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B. Document Number: DOE/RL-2001-50

C. Title: Toxic Substances Control Act Polychlorinated Biphenyls Hanford Site Users guide

D. Internet Address:

E. Required Information

1. Is document potentially Classified? (No) Yes (MANDATORY)

X R.H. Engle 1-10-02
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If Yes _____ (No) Yes Classified
ADC Signature Required

2. References in the Information are Applied Technology (No) Yes

Export Controlled Information (No) Yes

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5. Release Level? (Public) Limited

F. Complete for a Journal Article

1. Title of Journal

G. Complete for a Presentation

Title for Conference or Meeting _____

2. Group Sponsoring _____

3. Date of Conference _____ 4. City/State _____

5. Will Information be Published in Proceedings? No Yes 6. Will Material be Handed Out? No Yes

H. Author/Requestor

X ANDREA L. PRIGNANO (Print and Sign)

Responsible Manager

X R.H. Engle 1-10-02 (Print and Sign)

I. Reviewers

	Yes	Print	Signature	Public Y/N (If N, complete J)
X General Counsel	[X]	Leland F. Willis	Leland F. Willis	(Y) / N
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APPROVED FOR RELEASE OFFICIAL DOCUMENT RW Date 1-11-02

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A-6001-401 (12/00)

DOE/RL-2001-50
Revision 0

Toxic Substances Control Act Polychlorinated Biphenyls Hanford Site Users Guide

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management
Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

United States Department of Energy
P.O. Box 550
Richland, Washington 99352

Approved for public release; further dissemination unlimited

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Chris Williamson 1-11-02
Release Approval Date

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TOXIC SUBSTANCES CONTROL ACT POLYCHLORINATED BIPHENYLS HANFORD SITE USERS GUIDE

SUMMARY

The U.S Department of Energy, Richland Operations Office and the Office of River Protection, requested the development of an integrated and consistent approach to management of polychlorinated biphenyls on the Hanford Site. Under their respective contracts, the Hanford Site contractors are required to comply with polychlorinated biphenyl regulations under the *Toxic Substances Control Act of 1976*. The objective of this *Toxic Substances Control Act Polychlorinated Biphenyls Hanford Site Users Guide* is to establish consistent guidance for use by Hanford Site contractors for managing polychlorinated biphenyls. Polychlorinated biphenyls have been identified in some Hanford Site waste, and based on the experiences of the rest of the U.S. Department of Energy Complex, polychlorinated biphenyls could be expected to be found in an even wider variety of waste. Because of the unique and often cumbersome regulatory requirements that apply to management of polychlorinated biphenyls and polychlorinated biphenyl contaminated materials, the U.S. Department of Energy instructed the contractors to use a proactive approach to develop a Polychlorinated Biphenyls Hanford Site User's Guide to ensure an integrated and consistent approach to management of *Toxic Substances Control Act* regulated polychlorinated biphenyls in the most cost-effective and compliant manner.

Implementation of *Toxic Substances Control Act* regulated polychlorinated biphenyl requirements on the Hanford Site is accomplished through three paths. One path is the application of the regulations as written to the management of waste contaminated with polychlorinated biphenyls. The U.S. Environmental Protection Agency provides clarification to the regulations through a series of technical references posted on their web site and via questions and answers for the regulated community.

Another path is the risk-based disposal approval application process described in Section 8.2 of this document. In August 2000, U.S. Environmental Protection Agency, Washington State Department of Ecology, and U.S. Department of Energy established a commitment to address *Toxic Substances Control Act* polychlorinated biphenyl compliance through a Framework Agreement for Management of Polychlorinated Biphenyls in Hanford Site Tank Waste through the development of a risk-based disposal approval in accordance with 40 Code of Federal Regulations 761.61(c). This agreement established the management pathway for Hanford Site tank waste, while the implementation of the Framework Agreement established a precedent for management of polychlorinated biphenyls remediation waste.

A third path is through site-specific guidance that addresses the unique aspects of the operating conditions and challenges resulting from the nature of the facilities and the types of waste being managed. A technical team representing the prime contractors was formed to evaluate the regulatory requirements and available guidance, and to provide clarification needed for operations to consistently comply with *Toxic Substances Control Act* regulations for polychlorinated biphenyls on the Hanford Site. The Polychlorinated Biphenyl Hanford Site Users Guide is the result of the efforts of the technical team.

The Polychlorinated Biphenyls Hanford Site Users Guide is not a substitute for the regulations, but rather provides clarification as to how the regulations apply to the Hanford Site. The topics chosen for inclusion are based on broad applicability and matters that are not subject to the risk-based disposal approval process. The Polychlorinated Biphenyls Hanford Site Users Guide is intended to be a living document and users of this document are encouraged to discuss questions pertaining to the content and/or propose additional topics/updates with the appropriate point of contact listed in Appendix C.

Disclaimer

Unless otherwise noted, the term Toxic Substances Control Act, as used in this polychlorinated biphenyl Hanford Site users guide, refers only to the polychlorinated biphenyl regulations found at 40 Code of Federal Regulations 761.

The information provided in this users guide is intended as Hanford Site-specific guidance and should not be used in lieu of the Toxic Substances Control Act regulations at 40 Code of Federal Regulations 761. While this guide can be used to assist in determining a path forward to resolve regulatory issues associated with management of polychlorinated biphenyls materials, the regulations should be consulted to determine actual compliance status of any actions or activities.

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GLOSSARY

AEA	*Atomic Energy Act of 1954*
ALARA	as low as reasonably achievable
AOC	area of contamination
ASTM	American Society for Testing and Materials
CAS	Chemical Abstract Service
CD	certificate of disposal
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
CFR	Code of Federal Regulations
CHG	CH2M HILL Hanford Group
cm	centimeter
cm^2	square centimeter
CWA	*Clean Water Act of 1977*
CY	calendar year
°C	degrees Celsius
DOE	U.S. Department of Energy
DOE-ORP	U.S. Department of Energy, Office of River Protection
DOE-RL	U.S. Department of Energy, Richland Operations Office
DOT	U.S. Department of Transportation
DST	double-shell tank
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ERDF	Environmental Restoration Disposal Facility
ETF	200 Area Effluent Treatment Facility
FH	Fluor Hanford
FH E&R	Fluor Hanford Environment and Regulation
FR	Federal Register
°F	degrees Fahrenheit
g	gram
HASQARD	Hanford Analytical Services Quality Assurance Requirements Documents
HLW	high-level waste
HMR	hazardous material regulations
HUG	Hanford Users guide
IMUST	inactive miscellaneous underground storage tank
km	kilometer
LDR	land disposal restrictions
LLBG	Low-Level Burial Grounds
LQG	large quantity generator

MDL	method detection limit
mg	milligram
ml	milliliter
MODEF	mineral oil dielectric fluid
MWDU	mixed waste disposal unit
NACE	National Association of Corrosion Engineers
NRC	Nuclear Regulatory Commission
PCB	polychlorinated biphenyls
PODF	performance-based organic decontamination fluid
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
psi	pounds per square inch
Q&A	questions and answers
R&D	research and development
RBDA	risk-based disposal approval
RCRA	*Resource Conservation and Recovery Act of 1976*
RPP	River Protection Project
SAA	satellite accumulation area
SPCC	spill prevention control and countermeasures
SST	single-shell tank
TRU	transuranic
TSCA	*Toxic Substances Control Act of 1976*
TSD	treatment, storage, and/or disposal
µg/L	microgram per liter
UHC	underlying hazardous constituent
WAC	Washington Administrative Code
WTP	Waste Treatment Plant
µg	microgram

DEFINITIONS

Definitions applicable to the *Toxic Substances Control Act* (TSCA) *of 1976* polychlorinated biphenyls (PCB) Hanford Site Users Guide include some adapted or copied from 40 CFR 761. This list is not all-inclusive, and in some instances definitions from 40 CFR 761 could be paraphrased, or portions not applicable to the Hanford Site could have been removed. Some definitions are included because of the relevance to the Hanford Site and are provided for information only. *Definitions not found in 40 CFR 761 are in italics.* Readers should review 40 CFR 761 for more detailed explanations of terminology.

Defined terms in quotations marks (e.g., "spill") are found in 40 CFR 761, Subpart G, the PCB Spill Cleanup Policy.

Administrator means the Administrator of the U.S. Environmental Protection Agency (EPA), or any employee of the Agency to whom the Administrator may either herein or by order delegate his authority to carry out his functions, or any person who shall by operation of law be authorized to carry out such functions.

Alternate storage for disposal means an area meeting the requirements of 40 CFR 761.65(b)(2) used to store PCB waste. These areas include units with either a RCRA final status permit or operating under interim status, a state RCRA permit, a state PCB approval, a TSCA coordinated approval, or a TSCA PCB waste management approval.

Annual document log means the detailed information maintained at the facility on the PCB waste handling at the facility (40 CFR 761 Subpart J).

Annual report means the written document submitted each year by each disposer and commercial storer of PCB waste to the appropriate EPA Regional Administrator. The annual report is a brief summary of the information included in the annual document log (40 CFR 761 Subpart J).

Aroclor means a series of PCB mixtures that was manufactured by Monsanto. The Aroclor series are the most common PCB mixtures used in the United States.*

Askarel is a generic term for a group of synthetic, fire resistant, chlorinated aromatic hydrocarbons used as electrical insulating liquids.

Authorized use is identified in 40 CFR Subpart B.

Capacitor means a device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a dielectric. Types of capacitors are as follows:
(1) Small capacitor means a capacitor that contains less than 1.36 kilograms (3 pounds) of dielectric fluid. The following assumptions could be used if the actual weight of the dielectric fluid is unknown. A capacitor whose total volume is less than 1,639 cubic centimeters (100 cubic inches) could be considered to contain less than 1.36 kilograms (3 pounds) of dielectric fluid and a capacitor whose total volume is more than 3,278 cubic centimeters (200 cubic inches) must be considered to contain more than 1.36 kilograms (3 pounds) of dielectric fluid. A capacitor whose volume is between 1,639 and 3,278 cubic centimeters could be considered to contain less then 1.36 kilograms (3 pounds) of dielectric fluid if the total weight of the capacitor is less than 4.08 kilograms (9 pounds); (2) Large high-voltage capacitor means a capacitor that contains 1.36 kilograms (3 pounds) or more of dielectric fluid and that operates at 2,000 volts (a.c. or d.c.) or above; (3) Large low-voltage capacitor means a capacitor that

* Aroclor is a trade mark of Monsanto.

contains 1.36 kilograms (3 pounds) or more of dielectric fluid and which operates below 2,000 volts (a.c. or d.c.).

Certification means a written statement regarding a specific fact or representation that contains the following language: "Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate, and complete".

Chemical substance, (1) except as provided in paragraph (2) of this definition, means any organic or inorganic substance of a particular molecule as a result of a chemical reaction or occurring in nature, and any element or uncombined radical. (2) Such term does not include: Any mixture; any pesticide (as defined in the *Federal Insecticide, Fungicide, and Rodenticide Act*) when manufactured, processed, or distributed in commerce for use as a pesticide; tobacco or any tobacco product; any source material, special nuclear material, or byproduct material (as such terms are defined in the *Atomic Energy Act of 1954* and regulations issued under such Act); any article the sale of which is subject to the tax imposed by section 4181 of the Internal Revenue Code of 1954 (determined without regard to any exemptions from such tax provided by section 4182 or section 4221 or any provisions of such Code); and any food, food additive, drug, cosmetic, or device (as such terms are defined in section 201 of the *Federal Food, Drug, and Cosmetic Act*) when manufactured, processed, or distributed in commerce for use as a food, food additive, drug, cosmetic, or device.

Chemical waste landfill means a landfill at which protection against risk of injury to health or the environment from migration of PCBs to land, water, or the atmosphere is provided from PCBs and PCB Items deposited therein by locating, engineering, and operating the landfill as specified in 761.75.

Cleanup site means the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of a cleanup of PCB remediation waste, regardless of whether the site was intended for management of waste.

Commerce means trade, traffic, transportation, or other commerce: (1) between a place in a State and any place outside of such State or (2) that affects trade, traffic, transportation, or commerce described in paragraph (1) of this definition.

Commercial storer of PCB waste means the owner or operator of each facility that is subject to the PCB storage unit standards of 761.65(b)(1) or(c)(7) or meets the alternate storage criteria of 761.65(b)(2), and who engages in storage activities involving either PCB waste generated by others or that was removed while servicing the equipment owned by others and brokered for disposal.... A generator who only stores its own waste is subject to the storage requirements of 761.65, but is not required to obtain approval as a commercial storer. ...Storage of one company's PCB waste by a related company is not considered commercial storage. A "related company" includes, but is not limited to: ...entities within the same Executive agency as defined at 5 U.S.C. 105; ....

- *Storage of PCB waste on the Hanford Site does not meet the definition of Commercial storer. The Hanford Site is considered a generator with onsite storage capability.*

Date removed from service means the date the PCBs are first removed from service or use, unfit for service or use, or not authorized for service or use.

Disposal means intentionally or accidentally to discard, throw away, or otherwise complete or terminate the useful life of PCBs and PCB Items. Disposal includes spills, leaks, and other uncontrolled discharges of PCBs as well as actions related to containing, transporting, destroying, degrading, decontaminating, or confining PCBs and PCB Items.

Disposer of PCB waste, as the term is used in 40 CFR 761, Subparts J and K, means any person who owns or operates a facility approved by the EPA for the disposal of PCB waste that is regulated for disposal under the requirements of subpart D of this part.

Distribute in commerce and Distribution in Commerce when used to describe an action taken with respect to a chemical substance, mixture, or article containing a substance or mixture means to sell, or the sale of, the substance, mixture, or article in commerce; to introduce or deliver for introduction into commerce, or the introduction or delivery for introduction into commerce of the substance, mixture, or article; or to hold or the holding of, the substance, mixture, or article after its introduction into commerce.

DOT means the United States Department of Transportation.

"Double wash/rinse" means a minimum requirement to cleanse solid surfaces (both impervious and nonimpervious) two times with an appropriate solvent or other material in which PCBs are at least 5 percent soluble (by weight). A volume of PCB-free fluid sufficient to cover the contaminated surface completely must be used in each wash/rinse. The wash/rinse requirement does not mean the mere spreading of solvent or other fluid over the surface, nor does the requirement mean a once-over wipe with a soaked cloth. Precautions must be taken to contain any run-off resulting from the cleansing and to dispose properly of waste generated during the cleansing.

Dry weight means the weight of the sample, excluding the weight of the water in the sample. Before chemical analysis, the water could be removed by any reproducible method that is applicable to measuring PCBs in the sample matrix at the concentration of concern, such as air drying at ambient temperature, filtration, decantation, heating at low temperature followed by cooling in the presence of a desiccant, or other processes or combinations of processes that would remove water but not remove PCBs from the sample. Analytical procedures, which calculate the dry weight concentration by adjusting for moisture content, also could be used.

EPA identification number means the 12-digit number assigned to a facility by the EPA on notification of PCB waste activity under 761.205. The Hanford Site EPA identification number is WA7890008967.

Facility means all contiguous land, and structures, other appurtenances, and improvements on the land, used for the treatment, storage, or disposal of PCB waste. A facility could consist of one or more treatment, storage, or disposal units.

Fluorescent light ballast means a device that electrically controls fluorescent light fixtures and that includes a capacitor containing 0.1 kilogram or less of dielectric.

Framework Agreement means the agreement signed by EPA, Ecology, DOE-RL, and DOE-ORP on August 31, 2000. The Framework Agreement specifies that some Hanford Site double-shell tanks contain PCBs that are regulated under TSCA and provided the regulatory strategy for management and disposal of this double-shell tank waste using a risk-based disposal approval (RBDA).

General storage for disposal area is an area for storage of TSCA PCB waste of 50 ppm PCB or greater that meets the requirements of 761.65(b)(1).

Generator of PCB waste means any person whose act or process produces PCBs that are regulated for disposal under 40 CFR Subpart D, or whose act first causes PCBs or PCB Items to become subject to the disposal requirements of 40 CFR Subpart D, or who has physical control over the PCBs when a decision is made that the use of the PCBs has been terminated and therefore is subject to the disposal requirements of 40 CFR Subpart D. Unless another provision of this part specifically requires a site-specific meaning, "generator of PCB waste" includes all of the sites of PCB waste generation owned or operated by the person who generates PCB waste.

"High-concentration PCBs" under the PCB Spill Cleanup Policy (40 CFR 761 Subpart G) mean PCBs that contain 500 parts per million (ppm) or greater PCBs, or those materials that the EPA requires to be assumed to contain 500 ppm or greater PCBs in the absence of testing.

"High-contact industrial surface" means a surface in an industrial setting that is repeatedly touched, often for relatively long periods of time. Manned machinery and control panels are examples of high-contact industrial surfaces. High-contact industrial surfaces are generally of impervious solid material. Examples of low-contact industrial surfaces include ceilings, walls, floors, roofs, roadways, and sidewalks in the industrial area and utility poles, unmanned machinery, concrete pads beneath electrical equipment, curbing, exterior structural building components, indoor vaults, and pipes.

"High-contact residential/commercial surface" means a surface in a residential/commercial area that is repeatedly touched, often for relatively long periods of time. Doors, wall areas below 6 feet in height, uncovered flooring, windowsills, fencing, banisters, stairs, automobiles, and children's play areas such as outdoor patios and sidewalks are examples of high-contact residential/commercial surfaces. Examples of low-contact residential/commercial surfaces include interior ceilings, interior wall areas above 6 feet in height, roofs, asphalt roadways, concrete roadways, wooden utility poles, unmanned machinery, concrete pads beneath electrical equipment, curbing, exterior structural building components (e.g., aluminum/vinyl siding, cinder block, asphalt tiles), and pipes.

High occupancy area means any area where PCB remediation waste has been disposed of onsite and where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is 840 hours or more (an average of 16.8 hours or more per week) for non-porous surfaces and 335 hours or more (an average of 6.7 hours or more per week) for bulk PCB remediation waste. Examples could include a residence, school, day care center, sleeping quarters, a single or multiple occupancy 40 hours per week work station, a school classroom, a cafeteria in an industrial facility, a control room, and a work station at an assembly line.

"Impervious solid surfaces" mean solid surfaces that are nonporous and thus unlikely to absorb spilled PCBs within the short period of time required for cleanup of spills under this policy. Impervious solid surfaces include, but are not limited to, metals, glass, aluminum siding, and enameled or laminated surfaces.

Incinerator means an engineered device using controlled flame combustion to thermally degrade PCBs and PCB Items. Examples of devices used for incineration include rotary kilns, liquid injection incinerators, cement kilns, and high temperature boilers.

Leak or leaking means any instance in which a PCB Article, PCB Container, or PCB Equipment has any PCBs on any portion of its external surface.

Liquid PCBs mean a homogenous flowable material containing PCBs and no more than 0.5 percent by weight non-dissolved material.

"Low-concentration PCBs" under the PCB Spill Cleanup Policy (40 CFR 761 Subpart G) mean PCBs that are tested and found to contain less than 500 ppm PCBs, or those PCB-containing materials that the EPA requires to be assumed to be at concentrations below 500 ppm (i.e., untested mineral oil dielectric fluid).

Low occupancy area means any area where PCB remediation waste has been disposed onsite and where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is less than 840 hours (an average of 16.8 hours per week) for non-porous surfaces and less than 335 hours (an average of 6.7 hours per week) for bulk PCB remediation waste. Examples could include an electrical substation or a location in an industrial facility where a worker spends small amounts of time per week (such as an unoccupied area outside a building, an electrical equipment vault, or in the non-office space in a warehouse where occupancy is transitory).

Manifest means the shipping document EPA Form 8700-22 and any continuation sheet attached to EPA Form 8700-22, originated and signed by the generator of PCB waste in accordance with the instructions included with the form and 40 CFR Subpart K.

Mark means the descriptive name, instructions, cautions, or other information applied to PCBs and PCB Items or other objects subject to these regulations.

Marked means the marking of PCB Items and PCB storage areas and transport vehicles by means of applying a legible mark by painting, fixation of an adhesive label, or by any other method that meets the requirements of these regulations.

Market/Marketers mean the processing or distributing in commerce, or the person who processes or distributes in commerce, used oil fuels to burners or other marketers, and might include the generator of the fuel if it markets the fuel directly to the burner.

Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Mineral Oil PCB Transformer means any transformer originally designed to contain mineral oil as the dielectric fluid and that has been tested and found to contain 500 ppm or greater PCBs.

Multi-phasic waste means waste that is made up of at least two of the following: a non-liquid phase, an aqueous phase, and/or a non-aqueous liquid phase. Liquid PCBs containing more than 0.5 percent by weight non-dissolved material are multi-phasic non-liquid/liquid mixtures. If two liquids are mixed, but one is dissolved in the other (e.g., such as water dissolved in oil), the mixture is not multi-phasic. However, if the two liquids are not miscible (e.g., oil-water emulsions), the resulting mixture is a multi-phasic liquid/liquid mixture. A visual determination is a sufficient test to determine the presence of more than one liquid phase in a multi-phasic liquid/liquid mixture.

Municipal solid waste means garbage, refuse, sludge, waste, and other discarded materials resulting from residential and non-industrial operations and activities, such as household activities, office functions, and commercial housekeeping waste.

NACE Visual Standard No. 2: A Near-White Blast Cleaned Surface Finish is defined as one from which all oil, grease, dirt, mill scale, rust, corrosion products, oxides, paint, or other foreign matter has been removed completely from the surface except for very light shadows, very slight streaks, or slight discolorations caused by rust stain, mill scale oxides, or light, tight residues of paint or coating that might remain. ***At least 95 percent of each square inch of surface area*** *should be free of all visible residues, and the remainder could be limited to the light discoloration mentioned. (Definition found at:*

http://www.corrosion.com/prep.html; Protective Coatings, Linings, and Related Resources, updated 4/25/01) (NACE 1981).

NACE Visual Standard No. 3: A Commercial Blast Cleaned Surface Finish is defined as one from which all oil, grease, dirt, rust scale, and foreign matter has been removed completely from the surface and all rust, mill scale, and old paint have been removed completely except for slight shadows, streaks, or discolorations caused by rust stain, mill scale oxides, or slight, tight residues of paint or coating that might remain; if the surface is pitted, slight residues of rust or paint might by found in the bottom of pits. ***At least two-thirds of each square inch of surface area*** *should be free of all visible residues and the remainder should be limited to the light discoloration, slight staining, or tight residues mentioned. (Definition found at: http://www.corrosion.com/prep.html; Protective Coatings, Linings, and Related Resources, updated 4/25/01)* (NACE 1981).

"Nonimpervious solid surfaces" mean solid surfaces that are porous and are more likely to absorb spilled PCBs before completion of the cleanup requirements prescribed in this policy. Nonimpervious solid surfaces include, but are not limited to, wood, concrete, asphalt, and plasterboard.

"Nonrestricted access areas" mean any areas other than restricted access, outdoor electrical substations, and other restricted access locations, as defined in this section. In addition to residential/commercial areas, these areas include unrestricted access rural areas (areas of low density development and population where access is uncontrolled by either synthetic barriers or naturally occurring barriers, such as rough terrain, mountains, or cliffs).

Non-PCB Transformer means any transformer that contains less than 50 ppm PCB; except that any transformer that has been converted from a PCB Transformer or a PCB-Contaminated Transformer cannot be classified as a non-PCB Transformer until reclassification has occurred, in accordance with the requirements of 761.30(a)(2)(v).

Non-liquid PCBs mean materials containing PCBs that by visual inspection do not flow at room temperature (25 °C or 77 °F) or from which no liquid passes when a 100 g or 100 ml representative sample is placed in a mesh number 60 ± 5 percent paint filter and allowed to drain at room temperature for 5 minutes.

Non-porous surface means a smooth, unpainted solid surface that limits penetration of liquid containing PCBs beyond the immediate surface. Examples are smooth uncorroded metal; natural gas pipe with a thin porous coating originally applied to inhibit corrosion; smooth glass; smooth glazed ceramics; impermeable polished building stone such as marble or granite; and high density plastics, such as polycarbonates and melamines, that do not absorb organic solvents.

Onsite means within the boundaries of a contiguous property unit (also refer to 'cleanup site' definition).

"Other restricted access (nonsubstation) locations" mean areas other than electrical substations that are at least 0.1 kilometer (km) from a residential/commercial area and limited by manufactured barriers (e.g., fences and walls) to substantially limited by naturally occurring barriers such as mountains, cliffs, or rough terrain. These areas generally include industrial facilities and extremely remote rural locations. (Areas where access is restricted but are less than 0.1 km from a residential/commercial area are considered to be residential/commercial areas.)

PCB and PCBs mean any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances that contains such substance. For any purposes, inadvertently generated non-Aroclor PCBs are defined as the total PCBs calculated following division of the quantity of monochlorinated biphenyls by 50 and dichlorinated biphenyls by 5.

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. "PCB Article" includes capacitors, transformers, electric motors, pumps, pipes, and any other manufactured item (1) that is formed to a specific shape or design during manufacture, (2) that has end use function(s) dependent in whole or in part on shape or design during end use, and (3) that either has no change of chemical composition during end use or only those changes of composition that have no commercial purpose separate from that of the PCB Article.

PCB Article Container means any package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB Articles or PCB Equipment, and whose surface(s) has not been in direct contact with PCBs.

PCB bulk product waste means waste derived from manufactured products containing PCBs in a non-liquid 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 761.60 (a) through (c), 761.61, 761.63, or 761.64. PCB bulk product waste includes, but is not limited to: (1) Non-liquid bulk waste or debris from the demolition of buildings and other synthetic structures manufactured, coated, or serviced with PCBs. PCB bulk product waste does not include debris from the demolition of buildings or other synthetic structures that are contaminated by spills from regulated PCBs that have not been disposed, decontaminated, or otherwise cleaned up in accordance with subpart D of this part. (2) PCB-containing waste 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; galbestos; 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.

PCB Capacitor means any capacitor that contains ≥500 ppm PCB. Concentration assumptions applicable to capacitors appear under 761.2.

PCB Congener means any single, unique, well-defined chemical compound in the PCB category. The name of a congener specifies the total number of chlorine substituents and the position of each chlorine. For example: 4,4'-Dichlorobiphenyl is a congener comprising the biphenyl structure with two chlorine substituents, one on each of the two carbons at the "4" positions of the two rings. There are 209 PCB congeners.

PCB Container means any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB Articles and whose surface(s) has been in direct contact with PCBs.

PCB-Contaminated means a non-liquid material containing PCBs at concentrations ≥50 ppm but <500 ppm; a liquid material containing PCBs at concentrations ≥50 ppm but <500 ppm or where insufficient liquid material is available for analysis, a non-porous surface having a surface concentration >10 mg/100 cm^2 but <100 mg/100 cm^2, measured by a standard wipe test as defined in 761.123.

PCB-Contaminated Electrical Equipment means any electrical equipment including, but not limited to, transformers (including those used in railway locomotives and self-propelled cars), capacitors, circuit breakers, reclosers, voltage regulators, switches (including sectionalizers and motor starters), electromagnets, and cable, that contains PCBs at concentrations of ≥50 ppm and <500 ppm in the contaminating fluid. In the absence of liquids, electrical equipment is PCB-Contaminated if it has PCBs at >10 mg/100 cm^2 and <100 mg/100 cm^2 as measured by a standard wipe test (as defined in 761.123) of a non-porous surface.

PCB Equipment means any manufactured item, other than a PCB Container or a PCB Article Container, that contains a PCB Article or other PCB Equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures.

PCB Item means any PCB Article, PCB Article Container, PCB Container, PCB Equipment, or anything that deliberately or unintentionally contains or has as a part of it any PCB or PCBs.

PCB/mixed (PCB/RCRA/radioactive) waste means PCBs regulated for disposal under 40 CFR Subpart D that also contain both of the following: (1) source, special nuclear, or byproduct material subject to regulation under the Atomic Energy Act of 1954, as amended, or naturally-occurring or accelerator-produced radioactive material, and (2) constituents regulated under RCRA.

PCB/radioactive waste means PCBs regulated for disposal under 40 CFR Subpart D that also contain source, special nuclear, or byproduct material subject to regulation under the *Atomic Energy Act of 1954*, as amended, or naturally-occurring or accelerator-produced radioactive material.

PCB/RCRA waste means PCBs regulated for disposal under 40 CFR Subpart D that also contain constituents regulated under RCRA.

PCB remediation waste means waste containing PCBs as a result of a spill, release, or other unauthorized disposal, at the following concentrations: Materials disposed prior to April 18, 1978, that are currently at concentrations ≥50 ppm PCBs, regardless of the concentration of the original spill; materials that are currently at any volume or concentration where the original source was ≥500 ppm PCB beginning on April 18, 1978, or ≥50 ppm PCB beginning on July 2, 1979; and materials that are currently at any concentration if the PCBs are spilled or released from a source not authorized for use under this part. PCB remediation waste means soil, rags, and other debris generated as a result of any PCB spill cleanup, including, but not limited to: (1) Environmental media containing PCBs, such as soil and gravel; and dredged materials, such as sediments, settled sediment fines, and aqueous decantate from sediment. (2) Sewage sludge containing <50 ppm PCBs and not in use according to 761.20(a)(4); PCB sewage sludge; commercial or industrial sludge contaminated as the result of a spill of PCBs including sludges located in or removed from any pollution control device; and aqueous decantate from an industrial sludge. (3) Buildings and other manufactured structures (such as concrete or wood floors or walls contaminated from a leaking PCB or PCB-Contaminated transformer), porous surfaces and non-porous surfaces.

PCB/TRU waste means waste that contains PCBs regulated for disposal under 40 CFR 761, Subpart D, that also contains greater than 100 nanocuries/gram TRU constituents. As of September 2001, no disposal facility exists for PCB/TRU waste. However, Waste Isolation Pilot Plant is in the process of obtaining disposal approval.

PCB Transformer means any transformer that contains ≥500 ppm PCBs. For PCB concentration assumptions applicable to transformers containing 1.36 kilograms (3 pounds) or more of fluid other than mineral oil, refer to 761.2. For provisions permitting reclassification of electrical equipment, including PCB Transformers containing ≥500 ppm PCBs to PCB-Contaminated Electrical Equipment, refer to 761.30(a) and (h).

PCB waste(s) means those PCBs and PCB Items that are subject to the disposal requirements of 40 CFR Subpart D.

Performance-based organic decontamination fluid (PODF) means a solvent approved by the EPA for use in decontamination of non-porous surfaces in contact with mineral oil dielectric fluids (MODEF). EPA approved PODFs include: kerosene, diesel fuel, terpene hydrocarbons, or mixtures of terpene hydrocarbons and terpene alcohols. EPA also approved the use of mineral oil and hexane as PODFs

without further verification (EPA Q&A's). Additional solvents could be used as PODF if validated under 40 CFR 761, Subpart T "Comparison Study for Validating a New Performance-Based Decontamination Solvent under 761.79(d)(4)".

Porous surface means any surface that allows PCBs to penetrate or pass into itself including, but not limited to, paint or coating on metal; corroded metal; fibrous glass or glass wool; unglazed ceramics; ceramics with a porous glaze; porous building stone such as sandstone, travertine, limestone, or coral rock; low-density plastics such as styrofoam and low-density polyethylene; coated (varnished or painted) or uncoated wood; concrete or cement; plaster; plasterboard; wallboard; rubber; fiberboard; chipboard; asphalt; or tar paper. For purposes of cleaning and disposing of PCB remediation waste, porous surfaces have different requirements than non-porous surfaces.

Qualified incinerator means one of the following: (1) An incinerator approved under the provisions of 761.70. Any level of PCB concentration can be destroyed in an incinerator approved under 761.70. (2) A high-efficiency boiler that complies with the criteria of 761.71(a)(1), and for which the operator has given written notice to the appropriate EPA Regional Administrator in accordance with the notification requirements for the burning of mineral oil dielectric fluid under §761.71(a)(2). (3) An incinerator approved under section 3005(c) of the *Resource Conservation and Recovery Act* (RCRA) [42 U.S.C. 6925(c)]. (4) Industrial furnaces and boilers that are identified in 40 CFR 260.10 and 40 CFR 279.61(a)(1) and (2) when operating at their normal operating temperatures (this prohibits feeding fluids, above the level of detection, during either startup or shutdown operations).

Quantifiable Level/Level of Detection means 2 micrograms per gram from any resolvable gas chromatographic peak, i.e., 2 ppm.

Radioactive waste - refer to PCB/Radioactive waste.

Research and development (R&D) for PCB disposal means demonstrations for commercial PCB disposal approvals, pre-demonstration tests, tests of major modifications to previously approved PCB disposal technologies, treatability studies for PCB disposal technologies that have not been approved, development of new disposal technologies, and research on chemical transformation processes including, but not limited to, biodegradation.

"Residential/commercial areas" mean those areas where people live or reside, or where people work in other than manufacturing or farming industries. Residential areas include housing and the property on which housing is located, as well as playgrounds, roadways, sidewalks, parks, and other similar areas within a residential community. Commercial areas typically are accessible to both members of the general public and employees and include public assembly properties, institutional properties, stores, office buildings, and transportation centers.

