection. Containers are opened only when additional waste is added or samples are taken, and they are closed immediately afterward. The unit operators are trained in the proper handling of hazardous waste, including the importance of not adding an incompatible waste to a partially filled container. Wastes are mixed only if it is known from experience that they are compatible and after the contents of each drum are characterized. Hazardous wastes will not be placed into any unwashed container that previously held an incompatible waste or material. The use of properly washed containers, appropriate information, identification of the waste, and knowledge of waste compatibilities will prevent an operator from placing waste into a container that previously held an incompatible waste. Wastes are characterized in accordance with the Waste Analysis Plan in Section C, Waste Characteristics.

F-5e Management of Ignitable or Reactive Wastes in Tanks

Not applicable. The units in this permit application are not tank systems; therefore, the requirements of this section do not apply.

F-5f Incompatible Wastes in Tanks

Not applicable. The units in this permit application are not tank systems; therefore, the requirements of this section do not apply.

F-5g Ignitable or Reactive Wastes in Waste Piles

Not applicable. The units covered in this permit application are not waste piles; therefore, the requirements for this section do not apply.

F-5h Incompatible Wastes in Waste Piles

Not applicable. The units covered in this permit application are not waste piles; therefore, the requirements for this section do not apply.

F-5i Ignitable or Reactive Wastes in Surface Impoundments

Not applicable. The units covered in this permit application are not surface impoundments; therefore, the requirements for this section do not apply.

F-5j Incompatible Wastes in Surface Impoundments

Not applicable. The units covered in this permit application are not surface impoundments; therefore, the requirements for this section do not apply.

F-5k Ignitable or Reactive Wastes in Landfills

Not applicable. The units covered in this permit application are not hazardous waste landfills; therefore, the requirements for this section do not apply.

F-5l Incompatible Wastes in Landfills

Not applicable. The units covered in this permit application are not hazardous waste landfills; therefore, the requirements for this section do not apply.

F-5m Ignitable or Reactive Wastes in Land Treatment

Not applicable. The units covered in this permit application are not land treatment units; therefore, the requirements for this section do not apply.

F-5n Incompatible Wastes in Land Treatment

Not applicable. The units covered in this permit application are not land treatment units; therefore, the requirements for this section do not apply.

Y-12

OAK RIDGE Y-12 PLANT

MARTIN MARIETTA

Resource Conservation and Recovery Act (RCRA) General Contingency Plan for Hazardous Waste Treatment, Storage, and Disposal Units at the Oak Ridge Y-12 Plant

Environmental Management Department

Health, Safety, Environment, and
Accountability Organization

May 1995

Prepared by the
Oak Ridge Y-12 Plant
Oak Ridge, Tennessee 37831
Managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400

MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY
UCN-13672 (2-10-90)

May 1995

Y/TS-1015/R4

**Resource Conservation and Recovery Act (RCRA)
Contingency Plan for
Hazardous Waste Treatment, Storage, and Disposal Units
at the Oak Ridge Y-12 Plant**

**Environmental Management Department
Health, Safety, Environment, and Accountability Organization**

**Prepared by the
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plan, the emergency coordinator changes, or the emergency equipment list changes. Copies of the Y-12 Emergency Management Plan are available at the Plant Shift Superintendent's Office and the Emergency Management Office. This document serves to supplement the Y-12 Emergency Management Plan to be appropriate for all RCRA hazardous waste treatment, storage, or disposal units. The 90-day accumulation areas at the Y-12 Plant have a separate contingency supplement as required by RCRA and are separate from this supplement.

The facility name, address, identification number, and owner/operator name are provided below:

U.S. Department of Energy Oak Ridge Y-12 Plant
Bear Creek Road
Post Office Box 2001
Oak Ridge, Tennessee 37831-8555
EPA ID TN3 89-009-0001
Owned and operated by U.S. Department of Energy
Managed and co-operated by Martin Marietta Energy Systems, Inc.

The overall layout of the Y-12 Plant and the location of RCRA units are shown in Figure 1, "Y-12 Plant RCRA Waste Unit Locations." Figure 2, "Y-12 Plant Emergency Facilities Directory," shows the locations of assembly stations, boundaries, and access controls to the plant. Figure 3, "Y-12 Plant Bear Creek Burial Ground Waste Unit Map," shows the units located at the west end of the plant, Gamewell alarm box locations, boundaries, and access controls to these areas. Figure 4, "Y-12 Plant Evacuation Routes", shows a typical evacuation route that could be used to evacuate the Y-12 Plant in the event of an emergency. The Plant Emergency Director (PED) will ultimately determine and direct all personnel to the appropriate evacuation routes.

EMERGENCY COORDINATORS

The emergency coordinator at the Y-12 Plant is the PED. The Y-12 Plant has several Plant Shift Superintendents (PSS) who share the responsibilities of the PED. At least one PSS is on duty 24 hours per day, every day of the year, and can be reached at (615) 574-7172 at the Emergency Operations Center (EOC) in Building 9706-2. The alternate EOC is located in Building 9709 and the phones are transferred if the operations are being conducted at this building. The PSS on duty is responsible for providing continuous plantwide emergency direction as the PED. If the PED is incapacitated during an emergency, the Site Security Commander on duty is his alternate until another PSS can report to the scene. The PSS, or alternate, has access to names, telephone numbers, and addresses of all emergency personnel and will determine who must be contacted to provide emergency activity support.

The duties of the PED as the Emergency Coordinator include:

- Receiving notice that an incident has occurred;
- Evaluating the threat;
- Activating internal alarm systems to notify or evacuate personnel, if appropriate;
- Proceeding immediately to obtain information concerning released materials and initiating appropriate activities for characterizing and abating the release;
- Ensuring that necessary on-site notifications are made;
- Performing an assessment of the potential for off-site effects upon the public health and environment and notifying DOE-Oak Ridge EOC of the same;
- Initiating and directing a plan of action;
- Mobilizing sufficient forces, including technical assistance, to respond to the emergency at hand;
- Directing the overall effort to respond to plant emergencies in such a way as to ensure that all emergency groups, both local and plantwide function as a team.
- Delegating authority in any capacity necessary if the need arises during an emergency;
- Authorizing all rescue efforts requiring any employee experiencing illness or injury;
- Seeing that off-site medical facilities are notified immediately when a seriously ill or injured patient is en route, and provide the nature of the injury or illness;
- Ensuring that a medical department staff member, a supervisor, or someone knowledgeable as to the circumstances or acquainted with the details of any serious accident or illness accompanies the patient to the emergency room;
- Determining the accessibility of plant areas after an accident and authorizing reentry of evacuated areas;

- Under special conditions, requesting the designation of a technical group to assist in evaluating the advisability of reentry;
- Terminating emergency status when the threat is entirely gone;
- Authorizing, when applicable, the sounding of the "all clear" signal at the termination of an emergency; and
- Restoring the plant to normal operations.

The names and work numbers of the PSS are provided below:

<u>Name</u>	<u>Building Location</u>	<u>Work Phone</u>
W. M. Bradley	9706-2	(615) 574-7172
S. T. Boshears	9706-2	(615) 574-7172
J. D. Chapman	9706-2	(615) 574-7172
L. E. Brown	9706-2	(615) 574-7172
R. R. Smith	9706-2	(615) 574-7172
C. L. Beeler	9706-2	(615) 574-7172
G. L. Calvert	9706-2	(615) 574-7172

Emergency resource books containing lists of emergency response telephone numbers (Emergency Response Organization personnel, facilities, off-site agencies, outside support organizations, etc.) are readily available to the PED in the EOC and alternate EOC. Telephone listings are revised as changes occur. In addition, a quarterly review is conducted by the Emergency Preparedness Operations Department Manager. The PED has the authority to commit the necessary resources to implement the contingency plan.

IMPLEMENTATION

The decision to implement this contingency plan, as part of the Emergency Management Plan, depends upon whether an imminent or actual incident could threaten human health or the environment.

The contingency plan will be implemented by the PED in the following situations:

- A fire and/or explosion occurs, such that:
 - The potential for human injury exists;
 - Toxic fumes that could endanger human health or the environment are released;
 - The fire could spread on site or off site and possibly ignite other flammable materials or cause heat-induced explosions;
 - The use of water and/or chemical fire suppressants could result in contaminated runoff that could endanger human health or the environment; and/or
 - An imminent danger exists that an explosion could ignite other hazardous wastes at the facility and possibly result in the release of toxic materials.
- A spill or release of a hazardous material occurs such that:
 - The spill could result in release of flammable liquids or vapors, thus causing a fire or gas explosion hazard;
 - The spill could cause the release of toxic liquids or fumes that could endanger human health or the environment; and/or
 - The spill cannot be contained on site, resulting in off-site soil contamination and/or ground or surface water pollution that could endanger human health or the environment.

Many ways of discovering a spill or release of chemicals are possible. These include: routine and scheduled inspections of process equipment and material storage areas; unusual or strong chemical odors which may indicate a leak; and instrumentation such as level alarms, automatic sump pumps, and pH meters which may also reveal chemical spills or system malfunctions.

CONTROL PROCEDURES -- INCIDENT COMMANDER

The incident commander is defined as the Fire Department Commander and is responsible for assuming command and control of emergency response at the scene of the incident until such time that the area is determined to no longer be in a state of emergency. At that time, the incident commander will turn the area over to the area supervisor. The incident commander will be responsible for the following:

- Initial assessment of the incident scene to the PED;

- Establishing control and setting up the command post for emergency response;
- Initial evaluation of the magnitude of the problem;
- Evacuation of personnel from immediate danger;
- Arranging for assembly, organization, and briefing of emergency response personnel who have been summoned;
- Providing updated information on conditions, progress of response, and additional manpower or equipment needs to the PED;
- Directing operational changes needed (e.g., shutting off process flows);
- Implementing applicable prearranged plans and procedures; and
- Continuing to provide incident control until relieved by an alternate incident commander.

The following actions will be taken in areas affected by a fire or explosion:

1. Work in the affected areas will be shut down immediately.
2. Feedlines and additional equipment will be shut down, as necessary and practical.
3. The PED will be contacted.
4. The area will be cleared of all personnel not actively involved in fighting the fire. These persons are to report to the designated assembly points for accountability.
5. All injured persons will be removed, and medical treatment will be administered by Medical Department personnel with outside assistance, as required.

EMERGENCY RESPONSE PROCEDURES – EMERGENCY COORDINATOR

The PED is responsible for the overall direction of emergency response efforts as follows:

- Ensures that the incident commander at the scene of the emergency directs emergency service units and local emergency squads.
- Ensures that the incident commander at the scene of the emergency, evaluates:

- Radiation and general safety situations as they affect the immediate and adjacent areas,
 - Need for interrupting utility services such as process water, ventilation, oxygen, natural gas, and electricity, and
 - Need for operational changes.
- Considers the need for and arranges for any large-scale alert, evacuation, general alert, invocation of mutual assistance agreements, and procurement of additional emergency personnel or emergency equipment.
 - Keeps Y-12 Plant management and appropriate staff groups informed.
 - Determines when the emergency is over, and orders the "all clear" signal.

The Emergency Management Department staff is responsible for:

- Y-12 Plant-wide emergency planning.
- Updating the Emergency Management Plan.
- Planning for practice exercises.
- Coordinating the organization and training of emergency service units and local emergency organizations.
- Ensuring that plans are in place for receiving and evaluating emergencies.
- Ensuring that plans are in place for activating internal alarm systems to alert/evacuate personnel.
- Planning coordination for the emergency response team; determine if outside assistance is required.
- Ensuring that plans are in place to report incidents to personnel at the DOE, Oak Ridge Operations in accordance with DOE Order 5000.3A "Occurrence and Processing of Operations Information."

Notification

The employee discovering a potential emergency incident will notify his immediate supervisor and/or the PED. The PED will immediately activate the internal alarm system to notify or evacuate personnel, if appropriate. The PED will also notify the Plant Manager, the Production Manager, the Environmental Coordinator, and Organization Managers of the operations involved.

In the event that outside assistance is required, the PED will notify appropriate state and/or emergency response agencies.

Identification of Hazardous Materials

The incident commander will immediately attempt to identify the character, exact source, amount, and aerial extent of the material involved in the fire or release. The initial identification method will be by visual analysis of the material and location of the release. Plant records, including inventories and process and waste log sheets, are available at the operating department offices of the RCRA units to aid in estimating the composition and quantity of released material. In the event of a spill, a sample of the spilled material is taken if the material enters a storm drain, there is some question as to the identity of the material, or the material is suspected to contain polychlorinated biphenyls (PCBs). The Health, Safety, Environment, and Accountability Organization staff will sample to verify hazardous material identification, determine boundaries of contaminated areas and contaminant concentrations, and verify proper cleanup after cleanup activities are completed.

Information such as storm sewer locations and topographic information is available to support the PED in the process of identifying potential flow/contamination paths and determine appropriate control actions.

Hazard Assessment

Assessment of possible hazards to human health or the environment will be made using the following methods:

1. Process knowledge (i.e., knowledge of the nature of waste materials released);
2. Review of Material Safety Data Sheets, if available;
3. Chemical analysis/monitoring data;
4. Results of modeling for releases to air, surface water, or groundwater; and
5. Specific health-based and environmental criteria or limits which may be exceeded.

Based on the hazard assessment, evacuation of the immediate unit area, entire facility, or local areas outside the facility may be necessary.

Off-Site Notification/Evacuation

The Y-12 Emergency Management Plan describes the methods used for notification of Y-12 emergency response personnel and appropriate federal, state, and local emergency response centers. Individuals or groups that may be notified include, but are not limited to, the following:

- DOE Oak Ridge Operations EOC,
- DOE Headquarters EOC (through the Oak Ridge Operations EOC voice bridge),
- Tennessee Emergency Management Agency,
- National Response Center,
- Local Emergency Planning Councils,
- Affected county notification points,
- City of Oak Ridge (Anderson County),
- Regional U.S. Environmental Protection Agency, and
- Other agencies as required by regulatory guidance.

Evacuation of nonessential personnel is ordered by the PED if it is determined that a threat to the safety of plant personnel exists. Evacuation routes will be determined by the PED; however typical evacuation routes are shown in Figure 4.

Prevention of Recurrence or Spread

After incident mitigation, a recovery manager will be appointed to return the incident scene to preincident conditions and analyze the root cause of the incident.

Storage and Treatment of Released Material

Any hazardous materials that results from a release, fire, or explosion at the Y-12 Plant will be contained, removed, and placed in appropriate containers or tanks. Leaking or damaged containers will be placed in 85-gallon overpack drums so they can be stored until treatment or disposal arrangements are finalized.

Contaminated absorbent materials, protective clothing, and other disposable material used in remediation of the emergency and subsequent decontamination activities will be placed in 55-gallon drums and stored at a RCRA storage unit pending treatment or disposal. These items will be handled with the same degree of caution as the wastes themselves so that public health and the environment are not further threatened.

Immediately after an emergency, the Spill Response Coordinator will provide guidance on the treatment, storage, or disposal of recovered waste, contaminated soil, surface water, or any other contaminated material. Emergency and spill response equipment available for cleanup, storage, and treatment are identified in the Y-12 Emergency Management Plan.

Incompatible Waste

In order to prevent reactions caused by proximity of incompatible substances, wastes which have been spilled or released must be segregated from other wastes or materials which are incompatible. It is a duty of the Spill Response Coordinator to ensure that wastes which may be incompatible with the released material are not treated, stored, or disposed of in the vicinity of the spill or fire until cleanup procedures are completed.

Incompatible wastes are unlikely to be treated, stored, or located in the affected areas until cleanup is completed because of the waste segregation practices used at the facility. If possible, no additional wastes will be stored in the affected area until the cleanup is completed. If waste storage there is necessary, wastes will be placed only in those areas where no incompatible wastes are present.

Postemergency Equipment Maintenance

All emergency response elements will ensure that team equipment is properly decontaminated, supplies are restocked, and the team is returned to preemergency readiness.

Container Spills and Leakage

In the event of a hazardous material spill or release, the following general procedures will be used for rapid and safe response and control of the situation. Spills or releases and impending spills or releases discovered during routine inspections will be handled in the same manner as described below for spill and release emergencies. These are general guidelines, and circumstances may dictate some alterations to these procedures.

If an employee discovers a chemical spill or process upset resulting in a hazardous material release, he or she will immediately report it to the area supervisor. The area supervisor or the employee will contact the PED. When contacted, the PED will obtain information pertaining to the following:

1. The material spilled or released,
2. Location and source of the release or spillage of hazardous material,
3. An estimate of the quantity released and the rate at which it is being released,
4. The direction in which the spill, vapor, or smoke release is heading,
5. Any injuries involved, and
6. Fire and/or explosion or possibility of these events.

This information will help the PED to assess the magnitude and potential seriousness of the spill or release. The PED will contact and deploy the necessary in-plant personnel. If additional assistance is required, the PED will also contact the other Oak Ridge plants that have agreed to provide assistance and the agencies discussed in the Coordination Agreements section of this plan.

The initial response to any emergency will be to protect human health and safety, and then the environment. Identification, containment, treatment, and disposal assessment will be the secondary responses.

Medical assistance for injured persons will be obtained from the Y-12 Health Services staff.

Cleanup personnel summoned by the PED will don protective clothing and equipment, as specified by the Health, Safety, Environment, and Accountability Organization staff. If a flammable waste is involved, all ignition sources will be removed, and spark and explosion-proof equipment and clothing will be used for containment and cleanup activities. If possible, cleanup personnel will try to stop the leak. Special materials, such as tank patch kits, will be kept on hand for temporary repairs. All surrounding materials that could be reactive with the waste materials will be removed. The major components of the waste will be determined.

Absorbent pads, booms, earth, sandbags, sand, and other inert materials will be used to contain, divert, and clean up a spill if it has not been contained by a dike or sump. Sewer plugs are available, if required, to isolate a spill. Spills contained within a dike or sump may be pumped back into the appropriate storage tank or drum, if it is structurally sound. All containment and cleanup materials will be placed in drums for proper disposal. Some items, such as absorbent rags or booms, may have to be cut up. All recovered liquid wastes and contaminated soil that cannot be returned to their original storage tanks or containers will be placed in drums for removal to an approved storage or disposal site.

Most tank and container spills and leaks are contained within the dikes and sumps provided in the tank and container areas. Small spills occurring in a diked area are directed to the sump provided in that area. Immediately after the spill is detected, the Waste Management Organization staff will be summoned to remove any standing liquids (as described above) and arrange to have the spilled material taken to a unit approved to handle that particular waste. If necessary, a portable sump pump will be used to pump the diluted waste material into 55-gallon drums. The transfer of the spilled material will be performed within 24 hours or at the earliest practical time if it is demonstrated that the material cannot be transferred within 24 hours.

If, for some reason, a chemical spill is not contained within a dike or sump area, an appropriately sized area of isolation will be established around the spill. The size of the area will generally depend on the size of the spill and the materials involved. An area at least 50 feet in all directions will be isolated. For large spills, an area at least 100 feet in all directions will be isolated. When any spill occurs, only those persons involved in overseeing or performing emergency operations will be allowed within the designated hazard area. If possible, the area will be roped or otherwise blocked off. All persons not actively involved in managing the spill will be kept upwind.

