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# *THE 1998*

# PCB DISPOSAL AMENDMENTS

## *Guide to the 1998 PCB "Mega Rule"*

**SEPTEMBER 1998**

*Prepared by:*

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# 1. INTRODUCTION

On June 29, 1998, the U.S. Environmental Protection Agency (EPA) promulgated a sweeping series of changes in the PCB regulations under the Toxic Substances Control Act (TSCA). Commonly known as the "Mega-Rule" or PCB Disposal Amendments (due to its focus largely on waste management issues), this long-awaited rule encompasses more than 80 changes in the regulations and spans more than 200 pages of text including the preamble.

The original Notice of Proposed Rulemaking (NPRM) was published on June 10, 1991 as a call for information on a variety of issues, many of which were mainly attempts to simplify or clarify regulatory concepts that had shown indications during the last ten years or so to need rework. The most important concept, however, was the reclassification of different large volume waste types (such as contaminated soil, gas pipeline, and auto shredder fluff) to permit a broader range of low risk disposal options.

Based on input from the 1991 NPRM, EPA proposed changes to the regulations on December 6, 1994. In addition to the waste management options addressed earlier, the agency took advantage of the rulemaking process to clean up an assortment of relatively minor changes in the regulations. EPA reportedly received over 250 sets of comments, most of them largely favoring the major changes and focusing on constructive fine-tuning of the details.

The amendments became effective on August 28, 1998. Embedded in the rule are dates for compliance with certain new reporting and recordkeeping requirements that may become effective on a later date. Because the rules became effective immediately, this may cause problems for some owners who have PCB equipment that is newly regulated, for example, and for those responsible for old concrete spills that will need to be cleaned up or encapsulated immediately. Additional negotiations between EPA and the regulated community are expected to resolve these and other issues.

The reader is cautioned that the following pages represent an interpretation of the new rule and is not a substitute for the actual language of the regulations, nor do these comments apply to all situations.

# 2. SCOPE OF THE CHANGES: THE BASICS

TSCA sets forth regulations governing the management of chemicals sold and used in the U.S. In 1976, the original TSCA law required explicitly that EPA examine PCBs and their use, and to consider regulating their management from "cradle to grave." Beginning in 1978, EPA did just that, promulgating a series of regulations that placed strict controls on the use of PCBs and their treatment, storage, and disposal. Because of the TSCA statute and the use provisions of the regulations, PCBs are subject to a different set of regulations than are other hazardous chemicals and wastes (although there are many similarities between Resource Conservation and Recovery Act (RCRA) and TSCA waste storage and disposal technical requirements, for example).

**Table 1** lists the specific areas of change addressed in the amendments covering all the key TSCA components of use, manufacture, processing, distribution in commerce, and treatment/storage/disposal. The following are some of the more significant changes found in the amendments and are discussed below:

- Addition of provisions authorizing certain uses of PCB.
- Authorization of the manufacture, distribution and use of PCBs for R&D activities.
- Authorization of additional options for PCB cleanup and disposal.
- Establishment of standards and procedures for managing "PCB Remediation Waste" (resulting largely from spill cleanup) and "PCB Bulk Product Waste" (derived from manufactured products).
- Establishment of methods for determining PCB concentration and equating surface and bulk concentration for non-porous materials.
- Specification of management controls for PCB items destined for reuse.
- Establishment of a mechanism for coordinating PCB management approvals among federal programs.

Numerous other changes and clarifications apply to PCB analysis, marking, recordkeeping, reporting, and requesting exemptions.

Notable among the changes that were proposed, but not made, were related to the use of PCBs in paint and other coatings. EPA had originally proposed to authorize the continued use of PCB-containing products that were considered to represent low risk to human health and the environment; examples cited in the proposed and final rule preamble were dried paint, caulk, and coal tar enamel

## Table 1

## Changes in the TSCA PCB Regulations Resulting from the 1998 Disposal Amendments*

| Section | Title | Amended | New | Unchanged |
|---|---|---|---|---|
| § 761.1 | Applicability | ● | | |
| § 761.2 | Assumptions | | ● | |
| § 761.3 | Definitions | ● | | |
| § 761.19 | References | ● | | |
| § 761.20 | Prohibitions | ● | | |
| § 761.30 | Authorizations | ● | | |
| § 761.35 | Storage for reuse | | ● | |
| § 761.40 | Marking requirements | ● | | |
| § 761.45 | Marking formats | | | ● |
| § 761.50 | Applicability (disposal road map) | | ● | |
| § 761.60 | Disposal requirements | ● | | |
| § 761.61 | PCB remediation waste | | ● | |
| § 761.62 | PCB non-remediation waste | | ● | |
| § 761.63 | Household waste disposal | | ● | |
| § 761.64 | Disposal of analysis waste | | ● | |
| § 761.65 | Storage for disposal | ● | | |
| § 761.70 | Incineration | | | ● |
| § 761.71 | High Efficiency Boilers | | | ● |
| § 761.72 | Scrap Metal Recovery Ovens and Smelters | | ● | |
| § 761.75 | Chemical waste landfills | ● | | |
| § 761.77 | Coordinated approval | | ● | |
| § 761.79 | Decontamination | ● | | |
| § 761.80 | Exemptions | ● | | |
| § 761.91 | Applicability (import/export) | | | ● |
| § 761.93 | Import for disposal | ● | | |
| § 761.97 | Export for disposal | ● | | |
| § 761.99 | Other transboundary shipments | | ● | |
| § 761.120 | Scope (of spill cleanup policy) | | | ● |
| § 761.123 | Definitions | ● | | |
| § 761.125 | Requirements | | | ● |

## Table 1 (Cont')

## Changes in the TSCA PCB Regulations Resulting from the 1998 Disposal Amendments*

| Section | Title | Amended | New | Unchanged |
|---|---|---|---|---|
| § 761.130 | Sampling requirements | | | ● |
| § 761.135 | Compliance and enforcement | | | ● |
| § 761.180 | Records and monitoring | ● | | |
| § 761.185 | Records – excluded manufacturing | | | ● |
| § 761.187 | Reporting – excluded manufacturing | | | ● |
| § 761.193 | Maintenance of monitoring records | | | ● |
| § 761.202 | EPA identification numbers | | | ● |
| § 761.205 | Notification of waste activity | ● | | |
| § 761.207 | The manifest – general | ● | | |
| § 761.208 | Use of the manifest | | | ● |
| § 761.209 | Retention of manifest records | | | ● |
| § 761.210 | Discrepancies | | | ● |
| § 761.211 | Unmanifested waste report | | | ● |
| § 761.215 | Exception reporting | ● | | |
| § 761.218 | Certificate of disposal | ● | | |
| § 761.240-257 (Subpart M) | Natural gas pipeline sampling | | ● | |
| § 761.260-274 (Subpart N) | Characterization sampling for § 761.61 | | ● | |
| § 761.280-298 (Subpart O) | Cleanup verification sampling for § 761.61 | | ● | |
| § 761.300-316 (Subpart P) | Sampling locations for non-porous surfaces | | ● | |
| § 761.320-326 (Subpart Q) | Validation of alternative sampling and analysis methods | | ● | |
| § 761.340-359 (Subpart R) | Sampling PCB Bulk Product Waste | | ● | |
| § 761.360-378 (Subpart S) | Double Wash-Rinse Procedure | | ● | |
| § 761.380-398 (Subpart T) | Validation of alternative decontamination solvents | | ● | |

* Prepared by U.S. EPA, August 1998.

coatings. Much of the debate surrounding this issue stems from the apparent use of PCB-containing paints on military and other commercial ships, ships that in some cases were to be sold or salvaged in a manner contrary to the use authorization provisions of TSCA. EPA has requested additional information from affected organizations regarding the occupational and/or environmental exposure potential from PCBs in these non-liquid matrices, and plans another supplemental notice to collect and scrutinize this data before publishing any additional rules.

The original ANPRM also included a proposed relaxation of the PCB import ban for disposal. EPA elected to move ahead with the Import for Disposal Rule (March 18, 1996), ahead of the rest of the rule, but the final rule was overturned on appeal. Final action on the import or export of PCBs, whether for use or disposal, will for now be handled on a case-by-case basis through the petition process. This includes management of US-owned PCBs and PCB articles located at foreign facilities.