Reynold's number, a dimensionless parameter that expresses the ratio of inertia forces to viscous forces in a flow field, by which the state of the flow is determined; a high Reynolds number implies that the flow is turbulent, while a low Reynolds number implies that the flow is laminar.

"Spill" means both intentional and unintentional spills, leaks, and other uncontrolled discharges where the release results in any quantity of PCBs running off or about to run off the external surface of the equipment or other PCB source, as well as the contamination resulting from those releases. 40 CFR 761, Subpart G (PCB Spill Cleanup Policy), applies to spills of 50 ppm or greater PCBs. The concentration of PCBs spilled is determined by the PCB concentration in the material spilled as opposed to the concentration of PCBs in the material onto which the PCBs were spilled.

"Spill area" means the area of soil on which visible traces of the spill can be observed plus a buffer zone of 1 foot beyond the visible traces. Any surface or object (e.g., concrete sidewalk or automobile) within the visible traces area or on which visible traces of the spilled material are observed is included in the spill area.

Standard wipe sample means a sample collected for chemical extraction and analysis using the standard wipe test. Except as designated elsewhere the minimum surface area to be sampled will be 100 cm^2.

"Standard wipe test" means, for spills of high-concentration PCBs on solid surfaces, a cleanup to numerical surface standards and sampling by a standard wipe test to verify that the numerical standards have been met. This definition constitutes the minimum requirements for an appropriate wipe testing protocol. A standard-size template (10 centimeters (cm) x 10 cm) will be used to delineate the area of cleanup; the wiping medium will be a gauze pad or glass wool of known size that has been saturated with hexane. It is important that the wipe be performed very quickly after the hexane is exposed to air. The EPA strongly recommends that the gauze (or glass wool) be prepared with hexane in the laboratory and that the wiping medium be stored in sealed glass vials until it is used for the wipe test. Further, the EPA requires the collection and testing of field blanks and replicates.

Storage for disposal means storage of PCBs that have been designated for disposal. Nonradioactive TSCA regulated PCB waste must be disposed within 1 year. TSCA regulated PCB/radioactive waste can remain in storage for disposal for greater than 1 year.

Storage for disposal area means an area for storage of PCB waste at greater than or equal to 50 ppm meeting the requirements of 761.65(b) or 761.65(c)(1). A general storage for disposal area meets the requirements of 761.65(b)(1); an alternate storage for disposal area meets the requirements of 761.65(b)(2); a temporary storage area meets the requirements of 761.65(c)(1).

Temporary storage for disposal area means an area that does not comply with the general or alternate storage for disposal areas requirements where PCB Items and PCB waste could be stored up to 30 days. PCB items in temporary storage for disposal areas must meet the requirements of 761.65(c)(1).

Transport vehicle means a motor vehicle or railroad car used for the transportation of cargo by any mode. Each cargo-carrying body (e.g., trailer, railroad freight car) is a separate transport vehicle.

Totally enclosed manner means any manner that will ensure no exposure of human beings or the environment to any concentration of PCBs.

TSCA PCB Coordinated Approval means the process used to recognize other Federal or State waste management documents governing the storage, cleanup, treatment, and disposal of PCB wastes. It is the mechanism under TSCA for accomplishing review, coordination, and approval of PCB waste management activities, which are conducted outside of the TSCA PCB approval process, but require approval under the TSCA PCB regulations at 40 CFR 761.

Unit means a particular building, structure, or cell used to manage PCB waste (including, but not limited to, a building used for PCB waste storage, a landfill, an industrial boiler, or an incinerator).

Waste oil means 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.

Wet weight means reporting chemical analysis results by including either the weight, or the volume and density, of all liquids.

METRIC CONVERSION CHART

Into metric units			Out of metric units		
If you know	Multiply by	To get	If you know	Multiply by	To get
Length			**Length**		
inches	25.40	millimeters	millimeters	0.03937	inches
inches	2.54	centimeters	centimeters	0.393701	inches
feet	0.3048	meters	meters	3.28084	feet
yards	0.9144	meters	meters	1.0936	yards
miles (statute)	1.60934	kilometers	kilometers	0.62137	miles (statute)
Area			**Area**		
square inches	6.4516	square centimeters	square centimeters	0.155	square inches
square feet	0.09290304	square meters	square meters	10.7639	square feet
square yards	0.8361274	square meters	square meters	1.19599	square yards
square miles	2.59	square kilometers	square kilometers	0.386102	square miles
acres	0.404687	hectares	hectares	2.47104	acres
Mass (weight)			**Mass (weight)**		
ounces (avoir)	28.34952	grams	grams	0.035274	ounces (avoir)
pounds	0.45359237	kilograms	kilograms	2.204623	pounds (avoir)
tons (short)	0.9071847	tons (metric)	tons (metric)	1.1023	tons (short)
Volume			**Volume**		
ounces (U.S., liquid)	29.57353	milliliters	milliliters	0.033814	ounces (U.S., liquid)
quarts (U.S., liquid)	0.9463529	liters	liters	1.0567	quarts (U.S., liquid)
gallons (U.S., liquid)	3.7854	liters	liters	0.26417	gallons (U.S., liquid)
cubic feet	0.02831685	cubic meters	cubic meters	35.3147	cubic feet
cubic yards	0.7645549	cubic meters	cubic meters	1.308	cubic yards
Temperature			**Temperature**		
Fahrenheit	subtract 32 then multiply by 5/9ths	Celsius	Celsius	multiply by 9/5ths, then add 32	Fahrenheit
Energy			**Energy**		
kilowatt hour	3,412	British thermal unit	British thermal unit	0.000293	kilowatt hour
kilowatt	0.94782	British thermal unit per second	British thermal unit per second	1.055	kilowatt
Force/Pressure			**Force/Pressure**		
pounds (force) per square inch	6.894757	kilopascals	kilopascals	0.14504	pounds per square inch

06/2001

Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Third Ed., 1990, Professional Publications, Inc., Belmont, California.

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1.0 DETERMINATION OF TOXIC SUBSTANCES CONTROL ACT REGULATORY STATUS OF WASTE

The *Toxic Substances Control Act* (TSCA) *of 1976* regulates polychlorinated biphenyls (PCB) both while in use and while waste is undergoing disposal. This chapter is for determining the TSCA regulatory status of waste.

This chapter can be used to determine status of PCB waste as TSCA or non-TSCA regulated. In addition, the TSCA waste classification is determined. Disposal options vary depending on the TSCA waste classification.

1.1 DEFINITION OF POLYCHLORINATED BIPHENYL WASTE

PCB waste is PCBs and PCB Items that are subject to the TSCA disposal requirements. In general, waste that contain 50 parts per million (ppm) PCBs or greater or less than 50 ppm due to dilution are TSCA regulated for disposal. PCB waste includes the following PCBs and PCB Items:

- No longer in use
- No longer fit for service
- No longer allowed to be serviced
  - TSCA regulations prohibit the servicing or rebuilding of certain items (e.g., PCB Transformers that require removal of the transformer coil from the casing)
- Not having an authorized use.

In addition, spilled and other uncontrolled discharges of PCBs at concentrations of greater than or equal to 50 ppm constitute disposal [40 CFR 761.50(a)(4)]; the materials on which PCBs are spilled (e.g., soil, concrete, and debris) also are considered to be PCB waste. Certain items that are contaminated with PCBs can be decontaminated under the TSCA regulations and can be used or returned to use.

The State of Washington regulates PCBs from transformers, capacitors, and housings greater than or equal to 2 ppm and less than 50 ppm as state-only dangerous waste, W001. Waste that is regulated under TSCA also is not subject to regulation as W001. However, the generator of waste that meets the definition of W001 has the option instead of managing the waste under the TSCA regulations [Washington Administrative Code (WAC) 173-303-071(3)(k)(ii)].

1.2 TYPES OF POLYCHLORINATED BIPHENYL WASTE

TSCA generally requires management of PCB waste per original source concentrations in compliance with the anti-dilution prohibition at 761.1(b)(5). However, certain types of PCB waste can be managed per the existing concentration (as found) regardless of the original source concentration when disposed. Types of PCB waste that can be managed per the as-found concentrations include PCB remediation waste, PCB analytical waste, and certain types of PCB Bulk Product waste.

It is important to note that, when determining the TSCA status of painted surfaces, the concentration of the PCBs in the paint is used to determine TSCA status. In accordance with anti-dilution provisions, the

entire matrix (e.g., concrete or steel to which the paint is applied) cannot be used to determine the final PCB concentration for TSCA determination. This is clarified in the EPA PCB Question and Answer (Q&A) Manual (EPA 2001):

"Q: What does the phrase "concentration at the time of designation for disposal" mean in the definition of "PCB bulk product waste?"

A: This means the concentration of the PCBs in the manufactured product at the time it is determined that the product is a waste and before it is mixed with other materials. For example, the concentration at the time of designation for disposal of dried wall paint containing PCBs in a building being demolished would be the concentration of the paint itself prior to demolition, not mixed or diluted with waste from the underlying wall or other debris from the building."

To determine the PCB waste classification and therefore the TSCA disposal options, the source of the waste, the PCB concentration, and the date the material became a waste (the removed from service date) should be known. This information could be process knowledge or analytical data. Figure 1-1 provides a flowchart for determining the TSCA regulatory status of waste that contains PCBs. If any of the information is not known, the generator must perform a diligent search for the information and from that search determine a waste classification. Documentation of search and assumptions is required.

For further clarifications concerning types of PCB waste, refer to Figure 1-2, "PCB Hierarchy"; Figure 1-3, "Examples of PCB Liquid and Non-Liquid Waste"; Figure 1-4, "PCB Remediation Waste"; and Figure 1-5, "PCB Bulk Product Waste". Once a determination has been made as to TSCA regulatory status, refer to the relevant sections of this Hanford Site Users Guide (HUG) and the TSCA regulations at 40 CFR 761 for applicable marking, storage, and disposal requirements.

1.3 MANAGEMENT OF UNKNOWN WASTE

The TSCA regulations do not require that unknown waste be managed as PCB regulated waste. However, the TSCA regulations do require that generators properly dispose of any PCB waste. Therefore, it is the responsibility of the generator to determine the TSCA status of any unknown waste, using either process knowledge or a combination of knowledge and analytical results.

If the TSCA status of a waste material is unknown, i.e., a careful search as determined by the generator reveals little or no information concerning the presence or source of PCBs or the date removed from service, the generator might have to rely on sampling and analysis to determine TSCA status. (*EPA states in the PCB Q&A Manual that "when in doubt, EPA recommends that you sample".*) If analytical results indicate that the PCB concentrations in the unknown material are ≥50 ppm, the waste is definitely TSCA regulated. However, if the PCB concentrations are <50 ppm in the unknown material, the waste might or might not be TSCA regulated. The TSCA determination for unknown materials with <50 ppm PCB depends on the quality of available information. If PCBs are <50 ppm and a careful search reveals little or no available information, the unknown waste can be non-TSCA.

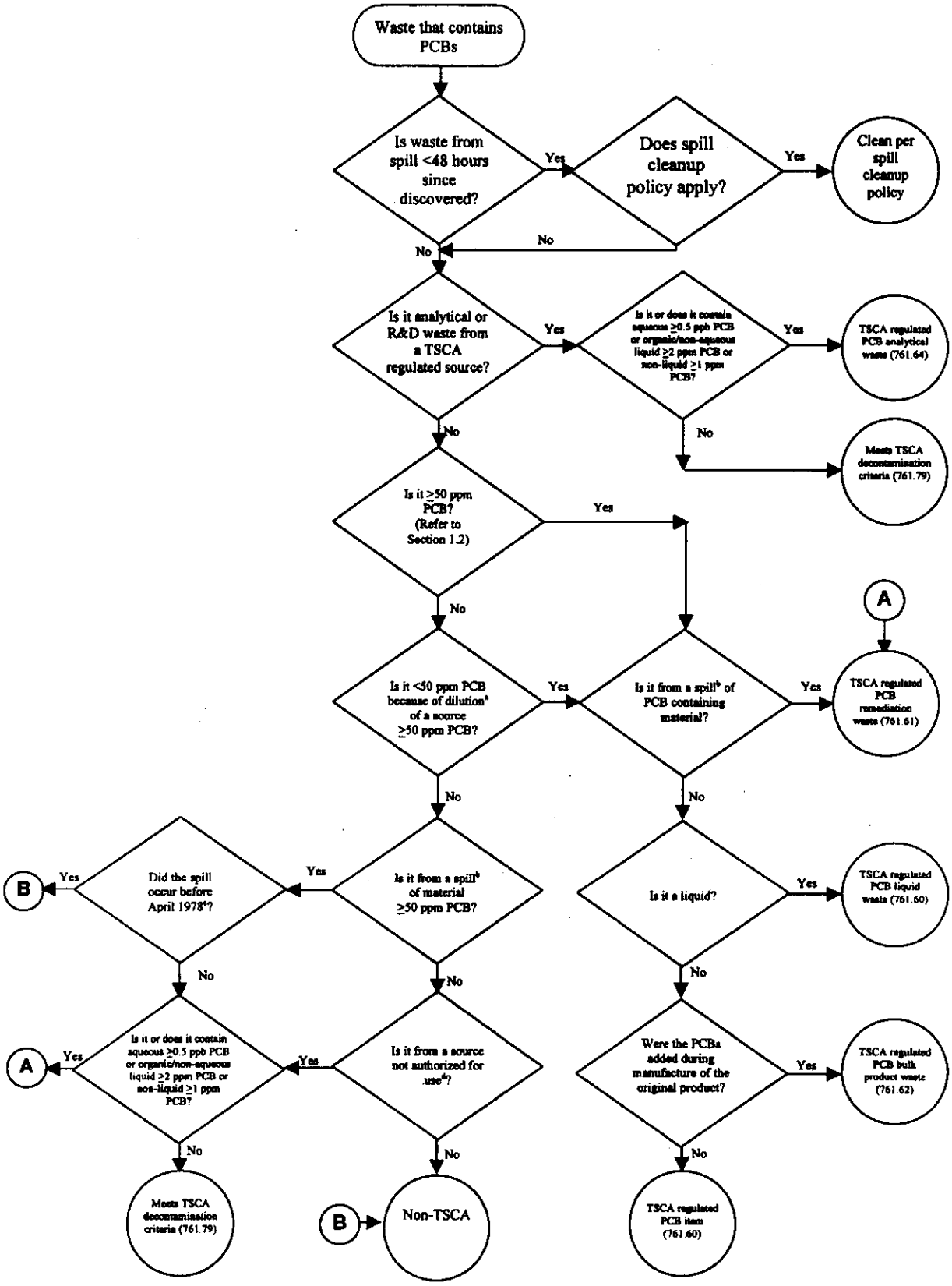


Figure 1-1. Toxic Substances Control Act Regulatory Status of Waste Materials. (sheet 1 of 2)

Footnotes:

[a] Dilution does not include spills, releases, or unauthorized disposals.
[b] Includes spills, releases, and unauthorized disposals.
[c] For spills that occurred between April 1978 and July 1979, refer to PCB remediation waste definition at 40 CFR 761.3.
[d] Sources not authorized for use are defined in 40 CFR 761, Subpart B.

PCB = polychlorinated biphenyls
ppb = parts per billion
ppm = parts per million
R&D = research and development
TSCA = *Toxic Substances Control Act of 1976*

Figure 1-1. Toxic Substances Control Act Regulatory Status of Waste Materials. (sheet 2 of 2)

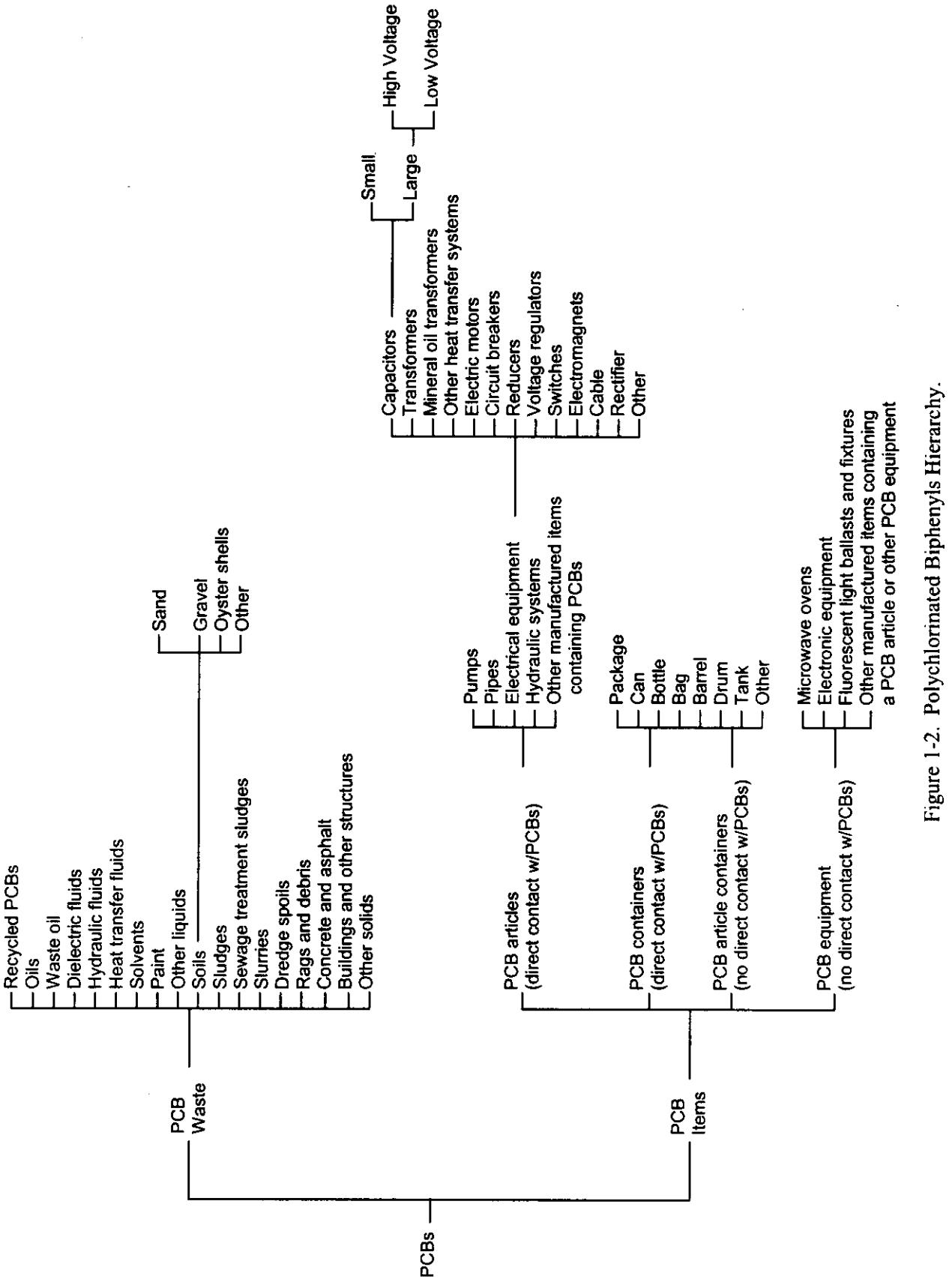


Figure 1-2. Polychlorinated Biphenyls Hierarchy.

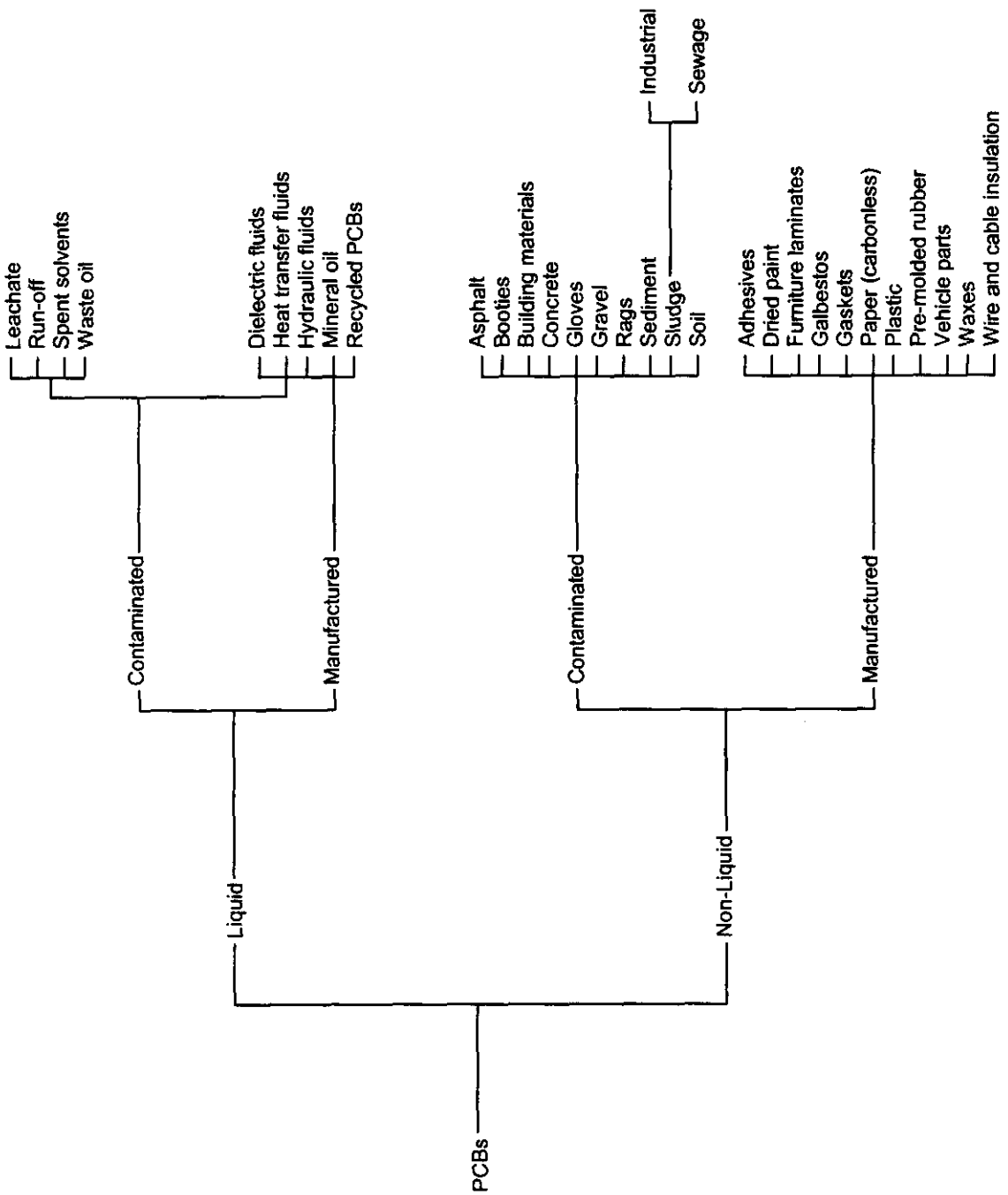


Figure 1-3. Examples of Polychlorinated Biphenyls Liquids and Non-Liquids.

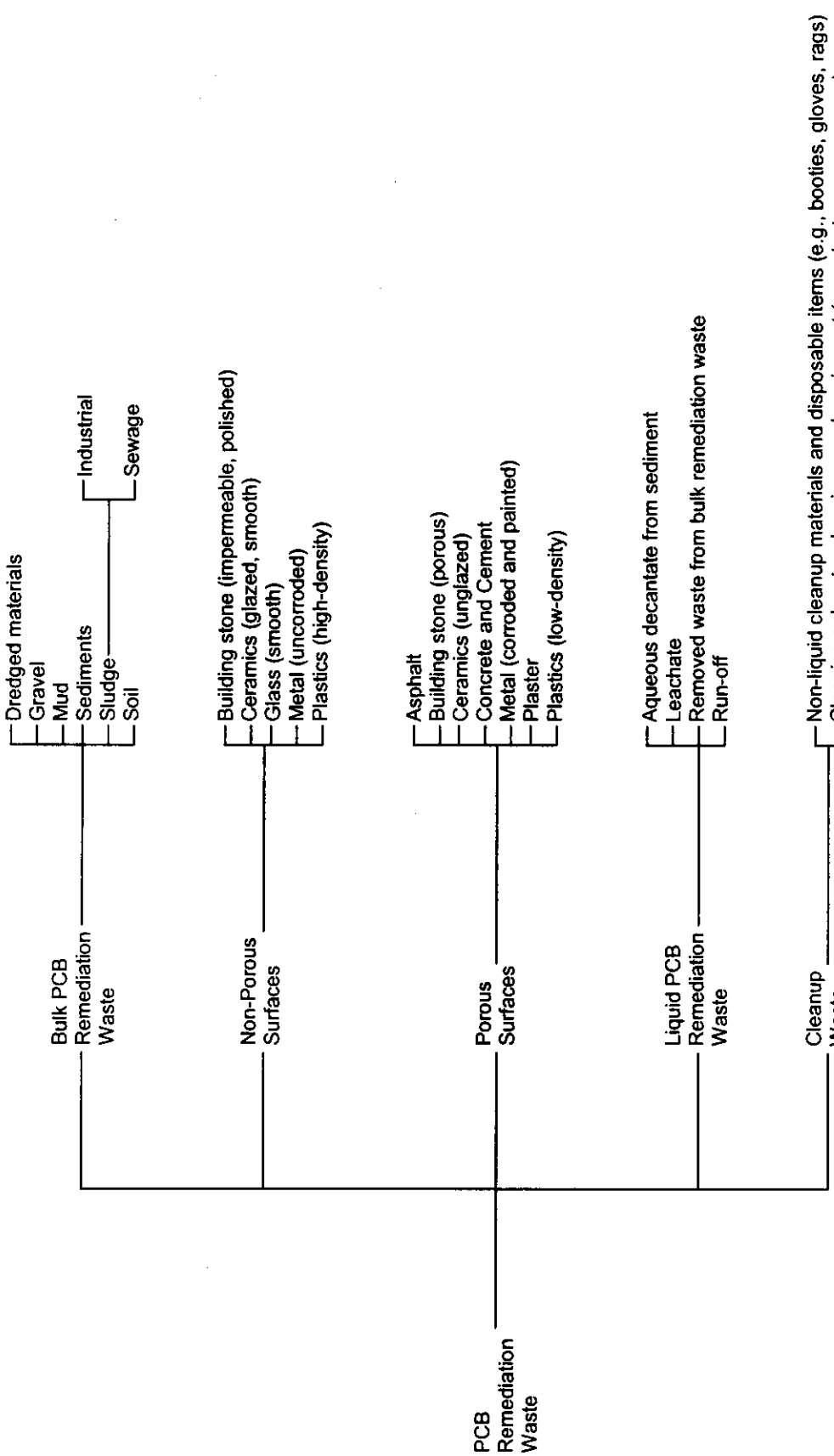
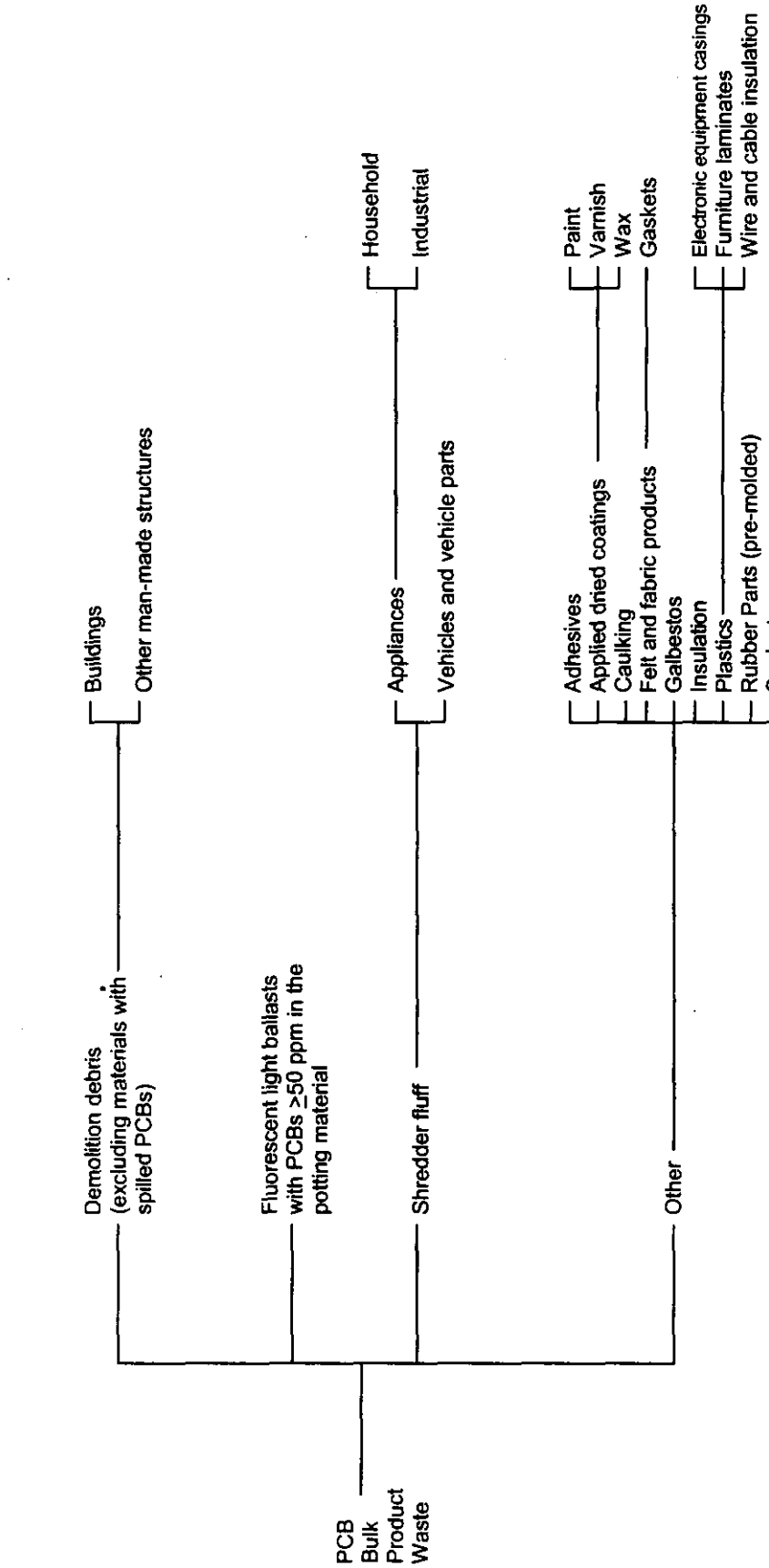


Figure 1-4. Polychlorinated Biphenyl Remediation Waste.



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2.0 POLYCHLORINATED BIPHENYLS IN USE

TSCA regulates the use as well as the disposal of PCBs. Disposal options for PCB waste could be based on the previous use of the PCBs or PCB Items. This chapter describes requirements for use of PCBs.

2.1 AUTHORIZATIONS (761.30)

The following summarizes the PCB activities for electrical equipment that are authorized pursuant to Section 6(e)(2)(B) of TSCA. For further details, refer to 40 CFR 761.30.

PCBs at any concentration can be used in transformers and circuit breakers and can be used for purposes of servicing, including rebuilding these transformers and circuit breakers for the remainder of their useful lives. The use and storage for reuse of PCB Transformers, PCB Large High-Voltage Capacitors, and PCB Large Low-Voltage Capacitors that pose an exposure risk to food or feed are prohibited.

The use of PCB Large High-Voltage Capacitors and PCB Large Low-Voltage Capacitors is prohibited unless the capacitor is used within a restricted access electrical substation or in a contained and restricted access indoor installation.

The use of network PCB Transformers with secondary voltages equal to or greater than 480 volts, including 480/277 volt systems in or near commercial buildings, is prohibited.

The installation of PCB Transformers, which have been placed into storage for reuse or that have been removed from another location in or near commercial buildings, is prohibited.

All PCB Transformers must be registered with the EPA.

A visual inspection of each PCB Transformer in use or stored for reuse will be performed at least once every 3 months. If a PCB Transformer is found to have a leak that results in any quantity of PCBs running off or about to run off the external surface of the transformer, the transformer must be repaired or replaced to eliminate the source of the leak.

A PCB Transformer involved in a fire-related incident must be reported immediately to the National Response Center (800-424-8802).

A PCB Article can be stored for reuse in an area that is not designated, constructed, and operated in compliance with 761.65(b) storage requirements.

Reclassification of PCB Transformers to PCB-Contaminated Transformers would be beneficial because PCB Contaminated Transformers, which are a subset of PCB-Contaminated Electrical Equipment, are not subject to the same requirements for disposal. The high concentration of PCBs in some dielectric fluids of transformers prohibits a drain and flush scenario. Through years of operation, the PCBs have leached into the permeable interior surfaces of the transformer and the flush and soak with liquid solvents would not be successful in reducing the PCB concentrations to <500 ppm.