If the PED determines that Y-12 and the other DOE plants are unable to handle the emergency, then local, state, and federal authorities will be notified of the situation. When necessary, evacuation of all potentially affected plant areas will begin as soon as possible.

All emergency equipment used for spill management must be cleaned by the responsible personnel so that it is fit for use prior to resumption of plant operations in the affected areas.

Tank Spills and Leakage

In the event of a hazardous material spill or release, the procedures described for container spills and leakage apply for tank releases.

EMERGENCY EQUIPMENT

A listing of typical emergency and spill response equipment for the Y-12 Plant is listed in Appendix B. The specific emergency and spill response equipment is provided in the Y-12 Emergency Management Plan. In addition, emergency equipment is maintained at the units in this plan for minor releases which include, but is not limited to, absorbent material, fire extinguishers, shovels, shoe scuffs, gloves, eye protection, and protective clothing. The inspection lists and frequency for inspection of the spill response equipment at the units are presented in the Y-12 Emergency Management Plan.

COORDINATION AGREEMENTS

The Y-12 Emergency Management Plan details all coordination agreements currently held with local agencies. These agreements provide for emergency assistance to other participants in the event of major fires, explosions, natural disasters accidents involving hazardous/radiological materials, and situations that could endanger life, public safety, or the environment or that have an extensive area impact. This agreement includes the K-25 Site, the Y-12 Plant, and ORNL. Examples of these agreements are provided in Appendix C. A copy of this plan has been provided to all mutual aid organizations. Designated emergency coordinators will commit the

necessary resources to implement the contingency plan. The PED will request assistance, when necessary, from other DOE sites. Each plant will have authority to provide emergency equipment and personnel upon request. The Emergency Directors' telephone numbers are:

Y-12 Plant	615-574-7172
K-25 Site	615-574-3282
ORNL	615-574-6606
DOE Security	615-576-1004

EVACUATION PLAN

All emergencies at the Y-12 Plant warrant prompt and deliberate action. Criteria for evacuation have been established. The PED is responsible for determining whether evacuation is necessary. The Y-12 Emergency Management Plan contains details of this criteria. If evacuation of the Y-12 Plant is necessary evacuation routes that would typically be used are illustrated in Figure 4.

REQUIRED REPORTS

The PED will note in the operating record the time, date, and details of any incident which required implementation of the Contingency Plan. Internal reports will be filed as required by DOE and Martin Marietta Energy Systems, Inc., personnel.

Within 15 days after the incident, personnel from the Y-12 Plant will submit a written report on the incident which required implementation of the Contingency Plan to the DOE staff for review and transmittal to the Commissioner of the Tennessee Department of Environment and Conservation, as required by Tennessee Rule 1200-1-11-.06(5)(c). The report will include:

- Name, address, and telephone number of the owner or operator;
- Name, address, and telephone number of the facility;
- Date, time, and type of incident (e.g., fire, explosion);
- Name and quantity of material(s) involved;
- The extent of injuries, if any;
- An assessment of actual or potential hazards to public health or the environment, where this is applicable; and
- Estimated quantity and disposition of recovered material that resulted from the incident.

APPENDIX A

UNIT-SPECIFIC EMERGENCY and WASTE DESCRIPTIONS

This section summarizes unit-specific contingency and waste description information for the treatment, storage, and disposal units below.

Cyanide Treatment Unit

The Cyanide Treatment Unit is located in Building 9201-5N. The nearest Gamewell box is located on the south wall outside of Building 9201-5N. This Gamewell box is connected to the existing plant Gamewell Fire Alarm System and Plant Monitoring System. A telephone is available in the room where the unit is located. An eyewash and safety shower station is also available in this room. Two-way radios or telephones are available to communicate with the PED office, if emergency assistance is necessary.

The Cyanide Treatment Unit treats cyanide wastes that have been generated in various operations.

Interim Drum Yard

Interim Drum Yard is located near Building 9720-32. The nearest available Gamewell box is located on the east end of Building 9720-32. This Gamewell box is connected to the existing plant Gamewell Fire Alarm System and the Plant Monitoring System. Two-way radios or telephones are used for communication with the PED if emergency assistance is needed. A telephone is located nearby in Building 9401-5.

This unit no longer receives hazardous waste and the closure plan has been submitted for this unit. Approval and closure activities are pending.

Building 9720-9, Storage Unit

Building 9720-9 is located on Third Street. Two Gamewell boxes are located at the east and west sides of the building and connected to the existing plant Gamewell Fire Alarm System and the Plant Monitoring System. Telephones and two-way radios are also used by personnel to provide communication with the PED office, if emergency assistance is needed. Eyewash/safety showers are provided and located at the east, west and south sides of the building.

This unit provides storage for hazardous, nonhazardous, and mixed waste. Waste is stored at this unit until waste analysis and appropriate treatment or disposal can be arranged. All classes of RCRA wastes, except for K-listed wastes, and hazardous wastes from specific sources (40 CFR Part 261.32 and Tennessee Rule 1200-1-11.02(4)) are stored in this unit.

RCRA and Mixed Waste Storage and Staging Unit, Building 9720-31

Building 9720-31 is located on West Third Street. Two Gamewell boxes are located on the east and west side of the building and connected to the existing plant Gamewell Fire Alarm System and the Plant Monitoring System. Telephones and two-way radios are also used by personnel to provide communication with the PED offices, if emergency assistance is needed.

This unit is used to store solids, liquids, and sludge wastes, which typically are hazardous, nonhazardous, or mixed waste. It is a one-story structure constructed of light-weight, concrete block, masonry walls and partitions. The building is partitioned into fifteen rooms: one supply room, seven staging rooms, and seven storage rooms. Normally, the largest containers in any of the staging or storage rooms are 55-gallon drums, however, 85-gallon overpack containers may be used to store waste. Waste stored in the staging and storage rooms may be in Department of Transportation-approved containers or the original product containers.

Building 9811-1 RCRA Tank Storage Unit (OD-7)

Building 9811-1 RCRA Tank Storage Unit is located at the intersection of West Second Street and K Road. It is served by an auxiliary fire alarm pull box which is inside the south side of Building 9811-1. Additional alarm boxes are located at Building 9720-16, and at the intersection of Second Street and K Road which is southwest of OD-7. These boxes are connected to the existing plant Gamewell Fire Alarm System and the Plant Monitoring System. Two fire hydrants are located near this unit. One is approximately 20 feet north of the RCRA Storage Unit, and the second hydrant is located approximately 75 feet southwest. Telephones and two-way radios are used by personnel to provide communication with the PED office, if emergency assistance is needed. A telephone is also located in the OD-7 operator trailer for communication with emergency personnel. A safety shower/eyewash assembly is planned for installation at a future date at the drum loading/unloading area and the transfer station as part of an OD-7 upgrade project.

This unit is designated as the primary storage unit for nonignitable and nonreactive, mixed waste oils and solvents. Contaminated oils, nonchlorinated solvents, some toxicity characteristic wastes, and used oil may also be accepted at the unit. The storage tank area of the unit consists of a 50-x 40-foot, concrete, diked area. Positioned within the diked area are four, 30,000-gallon tanks and two, 10,000-gallon tanks. The two, 10,000-gallon tanks are in place, but not in service.

Building 9811-1 - RCRA Container Storage Unit (OD-8)

Building 9811-1 is located at the intersection of West Second Street and K Road. A Gamewell box is located on the south side of the building (inside) and connected to the existing plant Gamewell Fire Alarm System and the Plant Monitoring System. A safety shower/eyewash is located at the north side of the building.

This unit is used primarily as a storage area for containerized liquid waste until the waste has been characterized to allow transfer to other treatment, storage, or disposal units. Contaminated liquids with a concentration of greater than or equal to 50 ppm PCBs will not be stored at this unit.

Waste Oil/Solvent Storage Unit (OD-9)

The Waste Oil/Solvent Storage Unit is located on Old Bear Creek Road, and served by an auxiliary fire alarm pull box. The Gamewell box is connected to the existing plant Gamewell Fire Alarm System and the Plant Monitoring System. Two fire hydrants are available for use and are freeze-proof. One hydrant is located along the site access road approximately 60 feet east of the truck entrance to the building. The second hydrant is on the north side of Old Bear Creek Road, near the site egress road, approximately 100 feet southwest of the facility truck exit area. Telephones and two-way radios are used by personnel to provide communication with the PED office, if emergency assistance is needed. Two safety shower/eyewash assemblies, both of which are freeze-proof, are located at the northeast corner of the tank area (in the truck loading pad adjacent to the drum storage area) and on the floor of the containment structure. Potable water is supplied to both units and is identified by green lights installed above each unit. The eye/face units are push bar operated with stay-open valves.

This unit typically receives and stores nonignitable and nonreactive mixed waste oil/solvents that may contain water, be contaminated with PCBs greater than 50 ppm, and contain chlorinated organic solvents. This unit may also store used oil. The liquid wastes are stored here in tanks and drums until sufficient volume is accumulated for transportation to an outside facility for recovery or disposal.

Liquid Organic Solvent Storage Unit (OD-10)

The Liquid Organic Solvent Storage Unit is located in the Bear Creek Burial Grounds, and served by an auxiliary fire alarm pull box which is located approximately 40 feet south of the unit. An additional Gamewell box is accessible at the intersection of Bear Creek Road and the access road to OD-10. This Gamewell box is connected to the existing plant Gamewell Fire Alarm System and Plant Monitoring System. A freeze-proof fire hydrant is located approximately 200 feet south of the unit. Two-way radios provide communication between the unit and the PED office, if emergency assistance is necessary. Three safety shower/eyewash assemblies are provided at OD-10, which includes two located in the staging area (north and south side) and the third located in the tank area. Potable water is supplied to these assemblies, which are push bar operated with stay-open valves. Each unit is identified by a green light installed above each assembly.

This unit receives and stores liquid organic wastes. These wastes typically include waste oil and

combustible and flammable waste liquids that may be defined as mixed waste or used oil. In addition, these wastes could be contaminated with PCBs greater than or equal to 50 ppm. The liquids received at this unit are pumped into the tanks for storage until sufficient quantity is accumulated for final disposal or recovery.

Building 9409-5 Storage Unit

The Building 9409-5 Storage Unit is located on Third Street. The nearest Gamewell box is located in Building 9409-2. This Gamewell box is connected to the existing plant Gamewell Fire Alarm System and Plant Monitoring System. This unit is no longer in service. Two-way radios or telephones are used to communicate with the PED office, if emergency assistance is needed.

This unit no longer stores or receives hazardous waste. It is currently undergoing closure.

East Chestnut Ridge Waste Pile

The East Chestnut Ridge Waste Pile is located on South Patrol Road. Two-way radios or telephones are used to communicate with the PED office, if emergency assistance is required. The nearest Gamewell box is located southwest of the unit across the street from the Containerized Waste Storage Area. This Gamewell box is connected to the existing plant Gamewell Fire Alarm System and Plant Monitoring System.

This waste pile is used for the storage of soils and spoils contaminated with hazardous and low-level radioactive materials, asbestos, and roofing materials from the closure of RCRA sites at the Y-12 Plant. Additional contaminated soils may be moved to the East Chestnut Ridge Waste Pile if excavation activities continue at the Y-12 Plant.

Containerized Waste Storage Area (CWSA)

The CWSA is located on South Patrol Road. A Gamewell box is located south, directly across the street from the CWSA, and is connected to the existing plant Gamewell Fire Alarm System and the Plant Monitoring System. Two-way radios or telephones are also used to provide communication with the PED office, if emergency assistance is needed. A portable safety shower/eyewash is provided during operations.

The CWSA consists of three concrete pads measuring 170 feet long and 50 feet wide. The central and eastern concrete pads are covered by open-sided dome tents and store hazardous, nonhazardous, or mixed wastes. The western concrete pad is not covered, and no wastes are stored there. Each pad has a one-foot impermeable dike surrounding it to contain spills. The pads and dikes are sloped toward a 60-gallon sump located on the southeast corner of the pads to catch spilled material and manage rainwater.

Classified Container Storage Unit, Building 9720-25

Building 9720-25 is located on M Street. Two Gamewell boxes are located inside the building and connected to the existing plant Gamewell Fire Alarm System and the Plant Monitoring System. Telephones and two-way radios are also used by personnel to provide communication with the PED office, if emergency assistance is needed.

Building 9720-25 is a storage unit designed for storage of classified wastes generated at the Y-12 Plant. The wastes include materials, fabricated parts, and containers which have been security classified to prevent dissemination of potentially vital information. Storage in one part of this unit of classified waste, contaminated with hazardous constituents, is necessary due to present uncertainties as to final modes of treatment and/or disposal of classified and/or hazardous waste materials. The stored materials include hazardous, mixed, and PCB wastes.

Oil Land Farm Soils Containment Pad

The Oil Land Farm Soils Containment Pad is located west of the main plant area on Bear Creek Road. A telephone is available nearby in the sampling trailer, or two-way radios are used to communicate with the PED office, if emergency assistance is needed. The nearest eyewash/safety shower station is located at the Liquid Organic Solvent Storage Unit, which lies west of this location on Bear Creek Road.

This unit provides storage for contaminated soils and excavation wastes that were generated during RCRA closure of the Oil Land Farm and Oil Retention Ponds at the Y-12 Plant. These soils were contaminated with hazardous, mixed, or radioactive wastes. Contaminants include organics, heavy metals, pesticides, PCBs, and radionuclides. The unit provides interim storage for excavation wastes pending scheduling of the soils for final treatment or disposal.

DARA Solids Storage Unit

The DARA Solids Storage Unit is located west of the main plant area on Bear Creek Road. A Gamewell box is located near the unloading pad adjacent to the DARA Solids Storage Unit at the DARA Liquid Storage and Treatment Unit. This Gamewell box is connected to the existing plant Gamewell Fire Alarm System and Plant Monitoring System. A telephone is available in the operator's trailer south of the DARA Liquid Storage and Treatment Unit, and two-way radios are also used to communicate with the PED office, if emergency assistance is needed. Eyewash/safety shower stations are available on the unloading pad at DARA Liquid Storage and Treatment Unit.

The DARA Solids Storage Unit provides storage for contaminated sediments and excavation wastes generated during closure of the Oil Retention Ponds. These sediments are contaminated with PCBs and volatile organic compounds. They will be stored in the unit until they can be scheduled for final treatment or disposal.

Interim Reactive Waste Treatment Area (IRWTA)

The IRWTA is located west of the main plant area on Bear Creek Road, and served by an auxiliary fire alarm pull box near the trailers at the closed Sanitary Landfill I. Two-way radios are used to provide communication with the PED office, if emergency assistance is needed. Portable eyewash systems are used during operation. In addition, the Y-12 Fire Department staff is at the unit during the treatment process to assist, if needed.

This interim unit was designed for the treatment of sodium potassium (NaK) generated during maintenance activities at the Y-12 Plant. The unit currently operates in accordance with an open burning permit. The IRWTA is used approximately once per year dependent upon the generation of NaK wastes. The Fire Department staff are present through the duration of the burn to ensure safe treatment of the NaK, which is water reactive. The Contingency Plan will also be implemented if an emergency arises. The NaK has a mineral oil layer which takes approximately seven hours to burn. The NaK itself will burn away in approximately 45 minutes. All wastes and equipment are removed from the treatment area when the burn is completed.

Building 9201-4, Container Storage Area

Building 9201-4 is located on First Street. Gamewell boxes are located within Building 9201-4 and connected to the existing plant Gamewell Fire Alarm System and the Plant Monitoring System. Two-way radios are used, and a telephone is available on the first floor in the southwest corner of the building for communication with the PED office, if emergency assistance is needed.

This unit is located within the exclusion area of the Y-12 Plant and is used to store mercury-contaminated solids such as soil or insulation in containers. Building 9201-4 provides container storage for drums of hazardous and mixed waste resulting from decontamination and decommissioning activities.

Building 9212 Container Storage Area

The Building 9212 Container Storage Area is located in Building 9212. Telephones are available in nearby supervisors' offices. Eyewash/safety showers are available at each location. Two-way radios are also used to communicate with the PED office, if emergency assistance is needed. Gamewell boxes are located throughout Building 9212. These Gamewell boxes are connected to the existing plant Gamewell Fire Alarm System and Plant Monitoring System.

This area is used to store organic solutions and residues awaiting recovery of enriched uranium. The solutions and residues are mixed wastes.

Building 9206 Container Storage Area

The Building 9206 Container Storage Area is located in Buildings 9206 and 9720-17. For areas

located in Building 9206, Gamewell boxes are located near Rooms 24 and 30. Eyewash and safety shower stations are also located in these rooms. For the area located in Building 9720-17, a Gamewell box and a telephone are located in the corridor outside the area. A telephone is available in Room 18 of Building 9206. Two-way radios are also available in these buildings for communication with the PED office, if emergency assistance is needed. Gamewell boxes are connected to the existing plant Gamewell Fire Alarm System and Plant Monitoring System.

Building 9206 is the other building at the Y-12 Plant used to store organic solutions and residues awaiting recovery of enriched uranium. The solutions and residues are mixed wastes.

Uranium Treatment Unit

The Uranium Treatment Unit is located near Building 9767-2. Eyewash/safety shower stations are available at this unit, and the nearest Gamewell box is located 75 feet north of the area on the East Dock between Doors 4 and 5. This Gamewell box is connected to the existing plant Gamewell Fire Alarm System and Plant Monitoring System. Two-way radios are used and a phone is available nearby in Building 9767-2 to communicate with the PED office, if emergency assistance is needed.

This unit no longer receives hazardous waste and the closure plan has been submitted for this unit. Approval and closure activities are pending.

RCRA and PCB Container Storage Area, Building 9720-58

Building 9720-58 is located on Old Bear Creek Road. Two Gamewell boxes are provided at the east and west sides of Building 9720-58 and connected to the existing plant Gamewell Fire Alarm System and the Plant Monitoring System. Telephones and two-way radios are also used by personnel to provide communication with the PED office, if emergency assistance is needed. A portable eyewash system is provided in the operation trailer adjacent to the unit. A safety shower/eyewash system is also provided at Unit OD-9 that is located directly west of Building 9720-58.

Building 9720-58 is utilized as a storage and staging area for PCB-contaminated equipment (e.g., transformer, capacitors, and electrical switch gear). The area is also used to store RCRA hazardous waste and used as a staging area for other waste materials awaiting off-site shipment. Waste is consolidated at this area until waste analysis and appropriate disposal arrangements can be initiated.

Building 9720-12 Classified Container Storage Area

The Building 9720-12 Classified Container Storage Area is located on West Second Street. The nearest Gamewell box is located in the northwest corner of Building 9720-12. This Gamewell box is connected to the existing plant Gamewell Fire Alarm System and Plant Monitoring System. Portable eyewash and safety shower stations are used. Two-way radios and telephones are used to communicate with the PED office if emergency assistance is needed.

