

**Waste Acceptance Criteria
for the
Treatment, Storage, and Disposal Facilities
at the Paducah U.S. Department of Energy Site**

This document is approved for public release per review by:



PGDP Classification & Information Control Office
Swift & Staley Team

APR 25 08

Date

**Waste Acceptance Criteria
for the Treatment, Storage, and Disposal Facilities
at the Paducah U.S. Department of Energy Site**

Date Issues—April 2008

Prepared for the
U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

Prepared by
PADUCAH REMEDIATION SERVICES, LLC
managing the
Environmental Remediation Activities at the
Paducah Gaseous Diffusion Plant
under contract DE-AC30-06EW05001

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APPROVALS

Waste Acceptance Criteria for the Treatment, Storage, and Disposal Facilities at the Paducah U.S. Department of Energy Site

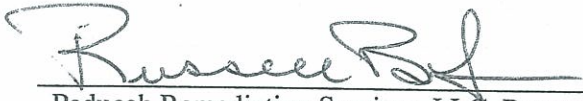
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U.S. Department of Energy Representative

5/16/08

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Paducah Remediation Services, LLC, Representative

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ABBREVIATIONS AND ACRONYMS

ACM	asbestos-containing material
AD	accumulation (start) date
AL	Authorized Limits
Am	Americium
Bq	becquerel
CFR	<i>Code of Federal Regulations</i>
Ci	curie
DOE	U.S. Department of Energy
EDTA	ethylenediaminetetraacetic acid
DOT	U.S. Department of Transportation
DTPA	diethylenetriaminepentaacetic acid
DTS	date to storage
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
GD	generation date
HP	Health Physics
ICP	inductively coupled plasma
ISOCS	<i>In Situ</i> Object Counting System
KAR	<i>Kentucky Administrative Regulations</i>
KPDES	Kentucky Pollutant Discharge Elimination System
LLW	low-level (radioactive) waste
NCS	Nuclear Criticality Safety
Ni-Cd	nickel-cadmium
NDA	nondestructive assay
NMC&A	Nuclear Materials Control and Accountability
NOARM	Naturally Occurring and Accelerator Producing Radioactive Material
Np	neptunium
NTS	Nevada Test site
PCB	polychlorinated biphenyl
pCi	picocurie
PGDP	Paducah Gaseous Diffusion Plant
pH	hydrogen potential
PK	process knowledge
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
PRS	Paducah Remediation Services, LLC
Pu	plutonium
RACM	regulated asbestos-containing material
RAD	radiological
RADCON	radiological control
RCRA	Resource Conservation and Recovery Act
RFD	Request for Disposal/Storage of Waste Materials and Equipment Form
RMMA	Radioactive Material Management Area
SAA	Satellite Accumulation Area
TCE	trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure

TID	tamper-indicating device
TIMS	Thermal Ionization Mass Spectrometry
TRU	transuranic
TSCA	Toxic Substances Control Act
TSD	treatment, storage, and disposal
TSDF	treatment, storage, and disposal facility
UHC	underlying hazardous constituent
USEC	United States Enrichment Corporation
UTS	Universal Treatment Standard
WAC	waste acceptance criteria
WMP	Waste Management Plan
WPC	Waste Package Certifier

DEFINITIONS

Aboveground Tank—A device meeting the definition of “tank” that is situated in such a way that the entire surface area of the tank is completely above the plane of the adjacent surrounding surface and the entire surface of the tank (including the tank bottom) is able to be visually inspected.

Accumulation Start Date—For Resource Conservation and Recovery Act (RCRA) waste, the date accumulation of hazardous waste begins. For waste originating from a satellite accumulation area, the accumulation start date is the date the waste goes into a 90-day area or permitted storage facility [401 *Kentucky Administrative Regulations (KAR)* 32:030]. For newly discovered RCRA waste the accumulation start date would be the date it originally was determined to be a RCRA waste.

Acute Hazardous Waste—Hazardous wastes that are considered exceptionally toxic as listed under 40 *CFR* § 261.33 (list of waste having codes beginning with “P”). Acutely toxic wastes are considered very dangerous and are regulated when only one quart is generated.

Asbestos-Containing Material (ACM)—Any material containing more than one percent asbestos.

Asbestos Competent Person—One who has received specialized training and is capable of identifying asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure and has the authority to take prompt corrective measures to eliminate hazards.

Asbestiform Low-Level Waste—Any low-level waste (LLW) containing friable asbestos material; Category I nonfriable ACM that has become friable; Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; or Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder.

Alternate Waste Certification Official (AWCO)—A person with appropriate qualifications and training authorized by the WCO to certify waste. The AWCO specifically must be named on the Paducah Nevada Test Site (NTS) Certification Personnel List previously submitted from DOE Paducah to DOE Nevada.

Authorized Limits (AL)—A level of residual radioactive material that shall not be exceeded in the C-746-U Landfill.

Becquerel (Bq)—A unit of measure of the rate of radioactive decay. One Bq is the quantity of any radioactive nuclide that undergoes one disintegration per second ($1 \text{ Bq} = 2.7 \times 10^{-11} \text{ Ci}$).

Beryllium Waste—Any waste material that contains elemental beryllium and any insoluble beryllium compound or alloy in concentrations of 0.1% beryllium or greater that may be released as an airborne particulate.

Blocking—Wood, nails, special front-end structures, and other material used in a manner that prevents the load from slipping.

Bracing—Components used to prevent the load from shifting.

Bulk Packaging—Any package, including transport vehicle or a freight container, into which hazardous materials are loaded, which has a

- Maximum capacity greater than 119 gallons as a receptacle for a liquid/solid.
- Maximum net mass greater than 882 pound for a solid.

By-Product Material—Material that meets either of the following definitions:

- (a) Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident or to the process of producing or utilizing special nuclear material. For purposes of determining the applicability of the RCRA to any radioactive waste, the term “any radioactive material” refers only to the actual radionuclides dispersed or suspended in the waste substance. The nonradioactive hazardous waste component of the waste substance will be subject to regulation under RCRA.
- (b) The tailings or waste produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content. Ore bodies depleted by uranium solution extraction operations and remain underground do not constitute “byproduct material” (DOE Order 435.1).

Carrier—A company that is subcontracted or tendered by Paducah Remediation Services, LLC, (PRS) to engage in the movement of materials from origin to destination of the material.

Certified Waste—Waste material that has been confirmed to comply with applicable acceptance criteria under an approved certification program (DOE Order 435.1).

Chelating Agent—An agent that mobilizes fixed heavy metals and radionuclides for migration in the environment. Decontamination solutions often include chelating agents. Examples include amine polycarboxylic acids (EDTA, DTPA); hydroxy-carboxylic acids; and polycarboxylic acids (citric acid, gluconic acid).

Class A/B/C Radioactive Waste—One of the three categories of LLW (Classes A, B, and C) that are distinguished by the types of radionuclides and concentration they contain. Greater-than-Class-C is defined by reference to the Class C wastes whose radionuclide concentrations are exceeded. At Paducah Gaseous Diffusion Plant (PGDP), the only Class C radionuclide, which occurs in discernible quantity, is ⁹⁹Tc, for which the Class C threshold quantity is 3 Ci per m³ waste (10 *CFR* § 61).

Classified Material—Any item or scrap that, due to its composition, structure, or function, reveals restricted data or other classified information, either directly or through analysis, in accordance with DOE CG-SS-3 and DOE CG-PGD-5.

Contained Landfill—A solid waste site or facility that accepts disposal of solid waste. The technical requirements for contained landfills are found in KAR, Chapters 47 and 48. “Contained landfills have multilayer systems including three feet of low permeability clay, a synthetic geomembrane liner, and a drainage layer comprised of leachate collection pipes.”

Critical Items—Equipment or services for which the failure of the item could cause personal injury, damage to the environment, or jeopardize the Paducah Waste Certification Program status. Program critical items include, but are not limited to, analytical laboratory services, waste containers/liners, absorbent, and waste transportation services.

Containerized Waste—Any type of solid, semisolid, or liquid waste contained by fixed boundaries such as drums, tanks, or bins.

Contaminants of Concern—Those regulated contaminants that have the potential to be present in a waste stream.

Data Quality Objectives—A set of criteria established for the collection of data to ensure that the data is adequate to make the required decision. For waste characterization, the data quality objectives will include the analyses required, the analytes (the contaminants of concern), the type and number of samples, the quality control samples and analyses, and the degree of confidence required.

Date to Storage (DTS)—The date that the first polychlorinated biphenyls (PCBs) are placed in a container or the PCB item is removed from service for disposal (whichever is first). This date is placed on the container or the item by the generator (40 *CFR* § 761).

Debris—For RCRA a solid material exceeding a 60 mm particle size that is intended for disposal and that is a manufactured object, plant or animal matter, or natural geologic material [40 *CFR* § 268.2(g)].

Debris—A mixture of solid material, including paper, plastic, personal protective equipment (PPE), wood, cardboard, rope, tubing, paper bags, metal, and glass.

Discrepancy—When the information imported into the database does not match the information in the database (i.e., barcode not in database, information predates the information in the database).

Dike—An embankment or ridge of either natural or man-made materials used to prevent the movement of liquids, sludges, solids, or other materials.

Disposal—The intentional or unintentional discharge, discard, or abandonment of a waste material with no intent of future use or removal.

Driver Vehicle Inspection Report—A report prepared by every driver in writing at the completion of each day's work on each vehicle operated covering the condition of prescribed vehicle parts and accessories in accordance with 49 *CFR* § 396.11.

Driver's Log—A daily record of a driver's off-duty, on-duty-not-driving, and driving time recorded graphically and other information that serves to identify the motor carrier, the driver, and the nature of the driver's duties as prescribed by 49 *CFR* § 395.8.

Driver's Time Record—A record showing for each day (1) each time the driver reported to duty; (2) each time the driver was released from duty; (3) if applicable, the number of hours worked for compensation for an employer other than PRS; and (4) the total number of hours-on-duty.

Eight Consecutive Day Period—The period of eight consecutive days beginning on any day at midnight. Each day is a period of 24 consecutive hours beginning at midnight.

Environmental Media—Soil, groundwater, surface water, and sediments.

Etiologic Agent—A viable microorganism, or its toxin, that causes or may cause disease in humans or animals. Etiologic agents include those agents listed in 42 *CFR* § 72.3 of the regulations of the Department of Health

and Human Services and any other agent that causes or may cause severe, disabling, or fatal disease. The terms infectious substance and etiologic agent are synonymous.

Exclusive Use—Sole use by a single consignor of a conveyance for which all initial, intermediate, and final loading and unloading are carried out in accordance with the direction of the consignor and consignee.

Facility—A building or operational unit.

Facility Manager—The PRS employee assigned responsibility by the Remediation Projects Manager for oversight and maintenance of a facility. The Facility Manager also assumes all responsibilities assigned to the Facility Operator, if not otherwise delegated.

Facility Operator—The individual responsible for the overall safe operation of a facility and for maintaining the facility in a safe condition.

Facility Owner—An individual, usually a Project Manager, responsible for the facility and its contents.

Fissionable Material—Any material in which a self-sustaining, neutron-induced fission chain reaction can occur. Nearly all the fissions in such a chain reaction are of the fissionable nuclides (e.g., ^{233}U , ^{235}U , or ^{239}Pu) contained in the fissionable material.

Freeboard—The vertical distance between the top of a tank or surface impoundment dike and the surface of the waste contained therein.

Free Liquids—Liquids that readily separate from the solid portion of a waste under ambient temperature and pressure. The presence or absence of free liquids is determined by the paint filter test or visual inspection [see Paint Filter Test (401 KAR, Chapter 47:005)].

Friable Asbestos Material—A material that can be crumbled, pulverized, or powdered by hand pressure. If a friable ACM is damaged or disturbed, it presents an inhalation risk.

Front Line Manager—An individual responsible for directing the daily work activities performed by the hourly employees.

Generation Date—The date that the waste item was generated and/or declared a waste. For bulking operations, the origin date for the newly generated waste (the bulked waste) will be the earliest origin date noted for any of the wastes bulked. If a waste is identified in the Agreed Order and is still managed and labeled as hazardous waste pending determination, then the generation date would be the date that the container went into the storage unit and would remain that after the determination is made, either hazardous or not hazardous.

Generator—See Waste Generator.

Generator Staging Area (GSA) – An area within a building or facility used for the accumulation of containers of all waste produced in the building or facility except hazardous waste. The Generator Staging Area is the responsibility of the Facility Manager or the waste generator.

Greater-than-Class-C Radioactive Waste—See Class A/B/C Radioactive Waste.

Hazardous Material—Any substance or material that has been designated by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce.

Hazardous Waste—See RCRA hazardous waste.

High Level Radioactive Waste—Highly radioactive waste material that results from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid waste derived from the liquid that contains a combination of transuranic (TRU) waste and fission products in concentrations requiring permanent isolation (DOE Order 435.1). No high level radioactive waste, by this definition, is generated at Paducah.

Hold Point—An indicator in a procedure, work package, or traveler identifying when an inspection or verification that must be performed. The work step or process must not proceed until appropriate individuals are present and prepared to perform an inspection or verification.

Incompatible Wastes—Wastes that when mixed together have the potential to generate heat, react violently, or generate a toxic vapor. (Note: Contact Waste Operations for further guidance.)

Intrusion-Indicating Device—A device that may be used on containers and that, because of the uniqueness in design or structure, may reveal violations of containment integrity. Intrusion-indicating devices include seals, mechanisms, and enclosures.

Known Waste—Waste that is identified or has a history that can be traced to a process either past or present at the Paducah Site.

Laboratory Packs—A combination package with inner containers, absorbents, and configuration as specified in DOT regulations [49 *CFR* § 173.12(b)].

Land Disposal Restrictions—Provisions of the Hazardous and Solid Waste Amendments that prohibits the land disposal of hazardous waste into or on the land unless the U.S. Environmental Protection Agency (EPA) finds that it will not endanger human health and the environment. EPA specifies levels or methods of treatment that substantially diminish the toxicity of the waste or the likelihood that hazardous constituents will migrate from the waste that must be met before the waste is land disposed (40 *CFR* § 268).

Landfill Waste—Waste that is not RCRA hazardous, Toxic Substances Control Act (TSCA), or radioactive waste. This waste category generally includes such materials as asbestos, garbage, refuse, rubbish, paper, wood, nominal amounts of metal, construction materials, demolition materials, and other materials, as specified by the applicable landfill permit (401 KAR 31).

Leachate—Any liquid, including any suspended component in a liquid, that has percolated through or drained from waste.

Leachate Collection System—A system of collection pipes placed under the fill area so that they are not exposed to surface water run-off. Leachate enters the collection pipes and flows by gravity to an in-ground wet well. The liquid is pumped from the wet well to aboveground storage tanks.

Liner—A continuous layer of natural or man-made material beneath or on the sides of a waste site or facility including, but not limited to, a waste pile, surface impoundment, landfill or landfill cell, or beneath or on the sides of a waste site or facility that restricts the movement of the wastes, waste constituents, or leachate.

LLW—Waste that contains radioactivity but is not, by definition, high-level waste, TRU waste, spent nuclear fuel, or byproduct material, as defined by DOE Order 435.1. LLW does not contain hazardous waste, as defined in 40 *CFR* § 261, or materials regulated as PCBs, as defined in 40 *CFR* § 761.

Low Specific Activity—Any material with an unknown activity and a dose rate of more than 0.005 millisievert per hour (0.5 millirem per hour) on contact with the surface of the outer package and any material(s) on contact with the surface of the outer package and any material(s) with a known activity so designated by the PRS Transportation Group.

Marking—A descriptive name, identification number, instruction(s), caution(s), weight, specification, United Nation marks, or combinations thereof required on outer packagings of hazardous materials.

Material—Both nonhazardous and hazardous materials shipped by PRS.

Motor Carrier—A for-hire motor carrier or a private carrier of property. It also means any person engaged in a business affecting interstate commerce that owns or leases a commercial motor vehicle in connection with that business.

Motor Vehicle—Any vehicle, machine tractor, trailer, or semitrailer that is propelled or drawn by mechanical power and is used on the highways in the transportation of passengers or property.

Mixed Waste—Waste containing both radioactive and hazardous components as defined by the Atomic Energy Act and the RCRA, respectively (DOE Order 435.1).

Naturally Occurring and Accelerator Produced Radioactive Material (NOARM)—Any radioactive material that can be considered naturally occurring and is not source, special nuclear, or byproduct material or that is produced in a charged particle accelerator (DOE Order 435.1).

Ninety (90)-Day Accumulation Area—Temporary storage area used to collect hazardous waste for 90 days or less before transfer to a permitted hazardous storage facility or shipment to a permitted hazardous waste treatment/disposal facility.

Non-Bulk—Any packaging, including transport vehicle or a freight container, into which hazardous materials are loaded that has a

- Maximum capacity of 119 gallons or less as a receptacle for a liquid/solid.
- Maximum net mass of 882 pounds or less for a solid.

Nonfriable ACM—A nonfriable asbestos product is one in which the asbestos fibers are bound or locked into the product matrix, so that the fibers are not readily released. Such a product would present a risk for fibers release only when it is subjected to significant abrasion through activities such as sanding or cutting with electric power tools. Examples of nonfriable asbestos products include vinyl asbestos floor tile, acoustic ceiling tiles, and asbestos cement products.

Nonradioactive Material Management Area—A waste management term for an area known to be free of removable contamination resulting from DOE operations that exceed the limits in DOE Order 435.1, Radioactive Waste Management, for off-site release. The area shall not contain sources that could reasonably be expected to cause activation.

Non-Sparking Tools—Tools made of a steel alloy containing beryllium, copper, or other material constructed to minimize the potential for spark inducement.

NTS Waste Profile—A description of a waste stream, including the physical, chemical, and radiological properties of the stream provided on a NTS waste profile form. This document is used by the NTS Radioactive Waste Acceptance Program to determine the acceptability of a waste stream for disposal at the NTS. Waste cannot be shipped unless the generator complies with an approved waste profile.

Off-Site Transportation—The movement of U.S. Department of Transportation (DOT)-regulated waste materials over roads accessible by the public (i.e., in commerce), including roads partially or completely on DOE property.

On/Off-Duty—Time spent performing compensated work for others is considered on-duty time. A meal break, paid or unpaid, is considered off-duty time if the driver has been relieved of all work-related responsibilities. Ten-minute breaks are considered on-duty time.

On-Site Transportation—The movement of DOT-regulated waste materials within the PGDP security fence over roads that are not accessible by the public (i.e., not in commerce).

Origin Date—See generation date.

Overpack—To place one or more containers into another larger container. Waste is not removed from the original container(s); the entire container is placed into the overpack container.

Package—The packaging and its contents of material as presented for transportation.

Packaging—One or more receptacles and any components attached to them. Packaging includes inner receptacles, absorbent material, supporting structure, insulation, and supplementary attached equipment.

Paint Filter Test—An EPA-approved test to determine the presence or absence of free liquids to determine compliance with 40 *CFR* § 264.313 (SW-846 Method 9095A).

PCB Detectable Waste—Any item designated for disposal that contains PCBs in concentration greater than the lower level of detection in the waste matrix and less than 50 ppm. These items must not be contaminated from any PCB source of 50 ppm or greater in concentration unless exempted in 40 *CFR* § 761.

PCB Articles—PCB article means any manufactured article, other than a PCB Container, that contains PCBs and whose surface(s) has been in direct contact with PCBs (reference 40 *CFR* § 761.50, 761.60 (b) for disposal requirements). “PCB Article” includes capacitors, transformers, electric motors, pumps, pipes, and any other manufactured item.

PCB Bulk Product Waste—PCB bulk product waste means waste derived from manufactured products containing PCBs in a nonliquid state, at any concentration where the concentration at the time of designation for disposal was ≥ 50 ppm PCBs. PCB bulk product waste does not include PCBs or PCB items regulated for disposal under 40 *CFR* § 761.60(a)–(c), § 761.61, § 761.63, or § 761.64. PCB bulk product waste includes, but is not limited to, the following:

- (1) Nonliquid bulk waste or debris from the demolition of buildings and other man-made structures manufactured, coated, or serviced with PCBs. PCB bulk product waste does not include debris from the

demolition of buildings or other man-made structures from regulated PCBs that have not been disposed of, decontaminated, or otherwise cleaned up in accordance with subpart D of this part.

- (2) PCB-containing wastes from the shredding of automobiles, household appliances, or industrial appliances.
- (3) Plastics (such as plastic insulation from wire or cable; radio, television and computer casings; vehicle parts; or furniture laminates); preformed or molded rubber parts and components; applied dried paints, varnishes, waxes or other similar coatings or sealants; caulking; adhesives; paper; asbestos; sound deadening or other types of insulation; and felt or fabric products such as gaskets.
- (4) Fluorescent light ballasts containing PCBs in the potting material (reference 40 *CFR* § 761.50 and 40 *CFR* § 761.62 for disposal requirements).

PCB Remediation Waste—PCB remediation waste means waste containing PCBs as a result of a spill, release, or other unauthorized disposal (reference 40 *CFR* § 761.50, § 761.60 and § 761.61 for disposal requirements of PCB remediation wastes). PCB remediation wastes are debris generated as the result of a PCB spill cleanup, including, but not limited to, the following:

- (1) Environmental media containing PCBs, such as soil and gravel; dredged materials, such as sediments and aqueous liquids decanted from sediment;
- (2) Sewage sludge containing < 50 ppm PCBs; PCB sewage sludge; commercial or industrial sludge, including sludges located in or removed from any pollution control device and aqueous liquids decanted from an industrial sludge;
- (3) Buildings and other man-made materials (such as concrete floors, wood floors, or walls contaminated from a leaking PCB or PCB-contaminated transformer), porous surfaces, and nonporous surfaces.

PCB Lab Waste—Waste generated as a result of research and development activities authorized under 40 *CFR* § 761.30(j) and the chemical analysis of PCBs, including, sample preparation, sample extraction, extract cleanup, extract concentration, addition of PCB standards, and instrumental analysis (reference 40 *CFR* § 761.50, § 761.64 for disposal requirements). This does not include the original, unpreserved sample material that is returned to the generator.

PCB Radioactive Waste—TSCA-regulated waste that contains radioactive constituent(s), as defined by the Atomic Energy Act.