2.2 RESERVED FOR FUTURE USE

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TABLE

Table 3-1 Sampling Methods for Specified Polychlorinated Biphenyls Waste Categories. T3-1

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3.0 DETERMINING POLYCHLORINATED BIPHENYL CONCENTRATIONS

Information is provided in this chapter for determining PCB concentrations in Hanford Site materials and waste. The chapter describes TSCA requirements for sampling for PCBs. Also, information is provided on interpretation of analytical results from laboratory analyses for PCBs.

3.1 SAMPLING METHOD FOR POLYCHLORINATED BIPHENYLS

The following information is for determining TSCA requirements for sampling of various types of PCB waste and does not address or pre-empt other regulatory requirements. This information does not apply to non-TSCA regulated PCBs.

This information can be used to select proper sampling methods for waste that is or might be contaminated with PCBs subject to TSCA disposal. Table 3-1 summarizes appropriate sampling methods for specific categories of PCB waste.

3.1.1 Summary of Representative Sampling Methods for Polychlorinated Biphenyls

The type of PCB waste and the purpose of sampling determine the appropriate sampling methods. Sampling methods can vary if the chemical analysis of PCBs is to determine TSCA regulatory status, cleanup verification, or determinations of spill boundaries. Variables also can include the type and location of PCB waste.

In general, when sampling liquid or nonliquid PCB waste to determine TSCA regulatory status, a representative sample must be collected. For mineral oil dielectric fluid (MODEF), or waste oil, sampling methods must be per American Society for Testing and Materials (ASTM) D 923-86 or 923-89, or by ensuring that the matrix is mixed thoroughly before sampling such that any PCBs present are distributed uniformly. When sampling to verify cleanup, the sampling methods are prescribed based on the type of PCB waste being addressed. Once the type of PCB waste is identified, the regulations refer to 40 CFR Subparts N, O, or P for sampling methodologies applicable to cleanup verification. For PCB bulk product waste leachability, the regulations refer to 40 CFR Subpart R. For spill cleanup requirements, the regulations refer to various other regulations that are determined based on the specific purpose of sampling (i.e., determination of spill boundaries, post-cleanup verification at specified locations, etc.).

3.1.2 Sampling Methods for Polychlorinated Biphenyls

Table 3-1 is to be used to determine appropriate sampling methodologies.

3.2 INTERPRETING POLYCHLORINATED BIPHENYLS ANALTYICAL RESULTS

This section is applicable to results of analysis of PCB samples analyzed in accordance with the EPA's *Test Methods for Evaluating Solid Waste*, SW-846, Method 8082, "Polychlorinated Biphenyls (PCBs) by Gas Chromatography" or other approved method under TSCA.

This section is intended to facilitate consistent interpretation of PCB concentrations from sample analyses in accordance with SW-846, Method 8082, or other approved method. This chapter identifies how to

determine total PCB concentration in samples that contain either detectable or less than detectable concentrations of PCBs.

3.2.1 Background

Unless otherwise specified in 40 CFR 761, chemical analysis of PCBs will be performed using gas chromatography. In general, Hanford Site laboratories analyze waste samples for PCB content in accordance with SW-846, Method 8082. The resulting data from these analyses need to be comparable among laboratories to ensure consistent PCB management on the Hanford Site. (Implementation of PCB analyses in the laboratories should meet the need for data compatibility when the procedures are performed in conformance with SW-846 methods and associated quality control requirements.) Discussions among DOE, EPA, and Ecology regarding application of SW-846 to PCB analysis (Meeting Minutes July 10, 2001) are summarized in the following text.

3.2.2 Matrix Specific Data Need

The Hanford Site PCB sample matrices present a variety of specific sampling and analyses needs. Many of these samples are typical of environmental samples and are addressed in Section 2.2 of Method 8082. For example, aqueous samples are to be extracted using Method 3510 (separatory funnel), Method 3520 (continuous liquid-liquid extractor), or other appropriate technique. In addition to the usual matrix specific factors in sampling and analysis, Hanford Site samples can be highly radioactive. Highly radioactive samples might require deviations to standard sampling and analytical methods to minimize personnel exposure to radiation. This practice is supported by joint guidance issued by the EPA and the U.S. Nuclear Regulatory Commission (NRC) for environmental testing of mixed waste under RCRA at 62 Federal Register (FR) 224. While not specific to PCBs, this guidance does stress that the data need should be considered with respect to as low as reasonably achievable (ALARA), (the practice of maintaining all radiation and other hazardous exposures, to workers and the general public, as low as is reasonably achievable). Any deviations from standard methods are documented in the laboratory's unit-specific operating files.

In addition, PCB samples might be liquid, non-liquid, or multi-phasic. Liquid PCBs mean a homogenous flowable material containing PCBs and no more than 0.5 percent by weight non-dissolved material. Non-liquid PCB means materials containing PCBs that by visual inspection do not flow at room temperature (25 °C or 77 °F) or from which no liquid passes when a 100 gram or 100 milliliter representative sample is placed in a mesh number 60 ± 5 percent paint filter and allowed to drain at room temperature for 5 minutes. Preamble language (63 FR 35387, June 29, 1998) states that sludges or sediments that potentially contain free liquids require a paint filter test to determine the presence of free liquids.

Multi-phasic waste is made up of at least two of the following: a non-liquid phase, an aqueous phase, and/or a non-aqueous liquid phase. Liquid PCBs containing more than 0.5 percent by weight non-dissolved material are multi-phasic non-liquid/liquid mixtures. If two liquids are mixed, but one is dissolved in the other, the mixture is not multi-phasic. However, if the two liquids are not miscible (e.g., oil-water emulsions), the resulting mixture is a multi-phasic liquid/liquid mixture. A visual determination is a sufficient test to determine the presence of more than one liquid phase in a multi-phasic liquid/liquid mixture; however a visual determination is not enough of a test for determining that a material such as oil contains less than 0.5 weight percent solids. For management of multi-phasic PCB waste, refer to Chapter 4.0, Section 4.5, *Multi-Phasic Polychlorinated Biphenyls Waste Management.*

3.2.3 Determination of Total Polychlorinated Biphenyls

Unless otherwise noted in 40 CFR 761, PCB determinations are made on a weight-per-weight basis (e.g., milligrams per kilogram), or, for liquids, on a weight-per-volume basis (e.g., milligrams per liter) if the density of the liquid also is reported. The PCB concentration in non-liquid samples is determined on a dry weight basis. Analytical procedures that calculate the dry weight concentration by adjusting for moisture content also could be used. The PCB concentration in liquid samples is determined on a wet weight basis [761.1(b)(4)(i) and (ii)].

For multi-phasic non-liquid/liquid or liquid/liquid mixtures, the phases must be separated before chemical analysis [761.1(b)(4)(iii)]. Multi-phasic waste samples must be separated for analysis because the PCBs might have concentrated in one of the phases. Centrifugation can be used to separate the phases of a multi-phasic liquid/liquid mixture before determining the concentration of each phase.

In general, at Hanford Site laboratories, concentrations of PCBs (regardless of manufacturer) are determined as Aroclors* in extracts from solid and liquid matrices using SW-846, Method 8082. Any other method used for analyses for PCBs is considered non-standard on the Hanford Site and must be approved by the customer requesting the analysis to ensure that the analysis meets the needs of all the data users.

The quality assurance requirements of the Hanford Analytical Services Quality Assurance Requirements Documents (HASQARD, DOE/RL-96-68) apply to most facilities performing analysis for Hanford Site samples. For all facilities, quality control for PCBs must be in conformance with SW-846 methods for sample preparation and sample analysis. Requirements related to these activities are to be documented and agreed on with the projects before work implementation (e.g., data quality objectives, work order). Deviations should be agreed to with the customer and documented before implementation. Data reports should clearly present the quality control information.

The Aroclors to be measured are those listed in Method 8082:

Compound	CAS Registry No.
Aroclor 1016	12674-11-2
Aroclor 1221	11104-28-2
Aroclor 1232	11141-16-5
Aroclor 1242	53469-21-9
Aroclor 1248	12672-29-6
Aroclor 1254	11097-69-1
Aroclor 1260	11096-82-5

CAS = Chemical Abstract Service.

The value generally needed for compliance determinations is the total PCB concentration. The following three methods generally are employed on the Hanford Site for reporting PCB concentration.

1. If no Aroclors are detected and there is sufficient information or process knowledge to expect specific Aroclors in the sample, the total PCB concentration is the method detection limit (MDL) for the single most common Aroclor expected.

* Aroclor is a trade name of Monsanto.

2. If no Aroclors are detected, and there is not sufficient information or process knowledge to expect specific Aroclors in the sample, the total PCB concentration is the highest single Aroclor MDL reported.

3. If one or more Aroclors are detected, the total PCB concentration is calculated by summing the detected Aroclors, but does not include Aroclor values reported at or below the MDL.

Table 3-1 Sampling Methods for Specified Polychlorinated Biphenyls Waste Categories.

Type of PCB material	Purpose of sampling	Required sampling methods	Regulatory citations
Nonliquid PCBs destined for land disposal	Presumption that PCBs are >500 ppm (or >100 µg/100 cm^2 if no free flowing liquid present)	Not applicable.	40 CFR 761.50(a)(5)
Mineral oil dielectric fluid electrical equipment	Compliance with marking or disposal requirements	Representative sampling per ASTM D 923-86 or ASTM D 923-89 or samples from a thoroughly mixed container.	40 CFR 761.60(g)(1)(ii)
PCB waste oil	Compliance with marking or disposal requirements	Representative sampling per ASTM D 923-86 or ASTM D 923-89 or samples from a thoroughly mixed container.	40 CFR 761.60(g)(2)(ii)
PCB Remediation Waste	Self-implementing cleanup site characterization	Sample per 40 CFR 761, Subpart N.	40 CFR 761.61(a)(2)
	Self-implementing cleanup levels for non-porous surfaces	Sample per 40 CFR 761, Subpart P or a risk-based disposal approval.	40 CFR 761.61(a)(4) 40 CFR 761.61(c)(1)
	Cleanup verification for bulk PCB remediation waste and porous surfaces	Sample per 40 CFR 761, Subpart O.	40 CFR 761.61(a)(6)(i)
	Cleanup verification for non-porous surfaces	Sample per 40 CFR 761, Subpart P.	40 CFR 761.61(a)(6)(i)
	Interim sampling to determine when to sample to verify cleanup is complete	Field screening methods.	40 CFR 761.61(a)(6)(i)
PCB Bulk Product Waste	Determinations of PCB concentration or leaching characteristics	Sample per 40 CFR 761, Subpart R or a risk-based disposal approval .	40 CFR 761.62 intro. 40 CFR 761.62(c)(1)
Decontamination	Confirmatory sampling for decontaminated liquids	Sample per 40 CFR 761.269 and 40 CFR 761.272.	40 CFR 761.79(f)(1)
	Confirmatory sampling for decontaminated non-porous surfaces and concrete	Sample per 40 CFR 761, Subpart P.	40 CFR 761.79(f)(1)
	Alternative confirmatory sampling	Sample per EPA approved alternative plan.	40 CFR 761.79(h)(3)
Spill Cleanup Policy Waste	Verification that numerical cleanup standards have been met for contaminated solid surfaces	Sample per the "Standard wipe test" definition at 40 CFR 761.123.	40 CFR 761.125(c)(2)(i); 761.125(c)(3)(i); and 761.125(c)(4)(ii).
	Determination of spill boundaries absent of visible traces	Sample per a statistically based sampling scheme. Note that per 761.125(c)(1), the EPA Regional Office must be contacted.	40 CFR 761.125(a)(3)
	Post-cleanup verification of spill decontamination in outdoor electrical substation	Sample per 40 CFR 761.30.	40 CFR 761.125(c)(2)
	Post-cleanup verification of spill decontamination in other restricted access area	Sample per 40 CFR 761.30.	40 CFR 761.125(c)(3)
	Post-cleanup verification of spill decontamination in nonrestricted areas	Sample per 40 CFR 761.30.	40 CFR 761.125(c)(4)

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4.0 POLYCHLORINATED BIPHENYLS WASTE MANAGEMENT

This chapter summarizes information related to management of PCB waste. Marking and storage requirements for PCB waste and management of multi-phasic waste are discussed. PCB waste managed with a *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) *of 1980* area of contamination (AOC) is managed in accordance with the substantive requirements of TSCA and applicable CERCLA decision documents. Once the waste is removed from the AOC, the applicable TSCA labeling requirements apply, depending on final destination of the waste.

4.1 REMOVED FROM SERVICE DATES

Generally, any PCB waste must be disposed within 1 year from the date the waste was determined to be a PCB waste and the decision was made to dispose of the waste. A removed from service date must be determined for all PCB waste regulated under TSCA. Documentation of the removed from service date is required by 40 CFR 761.180, "Records and Monitoring".

4.1.1 Applicability/Purpose

The removed from service date is required for TSCA regulated PCB waste for the following reasons:

- To ensure compliance with the 1-year timeframe for disposal [761.65(a)]. PCB/radioactive waste removed from service for disposal is exempt from the 1-year time limit provided that the provisions at paragraphs 761.65(a)(2)(ii) and (a)(2)(iii) are followed and the waste is managed in accordance with all other applicable federal, state, and local laws and regulation for the management of radioactive material. Without additional EPA approval, there is no relief in the TSCA regulations from the requirement to mark PCB/radioactive waste with $\geq$50 ppm PCB with a removed from service date.

- To ensure compliance with the 30 day limit on temporary storage of PCB Items [761.65(c)]

- To allow PCB Items to be located in any storage for disposal facility by removed-from-service date [761.65(c)(8)]

- To comply with the annual document log and annual report requirements [761.180].

In addition, the following dates also are required.

- For TSCA waste stored in large storage containers [larger than specified in U.S. Department of Transportation (DOT) Hazardous Material Regulations (HMR) 49 CFR 171 through 180], the date each batch was added to the container [761.65(c)(8)].

- For all PCB Articles in storage for reuse, the date the PCB Article was removed from use or August 28, 1998, if the removal date is not known [761.35(a)(2)].

4.1.2 Determination of Removed from Service Date

In 761.65(a), the date of removal from service for disposal is defined as the date a material was determined to be PCB waste and the decision was made to dispose of the waste.

4.1.2.1 Determination that a Material is Waste under Toxic Substances Control Act

As stated in Chapter 1.0, Section 1.1, TSCA PCB waste includes the following PCBs and PCB Items:

- No longer in use
- No longer fit for service
- No longer might or can be serviced
- Not having an authorized use.

In addition:

- Spills constitute disposal
- Materials such as concrete, soil, or debris on which PCBs are spilled are PCB waste.

Environmental media, building materials, and other materials contaminated by spills of PCBs do not require a removed from service date until the material is collected and waste management activities begin. The removed from service date applicable to PCB remediation waste is not the date the original material was spilled; the removed from service date is established after the waste is determined to be a PCB remediation waste.

4.1.2.2 Removed from Service Date for Materials Known to Contain TSCA-Regulated Polychlorinated Biphenyls

The TSCA status of a material should be known before the material comes out of service and is determined or declared to be a waste. For materials being removed from service, if the material is known to contain regulated quantities of PCBs while in use, such as a PCB Transformer, the material becomes a TSCA regulated waste when the material is removed from service and no longer in use.

In an analytical laboratory, analytical residue becomes a waste when the residue no longer is being collected as part of the analytical process. When a container, such as a slop jar, becomes filled and removed from the analytical process, the contents of the container are waste and a removed from service date applies if the waste is TSCA regulated. When an analytical process is no longer being used routinely, the analytical residue collected as part of the process thus far becomes a waste and a removed from service date applies if the waste is TSCA regulated. Chapter 11.0, Section 11.2.6, contains additional information.

On August 31, 2000, the DOE, EPA, and Ecology signed the *Framework Agreement for Management of Polychlorinated Biphenyls (PCBs) in Hanford Tank Waste* (Framework Agreement). Based on that agreement, the removed from service date for TSCA regulated waste on 11 of the 28 double-shell tanks (DSTs) is August 31, 2000. The Tank Farm Contractor should be contacted for the list of TSCA regulated DSTs.

For waste in the DSTs, a determination was made that August 31, 2000 is the date the PCB/RCRA/radioactive waste was removed from service. However, there are and will continue to be many activities involving tank waste (i.e., characterization, equipment removal, etc.). The removed from service date for this waste will be based on initial placement of waste in a container, such as a drum or waste box.

Liquid waste being transferred within tank farms or sent back to tank farms [i.e., from 200 Areas Effluent Treatment Facility (ETF)] will retain the tank system removed from service date of August 31, 2000. The distinction being drawn is a separation of the type of activity involved [i.e., storage of high-level waste

(HLW) in DSTs for ultimate disposal via vitrification versus other work necessary to support day-to-day tank operations].

4.1.2.3 Removed from Service Date for Materials with Unknown TSCA Regulatory Status

For cases in which a material becomes a waste before the TSCA regulated status is known, the removed from service date is either the date information is available (either through process knowledge or analysis) confirming that the waste contains regulated quantities of PCBs or, in the absence of process knowledge or analysis, the date a declaration is made pronouncing the waste as TSCA regulated.

For materials of unknown PCB concentration, including waste collected from a cleanup activity, the removed from service date occurs when the material is determined to be TSCA regulated. As noted in a response to a question from the Hanford Site on determining the removed from service date for waste from a building fire that occurred in 1963 and cleaned up in 2000, EPA Headquarters said to "start the clock when the analytical results are in confirming the material is regulated PCB waste (i.e., ≥50ppm)" (EPA-HQ 2001). However, it is recommended that efforts begin immediately on determining a material is a waste to determine whether or not the material contains TSCA regulated quantities of PCBs. These efforts could include review of process knowledge and/or analysis of samples.

Under certain conditions, waste might be declared TSCA regulated based on incomplete process knowledge or on indirect evidence. A generator has the option to declare and manage a waste as TSCA regulated for PCBs without definitive evidence that such PCBs are present in the waste. This declaration might be based on the cost of gathering additional data or the desire to take a conservative approach in a specific situation.

4.2 MARKING FOR TOXIC SUBSTANCES CONTROL ACT POLYCHLORINATED BIPHENYLS MANAGEMENT

The following section is for determining the TSCA requirements for marking of TSCA regulated PCBs and PCB Items.

4.2.1 Background

There are two distinct PCB marks: the M_L and the M_S. The M_L is a square 15.25 centimeters on each side and the M_S is a rectangle 2.5 centimeters by 5 centimeters. Both are letters and striping on a white or yellow background. Specific text is required on each of the PCB marks (refer to 761.45). If PCB Articles or PCB Equipment cannot accommodate the PCB marks as specified, the M_L can be reduced to a minimum of 5 centimeters on a side; the M_S can be reduced to 1 centimeter by 2 centimeters. When an M_L mark is required but the item is too small to accommodate the mark, use a reduced size M_L if possible. If the reduced size M_L is too large, a M_S can be used [761.40(f)].

The PCB mark must be sufficiently durable to equal or exceed the life (including storage for disposal) of the PCB Article, PCB Equipment, or PCB container to which the mark is attached (761.45). PCB marks must be placed in a position on the exterior of PCB Items, storage units, or transport vehicles such that the mark can be read easily by any persons inspecting or servicing the marked PCB Items, storage units, or transport vehicles [761.40(h)].

4.2.2 Areas and Items Requiring a Polychlorinated Biphenyls Mark

Each of the following items are to be marked with an M_L mark as specified in 761.45(a) or an M_S as allowed in 761.40(f):

1. PCB Containers ≥50 ppm PCB [761.40(a)(1) and 761.40(e)]

2. PCB Transformers (i.e. ≥500 ppm PCB) [761.40(a)(2) and 761.40(c)(1)]

   a. Equipment containing a PCB Transformer [761.40(a)(4) and 761.40(k)(2)]

   b. The vault door, machinery room door, fence, hallway, or means of access, other than grates and maintenance access covers, to where a transformer is located [761.40(j)].

3. PCB Large High-Voltage Capacitors [761.40(a)(3) and 761.40(c)(2)]:

   a. If installed in a protected location, the power pole, structure, or fence that serves as a protected area for PCB Large High-Voltage Capacitors [761.40(c)(2)(ii)]

   b. Equipment containing a PCB Large High-Voltage Capacitor [761.40(a)(4) and 761.40(k)(2)].

4. PCB Large Low-Voltage Capacitor [761.40(a)(5) and 761.40(k)(1)]:

   a. Equipment containing a PCB Large Low-Voltage Capacitor [761.40(k)(2)]

   b. If not marked and if located in a protected location, the power pole, structure, or fence that serves as a protected area for PCB Large Low-Voltage Capacitors [761.40(k)(1)].

5. Electric motors using PCB coolants containing ≥50 ppm PCB [761.40(a)(6)].

6. Hydraulic systems using PCB hydraulic fluid ≥50 ppm PCB [761.40(a)(7)].

7. Heat transfer systems (other than PCB transformers) using PCBs ≥50 ppm PCB [761.40(a)(8)].

8. PCB Article Containers that contain PCB articles or PCB equipment that must be marked [761.40(a)(9)].

9. Each storage area used to store PCBs and PCB Items for disposal, including temporary storage areas, general storage-for-disposal areas, and alternate storage-for-disposal areas [e.g., RCRA storage areas storing PCBs according to 761.65(b)(2)] [761.40(a)(10)].

10. Each transport vehicle while loaded with PCB Containers that contain more than 45 kilograms (99.4 pounds) of liquid PCBs at concentrations of ≥50 ppm or one or more PCB transformers are marked on each end and each side [761.40(b)].

11. All voltage regulators that contain ≥1.36 kilograms of dielectric fluid with a PCB concentration of ≥500 ppm, individually [761.40(l)(1)].

12. Locations of voltage regulators (e.g., vault door, fence, or other means of access other than grates or manhole covers) [761.40(l)(2)].

13. Porous surfaces contaminated by a spill of liquid PCBs at concentrations of ≥50 ppm being used according to the conditions of 761.30(p) (also refer to Chapter 7.0, Section 7.3.1).

14. The area surrounding bulk remediation waste at concentrations >25 ppm and ≤50 ppm remaining at a PCB remediation waste cleanup site according to the conditions of 761.61(a)(4)(i)(2).

Electrical equipment manufactured after July 2, 1979 are assumed to be 'Non-PCB', i.e., <50 ppm PCBs, while in use (761.2). The PCB concentration assumptions in 761.2 apply only while the equipment is in use. At the time of disposal, actual PCB concentration of the equipment must be known. (EPA 2001).

Large low-voltage capacitors, small capacitors used in alternating current circuits, and each fluorescent light ballast built between July 1, 1978 and July 1, 1998 that do not contain PCBs were required to be marked by the manufacturer at the time of manufacture with the statement "No PCBs" [761.40(g)].

If the PCB mark is required, the mark must remain on a PCB Item through disposal. The PCB mark is required only on PCB storage for disposal areas while the area is storing PCBs; however, there is no requirement to remove the PCB mark when the area is not storing PCBs or PCB Items.

4.3 POLYCHLORINATED BIPHENYL WASTE STORAGE

This section is applicable to any unit that is used for the storage for disposal of PCBs and PCB Items ≥50 ppm. If the PCB concentration is <50 ppm, the waste need not be stored in an area that meets the requirements of 761.65. This section summarizes the requirements that a unit must comply with to store for disposal PCBs or PCB Items ≥50 ppm.

For TSCA regulated PCB waste, the Hanford Site is a generator with onsite storage capacity. There is no commercial storage PCB waste on the Hanford Site; therefore, the requirements of 761.65(d) through (h) do not apply.

Except for PCB/radioactive waste, all PCB waste must be disposed within 1 year of its out-of-service date. The PCB waste generator has up to 9 months to transfer the PCB waste to a disposal facility. (The PCB waste can be transferred between various onsite storage-for-disposal areas during this time.) The disposal facility has 3 months to dispose of the waste. If the disposal facility receives the PCB waste more than 9 months from the removed from service date and is unable to dispose of the waste within 1 year of the removed from service date, the disposer should submit an exception report as described in 761.215(c). If the waste is transferred to a disposer within 9 months of the removed from service date and the waste is not disposed within the following 3 months, the generator should submit an exception report as described in 761.215(d).

4.3.1 Polychlorinated Biphenyls Storage for Disposal Areas Requirements

There are three storage areas that can qualify for storage for disposal under TSCA. These include temporary, general, and alternate. All storage for disposal areas must be marked with the PCB M_L mark and PCB containers must be marked and checked for leaks at least once every 30 days.

4.3.1.1 Temporary Storage for Disposal [761.65(c)]

Storage in temporary storage for disposal areas is limited to 30 days. The temporary storage areas storing liquids at ≥50 ppm PCB must have a spill prevention control and countermeasures (SPCC) plan for PCB containers, per 40 CFR 112 [761.65(c)(i)(iv)]. Temporary storage for disposal areas are marked with an

M_L mark. Temporary storage areas are not subject to additional engineering criteria. The following PCB Items can be stored in temporary storage:

- Non-leaking PCB Articles and PCB Equipment
- Leaking PCB Articles and PCB Equipment if the PCB Items are placed in a non-leaking PCB container with sufficient sorbent materials to absorb any remaining PCB liquids
- PCB containers containing non-liquid PCBs such as contaminated soil, rags, and debris
- PCB containers containing liquids PCBs at concentrations of ≥50 ppm, provided a SPCC plan has been prepared for the temporary storage area and the liquid PCB waste is in an authorized DOT container.

A notation must be attached to any PCB Item or PCB container in a temporary storage for disposal area indicating the removed from service date.

4.3.1.2 General Storage for Disposal [761.65(b)(1)]

The engineering criteria at 761.65(b)(1) concerning adequate roof, walls, floors, and containment, etc., must be met. General storage cannot be located below the 100-year flood water elevation. A SPCC plan is required for PCB liquid containers larger than those described in 761.65(c)(6) regardless of proximity to surface water (DOE/EH-413-0003). For additional information on PCB/radioactive waste, refer to Section 4.4.

4.3.1.3 Alternate Storage for Disposal [761.65(b)(2)]

'Alternate storage' on the Hanford Site consists of RCRA interim status or final status permitted storage units. (Under alternate storage for disposal, a RCRA-permitted tank can be used for storage of TSCA regulated PCB waste.) For interim status units, final status containment requirements apply. (RCRA 90-day accumulation areas and satellite accumulation areas (SAAs) do not qualify for alternate storage because these areas do not have RCRA permits.) The engineering criteria at 761.65(b)(1) do not apply. Note that alternate storage areas must address spills of PCB waste per the PCB Spill Cleanup Policy, 40 CFR 761, Subpart G, as opposed to PCB remediation waste requirements. For bulk storage of PCBs in a RCRA permitted alternate storage for disposal area (e.g., in a tank), an SPCC plan is not required (DOE/EH-413-0003).

4.3.2 Storage for Disposal in RCRA 90-Day Accumulation Areas or Satellite Accumulation Areas

RCRA 90-day accumulation areas and SAAs necessarily do not meet the TSCA storage requirements. If PCB waste is stored in a RCRA-compliant 90-day area or SAA, the area must meet the general storage for disposal requirements of 40 CFR 761.65(b)(1). (An evaluation should be performed to determine if the area already meets these requirements.) Because 90-day accumulation areas and SAAs must meet general storage for disposal requirements, secondary containment as required by 761.65(b)(1) must be met (the larger of two times the volume of the largest container or 25 percent of the internal total volume of all containers). Many RCRA 90-day accumulation areas can meet these requirements; however, each must be evaluated. The weekly inspections required for 90-day accumulation areas exceed the TSCA 30-day inspection requirements. SAAs are not subject to weekly inspections. Therefore, if PCB waste is stored in SAAs, the operator must document that the PCB Items are inspected for leaks at least every 30 days [761.65(c)(5)].

4.3.3 Containers for Storage [761.65(c)(6)]

For nonradioactive PCB waste, the container used for storage must be in accordance with the requirements in DOT HMR, 49 CFR 171 through 180.

For radioactive PCB waste, a non-DOT container can be used, but the container must meet the following requirements.

- Container is capable of adequately containing the waste.
- Non-liquid storage containers prevent the buildup of liquids.
- Containers meet nuclear criticality safety requirements.

Acceptable containers for PCB/radioactive waste are compatible with the waste, are polyethylene or stainless steel, or are other containers that can be demonstrated to be protective of health and the environment and that meet appropriate applicable regulations (e.g., NRC, DOE, DOT).

4.4 POLYCHLORINATED BIPHENYLS/RADIOACTIVE WASTE RELIEF AND LIMITATIONS

The following applies to waste that contains PCBs that are regulated under TSCA and that also contains radioactive constituents.

This section summarizes relief and limitations specifically applicable to PCB/radioactive waste, when the PCBs are TSCA regulated. Many of the PCB/radioactive waste requirements provide relief and limitations along with associated exceptions and conditions. It is recommended that the summaries in both the following relief and limitations sections be read to ensure that all exceptions are understood and that all conditions are met. Also, it is necessary that the specific wording in the referenced regulations be reviewed to ensure full compliance.

4.4.1 Polychlorinated Biphenyls/Radioactive Waste Relief

The following summarizes relief provided in the regulations for PCB/radioactive waste.

- Exempt from the 1-year disposal time limit provided that attempts to secure disposal are documented and available to the EPA on request [761.65(a)(1), (2)(ii), and (2)(iii)]:
  - Exempt from the 1-Year Exception Reporting requirements of 761.215(c), (d), and (e) [761.215(f)]
  - However, if the determination on whether or not the waste is radioactive is not made immediately, the following question and answer from DOE might apply.

    Q: If PCB/radioactive waste is characterized and the characterization shows that the waste is not radioactive, as originally presumed, when does the one-year storage clock start?

    A: EPA defers to DOE for the determination of whether a waste is PCB/radioactive. If a PCB waste that was originally presumed radioactive is found not to be radioactive, the one-year clock starts on the date on which the determination was made that it was not radioactive. From DOE PCB Questions and Answers--Part 1 (DOE/EH-413-0003).

- If, taking into account only the PCB properties (and not the radioactive properties), the waste meets all requirements for disposal in a state municipal or state nonmunicipal, nonhazardous landfill, the PCB/radioactive waste can be disposed based on its radioactive properties in a land disposal facility [761.50(b)(7)(ii)].

- Exempt from the minimum 6-inch curbing in general storage-for-disposal areas [761.65(b)(1)(ii)].

- Non-DOT containers are allowed for storage of PCB/radioactive waste provided that containers are nonleaking, prevent buildup of liquids, and meet nuclear criticality safety requirements [761.65(c)(6)(i)].

4.4.2 Polychlorinated Biphenyls/Radioactive Waste Limitations

The following summarize limitations placed on PCB/radioactive waste.

- Regulated by both the TSCA and *Atomic Energy Act* (AEA) [761.3].

  - Must take into account both the PCB concentration and the radioactive properties of the waste [761.50(b)(7)(i) and (ii)].

- Required to maintain a written record documenting all attempts to secure disposal for PCB/radioactive waste being stored for greater than 1-year. Must have this record available for review by the EPA on request [761.65(a)(2)(ii) and (iii)].

- Even though exempt from the 6-inch curbing requirement in general storage-for-disposal areas, the floor and available curbing still must meet TSCA containment volumes [761.65(b)(1)(ii)].

- Even though exempt from 1-Year Exception Reporting, Manifest Exception Reporting (associated with transportation and receipt of waste) is required [761.215(a) and (b)].

4.5 MULTI-PHASIC POLYCHLORINATED BIPHENYLS WASTE MANAGEMENT

The following sections are for determining TSCA requirements for analysis and management of multi-phasic (liquid/non-liquid and liquid/liquid) PCB material.

4.5.1 Definition

Multi-phasic waste is made up of at least two of the following: a non-liquid phase, an aqueous phase, and/or a non-aqueous liquid phase. Liquid PCBs containing more than 0.5 percent by weight non-dissolved material are multi-phasic non-liquid/liquid mixtures. If two liquids are mixed, but one is dissolved in the other the mixture is not multi-phasic. However, if the two liquids are not miscible, the resulting mixture is a multi-phasic liquid/liquid mixture. A visual determination is a sufficient test to determine the presence of more than one liquid phase in a multi-phasic liquid/liquid mixture.

4.5.2 Analyses of Multi-Phasic Materials

For multi-phasic non-liquid/liquid or liquid/liquid mixtures, the phases must be separated before chemical analysis, because the PCBs might have concentrated in one of the phases. Following phase separation, the PCB concentration in each non-liquid phase is determined on a dry weight basis and the PCB concentration in each liquid phase determined separately on a wet weight basis [761.1(b)(4)(iii)].

Any assumption made on concentrations of specific phases, based on knowledge of the PCB concentrations in other phases, must be demonstratable based on the solubility of PCBs in the media of interest. For example, for a multi-phasic sample that contains oil, water, and sediment for which the PCB concentration of the oil is known to be 100 ppm, it cannot be assumed that all three phases are 100 ppm without having to analyze the water and sediment phases. It might be assumed that the water contains a PCB concentration no higher than the oil, because PCBs are hydrophobic. However, the same assumption cannot be made concerning the sediment. The sediment must be separated and analyzed separately.