Building 9720-12 is a storage unit for hazardous, nonhazardous, and mixed waste. Waste is stored at this building until waste analysis and appropriate recycling techniques can be arranged.

APPENDIX B

EMERGENCY and SPILL RESPONSE EQUIPMENT

Spill Response Equipment and Supplies

The Y-12 Plant Spill Response equipment, maintained by the Waste Management Division, is located in several mobile trailers, a response truck, and Building 9720-41 and contains supplies and equipment for the response team. Building 9720-41 stores the supplies to restock the mobile trailers and the response truck. Typically the mobile trailers contain absorbal, extra drums, shovels, brooms, and gloves. The response truck typically contains absorbal, diapers, flagging, shovel, broom, and several hand-held tools. The following is an indication of the typical contents of Building 9720-41:

Boots	Ladder
Suits	Reflector Vest
Gloves	Hand-held Tools (i.e., wrench, pliers, screwdrivers)
Flagging	Fire Extinguisher
Stakes	Hoses
Face Shields	Oil Skimmer Booms
Goggles	Ear Plugs
Flashlights	Generators
Caution Lights (flashing)	Lighting Systems
Shovels	Plastic Bags
Sledgehammer	Diapers
Brooms	Sample Bottles
Tape	Rope
Hose Clamps	Ax

Fire-Fighting and Medical Response Vehicles:

The Y-12 Plant Fire Department typically operates the following fire-fighting and medical response vehicles:

Fire Pumper No. 1

Fire Pumper No. 2

Fire Pumper Backup

Cardox Fire Fighting Truck

Emergency Rescue Truck

Fire Chief's Truck

Ambulance No. 1

Ambulance Backup

Emergency Spill Response Truck

Hazardous Material Truck

Command Vehicle

APPENDIX C
EXAMPLES OF EMERGENCY MUTUAL AID COORDINATION AGREEMENTS

Department of Energy

Field Office, Oak Ridge
P.O. Box 2001
Oak Ridge, Tennessee 37831—

January 11, 1994

Mr. Frank K. Martin, Director
Energy Systems Protective Services
Martin Marietta Energy Systems, Inc.
P. O. Box 2009
Oak Ridge, TN 37831-8107

Dear Frank,

MUTUAL AID AGREEMENT FOR EMERGENCY AMBULANCE SERVICE, EAST TENNESSEE REGION

Enclosed is a copy of the subject agreement which has been executed by the Oak Ridge Operations Office (ORO) and the Tennessee Department of Health. This is a progressive agreement which enhances the emergency medical response system throughout the sixteen county East Tennessee region.

The ORO Emergency Operations Center (EOC) will serve as the point of contact for the Regional Response Communications Center (RRCC) for requests to ORO for support from Martin Marietta Energy Systems under the agreement. Based upon conversations with your staff, the Y-12 Plant Shift Superintendent (PSS) will serve as the point of contact for the ORO EOC for requests for the Energy Systems Oak Ridge facilities to provide support under the agreement. Likewise, the Y-12 PSS will coordinate any requests from Energy Systems for support for the Oak Ridge facilities and forward such requests to the RRCC through the ORO EOC.

This letter constitutes advance authorization for offsite response of Energy Systems emergency medical resources under the provisions of this Mutual Aid Agreement when such requests are received by the Y-12 PSS from the ORO EOC.

Also enclosed is a copy of the East Tennessee Medical Regional Understanding for the Activation of Mutual Aid. This document should be used as guidance in your preparation of implementing procedures for this agreement. Please ensure that your procedures provide for periodic updates to the ORO EOC concerning any activities being conducted offsite and notification to the ORO EOC of termination of such activities.

Frank K. Martin

- 2 -

January 11, 1994

As with other mutual aid agreements, the decision to offer units for offsite response should be predicated upon consideration of facilities' conditions at the time and the maintenance of an appropriate reduced level of response capability for the Oak Ridge facilities.

Questions may be addressed to Bobby Davis of my staff at 6-9725. Your support is appreciated.

Sincerely,

R. R. Nelson
Acting Assistant Manager
for Defense Programs

Enclosures

cc: w/encs.

Ron Hultgren, ER-10

John Rothrock, SE-33

Bill Phelps, DP-82

Karen Edwards, AD-440

Tom Tison, EW-96

Bob Spence, DP-81

MUTUAL AID AGREEMENT FOR EMERGENCY AMBULANCE SERVICE

EAST TENNESSEE REGION

THIS AGREEMENT entered into and executed this 1st day of October 1993 between the U.S. Department of Energy (DOE), Oak Ridge Operations Office and Licensed Ambulance Service (County or Private) to provide for the joint operations of Emergency Ambulance Service within the geographical boundaries of the 16 county East Tennessee Region.

WHEREAS, pursuant to the provisions of Tennessee Code Annotated (T.C.A.) 7-61-102, a county is authorized to provide ambulance services as a public service; and,

WHEREAS, T.C.A. 7-61-104(b), authorizes cooperation between cities and counties for the provision of ambulance services and T.C.A. 12-9-101, et seq., same being the "Interlocal Cooperation Act" provides legal authority for the parties to cooperate on the basis of mutual advantage to provide Emergency Ambulance Services in facilities for the needs and development of local communities; and further the Atomic Energy Act, 42 United States Code (U.S.C.) 2011 et seq., the Department of Energy Organization Act, 42 U.S.C. 7101 et seq., and the Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121 et seq., provide further authority for the DOE to enter into this agreement;

WHEREAS, it is necessary and desirable that an agreement be executed authorizing the interchange of such Emergency Ambulance Service between the parties.

NOW, THEREFORE, IN CONSIDERATION OF THE MUTUAL PROMISES AND CONDITIONS CONTAINED HEREIN, THE PARTIES AGREE AS FOLLOWS:

1. Duration of Agreement

- A. This agreement shall be effective as to each party when it has been approved by the governing bodies of the licensed ambulance services and shall continue to be effective for five (5) years from that date or until termination. The agreement may be terminated by any party by giving the other parties 30 days written notice.
- B. Termination of this agreement may be effected by the governing body of each party adopted with the same formality as at the parties original approval of this agreement; provided that no such termination shall be effective until the expiration of 30 days after termination by either governing body. All the rights, remedies, and obligations of the parties will remain in effect until such 30 days expire.
- C. The DOE will not be required to provide 30 days written notice if DOE determines that the department's mission or other national security matters make termination necessary.

2. Services Provided

Each party agrees that its emergency services and resources will be available to answer emergency calls within the jurisdiction of the other

in order to provide adequate and timely Emergency Ambulance Service in accordance with the policies and procedures as provided in Paragraph 4; provided, however, that no party to this agreement shall be required to make resources available or render service to any other party when by providing such services an unreasonable danger to lives or property of that party's residence or employees would result. The responsible persons designated by the governing bodies of each ambulance service or the service director for either party shall determine what resources and services can be reasonably provided this agreement. Neither party will be required to obtain additional resources of any nature to carry out this agreement.

3. Emergencies

Upon request by any of the parties and upon notification of an emergency occurring within the jurisdiction serviced by either party, the county or service may enter into the geographical boundaries of the other party to offer and render such Emergency Ambulance Service as either party deems appropriate under the circumstances. The county or service may provide such equipment and personnel of their ambulance service as it deems appropriate under the particular circumstances. An emergency occurrence as defined by this agreement consists of a situation beyond the normal and routine services being provided on a regular basis by the responsible agency so that local resources are overwhelmed. This agreement in no situation releases either party from having available resources in order to fulfill day-to-day obligations being incurred by that party routinely.

When a party responds to an emergency within the geographical boundaries of one of the other parties as contemplated by this agreement, the responding party may, but is not obligated to, charge a fee for services it deems necessary. Such fee would not be charged to the party requesting assistance but to the individual(s) transported by the responding party.

4. Policies and Procedures

The governing bodies of each licensed ambulance service do by this agreement authorize the county executive, mayor, ambulance service director, or their designee to establish the necessary policies and procedures to be followed in requesting and responding to requests for assistance provided such are authorized by applicable state or federal law, the ambulance service agreement if applicable and the mutual aid agreement.

5. Authority for Responding Personnel

- A. In all occasions where emergency ambulance personnel travel from their geographical boundaries to that of another the jurisdiction, authority, rights, privileges, and immunities which they have in their jurisdiction shall extend to and be available to them in the geographical area they respond to.
- B. The senior officer of the Emergency Ambulance Service, or his or her designee within his jurisdiction on the scene of an emergency shall be

in command of the emergency as to strategy, tactics, and overall direction of the operation. Additional resources from outside the East Tennessee Region; i.e., ambulance, air ambulances, hospital bed count, etc., will be coordinated by the Regional EMS Director.

All orders or directions regarding the operations of the party and the jurisdiction of the other party shall be relayed to the senior officer in command of the party acting outside its jurisdiction provided, however, that neither this agreement or any agreements executed contemporaneous herewith shall be construed as creating a duty on the part of any party to stay at the scene of the emergency except as may be decided by the senior officer of that party.

C. Either party may depart the scene of the emergency at any time the senior officer of that party deems it appropriate at which time the senior officer of the other party shall be in complete command.

D. The Regional Resource Coordination Center will be used to coordinate communications with responding parties.

6. Liability

At any time a party requests the aid of another party, the requesting party shall not be liable for damages to the equipment or personnel of the responding party. Neither shall the requesting party, its officers, agents, or employees be liable for any damages caused by negligence of the

personnel of the responding party while en route to or returning from the scene of an emergency.

7. Waiver of Claims

Each party hereby waives any and all claims against the other party for any costs, losses, damages, personal injuries, or wrongful death arising out of the operations of this agreement or for any loss or damage to their respective employees and property which may occur in the performance or nonperformance of this agreement. Each party will be responsible for furnishing its own equipment and personnel and shall be responsible for all expenses necessary for their operation.

8. Limits of Liability

This agreement is construed by the parties to be a function of the local governments to the extent that liability arises out of the performance of this agreement. Ambulance services under government control will avail themselves of the protection of the Tennessee Governmental Tort Liability Act as found in T.C.A. 19-20-101, et seq.

9. Entire Agreement

This agreement contains the entire agreement between the parties. Should a court of competent jurisdiction declare any provision of this agreement to be null and void or unenforceable, such provision shall be stricken but

such determination shall not affect the validity of the remaining portions
of this agreement.

U. S. DEPARTMENT OF ENERGY

Joe La Grone
Manager

10-1-93
Date

TENNESSEE DEPARTMENT OF HEALTH
EAST TENNESSEE REGION

Larry Hutse
Regional Emergency Medical Services Director

9-21-93
Date

APPENDIX F

LETTERS OF AGREEMENT/MEMORANDUMS OF UNDERSTANDING

A local law enforcement mutual agreement has been made between the City of Oak Ridge and DOE. This letter can be accessed through the City of Oak Ridge.

M E M O R A N D U M

TO: Honorable Mayor and
Members of City Council

FROM: M. Lyla Lacy, III
City Manager

DATE: November 3, 1983

SUBJECT: SUPPLEMENTAL AGREEMENT WITH THE DEPARTMENT
OF ENERGY FOR MUTUAL AID FIRE PROTECTION

The attached Resolution authorizes the City of Oak Ridge to enter into a Supplement Agreement to the existing mutual aid agreement with the Department of Energy.

This nation's experience with large scale disasters has focused attention on the importance of formulating plans and organizational procedures for systematically mobilizing regional fire forces. Experience in major disasters has shown that for successful disaster operations, it is imperative that such plans be incorporated into each participating fire department's normal organizational procedures. To cope with large scale disasters, many localities and states have adopted laws which permit formal mutual aid agreements.

The concept of mutual aid in the provision of emergency services is based on the establishment of a prearranged plan or agreement wherein two or more authorities agree to provide assistance to each other. It is a relationship in which each participant stands prepared to render assistance to other parties in the event that an emergency occurs of a magnitude beyond the individual members' response capabilities. Mutual aid plans may encompass the following functions: supplemental coverage when the manpower and equipment of the requesting department are responding to an emergency and are engaged to such an extent that its ability to furnish adequate protection for subsequent alarms has been dangerously reduced; provision of additional units to assist at major fires or emergencies that might exceed the requesting department's capabilities; and provision of specialized types of firefighting equipment not possessed by the requesting department. Typically, parties to mutual aid plans limit such assistance so that their own jurisdictions remain adequately protected.

From as early as 1960, mutual aid fire protection agreements have existed between the City and the various federal agencies responsible for operation of the government plants and laboratory in Oak Ridge. The last of these agreements, executed on May 3, 1976 between the United States Energy

IV-F-1

Draft Interim Plan. 3/87

Research and Development Administration, is still in force. Since then, federal legislation has been passed (Public Law 498, 93rd Congress) which provides for the filing of claims with the United States Fire Administration to recover the amount of direct losses and expenses incurred by municipalities as a result of fighting fires on federal property under such mutual aid agreements. These changes and developments have created the need to update the existing May 3, 1976 mutual aid agreement through the execution of this supplement.

Approval of the attached Resolution is recommended.

M. Lyle Lacy, III

mf

Attachment

RESOLUTION

WHEREAS, the City of Oak Ridge and the Department of Energy desire to enter into a Supplemental Agreement to furnish assistance in fighting fires, and

WHEREAS, City Ordinance No. 39-60, dated July 17, 1960, authorized the Mayor of the City of Oak Ridge to execute an agreement entitled "Mutual Aid Fire Protection Agreement" between the City and the United States Atomic Energy Commission, and

WHEREAS, Chapter 223, Public Acts of 1957 (Section 6-54-601 et seq., Tennessee Code Annotated) authorizes municipalities of the State of Tennessee to enter into contracts to furnish mutual aid assistance in fighting fires, and

WHEREAS, it is in the best interest of the City of Oak Ridge to execute the same.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCILMEN OF THE CITY OF OAK RIDGE, TENNESSEE:

That the City of Oak Ridge enter into the Supplemental Agreement to the existing mutual aid agreement with the Department of Energy.

BE IT FURTHER RESOLVED that the Mayor is authorized to execute all documents necessary to accomplish the same.

This the 7th day of November 1983.

APPROVED AS TO FORM
AND LEGALITY:

William E. Spentz
City Attorney

Mayor

City Clerk

MUTUAL AID FIRE PROTECTION AGREEMENT

THIS AGREEMENT entered into this 4th day of JUNE, 1985, by and among the City of Oak Ridge; the Town of Oliver Springs; Anderson County Volunteer Fire Department, Marlow Unit; and the Karns Volunteer Fire Department.

WHEREAS, Section 6-54-601 and Sections 12-9-108 of Tennessee Code Annotated authorize the parties to this Agreement in this state to enter into a mutual firefighting assistance agreement; and

WHEREAS, the parties hereto desire to avail themselves of the authority conferred by this law; and

WHEREAS, the purpose of this Agreement is to provide each of the parties, through their mutual cooperation, a predetermined plan by which each render aid to the other in case of emergency which demands fire protection services to a degree beyond the existing capabilities of either party; and

WHEREAS, it is deemed to be in the public interest for the parties hereto to enter into an agreement for mutual assistance in fire protection and in order to increase fire defenses and to ensure fire control, as well as to provide necessary reserves for adequate community protection;

NOW THEREFORE, in consideration of the mutual covenants contained herein by and between the parties hereto, it is hereby agreed as follows:

1. The parties, in accordance with the provisions hereof, will respond to calls for fire protection assistance upon request for such assistance made by the senior fire official on duty, or the Chief of the Fire Department of the requesting party, hereinafter referred to as "Requester." All requests shall be made to the Fire Chief or senior fire official on duty of the responding party, hereinafter referred to as "Responder." Assistance shall be rendered according to the procedures established in operational plans to be developed and agreed to by the individual parties, and in accordance with the provisions hereof.

2. Upon receipt of a request for assistance by the senior fire official on duty from the requesting party (Requester), and upon a determination by the senior fire official on duty of the responding party (Responder) that assistance may be given without impairing the capacity to provide fire protection within its own jurisdiction, the Responder may furnish such apparatus, staff and assistance to the Requester as deemed appropriate by Responder. Any response shall be made at the sole discretion of the Responder. Assistance shall be rendered according to the procedures established in the operational plan developed and agreed to by all parties to this Agreement and the provisions hereof.

3. A request for aid as provided in Paragraph 1 shall be minimally for one fire truck and two Firefighters. The maximum response shall be 50 percent of the available personnel and resources of the Responder.

4. No party to this Agreement shall be required hereunder to dispatch apparatus, equipment or personnel to the assistance of any other but every effort should be made to furnish such assistance if, in the sole discretion of the Responder, such dispatch would not impose upon its community a serious impairment to its fire defenses and fire protection.

5. If the Responder determines no assistance can be rendered, or if an emergency occurs in the jurisdiction of the Responder in the course of responding to a request under this Agreement, and the Responder determines, that it cannot provide the minimal response under this Agreement, the Responder shall inform the Requester of this decision immediately or as soon thereafter as possible.

In the event two or more requests for mutual aid assistance are made at the same time which would preclude provision of the minimum request under this Agreement by the Responder, the Responder shall determine, in its sole discretion, how to respond to the requests including the discretion to send all available resources under this Agreement to the jurisdiction which is considered by the Responder to have the most serious emergency, or by deploying resources to each requesting jurisdiction. The Responder shall immediately or as soon thereafter as possible inform the Requesters of the decision.

6. The respective jurisdictions may recall at any time equipment and/or personnel dispatched to any other when, in the sole opinion of the Responder, protection needs in the area from which the equipment and personnel were dispatched so require.

7. Each of the parties to this Agreement agrees, upon request of the appropriate officials as set out in Paragraph 1 of this Agreement, to maintain their departments in readiness to answer fire calls in the other jurisdictions when one of the jurisdictions is rendering firefighting assistance to another jurisdiction in response to an assistance request from such other jurisdiction pursuant to this Agreement.

8. The Responder shall only dispatch personnel that are responsible and properly trained, and the conduct and actions of said personnel shall be the responsibility of the Responder.

9. The services performed and expenditures made under this Agreement are to be made solely for public and governmental purposes.

10. Any personnel shall only be utilized in the course and scope of their employment. Such personnel shall be and remain under the direct and immediate control of the senior firefighting officer dispatched with such personnel, and such officer shall ultimately direct and control or approve the utilization of such personnel. Such personnel shall in no case be deemed employees or agents of, nor loaned servants to the Requester.

11. When assistance is rendered pursuant to this Agreement by a party hereto outside of its jurisdiction, such party, governmental entity, agency, and personnel shall enjoy, maintain, and have available, all rights, privileges and immunities provided by law.

12. Each party to this Agreement jointly and severally hereby release, remise, and forever discharge each and every other party hereto from any and all actions, causes of action, suits, claims, damages, costs, and expenses whatsoever in law or in equity which now exist or which may hereafter arise by reason of any matter, cause, thing, action, or inaction under, pursuant to, or in accordance with this Agreement.

13. All parties hereto agree to assume and pay all costs and expenses incurred for their own personnel and equipment in responding to a request for assistance and no such charges shall be made or assessed to any Requesting Party hereunder, provided, however, the Requesting Party, Paragraph 12 notwithstanding, agrees and shall pay the cost for any special chemicals used by the Responding Party from its own supply. Such costs shall be paid promptly on presentation of an itemized statement.