Finally, the rule contains an unprecedented eight (8) appendices or subparts (M through T) that represents the detailed procedures for many of the concepts presented in the rule. This approach is similar to the Spill Cleanup Policy and the original Annex III Storage Facility specifications, where the details are kept out of the rule but serve as a stand-alone protocol for accomplishing some action called for in the rule text. The subparts in this rule include the following:

- **M:** Determining a PCB Concentration for Purposes of Abandonment or Disposal of Natural Gas Pipe.
- **N:** Cleanup Site Characterization Sampling for PCB Remediation Waste.
- **O:** Sampling to Verify Completion of Self-Implementing Cleanup and On-Site Disposal of Bulk PCB Remediation Waste and Porous Surfaces.
- **P:** Sampling Non-Porous Surfaces for Use, Reuse, and Disposal.
- **Q:** Self-Implementing Alternative Extraction and Chemical Analysis Procedures for Non-Liquid PCB Remediation Waste Samples.
- **R:** Sampling Non-Liquid, Non-Metal PCB Bulk Product Waste and PCB Remediation Waste for Disposal Characterization.
- **S:** Double Wash/Rinse Method for Decontaminating Non-Porous Surfaces.
- **T:** Comparison Study for Validating New Performance-Based Decontamination Solvents.

**Table 2** presents a summary of each of the subparts and their applicability.

## Table 2
## Summary of PCB Disposal Amendment Subparts

| Subpart | Applicability | Title | Key Elements |
|---|---|---|---|
| M | §761.60(b)(5) | Determining the PCB Concentration for Purposes of Abandonment or Disposal of Natural Gas Pipe | • Standard wipe sample method and size<br>• Sample site selection for pipe segments (<40 ft, removed) and pipe sections (>40 ft, abandoned)<br>• Chemical analysis<br>• Determining the regulatory status of sampled pipe |
| N | §761.61(a)(2) | Cleanup Site Characterization for PCB Remediation Waste | • Sampling bulk PCB remediation waste and porous surfaces<br>• Sampling non-porous surfaces (2 m grid spacing)<br>• Sampling liquid PCB remediation waste (single vs. multi-phasic)<br>• Chemical extraction and analysis of samples<br>• Reporting PCB concentrations in samples (dry vs. wet weight) |
| O | §761.61(a)(4)(i) and (iii), (a)(6) | Sampling to Verify Completion of Self-Implementing Cleanup and On-Site Disposal of Bulk PCB Remediation Waste and Porous Surfaces | • Determining the number and location of samples (square grid, 1.5 m spacing)<br>• Sample size and procedures<br>• Compositing (maximum of 9 samples per composite)<br>• Reporting of results (keep results for 3 years) |
| P | §761.61(a)(6) or §761.79(b)(3) | Sampling Non-Porous Surfaces for Measurement-Based Use, Reuse, and On-Site or Off-Site Disposal and Decontamination | • Proportion of surface to be sampled (large vs. small, flat vs. irregular)<br>• Determining sample locations<br>• Random selection processes<br>• Compositing<br>• Interpretation of results (sample result is extrapolated to grid(s) sampled) |
| Q | §761.272 or §761.292 | Self Implementing Alternative Extraction and Chemical Analysis Procedures for Non-Liquid PCB Remediation Waste Samples | • Sample preparation (>10 samples, 300 g each)<br>• Conducting the comparison study |
| R | §761.62, §761.61 | Sampling Non-Liquid, Non-Metal PCB Bulk Product Waste for Purposes of Characterization for PCB Disposal | • Waste form, including piles and contemporaneous sampling<br>• Three levels of sampling, from field to laboratory |
| S | §761.372 for clean surfaces, §761.375 for dirty surfaces | Double Wash/Rinse Method for Decontaminating Non-Porous Surfaces | • Cleaning equipment<br>• Pre-cleaning the surface<br>• Requirements for clean and dirty surfaces<br>• Options for decontamination, reuse and disposal of solvents, cleaners and equipment |
| T | §761.79(c)(3) and §761.79(c)(4) | Comparison Study for Validating New Performance-Based Decontamination Solvent | • Experimental design, including temperature, agitation, time of contact, surface conditions and confirmatory sampling<br>• Validation study<br>• Recordkeeping |

# 3.
# WASTE DISPOSAL OPTIONS

## 3.1 THE ANTI-DILUTION RULE (§761.1(b)(5))

The primary purpose of the original disposal amendment was the simplification of the PCB waste classification system. The heart of the complexity associated with the original concept was the anti-dilution rule that states in essence that any PCB waste stream must be managed according to the PCB concentration of the original source material. Spill debris had to be managed according to the concentration of the material spilled, containers had to be managed according to the material it stored, etc. The purpose of the rule was to deter would-be criminals from diluting the concentration in order to reduce (or avoid) the disposal fee.

Until the new rule was promulgated this year (20 years after the original rules were promulgated), responsible organizations were required to manage old spills according to this rule, for example, and penalized in some cases for something beyond their control. EPA has acknowledged the inherent unfairness of this approach and set forth waivers for certain types of waste generated under specific conditions. In most cases, for example, remediation waste is to be managed according to its concentration rather than the concentration of the source.

## 3.2 PCB REMEDIATION WASTE (§761.61)

PCB remediation waste is defined as "waste containing PCBs as the result of a spill, release, or other unauthorized disposal…" Specifically, this waste includes the following:

- Materials disposed prior to April 18, 1978 and PCBs currently at $\geq$ 50 ppm.
- Materials contaminated by an original source in excess of (a) 500 ppm beginning on April 14, 1978, or (b) 50 ppm beginning on July 2, 1979.
- Any materials at any source not authorized for use (under the new rule).

PCB remediation waste consists of any debris generated from spill cleanup including the following:

- Environmental media.
- Sewage and industrial sludge.
- Buildings and man-made structures.

Specific examples of each category are included in the rule.

EPA established three options for PCB remediation waste disposal:

- Self-Implementing Disposal.
- Performance-Based Disposal.
- Risk-Based Disposal.

### 3.2.1 Self-Implementing Disposal (§761.61(a))

The section on "self-implementing disposal" really includes both disposal options and site cleanup protocols for remediation waste. (Cleanup protocols are outlined later in this paper.)

This section applies to five different waste types as defined in the rule:

- **Bulk PCB remediation waste** (non-liquid PCB remediation wastes such as soil, sediment, dredged material, mud, PCB sewage sludge, and industrial sludge).
- **Non-porous surfaces.**
- **Porous surfaces** (includes concrete).
- **Liquids**.
- **Cleanup wastes** (liquid cleaning solvents, abrasives, and equipment, as well as non-liquid cleanup material such as protective clothing, rags, and tools).

Cleanup standards are specified for each waste category, as outlined later in this paper.

*This represents one of the more important statements in the rule, and forms the basis for the most significant cost savings.*

Any cleanup or disposal of PCB remediation waste can now be performed "based on the concentration at which the PCBs are found," rather than based on the concentration of the original source (spilled) material. This change represents one of the more important statements in the rule, and forms the basis for the most significant cost savings. Soil excavated from a spill site can be managed according to its concentration.

Soil containing less than 50 ppm PCB must no longer be placed in a TSCA landfill, but instead can be placed in a municipal or non-industrial, non-hazardous landfill that is permitted to accept low concentration PCBs (a number of such sites exist already). Soil removed from outdoor substations and gas compressor stations where PCB-contaminated liquids may have been released at one time is often below 50 ppm PCB and would benefit from this option. Soil containing PCBs at or above 50 ppm may be disposed of in a TSCA-permitted landfill, but may also be disposed of in a landfill at a similar RCRA facility.

For each type of waste listed above, the amendments provide decontamination standards to allow reuse (§761.79), particularly for cleaning solvents and metal parts.

*While the decontamination permit requirement was rarely enforced, the new rule entirely removes this threat and allows decontamination without a permit.*

Another significant change involves the management of wastes generated indirectly from a remediation project, such as personal protective clothing, tools, and cleaning materials. Historically, the rules stated that any material used in the cleanup of a PCB spill should be disposed of in a TSCA disposal facility (as a "contact waste"), or decontaminated under a TSCA Alternative Method of Destruction Approval (AMDA) in order to be reused or "de-listed." While the decontamination permit requirement was rarely enforced by EPA, the new rule entirely removes this threat and allows decontamination without a permit. Protective clothing and non-liquid cleanup materials can now go to a municipal or non-liquid, non-hazardous landfill, or to a RCRA Subtitle C landfill.

### 3.2.2 Performance-Based Disposal (§761.61(b))

Generators of PCB waste can always dispose of the waste according to the original PCB disposal options, incineration and landfill, or according to other applicable permits.

- For liquids, performance-based disposal options include incineration (§761.60(e)) or decontamination (§761.79).
- For solids, options include TSCA incineration, TSCA landfill, or decontamination under §761.79.
- For dredged material containing <50 ppm PCB, options include management according to selected Clean Water Act and U.S Army Corps of Engineers permits.

### 3.2.3 Risk-Based Disposal (§761.61(c))

Any person may petition the EPA Administrator to allow storage or disposal of PCB-containing material in a manner other than according to either the performance-based or self-implementing options. Approval is based on the "unreasonable risk to human health or the environment" standard. No specific process or review schedule is offered in the rule.

## 3.3 PCB BULK PRODUCT WASTE (§761.62)

Bulk product waste is defined as "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," excluding electrical equipment that is otherwise regulated. Specific examples include the following:

- Non-liquid demolition debris manufactured, coated, or serviced with PCBs.
- PCB-containing waste from shredding autos or appliances.