4.5.3 Management of Multi-Phasic Waste

For multi-phasic waste, if any of the phases are TSCA regulated, all the phases are TSCA regulated. For a multi-phasic liquid/solid mixture, if the solids are ≥50 ppm PCB and the liquid is <50 ppm PCB, both are a TSCA regulated waste and must be managed and disposed as TSCA regulated waste, even though the liquid, once separated, is <50 ppm PCB. However, if on separation from the solid phase, a liquid phase meets the decontamination standards of 761.79 (e.g., water at ≤0.5 ppb), the liquid phase could be considered decontaminated and no longer subject to TSCA requirements.

For PCB remediation waste, decontamination waste, and analytical waste (i.e., waste not subject to anti-dilution), the phases could be (1) separated and disposed using the PCB disposal requirements that apply to each separated, single-phase or (2) left as a mixture and disposed using the PCB disposal requirements that apply to the individual phase with the highest PCB concentration [761.1(b)(4)(iv)]. Multi-phasic waste does not need to be separated for disposal provided that the disposal option is approved for all waste types in the mixture. (For example, liquids ≥50 ppm PCB cannot be disposed in a landfill and if incineration is chosen for the multi-phasic waste, the incinerator must be approved to dispose of liquid PCBs.)

For waste other than PCB remediation waste, decontamination waste, and analytical waste, the anti-dilution rule requires that all the phases be managed and disposed based on the highest concentration in any phase.

4.5.4 Management of Multi-Phasic Waste (Example Scenario)

Disposal options for a bi-phasic PCB remediation waste that is a sludge containing a mixture of 90 percent water at a concentration of 3 ppb PCBs, and 10 percent suspended non-dissolved organic solid at 60 ppm PCBs are as follows.

Disposal options for PCB remediation waste could follow the requirements in 761.61(a) *Self-implementing on-site cleanup and disposal of PCB remediation waste* or 761.61(b) *Performance-based disposal*. Note, if 761.61(a) is followed, all requirements of the section must be followed, including prior notification to the EPA. The disposal options approved for each phase of this example waste are described separately in the following.

Liquid phase: First, disposal of liquid PCB remediation waste (the water containing 3 ppb PCB) is the same under 761.61(b)(1). The water could be decontaminated [761.79(b)(1)]. Water containing less than 200 ppb (i.e., <200 μg/L PCBs) can be used in a non-contact application in a closed system where there are no releases; however, the organic solid could not be used in this closed system and would have to be separated. The water also can be disposed, following the requirements of 761.60(a), in an approved incinerator or high-efficiency boiler that has an approval to burn water, or the contaminated water can be disposed using a risk-based disposal option following §761.60(e) approvals.

Solid phase: Disposal of the organic solid containing 60 ppm PCBs, using the options of 761.61(a), are land disposal in a low occupancy area that is capped [(761.61(a)(4)(i)(3)]; land disposal in an approved TSCA chemical waste landfill; land disposal in a hazardous waste landfill permitted by the EPA under Section 3004 of RCRA, or by a state authorized under Section 3006 of RCRA [761.61(a)(5)(iii)]; soil washing in accordance with 761.61(a)(5)(i)(A); disposal by a 'non-thermal' technology at a facility approved under 761.60(e) (most of these technologies could not function or destroy PCBs in a waste containing 90 percent water); and disposal in a TSCA incinerator approved under 761.70 or alternate thermal destruction method approved under 761.60(e).

Disposal of the organic solid containing 60 ppm PCB, using the options of 761.61(b), are decontamination per 761.79, high temperature incinerator, risk-based approval under 761.60(e), chemical waste landfill, or a facility with a coordinated approval issued under 761.77.

Multi-phasic mixture: If the phases are not separated for disposal, this example waste only could be incinerated at an approved high temperature incinerator or disposed in a thermal alternate destruction technology approved under 761.60(e).

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5.0 POLYCHLORINATED BIPHENYL LIQUID WASTE MANAGEMENT

This chapter summarizes information related to management of liquid PCBs. Requirements for transfer of liquid PCB waste to DSTs are discussed.

On the Hanford Site and within the DOE Complex, there are a variety of management pathways for liquid waste (e.g., 200 Area ETF, DSTs, laboratory packed waste transferred to Central Waste Complex). Non-liquid waste on the Hanford Site is addressed in Section 6.0.

Section 5.1 addresses transfers of liquid waste containing PCBs to the DST System. Section 5.2 briefly discusses some limitations on liquid waste management.

5.1 POLYCHLORINATED BIPHENYL WASTE MANAGEMENT REQUIREMENTS FOR TRANSFER OF LIQUID WASTE TO DOUBLE-SHELL TANK SYSTEM

Some Hanford Site DSTs contain PCB remediation waste that the DOE and EPA, Region 10, have agreed is regulated under TSCA. This agreement was documented in the *Framework Agreement* (Ecology et al. 2000). PCB remediation waste is a new category of waste promulgated in the 1998 revision to the TSCA PCB Disposal Amendments (63 FR 35384, June 29, 1998). The applicability of TSCA to tank farm waste resulted in the application of new requirements and the necessity to manage and track PCBs in tank waste.

The following section is for determining the requirements for transferring liquid waste containing PCBs to the Hanford Site DST System. This information is not meant to be an exhaustive resource, but should be used as a tool to assist the user in achieving compliance with applicable requirements for transferring PCB liquid waste to the DST System. A listing of waste acceptance criteria documents for DSTs is included in Section 5.1.3.

This section describes the principal requirements for transferring liquid waste to the DST System. This guidance also describes waste acceptance criteria presently used in evaluating the acceptability of waste containing PCBs into the DST System. The main purpose behind transfer controls and PCB waste acceptance criteria are to ensure that the waste can be treated adequately in the Waste Treatment Plant (WTP).

This section covers requirements associated with liquid PCB waste generated from other than single-shell tanks (SSTs) and DSTs sent to the DST System. The DST System includes 28 underground tanks, the 204-AR Waste Unloading Station, catch tanks, double-contained receiver tanks, sumps, diversion boxes, and all associated piping.

5.1.1 Polychlorinated Biphenyl Waste Acceptance Criteria

The DST System PCB waste acceptance criteria are based on ensuring that PCB waste meets the WTP waste acceptance criteria and compliance with regulatory requirements. The acceptable PCB concentration in liquid waste is described in RPP-6623, *Management of the Polychlorinated Biphenyl Inventory in the Double-Shell Tank System.*

Any waste that originated from DSTs or SSTs and has not been mixed with other waste will be accepted back into the DST System. This includes sample residuals and analytical waste. [Inactive miscellaneous underground storage tank (IMUST) waste is not included.] If the DST or SST waste has been mixed with

non-DST and/or non-SST waste, waste acceptability is based on the characteristics of the waste that was mixed with the DST/SST waste. For Hanford Site laboratories (e.g., 219-S tank for 222-S Laboratory Complex), parent samples from DSTs or SSTs can be returned to the DST System without further TSCA regulatory considerations. Acceptance of parent samples, other than from DSTs and SSTs, must be evaluated separately.

According to DST System waste acceptance criteria (refer to Section 5.1.3), waste that contains PCBs entering the DST System from non-tank farm sources must be demonstrated not to be subject to TSCA, or meet the following requirements.

1. Waste must be classified as PCB remediation waste (as defined in 40 CFR 761.3), PCB analytical waste (as regulated under 761.64), or PCB R&D waste (as defined in 761.3). For unknown waste, Chapter 1.0, Section 1.3 is to be followed to determine TSCA status.

2. Waste to be accepted into the DST System must not exceed the PCB concentration specified in RPP-6623.

   - As of September 2001, a waste cannot exceed 450 ppm in the solids and 2.9 ppm in the liquids without prior approval from the DOE, Office of River Protection (DOE-ORP).

   - DST or SST waste (e.g., parent samples in a Hanford Site laboratory) can be returned to the DST System regardless of PCB concentration.

3. A waste transfer is not accepted into the DST System if the transfer would cause the receiving tank to exceed the PCB concentration for liquids specified in RPP-6623, unless DOE-ORP approval is obtained in advance of the transfer.

4. The waste is analyzed so that the total PCB concentration can be determined. The sum of Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260 can be used instead of a total PCB analysis (refer to Chapter 3.0, Section 3.2). If no Aroclors are detected, the total PCB concentration is considered to be the detection limit for the single most common Aroclor expected in the sample. The minimum detection limit for PCBs in liquids is 20 ppb or lower for each Aroclor.

5. If a waste contains $\geq$0.5% solids by weight, the waste is multi-phasic and each phase must be analyzed as described in Chapter 3.0, Section 3.2.2.

6. All samples are to be representative of the waste to be transferred.

7. A minimum of two separate samples is required unless samples are composited according to a plan approved by the tank farm contractor.

8. The analysis for PCBs is performed using approved EPA standard methods. For alternative analytical methods, refer to Chapter 3.0, Section 3.2.3.

9. PCB concentration is determined based on the time the material first becomes a waste to establish initial PCB concentration and corresponding disposal requirements. Dilution cannot be used to avoid treatment requirements. If dilution of PCBs subsequently occurs during accumulation of the waste for storage, the PCB concentration of the incoming waste transfer also is reported before transfer to the DST System to facilitate inventory controls. (For the Hanford Site laboratories, the as-found PCB concentration is the concentration determined in the main collection tank associated with the specific laboratory system.)

10. All other DST System waste acceptance criteria apply to the waste transfer.

5.1.2 Tank Farm Waste Compatibility

A waste compatibility assessment is performed for every transfer of waste into the DST System. The *Tank Farm Waste Transfer Compatibility Program* (HNF-SD-WM-OCD-015) serves as the control to ensure that only waste meeting the criteria specified is accepted into the DST System. This section does not address DST System acceptance criteria for constituents other than PCBs.

5.1.3 Double-Shell Tank Waste Acceptance Criteria Documents

The following documents specify DST waste acceptance criteria. The latest version of the following documents can be used in preparing transfer of waste to the DST System. These documents might not include all requirements and each transfer is evaluated separately.

- RPP-6623, *Management of the Polychlorinated Biphenyl Inventory in the DST System* (this document contains waste acceptance criteria for transfer of PCB waste to the DST System).
- HNF-SD-WM-OCD-015, *Tank Farm Waste Transfer Compatibility Program*.
- HNF-SD-WM-EV-053, *Double-Shell Tank Waste Analysis Plan*.
- HNF-SD-WM-DQO-001, *Data Quality Objectives for Tank Farms Waste compatibility Program*.

5.2 LIMITATIONS ON LIQUID WASTE MANAGEMENT

PCB waste cannot be diluted to avoid any provision in the TSCA regulations specifying a PCB concentration, unless specifically authorized in the regulations [761.1(b)(5)]. Liquid waste cannot be processed into a non-liquid form to circumvent high temperature incineration requirements [761.50(a)(2)]. Any person removing PCB liquids from use (e.g., not PCB remediation waste) must dispose of these liquids in accordance with 761.60(a) or decontaminate the liquids in accordance with 761.79 [761.50(b)(1)].

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FIGURE

Figure 6-1. Toxic Substances Control Act Personal Protective Equipment Polychlorinated Biphenyls Disposal Protocol. F6-1

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6.0 POLYCHLORINATED BIPHENYL NON-LIQUID WASTE MANAGEMENT

Non-liquid waste on the Hanford Site is addressed in this chapter. Liquid waste management on the Hanford site is addressed in Section 5.0. Requirements for management and disposal of personal protective equipment (PPE) and non-liquid cleaning materials are discussed.

6.1 PERSONAL PROTECTIVE EQUIPMENT AND NON-LIQUID CLEANING MATERIALS

The following section is for determining TSCA requirements for disposal of PPE and does not address or pre-empt other regulatory requirements. This section applies to PPE and non-liquid cleaning materials contaminated with PCBs at any concentration from activities associated with the following: cleanup of PCB remediation waste performed under 761.61; decontamination performed under 761.79; chemical analysis, as described in 761.64; and PPE generated from routine activities at PCB storage and disposal facilities (EPA 2001). This section also applies to non-liquid waste generated during chemical analysis [761.64(b)(2)]. This section does not apply to PPE or other cleanup debris and materials generated from spill cleanup under the Spill Cleanup Policy [(761.125(a)(2)] (DOE/EH-413-0003).

This section is to be used to classify disposal requirements for materials that are contaminated with PCBs subject to TSCA disposal. This section is not to be used for managing these materials destined for decontamination or reuse. Figure 6-1 provides a protocol flowchart.

6.1.1 Personal Protective Equipment and Non-Liquid Cleaning Materials as TSCA Regulated Waste or as Non-TSCA Regulated Waste

Discarded PPE and non-liquid cleaning materials generated while managing PCBs are inspected visually for discoloration and/or staining. If the material shows no visual signs of discoloration and/or staining, the PPE is not subject to TSCA requirements. If the material shows signs of discoloration and/or staining from contact with PCBs, the PPE is managed as PCB remediation waste in accordance with 761.61(a)(5)(v)(A). Storage and marking provisions apply only if the average PCB concentration in the specific material is greater than or equal to 50 ppm. Process knowledge can be used to determine PCB concentration.

6.1.2 Disposal Options

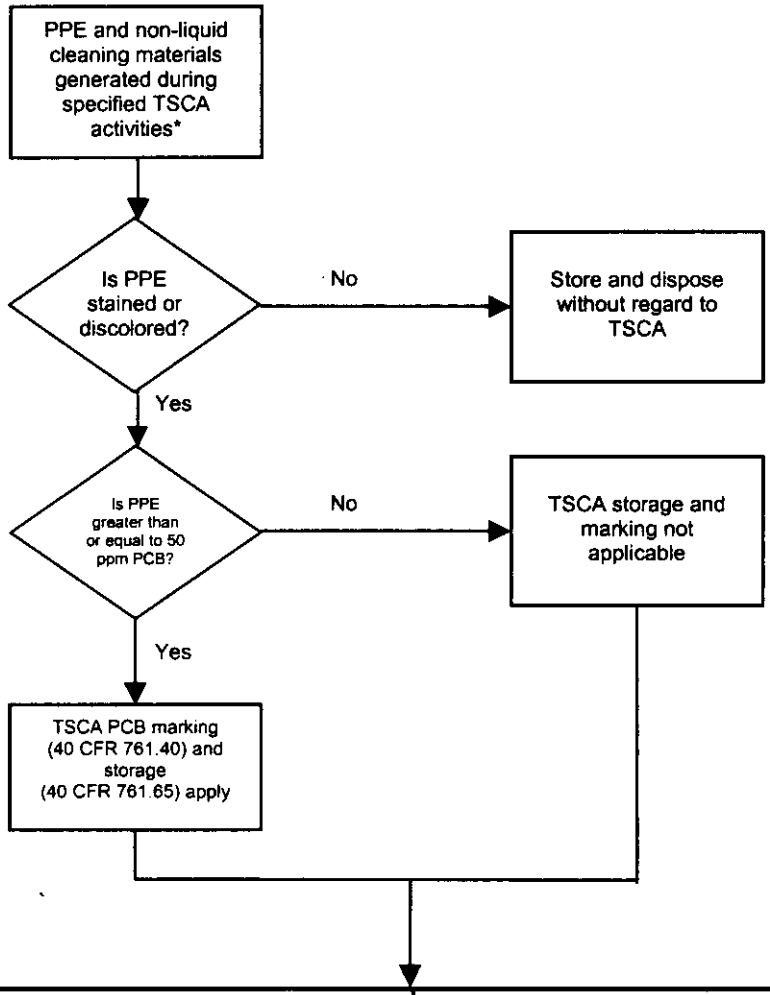
PPE and non-liquid cleaning materials from the specified sources can be disposed in any one of the following facilities (Figure 6-1):

- A permitted RCRA Subtitle D offsite nonhazardous, nonradioactive solid waste landfill
- If PCB/radioactive waste, onsite in the Hanford Site Low-Level Burial Grounds (LLBG)
- A RCRA Subtitle C offsite nonradioactive hazardous waste landfill
- If PCB/mixed waste, the onsite LLBG mixed waste trenches

- A TSCA approved PCB disposal facility (for offsite disposal options, contact your waste management representative)

- CERCLA waste can be disposed at the Environmental Restoration Disposal Facility (ERDF).

6.2 RESERVED FOR POLYCHLORINATED BIPHENYL ITEMS



PPE Regulatory Classification	Hanford Disposal Options
PCB/Non-RCRA/Nonradioactive	Offsite RCRA Solid Waste (Subtitle D) or Hazardous Waste (Subtitle C) Landfill or offsite TSCA approved PCB disposal facility
PCB/Non-RCRA/Radioactive	Hanford Site Low-Level Burial Grounds
PCB/RCRA/Nonradioactive	Offsite RCRA Hazardous Waste Landfill (Subtitle C)
PCB/RCRA/Radioactive	Low-Level Burial Grounds mixed waste trenches
PCB/CERCLA	ERDF (accepts radioactive and nonradioactive).

CFR = Code of Federal Regulations
CERCLA = *Comprehensive Environmental Response, Compensation, and Liability Act*
ERDF = Environmental Restoration Disposal Facility
PCB = polychlorinated biphenyl
PPE = personal protective equipment
ppm = parts per million
RCRA = *Resource Conservation and Recovery Act of 1976*
TSCA = *Toxic Substances Control Act of 1976*

* Specified activities are PCB remediation waste cleanup, chemical analyses, and decontamination. Does not apply to PPE generated during 40 CFR 761, Subpart G (Spill Cleanup Policy) activities. Applies to laboratory generated non-liquid waste from analysis (e.g., pipets) 40 CFR 761.64(b).

Figure 6-1. Toxic Substances Control Act Personal Protective Equipment Polychlorinated Biphenyls Disposal Protocol.

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FIGURE

Figure 7-1. Polychlorinated Biphenyl Spill Cleanup Policy Flowchart F7-1

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7.0 CLEANUP AND DECONTAMINATION

This chapter discusses cleanup and decontamination methods for removal of TSCA-regulated PCBs from materials. Materials on which PCBs (≥50 ppm) recently have spilled could be cleaned using the PCB Spill Cleanup Policy. Other specified materials contaminated with ≥50 ppm PCB could be decontaminated and reused, distributed in commerce, or disposed as unregulated under TSCA.

Spills and contaminated materials can be cleaned in a variety of ways. This chapter identifies which materials can be cleaned or decontaminated and summarizes the requirements for these activities. This section does not address or pre-empt other regulatory requirements. This section does not include decontamination of laboratory equipment, which is discussed in Section 11.0 of this guide.

7.1 POLYCHLORINATED BIPHENYLS SPILL CLEANUP POLICY (40 CFR SUBPART G)

As stated in 52 FR 10688, April 2, 1987, the EPA broadly "defines the term 'disposal' to encompass accidental as well as intentional releases of PCBs to the environment. Under these regulations, the EPA considers intentional, as well as unintentional spills, leaks, and other uncontrolled discharges of PCBs at the concentrations of 50 ppm or greater (defined by the concentration of PCBs in the material that spills) to be improper disposal of PCBs". When PCBs are disposed improperly as a result of a spill, the EPA has the authority to compel persons to take actions to rectify damage or clean up contamination resulting from the spill.

The Spill Cleanup Policy is found in 40 CFR 761, Subpart G. The Spill Cleanup Policy is an EPA policy statement that provides a set of standards that, if followed precisely, creates a presumption against enforcement action or further cleanup under TSCA. Only for spills of PCBs being stored in accordance with 761.65(b)(2) (i.e., in a RCRA permitted storage area in lieu of a TSCA storage for disposal area) is one required to follow the Spill Cleanup Policy for spills of PCB material. *Otherwise, the Spill Cleanup Policy is not a regulatory requirement.*

The Spill Cleanup Policy only applies to spills of a material that are 50 ppm PCB or greater before the spill or less than 50 ppm due to dilution before the spill to which anti-dilution applies. (The Spill Cleanup Policy need not be applied to PCB remediation waste and PCB analytical waste with 'as-found' concentrations of less than 50 ppm.) There are no specific TSCA cleanup requirements for spills from a source less than 50 ppm PCB. However, appropriate disposal requirements apply. Spills of material containing less than 50 ppm PCB could follow the Spill Cleanup Policy or other actions or procedures determined by the individual units to provide adequate spill cleanup.

The Spill Cleanup Policy only can be applied to recent spills. For low concentration spills, cleanup must be *completed* within 48 hours of spill discovery; for high concentration spills, cleanup must be *initiated* within 24 hours of spill discovery. (The EPA did not specify a completion time because of case-by-case variables of high concentration spill cleanups); and for spills to concrete, cleanup must be *completed* within 72 hours from *spill occurrence.* All spills that cannot be cleaned within these timeframes should be treated as PCB remediation waste. (Also refer to Section 7.3, "Cleanup and Use Options for Concrete with PCB Contamination Greater than 72 Hours".)

The Spill Cleanup Policy does not apply to spills to surface waters, drinking waters, or sewers. These spills are subject to immediate notification requirements and measures to minimize further environmental contamination.

This section provides information on how and when to apply the Spill Cleanup Policy activities to spills of PCB containing materials.

7.1.1 Requirements Summary (761.125)

For spills of TSCA regulated PCBs, the following activities are required to ensure further cleanup will not be required by TSCA:

1. Report the spill as required

2. Determine spill boundary

3. Determine spill category (low concentration or high concentration, defined in Section 7.1.4)

4. Cleanup the spill according to spill category:
   - Low concentration spill
   - Greater than 1 pound of low-concentration spill or high concentration spill

5. Certify cleanup and maintain records

6. Manage all cleanup debris and materials as TSCA regulated PCB waste and at the concentration of the original spilled material.

The spill cleanup activities and requirements are summarized in Figure 7-1.

7.1.2 Spill Reporting [761.125(a)(1)]

All reporting of spills of TSCA regulated PCBs should be handled through the appropriate company channels or organizations. The following activities are required per the TSCA regulations:

- Report spills of greater than 1 pound (pure) PCBs to the National Response Center (800-424-8802) within 24 hours

- Report spills of greater than 10 pounds (pure) PCBs to the EPA regional office and the National Response Center (800-424-8802) within 24 hours.

7.1.3 Spill Boundary [761.125(a)(3)]

The spill boundary can be determined by visual examination. If there are insufficient visible traces, the boundary is to be determined using a statistically based sampling scheme.

7.1.4 Spill Category [761.125(b) and (c)]

To determine the PCB spill cleanup categories, first determine the PCB category as follows.

1. Low concentration PCBs means PCBs that are tested and found to contain less than 500 ppm PCBs, or those PCB-containing materials that the EPA requires to be assumed to be at concentrations below 500 ppm (i.e., untested MODEF).

2. High concentration PCBs mean PCBs that contain 500 ppm or greater PCBs, or those materials that the EPA requires to be assumed to contain 500 ppm or greater PCBs in the absence of testing [e.g., untested nonliquid PCB waste per 40 CFR 761.50(a)(4).].

Determine PCB Spill Cleanup category as follows.

1. Low concentration spill means spills of <1 pound of low concentration PCBs or less than 270 gallons of untested mineral oil.

2. High concentration spill means 1 pound of low concentration PCBs, or any amount of high concentration PCBs, or ≥270 gallons of untested mineral oil.

7.1.5 Spill Cleanup

Low concentration spill cleanup can be completed without sampling and analysis, based on visual observations (refer to Section 7.1.5.1). However for high concentration spills, cleanup must be verified by sampling and analyses (refer to Section 7.1.5.2).

7.1.5.1 Cleanup of Low Concentrations Spills [761.125(b)]

Cleanup activities are to be completed within 48 hours after discovery of the spill. Cleanup might be delayed beyond 48 hours in certain specific cases (bad weather, emergencies, etc). Weekend and overtime costs are not acceptable reasons to delay cleanup [(761.125(b)(1)(iii) and 761.125(c)]. For the PCB Spill Cleanup Policy to be applied to spills to concrete, the concrete must be cleaned within 72 hours from the actual time of the spill.

If the spill is located on a solid surface, remove any standing free liquid or solid material. Wash and rinse contaminated surface and a 1-foot buffer around the spill area two times with a solvent or other material in which PCBs are at least 5% soluble by weight. Contain run-off from the double wash and rinse.

- A volume of PCB-free fluid sufficient to cover the contaminated surface completely must be used in each wash/rinse. The wash/rinse requirement does not mean the mere spreading of solvent or other fluid over the surface, nor does the requirement mean a once-over wipe with a soaked cloth. Precautions must be taken to contain any run-off resulting from the cleansing and to dispose properly of waste generated during the cleansing (761.123).

- The solvent could be any liquid cleaner and/or detergent that meets the PCB 5% solubility requirement. Kerosene is an example, but the PCB Spill Cleanup Policy is not restrictive of appropriate solvents.

If the spill is to soil, remove all soil contaminated with visual traces of the spill, including a buffer of 1 lateral foot around the visual traces. Restore the ground by backfilling with clean soil (containing <1 ppm PCBs). The clean soil need not be tested for PCB concentration.

Post-cleanup sampling: No sampling is required for low concentration spills.

7.1.5.2 Cleanup of High Concentrations Spills [761.125(c)]

Cleanup activities must initiated within 24 hours after the discovery of the spill (or 48 hours for a PCB transformer). Cleanup activities are expected to be site-specific and therefore there is not a specified time limit on completing the cleanup activities; however, cleanup must be completed promptly. Cleanup might be delayed in certain specific cases (bad weather, emergencies, etc). Weekend and overtime costs are not acceptable reasons to delay cleanup [(761.125(b)(1)(iii) and 761.125(c)]. Concrete must be cleaned within 72 hours from the actual time of the spill.

Restrict the spill area and a 3-foot buffer. Post signs to mark area for restricted access.

For high concentration spills, cleanup activities and cleanup levels are based on accessibility of the area.

Determine the type of area in which the spill has occurred.

1. Restricted access area means areas that are at least 0.06 mile from a residential/commercial area and have limited access because of physical-made barriers (e.g., fences and walls) or substantially limited access due to naturally occurring barriers such as mountains, cliffs, or rough terrain. These areas generally include industrial facilities and extremely remote rural locations.

2. Nonrestricted access area means any area other than restricted access, outdoor electrical substations, and other restricted access locations. These include residential/commercial areas, unrestricted access rural areas (areas of low density development and population where access is uncontrolled by either physical-made barriers or naturally occurring barriers).

Future land use should be considered in determining the type of area in which the spill has occurred. The more stringent 'nonrestricted access' requirements have to be met should a 'restricted access' area be changed to a 'nonrestricted access'.

Cleanup of High Concentration Spills in a Restricted Access Area

For cleanup, use any method that provides the following:

- Clean low-contact indoor impervious and high contact solid surfaces to 10 $\mu g/100\ cm^2$,
  - or, as an alternate option for low-contact indoor, nonpervious solid surfaces to 100 $\mu g/100\ cm^2$ and encapsulate
- Clean low-contact outdoor solid surfaces to 100 $\mu g/100\ cm^2$
- Clean solid surfaces at outdoor electrical substations to 10 $\mu g/100\ cm^2$
- Clean soil to 25 ppm PCBs by weight
  - or, as an alternate option for soil at outdoor electrical substations, to 50 ppm PCBs by weight provided that a label or notice is visibly placed in the area.

Verify cleanup by post-cleanup sampling (described in the following).

Cleanup of High Concentration Spills in a Nonrestricted Access Area

For cleanup, use any method that provides the following:

- Clean indoor solid surfaces, and high-contact outdoor and low-contact outdoor impervious solid surfaces to 100 $\mu g/100\ cm^2$

- Clean low-contact outdoor nonpervious solid surfaces to either 10 μg/100 cm^2, or to 100 μg/100 cm^2 and encapsulate

- Remove soil to meet one of the following (reference EPA Q&A Manual 1994 edition, page XIV-15) (EPA 1994):
  - at any depth less than 10 inches, to non-detect (<1 ppm PCB) or
  - at least 10 inches of soil and remove additional soil as necessary to reach ≤10 ppm PCB.

  (In other words, the 10 ppm cleanup level does not kick in until 10 inches have been excavated. Before that, meet the <1 ppm requirement).

- Replace with clean soil.

Verify cleanup by post-cleanup sampling (described in the following) (per 761.130).

Post-cleanup sampling verification:

Post-cleanup sampling verification is required for cleanup of *high concentration spills only*. Low concentration spills do not require sampling.

For solid surfaces, use the following standard wipe test.

A standard-size template (10 cm x 10 cm) is used to delineate the area of cleanup; the wiping medium is a gauze pad or glass wool of known size that has been saturated with hexane. The wipe must be performed very quickly after the hexane is exposed to air. [It is recommended that the gauze (or glass wool) be prepared with hexane in the laboratory and that the wiping medium be stored in sealed glass vials until used for the wipe test.] The collection and testing of field blanks and replicates are required.

Use any statistically valid, reproducible, sample schedule (either random or grid samples) as follows.

- The sample area must be the greater of either the spill area plus an additional 1-foot or the spill area plus an additional 20 percent of the original area.

- Sampling must ensure a 95 percent probability against false positives.

- Minimum number of samples is three; maximum number of samples is 40. Samples must be sufficient to ensure that areas of contamination of 2-foot radius are detected.

- Sampling scheme must include calculation for expected variability due to analytical error.

7.1.6 Certification and Recordkeeping [761.125(b)(3) and (c)(5)]

The following identifies the certification and recordkeeping requirements.

Certify cleanup.

Place certification statement in unit records and maintain for 5 years. The certification statement must be signed by the responsible party (owner or designated agent), state that the cleanup requirements have been met, and that the information contained in the record is true to the best of his/her knowledge.

Recordkeeping

Maintain the following records for 5 years:

- Identification of the source of the spill (e.g., type of equipment)
- Estimated or actual date and time of the spill occurrence
- The date and time cleanup completed or terminated (if cleanup was delayed by emergency or adverse weather: the nature and duration of the delay)
- A brief description of the spill location
- Precleanup sampling data used to establish the spill boundaries if required because of insufficient visible traces and a brief description of the sampling methodology used to establish the spill boundaries
- A brief description of the solid surfaces cleaned and of the double wash/rinse method used
- Approximate depth of soil excavation and the amount of soil removed.

For high concentration spills only, maintain the previous records and the following:

- Postcleanup verification sampling data and, if not otherwise apparent from the documentation, a brief description of the sampling methodology and analytical technique used.

7.1.7 Cleanup Debris and Materials

All cleanup materials (e.g., PPE, rinsates) used in activities under the PCB Spill Cleanup Policy are subject to the anti-dilution provisions of 761.1, and must be managed and disposed in accordance with 761, Subpart D (DOE/EH-413-0003).

7.2 DECONTAMINATION STANDARDS AND PROCEDURES (761.79)

This section applies to decontamination standards and procedures for removal of TSCA regulated PCBs from water, organic liquids, non-porous surfaces, concrete, and non-porous surfaces covered with a porous surface, such as paint or coating on metal. This section does not address or pre-empt other regulatory requirements. This section does not include decontamination of laboratory equipment, which is discussed in Section 11.0.

Materials from which PCBs have been removed according to this section could be distributed in commerce, used, or reused, and are unregulated for disposal (with the exception of the decontamination waste and residuals). Decontamination waste and residues are regulated under 761.79(g). Materials that already meet the decontamination standards listed in this section can be used without applying the decontamination requirements. These materials are authorized for use under 761.30(u) and for distribution in commerce under 761.20(c)(5)(ii) without further decontamination.

There are three methods for decontaminating materials under TSCA: (1) certain materials can be decontaminated by meeting specified performance standards with required confirmatory sampling;

(2) certain materials can be decontaminated by following a specific procedure, with no confirmatory sampling required; and (3) any other method can be used with approval from the EPA.

7.2.1 Decontamination by Meeting Performance Standards [761.79(b)]

Certain materials can be decontaminated by meeting a specified performance standard. These materials only include: liquids, concrete (only if decontamination commences within 72 hours of the spill), and non-porous surfaces. These methods can *not* be applied to painted concrete.

Acceptable decontamination methods for liquids, concrete, or non-porous surfaces include the following:

- Chopping (including wire chopping)
- Distilling
- Filtering
- Oil/water separation
- Spraying
- Soaking
- Wiping
- Stripping of insulation
- Scraping
- Scarification
- Use of abrasives or solvents.

Use of these decontamination methods for these materials does not require additional EPA approval under TSCA. Use of processes not included in the list requires a TSCA approval.

When using these decontamination methods, the following standards must be met:

Water: - For unrestricted use $\leq$0.5 µg/L (approximately $\leq$0.5 ppb) PCBs

- To treatment works, navigable waters, or *Clean Water Act* (CWA) permitted facility <3 µg/L (approximately <3 ppb) PCB or permit limit (Note: The 200 Area ETF does not qualify as CWA permitted)

- For use in a non-contact, closed system with no releases (e.g., a closed loop cooling system) <200 µg/L (i.e., <200 ppb) PCB.

Organic liquid and non-aqueous inorganic liquids: < 2 ppm PCBs.

Non-porous surfaces previously in contact with *liquid* PCBs, at any concentration, and where no free-flowing liquids currently are present (to be verified by a standard wipe test):

- For unrestricted use - $\leq$ 10 µg/100 cm^2
- For disposal in a smelter - <100 µg/100 cm^2.