PCB Waste—Those PCBs and PCB items that are subject to the disposal requirements of 40 *CFR* § 761, Subpart D.

PCB/RCRA Mixed Waste—RCRA mixed waste that also is PCB waste.

Pressurized Container—A waste container that exhibits pressurization by visual indications, which may include uniform and distributed swelling or bulging of the sides, top, or bottom in a convex shape, or by audible indications, such as uncontrolled hissing sounds.

Process Knowledge—As it applies to waste characterization and certification, process knowledge (PK) is documented knowledge of the processes and sources associated with generation of a waste or waste stream that allows a reliable estimation of the constituents and quantities for handling, storage, treatment, and disposal. PK

is information, ultimately based on either analytical data or knowledge of the waste generating activity, that relates to the material to be characterized, but does not directly represent the material itself.

Putrescible—Susceptible to rapid decomposition by bacteria, fungi, or oxidation sufficient to cause nuisances, such as odors, gases, or other offensive conditions.

Radioactive Material Management Area (RMMA)—A waste management term for an area in which the potential exists for contamination due to the presence of unencapsulated or confined radioactive material or in an area that is exposed to beams or other sources of particles (neutrons, protons, etc.) capable of causing activation. All waste streams exiting RMMAs are considered to be potentially radioactively contaminated. Accident or variant conditions may require areas to be designated as temporary RMMAs until conditions are corrected. A RMMA does not need a radioactive material area to exist, only the potential for contamination in the area.

Radioactive Waste—Solid, liquid, or gaseous material that contains radionuclides regulated under the Atomic Energy Act of 1954, as amended, and of negligible economic value considering costs of recovery.

RCRA Hazardous Waste—Any solid, liquid, or contained gaseous material (compressed gas cylinder) that is characteristically hazardous or is a listed hazardous waste as defined by 401 KAR 31, and/or any environmental media that contains a listed hazardous waste.

RCRA Mixed Waste—See Mixed Waste.

Recirculation of Leachate—Leachate disposal by applying the liquid to previously filled landfill areas where the final cap has not been constructed. When weather conditions are favorable (hot, dry, and breezy), much of the liquid coverts into a vapor. To prevent run-off of leachate, this method of disposal shall not be practiced during unfavorable weather conditions (rainy, wet, and freezing).

Regulated ACM (RACM)—Means (a) friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

Regulated Waste—Hazardous, radioactive, mixed, and solid waste that is managed and controlled by RCRA, DOE Order 435.1, and other federal and state regulations.

Repackage—To move the contents of one or more waste container(s) into another waste container.

Reportable Quantity—A quantity of a hazardous material equal to or greater than the quantity specified in Column 2 of Table 1 Appendix to 49 *CFR* § 172.101 for any material identified in column 1 in the same appendix.

Representative Sample—As defined by the EPA, a representative sample is a “sample of a universe or whole (for example, waste pile, lagoon, drummed liquid, or solid), which can be expected to exhibit the average properties of the universe or whole.” Specific sampling techniques are outlined by EPA for obtaining representative samples (SW-846).

Residential Waste—Any garbage, refuse, or other discarded material resulting from industrial, commercial, or community activities that is not categorized as an inert, hazardous, radioactive, regulated, or PCB waste.

Run-Off—Any rainwater, leachate, or other liquid that drains overland from any part of a facility.

Run-On—Any rainwater, leachate, or other liquid that drains overland onto any part of the facility

Satellite Accumulation Area (SAA)—A designated area for the temporary accumulation of hazardous waste that is located at or near the point of generation and under the control of the operator of the process generating the waste.

Secure Area—An area that has been cordoned off to prevent physical access by unauthorized personnel. The area should be set up radially from point of the hazard. The distance should be a minimum of 20 feet, unless the hazard level warrants a greater secure area. Personnel should use discretion in using the graded approach to apply to secure areas such that the higher the hazard (such as an overpressurized container that has organic liquids), the greater the radial distance to be used from the hazard, thereby defining the secure area.

Shipper—Used in reference to a DOE contractor who prepares a package of material for shipment, signs the shipping paper, and offers the package to a carrier for transportation. The word shipper and PRS are used interchangeably when referring to shipments.

Solid Waste—Any discarded material (liquid, gaseous, semisolid, or solid) that is abandoned, including disposed of, burned, or incinerated, or accumulated, stored, or treated before or in lieu of being abandoned or incinerated; recycled; or inherently waste-like, such as those listed in 40 *CFR* § 261.2(d).

Solid Waste Site or Facility—Any place at which solid waste is managed, processed, or disposed of by landfilling, landfarming, or any other method.

Storage—The intentional or unintentional placement of wastes in an area from which retrieval is possible or intended.

Tank—A large artificial receptacle used for holding, transporting, or storing liquids. The material of construction (steel, polypropylene, etc.) should be chemically compatible with the liquid being stored.

Thirty (30)-Day Temporary Storage Area—A temporary storage area used to collect PCB solid waste for 30 days or less before transfer to a waste storage facility or shipment to a permitted waste disposal facility.

Tamper-Indicating Devices (TIDs)—A device that may be used on containers and that, because of the uniqueness in design or structure, may reveal violations of containment integrity. TIDs include seals, mechanisms, and enclosures.

Toxicity Characteristic Leaching Procedure (TCLP)—An EPA-approved method to determine the mobility of certain organic and inorganic analytes present in solid or liquid waste (SW-846 Method 1311).

Transportation—Inbound and/or outbound shipment of materials from one point to another using a transport vehicle.

TRU Waste—Without regard to source or form, TRU is radioactive waste containing more than 100 nanocuries (3,700 Bq) of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, except for (1) high-level radioactive waste; (2) waste that the Secretary of Energy has determined, with the concurrence of the Administrator of the EPA, does not need the degree of isolation required by the 40 *CFR* § 191 disposal regulations; or (3) waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 *CFR* § 61.

Treatment—Any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste nonhazardous, or less hazardous; safer to transport, store, or dispose; or amenable for recovery, amenable for storage, or reduced in volume (40 *CFR* § 260.10).

Treatment, Storage, and Disposal Units (TSDs)—A building or operational unit where waste is treated, stored, or disposed.

TSCA-Defined Chemical or Waste—Chemical or waste regulated under the TSCA that is generated and managed during DOE remediation activities. TSCA chemicals or waste may include PCBs and other regulated substances, as applicable.

TSCA Radioactive Waste—See PCB Radioactive Waste.

Underlying Hazardous Constituent (UHC)—Any constituent listed in 40 *CFR* § 268.48, Table UTS - Universal Treatment Standards, except fluoride, vanadium, and zinc, which can reasonably be expected to be present at the point of generation of the hazardous waste, at a concentration above the constituent-specific UTS. Underlying hazardous constituents must be identified on land disposal restriction notification unless the generator will monitor for all regulated constituents.

Universal Waste— Enables recycling and proper disposal of certain hazardous wastes, while reducing the time and money required to manage them as hazardous waste. In Kentucky, a generator has the option to manage batteries, unused pesticides, mercury thermostats, and spent lamps either as hazardous waste or as universal waste. However, if one of these wastes is radiologically contaminated, it cannot be designated as universal waste; it must be managed as a mixed waste.

Unknown Waste—Waste about which there is insufficient knowledge of its origin or generation.

Waste—Materials intended to be or which actually have been thrown away, abandoned, or destroyed; materials that have served their intended purpose and are sometimes discarded or recycled, such as waste solvents, paint wastes, waste acids, used drums, and used oil; and materials that are incidentally generated as part of a process.

Waste Acceptance Criteria (WAC)—Requirements that each category of waste must meet to be accepted and managed by Waste Operations. Generators must certify that wastes meet the appropriate WAC before the waste can be transferred to Waste Operations.

Waste Category—Groups of waste that are governed by common regulations (e.g., LLW, RCRA waste, PCB waste, etc.).

Waste Certification—The process of ensuring and attesting to the fact that a waste has been generated, containerized, and characterized in accordance with an approved Waste Management Plan. To complete the certification, the generator must document by signature that the waste complies with the WAC applicable to that waste category.

Waste Certification Official (WCO)—The person who affirms by signature that waste meets the NTS WAC. The WCO must be named specifically on the Paducah NTS Certification Personnel List, previously submitted by DOE Paducah to DOE National Nuclear Security Administration, Nevada Site Operations. The WCO also

ensures that independent oversight is conducted to verify that quality assurance requirements and NTS waste disposal site WAC are satisfied.

Waste Characterization—The process of identifying and quantifying the chemical, physical, biological, and other properties of waste in a manner adequate to determine regulatory category or to meet WAC of the receiving organization.

Waste Container—Any package, can, bottle, bag, barrel, drum, tank, or other device that contains waste. A waste article also may be the container.

Waste Disposition—The planning, coordination, and direction of those functions related to generation, handling, treatment, storage, transportation, and disposal of waste, as well as associated surveillance and maintenance activities.

Waste Generator—Individual (such as Facility Manager, supervisor of a waste-generating activity, or appointee) or organization whose act or process produces waste to be managed for the DOE.

Waste Oil—Used products primarily derived from petroleum, which include, but are not limited to, fuel oils, motor oils, gear oils, cutting oils, transmission fluids, hydraulic fluids, and dielectric fluids.

Waste Profile—Description of a waste stream, including the physical, chemical, and radiological properties of the stream provided on the TSD facility (TSDF) waste profile form. This document is used by the TSDF to determine the acceptability of a waste stream for treatment/disposal at the TSDF. Waste cannot be shipped unless it complies with an approved waste profile.

Waste Stream—Waste material produced by a specific process or activity that is similar in material, physical form, radiological, and chemical constituents.

EXECUTIVE SUMMARY

The U.S. Department of Energy (DOE) owns and operates waste treatment, storage, and disposal (TSD) facilities at the Paducah Gaseous Diffusion Plant (PGDP). Paducah Remediation Services, LLC, (PRS), the Environmental Remediation Contractor for DOE, manages and operates these facilities. Currently, TSD facilities include the C-746-U Solid Waste Landfill, several hazardous waste storage facilities, Toxic Substance Control Act (TSCA) waste storage facilities, radioactive waste storage facilities, and two wastewater treatment facilities. These facilities may be regulated by the DOE, the Commonwealth of Kentucky, and/or the U.S. Environmental Protection Agency under the provisions of the Atomic Energy Act, the Resource Conservation and Recovery Act, TSCA, Kentucky Solid Waste Landfill Regulations, and/or the Clean Water Act.

This document establishes the site-specific waste generation and certification criteria, in addition to the state, federal, DOE, and treatment and disposal facilities criteria, which the various waste types must meet before being transferred to one of the PGDP TSD facilities (TSDFs). The established criteria ensure that the wastes will be accepted for treatment, storage, and/or disposal at the various PGDP TSDFs and will be handled safely in compliance with all applicable regulations. It is stressed that while waste is being stored at a PGDP TSDF that the generator remains responsible for the waste, and that offering waste for storage does not imply the waste meets the acceptance criteria for off-site treatment and/or disposal. The following criteria must be met to ensure that waste can be handled and stored safely at any of the PGDP TSDFs. Various contractors and subcontractors may generate waste at PGDP through general maintenance, environmental restoration projects, decontamination and decommissioning, DOE Material Storage Areas, and other daily plant process activities.

The following PRS procedures or PRS-approved alternative must be used in generation, characterization, packaging, certification, and disposition of waste.

- PRS-WSD-3010, *Waste Generator Responsibilities for Temporary On-Site Storage of Regulated Waste Materials at Paducah*
- PRS-WSD-3011, *Waste Certification*
- PRS-WSD-3012, *Procurement and Inspection of Items Critical for Paducah Off-Site Waste Shipment*
- PRS-WSD-3014, *Procurement, Inspection and Management of Used Recyclable Waste Containers*
- PRS-WSD-3015, *Waste Packaging*
- PRS-WSD-0437, *Waste Characterization and Profiling*
- PRS-WSD-3025, *Preparation and Processing of Paducah Landfill Packages*
- PRS-WSD-1017, *Safe Handling and Opening of Sealed Containers*
- PRS-WSD-3028, *Off-Site Shipments*
- PRS-WSD-0661, *On-Site Transportation Safety Program*
- PRS-WCE-0018, *Paducah Work Control Process*

- PRS-WCE-0019, *Work Authorization*
- PRS-WCE-0020, *Work Planning*
- PRS-WCE-0021, *Work Execution*
- PRS-WCE-0022, *Work Closeout*

Before generating wastes that will be stored temporarily in a Paducah TSDF, each generator is required to have their project-specific Waste Management Plan approved by the Waste Disposition/Waste Facility Operations Manager or Designee. This document provides PRS sufficient information to assess the generator's ability to effectively manage its waste and to determine if they have identified a suitable disposition path for each waste stream that is to be generated. The Request for Disposal or equivalent is used to facilitate the transfer of waste to one of the various PGDP on-site TSDFs.

1. INTRODUCTION

The U.S. Department of Energy (DOE) owns and operates waste treatment, storage, and disposal (TSD) facilities (TSDFs) at the Paducah Gaseous Diffusion Plant (PGDP). Paducah Remediation Services, LLC, (PRS) the Environmental Remediation Contractor for DOE at PGDP, manages and operates these facilities. Currently, these facilities include the C-746-U Solid Waste Landfill, several hazardous waste storage facilities, radioactive waste storage facilities, Toxic Substance Control Act (TSCA) waste storage facilities, and two wastewater treatment facilities. These units may be regulated by the DOE, the Commonwealth of Kentucky, and/or the U.S. Environmental Protection Agency (EPA) under the provisions of the Atomic Energy Act, the Resource Conservation and Recovery Act (RCRA), TSCA, Kentucky Solid Waste Landfill Regulations, and/or the Clean Water Act.

This document was developed to ensure that wastes generated, certified, and accepted for TSD at the various on-site TSDFs can be handled in a safe and efficient manner and are in compliance with the federal, state, DOE, and waste treatment and disposal facility rules and regulations. The waste acceptance criteria (WAC) established in this document applies to all newly generated waste being offered for temporary on-site storage prior to treatment, storage, and/or disposal at various on-site TSDFs. It also applies to waste that will be sent directly to an off-site TSDF. The following criteria must be met to ensure that waste can be handled and stored safely at any of the PGDP TSDFs. It does not apply to waste that will be sent directly to off-site TSD from the point of generation or legacy waste accepted into storage under previous WAC and/or procedures. This document does not supersede applicable federal and state regulations. The generator is responsible for ensuring that all wastes are generated, managed, and certified in accordance with Paducah's waste certification procedures and applicable federal, state, DOE, and off-site waste disposition facility requirements.

The following PRS procedures or PRS-approved alternative must be used in the generation, packaging, characterization, certification, and disposition of waste.

- PRS-WSD-3010, *Waste Generator Responsibilities for Temporary On-Site Storage of Regulated Waste Materials at Paducah*
- PRS-WSD-3011, *Waste Certification*
- PRS-WSD-3012, *Procurement and Inspection of Items Critical for Paducah Off-Site Waste Shipment*
- PRS-WSD-3014, *Procurement, Inspection and Management of Used Recyclable Waste Containers*
- PRS-WSD-3015, *Waste Packaging*
- PRS-WSD-0437, *Waste Characterization and Profiling*
- PRS-WSD-3028, *Off-Site Shipments*
- PRS-WSD-3025, *Preparation and Processing of Paducah Landfill Packages*
- PRS-WSD-1017, *Safe Handling and Opening of Sealed Containers*
- PRS-WSD-0661, *On-Site Transportation Safety Program*

- PRS-WCE-0018, *Work Management Programs for the Paducah Environmental Remediation Project, Paducah, Kentucky*
- PRS-WCE-0019, *Work Authorization*
- PRS-WCE-0020, *Work Planning*
- PRS-WCE-0021, *Work Execution*
- PRS-WCE-0022, *Work Closeout*

PRS Material Disposition Project is available to assist in understanding and interpreting the requirements in this document. For assistance please call the following:

Material Disposition Office
Telephone: 270-441-5326
Fax: 270-441-5092

Waste Operations Office
Telephone: 270-441-5229
Fax: 270-441-5225

2. PURPOSE AND SCOPE

This document establishes the WAC for PGDP TSDFs. The WAC provides the requirements, terms, and conditions under which waste will be accepted for treatment, storage, and/or disposal at PGDP TSDFs. The criteria apply to all newly generated or newly discovered wastes that are being offered for TSD to any PGDP Waste Operations TSDF.

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3. TRANSFER PROCESS

3.1 WASTE MANAGEMENT PLAN

Each generator must have an approved project-specific Waste Management Plan (WMP) submitted to the Waste Disposition/Waste Facility Operations Manager or designee prior to initiating waste-generating activities. The purpose of the WMP is to provide the PRS Material Disposition Project sufficient information to assess the likelihood that waste identified as needing treatment, storage, and/or disposal at a TSDF meets the WAC for that facility. If necessary, generators may contact Waste Disposition for assistance in completing the WMP.

PRS-CDL-0029, *Waste Management Plan for the Paducah Environmental Remediation Project*, requires the generator to include in the WMP the intended treatment and/or disposal options for all wastes being transferred to a PGDP TSDF or shipped off-site to a TSDF. If wastes being transferred to a PGDP TSDF do not meet one of the acceptance criteria established in this document, the generator may request a variance by submitting a Waste Variance Request (Appendix A). The variance may be granted if it is determined that conditions exist that make it exceedingly difficult or impossible to meet a requirement, or if it is determined that the compliance status of either the generator's or TSDF's site operations is not compromised by the variance. Variances will not be granted for convenience. The generator must document all requests and the Waste Disposition Project Manager or designee must approve them.

If the project or waste generation processes change, the generator must notify the Material Disposition Project immediately, in writing, that the change occurred. The WMP must be reviewed and revised, as necessary, for each affected waste stream. Waste Disposition Project will determine if the transfer of waste under the affected WMP may be suspended until a revised WMP is approved.

NOTE: A list of approved WMPs can be obtained from PRS Document Control.

3.2 REQUEST FOR INTERIM STORAGE

Once waste is generated, fully characterized, containerized, appropriately labeled, marked, and certified, the generator will submit a Request for Disposal (RFD) and associated documentation to Material Disposition for approval. The RFD must reference an approved WMP and be submitted no later than three business days prior to the desired transfer date. Material Disposition shall verify that the RFD is complete, all necessary documents are present, and waste meets the safety basis limits for that facility. Once verified, approval for transfer will be given to the generator. The format and instructions for the RFD are in Appendix B.

If the need for a variance is identified after approval of the WMP, a Waste Variance Request should be submitted with the RFD. Additional time may be needed to evaluate the variance request, which may cause a delay in the approval for the RFD.

Before a newly generated waste is accepted by PRS for storage, the generator must include with the RFD a schedule for the final disposition of the waste. The schedule must be reviewed and agreed upon by Material Disposition.

NOTE: A completed Authorized Derivative Classification/Technical Information Office form and waste generation forecast must be included with RFD submittal.

3.3 TRANSFER OF WASTE TO WASTE DISPOSITION

After the RFD is approved, generators will coordinate the delivery of wastes with Waste Operations. On the day of delivery, Waste Operations will verify the appropriate documentation is present, waste containers are marked and labeled properly, and radiological (RAD) surveys have been performed by Health Physics (HP), if needed.

Waste Operations may open waste packages to conduct visual verification of waste type and form. If conducted, it will be the generator's responsibility to provide the necessary replacement tamper-indicating devices (TIDs).

Generators must correct deficiencies found during receipt inspection of the waste before waste will be accepted. If generators are unable to correct the deficiencies, Waste Operations will not accept the waste.

Off-site generators (waste generated outside of the PGDP security fence) must provide to Waste Operations, at least three days in advance, written notification of planned transfers of waste to PGDP TSDFs. The notification may be transmitted with the RFD. Intent to transfer may be communicated to Waste Operations via telephone in emergencies.

NOTE: Off-site waste generator needs to coordinate with security prior to bringing sealed waste containers into the plant.

On-site generators requesting delivery of waste to PGDP TSDFs after 3:00 p.m. must obtain approval from Waste Operations at least 24 hours in advance.

3.4 DISPOSITION OF NEWLY GENERATED WASTE

All newly generated or discovered TSCA/radioactive, mixed waste (RCRA /radioactive), and low-level waste (LLW) must be disposed of within one year of generation per DOE Order 435.1. Exemptions/variances may be obtained on a case-by-case basis with concurrence from Environmental Compliance.

4. WASTE CRITERIA

The criteria established in this document are for wastes being (1) disposed of in the C-746-U Contained Solid Waste Landfill, (2) treated at one of the on-site wastewater treatment facilities, and/or (3) stored in on-site waste storage facilities until shipment to an off-site TSDF. Although some requirements established in this document apply to waste generation, certification, and storage while in the possession of the generator, most requirements for the management of the waste while in the possession of the generator are outside the scope of this document (see PRS-WSD-3010). The generator is responsible for managing waste during all phases of its life cycle, from generation to disposal (cradle to grave).

Generators should be aware that any waste transferred must meet the requirements of each facility in which the waste will reside. As an example, waste to be treated in one of the wastewater treatment facilities requiring storage before treatment would need to meet the criteria of Section 4.1.

4.1 WASTE SUBMITTED FOR STORAGE

The PGDP waste storage facilities safely store RCRA-hazardous wastes, TSCA-regulated wastes, LLW, transuranic (TRU) wastes, and sanitary solid wastes. The PGDP waste storage facilities are designed to provide safe storage until the generator can facilitate the proper treatment and/or disposal for the waste. It is stressed that while waste is being stored at a PGDP TSDF that the generator remains responsible for the waste, and that offering waste for storage does not imply the waste meets the acceptance criteria for off-site treatment and/or disposal. The following criteria must be met to ensure that waste can be handled and stored safely at any of the PGDP TSDFs.

4.1.1 General Requirements

All waste being submitted for storage must meet the specific WAC established in this section, in addition to being containerized in accordance with Section 5 and characterized in accordance with Section 6.

4.1.2 Hazardous Wastes

Hazardous wastes must be characterized and categorized in accordance with 40 *CFR* § 261–268 and 401 *KAR* Chapters 31–37. All hazardous waste must have the proper waste code assigned, to include underlying hazardous constituents (UHCs), and be identified in the WMP and RFD as such.