- Non-liquid PCB-countering materials including plastics, rubber, dried coatings, caulking adhesive, paper, Galbestos, insulation, or felt/fabric products.

- Fluorescent light ballasts containing PCBs in the potting compound.

EPA's use of the term "bulk product" waste is a change from the "non-remediation" waste category proposed in 1994, and it is designed to more accurately reflect the source of the waste.

PCB bulk product waste disposal options include the following:

- Performance-based disposal, similar to remediation waste with the addition of thermal separation.

- Disposal in municipal or non-municipal, non-hazardous landfills.

- Risk-based disposal, identical to PCB remediation waste except for individual evaluation of waste streams.

- Use as daily landfill cover.

*The option to use solid waste landfills for PCB-containing waste is an important change.*

The option to use solid waste landfills for PCB-containing waste is an important change. Wastes explicitly eligible for this option include those items listed above in which PCBs are not readily available for leaching to the environment. In addition, EPA has provided a leaching test option under Subpart O, with a clean criterion of 10 µg/L in the leachate.

Disposal of bulk product waste requires that at least 15 days notice be provided to the disposal facility for the first and each subsequent delivery of waste. The notice must state that the waste "may include components containing PCBs at $\geq$ 50 ppm," based either on analytical data or general knowledge of the waste stream (§761.62(b)(4)).

# 4.
# SPILL CLEANUP AND SITE REMEDIATION

Before the amendments were promulgated, a PCB "spill" could be classified by its age, and the cleanup regulated according to when it occurred. Commonly cited categories were as follows:

- New spills.
- Spills that had occurred after May 5, 1987 and not been properly cleaned up.
- Spills that had occurred before 1987 but after April 18, 1978, the date of enactment of the first Marking and Disposal regulations.
- Spills that had occurred before April 18, 1978.

New spills were covered under the 1987 spill policy, but the rest were subject to site-specific evaluation and negotiation.

*EPA has attempted to provide owners with a clearer path toward cleanup for any spill or contaminated site, and to capture pre-1978 spills under TSCA instead of CERCLA or state authority.*

In the new regulations, EPA has attempted to provide owners with a clearer path toward cleanup for any spill or contaminated site, and to capture pre-1978 spills under TSCA instead of CERCLA or state authority. Determining the date of the release(s) is now the responsibility of the owner.

However, cleanup of PCB remediation waste from a pre-TSCA or "old" spill is still not necessarily required. Previously, old spills and PCBs disposed of in landfills were considered "in service" and did not need to be removed. Subsequent litigation (Standard Scrap Metal Company, TSCA V-C-288) clarified the intent to be limited to disposal sites only, but even then some confusion remained.

Under the new rules, sites that contain these wastes are presumed to not present an unreasonable risk to human health or the environment, unless deemed otherwise by the Regional Administrator using data generated at EPA's request. Cleanup and disposal of waste from such sites according to the remediation waste requirements afford the owner a presumption against enforcement. The same protocol applied to spills occurring after April 18, 1978 does not afford such protection (unless qualified under the PCB Spill Cleanup Policy).

## 4.1 PCB SPILL CLEANUP POLICY

EPA and the regulated community seem to agree that the PCB Spill Cleanup Policy has helped PCB owners move ahead with the cleanup of routine spills without complicated negotiations, unnecessary transaction costs, and concern over later enforcement action. As a result, the policy remains essentially the same as before. In fact, EPA adapted much of the spill policy strategy to the management of certain older spills as well under self-implementing disposal.

The only change made to the spill policy itself is the establishment of a 1 lb reporting limit in place of the former 10 lb limit, in order to bring it into conformance with other regulations (notably CERCLA). Note that the limit is based on the amount of pure PCBs contained in the spilled material, not the quantity of spilled material. For a 500 ppm (or an untested) mineral oil transformer, this amount equates to a spill of about 27 gallons.

## 4.2 SELF-IMPLEMENTING REMEDIATION (§761.61(a))

EPA's self-implementing concept for remediation waste is designed to expand the spill cleanup policy to moderate-sized sites with contamination that is not recent and the location of which is not close to sensitive receptors. In principle, strict compliance with the letter of the spill policy provides the responsible party with a "presumption against enforcement" should EPA elect to revisit the spill. However, adherence to the self-implementing remediation approach does not offer any such protection for spills that occurred after April 18,1978.

Specific aspects of the self-implementing cleanup option include the following:

- **Applicability**: Not applicable to sensitive locations, or subject to more stringent cleanup requirements if so warranted by the Regional Administrator (RA).
- **Site Characterization**: Site can be characterized according to either the prescriptive approach presented as Subpart N, or other methods.
- **Notification**: Thirty-day notification to EPA is required, and then to other state and local authorities, for initiating cleanup -- except in emergency situations.

*Standards are computed based on relative risk, specifically time of occupancy, hence the use of the terms "low occupancy" and "high occupancy."*

- **Cleanup Levels**: Standards are established for bulk remediation waste, non-porous surfaces, porous surfaces, and liquids. Standards are computed based on relative risk, specifically time of occupancy, hence the use of the terms "low occupancy" and "high occupancy." The exact basis for the risk calculations is also provided to allow computation of site-specific standards for possible approval by the RA.
- **Site Cleanup:** Several technologies for on-site waste treatment are approved, such as soil washing and decontamination, as well as continued use of off-site disposal.
- **Cleanup Verification**: Cleanup verification sampling procedures are presented in Subpart O (for bulk waste and porous surfaces) and Subpart P (for non-porous surfaces). Compositing is permitted for the first time, and the requirements relaxed for recleaning the entire site if only one area failed during closure sampling.
- **Capping**: Standards for cap performance as well as perpetual care requirements are also included.
- **Deed restriction**: Cleanup involving caps or low occupancy standards require that the property be deed-recorded to notify current and future occupants of the need to maintain the containment and/or limit exposure.

## 4.3 CLEANUP STANDARDS

*If the owner cleans to 10 ppm and caps the site, a future purchaser will now need to be notified of the residual PCBs and the cap, and will need to take responsibility for cap maintenance in perpetuity.*

The first important change in the PCB cleanup philosophy under TSCA is the clear recognition that changes in use will change the applicable standard. The reference to "deed restrictions" above is the key to understanding the new philosophy. If an owner cleans a qualifying site to 1 ppm, there are no future use restrictions. If the owner cleans to 10 ppm and caps the site, a future purchaser will now need to be notified of the residual PCBs and the cap, and will need to take responsibility for cap maintenance in perpetuity. For higher standards, changes in use will require additional cleanup. The amendments exclude from these provisions sites being cleaned up under an administrative or enforcement order, assuming the order does not specify a particular end use and associated risk-based standard.

The cleanup standards provided in the Spill Policy have not been changed by the disposal amendments. However, since they frequently served as guidelines rather than applicable or relevant and appropriate requirements (ARARs) in CERCLA and other cleanup planning, EPA set forth a broader range of cleanup standards for use in self-implementing cleanup for bulk PCB remediation waste sites. These are as follows (see §761.3 for definitions of high and low occupancy areas):

- High Occupancy Areas: 1 ppm without restriction, 10 ppm with a 10-inch cap.
- Low Occupancy Areas: 25 ppm, or 25-50 ppm if fenced and marked, or 25-100 ppm with cap.

For non-porous surfaces, the standards are the same as the Spill Policy standards, but subject to the sampling protocol in subpart P:

- High Occupancy Areas: 10 µg/100 $cm^2$
- Low Occupancy Areas: 100 µg/100 $cm^2$

High and low occupancy areas are clearly defined in the rule (§761.3).

Porous surfaces can be decontaminated or encapsulated. If removed, they must be disposed of based on the Bulk PCB Remediation waste criteria, which presumably means that the bulk remediation cleanup standards apply to concrete left in place, for example.

# 5. DECONTAMINATION

*Now it is possible to perform many reclassification activities without a permit as long as certain characterization and/or cleaning procedures are followed.*

The concept of decontamination as incorporated in the new rule is also a significant departure from the dilution rule and related policies. In the past, most types of treatment, cleaning, and separation to reduce the TSCA-regulated waste quantity were prohibited unless an AMDA was obtained. Now it is possible to perform many reclassification activities without a permit as long as certain characterization and/or cleaning procedures are followed.

Much of the decontamination concept was presented in the 1994 proposal. The final rule clarifies some of the important details and includes the following:

- Materials meeting the decontamination standards are unregulated for disposal.
- Decontaminated materials can also be used, reused, or distributed in commerce.
- Most wastes from decontamination can be managed according to their concentration.
- Many decontamination activities do not require a permit (such as chopping, distilling, spraying, filtering, soaking, wiping, wire insulation removal, scraping, scarification and abrasive/solvent cleaning of non-porous surfaces). Some of these previously required a permit but now do not, while others can be done under a simpler permitting process.