14. Each party to this Agreement shall assume all costs of salaries, wages, bonuses or other compensation for its own personnel who respond for duty under the terms of this Agreement and shall assume all costs involving the use of apparatus, equipment and tools used specifically in response to the request for aid and shall make no charge for such use to the party requesting assistance; provided, however, any special chemicals used by the responding party from its own supply shall be paid for by the party requesting the aid upon receipt of an itemized statement of costs for such chemicals.

15. Equipment and personnel dispatched by the Responder in response to a request will operate under the immediate supervision and control of the senior firefighting official in charge of the dispatched equipment and personnel, but under the general direction of the senior firefighting official of the Requester at the scene of the fire.

16. It is agreed by the parties to this Agreement that no requests will be made, nor any assistance rendered, for fires occurring outside the jurisdictional limits of the Requester.

17. It is further understood by the parties to this Agreement that no assistance will be rendered in cases of civil disorder, or riots, except that assistance will be rendered in cases of major conflagrations during a firefighters' strike where the safety and lives of citizens are in imminent peril.

18. This Agreement shall be valid only when it is executed by the Chief Executive Officer of the respective parties pursuant to the authority duly granted by the governing bodies of such parties.

19. This Agreement supersedes and replaces any and all mutual aid agreements previously entered into among the parties hereto and shall remain in effect until terminated by all parties hereto in the form of written notice setting forth the date of termination. Any one party hereto may withdraw from this Agreement and terminate it with regard to that party. Such withdrawal shall be made by 30 days written notice to all other parties, but such notice shall not terminate the Agreement among the remaining parties.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first above written.

Approved as to Form
and Legality

William E. Lantry
City Attorney

CITY OF OAK RIDGE

By: Ray J. Pruitt
Mayor

Attest: Joseph J. Bernick
City Clerk

TOWN OF OLIVER SPRINGS

By: Keith J. Janssen
Mayor

Attest: Chester J. Janssen

ANDERSON COUNTY VOLUNTEER FIRE
DEPARTMENT, MARLOW UNIT

By: Charles E. H. Wilson
CHAIRMAN OF TRUSTEES

Attest: _____
ADMINISTRATIVE OFFICER

KARNS VOLUNTEER FIRE DEPARTMENT

By: Vigil R. Hubbard
PRESIDENT

Attest: _____

***During an
Emergency Evacuation,
Go to Assembly Station 10***

- ① 9401-5
- ② 9722
- ③ 9720-14
- ④ 9720-51
- ⑤ 9720-18

Figure 5

OD-7

EVACUATION ROUTE

Emergency Evacuation, Go to Assembly Station 18

F

G

Figure 7

OD-10
EVACUATION ROUTE

OAK RIDGE Y-12 PLANT

WASTE UNIT

IDENTIFICATION KEY

APPLICATION EPA

LINE PROCESS CODE DESCRIPTION

1.....	T04.....	CYANIDE TREATMENT UNIT S01
2.....	S01.....	INTERIM DRUM YARD
3.....	S01.....	BUILDING 9720-9 STORAGE UNIT
4.....	S01.....	RCRA & MIXED WASTE STORAGE & STAGING BUILDING 9720-31
5.....	S02.....	BUILDING 9811-1 RCRA TANK STORAGE UNIT
6.....	S01.....	BUILDING 9811-1 RCRA CONTAINER STORAGE UNIT
7.....	S02.....	WASTE OIL/SOLVENT STORAGE UNIT S01
8.....	S02.....	LIQ. ORGANIC SOLVENT STOR. UNIT S01
9.....	S03.....	EAST CHESTNUT RIDGE WASTE PILE
10.....	S01.....	CONTAINERIZED WASTE STORAGE AREA
11.....	S01.....	CLASSIFIED CONTAINER STORAGE UNIT BUILDING 9720-25
12.....	S03.....	OIL LANDFARM SOILS CONTAINMT. PAD
13.....	S03.....	DISPOSAL AREA REMEDIAL ACTION (DARA) SOLIDS STORAGE UNIT
14.....	T01.....	URANIUM TREATMENT UNIT S01
15.....	T04.....	INTERIM REACTIVE WASTE TREATMT AREA
16.....	S01.....	BUILDING 9720-12 CLASSIFIED CONTAINER STORAGE AREA
17.....	S01.....	RCRA AND PCB CONTAINER STORAGE AREA, BUILDING 9720-58

ANT

KEY

EA
T

AREA

- 6.....S01.....BUILDING 9201 RCRA
CONTAINER STORAGE UNIT
- 7.....S02.....WASTE OIL/SOLVENT STORAGE UNIT
S01
- 8.....S02.....LIQ. ORGANIC SOLVENT STOR. UNIT
S01
- 9.....S03.....EAST CHESTNUT RIDGE WASTE PILE
- 10.....S01.....CONTAINERIZED WASTE STORAGE AREA
- 11.....S01.....CLASSIFIED CONTAINER STORAGE UNIT
BUILDING 9720-25
- 12.....S03.....OIL LANDFARM SOILS CONTAINMT. PAD
- 13.....S03.....DISPOSAL AREA REMEDIAL ACTION
(DARA) SOLIDS STORAGE UNIT
- 14.....T01.....URANIUM TREATMENT UNIT
S01
- 15.....T04.....INTERIM REACTIVE WASTE TREATMT AREA
- 16.....S01.....BUILDING 9720-12 CLASSIFIED
CONTAINER STORAGE AREA
- 17.....S01.....RCRA AND PCB CONTAINER
STORAGE AREA, BUILDING 9720-58
- 18.....S01.....BUILDING 9201-4 CONTAINER
STORAGE AREA
- 19.....S01.....BUILDING 9206 CONTAINER STORAGE AREA
- 20.....S01.....BUILDING 9212 CONTAINER STORAGE AREA
- 21.....S02.....BLDG 9409-5 STORAGE UNIT
- 22.....S01.....BLDG 9720-32 PRODUCTION WASTE
STORAGE UNIT (FUTURE)
- 23.....S01.....BLDG 9720-59 CLASSIFIED WASTE
STORAGE UNIT (FUTURE)

MARTIN MARIETTA

Y-12 PLANT RCRA WASTE UNIT LOCATIONS

0 400 800 1600
SCALE FEET

C2E900000A793

(REV 0)

PREPARED BY PES GEODATA GROUP

03/01/95

OLD DWG • PES/216/100992 REV 2

DECLINATION OF GRID 34° 25' W OF TRUE
1967 MAGNETIC NORTH DECLINATION AT CENTER

AREA
UNIT

D

AREA

AREA
AREA

32500
50000

G

52000

Y-12 PLANT WEST END

31500

30500

29500

BEAR CREEK ROAD

20A

20

PORTAL 17

OLD BEAR CREEK RD

21

22

20

5

1000
FEET

RIDGE Y-12 PLANT

56000

D

58000

B

B

62000

A

64000

AA

64000

66000

32500

1

31500

2

30500

3

29500

4

SCARBORO

Y-12 PLANT SIGN

ROAD

LAKE
REALITY

SECOND ST

PORTAL 13

23

9720-49

THE GRID AND COORDINATES AS SHOWN
REPRESENT THE Y-12 PLANT GRID SYSTEM

EXCLUSION AREA

PROTECTED AREA

PIDAS FENCING

RESERVOIRS

GUARD TOWERS

ASSEMBLY STATIONS

GUARD PORTALS

VEHICULAR CHECK POINTS

23

Y-12 PLANT SIGN

ROAD

3

29500

LAKE
REALITY

SECOND ST

4

PORTAL 13

28500

5

27500

REV 0

MARTIN MARIETTA

ENERGY SYSTEMS, INC.

05/22/95

OPERATED FOR THE DEPARTMENT OF ENERGY UNDER U.S. GOVERNMENT CONTRACT DE-AC-05-840
OAK RIDGE, TENNESSEE PADUCAH, KENTUCKY

1600

FEET

Y-12 PLANT EMERGENCY FACILITIES DIRECTORY

Y-12 PLANT

BEAR CREEK BURIAL GROUNDS

LEGEND

- ① DARA SOLIDS STORAGE UNIT
- ② DARA LIQUID STORAGE & TREATMENT UNIT
- ③ INTERIM REACTIVE WASTE TREATMENT AREA
- ④ OIL LANDFARM SOILS CONTAINMENT PAD
- ⑤ LIQUID ORGANIC SOLVENT STORAGE UNIT

DEPARTMENT

1000

PINE

RIDGE

4

5

METER
TOWER

BONEYARD
BURNYARD

1

VALLEY

SOUTH H
GOLF CO

OF

ENE

METEOROLOGICAL
TOWER

PUMPING
STATION

S3 POND
CLOSURE

AO

SOUTH HILLS
GOLF COURSE

OF

ENERGY

PUMPING
STATION

S3 POND
CLOSURE

9525

9400

9531

9720-22

9204-4

9703-14

9703-15

9703-16

9703-23

- ① DARA SOLIDS STORAGE UNIT
- ② DARA LIQUID STORAGE & TREATMENT UNIT
- ③ INTERIM REACTIVE WASTE TREATMENT AREA
- ④ OIL LANDFARM SOILS CONTAINMENT PAD
- ⑤ LIQUID ORGANIC SOLVENT STORAGE UNIT

● GAMEWELL BOX LOCATIONS

▲ ACCESS CONTROL GATES

— DOE 229 BOUNDARY

MARTIN MARIETTA

Y-12 PLANT WASTE UNITS

C2E9000000A968

REV 0

PREPARED BY CV/GIS GROUP / MJW

05/18/95

PINE

MIDDLE

4

5

BONEYARD
BURNYARD

VALLEY

GROUND

CREEK

CHEMICAL
STORAGE
AREA

WEST END
MANAGEMENT

WALKER BRANCH
WATERSHED
RESEARCH AREA

PUMPING
STATION

METEOROLOGICAL
TOWER

S3 POND
CLOSURE

WEST END ENVIRONMENTAL
MANAGEMENT AREA

VALLEY

5

CH
EA

PUMPING
STATION

S3 POND
CLOSURE

9620

9420

9831

9703-14

9703-16

9720-28

9720-25

9720-33

9720-32

9720-32

9204-4

OAK RIDGE Y-12 PLANT EVACUATION ROUTES

LEGEND

BEAR CREEK ROAD

SCARBORO ROAD

▤ TYPICAL EVACUATION ROUTE

— 229 SITE BOUNDARY

WALKER BRANCH WATER
RESEARCH AREA

LEGEND

BEAR CREEK ROAD

SCARBORO ROAD

➤ TYPICAL EVACUATION ROUTE

— 229 SITE BOUNDARY

— DOE RESERVATION BOUNDARY

— ANDERSON/ROANE COUNTY LINE

MARTIN MARIETTA

ENERGY SYSTEMS, INC.

Y-12 PLANT EVACUATION ROUTES

0 400 800 1600
SCALE FEET

C2E900000A967

REV 0

PREPARED BY CV/GIS GROUP / MJW

05/15/95

OLD DWG • CV/GIS/496/041694 REV 0

External Distribution:

Mr. Mack Bailey
Fire Department Chief
City of Oak Ridge
Post Office Box 1
Oak Ridge, Tennessee 37831

Mr. David Bolling
Anderson County Executive
100 North Main Street
Clinton, Tennessee 37716

Mr. Timothy Braaten
Chief of Police
City of Oak Ridge
Post Office Box 1
Oak Ridge, Tennessee 37831

Mr. Wayne Britt
University of Tennessee Lifestar
1924 Alcoa Highway, Box 103
Knoxville, Tennessee 37920

Mr. Jeff Broughton
City Manager
City of Oak Ridge
Post Office Box 1
Oak Ridge, Tennessee 37831

Mr. Arnold Clower
Roane County Sheriff
100 Race Street
Kingston, Tennessee 37763

Mr. Kenneth Fritts
Anderson County Local Emergency Planning Committee
Route 2, Box 980
Heiskell, Tennessee 37754

Mr. David L. Hatton
Chief, Volunteer Fire Department
Anderson County Marlow Unit
Route 8, Box 410
Clinton, Tennessee 37716

Mr. Virgil Hubbard
Chief, Karns Volunteer Fire Department
Post Office Box 7184
Knoxville, Tennessee 37921

Ms. Lacy Suiter
Tennessee Emergency Management Agency
State Emergency Operations Center
3041 Sideo Drive
Nashville, Tennessee 37204-1502

Mr. Lloyd Terry
Loudon County Local Emergency Planning Committee
Post Office Box 312
Loudon, Tennessee 37774

Mr. Ken Yeager
Roane County Local Emergency Planning Committee
Post Office Box 43
Rockwood, Tennessee 37854

SECTION H PERSONNEL TRAINING

H-1 OUTLINE OF TRAINING PROGRAM

The information contained in this section of the permit application outlines the training programs for personnel at the Y-12 Plant who are directly involved with the operation of hazardous waste management units in accordance with the requirements of 40 CFR Parts 264 and 270, and Rules 1200-1-11-.07 and -.06 of the Rules Governing Hazardous Waste Management in Tennessee.

H-1a Job Titles and Tasks

Responsibility involving compliance with RCRA resides with the responsible department head and/or supervisor for each unit. The Staff Engineer for each unit provides technical support and project management related to the physical aspects and compliance requirements of the unit. Sampling, verification of waste streams, documentation, and quality control regarding storage and management procedures is the responsibility of the operating organizations of the Buildings 9206, 9212, and 9720-12 Container Storage Areas and the operating organization of the Cyanide Treatment Unit. Actual handling of wastes and movement of wastes into and out of the building is performed by trained operators working at the specific units. The job titles, tasks, and task descriptions for each position are presented in Appendix H-1. The minimum information provided in the job descriptions are as follows:

- Position title,
- Basic function of position,
- Major environmental duties and responsibilities, and
- Formal education required.

H-1b Training Content, Frequency, and Techniques

The workers receive documented performance-based training and job-specific training.

Performance-based training programs are established to qualify, verify, and document training of workers in generic, area specific, and on-the job training. Training techniques include but are not limited to classroom, on-the-job, and required reading materials. The Y-12 Plant Administrative Procedures exist which delineate training responsibilities and structures within the Y-12 Plant. The frequency of the course training is presented in

Appendix H-1.

Basic Training: The basic training program includes, but is not limited to, the following subject areas:

- Hazwoper Basic 24 Hour Training for Hazardous Waste Operations Personnel. Initial training must be completed within six months of job assignment. This program is designated to inform workers of the chemical and physical hazards that may be encountered during hazardous waste operations, how to control and minimize those hazards, personal protective measures, and correct response to incidental spills. Recertification interval: None.
- Hazwoper Basic 8 Hour Annual Refresher for Hazardous Waste Operations Personnel. This program is designed to provide refresher training to workers who have completed the basic 24 hour training program. Recertification interval: 12 months.
- Hazwoper Training for Managers and Supervisors. This eight hour course included topics such as selection of personal protective clothing and equipment, SARA Title III: Emergency Response and Community Right-to-Know, and legal aspects of supervising Waste Operations. Recertification Interval: None.
- Hazard Communication Training--Level I. This program makes every employee aware that hazardous chemicals are present in the workplace and how to understand the function of warning labels and signs, Material Safety Data Sheets, and hazard communication written programs. Recertification Interval: None.
- RCRA Training. This program presents the basic requirements for compliance with RCRA and includes proper hazardous waste management and documentation. Recertification Interval: Annually.
- Radiological Protection. This program includes instruction in radiological fundamentals, biological effects, radiation limits, the ALARA program, personnel monitoring programs, radioactive contamination control, radiological postings, and control, radiological emergencies, and practical factors. Recertification Interval: 24 months.

- **Criticality Safety.** This program reviews the fundamentals of nuclear criticality safety and informs participants of the hazards associated with fissile materials. Recertification Interval: Biennially.
- **Respiratory Protection.** This program demonstrates the basic respiratory device used and gives the user an opportunity to learn how to don and doff a respirator, inspect a respirator and cartridge, and provides an overview of the standards and procedures governing the use of respirators. Recertification Interval: Annually.
- **Fire Protection.** This program includes instruction in the selection and use of fire extinguishers for all types of fires. Recertification Interval: None.
- **Emergency Preparedness.** This program covers the procedures to follow during emergencies. Recertification Interval: Annually.
- **General Employee Training.** This program is for general plant access and is comprised of these modules - General topics, hazard communications, and radiological training. Recertification Interval: Biennially.

Job Qualification: Currently, on-the-job training (OJT) of operators is conducted under the direct supervision of the operations supervisor or other qualified personnel. This training includes operational and job safety requirements. However, in order to improve, formalize, and document the required OJT, the job task analysis for each of these facilities has been completed. Based on this job task analysis and specific safety requirements for each facility, lesson plans for OJT will be completed. At the completion of training, a formal test is given. The test may be written and/or oral, depending upon the nature of work being conducted at the facility. In addition to the written and/or oral examination, the operator will be required to demonstrate his proficiency in the required tasks. Failure of the test requires the technician/laborer to undergo further training. Though the lesson plans will be specifically directed at the proper operation of the facilities, general topics to be included as applicable are: (1) conducting routine checks and inspections, (2) job-specific personal protective equipment training, and (3) maintaining records and data.

Emergency Preparedness: The training program is designed to ensure that personnel not only handle hazardous wastes in a safe manner, but also properly respond to emergency situations. The program trains hazardous waste handling/management personnel to maintain

compliance under both normal operating conditions and emergency conditions.

Training elements addressing non-routine and emergency situations (unscheduled shutdowns and startups related to storms, power outages, fires, explosions, spills) as applicable include:

1. Contingency Plan requirements and implementation,
2. Procedures for locating, using, inspecting, repairing, and replacing facility emergency and monitoring equipment, including personal safety, fire control, and spill control equipment and alarm and communication systems,
3. Response to fires or explosions,
4. Response to incidents and procedures for containing, controlling, and mitigating spills, and any surface or groundwater contamination,
5. Shutdown of operations, power failure procedures and any other emergency operating procedures, and
6. Procedures for evacuation of nearby areas.

In addition to the hazardous waste management personnel, a plant emergency squad is on duty for response to all fires and other general plant emergencies. This emergency squad is trained with classroom training methods and fire drills. The classroom training is required for introductory training and as an annual review for each member of the squad.

Training Records Review: The Facility Supervisor or other qualified individual assigned to the units performs a review of the training records for the division on a periodic basis.

H-1c Training Director

The personnel training program is directed by a Divisional Training Manager who is familiar with plant operations, facility design, and operating procedures. This manager is required to have a minimum of a bachelors degree or equivalent education and/or experience and process knowledge, and demonstrated knowledge of instructional system design and technology. The Training Coordinators and the OJT Trainers who perform the training matrix to the Training Manager. The qualifications required for these positions are included

in the job descriptions found in Appendix H-1.