4.1.2.1 Specific hazardous waste requirements

The generator must report and certify the following information in the WMP and on the RFD for RCRA hazardous or potentially RCRA hazardous waste as a condition of waste acceptance.

Hydrogen potential (pH) (applies to aqueous liquids only)—The pH of the liquid must be reported.

NOTE: For nonaqueous liquids that are suspected of being corrosive, the material should be tested to determine if it corrodes steel at a rate greater than 0.25 inches (6.35 mm) per year.

Flash Point—The flash point of liquid waste must be reported by using process knowledge (PK) or testing. The actual flash point of the waste must be reported if above 90 °F and below 210 °F [i.e., between these limits, the discrete value must be reported, not less than (<) or greater than (>) a value].

NOTE: If the flash point is < 73 °F, a second flash point result and the boiling point also must be reported.

EPA Characteristics and Listed Waste Codes—Any EPA listed waste codes must be reported if the waste is generated by a specific source, a nonspecific source, an acute toxic chemical, or a toxic chemical that is listed in 401 KAR 31:040. This includes any environmental media that contains a listed waste and that does not have an appropriate “contained-in” determination. The waste must carry the applicable EPA code, as specified.

4.1.3 Polychlorinated Biphenyls

Polychlorinated biphenyl (PCB) wastes are those that are subject to TSCA regulations in 40 CFR § 761. PCB wastes submitted for disposal must meet all the applicable requirements in federal regulations and the Commonwealth of Kentucky regulations. The generator should consult DOE/EH-413-9914, *Storage and Disposal of PCB Waste*, when making classification and TSD decisions.

PCBs measured on a nonporous surfaces (e.g., metal) are regulated by the same provisions as concentrations in Table 1.

Table 1. PCB Surface Contamination

Surface Contamination Measurement	Analogous Volumetric PCB Concentration
$\leq 10\text{ug}/100\text{cm}^2$	< 50 ppm
$>10\text{ ug}/100\text{cm}^2$ to $< 100\text{ ug}/100\text{cm}^2$	$\geq 50\text{ ppm}$ < 500ppm
$\geq 100\text{ ug}/100\text{cm}^2$	$\geq 500\text{ ppm}$

4.1.3.1 Specific PCB waste requirements

The generator must report and certify the following information on the RFD for PCB or detectable PCB waste.

TSCA-Regulated Constituents and Concentrations—The presence of TSCA-regulated PCBs in the waste must be identified. The PCB concentration in milligrams per kilogram and the source of the PCBs (i.e., capacitor spill, ventilation duct oil, etc.) must be reported.

Date-to-Storage—Note the date removed from service for disposal or date PCB item was first containerized, whichever is first.

PCB- and Detectable-PCB Articles—Items such as capacitors and transformers that contain regulated or detectable levels of PCBs have the following special reporting requirements:

- Type of equipment
- Manufacturer’s name
- Identification or serial number
- Kilo Var rating, volume of liquid (electrical equipment only)
- Quantity of PCB dielectric liquids (regulated or detectable)
- Notation of whether the item is leaking or not leaking
- PCB concentration and source

PCB Bulk Product Waste—Note a description of the bulk product waste (e.g., plastic, dried applied paint, fabric insulation) and whether waste leaches or does not leach PCBs. If waste leaches $\geq 10 \mu\text{g/L}$ PCBs, waste must be marked/labeled, tracked, manifested, and disposed of as PCB waste, unless managed per note below.

NOTE: PCB bulk product that leaches $< 10 \mu\text{g/L}$ does not have to be marked/labeled, tracked, manifested, or disposed of as PCB waste, but the disposal facility must be notified a minimum of 15 days prior to shipment (40 *CFR* § 761.62(b), and certain storage requirements may apply).

PCB Remediation Waste—Note whether waste satisfies requirements of 40 *CFR* § 761.61.

Containerized and Bulked PCB Waste—The source, volume (or quantity), and date for each addition or removal from the container must be identified. The disposition of any material removed from the container also must be noted on the Waste Container Log.

PCB Antidilution Rule—No person may avoid any provision specifying a PCB concentration by diluting the PCBs, unless otherwise specifically provided. If it touches or is mixed with PCBs or particularly spilled PCBs, then it must be handled as if the original PCB concentration.

4.1.3.2 PCB-detectable waste

PCB-detectable waste is that which contains less than the regulatory threshold of 50 ppm PCBs and is not from a source that meets or exceeds 50 ppm. PCB-detectable waste must be identified on the RFD and individual containers must be labeled with the detectable-PCB label, in addition to other required labels and markings.

Solid waste and soil is “PCB detectable” if it has measurable PCBs above 1 ppm, but less than the regulatory threshold of 50 ppm and is not from a source that meets or exceeds 50 ppm.

Waste oil is “PCB detectable” if it has measurable PCB above 2 ppm, but less than the regulatory threshold of 50 ppm, and is not from a source that meets or exceeds that threshold.

4.1.4 Radioactive Waste

Radioactive waste is defined as solid, liquid, or gaseous material that contains radionuclides regulated under the Atomic Energy Act of 1954, as amended, and of negligible economic value considering costs of recovery. PGDP has produced only LLW and potentially TRU wastes. LLW consists of three categories: LLW, PGDP Fissionable Wastes, and Nuclear Criticality Safety (NCS) Spacing Exempt Waste. LLW is discussed in Section 4.1.4.2, PGDP Fissionable Wastes, and NCS Spacing Exempt Waste are discussed in Section 4.1.4.3 under the heading of Fissionable Assay Waste. TRU is discussed in Section 4.1.4.4. Radioactive wastes must be identified as LLW, PGDP Fissionable Wastes, NCS Spacing Exempt Waste, or TRU on the RFD.

4.1.4.1 General radioactive waste requirements

Percent Enrichment—For waste containing uranium, the percent enrichment of the uranium in ^{235}U , in weight percent must be reported on RFD (for guidance contact Waste Disposition).

Absorbent Materials—The type and quantity of absorbent materials in grams and must be reported in the WMP and RFD (see Appendix C for guidance).

Ion Exchange Resins—The presence of ion exchange resins must be identified.

Chelating Agents—Report active chelating agents greater than or equal to 1% of the weight of the waste. Report spent chelating agents in any quantity.

Sealed Source Radioactive Waste—The following reporting requirements apply:

- Leak test results.

NOTE: Any leak test that shows 0.005 μCi or more of removable contamination will be considered evidence that the sealed source is leaking its radioactive contents. If a leak test cannot be performed because of handling or measurement limitations, the source will be assumed to be leaking.

- A declaration, with descriptive justification, that the sealed source no longer is appropriate to the function for which it was produced or procured.
- Documentation that the sealed source is not suitable for recycle, reuse, or returnable to the manufacturer.

4.1.4.2 Low-level radioactive waste

LLW is defined as radioactive waste that is not high-level radioactive waste, spent nuclear fuel, TRU waste, by-product material [as defined in Section 11e (2) of the Atomic Energy Act of 1954, as amended], or naturally occurring radioactive material.

Waste must be categorized as LLW if it exceeds the surface contamination limits established in Attachment A of PRS-RAD-1109, *Radioactive Contamination Control and Monitoring*. Potential volumetric contaminated waste also must be categorized as LLW until verified as not radioactive by Project Health Physicist.

LLW meeting the criteria of greater-than-Class-C (10 *CFR* § 3 61.55) must be identified on the RFD as such.

4.1.4.3 Fissionable-assay waste

LLW containing uranium with a uranium-235 (^{235}U) enrichment greater than 1 wt.% is categorized as fissionable-assay waste. All fissionable-assay wastes must be identified on the RFD as either “NCS Spacing Exempt Waste” or “Fissionable Material.”

Waste containing fissionable radionuclides, other than ^{235}U , will be assessed on a case-by-case basis. Fissionable nuclides are listed in DOE Order 420.1 “Facility Safety.”

Waste containing the following cannot be accepted:

- Significant quantities of beryllium and /or deuterium oxide (D_2O) (i.e., 0.1% of ^{235}U mass per container); and
- Significant quantities of bulk carbon (graphite) (i.e., 20 times ^{235}U mass/container).

4.1.4.4 Transuranic waste

TRU waste is radioactive waste containing more than 100 nanocuries (3,700 becquerels) of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years. All TRU assay waste must be identified on the WMP and RFD.

TRU Waste Reporting Requirements—In addition to all requirements above, the following must be reported for TRU waste:

- Combustible Materials Present—An estimate of percent of combustible materials by weight (e.g., 0%, 25%, 50%, 75%, 100%);
- Thermal Power—Reports the thermal power in watts for waste generating > 0.1 watts/ft³;
- Rad Handling Type—Identify handling requirements (contact handle or remote handle);
- Heat-sealed Bags—Identify the presence of heat-sealed bags; and
- Sealed Layers of Packaging—Identify number and type, starting with the innermost layer and working outward.

4.1.5 Mixed Waste

Waste submitted for storage meeting this definition must satisfy the requirements for the storage of radioactive waste (Section 4.1.4) and the applicable hazardous component (Section 4.1.2).

4.1.6 Polychlorinated Biphenyl/Radioactive Waste

PCB radioactive waste must meet the requirements for both radioactive waste (Section 4.1.4) and PCB waste (Section 4.1.3).

4.1.7 Asbestos-Containing Material and Regulated Asbestos-Containing Material

Asbestos-containing material (ACM) is any material that contains more than 1% asbestos. ACM found at PGDP may include, but is not limited to, transite, floor tiles and mastic, ceiling tiles, roofing materials, gaskets, thermal system insulation, etc. All asbestos-containing wastes placed in temporary storage must comply with the U.S. Department of Transportation (DOT) regulations and disposition facility WAC. An estimate of the total volume of asbestos containing wastes (friable or nonfriable), in cubic yards must be annotated in Block W32 of the RFD.

Requirements for packaging, handling, producing shipping papers and TSDF's WAC vary depending on whether the waste material is ACM or regulated ACM (RACM). Characterization by an asbestos competent person is required prior to disposal options.

4.1.8 Waste Not Fully Characterized

In some cases, the need may exist for waste to be transferred to a PGDP TSDF before all applicable requirements in this document and off-site receiving facility WAC are fulfilled [i.e., waste may need to be removed from a full Satellite Accumulation Area (SAA) before characterization is complete]; therefore, all documentation may not be complete. Waste Disposition must be contacted for concurrence and plans to complete all requirements must be made.

Certain minimum requirements must be met before waste is accepted including the following.

Assay Determination—Required before waste will be accepted if waste has the potential to be radioactive. Contact Materials Disposition for guidance.

Characterization Data (Analytical Data)—Data and associated documents that are used to characterize the waste stream. This may include laboratory analytical data, the sampling and analysis plan, process operating procedures and any other documentation that allows the data to be related to the waste stream. Any waste that will be shipped off-site for treatment and/or disposal or on-site disposal must have its analytical data loaded into the Paducah Oak Ridge Environmental Information System (OREIS) database or have an approved Waste Variance Request form. Waste may be transferred to a TSDf before all analytical data has been received. Certain data, however, are required before waste can be accepted. These include the following:

- pH, if the waste is liquid and has the potential to be RCRA corrosive;
- Flash point, if the liquid waste has the potential to be RCRA ignitable;
- Assay in duplicate, if the waste has the potential to be fissile; and
- PCB concentration and source.

Waste Characterization Documentation—Waste characterization documentation, as required by PRS-WSD-0437, must be completed and submitted with the RFD.

RFD and Associated Attachments—Required before waste will be accepted.

Waste Item Container Log (Appendix B)—For all containerized waste, it accompanies the RFD and is required before waste will be accepted.

Waste Variance Form (Appendix A)—The variance request will document the reason the waste needs to be transferred before all requirements can be met. In addition, the variance request will describe actions being taken to satisfy the waste acceptance criteria and the associated time lines.

Generators are reminded that if documentation is not provided, as specified in the variance request, waste will not be accepted.

Waste Disposition Schedule—The waste disposition schedule must be attached to the RFD form prior to Waste Operations accepting waste for storage.

4.1.9 Universal Waste

4.1.9.1 Universal waste rule

The “Universal Waste Rule” enables recycling and proper disposal of certain hazardous wastes, while reducing the time and money required to manage them as hazardous waste. In Kentucky, a generator has the option to manage batteries, unused pesticides, mercury thermostats, and spent lamps either as hazardous waste or as universal waste. If one of these wastes is radiologically contaminated, it cannot be designated as universal waste; however, it must be managed as a mixed waste.

4.1.9.2 Universal waste types

- Batteries, such as nickel-cadmium (Ni-Cd) and small sealed lead-acid batteries, that are found in electronic equipment, bar codes scanners, mobile telephones, portable computers, and emergency backup lighting.

- Agricultural pesticides that have been recalled or banned from use, are obsolete, have become damaged, or no longer are needed due to changes in cropping patterns or other factors. These often have been stored for long periods of time in sheds or barns.
- Thermostats, which can contain as much as three grams of liquid mercury, are located in almost any building, including commercial, industrial, agricultural, community buildings, and households.
- Spent lamps, which include incandescent, fluorescent, high-pressure sodium, mercury vapor, metal halide, high intensity discharge, and neon bulbs or tubes.

4.1.9.3 Handling requirements for universal waste

All universal waste must be managed in a way that prevents releases of the waste or its components to the environment. Universal waste may be accumulated for up to one year. Following are handling requirements for the waste types listed below.

All Types

- Containerize the waste in a container that has no evidence of leaks, spills, or damage that could cause leaks. The container must be closed, structurally sound, and compatible with its contents.
- The container must be labeled or clearly marked with the words “Universal Waste” and either “Batteries,” “Pesticides,” “Mercury Thermostats,” or “Spent Lamps.”
- Overpack or repackage wastes that are not in an acceptable container.
- Mark each item in the container with the date it became a waste, or mark each container with the earliest date that any waste in the container became a waste.

Batteries

- Batteries should be sorted by type, such as Ni-Cd and other nickel-bearing batteries, lead-acid, silver oxide, or mercury.
- Discharge batteries to remove any electrical charge and tape terminals.
- The casing of each individual battery must stay intact and closed (except that cells may be opened to remove electrolyte but shall be closed immediately after removal). If any electrolyte is removed, it must be characterized to determine whether or not it is a hazardous waste.

Unused Agricultural Pesticides

- The container should have the original label that was on the product at the time of purchase. If the original label is not legible or available, then use an appropriate label, as required by DOT.

Mercury Thermostats

The mercury-containing ampoules may be removed from thermostats under the following conditions:

- They are removed in a manner that prevents breakage and over a containment device (tray or pan);
- A mercury cleanup system is readily available;
- Leaks or spills from broken ampoules are cleaned up immediately;
- The work area is well ventilated and monitored in compliance with Occupational Safety and Health Administration exposure standards; and
- The removed ampoules are put in a container with enough packing materials to prevent breakage during storage, handling, and transportation.

Spent Lamps

- Sort lamps by type [e.g., fluorescent (mercury), incandescent (lead), or others].
- Lamps that are broken must be cleaned up and placed into a container immediately.
- Leaking or damaged lamps must be containerized.

4.1.9.4 Shipment of universal waste

- A record of the shipment must be maintained, but a “Hazardous Waste Manifest” is not necessary. The record may be a log, invoice, manifest, bill of lading, or other shipping document.
- The shipper may use a common carrier; a hazardous waste transporter is not required.

The “Universal Waste Rule” makes it easier to recycle many common waste items that otherwise would be hazardous waste.

5. CONTAINERIZATION

The generator is responsible for containerizing the waste, which includes selecting and procuring appropriate containers, packaging the wastes, marking and labeling waste packages, and storing waste packages before transfer. All containers and waste packaging activities must comply with the applicable requirements of these documents:

- PRS-WSD-3015, *Waste Packaging*
- DOT regulations 49 *CFR* or approved alternatives
- DOE M 435.1, Chg.1, *Radioactive Waste Management Manual*
- *Nevada Test Site Waste Acceptance Criteria*, DOE/NV-325, latest revision
- Off-site Commercial TSDF WAC
- PRS-WSD-3012, *Procurement and Inspection of Item Critical for Paducah Off-Site Waste Shipments*
- PRS-WSD-3014, *Procurement, Inspection and Management of Used Recyclable Waste Containers*

5.1 CONTAINER SELECTION

Containers are selected based on the waste matrix, the compatibility of the waste material with the container, venting requirements, and the expected disposal option for the waste. All container selection, absorbent selection, procurement, and inspections must be in accordance with PRS-WSD-3012 or PRS-WSD-3014 (as appropriate).

5.1.1 Compatibility with Waste

The generator must place waste in containers that are compatible with the waste, as determined by testing, literature, or past operating experience and DOT requirements, and as documented in an approved WMP. Incompatible wastes shall not be placed in a container. The generator must contact Waste Disposition for procuring suitable containers. All container selections and procurement must be in accordance with PRS-WSD-3012 or PRS-WSD-3014 (as appropriate).

5.1.2 Container Condition

Containers must be in good condition with no visible cracks, holes, bulges, significant dents, significant corrosion, missing rings or bolts, or other damage that could compromise current or future container integrity. Bungs must be tight and have gaskets in place. Rings and bolts must be applied properly. Bolts must be tightened properly to specific foot-pounds of force as recommended in manufacturer's closure instruction for specific container. Containers must be inspected in accordance with PRS-WSD-3012 or PRS-WSD-3014 (as appropriate) and PRS-WSD-3015.

5.1.3 Container Documentation

Proof of DOT-compliant packaging (such as container specification, certificate of compliance and DOT evaluated excepted packages), closure instructions, receipt inspection report must be provided with RFD.

NOTE: Interchanging container parts may void DOT packaging compliance.

5.1.4 Venting Pressure Relief Devices

All drums must have bungs. In addition, the generator must ensure that containers of hazardous and nonhazardous waste that have the potential to generate gas pressure due to decay, elevated temperature, volatility, or chemical reaction are stored in approved containers equipped with approved pressure relief devices (vents). These are the wastes that typically produce gas pressure build-up and must be evaluated to determine if venting devices are required:

- Material containing waste oil
- Waste from painting operations
- Solutions from laboratory operations
- Uranium tetrafluoride sludge/rust
- Uranium metal turnings
- Sludges
- Waste containing vegetation or other organic matter (e.g., grass, wood, wet cardboard/paper etc.)
- Aerosol cans
- Volatile organics
- Aqueous/organic mixtures
- Low pH solutions
- Biological wastes
- RCRA ignitable waste (flash point < 140 °F)
- TRU waste

For all hazardous wastes, Environmental Compliance must approve the use and type of venting devices prior to use. For ignitable wastes, drum vents must be Factory Mutual Insurance Company or Underwriter's Laboratories listed. For corrosive waste, drum vents must be compatible with the waste material.

5.2 PACKAGING

5.2.1 Waste Package Certifier

For waste being packaged for release from the Paducah Site for disposal at Nevada Test Site (NTS), a Waste Package Certifier (WPC) must be present during all waste packaging activities. Contact Waste Certification Official for scheduling of WPCs.

5.2.2 Void Space

All containers containing solids and liquids should be filled to the maximum extent possible as required by the disposition facility WAC. Contact Waste Disposition for help.

5.2.3 Overpacking and Repackaging

Waste packaging must be maintained so that the contents are suitably confined for the duration of the anticipated storage life. If the integrity of a container fails due to age, incompatibility with the waste, or other physical damage, the waste must be repackaged or overpacked, as appropriate, for that waste type. Refer to PRS-WSD-3015 for requirements.

5.2.4 Requirements by Waste Type/Matrix

The waste media or matrix affects the container selection. Contact Waste Disposition for designated containers of typical PGDP waste types.

Asbestos or Asbestos-Containing Waste—Asbestos-containing waste must be packaged in accordance with 401 KAR 58:040, Section 4(1)(o), 49 CFR, and the applicable off-site TSDF WAC. ACM waste destined for the C-746-U Landfill must be wetted and packaged into two 6-mil polyethylene bags with the tops twisted, goose necked, and taped separately and packaged in accordance with 49 CFR requirements.

Beryllium-Containing Waste—Beryllium-containing waste and beryllium-containing equipment must be packaged in sealed, impermeable bags (minimum 6 mil), containers, or enclosures to prevent release of beryllium dust during handling and transportation.

Laboratory Packs—Material Disposition personnel must approve laboratory packs of small containers, absorbent material, and packaging. Lab packs must be packaged in containers with enough approved absorbent to absorb 100% of the laboratory packs' contents. Incompatible materials cannot be packed together.

Liquid or Free Liquid Over Solid Waste—Free or drainable liquids (identified by a paint filter test, EPA SW-846 Method 9095) must be placed in containers that are approved for liquids. Small amounts of free liquids, which cannot be drained, may be absorbed using an approved sorbent.

NOTE: If waste is RCRA regulated, absorbents can be added to the waste container only at the time of generation.

Mercury and Articles Containing Mercury—Mercury must be drained from all glass mercury manometers, the tubing, segments of which must not exceed 2.5 ft in length. Free liquid mercury must be placed in DOT-approved containers, the volume of which must not exceed 1 liter. All mercury-containing thermometers must be double-packaged and properly labeled.

Miscellaneous Equipment—Material Disposition should be consulted for guidance for packaging miscellaneous equipment which contains light bulbs, fire extinguishers, lead acid and Ni-Cd batteries, circuit boards, fuses, capacitors, and other related materials.

PCB and PCB Articles—Leaking PCB and detectable-PCB equipment must be packaged with enough absorbent to absorb 100% of any remaining liquid. Nonleaking PCB and detectable-PCB equipment that cannot be containerized must be drained of all free liquids whenever possible before being moved. If the equipment cannot be drained, all openings must be sealed to prevent the liquid from leaking during movement and storage.

Sealed Source Radioactive Waste—Sealed source wastes that are known to be leaking or that contain more than 5 Ci of radioisotopes with half-lives greater than five years must be packaged in accordance with PRS-WSD-3015.

Radioactive Waste—Packaging must meet DOE Order 435.1, *Radioactive Waste Management*, and must meet the definition of radioactive material per 49 CFR § 173.403.

Radioactive waste requiring a "Fissionable Material Storage Container" label or "NCS Spacing Exempt" label must be packaged in accordance with requirements in the current NCS evaluations. The contents of NCS Spacing Exempt containers may be repackaged or overpacked, but never consolidated without NCS approval.