Non-porous surfaces previously in contact with *non-liquid* PCBs, including non-porous surfaces covered with a porous surface, such as paint or coating on metal (to be verified by visual inspection of all cleaned areas):

- For unrestricted use - NACE* Visual Standard No. 2
- For disposal in a smelter - NACE Visual Standard No. 3.

While the NACE standards include a procedure for blast cleaning, this procedure is not required for TSCA decontamination. Any of the methods listed for decontamination could be used to meet the visual standards described in the NACE.

Concrete: $\leq$10 µg/100 cm^2 (to be verified by a standard wipe test) if decontamination begins within 72 hours of the initial spill of PCBs to the surface.

7.2.2 Self-Implementing Decontamination Procedures [761.79(c)]

To use a self-implementing decontamination procedure, the entire procedure must be followed as described in the following. Self-implementing decontamination procedures can be used for PCB containers, movable equipment, non-porous surfaces in contact with free-flowing MODEF, air compression systems, and metal surfaces. These procedures can *not* be applied to non-porous surfaces in contact with PCBs other than MODEF.

The procedures are as follows.

PCB Container: Flush internal surfaces three times with a solvent containing <50 ppm PCBs; solvent must have a PCB solubility of 5% or more by weight; each flush uses a volume of solvent equal to ~10 percent of the container capacity. Other than the PCB solubility requirement, there are no restrictions on the type of solvent to be used.

The outside of containers, if contaminated by contact with PCBs, can be decontaminated as described as follows for movable equipment.

Movable Equipment, Tools, and Sampling Equipment:

- Swab surfaces that have contacted PCBs with a solvent
- Double wash/rinse (per 40 CFR 761 Subpart S) or
- Another applicable decontamination procedure described in this section.

Non-porous Surface in Contact with Free-flowing MODEF at Levels $\leq$10,000 ppm PCBs: Drain the MODEF, allow residual surfaces to drain for an additional 15 hours, and dispose of MODEF as identified in "Decontamination Waste and Residue" in this section. Soak the surfaces in clean (<2 ppm PCBs) PODF*, minimum 800 mL performance-based organic decontamination fluid (PODF) for each 100 cm^2 of potentially contaminated surface for at least 15 hours at $\geq$20° C. Drain PODF and dispose as identified in Section 7.2.5.

EPA approved PODFs include: kerosene, diesel fuel, terpene hydrocarbons, or mixtures of terpene hydrocarbons and terpene alcohols. The EPA also approved the use of mineral oil and hexane as PODFs without further verification in the EPA Q &A's (EPA 2001). Note that PODFs can be used for PCB container decontamination but are not required. Any solvent can be used to decontaminate a PCB container as long as the PCB solubility of the solvent is 5 percent or more by weight.

* NACE = National Association of Corrosion Engineers.

Non-porous Surface in Contact with Free-flowing MODEF or askarel PCB at Levels >10,000 ppm PCBs: Follow previous steps for <10,000 ppm PCBs. Re-soak surfaces, using clean PODF, for another 15 hours at ≥20 °C, as previous stated. Drain the PODF and dispose as identified in Section 7.2.5.

Piping and Air Lines in an Air Compressor System:

- Disconnect or bypass air compressors or air dryers from the piping and air lines. Decontaminate separately as appropriate. Filter media and desiccant should be disposed based on existing (as found) PCB concentration.

- Test system for leakage by introducing air into closed system from 90 to 100 pounds per square inch (psi). Proceed if pressure drop is less than 5 psi in 30 minutes.

- Fill piping and air lines with clean (<2 ppm PCBs) solvent. Solvents include PODF, aqueous potassium hydroxide at a pH between 9 and 12, or water containing 5 percent NaOH by weight.

- Circulate the solvent to achieve turbulent air flow (Reynolds number from 20,000 to 43,000.) Total volume of solvent should equal 10 times the total volume of the particular article being decontaminated. Drain and dispose of solvent as identified in Section 7.2.5.

- Repeat the last step with clean solvent.

7.2.3 Decontamination Solvents [761.79(d)]

The solubility of PCBs in any solvent used for decontamination must be 5 percent or more by weight. The solvent can be reused for decontamination as long as the PCB concentration is <50 ppm. As long as the solvent is <50 ppm PCB, there are no storage TSCA requirements on the solvent. It is not necessary to test the solvent to prove that the solvent is <50 ppm PCB; process knowledge can be used. All residual solvents from decontamination activities must be disposed as identified in Section 7.2.5.

Only in the cases of decontaminating a porous surface in contact with MODEF is it necessary to use the specified PODFs or to validate the suitability of the solvent using the steps found in 40 CFR 761, Subpart T. For other decontamination activities (that require that the solvent be ≥5 weight % soluble for PCBs), the validation procedure in Subpart T is not required. PCB solubility information can be found in reference books and from the vendor.

If a decontamination solution is spilled, the solution should be cleaned up using the PCB Spill Cleanup Policy or cleansed as PCB remediation waste.

7.2.4 Sampling and Recordkeeping [761.79(f)]

For decontamination of water, organic liquids, and non-aqueous inorganic liquids to the standards identified at the beginning of this section, confirmatory sampling per 761.269 and .272 are required. This sampling and analysis require the liquid be determined to be liquid, multi-phasic (liquid:liquid), and multi-phasic (liquid:solid). Analyses must be performed on each phase separately, using SW-846 Methods 3500B/3540C or 3500B/3550B and Method 8082. These are standard analysis methods on the Hanford Site (Chapter 3.0, Section 3.2).

For non-porous surfaces and concrete, the confirmatory sampling protocol is identified in 40 CFR 761, Subpart P. Subpart P describes requirements for collecting the sample using a standard wipe test and

describes determining sampling methods and sampling locations. Every square meter of the surface must be sampled. Analyses must be performed using SW-846 Methods 3500B/3540C or 3500B/3550B and Method 8082, which is standard on the Hanford Site (Chapter 3.0, Section 3.2).

A written record of all confirmatory sampling and analysis activities must be maintained for 3 years. Confirmatory sampling is not required for self-implementing decontamination. However, if using these procedures, a written record documenting compliance with the procedures must be maintained for 3 years and could include video or pictures.

Refer to Chapter 3.0, Section 3.1, for more information concerning confirmatory sampling following decontamination.

Recordkeeping is required for all waste generated by a decontamination process and regulated for disposal (Chapter 9.0, Section 9.1.10). A 3-year retention period is required.

7.2.5 Decontamination Waste and Residue [761.79(g)]

Decontamination waste and residue are disposed at the existing PCB concentration except for the following.

- Distillation bottoms or residues and filter media - regulated for disposal as PCB remediation waste, which allows for management and disposal at the as-found, existing PCB concentration.
- PCBs physically separated (chopping, scraping, oil/water separation rather than rinsing or soaking) are regulated for disposal at their original concentrations.
- Hydrocarbon solvent used or reused for decontamination, at <50 ppm PCB, is burned and marketed per the used oil requirements [761.20(e)], disposed in an incinerator, or via an EPA approved alternative method or decontaminated.
- Chlorinated solvent at any PCB concentration used for decontamination is disposed in an incinerator, or decontaminated per this section.
- Solvents >50 ppm, other than those described previously, are disposed in an incinerator or decontaminated per this section.
- Non-liquid cleaning materials, decontamination materials, and PPE, at any concentration, are disposed in a municipal solid waste landfill, a non-municipal, non-hazardous waste landfill, a RCRA Subtitle C that accepts PCB waste, or a PCB disposal facility.

7.2.6 Alternative Decontamination [761.79(h)]

Any person wishing to decontaminate: (1) the above materials in a manner other than as prescribed, (2) porous surfaces other than concrete, or (3) non-porous surfaces covered with a porous surface, such as paint or coating on metal, must obtain alternative decontamination approval through the EPA, Region 10. The decontamination activity cannot proceed until written approval is received, per 761.79 (h).

7.3 CLEANUP AND USE OPTIONS FOR CONCRETE WITH PCB CONTAMINATION GREATER THAN 72 HOURS

For spills at ≥50 ppm PCB, the PCB Spill Cleanup Policy can be used to cleanup the spills only if employed within 72 hours of the actual spill. After 72 hours, it is assumed that the PCBs on the concrete have penetrated the porous surface, thereby making the PCB Spill Cleanup Policy activities ineffective.

There remain three options for managing a porous surface (e.g., concrete) contaminated by the PCB spill: one for continued use of the contaminated area and two for cleanup and disposal of the material. A summary of the regulatory requirements for each option is provided. It is recommended to review the referenced regulations to determine specific requirements before implementing cleanup activities.

7.3.1 Continued use of Concrete after a Spill of PCBs [761.30(p)]

To continue to use a porous surface (e.g., concrete) contaminated by 50 ppm or greater PCB, the regulations require that the source of the PCB contamination be removed or contained. All accessible areas must be cleaned using a double wash/rinse (40 CFR 761, Subpart S). The double wash/rinse method involves wiping or mopping the surface area with an approved solvent until no liquid is visible. The specifics of the double wash/rinse method vary depending on the apparent cleanliness of the exterior surface. The area is covered with two solvent resistant/water repellent coatings of contrasting colors (to allow for a visual indication of wear) or a solid barrier fastened to the surface and covering the contaminated area or all accessible parts of the contaminated area. The area must be marked with a TSCA M_L mark, and when eventually removed, disposed following the TSCA disposal requirements found at 761.61 or 761.79.

These regulations are written specific to liquid PCB waste contamination, but can be used if the PCBs were in a solid form or matrix as the liquid PCB cleanup requirements should be more restrictive.

7.3.2 Cleanup and Disposal of Concrete as PCB Remediation Waste [761.61(a)]

The contaminated porous surface (concrete) can be disposed as PCB remediation waste following requirements in 761.61(a). This option involves notifying the EPA and providing a cleanup plan and certification statement; requirements for the cleanup plan are specified in the regulations. The certification must include the location of all related records and note that all records are available for EPA inspection. The EPA has 30 days to disapprove the application or request additional information or the application is considered complete and acceptable.

The cleanup level varies depending on the occupancy of the area. For a high occupancy area, cleanup to less than or equal to 1 ppm PCB is required; for a low occupancy area, cleanup is to less than or equal to 25 ppm. (If area use changes in the future, this might need to be re-evaluated.) The removed porous surfaces are disposed as bulk PCB remediation waste. Cleanup waste is disposed as PCB remediation waste per requirements in 761.61(a)(5)(v). Post-cleanup sampling and analyses should be performed according to requirements of 40 CFR 761, Subpart O.

Additional requirement for caps (if necessary), deed restrictions, and recordkeeping might be required.

7.3.3 Risk-Based Cleanup and Disposal Approval [761.61(c)]

To determine another acceptable option for cleaning and/or removing and disposing of the contaminated surface, apply in writing to the EPA. The method must not pose an unreasonable risk of injury to health or the environment. The EPA issues a written decision on the application.

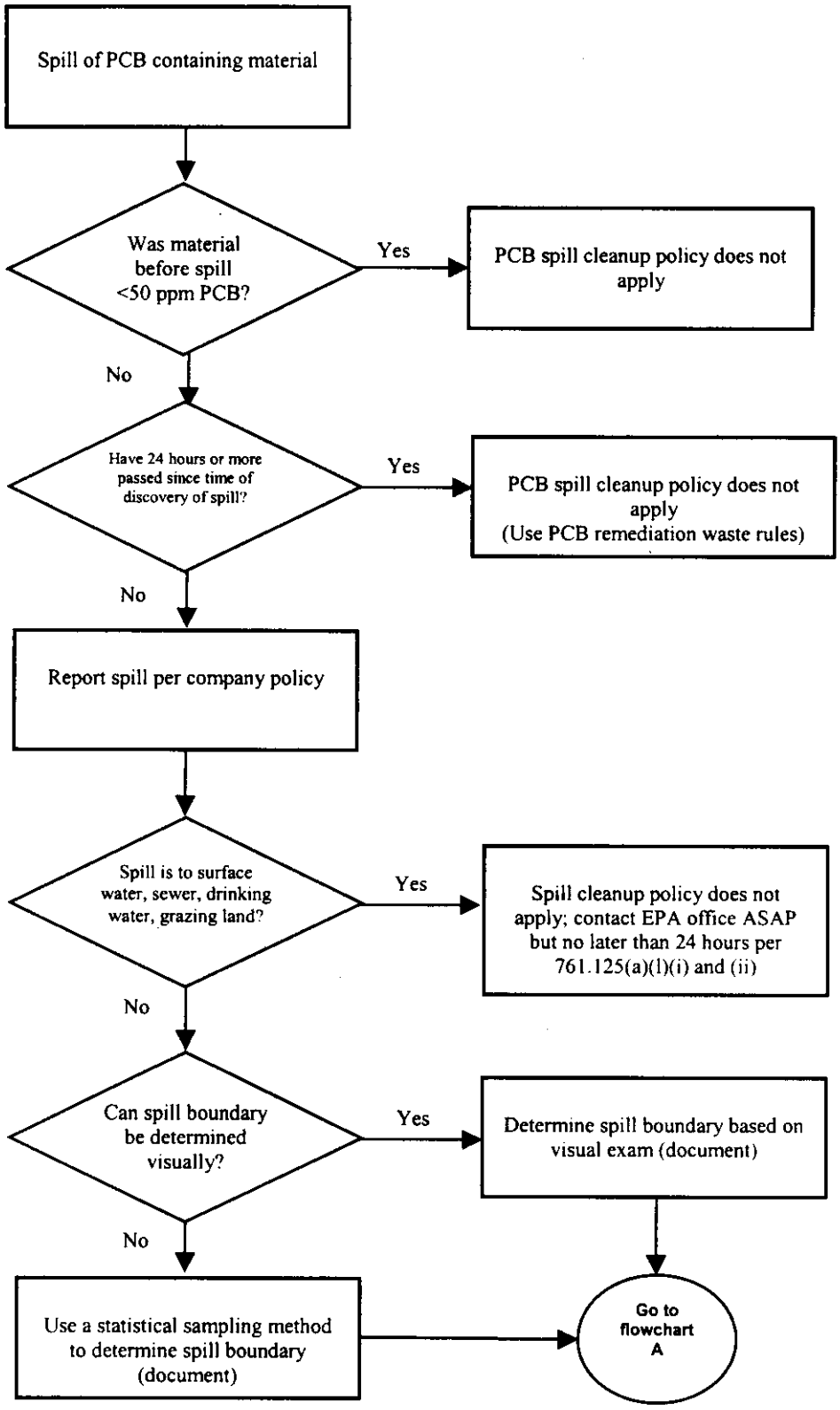


Figure 7-1. Polychlorinated Biphenyl Spill Cleanup Policy Flowchart (1 of 5).

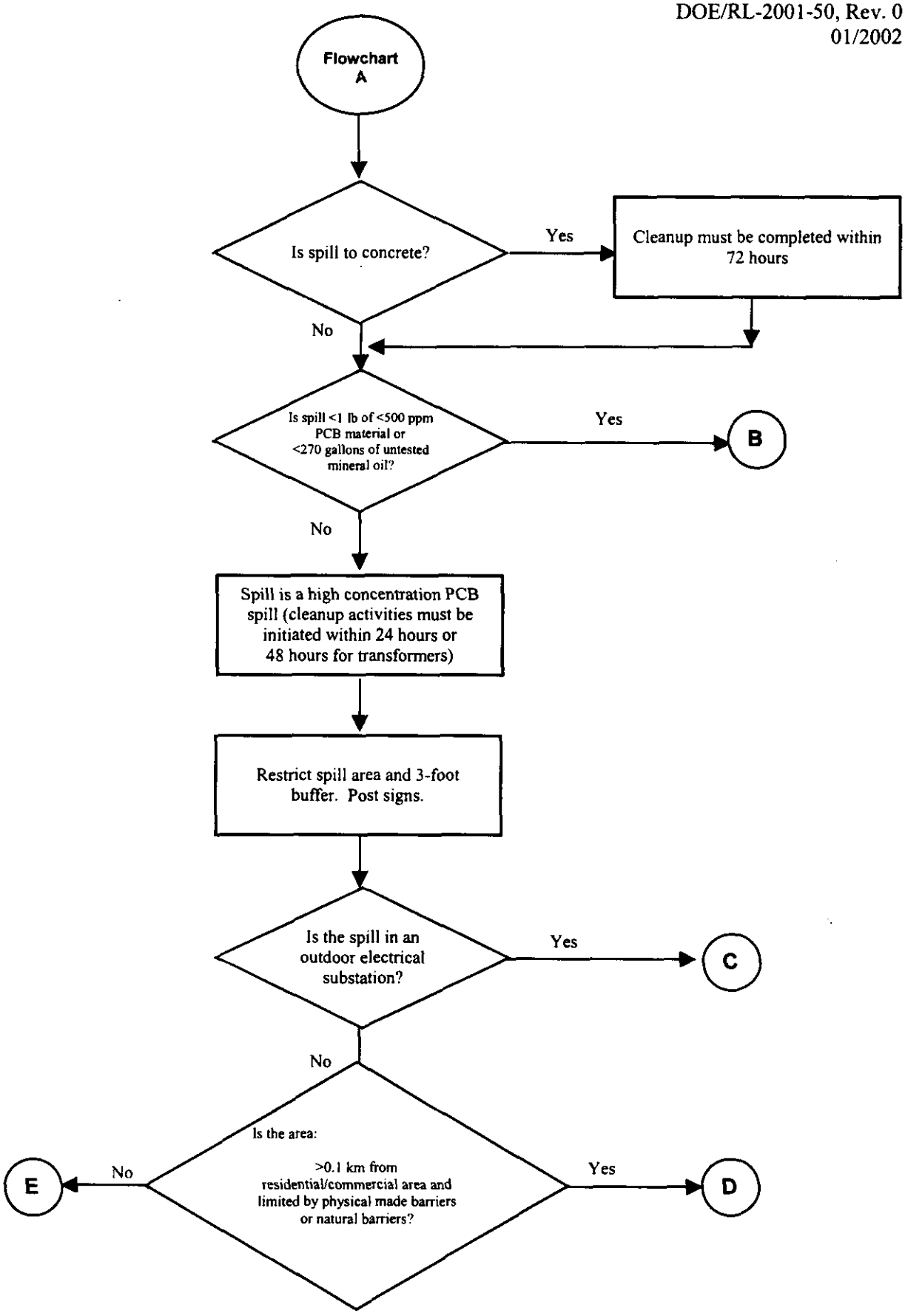


Figure 7-1. Polychlorinated Biphenyl Spill Cleanup Policy Flowchart (2 of 5).

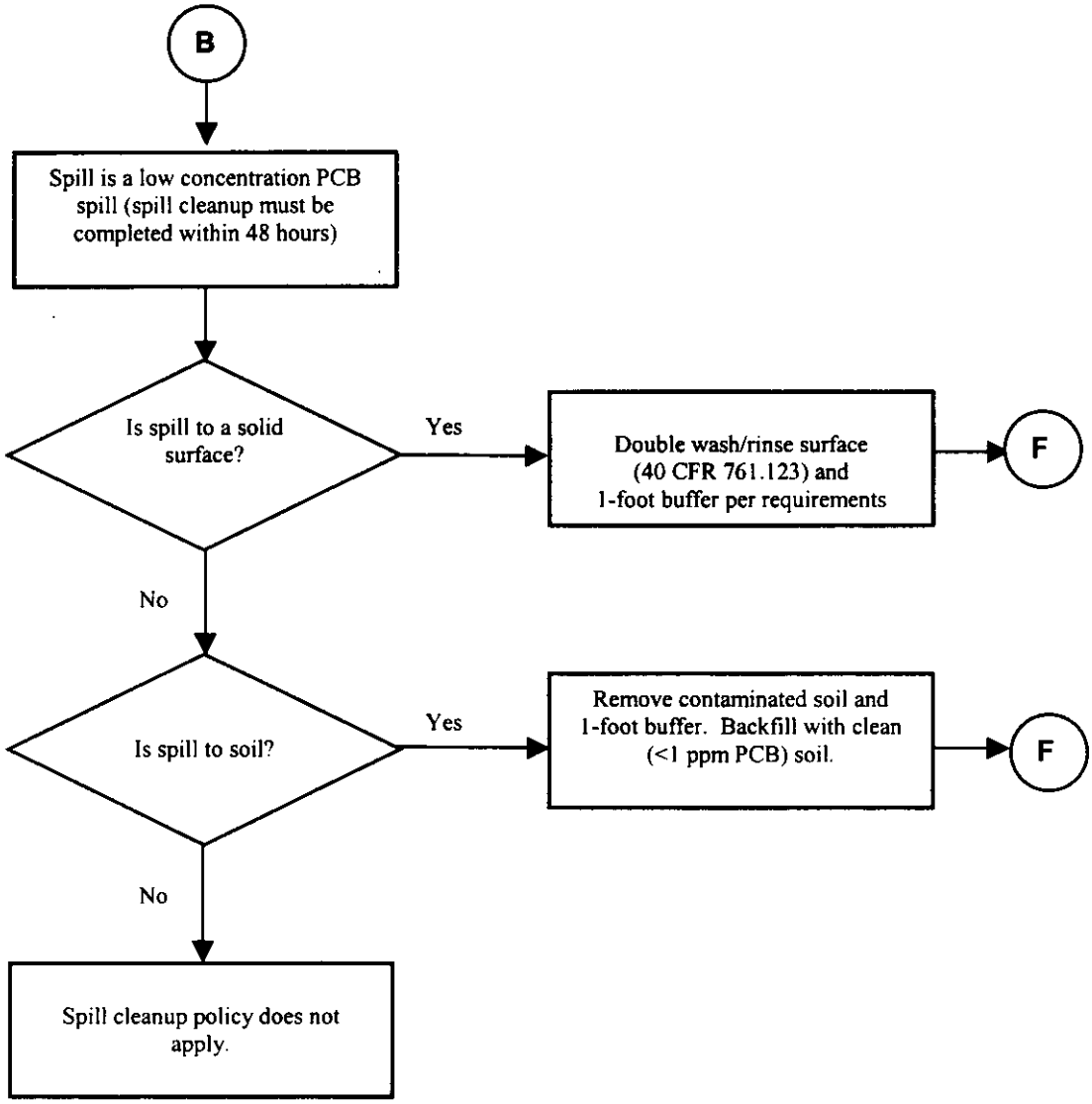


Figure 7-1. Polychlorinated Biphenyl Spill Cleanup Policy Flowchart (3 of 5).

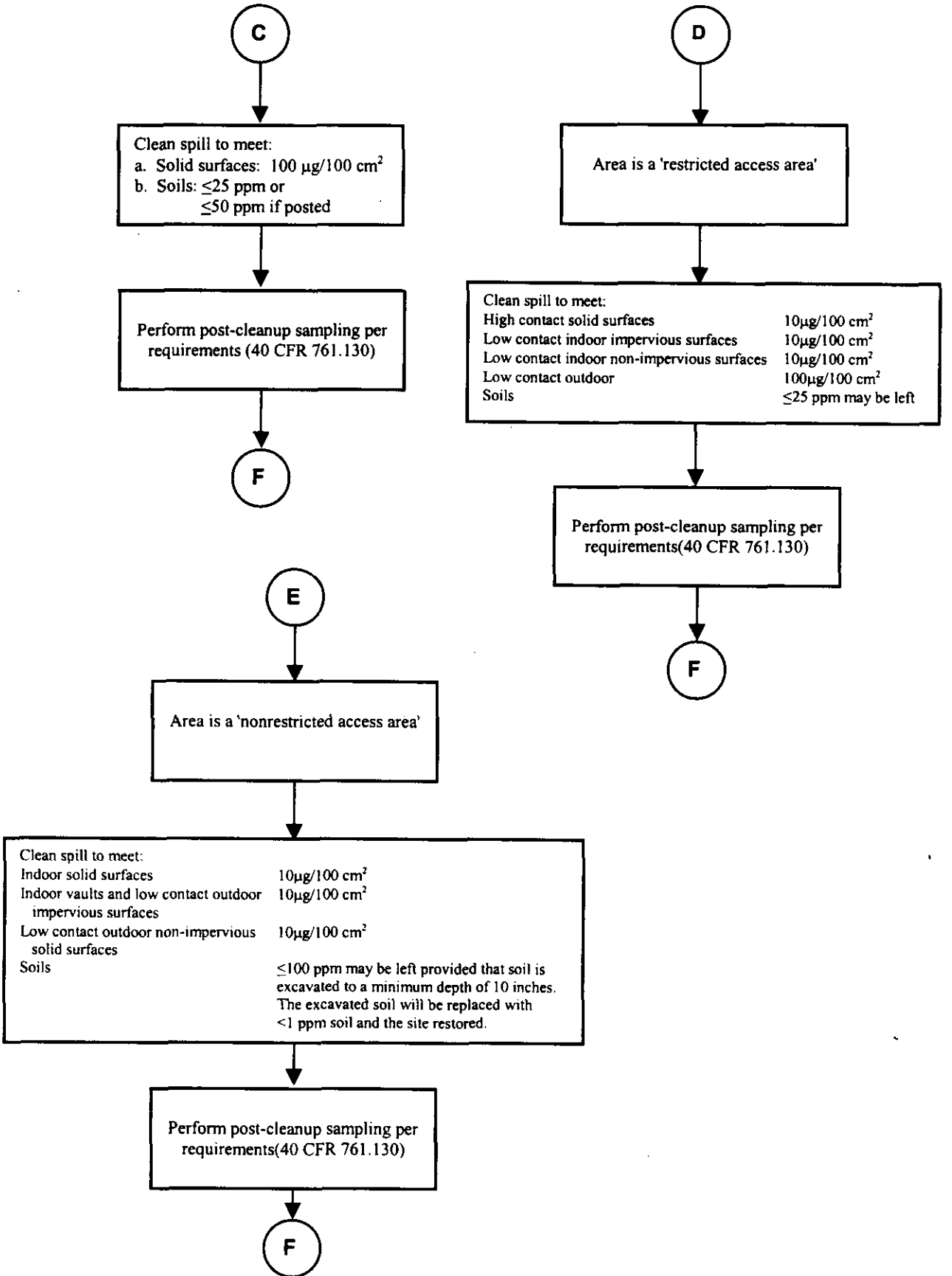
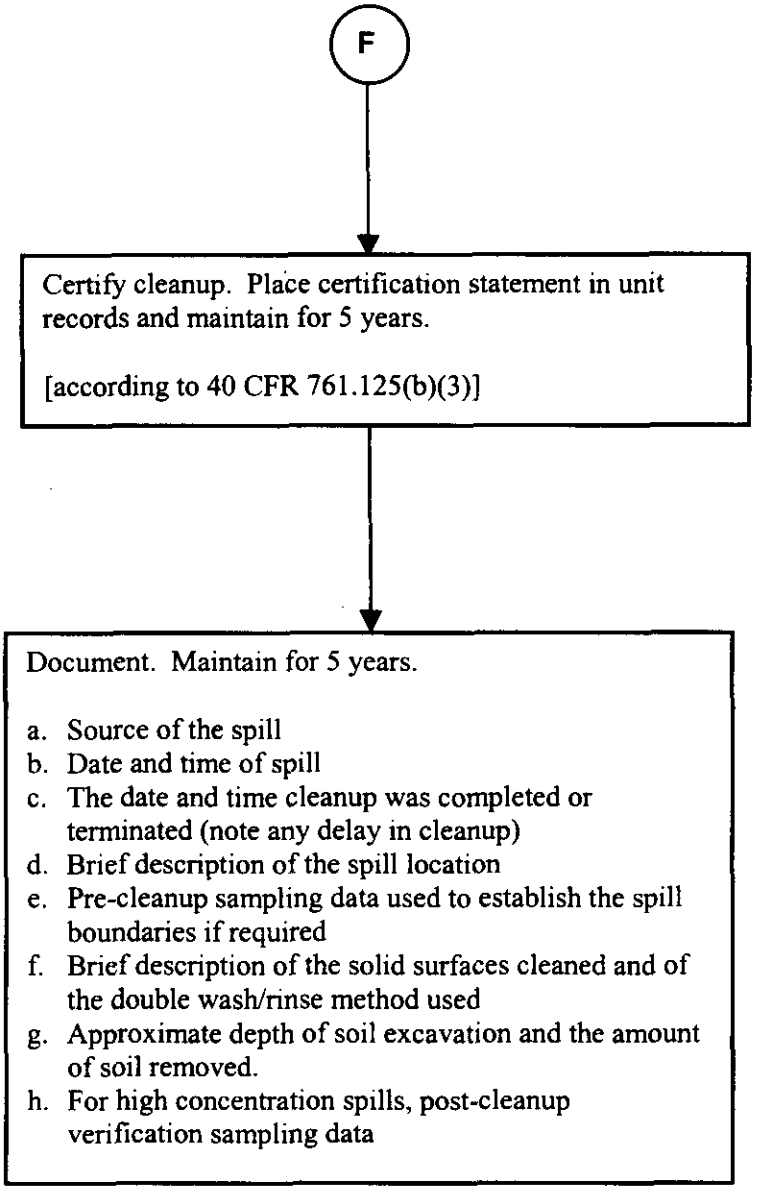


Figure 7-1. Polychlorinated Biphenyl Spill Cleanup Policy Flowchart (4 of 5).



ASAP = as soon as possible
cm = centimeter
EPA = U.S. Environmental Protection Agency
km = kilometer
lb = pound
PCB = polychlorinated biphenyls
ppm = parts per million
µg = microgram.

Figure 7-1. Polychlorinated Biphenyl Spill Cleanup Policy Flowchart (5 of 5).

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8.0 DISPOSAL REQUIREMENTS

This chapter does not apply to TRU contaminated PCB waste. TRU contaminated PCB waste cannot be disposed at any facility that currently exists. Disposal requirements associated with fluorescent light ballasts are provided in Table 8-1. The following sections describes disposal of TSCA-regulated PCB waste.

8.1 DISPOSAL OF POLYCHLORINATED BIPHENYL WASTE INTO OTHER THAN TSCA-APPROVED LANDFILLS

Certain types of PCB waste can be disposed in landfills other than TSCA-approved chemical waste landfills. This section provides direction for identifying the waste and determining potential disposal options.

8.1.1 Determination of Disposal Options and Applicable Waste Types

The three types of landfills that can accept certain types of PCB waste are as follows:

- Municipal and non-municipal nonhazardous waste landfills permitted, licensed, or registered by a state (not available on the Hanford Site)
- Disposal facilities authorized to accept radionuclides (e.g., onsite LLBG, ERDF)
- RCRA Subtitle C permitted landfills [e.g., onsite Mixed Waste Disposal Units (MWDU) of the LLBG].

The PCB waste that can be accepted at any of these three types of facilities is limited and specified in the regulations (40 CFR 761). In addition, different types of reporting and recordkeeping requirements apply to each waste type and for each type of disposal facility.

Depending on the specific types of PCB waste, nonradioactive PCB waste might be acceptable at either municipal landfills or at RCRA Subtitle C landfills. However, if there is a radioactive component to the waste, and taking into account only the properties of the PCBs in the waste (and not the radioactive properties of the waste), the waste meets the requirements for disposal in a municipal or non-municipal non-hazardous waste landfill, the waste can be disposed based on the radioactive components without regard to the PCB component of the waste [761.50(b)(7)]. However, this provision only applies to waste that is placed in a land disposal facility (EPA 2001). Therefore, PCB/radioactive waste meeting these criteria can be disposed into a landfill meeting all applicable requirements for disposal of radioactive waste (refer to Section 8.1.2).

The entire matrix of the waste must be considered in determining which landfill is appropriate for disposal. As is stated in the preamble to the regulations (FR, Vol 63, No 124, June 29, 1998, page 35300), "the part 761 regulations do not address or preempt the regulation of non-PCB components of a waste. If the PCB component of a waste is approved for disposal at a facility, the approval for the disposal of the other regulated waste components must be addressed by all other applicable statutes or regulatory authorities". Therefore, if a PCB waste contains radionuclides and a RCRA-regulated component, the PCB and radionuclides could be accepted at a disposal facility authorized to accept radionuclides. However, for the waste to be accepted at the facility, the facility also must be permitted or approved for disposal of RCRA regulated waste.

The following is the recommended procedure for determining disposal options for PCB waste.

- For waste with no RCRA component and no radioactive component:

  (1) Determine if the waste can be disposed in a municipal landfill. Check Section 8.1.3 and if the waste is on that list, the waste can be disposed in a municipal landfill. Additional requirements (e.g., recordkeeping, reporting) could apply.

  (2) If the waste cannot be disposed in a municipal landfill, check Section 8.1.4 and if the waste is on that list, the waste can be disposed in a RCRA permitted Subtitle C landfill). Additional requirements (e.g., recordkeeping, reporting) could apply. (This might result in the disposal of a non-RCRA regulated waste in a RCRA permitted disposal facility based on TSCA requirements. Other disposal options available should be considered, when possible, to avoid disposing a non-RCRA regulated waste in a RCRA regulated disposal facility.)

  (3) If the waste cannot be disposed in either a municipal landfill or RCRA Subtitle C landfill, review the TSCA regulations (40 CFR 761) to determine disposal or treatment options.