The term decontamination, as used in the rule, is meant in the broadest sense, capturing not only equipment and building surfaces (the usual connotation) but also water, organic liquids, non-porous surfaces, concrete, and coated non-porous surfaces.

## 5.1 LIQUIDS

Water treatment is included under decontamination. Water treatment standards include the following:

- 0.5 µg/L for unrestricted use or discharge.
- 3.0 µg/L for discharge to a publicly owned treatment works (POTW) or navigable waters provided it is consistent with existing permits (particularly National Pollutant Discharge Elimination System (NPDES), which often includes a PCB standard).
- 200 µg/L (at or near the solubility limit of PCBs in water) for closed industrial processes such as non-contact cooling water.

The new decontamination standard for non-aqueous liquids is 2 mg/kg, versus the originally proposed 2 mg/L.

## 5.2 NON-POROUS SURFACES

The new standards for decontaminating non-porous surfaces in contact with liquids at or above 500 ppm are similar to the spill cleanup policy standards already in place, and are as follows:

- 10 µg/100 $cm^2$ For unrestricted use.
- 100 µg/100 $cm^2$ for smelting in an industrial furnace complying with specific requirements.

Standards are also added for painted surfaces ("non-porous surfaces in contact with non-liquid PCBs"). Specifically, the National Association of Corrosion Engineers (NACE) visual standards are incorporated by reference:

- Visual Standard No. 2, Near White Blast-Cleaned Surface Finish, which allows unrestricted use.
- Visual Standard No. 3, Commercial Blast-Cleaned Surface Finish, as pretreatment for smelting.

*The range of solvents approved for use in cleaning metal has been expanded beyond kerosene to other named solvents.*

Thermal processes are also specified for metal surface decontamination under §761.72.

EPA has expanded the range of solvents approved for use in cleaning metal beyond kerosene to other named solvents, and has included a self-implementing procedure (Subpart T) to test and qualify new solvents for use.

## 5.3 CONCRETE

Concrete decontamination conducted within 72 hours of a spill can be cleaned to a surface concentration of 10 µg/100 $cm^2$. Subsequently, concrete cleaning effectiveness is measured in much the same manner as soil removal, using bulk samples to characterize the site (Subpart N) and measure residual contamination to prove completion (Subpart O).

Another important issue that EPA addresses in the use authorization section (§761.30(p)) is the continued use of PCB-containing concrete. Acknowledging the economic hardship of requiring structural concrete removal, EPA has authorized its continued "use" provided the following:

- The owner removes the source to prevent further contamination.
- The surface, if accessible, is cleaned according to Subpart S (double wash/rinse).

- All surfaces are covered with either a two-layer color coating or a solid barrier with the cover marked.

The contaminated surface can be removed and disposed of only according to the applicable disposal or decontamination provisions.

# 6. ELECTRICAL TRANSMISSION/ DISTRIBUTION IMPACTS

The intentional use of PCBs in electrical equipment originally accounted for an estimated 90 percent of all PCBs sold in the U.S. While most of that equipment has been phased out or retrofilled, electrical equipment still accounts for most of the PCBs in use through cross contamination of mineral oil equipment.

*The recent amendments to the rule focus on capturing a much larger portion of the electrical equipment population.*

The recent amendments to the rule focus on capturing a much larger portion of the electrical equipment population and fine-tuning the rules governing management of electrical equipment, while making a few important changes to the management system already in place. Noteworthy changes and clarifications include the following:

- PCB concentration assumptions for use.
- Use of surface concentrations for PCB-contaminated equipment.
- Transformer registration requirements.
- Inclusion of voltage regulators and rectifiers.
- Storage for reuse limits and conditions.
- Inclusion of large low voltage capacitors.
- Metal smelting as a disposal option for carcasses.
- Transformer draining requirements.

These changes are addressed in more detail below.

## 6.1 PCB CONCENTRATION ASSUMPTIONS FOR USE

The so-called “assumption rule” for mineral oil transformers states that any untested mineral oil transformer is assumed to be PCB contaminated (50-499 ppm PCB) until test results confirm otherwise. According to EPA, some owners have reportedly adopted a more liberal interpretation of the rule, assuming that any *liquid-filled* transformer with unknown PCB contents or that is otherwise unmarked is PCB contaminated.

To help avoid further confusion, the amendments offer the following clarifying definitions and requirements:

- Untested mineral oil equipment made before July 2, 1979 or undated must be assumed to be PCB contaminated.

- Untested mineral oil equipment made after July 3, 1979 can be assumed to be non-PCB.
- Untested non-mineral oil equipment must be assumed to be PCB filled.
- Transformers and other electrical equipment filled with less than 1.36 kg of fluid are assumed to be non-PCB.
- Capacitors of unknown concentration must be assumed to be PCB; those made after July 2, 1979 can be assumed to be non-PCB.

Note the broader use of the term "equipment" rather than just "transformer." These clarifications also apply only to the use of the equipment. Once a unit is removed for disposal, only actual PCB test results can be used for waste profiling. The assumption rule still provides owners with the benefits of (a) deferring the testing of pole-mounted transformers and many other inconvenient or small equipment until they are removed from service, and (b) removing a significant part of the in-service inventory from the labeling and recordkeeping requirements applied to PCB equipment.

## 6.2 USE OF SURFACE CONCENTRATIONS FOR PCB-CONTAMINATED EQUIPMENT

As noted earlier, EPA has codified the equivalence between surface and bulk concentrations for non-porous surfaces. The rule explicitly extends this alternative to former liquid-filled transformers that are now empty and the former contents unknown. PCB-contaminated transformer carcasses are those with internal surface concentrations of greater than 10 µg/100 $cm^2$ and less than 100 µg/100 $cm^2$.

## 6.3 PCB TRANSFORMER REGISTRATION REQUIREMENTS

The 1995 PCB Fire Rule included a requirement that local fire departments be informed of the locations of all PCB transformers in service. The purpose of the notification is to alert first responders to electrical fires of the possible presence of PCBs and combustion by-products. In the preamble to the amendments, EPA indicated their dissatisfaction with the apparent response to this requirement.

*The final rule includes a national registration requirement that supercedes the local notification requirement.*

In an effort to increase compliance, the final rule includes a national registration requirement (including a registration form) that supercedes the local notification requirement. Specifically, owners of PCB transformers are required to notify EPA directly of any PCB transformers in service, with the information to be used in a national database. Local notification is no longer a requirement (although desirable in many cases anyway), and EPA will presumably make that data available to local responders. Industry expressed their concern about this approach in their comments to the proposed rule, indicating that from their viewpoint, the new approach was more cumbersome and provided no greater assurance of compliance than the original requirement. Debate on this issue is likely to continue.

Registration of transformers with EPA is required within 90 days of the effective date of the rule. A registration form is contained in the rule.

## 6.4 INCLUSION OF VOLTAGE REGULATORS AND RECTIFIERS

In the new rules, EPA is regulating voltage regulators in the same manner as transformers, pointing out that the risk of use storage end disposal is the same. Internal capacitor removal, however, is not required but recommended.

Rectifiers containing PCBs are also authorized for use for the remainder of their useful life, provided they are serviced only with oil containing less than 50 ppm PCB.

## 6.5 STORAGE FOR REUSE LIMITS AND CONDITIONS

EPA had originally proposed to attach a series of limitations on storage of PCB articles for reuse, long considered a potential "loophole" in the regulations that potentially allowed indefinite deferral of disposal. While backing off from several of the proposed changes, the following new requirements were retained by EPA in the final rule:

*PCB articles intended for reuse may still be stored indefinitely in a PCB storage facility, but otherwise for only five years.*

- **Storage**: PCB articles intended for reuse may still be stored indefinitely in a PCB storage facility, but otherwise for only five years (unless approved by the Regional Administrator).
- **Storage Records**: The future use of PCB articles in storage for reuse must be noted in the annual document log.
- **Labeling**: Labeling for reuse is required only when the article is placed into storage for disposal.