H-1d Relevance of Training to Job Position

The training program is designed in some areas to provide training to personnel at levels that are relevant to their positions within the plant. Operators are more specifically trained to maintain proper and safe operating procedures and to respond effectively in the event of a spill or other emergency. The completed job task analysis for each of these four units will be utilized to update and improve the existing training as applicable in order to continue to make the training more relevant to the specific job position being trained.

H-2 IMPLEMENTATION AND DOCUMENTATION OF TRAINING PROGRAM

H-2a Implementation

All personnel must complete initial training within six months from their date of assignment to a hazardous waste management job. No employee assigned to perform a hazardous waste management job works unsupervised prior to completion of the training program.

H-2b Recordkeeping

Please see Section J, Recordkeeping, for information.

SECTION I

CLOSURE PLAN, POST CLOSURE PLAN, AND FINANCIAL REQUIREMENTS

I-1 CLOSURE PLANS

This closure plan has been prepared for the Buildings 9206, 9212 and 9720-12 Container Storage Areas, and the Cyanide Treatment Unit at the Y-12 Plant. These units will be considered active units and operated in compliance with all applicable requirements for active units (including inspections, fire prevention, etc.) until closure activities are initiated. Complete facility descriptions are provided in Section B, Facility Description.

The Oak Ridge Y-12 Plant is located in Anderson County and is co-operated and managed by Lockheed Martin Energy Systems Inc., personnel for the DOE. The EPA identification number for the Y-12 Plant is TN3 89-009-0001.

If changes occur in the operating plans or unit design that may affect the closure plan, it will be amended. Amendments to the closure plan may also be necessary if: (1) new technologies are developed, (2) changes occur in operating requirements or contingencies, and (3) changes occur in the land-use patterns around the site.

I-1a Closure Performance Standard

This closure plan is designed to ensure that, after closure, the unit will not require further maintenance and controls; to minimize or eliminate threats to human health or the environment; and to avoid the escape of hazardous wastes, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to ground or surface waters, or to the atmosphere.

This standard will be accomplished through the removal of all RCRA hazardous wastes stored in containers at the units. These wastes will be transferred to an appropriately permitted facility for storage, treatment, or disposal. In addition, to minimize residual contamination on-site, the storage or treatment building area and appurtenances will be cleaned until the facility has been satisfactorily decontaminated.

Efforts to be made to satisfy closure requirements are presented in the following sections.

I-1b Partial Closure and Final Closure Activities

Partial closure for the units in this application is not anticipated. If it becomes necessary to

partially close any of the units described in this permit application, the procedures described in Section I-1e(1), Closure Procedures, will be followed for the type of unit being closed.

Final closure of the units will consist of the removal of all hazardous wastes and hazardous waste residues remaining at the unit and the decontamination or disposal of the containment structure components and auxiliary equipment. All hazardous wastes and residues will be containerized and transported to an approved RCRA permitted facility for storage or treatment. Closure procedures are described in Section I-1e, Closure procedures.

I-1c Maximum Waste Inventory

The following table represents the maximum waste inventory that will be in storage at the units (Refer to Table D-1).

Unit ID	Capacity (gal)
9206	3,975
9212	3,814
9720-12	32,500
Cyanide Treatment Unit	2,200

All hazardous wastes remaining in these units at the time of closure will be transferred to a permitted facility for storage or treatment. The procedures for removing, transporting, and/or storing the remaining hazardous waste and decontamination debris from the units are described in Section I-1e(1), Closure Procedures and Section I-1b, Partial Closure Procedures.

I-1d Schedule for Closure

The proposed schedule for final closure for Buildings 9206, 9212 and 9720-12 Container Storage Areas and the Cyanide Treatment Unit is included as Table I-1. Because the units in this permit application are container storage areas associated with enriched uranium production, the same schedule can be followed for each individual unit. The units are expected to be closed in the year 2025.

I-1d(1) Time Allowed For Closure

All hazardous wastes will be treated, removed off-site, or disposed of on-site from the units within 90 days from receipt of the final volume of hazardous waste. Closure activities will be completed within 180 days from the closure plan approved by the State. The actual times for each step of the closure activities are shown in Table I-1.

I-1d(1)(a) Extensions for Closure Time

It is not anticipated that an extension of time for closure activities will be required. However, if closure cannot be completed within the specified time, a request for an extension of closure time will be submitted to the Commissioner in accordance with Tennessee Rule 1200-1-11-.06(7)(d).

I-1e Closure Procedures

Before closure activities begin, the units will be surveyed by the Y-12 Health Physics Organization personnel and a safety plan will be prepared based on the site conditions. The plan will identify radiological and chemical hazards as well as controls to reduce worker risk. Additional activities for closure follow.

I-1e(1) Inventory Removal, Disposal, and Decontamination of Equipment

Closure activities for all the units in this permit application will be performed in a similar manner.

Step 1: Removal of Waste Inventory

All containers of hazardous waste will be transferred to an approved facility for storage or treatment. Equipment to be used will be, but is not limited to, forklift truck, hand pallet jack, and/or hand dolly.

Step 2: Decontamination of Building, Equipment, and Structures

The walls, floors, and miscellaneous fixtures (i.e., shelves, windows, etc.) in the building will be cleaned and rinsed with water and detergent, if needed. All wash and rinse waters will be collected, drummed, and stored at an approved on-site storage facility pending the analysis from samples taken from the water. Based on the analytical results, the drummed water will be disposed of in an appropriate manner.

**TABLE I-1. CLOSURE SCHEDULE FOR THE
PRODUCTION ASSOCIATED UNITS**

Action	Expected * Completion
• Notify Tennessee Department of Health and Environment of intent to initiate	-180 days
• Receipt of final volume of wastes; initiate closure	0
• Remove inventory, load and transfer	90
• Decontaminate building, equipment, and structures	110
• Decontaminate equipment	115
• Sample building surfaces	120
• Analyze samples and results	150
• Prepare documentation for certification by an independent Professional Engineer	175
• Closure Certification by DOE	180
or	
• Repeat building decontamination, surface sampling, and sample analysis prior to decontamination of equipment	**
• Independent Professional Engineer and Department of Energy certify closure	

* Number of days following initiation of closure.

** If decontamination must be repeated, extension of the closure schedule beyond the maximum of 180 days will be requested.

Step 3: Decontamination of Equipment

This step will involve the decontamination or washing of residuals that may adhere to the equipment used in steps 1 and 2. The wash and rinse solutions will be disposed of in the same manner as the wash water generated in step 2, Decontamination of Building.

Step 4: Verification of Decontamination

Rinse water samples will be analyzed for the hazardous constituents formerly stored in the container storage and treatment areas as an indicator of decontamination verification. Contamination will be considered complete if the concentration of these constituents in the water are less than the RCRA regulated levels. The sample will be analyzed by EPA method ("Test Methods for Evaluating Solid Waste", SW-846). Sampling and analytical quality assurance/quality control will be conducted as specified in SW-846 (see Table I-1 for schedule). Further water and surfactant/water rinses will be used if decontamination of an item is not complete. These rinses will be repeated until decontamination criteria are met.

Step 5: Additional Decontamination

If residual contamination exists after a third washing, the areas will be sandblasted until contamination is no longer exhibited. Spent sand will be collected and stored pending selection of an approved disposal method.

Step 6: Certification

Documentation for certification by an independent Professional Engineer will be prepared. Final certification of closure by DOE and Energy Systems will be performed.

I-1e(2) Closure of Disposal Units

Not applicable. Requirements of this section do not apply to the container storage areas or the treatment unit in this permit application.

I-1e(3) Closure of Containers

The closure procedures described in Section I-1e, Closure Procedures, will be followed for the closure of the container storage units containing the maximum waste inventory specified in I-1c.

I-1e(4) Closure of Tanks

Not applicable. Requirements of this section do not apply to the container storage areas or the treatment unit in this permit application.

I-1e(5) Closure of Waste Piles

Not applicable. Requirements of this section do not apply to the container storage areas or the treatment unit in this permit application.

I-1e(6) Closure of Surface Impoundments

Not applicable. Requirements of this section do not apply to the container storage areas or the treatment unit in this permit application.

I-1e(7) Closure of Incinerators

Not applicable. Requirements of this section do not apply to the container storage areas or the treatment unit in this permit application.

I-1e(8) Closure of Landfills

Not applicable. Requirements of this section do not apply to the container storage areas or the treatment unit in this permit application.

I-1e(9) Closure of Land Treatment

Not applicable. Requirements of this section do not apply to the container storage areas or the treatment unit in this permit application.

I-1e(10) Closure of Miscellaneous Units

Not applicable. Requirements of this section do not apply to the container storage areas or the treatment unit in this permit application.

I-2 POST-CLOSURE PLAN

Hazardous waste or hazardous waste residues will not remain at the units after closure; therefore, this section is not required.

I-2a Inspection Plan

Hazardous waste or hazardous waste residues will not remain at the units after closure; therefore, this section is not required.

I-2b Monitoring Plan

Hazardous waste or hazardous waste residues will not remain at the units after closure; therefore, this section is not required.

I-2c Maintenance Plan

Hazardous waste or hazardous waste residues will not remain at the units after closure; therefore, this section is not required.

I-2d Land Treatment

Hazardous waste or hazardous waste residues will not remain at the units after closure; therefore, this section is not required.

I-2e Post-Closure Care for Miscellaneous Units

Hazardous waste or hazardous waste residues will not remain at the units after closure; therefore, this section is not required.

I-2f Post-Closure Security

Hazardous waste or hazardous waste residues will not remain at the units after closure; therefore, this section is not required.

I-2g Post-Closure Contact

Hazardous waste or hazardous waste residues will not remain at the units after closure; therefore, this section is not required.

I-3 CERTIFICATION AND NOTICES REQUIRED FOR CLOSURES

I-3a Certification of Closure

Within 60 days of completing final closure of the units, DOE will submit, in writing, a closure certification to the Commissioner. The certification will verify that the units were closed in accordance with the specifications of the approved closure plan. The certification will be signed by DOE and an independent registered professional engineer and submitted by registered mail.

I-3b Survey Plat

Not applicable. A survey plat is not required for the clean closure of a container storage or treatment unit.

I-3c Notice to Local Land Authority

Not applicable. This section is not required for the clean closure of a container storage or treatment unit.

I-3d Post-Closure Certification

Not applicable. This section is not required for the clean closure of a container storage or treatment unit.

I-3e Notice in Deed to Property

Not applicable. This section is not required for the clean closure of a container storage or treatment unit.

I-4 CLOSURE COST ESTIMATE

Under 40 CFR Part 264.140(c), federal facilities are exempt from the requirements of this section.

I-5 FINANCIAL ASSURANCE MECHANISM FOR CLOSURE

Under 40 CFR Part 264.140(c), federal facilities are exempt from the requirements of this section.

I-6 POST-CLOSURE COST ESTIMATE

Under 40 CFR Part 264.140(c), federal facilities are exempt from the requirements of this section.

I-7 FINANCIAL ASSURANCE MECHANISM FOR POST-CLOSURE

Under 40 CFR Part 264.140(c), federal facilities are exempt from the requirements of this section.

I-8 LIABILITY REQUIREMENTS

Under 40 CFR Part 264.140(c), federal facilities are exempt from the requirements of this section.

I-9 STATE FINANCIAL MECHANISM

Under 40 CFR Part 264.140(c), federal facilities are exempt from the requirements of this section.

SECTION J

RECORDKEEPING

This section of the application outlines the recordkeeping and reporting requirements for hazardous waste management units as required by 40 CFR Part 264 and Rule 1200-1-11-.06 of the Rules Governing Hazardous Waste Management in Tennessee.

J-1 MANIFEST REQUIREMENTS

Normally, buildings 9206, 9212, and 9720-12 Container Storage Areas and the Cyanide Treatment Unit do not receive hazardous wastes from off-site; however, these areas accept wastes from off-site on special occasions.

Procedures for accepting waste from off-site are described in Section C-2e. Wastes will not be accepted for treatment from off-site without a hazardous waste manifest, or without an accompanying shipping paper, unless the waste is excluded from the manifest requirement by 40 CFR Part 261.5. Unmanifested Waste Reports will be prepared and submitted, as necessary and as required by 40 CFR Part 264.76.

J-2 OPERATING RECORD

Records and results of waste analyses, as required in 40 CFR Part 264.73(b)(3) and Tennessee Rules 1200-1-11-.02 and .06(5)(d)2(iii), are recorded and maintained in the operating files and databases of the operating organizations. The management, including storage and/or treatment, of hazardous wastes is tracked at all times.

For nonroutine wastes, the Y-12 Plant uses the "Request for Transfer, Storage or Disposal of Radioactive, Hazardous and Special Wastes" form (UCN-2109), which is located in Appendix C-1, for identification of waste materials. For routine wastes, the Y-12 Plant uses a "Blanket Request" process or "Stream Identification (SID) Number" process which assigns a specific waste stream a number to allow tracking of the waste. Upon generation of a routine or nonroutine waste, log sheets, completed forms, and generation records are provided by the generator, including the description and quantity of waste materials. These forms are assigned a unique number to facilitate entry into the waste tracking systems used by the Waste Management organization. The completed forms are reviewed by a technician or engineer from Waste Management organization to determine the appropriate storage, treatment, or disposal method which is recorded on the form and entered into the data base as applicable. After transporting the waste to the appropriate on-site storage or treatment

unit or off-site disposal facility, the forms are signed and maintained by Waste Management organization personnel. Finally, operating logs are maintained which include the current quantity and type of wastes located at each facility.

The Y-12 Plant Waste Analysis Plan, discussed in Section C, defines the information required to safely store wastes in these units in accordance with RCRA regulations.

An incident requiring implementation of the Contingency Plan would be reported per Section G. A detailed, written report would be submitted by the Y-12 Plant Environmental Management Department to the TDEC within 15 days of the incident, and a file copy would be maintained by the Environmental Management Department. The report would include:

1. name, address, and telephone number of the owner or operator;
2. name, address, and telephone number of a contact at the unit;
3. date, time, and type of incident (e.g., fire, explosion);
4. name and quantity of material(s) involved;
5. extent of injuries, if any;
6. assessment of actual or potential hazards to public health or environment, if applicable; and
7. estimated quantity and disposition of recovered material that resulted from the incident.

Records of inspections for the units in this permit application are maintained by the appropriate Production Department. These records will be retained by the Production Department until three years after the certified closure of the unit. Inspection logs are completed per Section F, Procedures to Prevent Hazards. Copies of example inspection log sheets are provided in Appendix F-2. Groundwater monitoring data is not required for these facilities (Section E).

The DOE is the owner of the Y-12 Plant. The units addressed in this application receive wastes from off-site on special occasions. Off-site generators using these units will be notified of the status of the Y-12 Plant RCRA permits.

The closure and postclosure cost estimates are not required for federal facilities as indicated in Section I, Closure Plans.

The units addressed in this application are not surface impoundments, waste piles, land treatment units, or landfills. Therefore, no Land Disposal Restricted Certification Program is required. In addition, the requirements of groundwater data recordkeeping are not required.

The training records for personnel in the operating organizations are maintained by the organization training department. The training coordinator assigned to a designated operating or engineering department maintains these records for that specific department. Training information is discussed in Section H.

Preparation of the annual and biennial reports on the hazardous waste activities at the Y-12 Plant is coordinated and maintained by the Environmental Management Department with data supplied by the Waste Management organization and waste generating divisions. These reports address the amount of waste generated, the amount of waste shipped off-site, the amount received, and the amount of waste currently on site.

As part of the annual report on the hazardous waste activities at the Y-12 Plant, wastestream specific waste minimization information is submitted to the TDEC for the Y-12 Plant. This annual report certification is prepared and maintained on file by the Environmental Management Department. Additionally, the biennial Waste Minimization Report is submitted to the EPA which contains similar information. The Y-12 Waste Minimization Program is designed to reduce the volume and toxicity of hazardous wastes generated at the Y-12 Plant and provides information on the methods of reducing waste to minimize the threat to human health and the environment.

The operating records and reports are prepared, maintained, and available for inspection. Training records on current personnel are kept until closure of the hazardous waste management units. The training records of former employees are maintained for a minimum of 3 years from the date the employee last worked at the Y-12 Plant. Personnel training records accompany the employee during any transfer within the company.

SECTION K

OTHER FEDERAL LAWS

The Y-12 Plant has reviewed and considers to be in compliance with the following Federal Laws:

- Fish and Wildlife Coordination Act of 1934
- National Historic Preservation Act of 1966
- Wild and Scenic Rivers Act of 1968
- Coastal Zone Management Act of 1972
- Endangered Species Act of 1973
- Occupational Safety and Health Act of 1970
- National Environmental Policy Act, January 1, 1970
- Federal Water Pollution Control Act of 1977
- Clean Water Act
- National Emission Standards for Hazardous Air Pollutants, and
- Toxic Substances Control Act
- Clean Air Act.

Information will be provided by the Y-12 Plant personnel at the request of the TDEC staff.

SECTION L

ORGANIC AIR EMISSIONS

Organic air emissions monitoring is not required for Buildings 9206, 9212, 9720-12 Container Storage Areas, and the Cyanide Treatment Unit as per the requirements of 40 CFR Part 264, Subparts AA and BB.

SECTION M

SOLID WASTE MANAGEMENT UNITS

Based on information from the State, material on solid waste management units at the Oak Ridge Y-12 Plant is not required for individual Part B permit applications because the entire ORR is covered by the ORNL Hazardous and Solid Waste Amendments Permit (HSWA TN001) for Building 7652 (a hazardous waste storage facility). The HSWA Permit was issued on September 26, 1986.

**SECTION N
CERTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system and of those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Department of Energy
Owner and Operator

Date Signed

Lockheed Martin Energy Systems, Inc.
Co-Operator

5/26/95

Date Signed

The Department of Energy and its operating contractor, Lockheed Martin Energy Systems, Inc., have jointly signed this application as the operator of the permitted facility. The Department has determined that dual signatures best reflect the actual apportionment of responsibility under which the Department's RCRA responsibilities are for policy, programmatic, funding and scheduling decisions, as well as general oversight, and the contractor's RCRA responsibilities are for day-to-day operations, including but not limited to, recordkeeping, reporting, and contingency planning. For purposes of the certification required by 40 CFR Section 270.11(d) and Tennessee Rule 1200-1-11-.07(2)(a)10, the Department's and Lockheed Martin Energy Systems, Inc.'s, representatives certify, to the best of their knowledge and belief, the truth, accuracy and completeness of the application for their respective areas of responsibility.