- For waste with a radioactive component, but no RCRA component:

  (1) Determine if the PCB component of the waste would otherwise qualify for disposal in a municipal landfill. (Section 8.1.2 discusses TSCA regulations that allow disposal of PCB/radioactive waste in a landfill authorized to accept radionuclides if the PCB component of PCB/radioactive waste can be disposed in a municipal landfill.) If the waste is on the list in Section 8.1.3, the waste can be disposed in a landfill authorized to accept radionuclides (e.g., LLBG). Additional requirements (e.g., recordkeeping, reporting) could apply.

  (2) If the PCB component of the waste does not qualify for disposal in a municipal landfill, check Section 8.1.4. If the waste is on the list in Section 8.1.4, the waste can be disposed in a RCRA Subtitle C landfill; however, because this waste has a radioactive component, the unit must separately meet all requirements to accept radionuclides. Additional requirements (e.g., recordkeeping, reporting) could apply. (This might result in the disposal of a non-RCRA regulated waste in a RCRA permitted disposal facility based on TSCA requirements. Other disposal options available should be considered, when possible, to avoid disposing a non-RCRA regulated waste in a RCRA regulated disposal facility.)

  (3) If the PCB component of the waste does not qualify for disposal in either a municipal landfill or RCRA Subtitle C landfill, review the TSCA regulations (40 CFR 761) to determine disposal or treatment options.

- For waste with a RCRA component, but no radioactive component:

  (1) Check Section 8.1.4 and if the waste is on that list, the waste can be disposed in a RCRA permitted Subtitle C landfill. Additional requirements (e.g., recordkeeping, reporting) could apply.

  (2) If the PCB component of the waste cannot be disposed in a RCRA Subtitle C landfill, review the TSCA regulations (40 CFR 761) to determine disposal or treatment options. (Note: The RCRA component of the waste requires that waste management and disposal meet RCRA regulations.)

- For waste with both a radioactive component and a RCRA component (mixed waste):

  (1) Mixed waste that also contains PCBs and is listed in either Section 8.1.3 or Section 8.1.4 can be disposed in a mixed waste landfill. A mixed waste landfill is a landfill permitted under RCRA as a Subtitle C landfill and meets requirements to accept radionuclides.

  (2) Determine which additional requirements (e.g., recordkeeping, reporting) could apply.

  (3) If the waste is not listed in either Section 8.1.3 or 8.1.4, the waste cannot be disposed in a mixed waste landfill; review the TSCA regulations (40 CFR 761) to determine disposal or treatment options. [In addition, all other applicable requirements (e.g., RCRA and radiological) for the waste must be met.]

8.1.2 Disposal of Polychlorinated Biphenyl Waste into a Radioactive Landfill

'PCB/radioactive waste' means PCBs regulated for disposal under TSCA, Subpart D, that also contain source, special nuclear, or byproduct material subject to regulation under the AEA, as amended, or naturally-occurring or accelerator-produced radioactive material (761.3).

PCB/radioactive waste can be disposed in a landfill authorized to accept radionuclides if the PCB component could be disposed in a municipal landfill. 761.50(b)(7)(ii) states, "If, taking into account only the properties of the PCBs in the waste (and not the radioactive properties of the waste), the waste meets the requirements for disposal in a facility permitted, licensed, or registered by a State as a municipal or non-municipal nonhazardous waste landfill (e.g., PCB bulk product waste under §761.62(b)(1)), then the person can dispose of the PCB/radioactive waste, without regard to the PCB component of the waste, on the basis of its radioactive properties in accordance with all applicable requirements for the radioactive component of the waste."

EPA discusses this issue further in the EPA PCB Q&A Manual (EPA 2001), in which the EPA states: "We reasoned that a facility authorized to accept radionuclides would be sited, designed, constructed and operated in such a manner as to attenuate PCBs and keep them from contaminating any underlying aquifer. Therefore, disposal of these low-concentration or non-leaching PCBs in a radioactive waste disposal facility would not present an unreasonable risk of injury to human health or the environment".

The TSCA regulations do not address or pre-empt the regulation of non-PCB components of a waste. When the PCB component of a waste is approved for disposal at a facility, the approval for the disposal of the other regulated waste components must be addressed by all other applicable statutes or regulatory authorities (63 FR 35390, June 29, 1998).

8.1.3 Waste that can be Disposed in a Solid Waste Landfill

The following waste can be disposed in a solid waste landfill. The 40 CFR 761 regulations state either that the waste can be disposed 'as municipal solid waste' or that the waste can be disposed "in a facility which is permitted, licensed, or registered by a State to manage municipal solid waste subject to part 258 of this chapter or non-municipal nonhazardous waste subject to 257.5 through 257.30 of this chapter, as applicable (excluding thermal treatment units)". (Requirements for PCB waste classified as household waste are not addressed.)

1. PCB Bulk Product Waste, specifically the following.

   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; galbestos; non-liquid building demolition debris; or non-liquid PCB bulk product waste from the shredding of automobiles or household appliances from which PCB small capacitors have been removed (shredder fluff) [*761.62(b)(1)(i)*].

   Other PCB bulk product waste (including fluorescent light ballasts containing PCBs in the potting material) sampled in accordance with the protocols set out in 40 CFR 761, Subpart R, that leaches PCBs at <10 µg/L of water measured using a procedure to simulate leachate generation [*761.62(b)(1)(ii) and 761.50(b)(2)(ii)*] (refer to Table 8-1).

   Other PCB bulk product waste (e.g., paper or felt gaskets contaminated by liquid PCBs) not meeting criteria noted previously, if the PCB bulk product waste is segregated from organic liquids disposed in the landfill unit and the leachate is collected from the landfill unit and monitored for PCBs [*761.62(b)(2)*].

   The following requirements and exemptions apply.

   - Any releases of PCBs (including but not limited to leachate) from the landfill are cleaned up in accordance with 761.61 [*761.62(b)(3)*].
   - Records of analyses and notifications are maintained for 3 years from date of waste generation. Records are made available to the EPA on request [*761.62(b)(5)*].
   - Requirements of Subparts C, J, and K (marking, manifesting, and recordkeeping) do not apply [*761.62(b)(6)*].

   Note: If being disposed in a landfill owned by the company generating the waste, no notification to the landfill is required. If being disposed at a landfill not owned by the company generating the waste, a notification is required (EPA 2001).

2. Non-liquid cleaning materials and PPE waste, at any concentration, including non-porous surfaces and other non-liquid materials such as rags, gloves, booties, other disposable PPE, and similar materials [*761.61(a)(5)(v)(A)*].

   - Requirements of Subparts J and K (manifesting and recordkeeping, such as annual reports) do not apply [*761.61(a)(5)(v)(A)*].

3. De-watered bulk PCB remediation waste at <50 ppm PCB from the implementation of 761.61(a) [*761.61(a)(5)(i)(B)(2)(ii)*].

   - Waste must be sampled and analyzed using methods specified in *761.61(a)(5)(i)(B)(2)(i)*.
   - Requirements of Subparts J and K (manifesting and recordkeeping) do not apply [*761.61(a)(5)(v)(A)*].

- Generator must provide written notice, including quantity to be shipped and highest concentration (using specified analytical methods), at least 15 days before first shipment [*761.61(a)(5)(i)(b)(2)(iv)*].

4. Non-liquid waste generated as a result of R&D activities authorized under 761.30(j) and chemical analysis of PCBs [*761.64(b)(2)*].

   - Requirements of Subparts J and K (manifesting and recordkeeping, such as annual reports) do not apply [*761.61(a)(5)(v)(A)*].

5. Non-liquid cleaning materials and PPE waste, at any concentration, resulting from decontamination activities performed under 761.79, including non-porous surfaces and other non-liquid materials such as rags, gloves, booties, other disposable PPE, and similar materials [*761.79(g)(6)*].

   - Requirements of Subparts J and K (manifesting and recordkeeping, such as annual reports) do not apply [*761.61(a)(5)(v)(A)*].

6. Equipment used in the double wash/rinse method for decontaminating non-porous surfaces (761 Subpart S) [*761.378(c)*]

   - Requirements of Subparts J and K (manifesting and recordkeeping, such as annual reports) do not apply [*761.61(a)(5)(v)(A)*].

   - Storage for disposal is regulated under 761.65 [*761.378(c)*].

7. PCB Small Capacitors [*761.60(b)(2)(ii)*] including fluorescent light ballasts containing PCBs only in an intact and non-leaking PCB Small Capacitor [*761.50(b)(2)(i)*].

   - Storage for disposal is not regulated under TSCA [*761.60(b)(7)*].

   - For fluorescent light ballasts, no manifesting (Subpart K) or labeling (Subpart C) required (refer to Table 8-1)

8. PCB hydraulic machines containing PCBs at concentrations ≥50 ppm [*761.60(b)(3)(i)*].

   - All free-flowing liquid must be removed and the liquid must be disposed in accordance with 761.60(a) or by an alternative disposal method approved per 761.60(e) [*761.60(b)(3)(ii)*].

   - Storage for disposal of PCB hydraulic machines that complies with the municipal solid waste disposal provisions of 761.60(b)(3) is not regulated under TSCA [*761.60(b)(7)*].

   - If the liquid is ≥1,000 ppm, the machine must be decontaminated per 761.79 or flushed before disposal with a solvent listed in 761.60(b)(1)(i)(B) [*761.60(b)(3)(ii)*].

9. PCB-Contaminated Electrical Equipment (not including capacitors) [*761.60(b)(4)*].

   - All free-flowing liquid must be removed and the liquid must be disposed in accordance with 761.60(a) or an alternative disposal method approved per 761.60(e) [*761.60(b)(6)(ii)*].

   - Storage for disposal of drained PCB-Contaminated Electrical Equipment is not regulated under TSCA [*761.60(b)(6)(ii)(B)*].

- Requirements of Subparts J and K (recordkeeping and manifesting) do not apply [*761.60(b)(6)(ii)(c)*].

10. PCB-Contaminated Articles other than Transformers, PCB Capacitors, PCB Hydraulic Machines, PCB-Contaminated Electrical Equipment, and Natural Gas Pipeline Systems that have been drained of all free-flowing liquid [*761.60(b)(6)(ii)*].

    - All free-flowing liquid must be removed and the liquid must be disposed in accordance with 761.60(a) or an alternative disposal method approved per 761.60(e) [*761.60(b)(6)(ii)(A)*].

    - Storage for disposal of drained PCB Articles is not regulated under TSCA [*761.60(b)(6)(ii)(B)*].

    - Requirements of Subparts J and K (recordkeeping and manifesting) do not apply [*761.60(b)(6)(ii)(C)*].

11. Any PCB Container used to contain only PCBs at a concentration less than 500 ppm [*761.60(c)(2)*].

    - All free-flowing liquid must be removed and the liquid must be disposed in accordance with 761.60(a) or an alternative disposal method approved per 761.60(e) [*761.60(b)(c)(2)*].

    - The drained PCB container with PCB concentrations ≥50 ppm must be stored per TSCA regulations 761, Subpart D (i.e., in a storage for disposal unit) [761.60(c)(3)].

8.1.4 Waste that can be Disposed in a RCRA Landfill

The following PCB waste streams can be disposed in a RCRA permitted Subtitle C landfill. Other options to dispose of these waste streams exist and the regulations should be checked to determine the most appropriate waste disposal option. This list does not include PCB waste that can be disposed in a municipal landfill or PCB/radioactive waste that can be disposed based solely on requirements for the radioactive components without regard to the PCB component of the waste.

- PCB bulk product waste [*761.62(a)(3)*].

  - PCB bulk product waste means waste derived from manufactured products containing PCBs in a non-liquid state, at any concentration, where the concentration at the time of designation for disposal was ≥50 ppm PCBs. PCB bulk product waste includes, but is not limited to, the following.

    (1) Non-liquid bulk waste or debris from the demolition of buildings and other structures manufactured, coated, or serviced with PCBs. PCB bulk product waste does not include debris from the demolition of buildings or other structures contaminated by spills from regulated PCBs that have not been disposed, decontaminated, or otherwise cleaned up in accordance TSCA, Subpart D.

    (2) PCB containing waste 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; galbestos; 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 (refer to Table 8-1).

- Non-liquid cleaning materials and PPE waste at any concentration generated during and from the cleanup of PCB remediation waste. This waste includes non-porous surfaces, rags, gloves, booties, other disposal PPE, and similar materials [*761.61(a)(5)(v)(A)*].

- Non-liquid waste generated as a result of R&D activities (authorized under 761.30(j)) and chemical analysis of PCBs [*761.64(b)(2)*].

- De-watered bulk PCB remediation waste sent offsite for disposal resulting from a self-implementing site cleanup of PCB remediation waste [*761.61(a)(5)(i)(B)(2)(ii) for <50 ppm PCB; and (iii) for ≥50 ppm PCB*].

  - Generator must provide written notice, including quantity to be shipped and highest concentration (using noted methods), at least 15 days before first shipment [*761.61(a)(5)(i)(B)(2)(iv)*].

- Non-porous and porous surfaces (resulting from a self-implementing cleanup of PCB remediation waste) can be disposed as noted for bulk PCB remediation waste [*761.61(a)(5)(ii) and (iii)*].

  - Generator must provide written notice, including quantity to be shipped and highest concentration (using noted methods), at least 15 before first shipment [*761.61(a)(5)(i)(B)(2)(iv)*].

- Equipment used in the double wash/rinse method for decontaminating non-porous surfaces in accordance with 761 Subpart S [*761.378*].

- Porous surfaces contaminated by spills of PCBs removed from use location (must follow 761.61) or porous surfaces that are part of manufactured non-liquid products containing PCBs and meeting the definition of PCB bulk product waste [*761.30(p)(2) and 761.50(b)(8)*].

- PCB Items removed from use that contain PCB Articles where the PCB Articles are no longer intact and non-leaking (e.g., the PCB Article is not intact and/or the PCB Article is leaking), such as fluorescent light ballast that are no longer intact and non-leaking [*761.50(b)(2)*] (refer to Table 8-1).

- Fluorescent light ballasts containing PCBs in the potting material [*761.50(b)(2)(ii)*] (refer to Table 8-1).

8.2 OVERVIEW OF RISK-BASED DISPOSAL APPROVAL FOR POLYCHLORINATED BIPHENYL REMEDIATION WASTE

The use of a risk-based approach in determining proper management pathways for PCB waste is intended for those cases that are not addressed suitably within the regulations. The process is known as a RBDA and for PCB remediation waste the requirements are specified in 761.61(c). The RBDA process is applicable to any person wishing to sample, cleanup, or dispose of PCB remediation waste in any manner other than prescribed in 761.61(a) or 761.61(b) or store PCB remediation waste in a manner other than prescribed in 761.65.

The development of a RBDA involves project representatives, regulatory specialists, and DOE representatives. As a result of operational needs, hazardous waste permitting status, and the technical and engineering features of units, the RBDA is specific to the waste management unit and the waste type. A thorough RBDA evaluates the administrative controls, engineered controls, and management systems within the facility, and the potential for the waste management operation to result in exposure to humans and/or the environment. The main areas of interest are the existing design and operating standards, waste characterization, and evaluation of exposure pathways. A RBDA requires a written application to the EPA Regional Administrator and must contain the information required in 761.61(a)(3). In general, the required items are: nature of the contamination, summary of the procedures used in site characterization, location and extent of the contamination, a cleanup plan for the contaminated area, and a written certification from the owner of the property. A written approval is required from the EPA before waste management activities are performed. Hanford Site-specific RBDA applications and EPA approvals are listed in Appendix A.

Table 8-1. Disposal of Fluorescent Light Ballasts*.

PCB Capacitor	PCB Potting Material	Labeling, transportation, and manifesting for disposal	Disposal references	Disposal options
"No PCBs" label	N/A	Not regulated under TSCA	N/A	Not regulated under TSCA.
None	<50 ppm	Not regulated under TSCA	N/A	Not regulated under TSCA
Intact and non-leaking or None	≥50 ppm	Is a PCB bulk product waste No labeling is required Manifesting is required for disposal in accordance with 761.62(a); is not required under 761.62(b); may be required under 761.62(c)	.50(b)(2)(ii) .62(a) through (c)	TSCA incinerator TSCA/RCRA landfill Alternate destruction method Decontamination [761.65(d) storage approval may be required] Coordinated approval State approved landfill (leach test required) Risk-based approval.
Intact and Non-leaking	<50 ppm	No labeling or manifesting required	.50(b)(2)(i) .60(b)(2)(ii)	As municipal solid waste 40 CFR 761 Subpart D options.
Leaking	<50 or ≥50 ppm	Disposal as PCB bulk product waste. No labeling is required. Manifesting is required for disposal in accordance with 761.62(a); may be required under 761.62(c).	.62(a) or (c)	TSCA incinerator TSCA/RCRA landfill Alternate destruction method Decontamination [761.65(d) storage approval may be required] Coordinated approval Risk-based approval.

* From EPA Q&A Manual (EPA 2001).
N/A = not applicable.
PCB = polychlorinated biphenyl.
ppm = parts per million
RCRA = *Resource Conservation and Recovery Act of 1976.*
TSCA = *Toxic Substances Control Act of 1976.*

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9.0 RECORDKEEPING REQUIREMENTS

This chapter provides a listing of TSCA recordkeeping requirements for activities involving management (including use, storage, and disposal) of PCBs. This chapter does not address or pre-empt other regulatory requirements.

The chapter only addresses TSCA activities taking place on the Hanford Site. The Hanford Site currently does not have a TSCA chemical waste landfill (761.75) and currently has no units with TSCA Coordinated Approval (761.77). Therefore, these recordkeeping requirements are not included. This chapter does not include recordkeeping requirements of PCBs not regulated under TSCA.

The listings in this chapter can be used to verify that appropriate records are being maintained for various TSCA activities including storage, spill cleanup, site remediation, and disposal. Regulatory citations for each requirement are provided. However, some of the activities listed are optional activities. The generator should first determine which activities have taken place at a unit, and use the following list as a guide to what records are required for those specific activities.

This chapter lists recordkeeping requirements for 40 CFR 761; however, the records might be subject to additional DOE/contractor-specific recordkeeping requirements.

9.1 GENERATOR REQUIRED RECORDS

The following sections list required records based on PCB activity or type of waste.

9.1.1 Transformers

- Each registration for PCB Transformer's [e.g., a copy of the registration and the return receipt signed by the EPA), 761.30(a)(1)(vi)(C) (should be co-located with inspection and maintenance records)]

- Inspection and maintenance records [761.30(a)(1)(xii)]
  - Required for each PCB Transformer [761.30(a)(1)(xii)(I)]
  - Maintained at least 3 years after disposing of the transformer [761.30(a)(1)(xii)]
  - Records will contain the following information [761.30(a)(1)(xii)]:
    (A) Transformer location
    (B) Date of each visual inspection and the date that leak was discovered, if different from the inspection date
    (C) Person performing the inspection
    (D) Location of any leak(s)
    (E) An estimate of the amount of dielectric fluid released from any leak
    (F) Date of any cleanup, containment, repair, or replacement
    (G) Description of any cleanup, containment, or repair performed
    (H) Results of any containment and daily inspection required for uncorrected active leaks
    (I) Record of the registration of PCB Transformer(s)
    (J) Records of transfer of ownership in compliance with 761.180(a)(2)(ix).

9.1.2 Storage for Reuse (for PCB Articles)

Records indicating the following [761.35(a)(2)]:

- Date the PCB Article was removed from use or August 28, 1998, if the removal date not known
- Projected location and the future use of the PCB Article
- If applicable, the date the PCB Article is scheduled for repair or servicing.

9.1.3 Large High-Voltage Capacitors

Records or procedures identifying PCB Capacitors installed in a protected location such as on a power pole, or structure, or behind a fence where the pole, structure, or fence is marked [761.40(c)(2)(ii)].

9.1.4 Large Low-Voltage Capacitors

Records or procedures identifying PCB Capacitors installed in a protected location such as on a power pole, or structure, or behind a fence where the pole, structure, or fence is marked [761.40(k)(1)].

9.1.5 Polychlorinated Biphenyls Remediation Waste

For Self-Implementing Cleanup of PCB Remediation Waste [761.61(a)(3)(i)(E)], records indicating the following:

- A written certification
  - Signed by the owner of the property and the party conducting the cleanup
  - That all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures are on file at the location designated in the certificate, and are available for EPA inspection
  - If applicable, a statement that any alternate analytical methods will be used and that a comparison study that meets or exceeds the requirements of Subpart Q of this part, has been completed before verification sampling
  - Retain for 5 years.

- If applicable, records for the comparison study for alternate analytical methods

- The following records for self-implementing cleanup [761.61(a)(9)]; retain for 5 years:
  - Identification of the source of the spill, e.g., type of equipment
  - Estimated or actual date and time of the spill occurrence
  - Date and time cleanup was completed or terminated (if cleanup was delayed by emergency or adverse weather: the nature and duration of the delay)
  - Brief description of the spill location and the nature of the materials contaminated. This information should include whether the spill occurred in an outdoor electrical substation, other restricted access location, or in a nonrestricted access area
  - Precleanup sampling data used to establish the spill boundaries if required because of insufficient visible traces and a brief description of the sampling methodology used to establish the spill boundaries
  - Brief description of the solid surfaces cleaned
  - Approximate depth of soil excavation and the amount of soil removed

- Post-cleanup verification sampling data and, if not otherwise apparent from the documentation, a brief description of the sampling methodology and analytical technique used.

If sampling of cleanup of PCB Remediation Waste is performed per Subpart O:

- Record the PCB concentration for each sample or composite sample [761.295(b)]
- Retain for 3 years.

9.1.6 Bulk Product Waste

- Written record of all sampling and analysis of PCBs or notifications [761.62(b)(5)]

- Retain for 3 years from the date of waste generation [761.62(b)(5)]

- Requirements in Subparts C (Marking), J (General Records and Reports), and K (PCB Waste Disposal Records and Reports) do not apply to waste disposed 761.62(b) [761(b)(6)].

9.1.7 Polychlorinated Biphenyls/Radioactive Waste

- A written record documenting all continuing attempts to secure disposal until the waste is disposed [761.65(a)(2)(ii)]:

  - For Fluor Hanford (FH), this information is provided in Internal Memo FH-0007040, Richard H. Gurske to Distribution "Documentation of Continuing Attempts to Secure Disposal of Polychlorinated Biphenyl/Radioactive Waste" dated December 19, 2000

  - This information also has been placed in the PCB Annual Document Log for 2000 (refer to Appendix A for RMIS accession number).

9.1.8 Storage for Disposal [761.65(c)(5) and 761.180(a), (b)]

- Records of inspections, maintenance, cleanup, and disposal
  - Maintain for 3 years after the facility ceases management of PCBs
  - Inspection required every 30 days.

- Signed manifests

- Certificates of disposal

- Annual document log, refer to Section 761.180 in Section 9.3.

9.1.9 Bulk Storage [761.65(c)(8)]

- Date and quantity of each batch added to the container
- Date, quantity, and disposition of any batch of PCBs removed from the container.

9.1.10 Decontamination Standards and Procedures

For measurement-based decontamination, performed under 761.79(b) [761.79(f)(1)]:

- Record of sampling
  - Sampling locations
  - Analytical results.
- Maintain for 3 years
- Recordkeeping in accordance with 761.180(a) is required for all waste generated by a decontamination process and regulated for disposal under this subpart.

For self-implementing decontamination procedures, if performed under 761.79(c) [761.79(f)(2)]:

- Records documenting compliance with the self-implementing decontamination procedures (e.g., video recordings, photographs)
- Maintain for 3 years.

If Subpart T [761.79(d)(4)]:

- Record all testing parameters and experimental conditions from the successful validation study (refer to Subpart T for specifics).

9.1.11 Polychlorinated Biphenyls Spill Cleanup Policy

For low concentration spills/cleanup [761.125(b)(3)]:

- Maintain for 5 years
- Identification of the source of the spill, e.g., type of equipment
- Estimated or actual date and time of the spill occurrence
- Date and time cleanup was completed or terminated (if cleanup was delayed by emergency or adverse weather: the nature and duration of the delay)
- Brief description of the spill location
- Precleanup sampling data used to establish the spill boundaries if required because of insufficient visible traces and a brief description of the sampling methodology used to establish the spill boundaries
- Brief description of the solid surfaces cleaned
- Approximate depth of soil excavation and the amount of soil removed
- A certification statement signed by responsible party stating that the cleanup requirements have been met and that the records are true to the best of his/her knowledge.

For high concentration (or ≥1 pound low concentration) spills/cleanup [761.125(c)]:

- For delayed cleanup, records documenting the fact that circumstances precluded rapid response
- Document the area of visible contamination
  - Extent of the visible trace areas
  - Center of the visible trace area
  - If there are no visible traces, record this fact.

The following records [761.125(c)(5)] are maintained for 5 years:

- Identification of the source of the spill, e.g., type of equipment
- Estimated or actual date and time of the spill occurrence
- Date and time cleanup was completed or terminated (if cleanup was delayed by emergency or adverse weather, the nature and duration of the delay)
- Brief description of the spill location and the nature of the materials contaminated. This information should include whether the spill occurred in an outdoor electrical substation, other restricted access location, or in a nonrestricted access area
- Precleanup sampling data used to establish the spill boundaries if required because of insufficient visible traces and a brief description of the sampling methodology used to establish the spill boundaries
- Brief description of the solid surfaces cleaned
- Approximate depth of soil excavation and the amount of soil removed
- Post-cleanup verification sampling data and, if not otherwise apparent from the documentation, a brief description of the sampling methodology and analytical technique used.

9.2 GENERAL RECORDS

For PCBs and PCB Items in service, in storage for disposal or disposed:

- Annual records [761.180(a)]:
  - Maintain for 3 years after the facility ceases using or storing PCBs and PCB Items
  - All signed manifests generated by the facility during the calendar year [also, 761.208(a)(1)(iii)]
  - Retain generator copy until signed copy from disposal facility is received [761.209(a)].
- All Certificates of Disposal received by the facility during the calendar year
- Records of inspections and cleanups performed in accordance with 761.65(c)(5)
- Exception reports [761.208(a)(4)].

9.3 ANNUAL DOCUMENT LOG [761.180(a)(2)]

[Note: Currently a call to support preparation of the annual PCB document log is sent out each year approximately in April. Information is required to be submitted and certified by the point of contact by approximately mid-May. As of calendar year 2001, FH Environment & Regulation is the Hanford Site organization responsible for coordinating the annual PCB document log. Requirements for the PCB annual document log are found at 761.180(a)(2).]

- Prepare by July 1st for previous calendar year
- Retain for 3 years after the facility ceases using or storing PCBs and PCB Items
- Name/address/EPA identification number
- Manifest numbers generated by the facility
- For bulk PCB waste:
  - Weight in kilograms
  - Date removed from service
  - Date placed into transport for disposal
  - Date of disposal.
- For PCB Articles:
  - Serial number or identification number
  - Weight in kilograms
  - Date removed from service
  - Date placed in transport for disposal
  - Date of disposal.
- For PCB Containers:
  - Description of contents (liquid, soil, cleanup debris)
  - Weight in kilograms
  - Date removed from service
  - Date placed in transport for disposal
  - Date of disposal.
- For PCB Article Containers:
  - Description of contents (pipes, capacitors)
  - Weight in kilograms
  - Date removed from service
  - Date placed in transport for disposal
  - Date of disposal.
- Total numbers for:
  - PCB Articles by specific type (and total weight of PCBs)
  - PCB Article Containers (and total weight of the contents)
  - PCB Containers (and total weight of the contents).
- Total weight of:
  - Bulk PCB waste placed into storage for disposal or disposed during the calendar year.

- For the following items remaining in service at the end of the calendar year:
  - Number and total weight of PCB transformers
  - Number of large high- or low-voltage PCB capacitors
  - Weight of PCBs and PCB Items in PCB Containers.

- A record of each telephone call, or other means of verification agreed on by both parties, made to each designated commercial storer or designated disposer to confirm receipt of PCB waste transported by an independent transporter [also 761.208(a)(4)]

- For PCB Items, excluding small capacitors, with a concentration of ≥50 ppm distributed in commerce for reuse:
  - The name, address, and telephone number of the person to whom the item was transferred
  - Date of transfer
  - The serial number or internal identification number.

9.4 ADDITIONAL DOCUMENT LOG REQUIREMENTS FOR DISPOSERS OF POLYCHLORINATED BIPHENYLS WASTE

The annual records include the following [761.180(b)(1)]:

- All signed manifests generated or received at the facility during the calendar year

- All Certificates of Disposal generated or received by the facility during the calendar year

- Records of inspections and cleanups performed in accordance with 761.65(c)(5)

- The confirmed date of disposal for items in 761.180(b)(2)(ii)(A) through (b)(2)(ii)(D), i.e.:
  - Bulk PCB waste
  - PCB Articles
  - PCB Containers
  - PCB Article Containers.

- Disposers (including an owner or operator who disposes of own waste and does not receive or generate manifests) include the following additional information in the annual report
  - Numbers of all signed manifests of PCB waste initiated or received by the facility during that year
  - Total weight in kilograms of bulk PCB waste, PCB waste in PCB Transformers, PCB waste in PCB Large High- or Low-Voltage Capacitors, PCB waste in PCB Article Containers, and PCB waste in PCB Containers in storage at the facility at the beginning of the calendar year, received or generated at the facility, transferred to another facility, or disposed at the facility during the calendar year
  - Total number of PCB Transformers, the total number of PCB Large High- or Low-Voltage Capacitors, the total number of PCB Article Containers, and the total number of PCB Containers in storage at the facility at the beginning of the calendar year, received or generated at the facility, transferred to another facility, or disposed at the facility during the calendar year
  - Total weight in kilograms of each of the following PCB categories: bulk PCB waste, PCB waste in PCB Transformers, PCB waste in PCB Large High- or Low-Voltage Capacitors, PCB waste in

PCB Article Containers, and PCB waste in PCB Containers remaining in storage for disposal at the facility at the end of the calendar year

- Total number of PCB Transformers, the total number of PCB Large High- or Low-Voltage Capacitors, the total number of PCB Article Containers, and the total number of PCB Containers remaining in storage for disposal at the facility at the end of the calendar year.

9.5 SPECIAL RECORDS BY DISPOSAL FACILITIES [761.180(f)]

Requirements for special records to be retained by disposal facilities are as follows.

- All documents, correspondence, and data provided to the owner or operator of the facility by any state or local governmental agency pertaining to the storage or disposal of PCBs and PCB Items at the facility.

- All documents, correspondence, and data provided by the owner or operator of the facility to any state or local governmental agency pertaining to the storage or disposal of PCBs and PCB Items at the facility.

- Any applications and related correspondence sent by the owner or operator of the facility to any local, state, or federal authorities regarding wastewater discharge permits, solid waste permits, building permits, or other permits or authorizations such as those required by 761.70(d) and 761.75(c).

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10.0 TSCA COMPARISON TO OTHER REGULATIONS

The following information is for comparison of TSCA requirements primarily with RCRA. The DOT and the CWA regulations also are compared to TSCA requirements. This information does not address or pre-empt other regulatory requirements and does not apply to non-TSCA regulated PCB waste.

This information can be used to clarify regulatory areas of concern if overlap occurs among TSCA and RCRA, DOT, or the CWA. The following tables provide summaries of various regulatory concepts and appropriate cautions to consider when applying these particular regulations. This information provided is not all inclusive. As new information becomes available concerning significant regulatory overlaps, the appropriate tables will be expanded.

Table 10-1 provides a summary of various regulatory concepts and appropriate cautions to consider when applying RCRA regulations to TSCA issues. Table 10-2 provides a summary of various regulatory concepts and appropriate cautions to consider when applying DOT regulations to TSCA issues. Table 10-3 provides a summary of various regulatory concepts and appropriate cautions to consider when applying CWA regulations to TSCA issues.

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Table 10-1. TSCA Comparison to RCRA Regulations.

CATEGORY	ISSUE	RCRA	TSCA	CAUTION
CONTAINERS	Definition of Container	Under RCRA, a container means any portable device, in which a material is stored, transported, treated, disposed, or otherwise handled.	Under TSCA, a container means any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB Articles and whose surface(s) has been in direct contact with PCBs.	Stationary devices such as tanks are TSCA containers but are not RCRA containers.
	RCRA Empty vs. TSCA Drained or Deconned	A 'RCRA empty' container is not subject to RCRA.	A TSCA drained container remains subject to TSCA. A TSCA decontaminated container is not subject to TSCA.	A non-acutely hazardous waste/PCB container that is RCRA empty could continue to be TSCA regulated. An acutely hazardous waste/PCB container that is RCRA empty could meet TSCA decontamination standards. Refer to WAC 173-303-160(2) for RCRA empty and 40 CFR 761.79(c)(1) for PCB decontamination.
DISPOSAL	TSCA Disposal vs. RCRA Treatment, e.g., incinerators	RCRA incineration is considered a method of treatment.	TSCA incineration is considered a method of disposal.	Once a TSCA waste is incinerated, the waste is no longer subject to TSCA. However, once a RCRA waste is incinerated, the waste might continue to be subject to RCRA.

Table 10-1. TSCA Comparison to RCRA Regulations.