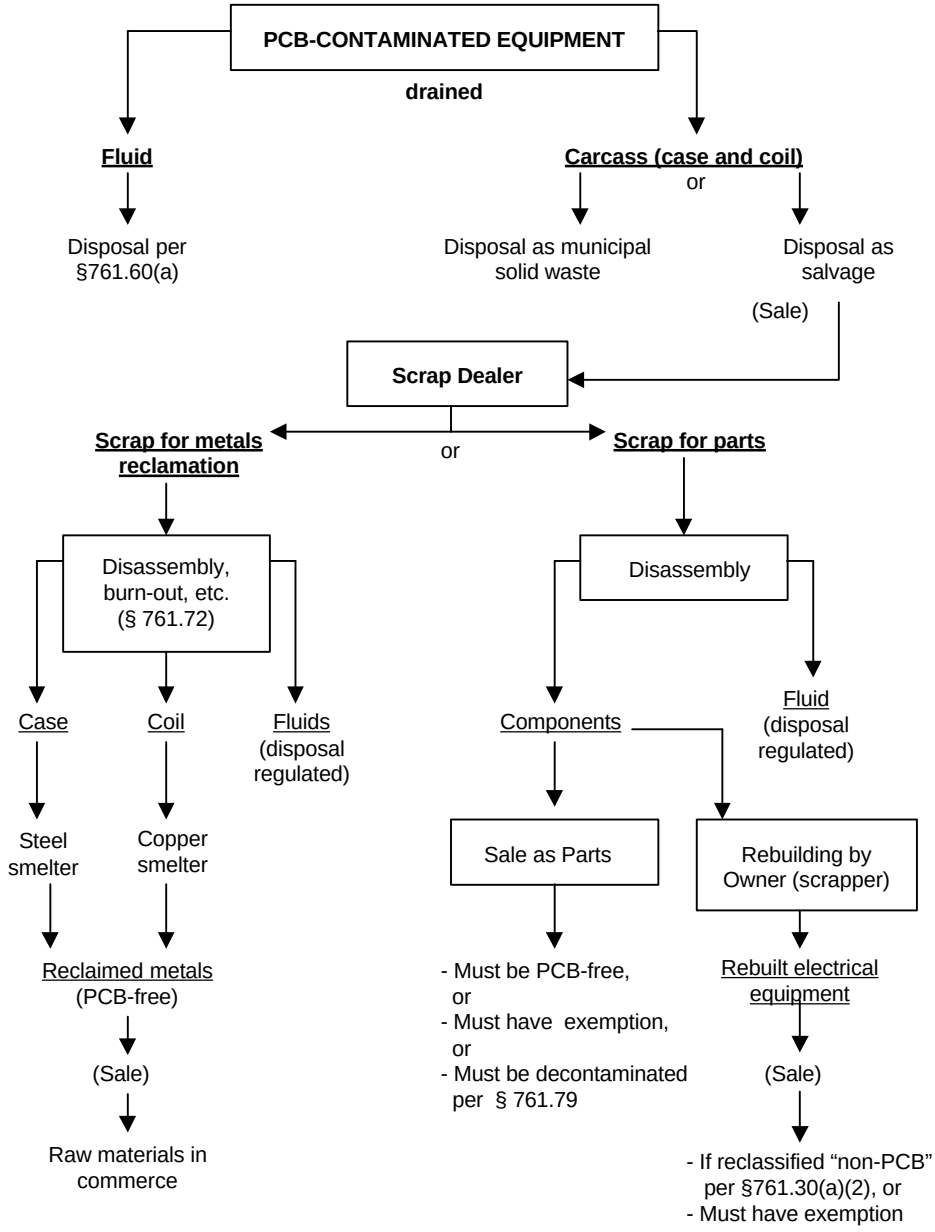
## 6.6 INCLUSION OF LARGE LOW VOLTAGE (LLV) CAPACITORS

LLV capacitors are included as PCB articles for the first time. While LLVs do not have a phase-out requirement similar to the large high voltage (LHV) distribution capacitor 1988 phase-out deadline, they must still be inventoried and managed as PCBs in service and throughout the storage and disposal chain.

## 6.7 METAL SMELTING AS A DISPOSAL OPTION FOR CARCASSES

Scrapping PCB-contaminated transformers has been a preferred method of disposal for many utilities (see Figure 1), due to the likely avoidance of long-term liability common to land disposal. However, because of the failure of many PCB equipment salvage brokers years ago, anecdotal evidence of misuse of PCB-contaminated equipment components, and uncontrolled burning of insulation and

## Figure 1
## Salvage Options for Drained Carcasses
## (Equipment Under 500 ppm PCBs)



other equipment components prior to salvage, EPA has toughened the standards for smelting and burning PCB-contaminated transformer carcasses.

Specific standards are provided in the regulations for both smelting and controlled burning ("scrap metal recovery"). Under the new rules, the following may be disposed of in a scrap metal recovery oven or smelter:

- PCB-contaminated articles.
- Metal surfaces in PCB remediation waste.
- Metal surfaces in PCB bulk product waste.

*The technical requirements for smelters and scrap metal recovery ovens are different from the equivalent incineration requirements.*

Scrap metal oven and smelter operations accepting such material must have either a RCRA permit or state air permit with a PCB limit. They must also notify EPA of their status as a PCB disposer and comply with all associated requirements, but do not have to submit annual reports of their disposal activities.

The technical requirements for smelters and scrap metal recovery ovens shown in Table 3 are new, and are different from the equivalent incineration requirements. The requirements can be waived by the EPA Regional Administrator based on a finding of no unreasonable risk.

## 6.8 TRANSFORMER DRAINING REQUIREMENTS

EPA had originally proposed to require a 48-hour draining period for PCB-contaminated transformers. As with the wire furnaces and smelter pretreatment, EPA has been concerned that the lack of draining requirements was resulting in uncontrolled PCB releases, specifically from the 10% of the original liquid "heel" that was likely being shipped with the carcass to the salvage company. The agency backed off this requirement after substantial negative industry feedback, but the preamble still encourages owners to take the extra effort to remove as much liquid as possible.

## 6.9 SMALL PCB CAPACITORS AND FLUORESCENT LIGHT BALLASTS

EPA had originally proposed to restrict the disposal options available for small (less than 3 lb), non-leaking PCB capacitors**,** but elected not to do so for either capacitors alone or as part of fluorescent light ballasts. Therefore, the rule does not have a TSCA limit on how many small PCB capacitors and fluorescent light ballasts may be disposed of as solid waste.

*Light ballasts containing PCBs in the potting compound must be managed as PCB bulk product waste.*

However, EPA is aware that some light ballasts contain PCB in the potting compound surrounding the capacitors and considers this a greater risk for disposal. Light ballasts containing PCBs in the potting compound must be managed as PCB bulk product waste unless decontaminated or disposed of as household waste. No relationship between age, manufacturer, or any other parameter is known to correlate with PCBs in potting compound, nor does EPA offer any historical data from which to decide the proper disposal classification (without actually sampling).

## Table 3

## Smelter and Scrap Metal Recovery Oven Specifications* (§761.72)

| SCRAP METAL RECOVERY OVEN | SMELTER |
|---|---|
| 1. The oven shall have at least two enclosed (i.e., negative draft, no fugitive emissions) interconnected chambers. | 1. The operating temperature of the hearth must be at least 1,000° C at the time it is charged with any PCB-contaminated non-porous surface. |
| 2. The equipment with all free-flowing liquid removed shall first be placed in the primary chamber at room temperature. | 2. Each charge containing a PCB-contaminated item must be added into molten metal or a hearth at 1,000°C. |
| 3. The primary chamber shall operate at a temperature between 537°C and 650°C for a minimum of 2 ½ hours and reach a minimum temperature of 650°C (1,202°F) once during each heating cycle or batch treatment of unheated, liquid-free equipment. | 3. Successive charges may not be introduced into the hearth in less than 15-minute intervals. |
| 4. Heated gases from the primary chamber must feed directly into the secondary chamber (i.e., afterburner) which must operate at a minimum temperature of 1,200°C (2,192°F) with at least a 3 % excess oxygen and a retention time of 2.0 seconds with a minimum combustion efficiency of 99.9% according to the definition in §761.70(a)(2). | 4. The smelter must operate in compliance with any applicable emissions standards in part 60 of this chapter. |
| 5. Heating of the primary chamber shall not commence until the secondary chamber has reached a temperature of 1,200° ±100° C (2.192° ± 180° F). | 5. The smelter must have an operational device that accurately measures directly or indirectly, the temperature in the hearth. |
| 6. Continuous emissions monitors and recorders for carbon dioxide, carbon monoxide, and excess oxygen in the secondary chamber and continuous temperature recorders in the primary and secondary chambers shall be installed and operated while the primary and secondary chambers are in operation to ensure that the two chambers are within the operating parameters described in paragraphs (a)(3) through (a)(5) of this section. | 6. Take, record, and retain at the disposal facility for three years from the date each charge is introduced, a reading of the temperature in the hearth at the time it is charged with a non-porous surface item. |
| 7. Emissions from the secondary chamber shall be vented through an exhaust gas stack in accordance with valid state and local air regulations and permits, which include a standard for PCBs or meets the standards in paragraph (a)(8) of this section. | (c)(1) Scrap metal recovery ovens and smelters must either have a final permit under RCRA (part 266, subpart H of this chapter and part 270.66) or be operating under a valid state air emissions permit that includes a standard for PCBs. |