APPENDIX B-1
MAPS

A

32500
50000

G

52000

31500

30500

29500

BEAR CREEK ROAD

20
20A

PORTAL 17

F

RIDGE Y-12 PLANT

56000

D

58000

PORT FACILITIES MAP

C

60000

B

AP

62000

A

64000

SCARBORO

39

23

23

Y-12 P

ELZA SWITCH YARD

K-1501-1

DRIVE

9219

9712

EAST PORTAL

NEW HOPE CEMETERY

9754-2

9983-8

9723-37

PORTAL 5 & 15

9737

9709

9720-2

9738

9959

PORTAL 32

9720-49

LAKE REALITY

SECOND S

9422-1

E

722-3

983-70

ROAD

9720-8

9720-7

9720-6

9720-5

9720-4

9720-3

9720-2

9720-1

64000

AA

66000

32500

1

31500

2

30500

3

29500

SCARBORO

EST 1901

9422-1

Y-12 PLANT SIGN

ROAD

LAKE
REALITY

SECOND ST

POP-UP DELTA

30500

BEAR CREEK ROAD

29500

28500

27500

PORTAL 17

OLD BEAR CREEK RD

THE GRID AND COORDINATES AS SHOWN
REPRESENT THE Y-12 PLANT GRID SYSTEM

TOWERS
 Y STATIONS
 PORTALS
 AR CHECK POINTS

— FENCING
 — 229 FENCING

C2E9000000A969	REV
PREPARED BY CV/GIS GROUP/MJW	05/2

REV 0

MARTIN MARIETTA

ENERGY SYSTEMS, INC.

1JW

05/22/95

OPERATED FOR THE DEPARTMENT OF ENERGY UNDER U.S. GOVERNMENT CONTRACT DE-AC-05-840
OAK RIDGE, TENNESSEE PADUCAH, KENTUCKY

1600

FEET

Y-12 PLANT EMERGENCY FACILITIES DIRECTORY

OAK RIDGE Y-12 PLANT

WASTE UNIT IDENTIFICATION KEY

APPLICATION EPA

LINE PROCESS CODE DESCRIPTION

1.....	T04.....	CYANIDE TREATMENT UNIT S01
2.....	S01.....	INTERIM DRUM YARD
3.....	S01.....	BUILDING 9720-9 STORAGE UNIT
4.....	S01.....	RCRA & MIXED WASTE STORAGE & STAGING BUILDING 9720-31
5.....	S02.....	BUILDING 9811-1 RCRA TANK STORAGE UNIT
6.....	S01.....	BUILDING 9811-1 RCRA CONTAINER STORAGE UNIT
7.....	S02.....	WASTE OIL/SOLVENT STORAGE UNIT S01
8.....	S02.....	LIQ. ORGANIC SOLVENT STOR. UNIT S01
9.....	S03.....	EAST CHESTNUT RIDGE WASTE PILE
10.....	S01.....	CONTAINERIZED WASTE STORAGE AREA
11.....	S01.....	CLASSIFIED CONTAINER STORAGE UNIT BUILDING 9720-25
12.....	S03.....	OIL LANDFARM SOILS CONTAINMT. PAD
13.....	S03.....	DISPOSAL AREA REMEDIAL ACTION (DARA) SOLIDS STORAGE UNIT
14.....	T01.....	URANIUM TREATMENT UNIT S01
15.....	T04.....	INTERIM REACTIVE WASTE TREATMT AREA
16.....	S01.....	BUILDING 9720-12 CLASSIFIED CONTAINER STORAGE AREA
17.....	S01.....	RCRA AND PCB CONTAINER STORAGE AREA, BUILDING 9720-58

ANT

KEY

BEA
T
D

AREA

- TANK STORAGE UNIT
- 6.....S01.....BUILDING 9811-1 RCRA
CONTAINER STORAGE UNIT
 - 7.....S02.....WASTE OIL/SOLVENT STORAGE UNIT
S01
 - 8.....S02.....LIQ. ORGANIC SOLVENT STOR. UNIT
S01
 - 9.....S03.....EAST CHESTNUT RIDGE WASTE PILE
 - 10.....S01.....CONTAINERIZED WASTE STORAGE AREA
 - 11.....S01.....CLASSIFIED CONTAINER STORAGE UNIT
BUILDING 9720-25
 - 12.....S03.....OIL LANDFARM SOILS CONTAINMT. PAD
 - 13.....S03.....DISPOSAL AREA REMEDIAL ACTION
(DARA) SOLIDS STORAGE UNIT
 - 14.....T01.....URANIUM TREATMENT UNIT
S01
 - 15.....T04.....INTERIM REACTIVE WASTE TREATMT AREA
 - 16.....S01.....BUILDING 9720-12 CLASSIFIED
CONTAINER STORAGE AREA
 - 17.....S01.....RCRA AND PCB CONTAINER
STORAGE AREA, BUILDING 9720-58
 - 18.....S01.....BUILDING 9201-4 CONTAINER
STORAGE AREA
 - 19.....S01.....BUILDING 9206 CONTAINER STORAGE AREA
 - 20.....S01.....BUILDING 9212 CONTAINER STORAGE AREA
 - 21.....S02.....BLDG 9409-5 STORAGE UNIT
 - 22.....S01.....BLDG 9720-32 PRODUCTION WASTE
STORAGE UNIT (FUTURE)
 - 23.....S01.....BLDG 9720-59 CLASSIFIED WASTE
STORAGE UNIT (FUTURE)

MARTIN MARIETTA

Y-12 PLANT RCRA WASTE UNIT LOCATIONS

0 400 800 1600
SCALE FEET

C2E900000A793

(REV 0)

PREPARED BY PES GEODATA GROUP

03/01/95

OLD DWG • PES/216/100992 REV 2

DECLINATION OF GRID 34°12'51\"/>

G

52000

F

BEAR CREEK ROAD

Y-12 PLAN

E

00095

ANT LOADING AND

D

58000

C

AND SHIPPING DOCK

C

6000

B

62000

DOCKS

62000

A

64000

SCARBORO

RD

SWITCH YARD

W-1201-1

FIRST ST

DRIVE

AGATE

9712

EAST PORTAL

WY HOPE COUNTRY

Y-12 PLANT

SECOND S

AA

00079

6600

32500

1

31500

2

30500

3

29500

4

SCARBORO

RD

Y-12 PLANT SIGN

SECOND ST

SCARBORO

9720-49

THE GRID AND COORDINATES AS SHOWN
REPRESENT THE Y-12 PLANT GRID SYSTEM

DOCK ONLY

3	S.W. CORNER 9723-25....D-2	42	S. SIDE 9720-8.....B-4	77	S. SIDE 920
4	WEST SIDE 9723-25.....D-2	43	S. SIDE 9720-8.....B-4	78	N. SIDE 920
5	N. SIDE 9723-25.....D-2	44	S. SIDE 9720-8.....B-4	80	N.W. CORNER
7	N.E. CORNER 9212.....D-2	45	S. SIDE 9720-8.....B-4	81	E. SIDE 976
8	N.E. CORNER 9212.....D-2	46	S. SIDE 9720-8.....B-4	82	N. SIDE 921
9	E. SIDE 9981.....D-2	46A	E. SIDE 9720-8.....A-4	82A	W. SIDE 921
9A	E. SIDE 9212.....D-2	48	S. SIDE E. END 9737...B-3	83	S. SIDE 998
10	N. SIDE 9995.....D-2	51	N. SIDE 9723-4.....B-3	85	N. SIDE 977
10A	S.W. CORNER SHED.....D-2	52	W. SIDE 9723-4.....B-3	86	N. SIDE 970
11	N.E. CORNER 9995.....D-2	53	E. SIDE 9203.....B-3	87	E. END 9706
12	E. SIDE 9995.....D-2	54	S. SIDE 9203.....B-3	88	S. SIDE 970
14	E. SIDE 9212.....D-2	55	S. SIDE 9205.....B-3	89	W. END 9706
15	N.E. SIDE 9996.....D-2	56	E. SIDE 9401-1.....B-3	90	S. SIDE 972
19A	S.E. CORNER 9215.....D-2	57	W. END 9401-1.....B-3	91	W. SIDE 972
19B	B. SIDE 9215.....D-2	60	N.E. CORNER 9201-3...B-4	92	E. SIDE 973
19C	S.W. CORNER 9215.....D-2	61	S.E. CORNER 9201-2...B-4	93	S. SIDE 973
19D	W. SIDE 9215.....D-2	62	N.W. CORNER 9201-2...C-4	98	S.E. CORNER
19E	N.W. 9215.....D-2	64	S. SIDE 9202.....B-3	99	W. SIDE 920
26	W. SIDE 9712.....A-3	65	E. SIDE 9202.....B-3	100	N.W. CORNER
30	B. SIDE 9959-2.....A-4	67	W. SIDE 9202.....C-3	101	E. SIDE 940
32	N.E. SIDE 9720-6.....A-4	68	W. SIDE 9202.....C-3	102	B.W. CORNER
33	E. END 9720-6.....A-4	69	S. SIDE 9706-1.....C-3	104	W. END 940
34	B. SIDE 9720-6.....A-4	70	E. SIDE 9706-1A.....C-3	105	E. END 940
35	N.W. CORNER 9720-7...A-4	71	W. SIDE 9764.....C-3	106	N. SIDE 94
37	E. SIDE 9610.....B-4	72	E. SIDE 9711-1.....C-3	107	B. SIDE 92
39	W. SIDE 9720-2.....B-4	73	N.W. CORNER 9711-1...C-3	108	E. END 940
40	W. SIDE 9729.....B-4	75	E. SIDE 9211.....B-3	109	N. SIDE 94
41	B. SIDE 9720-8.....B-4	76	N. SIDE 9211.....B-3	110	W. END 940

S. SIDE 9207.....B-3	111 N. SIDE 9404-1.....C-4	148 W. SIDE 9204-2.....
N. SIDE 9207.....B-2	112 E. END 9404-1.....C-4	150 N. SIDE 9704-2.....
N.W. CORNER 9208.....B-3	113 S. SIDE 9419-1.....B-4	154 S.E. CORNER 9201-4
E. SIDE 9767-3.....B-3	114 S. END 9733-3.....C-3	155 N. SIDE 9201-4....
N. SIDE 9210.....B-2	115 S. END 9733-2.....C-3	156 N.W. CORNER 9201-4
W. SIDE 9210.....B-2	116 S. END 9733-1.....C-3	157 W. SIDE 9805-1....
S. SIDE 9987.....B-3	117 E. SIDE 9720-1.....C-4	158 W. SIDE 9720-19...
N. SIDE 9771.....C-3	118 S. SIDE 9720-1.....C-4	159 W. SIDE 9727-3....
N. SIDE 9706-2.....C-3	120 S.W. CORNER 9204-1....C-4	160 N. SIDE 9727-3....
E. END 9706-2.....C-3	121 N. SIDE 9204-1.....C-3	161 N.E. CORNER 9401-3
S. SIDE 9706-2.....C-3	122 E. END 9204-3.....D-4	162 S. SIDE 9401-3....
W. END 9706-2.....C-3	123 N.E. CORNER 9204-3....B-4	163 W. END 9404-18....
S. SIDE 9722-2.....C-3	125 E. SIDE 9977-1.....D-3	170 W. END 9723-19....
W. SIDE 9723-1.....C-3	129 S. SIDE 9766.....C-3	171 N. SIDE 9723-19....
E. SIDE 9733-4.....C-3	130 E. END 9766.....C-3	172 W. END 9723-21....
S. SIDE 9733-4.....C-3	131 W. END 9766.....C-3	173 N. SIDE 9723-21....
S.E. CORNER 9201-1....C-4	132 S. SIDE 9735.....C-3	174 N. SIDE 9204-4....
W. SIDE 9201-1.....C-4	133 W. SIDE 9735.....C-3	175 N.E. CORNER 9204-4
N.W. CORNER 9201-1....C-4	134 N. END 9736.....C-3	177 S.W. CORNER 9204-4
E. SIDE 9404-3.....C-4	135 N. END 9731.....C-3	179 E. SIDE 9720-5....
B.W. CORNER 9211.....B-3	137 W. SIDE 9731.....C-3	180 N. SIDE 9404-13...
W. END 9404-4.....B-4	138 S. END 9731.....C-3	181 N. SIDE 9976.....
E. END 9404-4.....B-4	140 N.E. CORNER 9711-5....C-3	182 E. END 9720-12....
N. SIDE 9404-5.....B-4	141 W. END 9711-5....D-3	183 W. END 9720-12....
B. SIDE 9220.....B-3	143 N.E. CORNER 9206.....D-3	184 E. END 9720-13....
E. END 9404-5.....B-4	144 S. SIDE 9206.....D-3	186 E. END 9720-18....
N. SIDE 9404-2.....C-4	145 W. SIDE 9206.....D-3	187 W. END 9720-18....
W. END 9404-3.....C-4	146 E. SIDE 9710-2.....D-3	188 E. END 9720-14....

W. SIDE 9204-2.....D-3	189	W. END 9720-14.....E-3	239	N. SIDE 9105.....
N. SIDE 9704-2.....C-3	190	E. END 9720-16.....E-3	240	S. SIDE 9420.....
S.E. CORNER 9201-4...D-3	191	W. END 9720-16.....E-3	241	S.E. CORNER 9110...
N. SIDE 9201-4.....D-3	192	E. END 9720-26.....F-3	242	E. SIDE 9720-39....
N.W. CORNER 9201-4...D-3	193	W. END 9720-26.....F-3	243	S. SIDE 9754-2.....
W. SIDE 9805-1.....D-3	194	E. END 9720-25.....F-3	244	E. SIDE 9767-8.....
W. SIDE 9720-19.....D-3	196	W. END 9720-25.....F-3	245	S.W. CORNER 9831..
W. SIDE 9727-3.....D-3	197	S. SIDE 9816.....F-3	249	N. 9201-5 2 FL @ RP
N. SIDE 9727-3.....D-3	198	W. END 9817.....F-3	250	S. SIDE 9769.....
N.E. CORNER 9401-3...D-3	199	W. END 9929-1.....F-3	251	W. SIDE 9769.....
S. SIDE 9401-3.....D-3	200	E. END 1501-2.....E-3	252	S.E. CORNER 9983-4
W. END 9404-18.....D-3	203	W. END 9720-9.....D-4	253	S. 9111, 9112.....
W. END 9723-19.....E-2	204	E. END 9720-9.....D-4	257	N. BETWN 9983-62 &
N. SIDE 9723-19.....E-2	210	W. SIDE 9732-1.....C-3	258	E. SIDE 9824-4....
W. END 9723-21.....E-2	211	S. SIDE 9706-2.....C-3	260	E. SIDE 9725.....
N. SIDE 9723-21.....E-2	222	W. END 9720-4.....A-4	263	W. SIDE 9616-9....
N. SIDE 9204-4.....E-3	226	S. SIDE 9766.....C-3	265	N.E. 9723-18.....
N.E. CORNER 9204-4...E-3	228	S.W. CORNER 9203...B-3	266	W. SIDE 9116 RM.13
S.W. CORNER 9204-4...E-3	229	W. SIDE 9616-5....A-4	267	N. SIDE E END 9714
E. SIDE 9720-5.....E-3	230	S. SIDE 9106.....C-3	268	W. SIDE 9201-5N...
N. SIDE 9404-13.....E-3	231	S. SIDE 9107.....E-2	269	S. SIDE 9204-4....
N. SIDE 9976.....E-3	232	N. SIDE 9108.....B-4	270	W. SIDE 9206.....
E. END 9720-12.....E-3	233	S. SIDE 9109.....C-3	271	E. SIDE 9720-17...
W. END 9720-12.....E-3	234	W. SIDE 9102-1.....B-4	272	E. SIDE 9103.....
E. END 9720-13.....E-3	238	S.W. CORNER 9102-2...B-4	275	W. SIDE 9983-AH...
E. END 9720-18.....E-3	236	E. SIDE 9104-1.....B-4		
W. END 9720-18.....E-3	237	E. SIDE 9104-2.....D-4		
E. END 9720-14.....E-3	238	E. SIDE 9104-3.....D-4

239	N. SIDE 9105.....	C-4
240	S. SIDE 9420.....	F-2
241	S.E. CORNER 9110.....	D-3
242	E. SIDE 9720-39.....	B-4
243	S. SIDE 9754-2.....	B-3
244	E. SIDE 9767-8.....	C-4
245	S.W. CORNER 9831.....	F-3
249	N. 9201-5 2 FL @ RP..	E-2
250	S. SIDE 9769.....	B-2
251	W. SIDE 9769.....	B-2
252	S.E. CORNER 9983-41..	E-2
253	S. 9111, 9112.....	D-2
257	N. BETWN 9983-62 & 63.	E-2
258	E. SIDE 9824-4.....	E-4
260	E. SIDE 9725.....	A-4
263	W. SIDE 9616-9.....	E-3
265	N.E. 9723-18.....	D-3
266	W. SIDE 9116 RM. 135..	C-3
267	N. SIDE E END 9714 9 MI.	W Y-12
268	W. SIDE 9201-5N.....	E-2
269	S. SIDE 9204-4.....	E-3
270	W. SIDE 9206.....	D-3
271	E. SIDE 9720-17.....	D-3
272	E. SIDE 9103.....	E-2
275	W. SIDE 9983-AH.....	A-4

6	N.W. CORNER 9212.....	D-2	164	E
13	W. SIDE 9995.....	D-2	167	N
16	W. END 9996.....	D-2	168	N
17	E. SIDE 9998.....	D-2	169	N
18	E. SIDE 9215.....	D-2	178	N
19	S.E. CORNER 9215.....	D-2	185	W
20	N.W. CORNER 9998.....	D-2	201	E
25	W. SIDE 9404-11.....	D-3	202	E
31	N. SIDE 9720-6.....	A-4	207	N
36	W. SIDE 9738.....	B-4	208	S
38	E. SIDE 9709.....	B-4	209	N
38B	E. SIDE 9709.....	B-4	212	E
47	S. SIDE 9737.....	B-4	213	S
50	S.E. CORNER 9728.....	B-3	214	S
59	E. SIDE 9201-3.....	B-4	218	E
63	S. SIDE 9201-2.....	C-4	216	S
66	W. SIDE 9720-20.....	B-3	217	S
74	N. SIDE 9704-1.....	C-3	218	N
79	E. SIDE 9208.....	B-3	219	N
84	E. SIDE 9983.....	C-3	220	N
119	S.E. SIDE 9204-1.....	C-4	221	N
124	S. SIDE 9204-3.....	D-4	223	N
136	E. SIDE 9731.....	C-3	225	N
139	S. SIDE 9711-5.....	C-3	227	N
142	N.W. CORNER 9720-38..	E-3	284	N
147	E. SIDE 9204-2.....	D-3	255	N
149	S. SIDE 9204-2.....	D-3	256	N
150A	E. SIDE 9704-2.....	C-3	259	N

LEGEND

- DOCK ONLY
- M & P STATION AND DOCK

7...G-3
D-2
C-3
D-3
 FL D-2

	(REV. 1)	MARTIN MARIETTA	ENERGY SYSTEMS, I
MODATA GROUP	2/21/92	DOE FIELD OFFICES OAK RIDGE, TENNESSEE	PADUCAH, KENTUCKY
<p>800 1600 FEET</p>		<p>Y-12 PLANT LOADING AND SHIPPING DOCKS</p>	

G

E

D

FLOOD PLAIN

C

B

A

AA

1

2

3

LEGEND

PROBABLE MAXIMUM

MAXIMUM PROBABLE

500 YEAR FLOOD

100 YEAR FLOOD

D

MAXIMUM FLOOD

PROBABLE FLOOD

FLOOD

FLOOD

SOUTH PA

MARTIN MARIETTA ENE

DOE FIELD OFFICES, OAK RIDGE, TENNESSEE

Y-12
FLOOD PL

4

5

ETA ENERGY SYSTEMS, INC.
IDGE, TENNESSEE • PADUCAH, KENTUCKY

PES/061/021490 (REV C)

Y-12
OD PLAIN

PREPARED BY PES GEODATA GROUP

N-31500

E-50000

2

N-30500

BEAR CREEK ROAD

3

N-29500

WASTE STORAGE

9720-08

F

E

PARKING AREA

CENTRAL PORTAL

9949-42 =
9949-41 =
9949-40 =

9212

9995

9996

920E

9766

973

1973.