Containers smaller than 30 gal that do not meet the 15 gram exemption must be overpacked into a 30-gal-or-larger container.

Refrigerants and Liquids Contained in Articles—All liquids and any refrigerants must be drained from equipment and reservoirs are to be plugged. Any oil-bearing equipment must have the oil characterized for PCBs and analytical results attached to the RFD. All drained reservoirs must have absorbents added to absorb any residue that may accumulate during storage. Addition of absorbents or the inability to drain a reservoir must be noted on the appropriate RFD or container log sheet.

Sludge—Sludge must be decanted or dewatered so that the container contents will pass the paint filter test. Small amounts of free liquids that cannot be drained may be absorbed using an approved absorbent.

5.2.5 Documentation of Waste Package Contents

For all waste packages, a detailed record must be kept of the contents, volume, and weight, as well as any added void fillers, sorbents, stabilization agents, or solidification agents. This information is to be documented on Waste Item Container Log (or similar form).

5.2.6 Liquid and Liquid Containing Waste

For waste being stored as other than liquid waste, all free liquids must be absorbed using an approved Absorbent Determination Form (see Appendix C) or otherwise removed from the waste.

- For liquid-containing waste where condensate could form in the inner plastic packaging (e.g., bags) subsequent to containerization, free liquid condensate shall be eliminated to the maximum extent practical by placing sorbents within the inner plastic packaging. The type and amount of sorbent required can be found in Appendix C. In any case, the amount of liquid cannot exceed 1% of the volume of the waste when the waste is in a disposal container or 0.5% of waste processed to a stable form.
- Residual liquids in large debris items shall be absorbed or removed. In cases where it is not practical to remove suspected liquids and it is impossible to sample to determine if liquids are present, the liquids shall be removed to the maximum extent possible by draining suspected liquids at low points and placing an adequate amount of sorbent around each item. In any case, the amount of free liquid cannot exceed 1% of the volume of the waste.
- For liquid-containing waste items that are sealed (e.g., oil-filled capacitors), the quantity of liquid shall be noted on RFD.
- A free liquid mitigation plan shall be included in the waste certification package for on-site disposal of solid material. See Appendix E for an example.

5.2.7 Security Seals

Generators must ensure that containers are protected against unauthorized entry.

The custody seal is placed on each container in such a position that the container cannot open without breaking the seal. Each custody seal has a unique identification number that is recorded on the waste analysis form and the RFD form or equivalent.

Alternate methods of securing the sampled containers also may be employed at the discretion of the generator, such as placing the containers in a controlled area that has limited access.

5.3 MARKING AND LABELING

The generator must label and mark all containers consistent with information on the RFD and as shown in Appendix D. All labels and markings must be legible and properly positioned on the container. All waste containers must have the labels and marking shown below:

- Waste container label (see Appendix D);
- Appropriate waste category or identification labels (see Sections 5.3.3 through 5.3.9 and Appendix D);

NOTE: Generators must label containers with the expected category if characterization has not been completed. If characterization confirms that waste is not categorized as labeled, then inappropriate labels must be removed and the correct ones affixed.

- RFD container number, the appropriate date [generation date (GD), and/or date to storage (DTS) and/or the accumulation start date), and contents written on the container in permanent marker;
- Classified material label, if applicable (see Appendix D); and
- HP survey tag, if container's contamination cannot be removed.

Additional information by waste category is shown in Sections 5.3.3–5.3.9. For waste that exhibits more than one category, marking and labeling requirements for all pertinent categories apply.

5.3.1 Label/Marking Placement

Labels should be placed to the left of the drum seam. Written markings should be placed to the right of the drum seam. All labels and markings must be placed on the upper one-third of the container. One set of labels/markings on the side of a drum is acceptable (see Appendix D). Bulk containers (such as ST-90 and B-25 boxes) require additional labeling on opposite sides of the container (Appendix D).

Markings must be written legibly in a color that contrasts with the container color.

5.3.2 Durability

Labels and markings must be durable, fade-resistant, water-resistant paints, vinyl stickers, or must be sufficiently durable to remain intact and legible during management of the waste before disposal.

5.3.3 Hazardous Wastes

The Hazardous Waste Label must be applied to waste packages of confirmed hazardous waste (see Appendix D).

The accumulation start date (AD) must be marked on all hazardous and mixed waste containers. The date accumulation begins is the date that the first drop of waste is generated and placed into a container. It is not the date when the generator receives the waste analysis results. In order to avoid confusion regarding the regulatory status of unknown (suspect hazardous) wastes, labeling that says "Hazardous Waste Pending Analysis" is recommended. For waste originating from a SAA, the accumulation date is the date an excess accumulation begins (i.e., greater than 55 gal hazardous waste or 1 quart of acutely hazardous waste), or it is the date the waste goes into a 90-day area. The accumulation date may be written as AD, followed by the date (see Figure 1 for Hazardous Waste Accumulation Date Flowchart).

5.3.4 Polychlorinated Biphenyl

The PCB label (M_L) must be applied to containers of TSCA-regulated PCB waste (waste containing or coming from a source containing ≥ 50 ppm PCBs) (Appendix D).

PCB start date [DTS] must be marked on the container. This is the date that the first PCB article or item is placed in a container or the PCB item is removed from service (whichever is first). It may be written as "date to storage or DTS" followed by the date. For PCB equipment or articles, the PCB start date is the date the item was removed from service for disposal.

A unique identifying number must be marked on the PCB item or container (e.g., RFD number-container number) and a description of the waste [e.g., personal protective equipment (PPE), spill cleanup, waste oil, etc.].

The detectable PCB label (see Appendix D) must be applied to items of waste with known concentration of PCBs above the detection limit for the waste matrix, but < 50 ppm PCBs and not from any PCB source of ≥ 50 ppm in concentration.

5.3.5 Radioactive Waste

The generation date (GD) must be marked on all containers of radioactive waste. This is the date that the container is filled. It may be written as either "Generation Date" or "GD" followed by the date.

Any waste container with radioactivity of > 0.3 and ≤ 3 Ci per m^3 volume of waste from ^{99}Tc must be marked as "Class C." Any container that exceeds 3 Ci of radioactivity per m^3 of waste from ^{99}Tc must be marked as "> Class C" (10 *CFR* § 61.55).

5.3.5.1 Fissionable assay waste

Packages containing waste meeting the definition of fissionable assay waste and contain greater than 15 grams of ^{235}U must be labeled by Waste Disposition in accordance with Nuclear Criticality Safety Evaluations and applicable procedures.

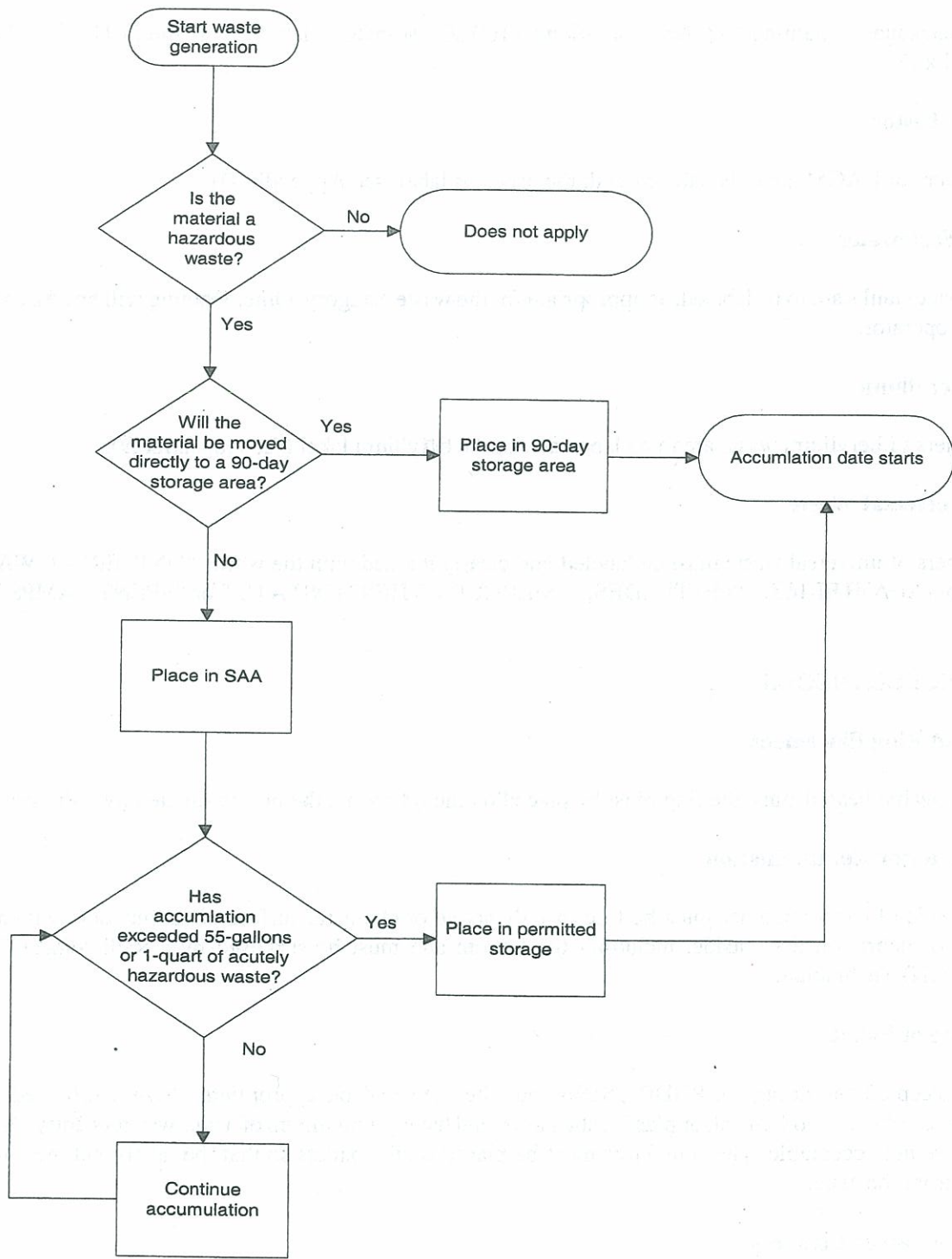


Figure 1. Hazardous Waste Accumulation Date Flowchart

5.3.5.2 Transuranic waste

Waste packages containing TRU (concentrations > 100 nCi/g) are to be labeled with the TRU waste label (see Appendix D).

5.3.6 Asbestos

Containers of RACM are to be labeled with the asbestos label (see Appendix D).

5.3.7 Wastewater

Wastewater tanks are to be labeled, as appropriate for the waste category. Other labeling will be affixed by the facility operator.

5.3.8 Beryllium

Containers of beryllium waste are to be labeled with the beryllium label (see Appendix D).

5.3.9 Universal Waste

Containers of universal waste must be labeled and clearly marked with the words "UNIVERSAL WASTE" and either "BATTERIES," "PESTICIDES," "MERCURY THERMOSTATS," or "SPENT LAMPS."

5.4 MISCELLANEOUS

5.4.1 Lid Ring Placement

For removable head drums, the ring must be placed on the lid so that the bolt is situated over the seam.

5.4.2 Exterior Contamination

The outside of each container must be free of radioactive or chemical surface contamination, with no oily residue or debris on the outside, including the bottom and must be surveyed by a Radiological Control (RADCON) Technician.

5.4.3 Use of Pallets

Waste accepted for storage at PGDP TSDFs must be delivered on appropriately sized, approved pallets constructed of oak wood, metal, or plastic; stackable; and having a minimum of a two-way fork entry. Shipping pallets are not acceptable. The containers must be placed on the pallets so that the labels and markings are visible from the aisle.

5.4.4 Container Closures

All container closures (e.g., bung, ring, lid) must be tightened in accordance with the containers manufacturer's instructions. Containers also must be kept closed except when filling, emptying, or sampling a container.

6. CHARACTERIZATION

The generator must characterize all waste offered for treatment, storage and/or disposal to allow for proper segregation, container selection, packaging, handling, storage, and treatment/disposal of the waste. The WMP must include the proposed strategy of waste characterization.

Characterization involves the determination of regulated constituents present in the waste, and some additional analyses, which may be required for reporting purposes. All waste must be characterized using PRS-WSD-437, *Waste Characterization and Profiling*. It is recommended that generators consult EPA/600/R-96/05, *Guidance for the Data Quality Objective (DQO) Process*; PA-5003, *Quality Assured Data* [New PRS-ENM-5003, *Quality Assured Data*]; and waste disposition facilities WACs. These documents will assist generators to “clarify the objective of the characterization plan; define the most appropriate data to collect; determine the most appropriate conditions to collect the data; and specify tolerable limits on decision errors which will be used as the basis for establishing the quantity and quality of data needed to support the decision.”

6.1 GENERAL REQUIREMENTS

The characterization methods and procedures shall ensure that the physical, chemical, and RAD characteristics of the waste are recorded and known during all stages of the waste management process.

Waste streams must be recharacterized if a process, operational change, or activity occurs that impacts chemical, physical or biological characteristics or the categorization of the waste. The generator is responsible for repeating characterization as necessary to ensure that it is accurate and up to date.

6.2 RADIONUCLIDE DETERMINATION

For the purpose of determining uranium assay less than or equal to 1% by weight ^{235}U , any of the following are acceptable methods:

- Thermal ionization mass spectrometry (TIMS)
- Nondestructive assay (NDA)
- Gamma spectrometry (if less than 0.711 % by weight ^{235}U)
- Inductively coupled plasma (ICP) mass spectrometry
- Alpha spectroscopy
- PK (e.g., uranium contaminated material from the C-315 facility is depleted)

For the purpose of determining uranium assay greater than 1% by weight ^{235}U , the following are the only acceptable methods.

- TIMS
- NDA
- ICP mass spectrometry
- Alpha spectroscopy

- PK (e.g., a maximum of 5.5% by weight can be assumed for waste streams generated from PGDP process equipment)
- Exemptions from the use of these methods have an approved Waste Variance Request. If greater than 1% by weight ^{235}U , then independent duplicate TIMS NDA, alpha spectroscopy, or ICP mass spectrometry analyses are required.

For the specific requirements for *In Situ* Object Counting System (ISOCS) characterization, the following are acceptable:

- Wood and small scrap metal items may be characterized by ISOCS upon receiving approval by the RADCON Manager.
- Small, nondiscernable metal items may be characterized by ISOCS upon receiving permission of the RADCON Manager.
- Soil.
- Large metal items must be characterized by implementation of a HP survey plan.
- Containers must have waste streams segregated to the extent practical. Do not mix materials in the containers (e.g., do not mix wood and metal). The RADCON Manager may provide an exemption for volumetrically contaminated materials on a case by case basis.
- Waste materials will be inspected visually to look for stains and other nonconforming materials. HP will check any stains to ensure items with high levels of contamination are excluded.

Generator will provide the following with each container:

- A unique identification number and log sheet;
- Photo of the contents;
- Estimation of the percent void space, head space, and percentage of any mixed materials;
- Radiochemical data for the waste stream that includes lab results for the following RAD contaminants: uranium series, thorium series, ^{237}Np , plutonium series, ^{99}Tc , ^{241}Am , and ^{137}Cs ; and
- Concentrations of non-gamma emitters will be determined by scaling factors. Data from ISOCS will be provided to the generator within three business days for inclusion in the waste package.

NOTE: For potentially fissile waste stream, Waste Disposition or NCS should be contacted for DQOs for criticality safety and analysis.

6.3 CONTAMINANTS OF CONCERN

The generator must consider all contaminants of concern during the characterization of a waste stream. Contaminants of concern are those regulated contaminants that have the potential to be present in a waste

stream. Not all RCRA hazardous, TSCA, or RAD contaminants are found in waste generated at the PGDP. Refer to PRS-WSD-0437 for requirements.

6.3.1 RCRA Hazardous Material Spot Contamination on Personal Protective Equipment and Plastic

All PPE and plastic shall be segregated based on visual inspection. Waste must be handled in the following manner:

- If no visible signs of chemical stain are seen, then the PPE may be categorized as nonhazardous.
- If visible stains are seen, the stained area may be cut away, if practical, and segregated from unstained. If the stained article was generated while handling listed RCRA waste, the article must be managed as listed RCRA waste.
- If the stained article was generated while handling characteristically hazardous RCRA waste, then the categorization must be based on the amount of contamination, or the article may be representatively sampled.

6.3.2 Polychlorinated Biphenyls

PCBs that have the potential to exist in waste at PGDP include the following:

Aroclor 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262, and 1268.

Waste must be characterized adequately to facilitate proper identification of PCB contamination, as required by 40 *CFR* § 761. PK can be used to identify or eliminate the presence of PCBs. Each constituent must be considered and either eliminated by PK or measured.

6.3.3 Polychlorinated Biphenyl Spot Contamination on Personal Protective Equipment and Plastic

Discarded PPE articles, generated while managing PCB waste, which is ≥ 50 ppm, shall be visually inspected for stains and handled in one of the following ways:

If no areas of stains are seen, then the PPE may be categorized as non-PCB waste.

- If visible stains are seen, the stained area may be cut away, if practical, and segregated as PCB waste.

If the PPE articles are generated while managing non-PCB waste, then the PPE articles must be categorized as non-PCB waste for disposal

6.4 CHARACTERIZATION DOCUMENTATION

Refer to procedure PRS-WSD-0437 for required characterization documentation. Waste Characterization Documentation as specified in PRS-WSD-0437 must be submitted with the RFD.

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7. WASTEWATER TREATMENT AND STORAGE

Wastewater is acceptable for storage if it is categorized as RCRA hazardous, PCB, radioactive waste, or if it exceeds Kentucky Pollutant Discharge Elimination System (KPDES) permit limits. Some wastewater may be treated in the Material Disposition Project Activated Carbon Absorption Unit or the C-612 Northwest Plume Pump-and-Treat Facility to reduce the level of contamination and/or render the wastewater dischargeable under the KPDES permit.

Wastewater will not be accepted for treatment at the activated carbon absorption unit and/or oil/grease filter unit if it exhibits any of the following:

- Uranium enrichment > 1 wt.% ^{235}U
- Liquid waste containing less than 50% water
- A flash point of less than 140 °F
- Total suspended solids greater than 10%, by weight

Groundwater contaminated with trichloroethene (TCE) and/or ^{99}Tc can be treated at the C-612 Northwest Plume Pump-and-Treat Facility. Groundwater will not be accepted for treatment if it exhibits any of the following:

- Groundwater containing large quantity of sediments,
- Groundwater contaminated with other radionuclides and organics, or
- Wastewater not associated with the contaminated groundwater plumes.

If waste is to be treated at the C-612 Northwest Plume Pump-and-Treat Facility, then the generator must submit a copy of their WMP to C-612 Operations for approval. Other requirements that may be required by the C-612 Operations procedures are not included in this document.

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8. LANDFILL WASTE ACCEPTANCE CRITERIA

8.1 C-746-U SOLID WASTE LANDFILL CRITERIA

8.1.1 General Requirements

The C-746-U Landfill is one that is permitted to dispose of nonhazardous solid waste and nonhazardous, low-level solid waste per the AL. It is not permitted to accept RCRA hazardous waste, TSCA-regulated waste (except PCB remediation waste containing ≤ 49 ppm PCB), and LLW (above the AL). The waste must be solid with no free liquids. Due to the potential for free liquids and nonconforming items to exist in waste containers destined for disposal in the C-746-U Landfill, an approved management plan for mitigation of potential free liquid and nonconforming items has been developed and is included in this document as Appendix E. Environmental media that contained a listed waste must have an appropriate "contained-in" determination to be classified as nonhazardous and must meet any applicable Land Disposal Restriction treatment standards. The specific WAC is defined below.

As part of the RFD, generators shall complete the Landfill Waste Approval Request and submit it as an attachment. "Non-dumpster" sanitary waste, when coordinated with the Landfill Manager/Operator through the processing of a RFD, is acceptable and does not require the submission of the Landfill Waste Approval Request. Generators must use the latest version of PRS-WSD-3025 in the development and submittal of their Landfill Waste Approval Request.

8.1.2 Radiological Requirements

Waste for disposal in the C-746-U Landfill must meet one of the following requirements depending on the type of contamination:

- Surface contamination levels must not exceed limits established in Attachment A of PRS-RAD-1109.
- Surface contamination levels that exceed limits established in Attachment A of PRS-RAD-1109 must have a DOE-approved AL request for the surface contaminated waste stream.
- Volumetric waste streams shall not exceed the mass concentration in a DOE-approved AL request.
- Waste generated in RAD controlled areas shall be released in accordance with the requirements established in PRS-RAD-1109, Section H, Release of Material and Equipment to Uncontrolled Areas.

8.1.3 Preparation of Container for Movement to C-746-U Landfill

Containers shall be checked and verified to be free of liquids (water) that could leak during transport. Containers will be tarped or otherwise covered prior to leaving the RAD area in which they are stored. Containers will be labeled/tagged as "Radioactive Material" in accordance with RADCON procedures. Containers will be surveyed in accordance with applicable release limits by RADCON prior to leaving the RAD area in which they are stored. AL containers will remain stored in a RAD area until transported to the landfill. Waste generator will notify RADCON representative of the projected transport date and will confirm at least 24 hours prior to transport that the containers will be moved.

8.1.4 Transport of Container to Landfill

Containers shall be transported on the route out of the Limited Security Area via Post 15 or 48, Dykes Road to Gate 43-A, through Gate 43-A across Ogden Landing Road, north to the landfill. Containers SHALL NOT leave DOE property at any time. Containers must be transported to the landfill in accordance with the On-Site Transportation Safety Document, PRS-WSD-0661. Landfill personnel will coordinate with Swift & Staley Team Security for protective force resources or approved equivalent to open/close Gate 43-A. Driver (or escort) shall be a qualified Rad Worker II, as radioactive material is being transported. If vehicle is above 26,001 lbs gross vehicle weight and roads are not closed by the protective force or approved equivalence, the driver must be in a company Driver's Qualification Program, must possess a Commercial Driver's License, and have current DOT medical qualifications.