## Table 3 (Cont')

## Smelter and Scrap Metal Recovery Oven Specifications* (§761.72)

| SCRAP METAL RECOVERY OVEN | SMELTER |
|---|---|
| 8. Exhaust gas stack emissions shall be for particulates <0.015 grains/dry standard cubic foot; sulfur dioxide <35 parts per million by volume (ppmv); nitrogen oxide <150 ppmv; carbon monoxide <35 ppmv; and hydrogen chloride <35 ppmv. | 2. Scrap metal recovery ovens and smelters disposing of PCBs must provide notification as disposers of PCBs, are not required to submit annual reports, and shall otherwise comply with all applicable provisions of Subparts J and K of this part, as well as other applicable federal, state, and local laws and regulations. |
| 9. A measurement of the temperature in the secondary chamber at the time the primary chamber starts heating must be taken, recorded, and retained at the facility for three (3) years from the date each charge is introduced into the primary chamber. | 3. In lieu of the requirement in paragraphs (a) and (b) of this section, upon written request by the owner or operator of a scrap metal recovery oven or smelter, the EPA Regional Administrator for the region where the oven or smelter is located may make a finding in writing, based on a site-specific risk assessment, that the oven or smelter does not pose an unreasonable risk of injury to health or the environment because it is operating in compliance with the parameters and conditions listed in paragraphs (a)(1) through (a)(8) and (b)(1) through (b)(9) of this section, even though the oven or smelter does not have a RCRA or state air permit as required by paragraph (c)(1) of this section. The written request shall include a site-specific risk assessment. |
| | (d) PCB liquids, other liquid waste qualifying as waste oils which may be used as provided for at §761.20(e), or PCB remediation waste other than PCB-contaminated articles, may not be disposed of in a scrap metal recovery oven or smelter unless approved or otherwise allowed under subpart D of this part. |

* Applies to disposal of residual PCBs associated with PCB-contaminated articles regulated for disposal under §761.60(b), metal surfaces in PCB remediation waste regulated under §761.61, or metal surfaces in PCB bulk product waste regulated under §761.62(a)(6) and §761.79(c)(6), from which all free-flowing liquids have been removed.

# 7. NATURAL GAS TRANSMISSION/ DISTRIBUTION IMPACTS

## 7.1 USE AUTHORIZATION IN GAS SYSTEMS

Residual PCBs are present in some natural gas transmission and distribution piping and equipment for a variety of reasons including the former use of PCB-containing compressor lubricants and valve grease in some systems and the reported use of PCB-containing oils to intentionally wet components in older lines. EPA has been aware of their presence since around 1981, and at that time created the Compliance Monitoring Program for 13 gas transmission companies known to have contamination in their systems. The program required that these companies monitor their condensate drip for PCBs and report the results quarterly to EPA. Until this recent rule was published, EPA had never authorized PCB use in natural gas systems at $\geq$50 ppm.

Gas transmission companies used the Compliance Monitoring Program to monitor PCB movements and decline. Many of them obtained AMDAs under TSCA as a means of cleaning the pipe before construction or maintenance (usually through pigging and/or flushing in place), which allowed the disposal of clean pipe by smelting rather than landfill or incineration.

*The new rule endeavors to clarify the use authorization issue while prescribing several remedies for chronic pipeline contamination.*

Gas distribution companies had no Compliance Monitoring Programs. Most companies have largely managed their PCB-containing liquids according to TSCA, and over the years collected and logged their data while they waited for EPA to consider a formal use authorization. The new rule endeavors to clarify the use authorization issue while prescribing several remedies for chronic pipeline contamination that may allow companies to eventually escape TSCA jurisdiction altogether.

PCBs in natural gas systems that (1) are owned and operated by a seller or distributor of natural gas and (2) do not include potential sources of PCB (e.g., compressors, scrubbers, filters, and interconnects) are now authorized for use at >50 ppm provided that the owners perform the following:

- Describe their system in terms of its PCB concentration, develop a written report, and be prepared to submit their results to EPA on request.
- Repeat sampling at least annually until the PCB levels remain below 50 ppm for two successive sampling events.

The following actions must also be completed by owners whose systems contain a potential source of PCBs (as described above):

- Characterize the extent of contamination (within 120 days), specifically defining the upstream and downstream extent of contamination.

- Sample and analyze all potential sources of PCB $\geq$ 50 ppm, excluding valves, drips, and other small condensate collection points.

- Reduce source concentrations, remove sources, and/or implement other engineering controls to prevent further introduction of PCBs into the system within one year.

- Mark aboveground sources of PCB.

The definition of "source" has created some confusion. Instinctively, many owners believe the distinction is intended to give relief to those companies that had never used PCBs, but were contaminated by *upstream* users. However, the definition seems to be based on the type of equipment in the owner's system that might capture, rather than use, PCBs, which would result in many more companies having to meet the more stringent assessment, removal, and reporting requirements. The issue remains unresolved.

All data and reports associated with the above actions must be saved by owners for three years and provided to EPA upon request. Historical data may be used for the characterization stages, if available. EPA also reserved the right to modify or waive any of these provisions, if warranted, for specific cases.

Aside from continued use as-is, the rules also extend to the reuse of pipe in other gas systems provided all free-flowing liquid has been removed. It also authorizes the use of such pipe for liquid transport, as well as an assortment of industrial applications (such as secondary wiring containment, structural members, and steam or sewage service, etc.).

*PCB contamination is assumed to extend from one sampling point to the next "clean" point.*

For characterization purposes, PCB contamination is assumed to extend from one sampling point to the next "clean" point. This characterization scheme is much simpler than earlier guidance associated with pipeline reclassification.

Finally, the burning of pipeline liquids for energy recovery must be performed in accordance with the TSCA used oil requirements. The rule does not authorize any other use.

## 7.2 USE IN GAS/LIQUID SYSTEMS

As an offshoot of the gas pipeline use authorization, EPA is also allowing the continued use of PCBs at >50 ppm in any intact gas or liquid transmission system subject to their system-specific approval. PCB use is also authorized in any such system *not owned* by a seller or distributor (i.e., owned by customers).

## 7.3 USE IN AIR COMPRESSORS

PCBs were used as a lubricant in some air compressor systems used to start gas compressors. While there is no direct backflow connection between the air and gas systems, PCB contamination with air systems has been problematic, particularly where PCBs have leaked from the compressor and released to the environment through drains and other spills.

PCB decontamination of air compressors is an established commercial practice, and most of the gas companies with PCB contamination in their systems have removed it themselves or through one of several permitted contractors.

The new regulations governing air compressor systems are similar to those for gas systems. Use is authorized for systems containing <50 ppm PCB in liquids. Systems at >50 ppm can continue to be used as well, provided the owner performs the following actions:

*Use of permitted cleaning systems is no longer required for piping, provided that these procedures are followed.*

- Removes all free-flowing liquid and replaces the crankcase oil.
- Decontaminates other system components in accordance with the new decontamination provisions (§761.79).
- Flushes piping <2 inches in diameter for 4 hours with a flow of at least 300 gal/hr.

These changes must be made within one year of the rule date or discovery, whichever is later. Use of permitted cleaning systems is no longer required for piping provided that these procedures are followed.

## 7.4 GAS PIPE ABANDONMENT

EPA and the gas industry evaluated the risk associated with abandonment of buried gas pipe and determined that it was protective of human health and the environment under most circumstances. The rule codifies those circumstances, and defines the steps necessary to ensure that the risk is minimized. EPA's primary concerns were that (a) no free liquids remained in the pipe that could be released through a subsequent release, and (b) the pipe would not be excavated at some future date and used in a manner that would result in increased human health risk (such as to convey water).

In short, the resulting requirements for abandonment set forth in the rule are as follows (see Figures 2 and 3):

- In all cases, the pipe must be drained of all free-flowing liquid.
- PCB-contaminated pipe must be capped at both ends.
- Pipe containing PCBs at any concentration may be sealed at both ends after it is either (a) flushed with solvent (with 95% of the solvent recovered), and the last flush contains <50 ppm PCB; (b) the pipe is filled with at least 50% by volume of grout; or (c) the pipe is decontaminated according to the new decontamination standards (§761.79) or using a permitted treatment process.
- Pipe less than or equal to 4 inches in diameter may be sealed at both ends and either (a) included in a public service notification program, or (b) filled with at least 50% by volume with grout.

*It is reasonable to assume that any hardening material that renders the pipe useless if excavated would be acceptable.*

The term "grout" is used without reference to a particular specification. For most applications, grout is defined as a "hardening slurry-like cement, bentonite or clay," or "high density polyurethane foam," although it is reasonable to assume that any hardening material that renders the pipe useless if excavated would be

acceptable. Use of fly ash cement, for example, is acceptable. The only noted exception is the filling of river or stream crossings with cement only, presumably to minimize leaching or deterioration if the pipe decays.

## 7.5 GAS PIPE REMOVAL AND DISPOSAL

Companies wanting to remove pipe for disposal or salvage may do so subject to the following requirements (see Figures 4 and 5).