9770

1.

17

11

7003

9204-3

9204-1

9720-1

9720-44
9217-1

9732-

92

1

B

A

N-31500

1402-1

5364000

N-30500

N-29500

9949-52
POST # 13)

N-28500

MARTIN MARIETTA

**Y-12 SANITARY SEWER SYSTEM
MASTER PLAN**

PREPARED BY FP DICKEY

05-14-90

0 100 200 400 600 800 1000

SCALE (FEET)

3

4

PARKING AREA

• 9949-50

F

D

C

B

BEAR CREEK ROAD

3
N-29500

WASTE STORAGE

9730-00

4
N-28500

Map 6

The Y-12 Plant Storm Sewer System Master Plan Map

The Y-12 Plant Storm Sewer System Master Plan Map has been determined by the U.S. Department of Energy to contain UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION (UCNI) and is not to be disseminated to the public. The document must be protected as required in 10 CFR Part 1017 and its implementing orders. Unauthorized dissemination of the material is subject to civil and criminal sanctions under section 148 of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2168).

The Y-12 Plant Storm Sewer System Master Plan Map was submitted as a part of the first revision of this document. If additional copies of this map are needed, please contact C. M. LaBorde at (615) 576-5603.

TENNESSEE DEPARTMENT OF CONSERVATION

Customs House
701 Broadway
Nashville, TN 37243

October 24, 1991

Mr. Robert J. Spence
Y-12 Site Manager
Department of Energy
P.O. Box 2001
Oak Ridge, TN 37831-8555

RE: Resource Conservation and Recovery Act Part B Permit Maps

Dear Mr. Spence:

The Division of Solid Waste Management is in receipt of your October 9, 1991, letter requesting a variance from the mapping scales required in Rule 1200-1-11-.07(5)(a)17 of the Tennessee Hazardous Waste Management Regulations.

Due to the nature of the Department of Energy Reservation at Oak Ridge, the Division of Solid Waste Management does not foresee any problem with granting this request. You may use the scales that have been requested in your letter.

Please feel free to contact either Bill Krispin or Jackie Okoreeh-Baah if you have any questions regarding this letter.

Sincerely,

A handwritten signature in cursive script, appearing to read "Tom Tiesler", is written over a horizontal line.

Tom Tiesler, Director
Division of Solid Waste Management

JTT/BK/F1011297

cc: Sherry Lankford, DOE
William Brown, MMES/Y-12
Gary Bodenstein, DOE
W. G. McMillan, DOE
James Scarbrough, EPA
Bill Krispin, TDEC/SWM
Jackie Okoreeh-Baah, TDEC/SWM
Earl Leming, TDEC

APPENDIX B-2
WIND ROSES

WIND ROSE for Y-12 tower MTW (@60m) for 1994

with 97.8% of possible data

FIGURE B-1. Wind Rose from the West Meteorological Tower at 60 meters at the Y-12 Plant B-1-1

WIND ROSE for Y-12 tower MTE (@100m) for 1994

with 99.5% of possible data

FIGURE B-2. Wind Rose from the East Meteorological Tower at 100 meters at the Y-12 Plant B-1-2

APPENDIX C-1
TYPICAL WASTE ANALYSIS DATA

WTF

SID - 38

LAB RESULTS

11/ 7/1986

LOC: 9201-5N DECOMPOSED CYANIDE

REQ #: 536125

SAMPLE PT:

SAMPLE DATE: 10/29/1986

REQUESTOR: J J RUSSELL

ALL RESULTS IN MG/L UNLESS OTHERWISE NOTED

ICP					
Ag	0.43	Fe	170	P	30
Al	35			Pb	< 5.0
As	< 0.005	K	7900	Si	5.9
B	4.3			Sr	0.56
Ba	1.6	Li	0.12	Th	< 4.0
Be	< 0.03	Mg	38	Ti	2.9
Ca	420	Mn	12	V	< 0.10
Cd	< 0.30	Mo	< 0.40		
		Na	11000	Zn	0.46
Co	0.19	Nb	< 2.0	Zr	< 0.20
Cr	3.2	Ni	7.7		
Cu	0.26				
Hg	0.003	Se			< 0.005
Total Residual Cl		F			0.50
PCB	< 0.001	Cl Hydrocarbons			< 0.01
Phosphates	90	Sulfates			56900
Cyanide	0.10	Nitrates			< 1000
COD <i>chemical oxygen demand</i>	6040	TDC <i>TOTAL ORGANIC CARBON</i>			500
Suspended Solids	5048	pH			8.0
Dissolved Solids	282912	Alkalinity(as CaCO3)			2040
Density	1.1900	Acidity			
U	12	235 U			

** RADIOLOGICAL PARAMETERS ** (PER ML)

Alpha Activity	0.008uCi	Beta Activity	< 1.0pCi
Gamma Activity	< 2.0pCi		

ORGANICS

Methylene Chloride	< 0.50
Methyl Chloroform	< 0.50
Trichloroethylene	< 0.50
Perchloroethylene	< 0.50
Phenols	0.44

Notes or Additional Results

TOTAL RESIDUAL CHLORINE 6.0 MG/L

SID - 3

LAB RESULTS

11/ 4/19E

LOC: 9201-5N DECOMPOSED CYANIDE

REQ #: 536126

SAMPLE PT:

SAMPLE DATE: 10/29/1986

REQUESTOR: J J RUSSELL

DUPLICATE ANALYSIS

Uranium

0 PPM

U 235

1.03 Wt %

RADIOACTIVITY CALCULATION

REQUISITION NUMBER 536125

URANIUM	12. PPM
U235	0.00 WT. %
ALPHA ACTIVITY	0.0077000 $\mu\text{Ci/ML}$
BETA ACTIVITY	0.0000010 $\mu\text{Ci/ML}$
DENSITY	1.1900

SPECIFIC ACTIVITY OF SOLUTION 0.0064714 $\mu\text{Ci/GM}$

THIS SHIPMENT IS 'RADIOACTIVE' BY DOT STANDARDS

APPENDIX C-2
WASTE IDENTIFICATION FORMS

WASTE ITEM DESCRIPTION

R 10837

WASTE ITEM IDENTIFICATION

1. Waste Item ID Number	2. Generator's Name (Print)	3. Badge No.	4. Generator's Phone No.	5. MS	6. Charge Number/WO
17. Origin Div.	18. Origin Date	19. Origin Site	110. Origin Facility	111. Origin Room/Area	112. Radiological Area? ☐ Yes ☐ No
113. Est. Net Volume	114. Units	115. Est. Gross Weight	116. Units	(Reserved)	

CONTAINER INFORMATION (1 of) If more than one attach Waste Container List (UCN-2109A)

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	W8. Waste Category (Check all)					
W4. Physical Form	W5. Material Type	W6. AWA No.	Chemical	Yes	No	Biological	Yes	No
W7. Waste Description			Radioactive			Accountable		
			Asbestos			Carcinogen		
			San/Ind			Compactable		
			Const. Debris			Recyclable		
			Medical			Classified		

CHEMICAL WASTE

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

RADIOACTIVE WASTE

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

HANDLING INFORMATION

H1. Handling Instructions	H4. HP Tag Color	Surface Contamination (cpm/100 cm ²)		Dose Rate at Surface (mrem/hr)	Dose Rate at 1 Meter (mrem/hr)	Instrument Identification
H2. Respirator ☐ None ☐ Half ☐ Full Pickup Site	Alpha	Transfer	Direct Read			
	Beta/Gamma					
	Neutron					
H3. Cartridge Type	H6. Pickup Facility		H7. Pickup Area			

SIGNATURES and APPROVALS

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

WASTE ITEM/CONTAINER LIST

R 00837

(Continuation Page ____ of ____)

Sequence Number 1	Referenced from WID (UCN-2109)*	
	I1. 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	I1. Waste Item ID Number		C1. Container ID. No.		I8. Origin Date		M2. RCRA 90-day Start Date		M4. PCB Start Date	
	I13. Est. Net Volume	I14. Units	H4. HP Tag Color	Surface Contamination (cpm/100 cm ²)		Dose Rate at Surface (mrem/hr)	Dose Rate at 1 Meter (mrem/hr)	Instrument Identification		
				Transfer	Direct Read					
	I15. Est. Gross Weight	I16. Units								
Comments				Alpha						
				Beta/Gamma						
				Neutron						

Sequence Number	I1. Waste Item ID Number		C1. Container ID. No.		I8. Origin Date		M2. RCRA 90-day Start Date		M4. PCB Start Date	
	I13. Est. Net Volume	I14. Units	H4. HP Tag Color	Surface Contamination (cpm/100 cm ²)		Dose Rate at Surface (mrem/hr)	Dose Rate at 1 Meter (mrem/hr)	Instrument Identification		
				Transfer	Direct Read					
	I15. Est. Gross Weight	I16. Units								
Comments				Alpha						
				Beta/Gamma						
				Neutron						

Sequence Number	I1. Waste Item ID Number		C1. Container ID. No.		I8. Origin Date		M2. RCRA 90-day Start Date		M4. PCB Start Date	
	I13. Est. Net Volume	I14. Units	H4. HP Tag Color	Surface Contamination (cpm/100 cm ²)		Dose Rate at Surface (mrem/hr)	Dose Rate at 1 Meter (mrem/hr)	Instrument Identification		
				Transfer	Direct Read					
	I15. Est. Gross Weight	I16. Units								
Comments				Alpha						
				Beta/Gamma						
				Neutron						

Sequence Number	I1. Waste Item ID Number		C1. Container ID. No.		I8. Origin Date		M2. RCRA 90-day Start Date		M4. PCB Start Date	
	I13. Est. Net Volume	I14. Units	H4. HP Tag Color	Surface Contamination (cpm/100 cm ²)		Dose Rate at Surface (mrem/hr)	Dose Rate at 1 Meter (mrem/hr)	Instrument Identification		
				Transfer	Direct Read					
	I15. Est. Gross Weight	I16. Units								
Comments				Alpha						
				Beta/Gamma						
				Neutron						

Sequence Number	I1. Waste Item ID Number		C1. Container ID. No.		I8. Origin Date		M2. RCRA 90-day Start Date		M4. PCB Start Date	
	I13. Est. Net Volume	I14. Units	H4. HP Tag Color	Surface Contamination (cpm/100 cm ²)		Dose Rate at Surface (mrem/hr)	Dose Rate at 1 Meter (mrem/hr)	Instrument Identification		
				Transfer	Direct Read					
	I15. Est. Gross Weight	I16. Units								
Comments				Alpha						
				Beta/Gamma						
				Neutron						

SIGNATURES and APPROVALS

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

R 00837

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

WASTE MANAGEMENT SECTION

EPA Codes

DOT Rad ≥ 2000 ☐ Yes ☐ No

Required Labels/Markings/Tags Correct

☐ Yes ☐ 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

to

to

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

ENERGY SYSTEMS WASTE DISPOSAL REQUEST

LCN-2109 Profile Sheet

WASTE ITEM IDENTIFICATION

1. Waste Item ID Number: The unique ID number of the waste item
2. Generator's Name: The name of the individual responsible for the generation of the waste
3. Badge No.: The badge number of the waste generator
4. Generator's Phone No.: Phone number where the waste generator can be reached
5. MS Mail Stop
6. Charge Number/WO/Project Number (for ER only): A valid work order, account number, or project number for waste handling charges
7. Origin Div.: The division code of the originating division
8. Origin Date: The date that the waste was generated
9. Origin Site: The site (plant) where the waste was generated
10. Origin Facility: The facility (building) where the waste was generated
11. Origin Room/Area: The room or area where the waste was generated
12. Radiological Area: The generation area is a radiological area (yes or no)
13. Est. Net Volume: The estimated net volume of the waste material
14. Units: Volume units
15. Est. Gross Weight: The estimated gross weight of the waste material
16. Units: Weight units

CONTAINER INFORMATION

- C1. Container ID No.: The unique ID number of the shipping/storage container for this waste item
- C2. Container Type: The type code for the shipping/storage container
- C3. Holding Site: The site (plant) where the waste was held during accumulation
- C4. Holding Facility: The facility (building) where the waste was held during accumulation
- C5. Holding Room/Area: The room number or area identifier where the waste was held during accumulation

WASTE CATEGORY

- W1. Process Stream ID: The ID number of the process stream which generated the waste
- W2. Process Category: The category of the process which generated this waste
- W3. Process Activity: The descriptive name of the generation process
- W4. Physical Form: The physical form of the waste material
- W5. Material Type: The sub-category of the physical form of the waste material
- W6. AWA Number: Asbestos Work Authorization Number
- W7. Waste Description: Further specification of the waste, including descriptive information
- W8. Waste Category: Specific categories for the waste material (check each one either "YES" or "NO")

CHEMICAL WASTE

- M1. RCRA (Y/N)? The waste contains RCRA regulated material
- M2. RCRA 90-Day Start Date: The date RCRA waste was placed in a 90-day storage area
- M3. PCB (Y/N)? The waste contains PCB regulated material
- M4. PCB Start Date: The date PCB waste material was removed from service
- M5. PCB Conc.(PPM): The PCB concentration in parts per million (if "less than" nnn, enter nnn)
- M6. Determination Method: The method used to determine the chemical characteristics
- M7. Determination Document Number(s): Document numbers that substantiate the determination of the characteristics
- M8. Flash Point: The flash point of the waste material (degrees C)
- M9. pH: The relative acidity of the waste material (pH)
- M10. EPA Waste Code Numbers: The EPA waste code numbers determined from the waste characteristics
- M11. Substance ID: The ID number of a chemical constituent of the waste (either its CAS number or MSDS record number)
- M12. Vol %: The percent by volume for the chemical substance
- M13. Substance Name: The common name of the chemical substance

RADIOACTIVE WASTE

- R1. Rad. Category: The radioactive waste category code (check one)
- R2. Rad. Handling Type: The radioactive waste handling code
- R3. LCN 2681 Number: The ID number of the LCN-2681 "Accountability Transfer" form associated with this waste (if any)
- R4. Determination Method: The method used to determine the radioactive characteristics (check one)
- R5. Determination Document Number(s): Document numbers that substantiate the determination of the characteristics
- R6. Chemical Form: The chemical form of the waste material
- R7. Isotope ID: The ID number of a particular radioactive isotope contained in this waste item
- R8. Est. Quantity: The estimated quantity of this isotope
- R9. Quan. Units: The units for the isotope quantity (grams or curies)

HANDLING INFORMATION

- H1. Handling Instructions: General handling instructions for the waste
- H2. Respirator: Respirator requirements for handling this waste
- H3. Cartridge Type: Respirator cartridge type to be used (if applicable)
- H4. HP Survey Data (completed by Health Physics technician)
 - HP Tag Color: The color code of the survey tag (G,Y,R,B)
 - Surface Contamination: The transferable and Direct Reading count rates (dpm/100 cm²)
 - Dose Rate at Surface: The dose rate measured at the surface (mrem/hr)
 - Dose Rate at 1 Meter: The dose rate measured at 1 meter (mrem/hr)
 - Instrument ID: The health physics instrument ID number ("M" number) Example: M123456
- H5. Pickup Site: The site (plant) where the waste is to be picked up
- H6. Pickup Facility: The facility (building) where the waste is to be picked up
- H7. Pickup Room/Area: The room number or area identifier where the waste is to be picked up

SIGNATURES AND APPROVALS

- S1. Generator: The signature of the waste generator, certifying that the information on the form is complete and accurate
- S2. HP Technician: The signature and badge number of the HP technician certifying that the HP survey information is correct
- S3. Verification Officer: The signature and badge number of an authorized person certifying that the form has been completed properly
- S4. Derivative Classifier: Determines the waste item security classification and reviews the form for classified information

Is waste classified ☐ Yes ☐ No

WSIN CALL-IN

Waste Stream ID _____ WTP Request No. _____
Date Request Initiated _____ Date Request Rec. _____
Pick-Up Facility ID _____ Generator Division/Plant _____
Contact Name _____ Phone No. _____ Badge No. _____
Material Form (Circle one) SOLID GAS SLUDGE LIQUID AEROSOL OIL
Waste Stream Description _____

Contaminants (Circle one) ASBESTOS/BERYLLIUM/CARCINOGEN/MERCURY/PCB/OTHER
Radioactive ☐ Yes ☐ No If Yes, ☐ Depleted ☐ Enriched
RCRA ☐ Yes ☐ No (If Yes List Codes) _____
Respirator Required ☐ Yes ☐ No If Yes, ☐ Mask ☐ Cartridge
H.P. Tag Color _____ Total No. of Containers _____ Charge No. _____

FIELD REVIEW

Environmental TC _____ Badge No. _____ Date Assigned _____
Date of Field Review _____
Hazards _____ Hazard Class _____ DOT Name _____
Request rejected ☐ Yes ☐ No If Yes, Reason and Date _____

SAMPLING HISTORY

WTP PSM # _____

LIMS No. _____	Code No. _____	Date _____
LIMS No. _____	Code No. _____	Date _____
LIMS No. _____	Code No. _____	Date _____
LIMS No. _____	Code No. _____	Date _____

MOVEMENT HISTORY

WTP Movement No. _____

Delivery Site _____ Delivery Date _____
Transporter's Signature _____ Badge No. _____
Transporter's Signature _____ Badge No. _____
Environmental TC Signoff _____ Location _____

Movement No. _____

Delivery Site _____ Delivery Date _____
Transporter's Signature _____ Badge No. _____
Transporter's Signature _____ Badge No. _____
Environmental TC Signoff _____ Location _____

DISPOSAL INFORMATION

WTP Movement No. _____

Disposal Facility _____ Tank No. _____ Date _____
Facility Operator (Signature and Badge No. _____)
Driver's Signature _____ Badge No. _____ Date _____
Driver's Signature _____ Badge No. _____ Date _____

[illegible]

**HAZARDOUS WASTE IDENTIFICATION TAG 2114A AND
WASTE IDENTIFICATION TAG 2114B**

**HAZARDOUS WASTE
IDENTIFICATION**

TO BE COMPLETED BY REQUESTER

DISPOSAL FORM SEQUENCE NO. (OR BULK NO.)

DISPOSAL FORM DATE

ACCUMULATION START DATE

MATERIAL DESCRIPTION

TYPE AND SIZE OF CONTAINER (FOR EXAMPLE,
55-GALLON STEEL DRUM)

LOCATION OF MATERIAL

DEPARTMENT

SIGNATURE

TO BE COMPL. BY PLT. DISPOSAL COORD.