8.1.5 Transport of Container Back to Plant

The driver (or escort) shall be qualified Rad Worker II if radioactive material is being transported. Containers shall be checked for and free from liquids (water) that could leak during transport. After leaving the landfill, the empty box may be released in one of two ways:

- (1) The container may be retarped, the exterior surveyed, labeled, and sent back to the plant via Gate 43-A. Upon entry into the Limited Security Area, boxes must be stored in a RAD posted area (see Section 8.1.6, General Requirements).
- (2) The container may be left untarped, the interior and exterior surveyed, and sent back to the plant via Gate 43-A. Containers surveyed and released from the landfill will not be radiologically tagged or labeled and may be stored in nonradiological areas. Containers that are found to be contaminated will be tarped, tagged, and transported to a suitable decontamination facility for cleaning.

Containers SHALL NOT leave DOE property at any time. Project will coordinate with Swift & Staley Team Security for protective force resources to open/close Gate 43-A, and to close Ogden Landing Road.

8.1.6 General Container Requirements

All containers will be free of excess dirt and debris prior to loading. RADCON cannot perform an accurate survey of a container's inner surfaces if it is caked with excess dirt/mud/debris. It is the project's responsibility to maintain its containers and to clean them periodically at a suitable decon pad. RADCON will provide job coverage for the decon operation. Use of container liners may be incorporated to prevent buildup of dirt and debris. RADCON periodically will perform surveys of containers that are not surveyed at the landfill (see Section 8.1.5). Containers found to have removable radioactive contamination must undergo decontamination and additional surveys prior to reuse. Containers with RAD tags and/or labels will be stored in a RAD Area at all times. Operations involving removal of the tarps will require RADCON job coverage. Container inner surfaces will be considered radiologically contaminated until surveyed and proven otherwise. Containers with RAD tags and/or labels shall be attended by a Rad Worker II-trained employee at all times when not stored in a RAD Area. Containers shall not be left unattended during transport to and from the landfill. Any free liquids within labeled and tagged AL waste containers should be captured and sampled unless exempted by the PHP and Environmental Compliance.

8.1.7 Specific Waste Item Requirements

- Asbestos-containing wastes found at PGDP may include, but are not limited to, transite, floor tiles and mastic, ceiling tiles, roofing materials, gaskets, thermal system insulation, etc. All asbestos-containing

wastes transported to the landfill must comply with the DOT regulations. An estimate of the total volume of asbestos-containing wastes, in cubic yards, must be annotated in Block W32 of the RFD.

- Cardboard and paper must be bagged or baled.
- Computer monitors must be segregated. EPA has issued guidance making colored monitors unacceptable for land disposal because of high lead content in the glass and funnel.
- Animal carcasses must be layered with lime and placed in double plastic bags with the ends sealed with tape or plastic wire ties.
- Empty aerosol cans must be punctured and not pressurized.
- Empty glass bottles must be wrapped in heavy-duty plastic bags and have lids or caps removed (Note: If possible, crush bottles to reduce waste volume).
- Fly ash must be treated to minimize dust emissions and combustion concerns.
- Gas cylinders (empty, disposable) must have stems removed.
- Medical wastes must be treated by autoclaving or other methods of disposal as approved by the Landfill Manager before disposal.
- Nonaerosol paint cans must be bagged or baled. Contents must be completely dry and lids removed.
- RAD tags and flagging, etc., must be cut and baled. Characterization must confirm no RAD contamination.
- Personal protective clothing (i.e., Tyvek[®] suits, shoes, gloves, etc.) must be accompanied by HP survey documentation.
- Small, loose items must be bagged or baled.
- Tires first must be processed either by cutting into pieces or shredded.
- Used clothing, uniforms, and rags (nonhazardous, solvent laden, oily, and clean) must be accompanied by characterization data to confirm no RAD contamination and no TSCA- or RCRA-regulated substances.
- Wood pallets, chocks, and debris must have visible oily stain areas removed.
- Waste material length must be limited to 4 ft or half the distance from the cell to the liner whichever is larger. These items include poles, pipes, and items that may be pushed into the landfill liner and must receive Landfill Manager approval prior to disposition.
- Waste material larger than 2 ft³ must receive Landfill Manager approval for disposition.
- Debris items must be inspected for voids that have the potential for holding liquids and processed in a manner that eliminates or opens the voids.

8.1.8 Prohibited Items

RCRA-hazardous, TSCA-regulated, or radioactive wastes (except those with AL per Section 8.1.2) are prohibited from being disposed of in the C-746-U Landfill. Examples include these:

- Batteries (mercury, lithium, silver, nickel-cadmium, lead-acid)
- Circuit boards
- Classified waste
- Light bulbs (all types except nonhazardous “green-end” fluorescent)
- Light ballasts
- Color computer monitors

8.1.9 Landfill Waste Packaging

If drums of waste are delivered to the landfill in larger containers (e.g., roll-off bins), then the drum identification number must be written on the top of each drum in approximately three-inch letters. Other packaging requirements for waste to be disposed of in the C-746-U Landfill vary depending on the waste item itself. Waste packaged in boxes, (e.g., B-12, B-25, ST-90, 7A Type A) may be accepted for landfill disposal on a case-by-case basis with Landfill Operations approval.

9. CERTIFICATION

Generators must certify that they have complied with their WMP and that the information in their WMP, RFD, or manifest form is accurate and complete. A certification statement must be signed to accompany each RFD (see Box W34). By signing the certification statement on the RFD form, the generator certifies that information included on the RFD form and its attachments is true, accurate and complete. Deviations from the WMP or the requirements in this WAC should be documented on the Waste Variance Form (Appendix A) and must be approved by Waste Disposition Project Manager or designee. Generators are responsible financially for costs incurred as a result of nonconformance with the criteria established in this document.

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10. UNITED STATES ENRICHMENT CORPORATION AND LEGACY WASTE AGREEMENT EXCEPTIONS

Unless otherwise specified in a written agreement between the United States Enrichment Corporation (USEC) and DOE, waste generated by USEC will comply with this document with the following exceptions.

10.1 EXCEPTIONS PROVIDED FOR TEMPORARY STORAGE OF UNITED STATES ENRICHMENT CORPORATION HAZARDOUS WASTE/MIXED WASTES

10.1.1 Exception to Section 3.1

A WMP is not required.

10.1.2 Exception to Section 5.2.2

Void spaces will be maintained and verified with signature and date on RFD, section W32, provided by USEC. TIDs cannot be removed without violating NCS requirements for treatment. Should a TID need to be removed, prior USEC approval must be received, with the exception of emergency conditions.

10.1.3 Exception to Section 6.3

The following parameters of concern will not be provided by USEC waste offered for temporary storage in DOE storage areas: boiling point, pH of solids, pH of organic wastes, UHC determinations, and corrosivity to steel of solids.

10.1.4 Exception to Section 6

DQOs are not required, except for potentially fissile waste streams.

10.1.5 Exception to Section 6.4

A characterization report is not required.

10.1.6 Exception to Section 5.2.5

USEC waste will be accompanied by a USEC container log sheet (CP-17963) in place of document WSD-F-0015. Accumulation start date will replace the generation start date. Weight will be provided in the Comments section of the USEC log sheet.

10.1.7 Exception to Section 6.4 and Section 4.1.2

UHCs are not required.

10.2 ASBESTOS LEGACY WASTE

10.2.1 Modification to Section 5.1.4

DOE will provide pressure relief devices if the devices are deemed necessary.

10.2.2 Asbestos Data Quality Objectives

Objective

- (1) Determine if asbestos is acceptable at the C-746-U Solid Waste Landfill or must be managed as LLW.
- (2) Description of Waste: Asbestos Solids
Source: Various locations at PGDP
Distribution of Contaminants: Heterogeneous, random variable
- (3) Analytes of Concern—Based on the source of the asbestos, a decision will be made as to whether analytes of concern are present. This decision will be documented on a PK form. The presence or absence of RCRA/PCB contaminants shall be determined by PK or testing. If RCRA/PCB contaminants are present, these DQOs do not apply. The analytes of concern are ^{241}Am , ^{237}Np , ^{238}Pu , $^{239/240}\text{Pu}$, ^{99}Tc , ^{234}U , ^{235}U , ^{238}U , ^{137}Cs , ^{230}Th , ^{228}Th , ^{232}Th , $^{89/90}\text{Sr}$, ^{60}Co , assay, and free liquids.
- (4) Sampling Description—Ten percent random grab samples with a minimum of four containers sampled (if available) per waste source will be used to qualify/quantify analytes of concern. NDA monitoring of closed containers can be substituted for grab sampling. Sampling location/drum numbers sampled/monitored will be documented during the sampling event.
- (5) Analytical Methods—Table 2 provides the methods that will be used for analysis of analytes of concern.

Table 2. Analytical Methods for Analytes of Concern—Asbestos

Analytes	Method	Minimum Detectable Activity
^{241}Am , ^{237}Np ,	Gamma/Alpha Spec	3.0 pCi/g (each series)
^{238}Pu , $^{239/240}\text{Pu}$,	Alpha Spec	3.0 pCi/g (each series)
^{228}Th , ^{230}Th , ^{232}Th	Alpha Spec	15 pCi/g
^{234}U , ^{235}U , ^{238}U , Total U	Gamma/ICP/TIMS/ Alpha Spec	75 pCi/g
^{99}Tc	Liquid Scintillation	35 pCi/g
$^{89/90}\text{Sr}$	Gas Proportional Counter	15 pCi/g
^{137}Cs , ^{60}Co	Gamma Spec	3 pCi/g
Assay	NDA/Gamma Spec/TIMS/ICP	NA
Free Liquids	Visual inspection/Paint Filter	NA

10.3 POLYCHLORINATED BIPHENYL LEGACY WASTE

10.3.1 Exception to Section 5.1.4

DOE will provide pressure relief devices if the devices are deemed necessary.

10.4 ARSENIC, CHROMIUM, PENTACHLOROPHENOL, AND TRICHLOROETHENE LEGACY WASTE

10.4.1 Exception to Section 5.1.4

DOE will provide pressure relief devices if the devices are deemed necessary.

10.5 POLYCHLORINATED BIPHENYL/ARSENIC/CHROMIUM/PENTACHLOROPHENOL/ TRANSURANIC LEGACY WASTE DATA QUALITY OBJECTIVES

Objective

- (1) Identify legacy wastes and provide data for safe storage of legacy wastes.
- (2) Description of Waste: Solids and Liquids Containing Legacy Wastes
Source: Various locations at PGDP
Distribution of Contaminants: Homogeneous and heterogeneous, random variable.
- (3) Analytes of Concern—Based on the source of the wastes, a decision will be made as to whether analytes of concern are present. This decision will be documented on a PK form. The analytes of concern are ^{241}Am , ^{237}Np , ^{238}Pu , $^{239/240}\text{Pu}$, ^{99}Tc , ^{234}U , ^{235}U , ^{238}U , ^{137}Cs , ^{230}Th , ^{228}Th , ^{232}Th , $^{89/90}\text{Sr}$, ^{60}Co , assay, PCB, RCRA Characteristics, and Free Liquids.
- (4) Sampling Description—Sampling will be conducted if documented PK does not apply to the waste. Containers will be sampled as required. It is not expected that more than one container of waste will be produced at any one time; therefore, a 100% sampling event most likely will occur. Sampling location/drum numbers sampled/monitored will be documented during the sampling event.
- (5) Analytical Methods—Table 3 provides the methods that will be used for analysis of analytes of concern.
- (6) Quality Control Requirements—Field/equipment blanks will be completed for any grab samples taken.
- (7) Statistical Approach—When sampling is appropriate, a description of the sampling effort will contain the statistical logic used. Statistical evaluations will be conducted and documented in accordance with SW-846, Chapter 9.

Table 3. Analytical Methods for Analytes of Concern—Legacy Waste

Analytes	Method	Minimum Detectable Activity
²⁴¹ Am, ²³⁷ Np,	Gamma/Alpha Spec	3.0 pCi/g (each series)
²³⁸ Pu, ²³⁹ Pu, ²⁴⁰ Pu	Alpha Spec	3.0 pCi/g (each series)
²²⁸ Th, ²³⁰ Th, ²³² Th	Alpha Spec	15 pCi/g
²³⁴ U, ²³⁵ U, ²³⁸ U, Total Uranium	Gamma/ICP/TIMS/Alpha Spec	75 pCi/g
⁹⁹ Tc	Liquid Scintillation	35 pCi/g
^{89/90} Sr	Gas Proportional Counter	15 pCi/g
¹³⁷ Cs	Gamma Spec	3.0 pCi/g
Assay	NDA/Gamma Spec/TIMS/ICP	NA
Free Liquids	Visual inspection/Paint Filter/Mitigation Plan	NA
PCB	GC	2 ppm (oils)
RCRA Characteristics Various	Total TCLP Volatiles/Metals (Liquids)	
	TCLP Volatiles/Metals (Solids)	
Free Liquids	Visual inspection/Paint Filter	NA

11. RECORDS, DOCUMENTATION, AND REPORTING

Records and documentation must be created and maintained by the generator and provided to Waste Disposition so that the waste may be managed and tracked properly. The handling and subsequent treatment, storage, and/or disposal of hazardous waste must include a “cradle to grave” tracking of the waste material. Other associated documentation may be required depending on the waste category and/or its intended disposition. Table 4 cross-references the required documentation to the waste categories. Documents shall be prepared, reviewed, approved, controlled, and revised in accordance with PRS-DOC-1009, *Records Management, Administrative Records, and Document Control*.

Table 4. Documentation by Waste Category

Documentation	Waste Category ⁹								Scrap Metal
	Radioactive	RCRA	PCB	RCRA Mixed or PCB Low-Level	Wastewater	Landfill	Universal Waste		
Assay (duplicate)	X ⁵			X ⁵		X ⁵			
Landfill Waste Approval Request and Compliance Review Checklist (8.1)						X			
Characterization (Analytical) Data ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹			X ^{1,6}
Waste Characterization Documentation (Form WSD-F-0069)	X ²	X ²	X ²	X ²	X ²	X ²			X ²
Request for Disposal (Appendix B)	X	X	X	X	X	X		X	X
RFD Attachment A, Low-Level Radioactive Waste (Appendix B)	X				X ⁷				
RFD Attachment B, RCRA and/or PCB Waste (Appendix B)		X	X	X	X ⁷			X	
RFD Attachment C, Landfill or Sanitary Waste (Appendix B)					X ⁷	X			
Waste Item Container Log (Appendix B) ³	X ³	X ³	X ³	X ³	X ³	X ³		X ³	X ³
Waste Variance Form ⁴ (Appendix A)	X ⁴	X ⁴	X ⁴	X ⁴	X ⁴	X ⁴		X ⁴	X ⁴
Waste Management Plan	X	X	X	X	X	X		X	X
Master Landfill Disposal Log Sheet (or approved equivalent)						X		X	
Authorized Derivative Classifier Review	X ⁸	X ⁸	X ⁸	X ⁸		X ⁸		X ⁸	X ⁸

¹ Required if analytical data is used for characterization

² See PRS-WSD-0437 form WSD-F-0069

³ Required if waste is containerized

⁴ Required only if approval to digress from the requirements in this WAC is needed

⁵ Required for all wastes containing > 0.711 wt. % U²³⁵

⁶ Includes HP Survey

⁷ Attachment A, B, or C may be required if wastewater is LLW; RCRA or PCB; or sanitary, respectively

⁸ Proper security classification of suspect waste required

⁹ May contain asbestos-containing material

12. REFERENCES

The following (Table 5) shows references by waste categories. If waste belongs to more than one waste category, the references for all pertinent categories apply. Details of the references follow the table.

Waste Category	Reference	Reference	Reference
RCRA 600.1	RCRA 600.1	RCRA 600.1	RCRA 600.1
RCRA 600.2	RCRA 600.2	RCRA 600.2	RCRA 600.2
RCRA 600.3	RCRA 600.3	RCRA 600.3	RCRA 600.3
RCRA 600.4	RCRA 600.4	RCRA 600.4	RCRA 600.4
RCRA 600.5	RCRA 600.5	RCRA 600.5	RCRA 600.5
RCRA 600.6	RCRA 600.6	RCRA 600.6	RCRA 600.6
RCRA 600.7	RCRA 600.7	RCRA 600.7	RCRA 600.7
RCRA 600.8	RCRA 600.8	RCRA 600.8	RCRA 600.8
RCRA 600.9	RCRA 600.9	RCRA 600.9	RCRA 600.9

Table 5. Regulatory References

Waste Category	References				Policies, Permits, Agreements, etc.
	CFR	KAR	DOE Orders/ EPA Requirements		
Asbestos Waste	40 CFR § 61 Subpart M (National Emission Standards for Hazardous Air Pollutants)	401 KAR 57:011, Asbestos Standards 401 KAR 63:042, Requirements for Asbestos Abatement Entities	EPA SW-846 EPA/600/R-92/033 EPA/230-02-89-042		
Landfill Waste		KAR 401, Chapter 31	EPA SW-846 EPA/600/R-92/033 EPA/230-02-89-042	#073-00045, Solid Waste Landfill Permit	
PCB	40 CFR § 761	KAR 401 30:31	EPA SW-846 EPA/600/R-92/033 EPA/230-02-89-042	KY/EM-147, Site Treatment Plan EPA-DOE UE TSCA Federal Facilities Compliance Agreement DOE/EH-413-9914, Storage and Disposal of PCB Waste	
Radioactive	10 CFR § 835		EPA SW-846 EPA/600/R-92/033 EPA/230-02-89-042 DOE 435.1 RAD Control Manual (DOE/EH-0256T) DOE 5400.5	BJC/PAD-491, AL Requests for Solid Waste Disposal at Landfill C-746-U	
RCRA	40 CFR § 260-264, 268, 270	KAR 401, Chapters 30-34 & 37	EPA SW-846 EPA/600/R-92/033 EPA/230-02-89-042	Kentucky Division of Waste Management Hazardous Waste Management Permit (RCRA Permit) KY/EM-147, Site Treatment Plan	
Universal Waste	40 CFR § 273	KAR 401, Chapter 43			
Scrap Metal			EPA SW-846 EPA/600/R-92/033 EPA/230-02-89-042 DOE 435.1		
Wastewater		KAR 401, Chapter 5:031 (Surface Water Standards)	EPA SW-846 EPA/600/R-92/033 EPA/230-02-89-042	KPDES Permit	

REGULATIONS AND ORDERS

Code of Federal Regulations, Title 10, Part 835.

Code of Federal Regulations, Title 40, Parts 171, 173, 260-264, 268, 270 and 761.

Code of Federal Regulations, Title 49, U.S. Department of Transportation.

Bechtel Jacobs Company LLC (BJC) 2006. *The Site Treatment Plan Annual Update for the United States Department of Energy Paducah Gaseous Diffusion Plant Paducah, Kentucky*, BJC/PAD-627, March.

BJC 2003. *Authorized Limits Request for Solid Waste Disposal at Landfill C-746-U at the PGDP*, BJC/PAD-491, January.

Solid Waste Landfill Regulations. *Kentucky Annotated Rules*. 401

Solid Waste Landfill Permit #073-00045, dated October 3, 2003.

U.S. Department of Energy and Paducah Remediation Services, LLC, Kentucky Division of Waste Management Hazardous Waste Management Permit (RCRA Permit).

U.S. Department of Energy 1999. *Storage and Disposal of PCB Waste*, DOE/EH-413-9914, November.

U.S. Department of Energy 1999. *Radioactive Waste Management*, Order 435.1, July.

U.S. Department of Energy 1993. *Radiation Protection of the Public and Environment*, Order 5400.5, January.

U.S. Department of Energy 1992. *U.S. Department of Energy Radiological Control Manual*, DOE/EH-0256T, June.

U.S. Environmental Protection Agency. U.S. Department of Energy UE TSCA FFCA.

U.S. Environmental Protection Agency 1983. *Characterizing Heterogeneous Wastes: Methods and Recommendations*. EPA/600/R-92/033.

U.S. Environmental Protection Agency 1984. *Test Methods for Evaluating Solid Wastes*, EPA SW-846, GPO 955-001-00000-1, Office of Solid Waste, Washington, DC.

U.S. Environmental Protection Agency 1989. *Methods for Evaluating the Attainment of Cleanup Standards*, Volume 1, *Soils and Solid Media*, EPA/230-02-89-042.

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APPENDIX A

**WASTE VARIANCE REQUEST
(FORM WSD-F-0036)**

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**WASTE VARIANCE REQUEST
FORM WSD-F-0036**

NUMBER

INSTRUCTIONS

In some cases, a generator may be unable to meet certain certification-related requirements. A variance may be granted if it is determined that conditions exist which make it exceedingly difficult or impossible to meet a requirement or if it is determined that the compliance status of either the generator or Waste Disposition is not compromised by the variance. Variances will not be granted due to convenience, and all requests must be thoroughly documented by the generator.

GENERATOR ACTIONS

NOTE: Direct any questions on completion, submit or use of this form to Waste Disposition.

1. Complete all sections on the front page of WSD-F-0036, and sign at the bottom.
2. Submit completed form WSD-F-0036 to Waste Disposition.
3. Sign *approved* request. (Note that denied variance request do not require the generator's signature)

TO BE COMPLETED BY REQUESTER

NAME	BADGE NUMBER	PHONE
ADDRESS	DIVISION	DEPARTMENT

DESCRIBE (IN DETAIL) THE SITUATION OR PROCESS IN WHICH THE WASTE WAS GENERATED.

SPECIFY THE REQUIREMENT(S) WHICH CANNOT BE MET AND PROVIDED (IN DETAIL) THE REASON(S) WHY.

FOR WHAT PERIOD OF TIME IS THE VARIANCE REQUESTED?

WHAT ACTIONS WILL BE TAKEN TO BRING THE WASTE AND/OR THE PROGRAM INTO FULL COMPLIANCE?
(PROVIDE A SCHEDULE)

REQUESTER SIGNATURE	DATE
---------------------	------

WSD-F-0036

TO BE COMPLETED BY WASTE DISPOSITION

VARIANCE REQUEST NUMBER

REVIEWED BY (PRINT NAME)

REVIEWED BY (SIGNATURE)

DATE REVIEW COMPLETED

IS THIS VARIANCE REQUEST A CONTINUATION OF AN EXISTING REQUEST? IF SO, IS THERE ENOUGH JUSTIFICATION FOR CONTINUANCE?

VARIANCE IS GRANTED. THE FOLLOWING CONDITIONS APPLY.