Drained gas pipe meeting the following requirements may be disposed of in a licensed municipal landfill, non-municipal non-hazardous waste landfill, hazardous waste/TSCA landfill, or may be smelted:

- PCB-contaminated pipe of any diameter.
- Pipe less than or equal to 4 inches in diameter at any PCB concentration.

Any component of a gas system may also be disposed of (a) in a TSCA incinerator, (b) in a TSCA landfill (if drained), (c) as a PCB remediation waste, or (d) decontaminated according to §761.79.

## 7.6 GAS PIPE CHARACTERIZATION

*Where liquids are present, the level of contamination of the pipe is assumed to extend to the next sampling point downstream.*

Some of the above-mentioned disposal options depend on the characterization of the pipe according to its PCB concentration. Where liquids are present, the level of contamination of the pipe is assumed to extend to the next sampling point downstream. If no liquids are present, EPA has extended the surface-based wipe sampling equivalence to interior pipe surfaces (i.e., 50 ppm = 10 µg/100 $cm^2$).

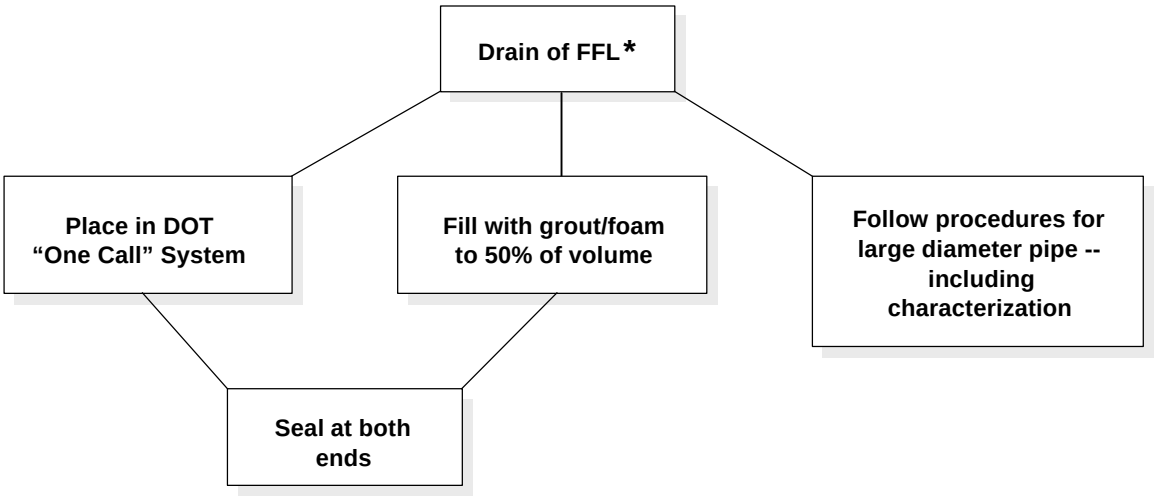
Subpart M, "Determining a PCB Concentration for Purposes of Abandonment or Disposal of Natural Gas Pipeline: Selecting Sample Sites, Collecting Surface Samples, and Analyzing Standard Surface Wipe Samples," provides the protocol for characterizing pipe "segments" (40 feet long or less) and pipeline "sections" (longer than 40 feet).

The Compliance Monitoring Program, set up in 1981 for transmission pipelines known to have contained PCBs, has been terminated in favor of these new characterization and management requirements.

## 7.7 PIPELINE LIQUIDS DISPOSAL

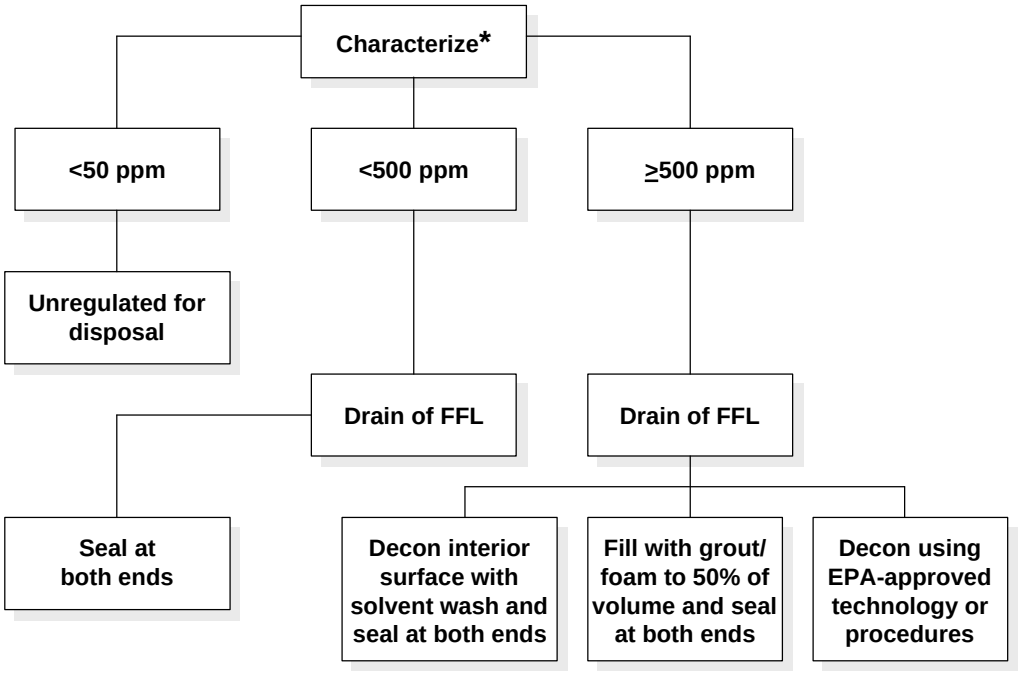
Pipeline liquids disposal options are much the same as for other liquids containing PCB. Liquids at or above 50 ppm must be managed as a TSCA liquid waste and will typically need to be incinerated or treated. Liquids below 50 ppm may be marketed as used oil (§761.20(e)), but no other commercial use is authorized if PCBs are above the detection limit.

**Figure 2**
**Abandonment in Place - Small Diameter Pipe (≤4")**




*** Free-flowing liquid**

**Figure 3**
**Abandonment in Place - Large Diameter Pipe (>4")**




***Can "assume" >500 ppm and follow applicable procedures without characterization.**

**Figure 4**

**Removal and Disposal of Small Diameter Pipe**

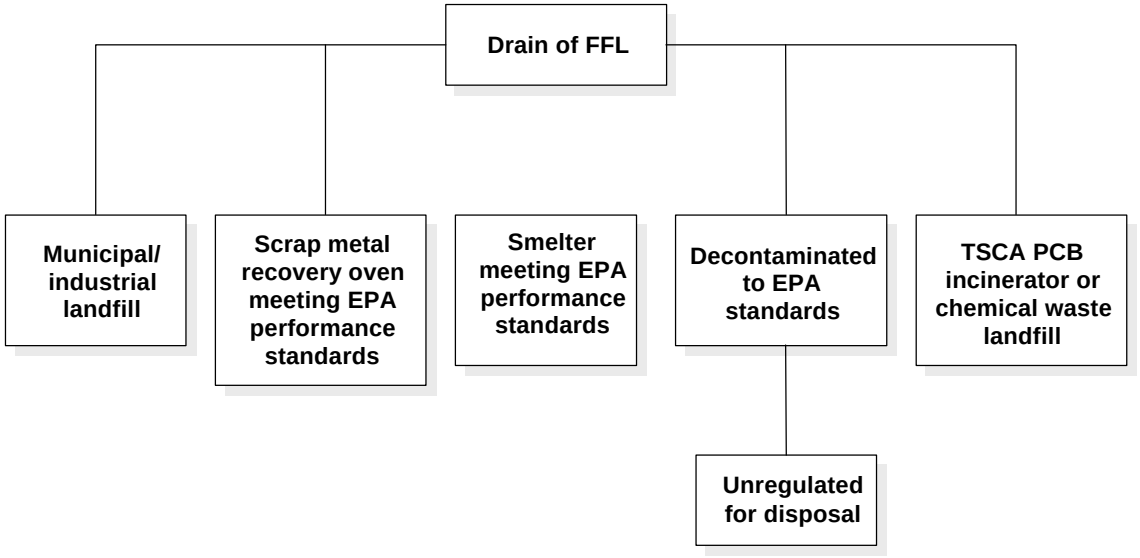
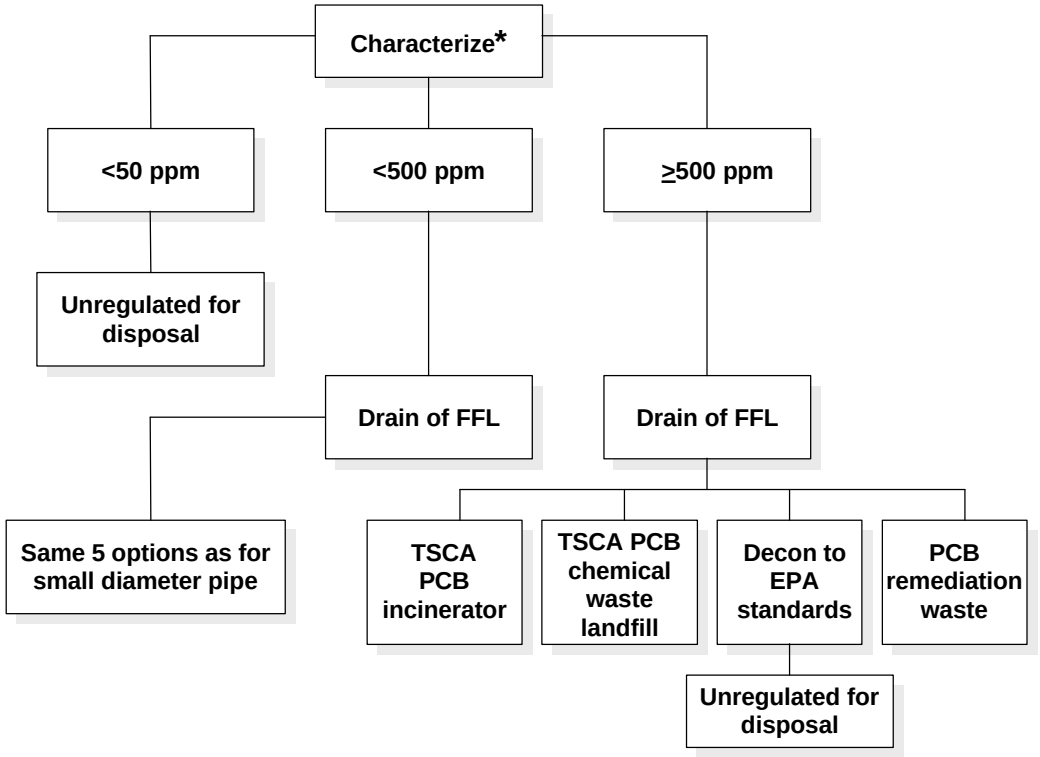