CATEGORY	ISSUE	RCRA	TSCA	CAUTION
	Definition of Disposal Under TSCA	Disposal means the discharging, discarding, or abandoning of dangerous waste or the treatment, decontamination, or recycling of such waste once the waste has been discarded or abandoned. This includes the discharge of any dangerous waste into or on any land, air, or water.	Disposal means intentionally or accidentally to discard, throw away, or otherwise complete or terminate the useful life of PCBs and PCB Items. Disposal includes spills, leaks, and other uncontrolled discharges of PCBs as well as actions related to containing, transporting, destroying, degrading, decontamination, or confining PCBs and PCB Items.	The two definitions contain many of the same elements. TSCA contains an additional condition of "terminate the useful life of PCBs and PCB Items".
	RCRA Prescriptive Disposal vs. TSCA Flexible Disposal	Under RCRA, hazardous waste subject to land disposal restrictions (LDR) must be treated by specified technologies or meet performance-based numerical standards before land disposal. Specified technologies such as incineration are prescriptive. Performance-based standards can be achieved with any process other than dilution and so are somewhat flexible; however, the performance-based standard is prescriptive.	Under TSCA, PCB waste generally has multiple disposal options based on a range of PCB concentrations as opposed to specific concentrations as found with RCRA.	RCRA waste must be treated before disposal if subject to LDR. PCBs do not require treatment before disposal unless a decontamination option has been chosen.

Table 10-1. TSCA Comparison to RCRA Regulations.

CATEGORY	ISSUE	RCRA	TSCA	CAUTION
	Chemical Waste Landfill vs. RCRA Landfill	A RCRA Subtitle C landfill is permitted to receive dangerous waste for disposal.	A "Chemical Waste Landfill" is a TSCA term for a landfill approved under TSCA (761.75(c)) for receiving certain types of TSCA regulated PCB waste.	The two types of landfills (RCRA Subtitle C and TSCA chemical waste landfill) are different and only can accept distinct types of waste. There are separate approval/ permitting processes for the two types of landfills. Pursuant to TSCA regulations, there are specified cases where certain TSCA waste can be disposed in a RCRA Subtitle C landfill. Also note that a single landfill can be both RCRA permitted and TSCA approved.
	Fluorescent Light Ballasts	Fluorescent light ballasts are not regulated under RCRA because of PCB content. The ballast could be RCRA regulated if a characteristic of hazardous waste is exhibited.	Fluorescent light ballasts are regulated for disposal when the ballasts contain PCBs that are regulated for disposal.	Disposal options depend on whether the PCBs are found in an intact and non-leaking PCB small capacitor, a non-intact and non-leaking PCB small capacitor, or in the potting material [refer to 761.50(b)(2)].
EXEMPTIONS	RCRA Waste Exemptions vs. TSCA Waste Exemptions	Numerous exemptions for RCRA waste are available. The RCRA by its very name promotes the use of materials for their intended purpose as opposed to discarding as waste.	Exemptions for TSCA are primarily associated with products and not waste. TSCA's purpose concerning PCBs is to facilitate disposal of PCB waste as opposed to allow for any continued use.	RCRA exemptions allow a RCRA waste to exit RCRA and be used as a product. TSCA exemptions allow use of certain PCB products and the exemptions are not meant for the continued use of PCB waste.

Table 10-1. TSCA Comparison to RCRA Regulations.

CATEGORY	ISSUE	RCRA	TSCA	CAUTION
	Sample Exclusion	RCRA samples are excluded from RCRA regulation assuming conditions for the exclusion are met.	TSCA essentially copied the RCRA sample exclusion and requires basically the same conditions.	The PCB Q&A manual (EPA 2001) at 40 CFR 761.64(b) "suggests" that PCB samples be marked as PCBs.
INSPECTIONS	Weekly vs. 30 Days vs. Monthly Inspections	RCRA inspections are scheduled 'monthly' or 'weekly'. RCRA requires that both the area and the containers be inspected for leaks and deterioration.	TSCA requires that items in storage-for-disposal areas be inspected every 30 days for signs of leaks. Only the items need to be inspected.	Emphasize the difference between 30 days and 1 month. Also, note the difference in what is to be inspected – only the PCB Items are required to be inspected, and only for signs of leaks according to TSCA.
	Inspection Requirements (limited under TSCA vs. more encompassing under RCRA)	Inspect for leaks and deterioration weekly.	Check containers for leaks at least once every 30 days	RCRA specifically states that the generator will inspect for leaks and deterioration. TSCA only states that the generator will 'check' containers. No inspection criteria are codified in 40 CFR 761.

Table 10-1. TSCA Comparison to RCRA Regulations.

CATEGORY	ISSUE	RCRA	TSCA	CAUTION
MANIFESTING	RCRA Exception Reporting vs. TSCA Exception Reporting and TSCA 1-year Exception Reporting	Large quantity generators (LQGs) must contact the transporter or treatment, storage, and/or disposal (TSD) unit if a signed copy of the manifest is not returned to the generator within 35 days of pickup. If a signed copy of the manifest is not returned to the LQG within 45 days of pickup, the generator must file an exception report. The report must include a cover letter detailing attempts to locate the hazardous waste (40 CFR 262.42). Timeframes for submittal of the exception report are not specified in the RCRA regulations. RCRA does not have a 1-year exception report.	PCB generators must contact the transporter or TSD unit if a signed copy of the manifest is not returned to the generator within 35 days of pickup. If a signed copy of the manifest is not returned to the generator within 45 days of pickup, the generator must file an exception report. The report must include a cover letter detailing attempts to obtain the signed manifest copy and a copy of the unsigned manifest. Unlike RCRA, TSCA specifies that the exception report must be submitted within 45 days of the date the generator expected the signed copy of the manifest. The PCB generator must submit a 1-year Exception Report if the generator shipped the PCB waste to a disposer within 3 months of the 1 year deadline and the disposer did not dispose of the waste within 1 year from the removed from service date and/or did not return the Certificate of Disposal within 13 months from removed from service date (40 CFR 761.215).	RCRA and TSCA exception reporting for manifests are basically the same except TSCA does specify when the exception report is due. RCRA does not have a 1-year exception report; however, TSCA does. Note that PCB/radioactive waste is exempt form the 1-year time limit provided certain conditions are met concerning attempts to secure disposal and documenting those attempts.

Table 10-1. TSCA Comparison to RCRA Regulations.

CATEGORY	ISSUE	RCRA	TSCA	CAUTION
	RCRA Manifest vs. TSCA Manifest	Manifests are required for all hazardous waste except hazardous waste from conditionally exempt small quantity generators. RCRA manifesting requirements are found at WAC 173-303-180.	Manifests are required for PCB waste only when 'control' is relinquished from the PCB generator. A PCB shipment from a DOE facility in one state to a DOE facility in another state does not constitute loss of control. Therefore, a TSCA manifest is not required. However, DOT shipping papers still might be required if the PCBs are a hazardous substance.	A RCRA/TSCA waste might not require a PCB manifest but almost always will require a RCRA manifest. If only TSCA waste and control is relinquished, a PCB manifest will be required. If control is not relinquished, a PCB manifest is not required but a DOT shipping paper might be required.
	TSCA Certificates of Disposal (CDs) vs. RCRA CDs	RCRA does not have a CD and relies on the return of the signed manifest to track movement and disposal of hazardous/dangerous waste from the 'cradle to the grave'.	TSCA requires that a CD be sent from disposal facility to the generator within 13 months from the PCB removal from service date.	PCB generators use the manifest system to track changes in control of PCB waste (761.207). However, the disposer must send a CD to the generator listed on the manifest within 13 months of the out of service date.
MARKING	Non PCB Label-Marking	Waste must be labeled and marked per DOT (49 CFR 172) before offering for transport offsite.	Electrical equipment manufactures after July 2, 1979 are assumed to be "Non-PCB" (i.e. <50 ppm PCBs) while the equipment are in use. No labeling or marking is required, but it might be useful in helping to manage electrical equipment.	"Non-PCB" labels or marking are for in-use equipment. The equipment might contain <50 ppm PCBs and PCB concentration should be determined at the time of disposal.

Table 10-1. TSCA Comparison to RCRA Regulations.

CATEGORY	ISSUE	RCRA	TSCA	CAUTION
	Marking vs. Labeling	RCRA has marking requirements for dates of accumulation, generator name and address, and the words "Hazardous Waste"	TSCA has marking requirements for removed from service date, and the yellow "Caution PCBs" mark.	DOT has labeling for hazardous materials classes. RCRA and TSCA have marks.
RECYCLING	RCRA Recycling vs. TSCA Recycling	RCRA encourages recycling to conserve resources. Options include, but are not limited to, solid waste exemptions, scrap metal recovery, permitting relief for recycling treatment, used oils, universal waste, lead-acid batteries, etc.	TSCA does not encourage recycling as the drive of TSCA is to dispose of all PCBs. Recycling is allowed only when specified. Examples include recycling exemptions concerning paper products and asphalt roofing materials that are made from PCB contaminated raw materials. But even then, the finished product must meet PCB concentration requirements.	RCRA encourages recycling of hazardous waste; TSCA does not.
	RCRA Used Oil vs. TSCA Used Oil	RCRA used oil is regulated per 40 CFR 279.	TSCA used oil also is regulated as RCRA used oil per 40 CFR 279 and with the additional requirements of 40 CFR 761.30(e).	Used oil containing >2 ppm quantifiable PCBs must be burned in a 'qualified incinerator' that can include a TSCA approved, or RCRA permitted incinerator, TSCA high efficiency boilers, and RCRA industrial furnaces and boilers.

Table 10-1. TSCA Comparison to RCRA Regulations.

CATEGORY	ISSUE	RCRA	TSCA	CAUTION
REGULATORY AUTHORITY	RCRA Permits vs. PCB Approvals	RCRA permits are required for all TSD units.	TSCA approvals and notifications generally are required only if regulations cannot be implemented as written. Approvals are required for risk-based activities. Notifications are required for specific self-implementing options.	Commercial storers under TSCA have additional requirements for approval [761.65(d)]; the Hanford Site is **not** a commercial storer under TSCA. Do not assume an approval or notification is required for a specific activity under TSCA. Verify by checking the specific regulations.
	Federal vs. State Authorized	RCRA oversight has been delegated to Ecology. Ecology can implement its own RCRA program as long as it is as strict as the federal regulations. PCBs that are not regulated by TSCA might be regulated by Ecology as state-only dangerous waste (W001). This is waste from specified sources and less than 50 ppm.	TSCA has not been delegated to the states and is implemented by EPA, specifically EPA, Region 10, for the Hanford Site.	Ecology does not have direct oversight of TSCA on the Hanford Site; however, Ecology does work with EPA, Region 10. Also, Ecology does regulate some PCB waste as W001.
	TSCA Regulates Use	RCRA regulates waste, not products.	TSCA regulates both TSCA products and TSCA waste.	TSCA might apply even if the material is not yet waste.

Table 10-1. TSCA Comparison to RCRA Regulations.

CATEGORY	ISSUE	RCRA	TSCA	CAUTION
SPILLS	SPCC Plans for Temporary Storage vs. Contingency Plans	TSD units are required to have contingency plans.	SPCC Plans are required for temporary storage areas containing liquids and generally for storage in larger than DOT-size containers, but not for general storage-for-disposal areas.	E-mail communication with EPA/HQ (10/01/1999) states that a SPCC Plan is not required for PCB waste stored in a RCRA unit under 761.65(b), (e.g. in a RCRA tank), unless RCRA requires a plan.
	De minimis Losses (RCRA) vs. TSCA Spill	RCRA defines "de minimis" losses as small spills of commercial chemical products, characteristic waste, or used oils that become mixed with wastewater.	TSCA does not have a "de minimis" concept for PCBs at ≥50 ppm. Any spill amount of PCBs must be cleaned up per the PCB Spill Cleanup Policy or as PCB Remediation Waste.	RCRA has limited relief for "de minimis" spills of hazardous waste. TSCA does not have any relief for "de minimis" spills of PCBs. (The phrase "de minimis" does not appear in 40 CFR 761. "Small quantities" does appear, but only in relation to PCB R&D activities.)
STORAGE	90-Day Storage Requirements	RCRA generator accumulation is limited to 90 days and to RCRA containment in suitable containers.	TSCA PCB storage for disposal can exceed 90 days but disposal must occur within 1 year. RCRA or TSCA containment applies.	PCBs can be stored for disposal at a RCRA 90-day facility assuming that the 90-day facility meets the engineering requirements at 761.65.
	RCRA SAA/90-day Accumulation vs. TSCA Temporary Storage	RCRA generators can store in a SAA or 90-day accumulation area. SAA is limited by volume accumulated; 90-day area by time limit. Labeling of areas is required.	TSCA PCBs can be stored up to 30 days in a temporary storage area. Marking of areas is required.	TSCA area has a time limit on storage.

Table 10-1. TSCA Comparison to RCRA Regulations.

CATEGORY	ISSUE	RCRA	TSCA	CAUTION
	Date of Accumulation vs. Removed from Service Date	Under RCRA, the date of accumulation is the date the waste was spent or intended for discard.	Under TSCA, the date removed from service is the date the PCB material was no longer useable; no longer allowed to be serviced.	The intent to discard is not as critical under TSCA as it is under RCRA.
	Storage Prohibition -LDR 1 yr. vs. PCB 1 yr.	RCRA LDR prohibits storage. In the first year, the EPA has burden of proving illegal storage; after 1 year, the generator has burden of proving legal storage. Each subsequent TSD unit has 1 year of storage with first year burden on EPA of proving legal.	TSCA PCB waste must be disposed within 1 year of the date removed from service. (Exception for PCB/radioactive waste).	The TSCA prohibition on storage is for 1 year from the date removed from service. The RCRA prohibition of storage is for 1 year at the generator and subsequent TSD units.
TREATABILITY STUDIES	TSCA Treatability Studies vs. RCRA Treatability Studies	45-day notification required. Manifest not required for shipping samples. 10,000 kg limit on samples for each study. Might archive some treated material. Unused sample and residue subject to hazardous waste disposal requirements the earliest of 90 days after study is concluded or 1 year after receiving sample. Must maintain records.	30-day notification required. Manifest is required for shipping samples. 500-gallon or 70 cubic feet of liquid or non-liquid PCBs and less than 10,000 ppm PCBs limit. No more that 1 kg of pure PCBs can be disposed in all the R&D per year. Each R&D can last no longer than 1 year. Samples and waste from R&D must be stored as waste.	Both RCRA and TSCA have regulations addressing treatability studies and some of the requirements are the same for both RCRA and TSCA treatability studies. However, both have requirements unique to their particular regulations. Do not assume that TSCA and RCRA requirements are the same for the same activity.

Table 10-1. TSCA Comparison to RCRA Regulations.

CATEGORY	ISSUE	RCRA	TSCA	CAUTION
		Annual report must be submitted.	Must maintain records. Must be included in annual log.	
WASTE CLASSIFICATION	W001 and TSCA and UHCs	PCBs in waste from a discarded transformer, capacitor, or bushing that contains ≥2 ppm PCB and <50 ppm PCB and are not TSCA regulated for disposal, are regulated under WAC 173-303-9904 as state-only dangerous waste number W001. PCBs ≥10 ppm also might be underlying hazardous constituents (UHCs) in the LDR portion of RCRA waste.	PCBs at ≥50 ppm from any source, <50 ppm due to dilution, or <50 ppm and declared PCB remediation waste (due to spill or unauthorized disposal), decontamination waste, or PCB analytical waste are regulated under TSCA.	Waste that contains PCB <50 ppm might be TSCA regulated, state regulated as W001, or might not be regulated for PCBs. Such waste should not be both TSCA regulated and regulated as W001. If the waste is also a RCRA hazardous waste, the PCBs might be regulated as UHC for purposes of LDR.
	Waste Numbers (RCRA) vs. Waste Types (TSCA)	RCRA waste numbers are "D", "F", "K", "U" and "P".	PCB waste types include PCB Articles, PCB Article Containers, PCB containers, PCB electrical equipment, PCB remediation waste, PCB bulk product waste, and PCB analytical waste.	There are no PCB waste numbers; only waste types. [Use of "PCB 1" and "PCB 2" are related to transportation and are strictly optional. PCB 1 and PCB 2 were meant to facilitate communication between states.

Table 10-1. TSCA Comparison to RCRA Regulations.

CATEGORY	ISSUE	RCRA	TSCA	CAUTION
	RCRA Point of Generation vs. TSCA 'as found'	For hazardous waste, the point of generation is a one-time event except that a new point of generation can occur if the treatability category changes following bona fide treatment.	For certain PCB waste, the regulatory status of the waste can be based on the 'as found' PCB concentration that occurs after the PCB waste initially was generated. PCB waste subject to 'as found' includes PCB remediation waste and PCB analytical waste.	The RCRA point of generation and the TSCA 'as found' date might be two different timeframes. A RCRA waste generated in the past might have a TSCA 'as found' date in the present.
	Anti-dilution	The RCRA LDR standards prohibit dilution following the initial point of generation.	TSCA generally prohibits dilution but certain PCB wastes are not subject to anti-dilution provisions and use the 'as found' concentrations of PCB (e.g., PCB remediation waste and PCB analytical waste).	For RCRA waste, the point of generation determines the RCRA status of the waste. For PCB remediation waste and PCB analytical waste, the initial date removed from service (point of generation) and the subsequent discovery or generation determines the TSCA status of the waste.

Table 10-1. TSCA Comparison to RCRA Regulations.

CATEGORY	ISSUE	RCRA	TSCA	CAUTION
	TSCA Decontamination vs. RCRA Debris	Hazardous waste debris can be decontaminated by the alternative treatment standards for debris found at 40 CFR 268.45. If decontaminated by an extraction or destruction treatment technology, listed and/or characteristic hazardous debris are excluded from RCRA. Treatment residues continue to be RCRA regulated and subject to the waste specific LDR treatment standards if the residues are listed or continue to exhibit any characteristics of hazardous waste.	PCB waste can be decontaminated via the decontaminated standards at 761.79. If decontaminated per these standards [761.20(c)(5)(i)], or for materials already meeting these standards [761.20(c)(5)(ii)], the PCB Item can be placed in commerce, i.e., the item is excluded from TSCA. Like RCRA, the treatment residues from decontamination continue to be subject to TSCA.	Decontamination standards for RCRA and TSCA are specific to the RCRA or TSCA component of the waste material. Both RCRA and TSCA allow decontaminated materials to be excluded from specific regulations. Decontamination residues remain subject to the respective regulatory requirements.

Table 10-2. TSCA Comparison to DOT Regulations.

CATEGORY	ISSUE	DOT	TSCA	CAUTION
DOT	DOT Applicability	If PCB material is hazardous waste, it is a DOT hazardous material.	If PCB material is a hazardous substance (>1 pound in a single package), it is a DOT hazardous material.	All RCRA hazardous waste is a DOT hazardous material. Some PCB waste is and some waste is not DOT hazardous material.
	Definition of "Bulk" per DOT and TSCA	DOT defines "bulk packaging" as: 119 gallons for a liquid; 882 pounds and 119 gallons for a solid; and 1,000 pounds water capacity for a gas.	TSCA does not define "bulk" when used in phrases such as: PCB Bulk Liquid, Bulk PCB Waste, Bulk PCB Remediation Waste, PCB Bulk Product Waste, Bulk Storage Tanks, etc.	DOT has a specific regulatory definition for the term "bulk" while TSCA does not. Therefore, the term "bulk" under TSCA is defined via the common dictionary definition: "In large quantities;" "To gather in to a mass or aggregate;" "An aggregate made by piling together things of the same kind;" etc.

Table 10-3. TSCA Comparison to CWA Regulations.

CATEGORY	ISSUE	CWA	TSCA	CAUTION
CLEAN WATER ACT	PCB Discharge Limits per CWA and TSCA	Discharge limits are defined on a case-by-case basis and incorporated into CWA permits.	Discharge limits are <3 ppb or a PCB discharge limit included in a CWA permit.	PCB discharges must be <3 ppb OR meet the CWA permit discharge limits, which could be higher or lower than 3 ppb.

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11.0 POLYCHLORINATED BIPHENYLS WASTE MANAGEMENT IN HANFORD SITE ANALYTICAL LABORATORIES

The following chapter is for determining TSCA requirements for management and disposal of laboratory waste on the Hanford Site and does not address or pre-empt other regulatory requirements. This chapter is to be used to identify management and disposal requirements for analytical waste resulting from analysis of samples from materials regulated under TSCA for PCBs.

Hanford Site laboratories* routinely accept samples that contain radioactive, hazardous, dangerous, and/or PCB constituents. These constituents invoke a complex set of regulatory requirements on laboratory sample handling, analysis, and disposal activities. Decontamination and re-use of laboratory equipment also is affected by these regulatory requirements. In addition, the laboratories use a variety of analytical reference standards and spike materials purchased from chemical manufacturers and vendors.

TSCA has specific requirements relating to the marking of PCB Items (including waste and non-waste materials), storage of PCB waste, decontamination of equipment contaminated with PCBs, and disposal of PCB waste. Both DOE and Ecology have requirements for the management of waste. This chapter addresses implementation of TSCA regulations for laboratories on the Hanford Site.

11.1 SAMPLE MANAGEMENT

Samples are not waste and are considered 'in use' until full analysis for all desired constituents is completed and no future analytical use is identified. A laboratory sample is authorized implicitly for use while chemical analysis is taking place (Preamble to the Notification and Manifesting Rule, 54 FR 52716, 52719, December 21, 1989). Laboratory samples do not become waste until the samples are no longer being used for analytical purposes or are no longer being held after testing for a specific purpose (such as an enforcement action or possible future tests).

The term 'analytical waste' refers to waste containing PCBs generated as a result of any analytical process, such as the extracted portion of the sample, rinsate, sample preparation, sample digest, extract cleanup, extract concentration (761.64).

761.64(a) applies to extracts that are for PCB analysis and 761.64(b) applies to all other portions of analytical waste. Also, analytical waste from measuring radiation in a laboratory is eligible for management according to 761.64(b) (refer to Figure 11-1).

11.1.1 Sample Marking

Samples from sources with known PCB concentrations of ≥50 ppm generally are marked with the PCB large mark (M_L) or small mark (M_S), as appropriate, in accordance with 40 CFR 761, Subpart C. Samples that have not been identified as containing ≥50 ppm PCBs when received at a Hanford Site laboratory, but through analysis are determined to contain PCBs at concentrations of ≥50 ppm, are marked with PCB M_L or M_S, as appropriate, at the time of such identification. TSCA does not require marking of samples of <50 ppm PCB.

* Hanford Site laboratories include 222-S Laboratory Complex, Waste Sampling and Characterization Facility, Pacific Northwest National Laboratory, and Plutonium Finishing Plant laboratory.

11.1.2 Sample Storage

There is no TSCA storage for disposal requirements for laboratory samples because the samples are considered in use. Samples are not required to be stored in an area meeting the requirements specified in 761.65 regardless of the concentration of PCBs. The laboratory is not subject to the storage for disposal requirements for samples until their 'use' has ended. The EPA also provides the following Q&A guidance on storage of laboratory samples (EPA 2001):

"Q: If I know a sample that I receive for analysis contains PCBs ≥ 50 ppm, how must I store it?

A: You are not required to comply with storage for disposal requirements because the sample is still in use (rather than in disposal) until analysis is completed. EPA recommends that you date the sample and label it with its PCB concentration."

Note that marking an 'in use' sample with a date and a PCB concentration is an EPA recommendation and not required by TSCA regulations.

Once a determination is made that a sample containing TSCA regulated PCBs is no longer needed, the sample is considered to be a waste, and a removed-from-service date is applied to the container. If the sample is ≥50 ppm PCB, the unused sample awaiting disposal is stored in an area meeting the requirements of 761.65. As discussed in the following, this storage for disposal requirement does not apply to waste or unused samples that are <50 ppm PCB.

11.1.3 Unused Sample Disposition

Unused samples, when considered to be waste, need to be disposed either by returning the sample to the sample collector or by disposing of the unused sample in the same manner as required for the original waste from which the sample was taken. In general, parent samples are considered unused samples. Daughter samples, (i.e., derived samples) are considered analytical waste. As stated in the EPA Q&A Manual (EPA 2001):

Q: How must I dispose of the unused portion of a sample that contains PCBs?

A: Dispose of the unused portion of the sample in the same manner as the waste from which the sample was taken. For example, where analysis of a portion of a sample of mineral oil dielectric fluid shows that the PCB concentration is ≥50 and <500 ppm, dispose of the unused portion of the sample in an incinerator that complies with §761.70 or a high-efficiency boiler according to §761.71(a).

11.2 ANALYTICAL WASTE MANAGEMENT

Analytical waste from samples regulated under 40 CFR 761 (regardless of the requested analytical parameters) is managed and disposed in accordance with 761.64. If the sample is from a waste that contains TSCA regulated PCBs, any analytical waste from any analysis [including analysis for other than PCBs (such as for metals or anions)] is managed in accordance with TSCA regulations (761.64) for disposal of analytical waste. If the sample is from a waste that contains non-TSCA regulated PCBs, any analytical waste from any analysis is be managed as non-TSCA (unless the PCB concentrations in the analytical waste are 50 ppm or greater).

11.2.1 Determination of Regulatory Applicability

To determine if analytical waste is subject to TSCA regulations, it is necessary to know if the sample is from a waste source that is regulated under TSCA. If the original waste is regulated under TSCA, the analytical waste is subject to 761.64. When determining regulatory applicability of the original waste, Hanford Site generating units use the following guidelines.

- Waste containing ≥50 ppm PCBs is regulated under TSCA. A waste category should be determined (e.g., PCB remediation waste, PCB liquid, PCB analytical waste) based on known information concerning the source of the waste.

- Waste containing <50 ppm PCB comes under one of the following three possible regulatory scenarios.

  1. The waste is TSCA regulated if the waste is <50 ppm PCB because of dilution or meets the definition of PCB remediation waste, such as waste that is the result of the unauthorized disposal, e.g., a spill or from an unauthorized source. (Authorized sources are listed in 761.30. For waste containing <50 ppm PCB, the generating unit is responsible for determining TSCA applicability.)

  2. If the PCBs in the waste are from a discarded transformer, capacitor, or bushing that contains ≥2 ppm PCB and <50 ppm PCB and are not TSCA regulated for disposal, the waste is regulated under WAC 173-303-9904 as state-only dangerous waste number W001. However, according to WAC 173-303-071(3)(k), the generating unit has the option of managing this waste under TSCA (40 CFR 761, Subpart D) in lieu of WAC 173-303.

     NOTE: PCBs from a single source generally are regulated under either TSCA or WAC 173-303, but not both. A waste consisting of PCB components from multiple sources might have multiple TSCA classifications (e.g., PCB remediation waste, PCB liquid waste) and might be WAC 173-303 regulated as well.

     In addition, waste might be TSCA regulated for PCBs and RCRA regulated for other constituents.

  3. If the waste is not TSCA PCB regulated and does not meet the requirements under WAC 173-303 for designation as W001, the waste is not regulated for PCBs.

11.2.2 Waste Reclassified During or After Analysis

Samples might be received in a laboratory for analysis without accurate or complete information on the PCB concentration or the history of the sample. If, during analysis of a sample considered to be non-TSCA regulated, information is obtained that shows the sample is TSCA regulated, the sample must be managed as PCB analytical waste. This information could consist of analytical data or newly discovered process knowledge.

Laboratory personnel must perform a careful search for all analytical waste known to have resulted from the analysis of the reclassified sample. Having identified the waste, laboratory personnel must do the following:

- Manage and dispose of the liquid waste as described in Section 11.2.4 and 11.2.6
- Store the waste as described in Section 11.2.5.

Laboratory personnel must determine the concentration of PCBs in the liquid analytical waste to determine if the waste is TSCA regulated. PCB concentrations either can be calculated based on analytical results of the sample and sample dilution resulting from the analysis or determined by way of PCB analysis of the resulting waste.

Laboratory personnel must dispose of the unused sample as described in Section 11.1.3.

11.2.3 Extracted Sample Portions

Analytical waste from which PCBs have been extracted for purposes of PCB analysis is unregulated under TSCA in accordance with 40 CFR 761.64(a).

> *40 CFR 761.64 (a): Portions of samples of a size designated in a chemical extraction and analysis method for PCBs and extracted for purposes of determining the presence of PCBs or concentration of PCBs are unregulated for PCB disposal under this part.*

All other waste generated as a result of PCB analysis is regulated in accordance with 40 CFR 761.64(b), as described in the following sections.

11.2.4 Liquid Analytical Waste Management

Liquid analytical waste is managed based on the concentration of the waste at the time of disposal (after analysis is completed). The containers used to collect materials as part of an analytical process are considered in use. However, when the use is complete, the containers must be managed according to all applicable TSCA requirements.

11.2.4.1 Process Residues

PCB materials are either in use or out of service (e.g., waste). The materials collected as part of the analytical process are process residues, not waste. Process residues are in use while the container (e.g., slop jar) is being filled as part of ongoing analytical process. As long as the container is still part of the analytical process and collecting process residues, the container and its contents are considered in use. Process residues become analytical waste at the point that the collection container is considered full and no longer can collect additional process residues, or when the analytical process no longer is being used routinely (therefore, the analytical process no longer is in use). When the process residues become analytical waste, the container should be removed from service and a determination made as to appropriate TSCA management and storage requirements.

As long as the container is being used to collect process residues, the residues are considered in use, and storage for disposal requirements do not apply. When the container is removed from service, if the waste is TSCA regulated for disposal and ≥50 ppm PCB, TSCA storage-for-disposal requirements apply. The removed from service date is the date when the container is filled or the analytical process is no longer being used and the container is removed from the analytical process.

11.2.4.2 Analytical Waste Determination

When determining the concentration of PCBs in analytical waste, it is acceptable to take a composite sample of a full container of the analytical waste. Each individual aliquot generated need not undergo analysis for PCBs. Therefore, when a waste container is full, a composite sample could be taken or

process knowledge applied to determine the final PCB concentration. This position is supported by the following EPA guidance (EPA 2001):

"Q: If waste is produced from an instrument during a series of analyses and the waste is collected into a single container, may the PCB concentration of the composite waste be used, or is it necessary to determine the PCB concentration for the waste produced for each individual analysis?"

"A: You may determine the PCB concentration of liquid laboratory waste either by analyzing the PCB concentration of the composite of all of the liquid waste in the container, or by using the PCB concentration from the sample or samples having the highest PCB concentration which is included in the container. Disposal of non-liquid laboratory waste does not depend on the PCB concentration of the waste."

11.2.5 Waste Storage

The following sections describe Hanford Site laboratories PCB waste storage requirements and activities.

11.2.5.1 Analytical Waste <50 ppm PCBs

Analytical waste stored at a laboratory before disposal is managed in accordance with the PCB concentration in a full waste container. If the PCB concentration is <50 ppm, the waste need not be stored in an area that meets the requirements of 761.65, as this requirement only applies to the storage of waste with PCBs ≥50 ppm. Also container inspections and marking do not apply if PCB concentrations are <50 ppm. In rare instances when analytical waste has a concentration ≥50 ppm of PCBs, the TSCA storage for disposal requirements apply. Because of the nature of sample preparation and analysis, the sample undergoes significant physical and chemical changes that make the sample unlikely to have a residual over this limit.

11.2.5.2 Analytical Waste ≥50 ppm PCBs

Analytical waste containing ≥50 ppm of PCBs is marked with the PCB mark, M_L or M_S as appropriate, date removed from service affixed, and is stored according to the requirements of TSCA. Most of the waste generated is expected to be contaminated radioactively and/or contains dangerous waste constituents.

11.2.5.3 PCB Storage for Disposal Areas

There are three storage areas that can qualify for storage for disposal under TSCA. Theses areas are described in Chapter 4.0, Section 4.3. All storage for disposal areas must be marked with the PCB M_L mark and PCB containers must be marked and checked for leaks at least once every 30 days.

11.2.5.4 Analytical Waste Container Management

Once the container is full, the process residues are no longer in use and are waste. If the waste is TSCA regulated, the PCB container requirements apply. If the waste is nonradioactive, any container used for storage of the waste must be in accordance with the requirements set forth in 761.65(c)(6), which refers to DOT HMR (49 CFR 171 through 180). If the slop jar does not meet the DOT HMR requirements, the slop jar and/or contents must be placed in an authorized DOT container.

Additional information on PCB containers is provided in Chapter 4.0, Section 4.3. PCB container marking and DOT requirements are summarized in Figure 11-2.

11.2.6 Waste Disposal

Waste disposal for analytical waste and PCB containers are discussed in the following sections.

11.2.6.1 Analytical Waste Disposal

Disposal of analytical waste is based on whether the waste is a liquid or a non-liquid and if a liquid, the concentration of PCBs at the time of disposal. Liquid waste must be disposed in accordance with the requirements for liquid PCB remediation waste under 761.61(a)(5)(iv), while non-liquids are regulated for disposal under 761.64(a)(5)(v)(A).

Liquid analytical waste could be disposed by meeting specified decontamination levels (761.79) or could be incinerated [761.60(a)]. In addition, liquid analytical waste could be transferred to the DST System; refer to Chapter 5.0, Section 5.1.