VARIANCE EXPIRATION DATE

VARIANCE IS DENIED. THE FOLLOWING REASONS APPLY:

CONCURRENCE

WASTE DISPOSITION FIELD ENGINEER

PRINTED NAME	SIGNATURE	BADGE NUMBER	DATE

FACILITY MANAGER

PRINTED NAME	SIGNATURE	BADGE NUMBER	DATE

WASTE DISPOSITION MANAGER

PRINTED NAME	SIGNATURE	BADGE NUMBER	DATE

REQUESTER (REQUIRED ONLY IF VARIANCE IS APPROVED)

PRINTED NAME	SIGNATURE	BADGE NUMBER	DATE

WSD-F-0036

APPENDIX B

**RFD AND ASSOCIATED FORMS (FORM WSD-F-0014)
AND
WASTE ITEM CONTAINER LOG (FORM WSD-F-0015)**

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RFD Attachment B RCRA and/or TSCA Waste (WSD-F-0014, page 3 of 5).....	B-7
RFD Attachment C Sanitary Waste, Landfill Waste, or Non-Regulated Water (WSD-F-0014, page 4 of 5)	B-8
Constituent Continuation Page (WSD-F-0014, page 5 of 5)	B-9
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Request For Disposal

Document ID Number

Generation Process Information (Completed by Generator)									
W1. Generators Name (Print)			W2. Badge. No.		W3. Generators Phone No.		W4. Mail Stop	W5. Charge No. / WO	
W6. Generator's Company		W7. Corp Owner	W8. Origin Site	W9. Origin Facility		W10. Origin Area		W11. Rad Area? <input type="checkbox"/> Yes <input type="checkbox"/> No	
W12. Number of Items		W13. Process Category (GCC)		W14. Process Activity Code		W15. AWA Number	W16. Physical Form		
W17. Material Type(s)			W18. Holding Site		W19. Holding Facility		W20. Holding Area	W21. RFD Attachment <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	
Waste Subcategories (Check all that apply)									
	Yes	No		Yes	No		Yes	No	
W22. Biological		W25. Const. Debris			W28. Non-Friable Asbestos		W31. DMSA		
W23. Accountable		W26. Classified			W29. TRU Radioisotopes				
W24. Carcinogen		W27. Friable Asbestos			W30. CERCLA				
Waste Description / Comments									
W32.									
This is to certify that the above named material is properly described and in the stated container, which is in good condition, marked with the, RFD number, content, appropriate generation date, source location, and at the stated location.									
W33. Waste Management Plan Number			W34. Generator's Signature				Date		
Handling/Pickup Information (Completed by Waste Disposition)									
P1. Pick-up Site			P2. Pick-up Facility			P3. Pick-up Room/Area			
P4. PPE Requirements									
P5. Container-Labeling Requirements									
<input type="checkbox"/> RCRA		<input type="checkbox"/> PCB		<input type="checkbox"/> DET PCB (<50ppm & source <50ppm)		<input type="checkbox"/> RAD		<input type="checkbox"/> WASTE	
<input type="checkbox"/> FISSILE		<input type="checkbox"/> NCS EXEMPT		<input type="checkbox"/> RD CONFIDENTAL		<input type="checkbox"/> ACID		<input type="checkbox"/> CONTAINER	
<input type="checkbox"/> FLAMMABLE		<input type="checkbox"/> COMBUSTIBLE		<input type="checkbox"/> OXIDIZER		<input type="checkbox"/> BASE		<input type="checkbox"/> LABEL	
<input type="checkbox"/> ASBESTOS		<input type="checkbox"/> REACTIVE		<input type="checkbox"/> TRANSURANIC		<input type="checkbox"/> NON-HAZ		<input type="checkbox"/> BARCODE	
P6. Additional Handling Instructions						Reference FWR			
						Origin Date			
						PCB Start Date			
						RCRA Start Date			
P7. Field Engineer (Issued By)			Badge	Date	P8. Disposal/Storage Completed By		Badge	Date	
P9. Field Supervisor			Badge	Date	P10. Data Processing Completed By		Badge	Date	
P11. Waste Item Information				P12. Operator Comments					
Waste Item Number _____									
Container Number (Bar Code) _____									
Gross Weight _____									
Container Size _____									
Location and Grid _____									

**Low-Level Radioactive Waste
Attachment A**

Document ID Number

Prohibited Items							
		Yes	No			Yes	No
A1. Pyrophoric Materials (Other than radioactive forms of isotopes)				A6. Ignition Sources			
A2. Active Chelating Agents				A7. Free Liquids (Unless Wastewater)			
A3. TRU Radioisotopes > 100nCi/g				A8. RCRA Waste			
A4. Explosive Materials				A9. TSCA Waste			
A5. Etiological Agents							
Additional Waste Characteristics							
A10. Waste Variance Request Number(s)							
		Yes	No			Yes	No
A11. Chelating Agents				A 13. Detectable PCB (Concern and Source < 50ppm) conc ppm			
A 12. Ion Exchange Resins				A 14. Wastewater			
Radioisotope Determination Method							
Document Type		Document Number					
R1. Analysis Sample ID No.							
R2. Waste Characterization Document No.							
R3. Fissile Content (Wt% U-235)		R4. Grams U-235		R5. NCS Exempt <input type="checkbox"/> Yes <input type="checkbox"/> No		R6. Chemical Form	
Other Sample Analysis							
Document Type		Document Number					
O1. Analysis Sample ID No.							
O2. Waste Characterization Documentation No.							
Radiation Data From Radiation Protection Survey Surface Contamination (Data Supplied by Radiation Protection)							
R7. Radiation Protection Survey Required <input type="checkbox"/> Yes <input type="checkbox"/> No							
R8. Transferable (Alpha)		dpm/100cm ²		R9. Fixed (Alpha)		dpm/100cm ²	
R10. Transferable (Beta/Gamma)		dpm/100cm ²		R11. Fixed (Beta/Gamma)		dpm/100cm ²	
R12. External Dose/Package Contact		mrem/hr		R13. Dose Rate mrem/hr @		Meters (B/G)	
R14. Radiation Protection Signature		R15. Survey Number					

**Resource Conservation and Recovery Act (RCRA)
and/or
Toxic Substances Control Act (TSCA) Waste Attachment B**

Document ID Number

Prohibited Items		Additional Waste Characteristics			
B1. Chemically Incompatible Substances <input type="checkbox"/> Yes <input type="checkbox"/> No	B3. Chelating Agents <input type="checkbox"/> Yes <input type="checkbox"/> No	B4. Ion Exchange Resins <input type="checkbox"/> Yes <input type="checkbox"/> No	B5. pH	B6. Corrosivity to Steel mm/yr	
B2. Waste Variance Request Number(s)	B7. Flashpoint °C °F	B8. Boiling Point °C °F	B9. Detectable PCB (Source <50ppm) <input type="checkbox"/> Yes <input type="checkbox"/> No	Conc. ppm	B10. Wastewater <input type="checkbox"/> Yes <input type="checkbox"/> No
	B11. Radioactive <input type="checkbox"/> Yes <input type="checkbox"/> No				
Radioisotope Determination Method					
Document Type		Document Number (s)			
R1. Analysis Sample ID Number					
R2. Waste Characterization Documentation Number					
R3. Fissile Content (Weight % U-235)	R4. Grams U-235	R5. NCS Exempt <input type="checkbox"/> Yes <input type="checkbox"/> No		R6. Chemical Form	
RCRA/TSCA Determination Method					
Document Type		Document Number (s)		Determination	
T1. Analysis Sample ID Number				T3. RCRA Waste <input type="checkbox"/> Yes <input type="checkbox"/> No	
T2. Waste Characterization Documentation Number				T4. TSCA Waste <input type="checkbox"/> Yes <input type="checkbox"/> No	
				T5. Underlying Hazardous Constituents <input type="checkbox"/> Yes <input type="checkbox"/> No	
T6. PCBs Present <input type="checkbox"/> Yes <input type="checkbox"/> No	T7. PCB Concentration ppm	T8. PCB Source Concentration ppm	T9. PCB Source Concentration Range <input type="checkbox"/> 50-499.99ppm <input type="checkbox"/> ≥500ppm		
T10. Known Hazardous Constituents					
T11. Known Underlying Hazardous Constituents					
Radiation Data from Health Physics (Radiation Protection) Survey Surface Contamination (Data Supplied by Radiation Protection)					
R7. Radiation Protection Survey Required <input type="checkbox"/> Yes <input type="checkbox"/> No					
R8. Transferable (Alpha) dpm/100cm ²		R9. Fixed (Alpha) dpm/100cm ²			
R10. Transferable (Beta/Gamma) dpm/100cm ²		R11. Fixed (Beta/Gamma) dpm/100cm ²			
R12. External Dose/Package Contact mrem/hr		R15. Dose Rate mrem/hr @ meters (B/G)			
R14. Radiation Protection Signature		R15. Survey Number			
Regulatory Codes (Completed by Waste Disposition)					
X1. PCB Item <input type="checkbox"/> A <input type="checkbox"/> AC <input type="checkbox"/> B <input type="checkbox"/> C	X2. Waste Stream ID	X3. Form Code		X4. Source Code	
X5. Handling Code	X6. LDR Code	X7. Reactivity Group Number		X8. Generated from a Non-RMMA <input type="checkbox"/> Yes <input type="checkbox"/> No	
X9. Substance ID	X10. Concentration	X11. Units	X12. EPA Code (s)	X13. Underlying Hazardous Constituents	
X14. Substance Name					
X9. Substance ID	X10. Concentration	X11. Units	X12. EPA Code (s)	X13. Underlying Hazardous Constituents	
X14. Substance Name					
X15. Constituent Continuation Sheets(s) <input type="checkbox"/> Yes <input type="checkbox"/> No through attached.					

SANITARY WASTE, LANDFILL WASTE, OR NON-REGULATED WATER
Attachment C

DOCUMENT ID NUMBER

PROHIBITED ITEMS			
C1. RCRA WASTE <input type="checkbox"/> Yes <input type="checkbox"/> No	C2. TSCA WASTE <input type="checkbox"/> Yes <input type="checkbox"/> No	C3. LLW – TOTAL URANIUM >150pCi/g <input type="checkbox"/> Yes <input type="checkbox"/> No	C4. FREE LIQUIDS (Unless Wastewater) <input type="checkbox"/> Yes <input type="checkbox"/> No
C5. DETECTABLE PCB? (Source <50 ppm) <input type="checkbox"/> Yes <input type="checkbox"/> No		C6. WASTE VARIANCE REQUEST NUMBER(s)	
RADIOISOTOPE DETERMINATION METHOD			
DOCUMENT TYPE		DOCUMENT NUMBER	
R1. ANALYSIS SAMPLE ID NO.			
R2. Waste Characterization Documentation Number.			
OTHER SAMPLE ANALYSIS			
DOCUMENT TYPE		DOCUMENT NUMBER	
O1. ANALYSIS SAMPLE ID NO.			
O2. Waste Characterization Documentation Number.			
RADIATION DATA FROM Radiation Protection SURVEY SURFACE CONTAMINATION (Data Supplied by Radiation Protection)			
R7. Radiation Protection SURVEY REQUIRED <input type="checkbox"/> Yes <input type="checkbox"/> No			
R8. TRANSFERRABLE (alpha) dpm/100cm ²	R9. FIXED (Alpha) dpm/100cm ²		
R10. TRANSFERRABLE (Beta/Gamma) dpm/100cm ²	R11. FIXED (Beta/Gamma) dpm/100cm ²		
R12. EXTERNAL DOSE/PACKAGE CONTACT mrem/hr	R13 DOSE RATE mrem/hr @ Meters (B/G)		
R14. Radiation Protection SIGNATURE	R15. SURVEY NUMBER		

CONSTITUENT CONTINUATION SHEET

(Continuation Page of)

DOCUMENT ID NUMBER

X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				
X9. SUBSTANCE ID	X10. CONCENTRATION	X11. UNITS	X12. EPA CODE (s)	X13. UNDERLYING HAZ CONSTITUENTS
X14. SUBSTANCE NAME				

Waste Item Container Log

L0. Item/Container	L1. Contents		L2. Container ID No.		Document ID Number	
L3. Waste Item ID No.	L4. Origin Date	L5. RCRA Accumulation Date		L6. PCB Date to Storage	L7. Newly Generated Date	
L8. Waste Material Placed in (or Removed from) Container	L9. Amount (Quantity/Volume/Weight)	L10. Depositor		L11. % Filled	L12. Comments (If waste is removed from container, then final disposition must be noted)	
		Initial	Date			
L13. Gross Weight	L14. Tare Weight	L15. Net Weight		L16. Units	L17. Waste Profile No.	
L18. Barcode No.	L19. Absorbent Materials? Quantity/Type <input type="checkbox"/> Yes <input type="checkbox"/> No			L20. NMC&A Form	L21. Est. Net Vol.	L22. Units
L23. Container IID/TID No.	L24. Inner Container Type/Material		L25. Outer Container Type/Material		L26. Gross Volume	
L27. Scale ID No.	L28. Scale Calibration Date		L29. Generator Signature/Badge No.		Date	
Authorization Basis Information (Waste Disposition Personnel Only)						
L30. AB Profile	L31. Content Type		L32. Assignee		Date	

WSD-F-0015

REQUEST FOR DISPOSAL

NOTE: All fields must be addressed and a response provided for each field.

Document ID Number—The unique identifier applied to the Request for Disposal.

GENERATION PROCESS INFORMATION (To be completed by Generator)

- W1. Generator's Name (Print)—The printed name of the individual responsible for generation of the waste. Initials for first and middle names may be used.
- W2. Badge Number—The badge number of the individual indicated in block W1.
- W3. Generator's Phone #—The phone number, including the area code if other than 270, where the individual indicated in block W1 may most likely be reached. A four or seven digit number is acceptable.
- W4. Mail Stop—The mail stop of the individual indicated in W1.
- W5. Charge No. /WO—A valid work order or charge number that may be used for charges associated with waste handling activities. Mandatory.
- W6. Generator's Company—The Company employing the individual indicated in W1 (e.g., PRS, EnergySolutions, GEO, etc.).
- W7. Corp. Owner—This is the corporation or federal agency who owns the waste (e.g., USEC, DOE).
- W8. Origin Site—The site where the waste was generated, if not a facility.
- W9. Origin Facility—The facility or building where the waste was generated.
- W10. Origin Area—The room, area, lab, or location where the waste was generated.
- W11. Rad. Area—Indicate whether or not the area indicated in W10 is a radiological area. A radiological area is defined in 10 *CFR* § 835.603 as any area within a "controlled area" which meets the definition of a "radiation area," "high radiation area," "very high radiation area," "airborne radioactivity area," "contamination area," or "high contamination area."
- W12. Number of Items—The number of items on the RFD; for example, 2 drums or 2 capacitors. This does not mean the number of individual items within a container.
- W13. Process Category (GCC)—Formerly referred to as Generation Cause Code. A three digit alphanumeric code identifying the type of generation of the waste that is critical to the waste minimization effort.
- | | | | |
|-----|-------------------------------------|-----|----------------------------|
| ABT | Abatement | PRO | Ongoing Process/Production |
| CON | Construction/Demolition | REC | Recycled |
| DND | Decommission/Decontamination | REM | Remediation |
| EXC | Ongoing Out-of-Spec/Excess Material | RND | Research/Development |
| LEG | Legacy | RPK | Repackaging |
| MNT | Ongoing Maintenance | SPL | Spills |
| MUL | Multiple | TRE | Treatment |
| OTP | One-time Planned | UNK | Unknown/Other |
- W14. Process Activity Code—A three digit alphanumeric code indicating the process, which produced the waste. *A list of available Process Activity Codes is defined on the following page.*
- W15. AWA Number—This is the Asbestos Work Authorization Number. If W27 or W28 are yes, this block must have a number.
- W16. Physical Form—This is the physical form of the waste stream (liquid, solid, slurry, sludge, gas, emulsion).

Process Activity Code (block W14)

CLEANING & DEGREASING

- A01 Stripping
- A02 Acid Cleaning
- A03 Caustic (Alkali) Cleaning
- A04 Flush Rinsing
- A05 Dip Rinsing
- A06 Spray Rinsing
- A07 Vapor Degreasing
- A08 Physical Scraping & Removal
- A09 Clean Out Process Equipment
- A19 Other Cleaning & Degreasing

SURFACE PREPARATION & FINISHING

- A21 Painting
- A22 Electroplating
- A23 Electro less Plating
- A24 Phosphating
- A25 Heat Treating
- A26 Pickling
- A27 Etching
- A29 Other Surface Coating/Preparation

PROCESS OTHER THAN SURFACE PREP.

- A31 Product Rinsing
- A32 Product Filtering
- A33 Product Distillation
- A34 Product Solvent Extraction
- A35 By Product Processing
- A36 Spent Catalyst Removal
- A37 Spent Process Liquids Removal
- A38 Tank Sludge Removal
- A39 Slag Removal
- A40 Metal Forming
- A41 Plastics Forming
- A49 Other Process other than surface prep.

ONE TIME & INTERMITTENT PROCESS WASTES

- A51 Leak Collection
- A52 Leachate Collection
- A53 Cleanup of Spill Residues
- A54 Oil Changes
- A55 Filter/Battery Replacement
- A56 Discontinue use of Process Equipment
- A57 Discarding Off Spec Material
- A58 Discarding Out of out of date Products or Chemicals
- A59 Other production derived one-time processes
- A60 Sludge Removal

WASTE FROM REMEDIAL ACTIVITIES

- A61 Superfund remedial action
- A62 Superfund emergency response
- A63 RCRA Corrective action at SWMU
- A64 RCRA Closure of Hazardous Waste Management Unit
- A65 Underground storage tank cleanup
- A69 Other Remediation

POLLUTION CONTROL / WASTE TREATMENT

- A71 Filtering/Screening
- A72 Metals Recovery
- A73 Solvents Recovery
- A74 Incineration/Thermal Treatment
- A75 Wastewater Treatment
- A76 Sludge Dewatering
- A77 Stabilization
- A78 Air Pollution Control Devices
- A79 Other Pollution Control or Waste Treatment

OTHER PROCESSES

- A91 Clothing & Personal Protective Equipment
- A92 Routine Cleanup Waste (e.g. Floor Sweepings)
- A93 Closure of management units or equipment other than by remediation (A61-A69)
- A94 Laboratory Wastes
- A99 Other Process
- UNK Unknown

W17. Material Type(s) – Based on the physical form given in W16, indicate the five digit alphanumeric code for up to three subcategories of materials that describe the actual makeup of the waste stream. At least one subcategory must be chosen, and the primary material type should be listed first.

SOLID

- | | | | |
|-------------------|-----------------|----------------|--------------------------|
| MT001- Absorbent | MT006- Granular | MT010- Plastic | MT014- Filter Cake |
| MT002- Biological | MT007- Metallic | MT011- Rubble | MT015- Powder |
| MT003- Cloth | MT008- Paper | MT012- Soil | MT016- Solidified Liquid |
| MT004- Equipment | MT009- PPE | MT013- Wood | MT099- Other Solid |
| MT005- Glass | | | |

GAS

- MT101- Compressed
- MT102- Liquefied

LIQUID

MT200- Groundwater
MT201- Oil-based

MT202- Solvent, Halogenated
MT203- Solvent/Nonhalogenated

MT204- Water-based
MT205- Wastewater

MT206- Well Water
MT299- Other Liquid

EMULSION

MT800- Oil-based

MT801- Water-based

MT899- Other
Emulsion

SLUDGE

MT400- Biological
MT401- Oil-based
MT402- Metallic

MT403- Soil
MT404- Water-based

MT405- Thermally Treated
MT499- Other Sludge

SLURRY

MT600- Biological
MT601- Oil-based
MT602- Metallic

MT603- Soil
MT604- Solvent, Halogenated
MT605- Solvent, Nonhalogenated

MT606- Water-based
MT699- Other Slurry

- W18. Holding Site—Indicate the site where the waste is physically located.
- W19. Holding Facility—Indicate the facility or building where the waste is physically located.
- W20. Holding Area—Indicate the room, area, lab, or location where the waste is physically located.
- W21. RFD Attachment—Indicate the letter A, B, or C for the appropriate attachment completed for the waste.

WASTE SUBCATEGORIES (Check all that apply)

Indicate any subcategories that apply to the waste item. "No" is acceptable for all subcategories.

- W22. Biological—Indicate if the waste stream contains materials of biological origin. Examples include animal carcasses, shrubs, trees, and animal bedding.
- W23. Accountable—Indicate if the waste stream is part of the Nuclear Materials Control and Accountability Program (NMC&A). If "Yes," transfer forms also may be required.
- W24. Carcinogen—Indicate if the waste stream contains **known** carcinogens. Carcinogens are substances that cause the development of cancerous growths in living tissue, such as asbestos. For assistance, refer to the MSDS or contact IH.
- W25. Construction Debris—Indicate if the waste was generated as a result of construction activities.
- W26. Classified—Indicate if the waste stream contains any classified materials.
- W27. Friable Asbestos—Indicate if the waste contains friable asbestos. If "Yes," W15 must be completed.
- W28. Nonfriable Asbestos—Indicate if the waste contains nonfriable asbestos. If "Yes," W15 must be completed.
- W29. TRU Waste—Indicate if the waste stream contains Transuranic materials.
- W30. CERCLA—Indicate if the waste is considered CERCLA waste.
- W31. DMSA—Indicate if the waste was generated from a DMSA (DOE Material Storage Area).
- W32. Waste Description and Comments—Provide a general description of the waste material that is associated with codes used in W17 (i.e., PPE in a plastic bag). As applicable, indicate whether chemicals or wastes are "spent" or "unused." This notation should be made in the description with the name of the chemical or waste.
- W33. Waste Management Plan #—This is a number provided by the Generator Company for tracking purposes only.
- W34. Generator Signature & Date—The generator indicated in W1 must sign and date the RFD.

HANDLING/PICKUP INFORMATION (To be completed by Waste Disposition)

- P1. Pickup Site—Indicate the site where the waste is physically located for pickup.