CHECKED BY

DATE

COMMENTS

UCN-2114A (12 2-88)

**WASTE
IDENTIFICATION**

TO BE COMPLETED BY REQUESTER

DISPOSAL FORM SEQUENCE NO. (OR BULK NO.)

DISPOSAL FORM DATE

MATERIAL DESCRIPTION

TYPE AND SIZE OF CONTAINER (FOR EXAMPLE,
55-GALLON STEEL DRUM)

LOCATION OF MATERIAL

DEPARTMENT

SIGNATURE

TO BE COMPL. BY PLT. DISPOSAL COORD.

CHECKED BY

DATE

COMMENTS

UCN-2114B (2 2-88)

SAMPLE REQUISITION REQUEST

REQUEST OR CONTACT _____

REQUESTOR'S I.D. NO. _____ REQUESTOR'S PHONE NO. _____

MATERIAL DESCRIPTION _____

PICK-UP BUILDING _____ PICK-UP DOCK _____

CONTAINER TYPE _____ NO. OF CONTAINERS _____

SAMPLE REQUISITION NO. (LIMS) _____

SAMPLE CODE(S) _____ SAMPLE DATE _____

QC SAMPLE CODE _____

RESPIRATOR REQUIREMENTS _____

DATE RESULTS REQUIRED BY _____

SAMPLING PLAN _____

APPENDIX C-3

EXAMPLES OF POTENTIALLY INCOMPATIBLE WASTE

Many hazardous wastes, when mixed with other waste or materials at a hazardous waste facility, can produce effects which are harmful to human health and the environment, such as (1) heat or pressure, (2) fire or explosion, (3) violent reaction, (4) toxic dusts, mists, fumes, or gases, or (5) flammable fumes or gases.

Below are examples of potentially incompatible wastes, waste components, and materials, along with the harmful consequences which result from mixing materials in one group with materials in another group. The list is intended as a guide to operators of storage facilities and to indicate the need for special precautions when handling and storing potentially incompatible waste materials. This list is not intended to be exhaustive.

In the list below, the mixing of a Group A material with a Group B material may have the potential consequences as noted.

Group 1-A

Acetylene sludge
Alkaline caustic liquids
Alkaline cleaner
Alkaline corrosive liquids
Alkaline corrosive battery fluid
Caustic wastewater
Lime sludge and other corrosive alkalines
Lime wastewater
Lime and water
Spent caustic

Group 1-B

Acid sludge
Acid and water
Battery acid
Chemical cleaners
Electrolyte, acid
Etching acid liquid or solvent
Pickling liquor and other corrosive acids
Spent acid
Spent mixed acid
Spent sulfuric acid

Potential consequences: Heat generation; violent reaction.

APPENDIX C-3 (Continued)
EXAMPLES OF POTENTIALLY INCOMPATIBLE WASTE

Group 2-A

Aluminum
Beryllium
Calcium
Lithium
Magnesium
Potassium
Sodium
Zinc powder
Other reactive metals and metal hydrides

Group 2-B

Groups 1-A or 1-B waste

Potential consequences: Fire, explosion, or heat generation; generation of flammable or toxic gases.

Group 3-A

Alcohols
Water

Group 3-B

Concentrated waste
Groups 1-A or 1-B
Calcium
Lithium
Metal hydrides
Potassium
 SO_2Cl_2 , SOCl_2 , PCl_3 , SiCl_4
Other water-reactive waste

Potential consequences: Fire, explosion, or heat generation; generation of flammable or toxic gases.

APPENDIX C-3 (Continued)
EXAMPLES OF POTENTIALLY INCOMPATIBLE WASTE

Group 4-A

Alcohols
Aldehydes
Halogenated hydrocarbons
Nitrated hydrocarbons
Unsaturated hydrocarbons
Other reactive organic compounds and
solvents

Group 4-B

Concentrated waste
Groups 1-A or 1-B
Group 2-A wastes

Potential consequences: Fire, explosion, or violent reaction.

Group 5-A

Spent cyanide and sulfide solutions

Group 5-B

Group 1-B wastes

Potential consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas.

Group 6-A

Chlorates
Chlorine
Chlorites
Chromic acid
Hypochlorides
Nitrates
Nitric acid, fuming
Perchlorates
Permanganates
Peroxides
Other strong oxidizers

Group 6-B

Acetic acid and other organic acids
Concentrated mineral acids
Group 2-A wastes
Group 4-A wastes
Other flammable and combustible
wastes

Potential consequences: Fire, explosion or violent reaction.

APPENDIX D-1
CONTAINER STORAGE DESIGN DETAILS

N ←

**RCRA STORAGE AREAS
BUILDING 9206, FIRST FLOOR
U.S. DOE Y-12 PLANT**

FIGURE D-1

D-1-1

➔ EVACUATION ROUTE

**RCRA STORAGE AREAS
BUILDING 9206, 2nd FLOOR
U.S. DOE Y-12 PLANT**
FIGURE D-2

RACK	RESIDUE SPACES	SOLUTION SPACES
1	96	18
2	96	18
3	96	18
4	96	18
5	140	0
6	136	0
7	136	0
8	136	0
9	136	0

**RCRA STORAGE AREA
BUILDING 9206, BUTLER BUILDING (9720-17)
U.S. DOE Y-12 PLANT**

↑ N

**RCRA STORAGE AREAS
BUILDING 9212, C-1 WING MEZZANINE
U. S. DOE Y-12 PLANT**

FIGURE D-5
D-1-5

← N

FIRST FLOOR PLAN
SCALE: 3/16" = 1'0"

➡ EVACUATION ROUTE
RESIDUE STORAGE RACKS

**RCRA STORAGE AREAS
BUILDING 9212, HEADHOUSE
U.S. DOE Y-12 PLANT**

MEZZANINE PLAN
SCALE: 3/16" = 1'0"

FIGURE D-6
D-1-6

← N

**RCRA STORAGE AREA
BUILDING 9212
U.S. DOE Y-12 PLANT**

**➔ EVACUATION
ROUTE**

FIGURE D-7
D-1-7

BUILDING 9720-12 CLASSIFIED
CONTAINER STORAGE AREA LAYOUT
U.S. DOE Y-12 PLANT

FIGURE D-8
D-1-8

**CYANIDE TREATMENT UNIT
BUILDING 9201-5N, BASEMENT
U.S. DOE Y-12 PLANT**

FIGURE D-9

APPENDIX F-1
GENERAL INSPECTION SCHEDULE

TABLE F-1. GENERAL INSPECTION SCHEDULE

<u>Specific Item</u>	<u>Types of Problems</u>	<u>Frequency of Inspection</u>
Fire alarm system	Power failure	Annually
Communication/Notification system (i.e., telephones, two-way radios, public address (PA) system)	Power failure, audio not working	Daily
Seals (only for Cyanide Treatment Unit and 9720-12)	Seals in place	Weekly
Spill response equipment: standard industrial absorbents, absorbal, diaper wipes, other decontamination equipment	Any item out of stock	Weekly
Portable pumps	Pumps not available	Weekly
Breathing equipment: disposable respirators, cartridges	Any item out of stock	Daily
Protective equipment: tyvek suits, gloves, booties, face shields, safety glasses	Any item out of stock	Daily
Fire extinguishers	Damaged or missing, annual inspection not up to date, inaccessible	Weekly
Emergency shower and eyewash	Inadequate water pressure, leaking, drainage	Monthly

TABLE F-2. CONTAINER STORAGE AREA INSPECTION SCHEDULE

<u>Specific Item</u>	<u>Types of Problems</u>	<u>Frequency of Inspection</u>
Container placement	Inadequate aisle space	Weekly
Closed containers	Open lids	Weekly
Labeling of containers	Date missing, label damaged, missing, or illegible	Weekly
Container structural integrity	Corrosion, leakage, structural defects	Weekly
Segregation of incompatible wastes	Storage of incompatible wastes in same area	Weekly
Pallets (only for 9720-12 and Cyanide Treatment Unit)	Damage (structurally unstable)	Weekly
Building integrity	Roof damage, sagging, leaking	Weekly
Floors or bases (foundations)	Cracks, deterioration, spalling in concrete, wet spots	Weekly
Dikes, ramps, and/or curbing (where applicable)	Cracks, deterioration	Weekly
Sump areas (where applicable)	Erosion, uneven settlement, cracks, or spalling in concrete	Weekly
Warning signs	Damaged, missing, or illegible signs	Weekly
Storage rack integrity (only for 9206 and 9212)	Damage (structurally unstable)	Weekly
General housekeeping	Debris and refuse	Weekly
Loading and unloading areas	Spills and leaks	Weekly or Daily when used

APPENDIX F-2
INSPECTION LOGS

TABLE F-3. DAILY INSPECTION LOG SHEET FOR PRODUCTION ASSOCIATED UNITS

Unit inspected (circle one): 9206 9212 9720-12 Cyanide Treatment Unit

Inspector's Signature: _____ Date: _____ Time: _____

General Inspection Items	Types of Problems	√ = Acceptable X = Unacceptable NA = Not Applicable	Observations, Date and Nature of Repairs, Remedial Action
Communication/Notification system (i.e., telephones, two-way radios, public address (PA) system)	Power failure, audio not working		
Breathing equipment: disposable respirators, cartridges	Any item out of stock		
Protective equipment: tyvek suits, gloves, booties, face shields, safety glasses	Any item out of stock		
Container Inspection Items	Types of Problems	√ = Acceptable X = Unacceptable NA = Not Applicable	Observations, Date and Nature of Repairs, Remedial Action
Loading and unloading areas (as used)	Spills and leaks		
Additional Comments:			

TABLE F-4. WEEKLY INSPECTION LOG SHEET FOR PRODUCTION ASSOCIATED UNITS

Unit inspected (circle one): 9206 9212 9720-12 Cyanide Treatment Unit

Inspector's Signature: _____ Date: _____ Time: _____

General Inspection Items	Types of Problems	✓ = Acceptable X = Unacceptable NA = Not Applicable	Observations, Date and Nature of Repairs, Remedial Action
Fire alarm system (annually)	Power failure		
Seals (only for Cyanide Treatment Unit and 9720-12)	Seal in place		
Spill response equipment: standard industrial absorbents, absorbal, diaper wipes, other decontamination equipment	Any item out of stock		
Portable pumps	Pumps not available		
Fire extinguishers	Damaged or missing, annual inspection not up to date, inaccessible		
Emergency shower and eyewash (monthly)	Inadequate water pressure, leaking, drainage		
Container Inspection Items	Types of Problems	✓ = Acceptable X = Unacceptable NA = Not Applicable	Observations, Date and Nature of Repairs, Remedial Action
Container placement	Inadequate aisle space		
Closed containers	Open lids		
Labeling of containers	Date missing, label damaged, missing, or illegible		
Container structural integrity	Corrosion, leakage, structural defects		
Segregation of incompatible wastes	Storage of incompatible wastes in same area		

Pallets (only for 9720-12 and Cyanide Treatment Unit)	Damage (structurally unstable)		
Building integrity	Roof damage, sagging, or leaking		
Floors or bases (foundations)	Cracks, deterioration, spalling in concrete, wet spots		
Dikes, ramps, and/or curbing (where applicable)	Cracks, deterioration		
Sump areas (where applicable)	Erosion, uneven settlement, cracks, or spalling in concrete		
Warning signs	Damaged, missing, or illegible signs (one needed on each approach)		
Storage rack integrity (only for 9206 and 9212)	Damage (structurally unstable)		
General housekeeping	Debris and refuse		
Additional Comments:			

APPENDIX H-1
JOB DESCRIPTIONS AND TRAINING REQUIREMENTS

APPENDIX H-1

FACILITY SUPERVISOR JOB DESCRIPTION (For Environmental Activities Only)

Position Title: Facility Supervisor

Basic Function of Position: Provide supervision and/or technical support for waste management operations.

Major Environmental Duties and Responsibilities:

- Supervises technicians and operators in all aspects of operation of the facility, including loading, unloading, sampling, storage, inspections, maintenance, and emergency response.
- Inspects RCRA waste treatment and storage tank areas, tanks, dikes, transfer areas, piping, pumps, valves, and waste handling equipment.
- Inspects emergency response equipment including fire extinguishers, communications and alarm facilities, and spill cleanup equipment.
- Initiates appropriate remedial actions for spills, leaks, or defective equipment and ensures timely completion of remedial actions.
- Responsible for the recording of all inspections, remedial actions and their completion and maintains a file of all inspections, logs, and records.
- Works with technicians to identify, sample, and pack drums.
- Schedules all facility maintenance and oversees maintenance activities to ensure that proper procedures and safety precautions are followed, and no spill, fire, other release, or contamination of the facility, personnel, or the environment occurs.

Formal Education Required:

- High school diploma and 3 years of facility experience.

Specialized Knowledge or Training:

- 24-hour HAZWOPER Training - one time only
- 8-hour HAZWOPER Refresher - annual
- RCRA Training - annual
- Criticality Safety - biennial
- Hazard Communication - one time only
- Radiation Protection - biennial
- Fire Protection - one time only
- Security Program - annual
- Emergency Preparedness - annual
- Respiratory Training - as needed
- General Employee Training - biennial

APPENDIX H-1 (Continued)

TECHNICIAN JOB DESCRIPTION (For Environmental Activities Only)

Position Title: Technician (Not applicable for Cyanide Treatment Unit)

Basic Function of Position: Provides routine technically related operational support for waste management operations.

Major Environmental Duties and Responsibilities:

- Inspects the containers and containment system for leaks or deterioration caused by corrosion or other factors, and material handling equipment.
- Inspects emergency response equipment including fire extinguishers, communications and alarm equipment, and spill cleanup equipment.
- Records inspection activity on inspection log and maintains a file of logs and records.
- Notifies Facility Supervisor of observed problems at the facility, emergency situations, and the need for contingency and/or remedial action.
- Verifies waste stream identification and documentation.
- Takes sample of waste streams from containers as required for analysis.
- Assures proper handling and storage of wastes, including separation of incompatible wastes, prevention of their contact or mixing, and separate storage of ignitables and reactives.
- Assures proper documentation of waste stream identification and storage location, inventory, inflow and outflow.
- Assists in immediate response to spills and notifies the PSS office and Staff Engineer.

Formal Education Required:

- Bachelors degree in engineering and/or equivalent education and/or experience.

Specialized Knowledge or Training:

- 24-hour HAZWOPER Training - one time only
- 8-hour HAZWOPER Refresher - annual
- RCRA Training - annual
- Criticality Safety - biennial
- Hazard Communication - one time only
- Radiation Protection - biennial
- Fire Protection - one time only
- Security Program - annual
- Emergency Preparedness - annual
- Respiratory Training - as needed
- General Employee Training - biennial

APPENDIX H-1 (Continued)

CHEMICAL OPERATOR JOB DESCRIPTION (For Environmental Activities Only)

Position Title: Chemical Operator

Basic Function of Position: Follows established methods and techniques in performing a single or sequence of operations required in various waste treatment processes associated with the chemical and physical change of materials. Adjusts, regulates, controls, and operates a wide variety of standard and specialized waste treatment processes and associated equipment. Uses various measuring and recording equipment and devices. Maintains detail records of process parameters.

Major Environmental Duties and Responsibilities:

- Moves full and empty containers as required.
- Performs duties under the direction of the Facility Supervisor present.
- Must be able to perform basic arithmetic calculations including fractions and decimals.
- Performs single or sequence of operations required to transfer and/or treat various wastes.
- Monitors controls and processes to assure proper operation, transfer, and/or treatment.
- Maintains necessary operating records.

Formal Education Required:

- High School diploma and/or equivalent education and/or experience.

Specialized Knowledge or Training:

- 24-hour HAZWOPER Training - one time only
- 8-hour HAZWOPER Refresher - annual
- RCRA Training - annual
- Criticality Safety - biennial
- Hazard Communication - one time only
- Radiation Protection - biennial
- Fire Protection - one time only
- Security Program - annual
- Emergency Preparedness - annual
- Respiratory Training - as needed
- General Employee Training - biennial

APPENDIX H-1 (Continued)

TRAINING MANAGER JOB DESCRIPTION (For Environmental Activities Only)

Position Title: Training Manager

Basic Function of Position: Manage the training program of the organization and assure that the required training for compliance with RCRA is implemented, and documented.

Major Environmental Duties and Responsibilities:

- Organized and direct the function of training in a cost-effective manner to assure compliance with the training requirements of RCRA.
- Supervise any of the training positions reporting to the training manager. These positions may include training supervisors, instructional technologists, curriculum developers, training coordinators, training administrators, training instructors, on-the-job trainers, and/or subject matter experts.
- Analyze resource needs and create section training budget based on all requirements including RCRA.
- Develop long-range training plans for qualification of personnel in assigned section.
- Interface with management, DOE, and other agencies to determine training requirements including RCRA.
- Ensure all training meets DOE and Y-12 Plant standards as well as RCRA requirements including assuring that the required annual RCRA training is performed and documented.
- Develop long-range training plans for training staff to assure compliance with RCRA.
- As applicable to RCRA compliance, oversee training contracts to ensure deliverables meet DOE and Y-12 Plant standards of training.

Formal Education Required:

- Bachelors degree with formal training in adult learning, training analysis, design, development, implementation, evaluation, or equivalent work experience in a training function which demonstrates skills and knowledge have been acquired and utilized.

Specialized Knowledge or Training:

- Successful completion of the DOE Basic Instructor course (Train-the-Trainer)
- Successful completion of the Supervisor's On-The-Job Training course.
- 24-hour HAZWOPER Training - one time only
- Criticality Safety - biennial
- Hazard Communication - one time only
- Radiation Protection - biennial
- Fire Protection - one time only
- Emergency Preparedness - annual
- General Employee Training - biennial

APPENDIX H-2 (Continued)

ON-THE-JOB TRAINER JOB DESCRIPTION (For Environmental Activities Only)

Position Title: On-The-Job Trainer (note that this could be the same individual as the training manager)

Basic Function of Position: Assist in the development of on-the-job training (OJT) courses, instruct personnel, evaluate trained personnel, and evaluate training.

Major Environmental Duties and Responsibilities:

- In areas of subject matter experience, specifically RCRA compliance and hazardous waste management, assist in the development of OJT courses.
- Using developed OJT course material, instruct personnel in job required curriculum for RCRA compliance and proper hazardous waste management.
- Evaluate RCRA training to ensure quality of program.
- Complete any other training assignments assigned by training manager.

Formal Education Required:

- High school diploma or equivalent.

Specialized Knowledge or Training:

- Trained in hazardous waste management procedures.
- Successful completion of the Supervisor's On-The-Job Training course.
- 24-hour HAZWOPER Training - one time only
- 8-hour HAZWOPER Refresher - annual (if applicable)
- RCRA Training - annual
- Criticality Safety - biennial
- Hazard Communication - one time only
- Radiation Protection - biennial
- Fire Protection - one time only
- Security Program - annual
- Emergency Preparedness - annual
- Respiratory Training - as needed
- General Employee Training - biennial

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