Non-liquid waste such as PPE generated during analysis, e.g., gloves, wipes, small tools, etc., is disposed per 761.61(a)(5)(v)(A) that allows the waste, if not radioactive, to go to a municipal landfill. However, if the waste is radioactive, 761.50(b)(7)(ii) allows disposal of this PCB/radioactive waste in the onsite LLBG. (Refer to Chapter 6.0, Section 6.1.)

> *"Any person disposing of PCB/radioactive waste must do so taking into account both its PCB concentration and its radioactive properties. If, taking into account only the properties of the PCBs in the waste (and not the radioactive properties of the waste), the waste meets the requirements for disposal in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill (e.g., PCB bulk product waste under §761.62(b)(1)), then the person may dispose of the PCB/radioactive waste, without regard to the PCB component of the waste, on the basis of its radioactive properties in accordance with all applicable requirements for the radioactive component of the waste."*

All other applicable requirements for disposal (WAC 173-303 for dangerous or mixed waste) must be met in addition to the TSCA requirements.

11.2.6.2 Polychlorinated Biphenyls Container Disposal and/or Decontamination

A PCB container is any bag, barrel, bottle, can, drum, package, or tank used to store PCB material or waste of greater than 50 ppm PCB and whose surface has been in direct contact with PCBs. A PCB container could be (1) disposed with the waste contents, (2) drained and disposed separately, or (3) drained and decontaminated. A drained PCB container can be reused without decontamination, provided the container remains TSCA regulated and any waste or material added to the container (including non-TSCA regulated waste and waste with no PCBs) becomes TSCA regulated. PCB waste added to a TSCA regulated container should be limited to PCB analytical waste only. This would allow for analytical waste disposal at the 'as found' concentration as opposed to the original source concentration. If non-analytical waste is placed in the container, the PCB concentration assigned to the waste would be the higher of the original waste source concentration or PCB concentration assigned to the container.

Once a PCB container is no longer needed for storage of TSCA regulated PCB waste, and if the container is not disposed along with waste contents, the container must be drained and either disposed or decontaminated. Any drained liquids must be managed and disposed as PCB liquid waste. Laboratory glassware and other equipment meeting the TSCA definition of container could be decontaminated by

triple rinsing with an appropriate solvent as described in Chapter 7.0, Section 7.2. After decontamination, the containers are no longer subject to TSCA requirements and could be reused or disposed without restrictions under TSCA.

If the PCB container only contained material greater than or equal to 50 ppm PCB and less than 500 ppm, the drained container can be disposed as municipal solid waste, or if radioactive, can be disposed as low-level radioactive waste (e.g., in the LLBG). If the PCB container at any point contained material of 500 ppm or greater PCBs, the container only can be disposed by incineration or in a TSCA-approved chemical waste landfill. Before disposal, a drained PCB container with PCB concentrations at 50 ppm or greater is to be marked and stored in a TSCA compliant storage area for disposal.

If the container stored only waste or material less than 50 ppm PCB, the container can be drained and the container stored and disposed as non-TSCA regulated waste (refer to Figure 11-3).

11.3 LABORATORY EQUIPMENT REUSE

Analytical instruments used for the analysis of samples containing concentrations of PCBs ≥50 ppm are not required to be disposed or decontaminated after each use as long as the only contact of PCBs is through the normal course of analysis appropriate to the design of the instrument. However, when the instrument is cleaned during normal maintenance or according to the manufacturer's recommendations, the residual PCB-containing waste is considered TSCA regulated analytical waste and managed and disposed in accordance with the information previously provided. At the time of disposal, the equipment must be decontaminated according to 761.79 or disposed as TSCA regulated waste. This position is supported by the following EPA guidance (EPA 2001):

"Q: Section 761.60(j)(1)(vi) states that laboratory instrumentation must be disposed of. Why can't laboratory instrumentation that's contaminated be decontaminated and reused, rather than disposed of, where decontamination is feasible?"

"A: EPA did not intend this provision to mean that you cannot reuse laboratory instruments. However, at the end of the equipment's useful life, you must dispose of it based on the pre-treatment concentration of the PCBs that contaminated it. You do not need to decontaminate laboratory instruments after each use. However, when the instrument is cleaned during normal maintenance or according to the manufacturer's recommendations, the residual PCB-containing waste must be disposed of in accordance with §761.64. Instruments must be decontaminated in accordance with §761.79 prior to distribution in commerce."

"Q: I have laboratory equipment that I used for analysis of samples that contain PCBs and samples that do not. Must I decontaminate the equipment between uses? May I follow the manufacturer's recommendations for cleaning the instrument instead of the decontamination procedures specified in §761.79?"

"A: You do not need to decontaminate chemical instruments in accordance with §761.79 after each use. However, when you clean the instrument during normal maintenance or according to the manufacturer's recommendations, you must dispose of the residual PCB-containing waste in accordance with §761.64. You must decontaminate instruments in accordance with §761.79 prior to distribution in commerce."

From the responses to comments on the proposed rule (OPPTS Docket #66009A), under section 40 CFR 761.64):

"*Comment 5: Requests that laboratory equipment dedicated to use in the analytical laboratory be considered unregulated for use and disposal, particularly in the case of GC/ECDs. Another commenter stated that the design and operation of the equipment prevents contamination from occurring. All of the sample injected moves through the instrument and the detector is vented to the atmosphere. If the instrument did not operate in this way, it would not produce valid data. Another commenter requests clarification of what is meant by the statement "analytical instrumentation is contaminated and therefore regulated if regulated PCBs are analyzed". The commenter would like to know what instrumentation is considered contaminated. Another commenter requests that the "EPA clarify that gas chromatographs may be re-used for non-PCB work without decontamination. Gas chromatographs essentially decontaminate themselves as an inherent part of their operation. The commenter stated that forcing industry to dedicate such expensive equipment solely for the purpose of analyzing PCBs is not necessary or cost effective.*"

"Response 5: The equipment is authorized for use in accordance with §§761.30(j) and (k). If PCBs ≥50 ppm or ≥10 ug/100 cm^2 remain on the equipment after it is no longer used for the analysis of PCBs, the equipment is regulated for disposal in accordance with §761.61. If the equipment is decontaminated or found to have PCBs below the levels in §761.79(b), the equipment may be reused without restriction in accordance with §761.20(c)(5)."

Laboratory equipment that meets the TSCA definition for PCB container can be decontaminated according to requirements described in Section 11.2.6.2.

11.4 MANAGEMENT OF STANDARDS AND SOLUTIONS

Laboratories use standards and spike materials in analytical processes. PCB standards and spike materials are purchased from an authorized commercial manufacture. PCB standards are regulated for disposal based on their concentrations as follows (e-mail John Smith/EPA-HQ, June 29, 2001):

- Standards purchased from a supplier and not used are regulated for disposal based on their original concentration as received from the supplier and not diluted.
- Standards from a supplier that have been diluted in the laboratory but not used are regulated for disposal as PCB analytical waste based on the 'as found' concentration as diluted in the laboratory.
- Used standards also are regulated for disposal as PCB analytical waste based on the 'as found' concentration as diluted in the laboratory.

The PCB analytical waste disposal section (761.64) cannot be used to dilute and dispose of large or small volumes of liquid PCBs that are not used as standards, not reasonable to use as standards, or not appropriate to use as standards. Volumes of liquid that are in excess of those normally used or expected to be used for laboratory standards within the laboratory where located are not PCB laboratory standards but liquid PCBs.

In addition, from the responses to comments on the proposed rule (OPPTS Docket #66009A, section 40 CFR 761.64:

"Comment 11: Clarify the phrase "return to site of generation" and how it pertains to lab waste standard solutions. Must they be returned to the manufacturer for disposal according to the concentration of the standard?"

"Response 11: Waste standard solutions are lab waste and may be disposed in accordance with liquid PCB remediation waste (see §§761.64(b)(1) and 761.61(a)(5)(iv)). Returning waste standard solutions to "the site of generation" such as a standard manufacturer or other preparer of standard is not a disposal option for this lab waste. The provision for returning to a site of generation applies to waste samples sent back to the waste site for disposal with the rest of the waste from which it was taken."

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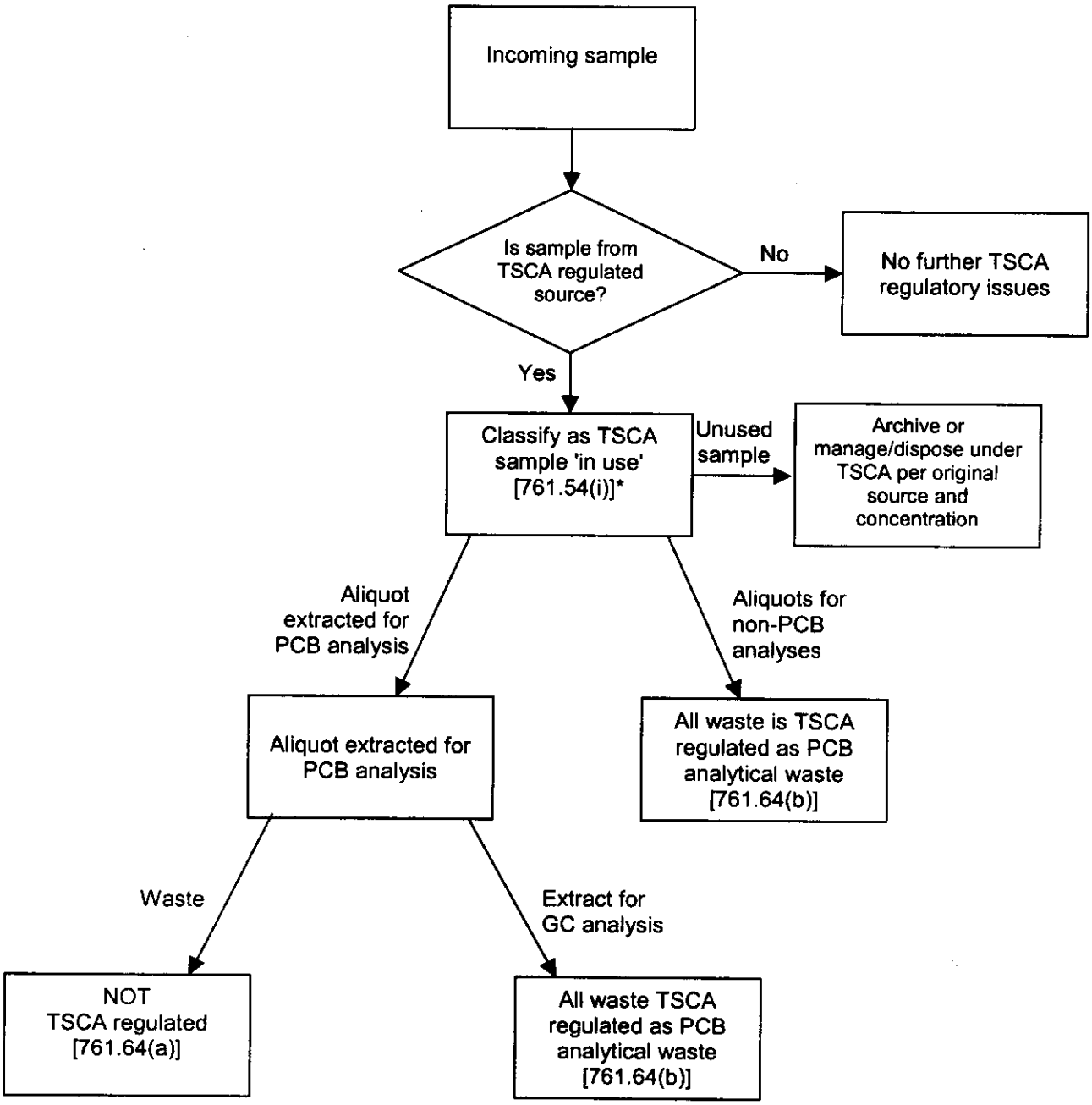
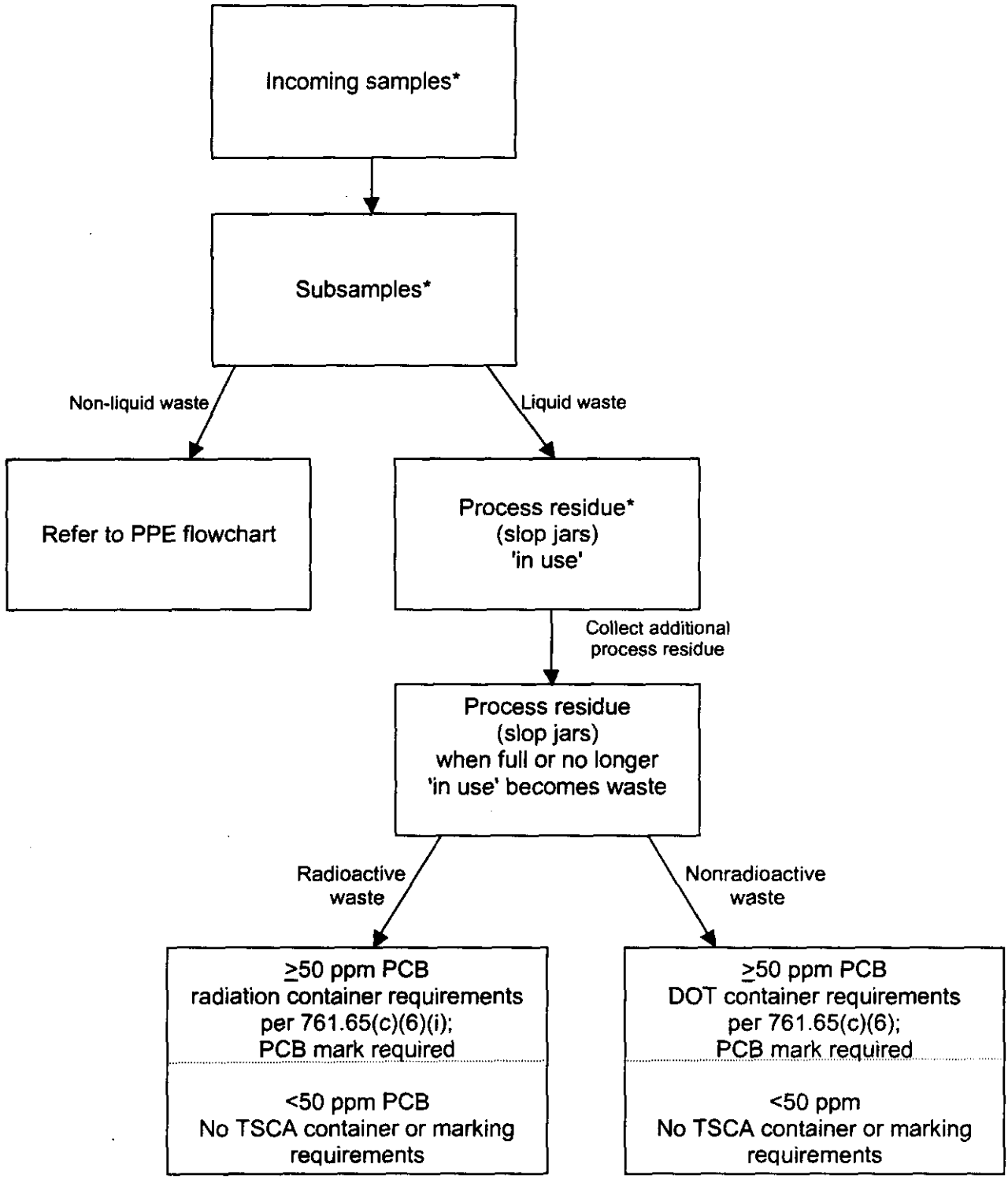


GC = gas chromatograph
PCB = polychlorinated biphenyls
TSCA = *Toxic Substances Control Act of 1976.*
* Sample is 'in use", no storage for disposal or TSCA disposal requirements apply.

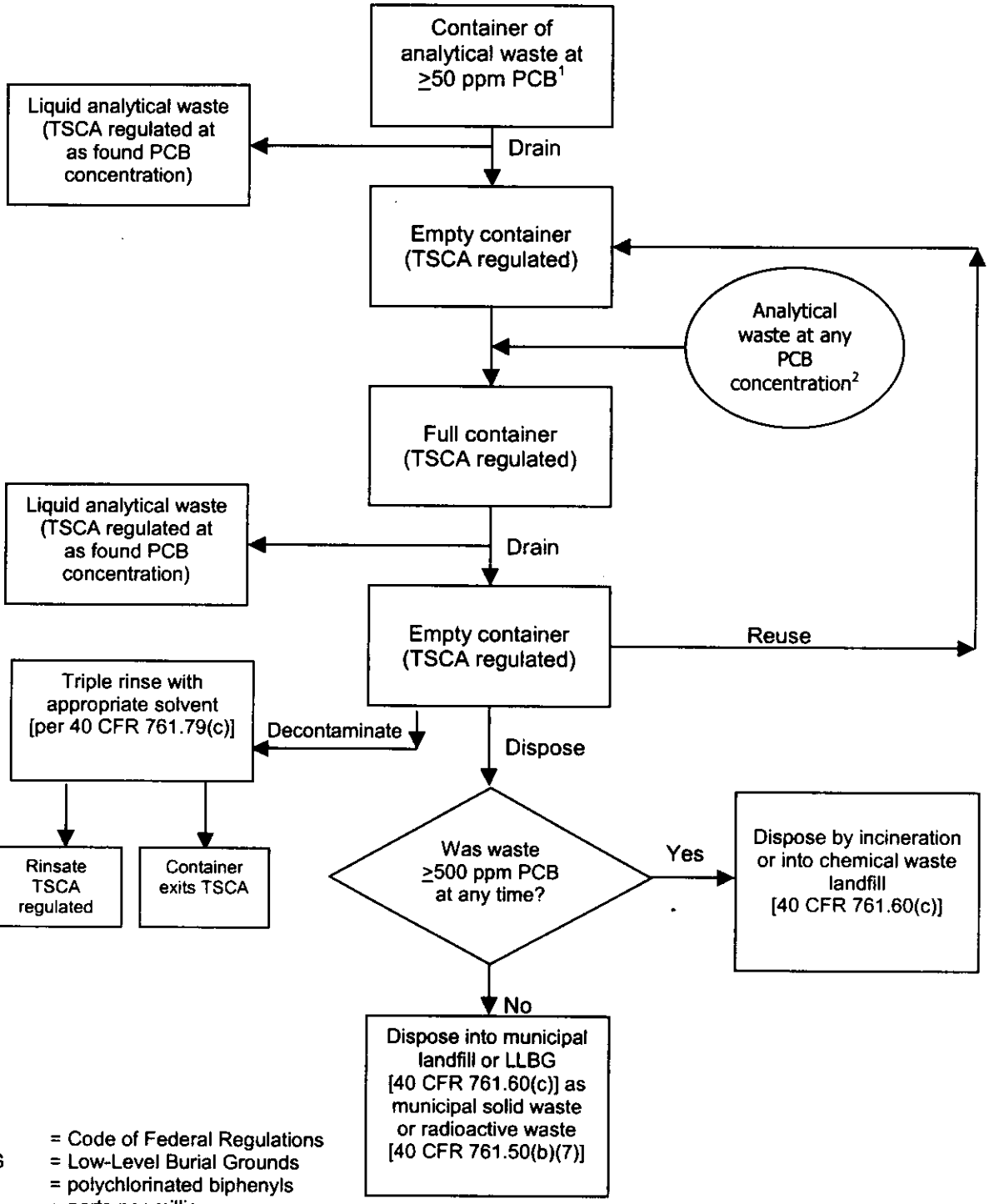
Figure 11-1. Laboratory Polychlorinated Biphenyls Waste Management.



DOT = U.S. Department of Transportation
PCB = polychlorinated biphenyls
PPE = personal protective equipment
ppm = parts per million
TSCA = *Toxic Substances Control Act of 1976*

* Sample is 'in use". No specific TSCA container requirements. No PCB mark required; recommended to label with PCBs 'in use'.

Figure 11-2. Polychlorinated Biphenyls Container Marking and U.S. Department of Transportation Requirements.



CFR = Code of Federal Regulations
LLBG = Low-Level Burial Grounds
PCB = polychlorinated biphenyls
ppm = parts per million
TSCA = *Toxic Substances Control Act of 1976*

[1] Disposal and/or decontamination of container of <50 ppm PCB are not TSCA regulated.
[2] Includes non-TSCA regulated and non-PCB waste.

Figure 11-3. Polychlorinated Biphenyls Container Disposal and/or Decontamination.

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12.0 REFERENCES 12-1

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12.0 REFERENCES

DOE/EH-413-0003, June 2000, *Environmental Compliance Consultation: DOE PCB Questions and Answers - Part I*, Office of Environmental Policy and Guidance, RCRA/CERCLA Division, Washington, D.C.

DOE/RL-96-68, *Hanford Analytical Services Quality Assurance Requirements Documents*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Ecology, 2000, Washington State Department of Ecology, U.S. Environmental Protection Agency, U.S. Department of Energy, Richland Operations Office, U.S. Department of Energy, Office of River Protection, *Framework Agreement for Management of Polychlorinated Biphenyls (PCBs) in Hanford Tank Waste*, dated August 31, 2000.

EPA, 1994, *PCB Q&A Manual*, Operations Branch Chemical Management Division Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, D.C.

EPA, 2001, Revision to the *PCB Q&A Manual*, Operations Branch Chemical Management Division Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, D.C.

EPA-HQ, 2001, "Date Removed from Service Question", email from T. Simons, EPA, to P. W. Martin, FH, March 1, 2001.

HNF-SD-WM-DQO-001, *Data Quality Objectives for Tank Farms Waste Compatibility Program*, Lockheed Martin Services, Inc., Richland, Washington.

HNF-SD-WM-EV-053, *Double-Shell Tank Waste Analysis Plan*, July 2001, CH2M HILL Hanford Group, Richland, Washington.

HNF-SD-WM-OCD-015, *Tank Farm Waste Transfer Compatibility Program*, CH2M HILL Hanford Group, Richland, Washington.

Internal Memo FH-0007040, Richard H Gurske to Distribution "Documentation of Continuing Attempts to Secure Disposal of Polychlorinated Biphenyl/Radioactive Waste", December 19, 2000, Fluor Hanford, Richland, Washington.

Meeting Minutes, July 10, 2001, "Privatization Regulatory DQO Implementation", signed by Lori Huffman, DOE-ORP, and Jerry Yokel, Ecology, Richland, Washington.

NACE, 1981, *Standard Test Method, Visual Standard for Surfaces of New Steel Centrifugally Blast Cleaned With Steel Grit and Shot*, TM0175-75, National Association of Corrosion Engineers, Houston, Texas.

OPPTS Docket #66009A, *Response to Comments Document on the Proposed Rule -- Disposal of Polychlorinated Biphenyls*, May 1998, USEPA, Washington, DC 20460

RPP-6623, *Management of the Polychlorinated Biphenyl Inventory in the Double-Shell Tank System*, August 2001, CH2M HILL Hanford Group, Richland, Washington.

SW-846, *Test Methods for Evaluating Solid Waste*, U.S. Environmental Protection Agency, Washington, D.C.

APPENDICES

A HISTORICAL DOCUMENTATION

B KEYWORD INDEX (IN DEVELOPMENT)

C POINTS-OF-CONTACT

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APPENDIX A

HISTORICAL DOCUMENTATION

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APPENDIX A

HISTORICAL DOCUMENTATION

The following listing is some available PCB documents (letters, guidance, etc.) that are relevant to implementation of TSCA/PCB regulations (40 CFR 761) on the Hanford Site. These documents are available on the Hanford Record Management Information System (RMIS) and the accession number is included for easy retrieval. The listing is not meant to be all-inclusive. (For information on obtaining access to RMIS or receiving copies of the documents listed, please contact: Gayle Cooper at 372-0728).

Agreements and Information (Post-Megarule)

- *Fitzsimmons, (Ecology) et al., Framework Agreement for Management of Polychlorinated Biphenyls (PCBs) in Hanford Tank Waste*, (August 8, 2000), (Accession # D8499312)
- *Management of the Polychlorinated Biphenyl Inventory in the Double-Shell Tank System*, RPP-6623, Rev. 2, (August 9, 2001) (Accession # D8798495).

Risk-Based Disposal Approvals (Post-Megarule)

- Letter, *Charles E. Findley (EPA) to Joel Hebdon (RL), Toxic Substances Control Act Risk Evaluation for the 242-A Evaporator-Campaign 2001-01*, February 15, 2001 (Accession # D8830096)
- Letter, *Joel Hebdon (RL) to Chuck Findley (EPA), Transmittal of Toxic Substances Control Act (TSCA) Risk Evaluation of the 241-A Evaporator for the Evaporator Campaign 2001-1*, February 8, 2001 (Accession #D8594301).

National Federal Facility Compliance Agreement Activities (Pre-Megarule)

- Annual PCB National Status Report - January 1998 (Accession # D8830090)
- Annual PCB National Status Report - January 1997 (Accession # D8830032)
- Letter, *James E. Rasmussen (RL) to Contractors, Richland, Washington, Federal Facility Compliance Agreement on Storage of Polychlorinated Biphenyls* (September 13, 1996) (Accession # D196180156)
- Letter, *William D. Adair to James E. Rasmussen, National FFCA on Storage of PCB Report*, (November 4, 1996) (Accession # D196218406)

Annual Document Logs

- 2000 (Accession # D8731881)
- 1999 (Accession # D8345091)
- 1998 (Accession # D199122153)
- 1997 (Accession # D198115887)
- 1996 (Accession # D197193859)
- 1995 (Accession # D196126341)
- 1994 (Accession # D295113240)
- 1993 (Accession # V13192079 & V13159073)
- 1992 (Accession # V13000147 & V13047065)

Annual Reports

Letter, *Daniel L. Duncan (EPA region 10) to James E. Rasmussen (RL), October 11, 2000* (states that EPA agrees that PCB annual reports are no longer required) (Accession # D8830024)

- 1998 (Accession # D199138839)
- 1997 (Accession # D198128491 and D198130557)
- 1996 (Accession # D197206184, D197220114, and D197278828)
- 1995 (Accession # D197187094 and D196131811)
- 1994 (Accession # D295137824)
- 1993 (Accession # V13192053)
- 1992 (Accession # V13002035)

Analytical Information and Guidance

- *Letter, James E. Rasmussen (DOE-ORP) to Nancy Uziemblo, Ecology), Transmittal of Meeting Minutes on Implementation of the Privatization Regulatory Data Quality Objective for July 10, 2001* (October 30, 2001) (Accession #D8890396)
- *Letter, Mark F. Marcus, Ph.D. (FH) to John W. Hunt (CHG), Polychlorinated Biphenyls Weathering and Radiolysis Evaluation of Hanford Samples* (June 4, 2001) (Accession # D8723544)
- *Letter, D. L. Renberger (FDH) to J. E. Rasmussen (RL), Polychlorinated Biphenyl Quantitation Limits* (February 17, 2000) (Accession # D8215746)

Notification of PCB Activity forms

- Letter, Steven H. Wisness to Fibers & Organics Branch (7404), Revised Notification of Toxic Substances Control Act (TSCA) PCB Waste Activity Form, (April 10, 2000) (Accession # D8268001)

Unit Specific Information

1) LLBG, Trench 94 (Naval compartments classified as PCB bulk product waste)
   - *Letter, Richard H. Gurske (FDH) to J. E. Rasmussen (RL), Contract No. DE-AC06-96RL13200, Toxic Substances Control Act/Polychlorinated Biphenyl Recordkeeping Requirements for Low-Level Burial Grounds 218-E-12B Trench 94* (February 17, 2000) (Accession # D8214504)
   - *Letter, James E. Rasmussen, (RL) to Mr. Michael A. Bussell, (EPA), August 9, 1999* (Accession # D8830015)
   - *Letter, Mr. Michael A. Bussell, (EPA) to James E. Rasmussen, (RL), Re: Termination of the Compliance Agreement between the United States Department of Energy, Richland Operations Office and the United States Environmental Protection Agency, Region 10, Seattle, Washington (March 1990). Withdrawal of the Toxic Substances Control Act (TSCA) Interim Approval DOE/RL-90-12, Revision 2, June 1994, November 1, 1999* (Accession # D8830006)

2) 314 and 340 Buildings
   - *Letter, David Croxton, (EPA) to James E. Rasmussen (RL), Re: Polychlorinated-Biphenyls (PCBs) at the Hanford Site 340-A Building Tanks* March 6, 1998 (Accession # D8829984)
   - *Letter, James E. Rasmussen, (RL) to Daniel L. Duncan (EPA region 10), Documentation of Polychlorinated Biphenyls in the Ventilation Shaft of 314 Building, Hanford Site* (December 29, 1997) (Accession # D8829959)
   - *Letter, David Croxton, (EPA) to James E. Rasmussen (RL), Re: PCB (Polychlorinated biphenyl) Cleanup Spill Hanford Site 314 Building: Ventilation Shaft, Richland, Washington (DOE No. 98-STO-011)* (November 26, 1997) (Accession # D8829968)

- *Letter, David Croxton, (EPA) to James E. Rasmussen (RL), Re: Polychlorinated biphenyls (PCBs) at the Hanford Site 314 Building and 340 Waste Handling Facility Rail Tank Car,* (June 27, 1997) (Accession # D8829977)

3) 219-S Tank System
   - *Letter, David Croxton, (EPA) to James E. Rasmussen (RL), Re: Polychlorinated-Biphenyls (PCBs) at the Hanford Site 219-S Tank System and Tank 101 (February 25, 1998) (Accession # D8829994)*
   - *Letter, David Croxton, (EPA) to James E. Rasmussen (RL), Re: Polychlorinated-Biphenyls (PCBs) at the Hanford Site 219-S Tank System and Tank 102 (December 11, 1997) (Accession # D8830001)*

EPA guidance:

- Available on the internet at http://www.epa.gov/opptintr/pcb/#Interpretive Guidance

Washington State Guidance and Information

- State of Washington, Department of Ecology, G. Thomas Tebb (Ecology) to Melodie Selby, (Ecology) *Polychlorinated biphenyls (PCB's) and Hanford Projects, DRAFT,* October 28, 1997 (Accession # D8829938)
- State of Washington, Department of Ecology, *Discussion Paper on Polychlorinated Biphenyl Dangerous Waste* May 15, 1985 (Accession # D8829941)

Internet Miscellany

The following internet sites have information related to the PCB regulations and management.

- TSCA Regulatory Text:
  - EPA TSCA Regulations (Megarule), 40 CFR 761 Text: http://www.access.gpo.gov/nara/cfr/waisidx_99/40cfr761_99.html
  - Technical Corrections to Megarule (June 29, 1999 Federal Register) http://copa.org/library/legal/envlaw/t17048.htm

- General Regulatory Sites
  - DOE Environmental Policy and Guidance (includes links to various DOE guidance documents) http://www.eh.doe.gov/oepa/
  - DOT Regulations, Clarifications, and Exemptions http://www.text-trieve.com/dotrspa/
  - EPA, Homepage http://www.epa.gov/
  - EPA TSCA/PCB Guidance (includes PCB Question and Answer Manual) http://www.epa.gov/opptintr/pcb/#Interpretive Guidance

- EPA/Region 10, Homepage
  http://www.epa.gov/region10/

- State of Washington, Department of Ecology, Homepage
  http://www.ecy.wa.gov/ecyhome.html

- State of Washington, Department of Ecology - Search for Publications and Rules
  http://www.ecy.wa.gov/biblio/rpsearch.html

- Hanford Site Specific

  - Hanford Analytical Services Quality Assurance, DOE/RL-96-68
    http://www.hanford.gov/anserv/hasqa.html

  - Hanford Site Solid Waste Acceptance Criteria, HNF-EP-0063,
    http://www.hanford.gov/wastemgt/wac/criteria.htm

APPENDIX B

KEYWORD INDEX

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APPENDIX B

KEYWORD INDEX

The following provides an index to keywords used in this document. The sections listed refer to the section numbers in this document and not page numbers. Figure numbers and table numbers are provided where appropriate. The entire section might need to be reviewed to locate the keyword. (The TSCA regulations at 40 CFR 761 should be consulted to determine actual compliance status of any actions or activities.)

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POINTS OF CONTACT

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APPENDIX C

POINTS OF CONTACT

As of January 2002, the following are points-of-contact for TSCA/PCB related issues and/or for questions, comments, or proposed updates concerning this document. It is recommended that individuals go through their company representative with any questions or issues.

Department of Energy, Richland Operations Office:	
E. M. Mattlin	376-2385
Department of Energy, Office of River Protection:	
M. E. Burandt	373-9160
Fluor Hanford PCB HUG Contacts:	
A. L. Prignano (Primary)	376-1057
P. W. Martin (Secondary)	376-6620
Fluor Hanford PCB Regulatory Questions:	
W. E. Toebe (Primary)	372-2359
A. L. Prignano (Secondary)	376-1057
Pacific Northwest National Laboratory:	
M. W. McCoy (Primary)	376-1483
D. K. Lutter (Secondary)	376-5631
CH2M Hill Group:	
M. J. Reiss (Primary)	373-2007
C. H. Mulkey (Secondary)	373-0956
Bechtel Hanford:	
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