- P2. Pickup Facility—Indicate the facility or building where the waste is physically located for pickup.
- P3. Pickup Room/Area—Indicate the room, area, lab or location where the waste is located for pickup.
- P4. PPE Requirements—Indicate the type of personal protective equipment is needed for the pickup / handling of the waste.
- P5. Container Labeling Requirements—Indicate all labels to be placed on the container.
- P6. Additional Handling Instructions—Specify any special handling or management requirements.
- P7. Field Engineer—Signature and badge number of the Field Engineer who issued the RFD to be worked. Date – date the RFD was issued.
- P8. Disposal / Storage Completed By—Signature and badge number of the individual(s) who actually worked the RFD. Date—date the RFD was worked.
- P9. Field Supervisor—The signature and badge number of the supervisor responsible for the person(s) who worked the RFD. Date – date the supervisor signed off on the RFD.
- P10. Data Processing Completed By—Signature and badge number of the person who entered the RFD into the data system. Date – date the data entry was completed.
- P11. Waste Item Information:
- Waste Item # —Waste Identifier, usually the RFD and a hyphen with a sequential # (i.e., 104354-01)
- Container # (Barcode)—Specify the Barcode of the Container (i.e., PAD01C12345).
- Weight—Indicate the gross weight of the container.
- Container Size—Specify the size of the container (5 gal, 55 gal, 85 gal, ST-90, etc.).
- Location & Grid—Indicate where the waste was stored (i.e., C-746-A B-02)
- P12. Operator Comments—Any comments from the field made by the operator to the Coordinator.

ATTACHMENT A - LOW-LEVEL RADIOACTIVE WASTE FORM USER INSTRUCTIONS

NOTE: All fields must be addressed and a response provided for each field.

Document ID Number—The unique identifier applied to the Request for Disposal.

PROHIBITED ITEMS

Indicate the presence of any of these items in the waste (i.e., MUST check either YES or NO for each). If YES, either another attachment should be used, or more likely, a variance request should be submitted to the appropriate Waste Management organization to determine if the waste can be accepted even with prohibited items.

- A1. Pyrophoric Materials—Solid or liquid materials which, even in small quantities and without an ignition source, can ignite spontaneously in air. Pyrophoric materials must be rendered safe by mixing them with chemically stable materials (concrete or glass for example) or must be processed to remove their hazardous properties (see Note below). Wastes that are expected to contain any metallic radionuclides are to be treated through oxidation eliminate as much of the potential pyrophorics as possible prior to placement in a waste container. Pyrophoric forms of radionuclides can be accepted if they are limited to less than 1% by weight of the waste per container, and these generally should be dispersed in the waste.

NOTE: Pyrophorics, other than radioactive pyrophorics, must be managed as potential hazardous waste under the Resource and Conservation Recovery Act (RCRA); therefore, treatment of such pyrophorics to render them safe may require a permit. Accordingly, the RCRA compliance organization should be consulted for guidance for such pyrophorics.

- A2. Active Chelating Agents—Prohibited if making up 1% or more by weight of the waste. Chelating agents mobilize fixed heavy metals and radionuclides for migration in the environment. Their presence must be limited to accommodate "no migration" requirements for radioactive waste disposal facilities. Chelating agents typically are found in many decontamination solutions. Examples of chelating agents are amine polycarboxylic acids (EDTA, DTPA), hydroxy-carboxylic acids, and polycarboxylic acids (citric acid, gluconic acid).
- A3. Transuranic Waste (TRU)—Without regard to form or source, alpha-emitting transuranic isotopes having an atomic number greater than 92, half-life greater than 20 years, and concentrations greater than 100 nCi/g at the time of generation/assay. The following radionuclides meet these criteria and must be considered when making TRU determinations: Am-241, Am-242m, Am-243, Bk-247, Cf-249, Cf-251, Cm-243, Cm-245, Cm-246, Cm-247, Cm-248, Cm-250, Np-237, Pu-238, Pu-239, Pu-240, Pu-242, and Pu-244.

NOTE: IF TRU radioisotopes are present > 100 nCi/g, then this must be checked yes, and the Field Engineer must be contacted before acceptance.

- A4. Explosive Materials—Chemical compounds that may detonate or deflagrate as a result of shock or heat; any substance or article that is designed to function by explosion (an extremely rapid release of gas and heat) or that, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion.
- A5. Etiological Agents—Infectious substances or pathogens; viable microorganisms or related toxins that cause or may cause disease in humans or animals; etiological agents include, but are not limited to, agents listed in Part 42, *Code of Federal Regulations*, Section 72.3 (42 CFR § 72.3) by the Department of Health and Human Services, and any other agents that cause or may cause severe, disabling, or fatal disease (per 49 CFR § 173.134). Examples of etiological agents are contaminated blood and viruses.

- A6. Ignition Sources—Articles, devices, or conditions that promote or permit burning through intense heat or fire; ignition sources include lighters, matches, and electric sparks.
- A7. Free Liquids (prohibited only for SOLID LLRW; intrinsic for liquid LLRW)—Liquids that readily separate from the solid portion of a waste under ambient temperature and pressure. The waste matrix should be able to pass the paint filter test as described in *Test Methods for Evaluating Solid Waste*, EPA/SW-846, in order to be considered solid LLRW.

NOTE: Liquid LLRW (e.g., Wastewater) is excluded from this requirement and is the only case for which this block should be marked, yes.

- A8. RCRA Waste—Waste regulated by the Environmental Protection Agency (EPA) and approved states under RCRA due to being listed or having a characteristic as detailed in 40 *CFR* § 261.
- A9. TSCA Waste—Waste regulated by the EPA and approved States under the Toxic Substances Control Act (TSCA). TSCA regulated waste includes PCBs in concentrations equal to or exceeding 50 ppm or PCBs from sources equal to or greater than 50 ppm.

ADDITIONAL WASTE CHARACTERISTICS

- A10. Waste Variance Request Number—Enter the number(s) of any **approved** Waste Variance Request forms that apply to this waste.
- A11. Chelating Agents—Chelating agents mobilize fixed heavy metals and radionuclides for migration in the environment. Their presence must be limited to accommodate "no migration" requirements for radioactive waste disposal facilities. Indicate presence of any amount of chelating agents by marking the YES box, and the absence of chelating agents by marking the NO box. Refer to A2 for examples of chelating agents.
- A12. Ion Exchange Resins—Indicate whether ion exchange resins are present in the waste by checking either YES or NO. Ion exchange resins are synthetic resins with active groups (usually sulfonic, carboxylic, phenol, or substituted amino groups) that give the resin the property of combining with or exchanging ions between the resin and a solution. Some uses of ion exchange resins include water softening, recovery of chromate from plating solutions, recovery of uranium from acid solutions, removal of formic acid from formaldehyde solutions, recovery of valuable metals from wastes, recovery and separation of radioactive isotopes from atomic fission, and chromatography.
- A13. Detectable PCBs—Indicate if the waste is <50 ppm PCB and is from a source <50 ppm PCB.
- A14. Wastewater—Indicate if a wastewater. Less than 10 % solids.

RADIOISOTOPE DETERMINATION METHOD

- R1. Analysis Sample ID#—Indicate any chemical analysis performed on the waste by listing the Lab Sample Identification number(s) in this block, and attach the analysis to the data package.
- R2. Waste Characterization Documentation—The completed Waste Characterization Documentation form WSD-F-0069 from procedure PRS-WSD-0437 must be provided with the RFD submittal.
- R3. Fissile Content (wt. % of U-235)—The weight % of U-235 in material in the container. Can be determined by ICP/MS, PK, NDA, Alpha Spec or Gamma (<0.71 weight %).

- R4. Grams U-235—Indicate the grams of U-235 in the material.
- R5. NCS Exempt—The material contains uranium with enrichment less than one weight % U-235 or total less than or equal to 15 grams of U-235.
- R6. Chemical Form—The chemical form of the waste must be indicated in this block. Some chemical forms meet the definition of hazardous, as defined by 40 *CFR* § 261, or excluded material. An example of a hazardous chemical form is the elemental form of the isotopes of Cesium, Strontium, and Uranium. Elemental forms of Cesium and Strontium may be air- and/or water-reactive, and elemental forms of Uranium may be pyrophoric.

OTHER SAMPLE ANALYSIS

- O1. Analysis Sample ID#—List any chemical analysis, other than radioisotope data from R1, that was performed on the waste by listing the Lab Sample Identification number(s) in this block, and attach the analysis to the data package.
- O2. Waste Characterization Documentation—The completed Waste Characterization Documentation form WSD-F-0069 from procedure PRS-WSD-0437 must be provided with the RFD submittal.

RADIATION DATA FROM HEALTH PHYSICS SURVEY

- R7 and R15. The information for this portion of the RFD is to be supplied by Radiation Protection. Please contact Radiation Protection for support.

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**ATTACHMENT B - RCRA MIXED AND/OR TSCA RADIOACTIVE WASTE
FORM USER INSTRUCTIONS**

NOTE: This form is to be used only for those RCRA and TSCA wastes that also are radioactively contaminated.

NOTE: All fields must be addressed and a response provided for each field.

Document ID Number—The unique identifier applied to the RFD.

PROHIBITED ITEMS

Indicate the presence of any of these items in the waste (i.e., **MUST** check either YES or NO for each). If YES, either another attachment should be used, or a variance request should be submitted to the appropriate Waste Management organization to determine if the waste can be accepted.

- B1. Chemically Incompatible Substances—Indicate the presence or absence of any substances that may chemically react with one another to create a hazard to the packagers, container, or environment. Reference document EPA-600/2-80-076, "A Method for Determining the Compatibility of Hazardous Wastes."

OTHER WASTE CHARACTERISTICS

- B2. Waste Variance Request Number—Enter the number(s) of any **approved** Waste Variance Request forms that apply to this waste.
- B3. Chelating Agents—Chelating agents mobilize fixed heavy metals and radionuclides for migration in the environment. Their presence must be limited to accommodate "no migration" requirements for radioactive waste disposal facilities. Indicate presence of any amount of chelating agents by marking the YES box, and the absence of chelating agents by marking the NO box. Decontamination solutions often contain chelating agents. Examples of chelating agents are amine polycarboxylic acids (EDTA, DTPA), hydroxy-carboxylic acids, and polycarboxylic acids (citric acid, gluconic acid).
- B4. Ion Exchange Resins—Indicate whether ion exchange resins are present in the waste by checking either YES or NO. Ion exchange resins are synthetic resins with active groups (usually sulfonic, carboxylic, phenol, or substituted amino groups) that give the resin the property of combining with or exchanging ions between the resin and a solution. Some uses of ion exchange resins include water softening, recovery of chromate from plating solutions, recovery of uranium from acid solutions, removal of formic acid from formaldehyde solutions, recovery of valuable metals from wastes, recovery and separation of radioactive isotopes from atomic fission and chromatography.
- B5. pH—Indicate the pH of any aqueous waste as determined by using a pH meter or other methodology as approved by the appropriate Waste Management organization.
- B6. Corrosivity to Steel—Indicate whether the waste, either liquid or solid, corrodes steel at a rate greater than or less than 6.25 mm/yr.

NOTE: This is required only for liquids if the pH is not obtained or attainable and is required for solids to determine corrosivity characteristics per DOT regulations. PK may be used to make this determination, and the Waste Disposition organization will assist with this determination, as required.

- B7. Flashpoint—Indicate the flashpoint of any liquid waste stream as determined by a closed cup method, such as a Pensky-Martens. Flashpoint must be indicated in degrees C or degrees F.

NOTE: The flashpoint should be provided by the generator if the waste is known ignitable (D001) waste in accordance with 40 *CFR* § 261.2 1 (a)(1).

B8. Boiling Point—Indicate the initial boiling point in terms of less than or equal to 35 °C (95 °F) or > 35 °C (95 °F) of any liquid waste that has a flashpoint of 141 °F or less.

NOTE: The boiling point should be provided by the generator if the waste is a known ignitable (D001) waste and has a flashpoint of 141 °F or less.

B9. Detectable PCB—Indicate if the waste is from a source < 50 ppm PCB.

B10. Wastewater—Indicate if a wastewater. Less than 10% solids.

B11. Radioactive—Either Yes or No.

RADIOISOTOPE DETERMINATION METHOD

R1. Analysis Sample ID#—Indicate any chemical analysis performed on the waste by listing the Lab Sample Identification number(s) in this block, and attach the analysis to the data package.

R2. Waste Characterization Documentation—The completed Waste Characterization Documentation form WSD-F-0069 from procedure PRS-WSD-0437 must be provided with the RFD submittal.

R3. Fissile Content (wt.% of U-235)—The wt.% of U-235 in material in the container. Can be determined by ICP/MS, PK, NDA, Alpha Spec. or Gamma (< 0.71 wt.%).

R4. Grams U-235—Indicate the grams of U-235 in the material.

R5. NCS Exempt—The material contains uranium with enrichment less than one wt.% U-235 or total less than or equal to 15 grams U-235.

R6. Chemical Form—The chemical form of the waste must be indicated in this block. Some chemical forms meet the definition of hazardous, as defined by 40 *CFR* § 261, or excluded material. An example of a hazardous chemical form is the elemental form of the isotopes of Cesium, Strontium, and Uranium. Elemental forms of cesium and strontium may be air and/or water reactive, and elemental forms of uranium may be pyrophoric.

RCRA/TSCA DETERMINATION METHOD

T1. Analysis Sample ID#—Indicate any analysis performed on the waste by listing the Lab Sample Identification number in this block, and attach the analysis to the data package.

T2. Waste Characterization Documentation—The completed Waste Characterization Documentation form WSD-F-0069 from procedure PRS-WSD-0437 must be provided with the RFD submittal.

T3. RCRA Waste—Indicate whether the waste is regulated under RCRA by checking YES or NO. RCRA wastes are those wastes either listed or exhibiting characteristics as defined in 40 *CFR* § 261.

T4. TSCA Waste—Indicate whether the waste is regulated under TSCA by checking YES or NO. TSCA waste are those containing ≥ 50 ppm PCB or from a source ≥ 50 ppm as defined in 40 *CFR* § 761.

- T5. Underlying Hazardous Constituent(s) Present—Indicate whether any of the underlying hazardous constituents as defined in 40 *CFR* § 268.42 and § 268.48 are present in any characteristic waste (D001 - D043).
- T6. PCB Present—Indicate whether PCBs are present or not. YES should be checked for any wastes having any level of PCBs.
- T7. PCB Concentration—Indicate the concentration of PCBs actually present in the waste. This number may be obtained through analysis or process knowledge. Indicate this value in units of parts per million (ppm) or parts per billion (ppb).
- T8. PCB Source Concentration—Indicate the largest known source of PCBs that contributed to the waste. Source values are the actual concentration of PCBs prior to any mixing, dilution, treatment, or other physical or chemical change. This value should be in ppm or ppb.
- T9. PCB Source Concentration Range (ppm)—If T8 is unknown, then the range of known or sources of PCBs in the waste must be indicated. Only one range should be indicated, and this should be the range of highest known concentration.
- T10. Known Hazardous Constituents—List any hazardous constituents known (or suspected) to be present in the waste.
- T11. Known Underlying Hazardous constituents—List any of the underlying hazardous constituents as defined in 40 *CFR* § 268.42 and 268.48 are present in any characteristic waste (D001 - D043).

RADIATION DATA FROM RADIATION PROTECTION SURVEY

R7. through R15. The information for this portion of the RFD is to be supplied by Radiation Protection. Please contact Radiation Protection for support.

REGULATORY CODES (TO BE COMPLETED BY WASTE MANAGEMENT)

- X1. PCB Item—Code to identify the type of PCB item/container/article being disposed.
- X2. Waste Stream ID—The DOE-PGDP mixed-LLW waste streams.
- X3. Form Code—State code that identifies the form or physical state of the waste.
- X4. Source Code—State code to identify where waste originated.
- X5. Handling Code—Code to describe how hazardous waste was handled. Example: treatment, storage, and disposal.
- X6. LDR Code—Code for Land Disposal Restriction.
- X7. Reactivity Group Number—Code to determine compatibility.
- X8. Generated from a Non-RMMA—Waste was generated from an area designated as a Non-RMMA and is not considered LLW.
- X9. Substance ID—Indicate the Chemical Abstract Registry (CAR) number and the name of hazardous substances.
- X10. Concentration—Indicate the concentration of each Substance ID listed in X9.

WASTE ITEM CONTAINER LOG

- L0. List the container # that this container log identifies and the number of containers on the RFD.
- L1. Container Content—The contents of waste placed in the container (e.g., debris, metal, soil, sludge, etc.)
- L2. Container ID Number—The empty container identification or serial number.
- L3. Waste Item ID Number—The number assigned to the waste item. Document ID Number (RFD #), with an extension to indicate drum sequence. Example XXXXX-01
- L4. Origin Date—The date that the waste item was generated and/or declared a waste.

NOTE: For bulking operations, the origin date for the "newly generated waste" (the bulked waste) will be the earliest origin date noted for any of the wastes bulked.

- L5. RCRA Accumulation Start Date—The date when RCRA hazardous or RCRA mixed (RCRA and radioactive constituents) waste is moved to a 90-day accumulation area or directly to a permitted storage area 1) from a satellite accumulation area or 2) immediately at the time of generation (i.e., no satellite accumulation).

NOTE: For bulking operations, the RCRA Accumulation Start Date for the "newly generated waste" (the bulked waste) will be the earliest RCRA Accumulation Start Date noted for any of the wastes bulked.

- L6. PCB DTS—The date a PCB item, article, or waste is removed from service for disposal. For a freestanding article or item, such as a transformer, capacitor, or ballast, this is the date that the article or item actually is removed from service for disposal. For wastes other than articles and items that are placed in a containment system, such as a drum or box, this is the date that the first drop or particle of PCB contaminated waste is placed in the containment system.

NOTE: For bulking operations, the PCB Start Date for the "newly generated waste" (the bulked waste) will be the earliest PCB DTS of any of the wastes bulked.

- L7. Newly Generated Date—To be completed by Waste Disposition personnel for tracking purposes only. The date that begins the one year disposal requirement per the DOE O 435.1.
- L8. Waste Material Placed in Container—A detailed list of any materials placed in the container.
- L9. Amount (Quantity/Volume/Weight)—The number of items, volume, or weight of each waste addition to the container.

NOTE: Typical units for L9 are gallons (gal), liters (L), cubic feet (ft³), pounds (lbs), etc. If the information in L9 is a count of items, then write "items" in L9, (i.e., L8 says "small capacitors," L9 says "15 Items").

- L10. Depositor—The initials of the person placing an item in the container and the date it was placed into the container.
- L11. Percentage (%) Filled—The percentage of container's capacity that is filled with this addition.
- L12. Comments—Any comments about the items that are placed into the container (such as sample #'s, spill #'s, etc.).
- L13. Gross Weight—Is the weight of container, liner, absorbent, and waste materials.

- L14. Tare Weight—Is the weight of the container, liner, and absorbent.
- L15. Net Weight—Is the weight of the waste material only (does not include the weight of the liner, absorbent, or container).
- L16. Units—Indicate the units in pounds. Other weight units also are acceptable
- L17. Waste Profile Number—TSDf approved waste profile number
- NOTE:** Approved waste profile number is required for all NTS waste.
- L18. Barcode Number—The barcode number placed on the outermost container for this waste. The barcode may not be placed on container until waste is placed in storage.
- L19. Absorbent Materials—Indicate whether absorbent materials have been purposely added to the waste for increased stability, cushioning, or liquid absorption. Include quantity and type of material.
- L20. NMC&A Form—The identification number on the nuclear materials control and accountability form; this is required only for accountable materials/waste.
- L21. Estimated Net Volume—Estimated volume of waste that is actually in the containment system; (i.e., NOT the maximum volume that the containment system is designed to hold).
- L22. Units—Indicate the units for the estimated net volume; typical units are gal, liters (L), or ft³. Other volumetric units are also acceptable.
- L23. Container IID/TID Number (s)—The number of the IID/TID placed on the container when it is full or no additional contents will be place into the container.
- L24. Inner Container Type—The type of packaging that a waste is initially packaged in for containment (e.g., plastic bags, plastic wrapping, bottles, jars), as applicable.
- L25. Outer Container Type—The final packaging for the waste form or item (e.g., 1A1X drum, dumpsters, roll-off bin).
- L26. Gross Volume—Gross volume of the containment system, (i.e., 55-gallon, 85 gallons, etc.). See L22 for unit descriptions.
- L27. Scale ID Number—Identification of the scale used to weigh the container.
- L28. Scale Calibration Date—The date that the scale was last calibrated.
- L29. Generator Signature/Badge Number—Signature and badge number of the person who generated the container.
Date- Date the generator signs the container as complete.
- L30. AB Profile—The authorization basis profile assigned to the waste per PRS-WSD-0006.
- L31. Content Type—The content type assigned to the waste per PRS-WSD-0006.
- L32. Assignee—The signature and date of the person who assigned the AB Profile and the Content Type.

NOTE: If the container is for disposal at NTS, then the generator cannot be the same as the depositor(s) in Section 110.
An independent verifier must sign.

NOTE: Place N/A in any items that is not applicable.

APPENDIX C

ABSORBENT DETERMINATION FORM WSD-F-0070

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Absorbent Determination Form

Waste Stream Identification and/or Container #(s): _____
 Waste Type (Check One): _____
 _____ Waste Containing No Moisture _____ Low Moisture Content _____ High Moisture Content

Container (Check One)	Internal Volume (cu ft)	Area of Floor (sq ft)	Condensate Accumulation (lbs water) ^B	Total Moisture Content (lbs water)	Absorbent Type & Amount Required (Circle the appropriate box)		
					Lime/Clay (lbs) ¹	Granular Absorbent (lbs) ²	Absorbent Pads (sq ft) ^{3,5}
10 gal	1.34		0.02	0.02	0.5	0.5	See Note 5
30 gal	4		0.05	0.05	0.5	0.5	See Note 5
55 gal	7.35		0.10	0.10	0.5	0.5	See Note 5
85 gal	11.4		0.15	0.15	0.5	0.5	See Note 5
110 gal	14.7		0.19	0.19	0.5	0.5	See Note 5
Metal Box (ST-90) ⁴	90	30	1.19	1.19	1.2	0.5	See Note 5
Intermodal ⁴	685.8	130	9.08	9.08	N/A	0.5	See Note 5
Sealand (20' L, 8.5' H) ⁴	1,174	160	15.54	15.54	N/A	0.5	See Note 5
Sealand (40' L, 12' H) ⁴	3,655	320	48.37	48.37	N/A	1.0	See Note 5
Gondola ⁴	6,275	515	83.05	83.05	N/A	1.7	See Note 5
Other (Specify):							

Container (Check One)	Internal Volume (cu ft)	Area of Floor (sq ft)	Equivalent Weight of Water for 2% Int. Cont. Vol. (lbs water) ^A	Condensate Accumulation (lbs water) ^B	Total Moisture Content (lbs water)	Absorbent Type & Amount Required (Circle the appropriate box)		
						Lime/Clay (lbs) ¹	Granular Absorbent (lbs) ²	Absorbent Pads/Roll Absorbent (sq ft) ^{3,5}
10 gal	1.34		1.67	0.02	1.69	1.7	1.0	3.4
30 gal	4		4.99	0.05	5.04	5.0	1.0	10.2
55 gal	7.35		9.17	0.10	9.27	9.3	1.0	18.7
85 gal	11.4		14.22	0.15	14.37	14.4	1.0	29.0
110 gal	14.7		18.34	0.19	18.54	18.5	1.0	37.4
Metal Box (ST-90) ⁴	90	30	112.29	1.19	113.48	113.5	2.3	229
Intermodal ⁴	685.8	130	855.65	9.08	864.72	N/A	17.3	1,743
Sealand (20' L, 8.5' H) ⁴	1,174	160	1,464.76	15.54	1,480.29	N/A	29.6	2,984
Sealand (40' L, 12' H) ⁴	3,655	320	4,560.21	48.37	4,608.58	N/A	92.2	9,291
Gondola ⁴	6,275	515	7,829.09	83.05	7,912.14	N/A	158	15,952
Other (Specify):								

Comments

^A Equivalent Weight of Water = (1% Int. Volume ft³) * (7.48 gal/ft³) * (8.34 lbs/gal water)

Assumptions

* 1% moisture by volume maximum in the waste. Must be able to absorb Twice the amount of liquid present in the waste.

^B Condensate Accumulation = (Int. Volume ft³ * 0.1)/(13.601 ft³/lb dry air) * (0.02 lbs water/lb dry air) * (90 days)

Assumptions

* 10% Void Space in a container and 90 days accumulation

* 0.02 lbs water/lb air at 80 degrees F and 90% Relative humidity (Reference: Perry's Chemical Engineering Handbook 4th Ed. Chapter 15).

^C Pounds of water absorbed per sq. ft. of absorbent pads/roll absorbent at a 1:15 absorbent to water ratio = 0.496 lbs

Assumptions

* 1 square foot of roll absorbent weighs 15 gms and is equivalent to 0.033 lbs absorbent

* 0.033 lbs absorbent * 15 lbs of water/ 1 lbs of absorbent = 0.496 lbs water that can be absorbed

¹ The absorptive capacity used is 1 pound hydrated lime/clay = 1.0 pounds water

² The absorptive capacity used for granular absorbent is 1:50 lbs of absorbent to lbs of water. Off-the-shelf product verifications have been performed on AquaSorbe, WasteLock, and Quik-Solid granular absorbents that show 1:100 maximum absorption.

³ The absorptive capacity used for roll-type absorbent is 1:15 lbs of absorbent to lbs of water. Off-the-shelf product verification has been performed on Quik-Solid roll type absorbent that shows 1:30 maximum absorption.

⁴ For Metal Boxes, Intermodals, Sealands, and Gondolas holding smaller inner containers adequately treated with absorbent as specified above, only 2 layers of absorbent pads are required.

⁵ For 10, 30, 55, 85, and/or 110-Gallon Drums, Metal Boxes, Intermodals, SeaLands, and Gondolas, only 2 layers of absorbent pads are required.

References: Table 16 of University of Findlay Absorption Study; Off-the Shelf Sorbent Product Verification, W/PAD-02-010

High-Moisture Content Waste

Where is the waste being shipped?

C-746-U Landfill [Package in accordance with Landfill WAC]

Energy Solutions, Clive UT [Package in accordance with Energy Solutions WAC]

NTS [Package in accordance with the document "Position Paper for High Moisture Content Waste" Revision 0, November 3, 1998

* This document is posted on the NTS Website @ <http://www.nv.doe.gov/emprograms/environment/wastemanagement/rwap.aspx>

Note: Appropriate Documentation must be attached.

Performed By: _____ Print/Sign _____

_____ Date _____

Peer Reviewer: _____ Print/Sign _____

_____ Date _____

WSD-F-0070

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APPENDIX D
LABELING AND MARKING

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CONTENTS

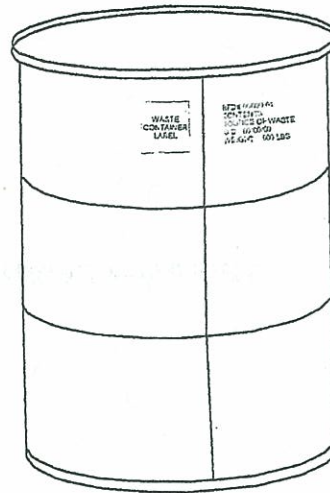
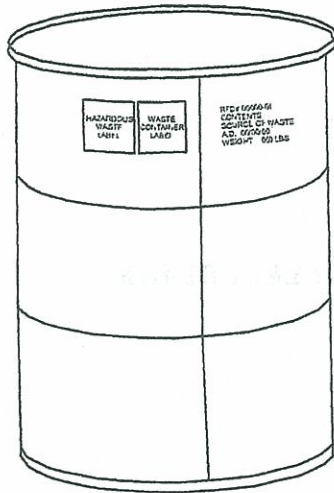
Location of Labels, Markings	
RCRA Waste Drum.....	D-5
Low-level Radioactive Waste Drum.....	D-5
Detectable PCB Waste Drum.....	D-6
PCB Waste Drum.....	D-6
Boxes.....	D-7
Waste Container Label.....	D-8
Hazardous Waste Label.....	D-9
PCB M _L Label.....	D-10
Detectable PCB Label.....	D-11
Classified Material Label.....	D-12
Transuranic Waste Label.....	D-13
Asbestos Label.....	D-14
Beryllium Label.....	D-15

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RCRA WASTE

LOW LEVEL
RADIOACTIVE WASTE



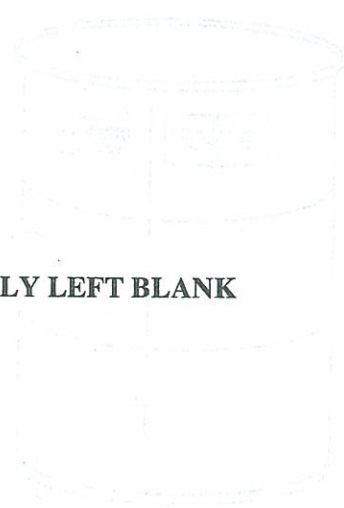
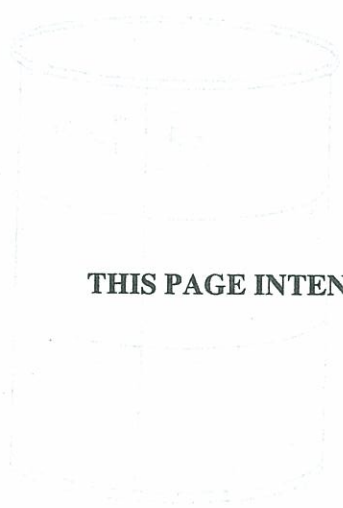
U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
PADUCAH GASEOUS DIFFUSION PLANT



FIGURE No. c5ac90000sk339x1.apr
DATE 07-30-04

FOR THE
STATE OF CALIFORNIA

FOR THE ARCH



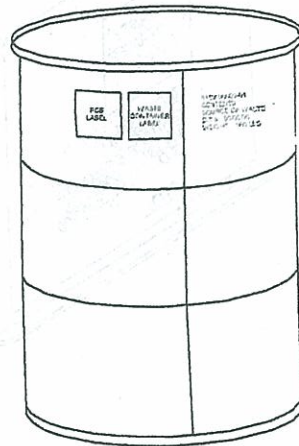
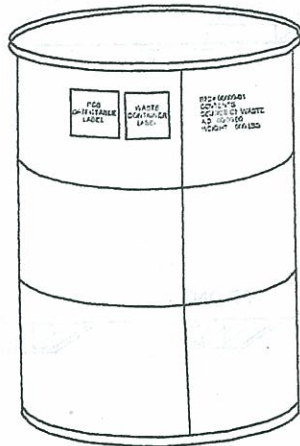
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OFFICE OF THE ATTORNEY GENERAL
STATE OF CALIFORNIA
SAN FRANCISCO, CALIFORNIA

1974

DETECTABLE PCB WASTE

PCB WASTE

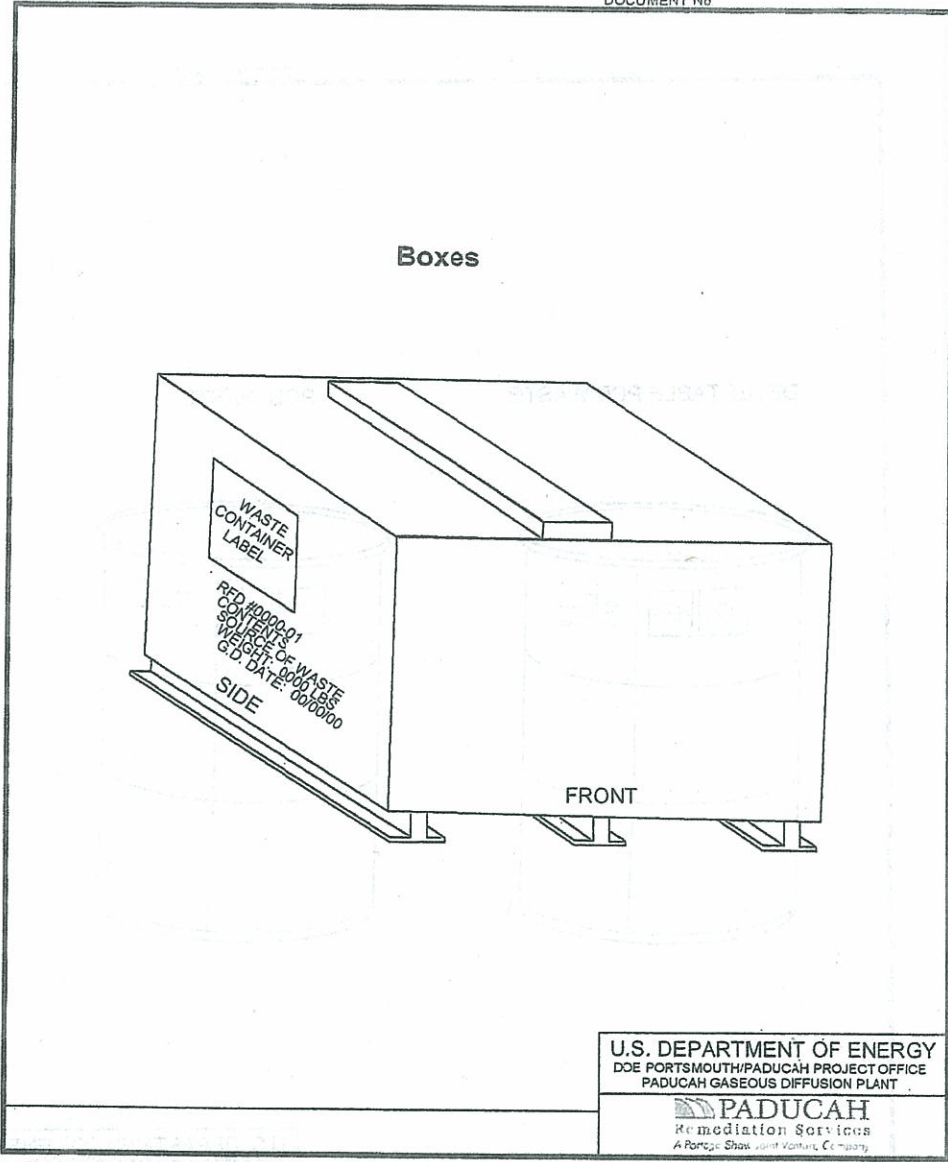


U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
PADUCAH GASEOUS DIFFUSION PLANT

PADUCAH
Remediation Services
A Remtec, Shaw Group, Ventron, Company

FIGURE No. c5ac90000sk339x2.apr
DATE 07-30-04

Boxes



U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
PADUCAH GASEOUS DIFFUSION PLANT

PADUCAH
Remediation Services
A Portage-Shaw Joint Venture Company

FIGURE No. c5ac9000sk338.apr
DATE 08-03-04

WASTE CONTAINER LABEL

RFD/DRUM NUMBER _____

CONTENTS _____

SOURCE OF WASTE _____

BUILDING _____

COMMENTS _____

LIQUID SOLID SEMI-SOLID COMPRESSED GAS

GENERATION DATE _____

Waste Container Label

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL
IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY
AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERATOR INFORMATION:

NAME **US-DOE-PADUCAH GASEOUS DIFFUSION PLANT**

ADDRESS **P. O. BOX 1410**

CITY PADUCAH	STATE KY	ZIP 42001
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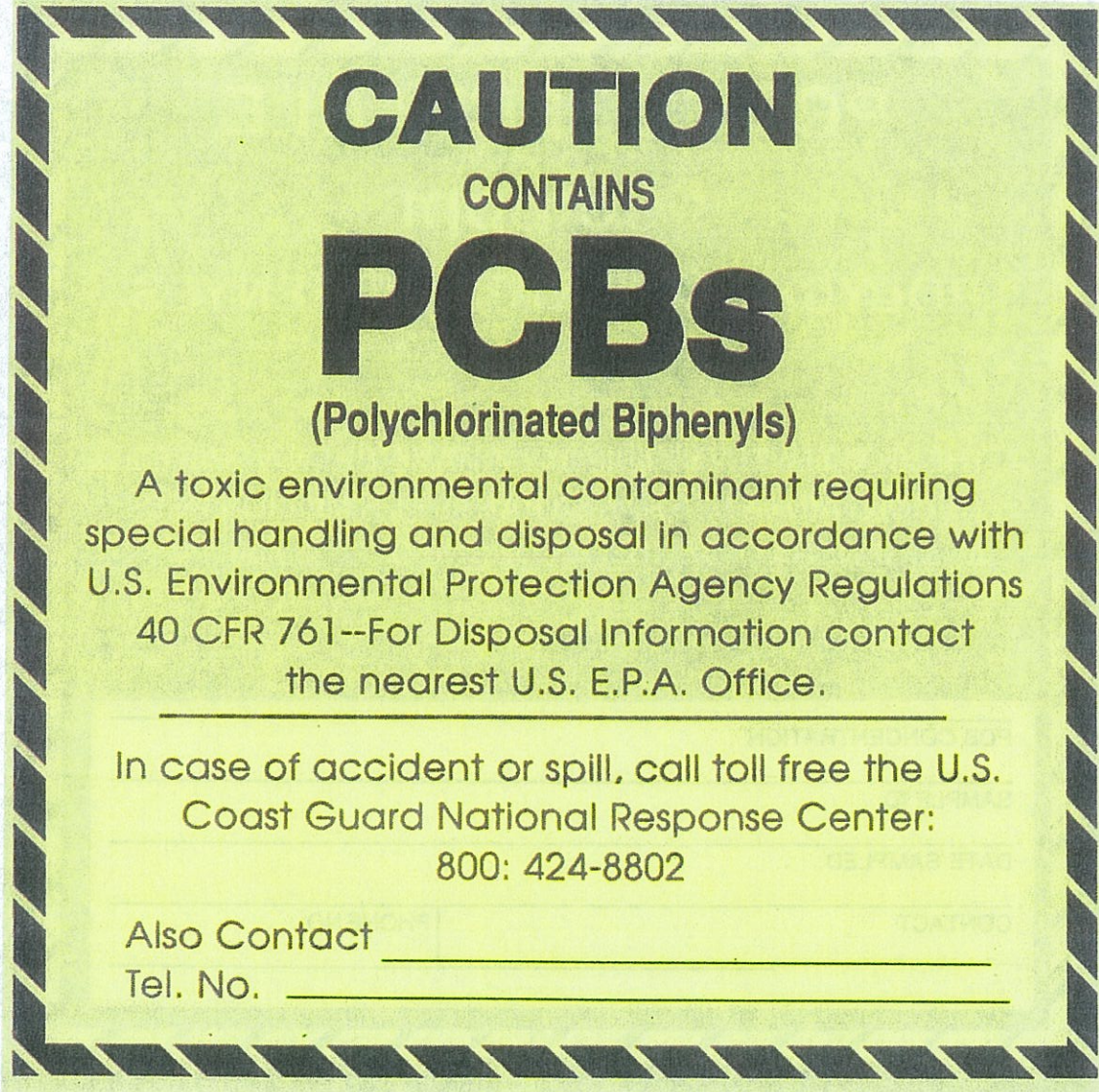
EPA ID NO./ MANIFEST DOCUMENT NO.
KY8890008982

ACCUMULATION START DATE	EPA WASTE NUMBER
-------------------------	------------------

D.O.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX

HANDLE WITH CARE!

Hazardous Waste Label



CAUTION

CONTAINS

PCBs

(Polychlorinated Biphenyls)

A toxic environmental contaminant requiring special handling and disposal in accordance with U.S. Environmental Protection Agency Regulations 40 CFR 761--For Disposal Information contact the nearest U.S. E.P.A. Office.

In case of accident or spill, call toll free the U.S. Coast Guard National Response Center:
800: 424-8802

Also Contact _____
Tel. No. _____

PCB M_L Label

PCB DETECTABLE	
< 50 ppm	
POLYCHLORINATED BIPHENYLS	
THE CONTENTS OF THIS ITEM HAVE BEEN VERIFIED TO CONTAIN LESS THAN 50 PARTS PER MILLION PCBs AND GENERATED FROM A SOURCE OF < 50 ppm PCBs	
PCB CONCENTRATION	
SAMPLE ID	
DATE SAMPLED	
CONTACT	PHONE NO.

Detectable PCB Label

CONFIDENTIAL-RD

UCN 16934 (12/15/12) (R)

Classified Material Label

**TRANSURANIC
WASTE**

_____ nCi/g

CP-21081
(12-16-96)

Transuranic Waste Label



**CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
AVOID BREATHING AIRBORNE ASBESTOS FIBERS**

Asbestos Label

DANGER
CONTAMINATED WITH BERYLLIUM
DO NOT REMOVE DUST BY BLOWING OR SHAKING
CANCER AND LUNG DISEASE HAZARD

Beryllium Label

APPENDIX E

**MANAGEMENT PLAN FOR MITIGATION OF POTENTIAL FREE
LIQUIDS and NONCONFORMING WASTE ITEMS**

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Example of a Management Plan for Mitigation of Potential Free Liquid and Nonconforming Items

Due to the potential for free liquid and nonconforming items to exist in waste containers destined for disposal in the C-746-U Landfill, the following actions will be taken.

- (1) Free liquids and nonconforming items will be removed from all waste processed. This will be accomplished by the following method. The contents of each drum will be emptied into either a decant/tilt or tilt dumpster, as required. The decant/tilt dumpster is specifically designed to automatically separate free liquids and allow observation and manual removal of nonconforming items from the waste. The tilt dumpster is designed to allow observation of the drum contents for free liquids and manual removal of any nonconforming items. If free liquids are observed when using the tilt dumpster, suitable absorbents may be added directly into the dumpster during this step. Any nonconforming items will be removed for proper disposition.
- (2) Documented observation of the drum contents will occur before, during, and after the waste is emptied. This observation for free liquids and nonconforming items will be on the surfaces of the waste that can be viewed from the side of the dumpster without sorting or segregating the drum contents. A photograph of the contents will be obtained upon dumping.
- (3) After each drum has been emptied into the decant/tilt or tilt dumpster and any free liquids and/or nonconforming items have been mitigated as required, an aliquot of the waste in each drum will be collected. Each aliquot will be placed into a composite container with aliquots of all successive drums, until all drums combined in a particular bulk container (i.e., roll-off, intermodal, or ST-90) have been observed and sampled.
- (4) Periodically after performing Steps 1 and 2 above, the dumpster contents will be emptied into a lined bulk container (i.e., roll-off, intermodal, or ST-90) into which absorbent will be added, as necessary, to address any residual free liquids that may be encountered. Up to three pounds of absorbent may be added per drum processed during filling of the bulk container. The basis for utilizing up to three pounds per drum is very conservative and is based on the following. WESKEM conducted a study related to high moisture content waste (see Becker memo dated July 31, 2001). In this study, an absorption ratio of 100:1 was assumed for Quick Solid. The average weight of the Population 60 containers was calculated to be approximately 600 pounds. In the absence of any moisture data on these AO wastes, a conservative assumption was made that 50% of this average weight, or 300 pounds, was attributable to water. It was decided, therefore, that three pounds of absorbent would be added to ensure that any residual liquid or entrained moisture was addressed prior to disposal.
- (5) A paint filter test will be performed on the composite sample collected from each bulk container. Paint-filter test results will be documented on field forms (see attached example) and provided to landfill personnel for their records.
- (6) All bulk containers will be transported to the landfill using appropriate conveyance (i.e., roll-offs and intermodals will be transported on a roll-off truck and ST-90s will be transported on a flat-bed).

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

Case No. 03-CV-00001-AM

The undersigned hereby certifies that the enclosed exhibits are true and correct copies of the original exhibits as they appear in the files of the undersigned. The exhibits are being submitted to the Court for its review and consideration. The undersigned further certifies that the exhibits are not being submitted for the purpose of circumventing the rules of the Court regarding the submission of exhibits.

The undersigned further certifies that the exhibits are being submitted in accordance with the rules of the Court regarding the submission of exhibits. The undersigned further certifies that the exhibits are being submitted in accordance with the rules of the Court regarding the submission of exhibits.

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Landfill Package U-- _____

Paint Filter Test Report

Sample Collection

Container Number: _____

Date/Time: _____

Air Temperature: _____ ° Fahrenheit

Amount of Soil Collected: 100 ml 100 grams

Sample Collected By: _____

ANALYSIS

Date/Start Time/Stop Time: _____

Air Temperature: _____ ° Fahrenheit

Test Performed By: _____

Results: Pass Fail

Confirmation Sample Number: _____

Test Method: Paint Filter Liquid Test (Method 9095A), EPA SW-846,
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods

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