**Figure 5**

**Removal and Disposal of Large Diameter Pipe**




***Can "assume" >500 ppm and follow applicable procedures without characterization.**

# 8.
# OTHER ISSUES OF INTEREST

## 8.1 PCB/RADIOACTIVE WASTE

Mixed PCB/radioactive waste has emerged as a high profile problem in recent years, particularly for the U.S. Department of Energy (DOE) and the commercial nuclear industry. PCBs were used as hydraulic fluid and in ventilation duct gaskets at a number of nuclear fuel production and processing facilities, and more recently have been discovered in paint formulations used on selected nuclear power plants built in the late 1950s. These materials, or the substrate, became radioactive over time, and the resulting "mixed waste" cannot be properly disposed of at existing TSCA- or NRC-licensed facilities. The owners are faced with long term storage until either a facility obtains both permits, or one or more TSCA treatment processes are licensed to treat the PCB component, either of which is expected to take years.

The Disposal Amendments address this issue in several ways:

- PCB/radioactive waste is now exempt from the one-year storage for disposal requirement.
- PCB/radioactive waste may also be stored in containers other than those meeting the Department of Transportation (DOT) performance standards.
- PCB/radioactive waste storage does not require a minimum six-inch high curbing.

*The decontamination standards for painted metal, for example, offer owners an option for separating PCB paint from radioactive metal without a permit.*

Other portions of the rule also positively affect mixed waste management options. The decontamination standards for painted metal, for example, offer owners an option for separating PCB paint from radioactive metal without a permit provided they follow a specific sampling protocol. Previously, several government and private owners of such materials had applied for and received an AMDA, a costly and lengthy permitting process that may now be unnecessary.

## 8.2 MARKING AND RECORDKEEPING REQUIREMENTS

Table 4 is a chart of the PCB marking and disposal requirements as they exist following the effective date of the new rule.

Noteworthy changes to these requirements are as follows:

- Transfer of totally enclosed PCBs for purposes other than resale prior to 1979 must be documented in the annual document log.
- Storage unit operators must now keep a record of cleanups and inspections for leaks as part of the annual document.

## Table 4

## PCB Marking and Recordkeeping Requirements

| Regulated Items | Marking Requirements | In-Service Records | Disposal and Storage-for-Disposal Records |
|---|---|---|---|
| PCB Containers | $M_L$ | - Total Kg weight of all containers* | - Date container<br>- Serial or I.D. number*<br>- Kg weight of each*<br>- Description of contents*<br>- Dates for removal, transport, disposal*<br>- Total number and Kg weight* |
| PCB Article Containers | $M_L$ | - Total Kg weight of all containers*<br>- Description of contents* | - Date container<br>- Serial or I.D. number*<br>- Kg weight of each*<br>- Description of contents*<br>- Dates for removal, transport, disposal*<br>- Total number and Kg weight* |
| PCB Transformers | $M_L$ or approved mark on access to unit (e.g., vault doors) | - Total number of units*<br>- Total Kg weight*<br>- Inspection and maintenance<br>- Registration with EPA<br>- Record of sale | - Date article<br>- Serial or I.D. number*<br>- Kg of fluid in each*<br>- Dates for removal, transport, disposal*<br>- Total number and Kg weight* |
| PCB Large High or Low Voltage Capacitors | $M_L$ on unit or on protected location | - Total number* (protected location records if applicable)<br>- Record of sale | - Date article<br>- Serial or I.D. number*<br>- Kg of fluid in each*<br>- Dates for removal, transport, disposal*<br>- Total number and Kg weight* |
| PCB Small Capacitors | ** | | |
| PCB-Contaminated Electrical Equipment | Not required | Record of sale | Not required (once drained) |
| PCB equipment that contains PCB Large Capacitors or PCB Transformers | $M_L$ | Records required for PCB Large Capacitors or PCB Transformers | Records required for PCB Large Capacitors or PCB Transformers |
| Natural Gas Pipelines, Compressors, Appurtenances, Air Compressor Systems ($\geq$2ppm) | $M_L$ on aboveground sources of PCB liquids $\geq$50 ppm | | |
| Bulk PCB Waste | $M_L$ on container | | - Kg weight/quantity dates of each batch in or out. Also disposition of each batch out.<br>- Total Kg weight |
| Storage Areas | $M_L$ | | - Annual records as required under §761.180<br>- Records of attempts to comply with one-year limit (if necessary) |
| Transport Vehicles | $M_L$ if contains a PCB Transformer or 45 kg liquid PCBs | | |
| PCB Motors, Hydraulic, and Heat-Transfer Systems | $M_L$ (Note: use of these items no longer authorized) | | |

* Annual reporting requirement.

** Manufacturers are required to mark non-PCB Large Low Voltage capacitors, small capacitors, and fluorescent light ballasts with a "No PCBs" label until July 1, 1998.

There are also numerous changes to the notification and manifesting portion of the rule. Important changes among these are as follows:

- Application of manifesting requirements to any waste from a source above 50 ppm, rather than based on its actual concentration.

- Modifications to commercial storage facilities must already obtain EPA approval for facility modifications, and now must notify EPA of completion within 30 days.

## 8.3 STORAGE FOR DISPOSAL

The original 1994 proposal would have permitted allowing a one-year extension of the one-year storage limit for disposal due to reasons of a hardship basis, i.e., insufficient disposal capacity, etc. The final rule retained the extension option, but requires that the owner document subsequent attempts to obtain disposal for 270 days after it being placed in storage for eventual disposal.

*Temporary storage of PCB capacitors and PCB-contaminated transformers on pallets next to storage areas is also still permitted.*

EPA also finalized the temporary storage provision, allowing up to 30 days of temporary storage of liquids at or above 50 ppm PCBs outside a TSCA-qualified storage facility, provided that (1) an SPCC plan is in place, and (2) the waste is stored in stationary bulk storage tanks. Temporary storage of PCB capacitors and PCB-contaminated transformers on pallets next to storage areas is also still permitted, despite EPA's original proposal to eliminate this practice. Also, DOT drum specifications are now incorporated by reference, rather than trying to keep up with changing DOT standards.

# 8. WHERE TO GET ADDITIONAL INFORMATION

The final rule is available at the EPA web site home page (www.epa.gov). Supporting documents for the rule are available at the web site http://www.epa.gov/fedrgstr/ under "Laws and Regulations," and include the following:

- Response to Comments Document on the Proposed Rule—Disposal of Polychlorinated Biphenyls.

- Support Document for the PCB Disposal Amendments, Final Rule.

Also included in the rulemaking record are EPA's responses to individual comments and their formal request for additional information on "tightly bound" PCBs, as well as PCB availability to humans and the environment.

As always, the TSCA hotline is a useful contact for copies of these and other reference materials cited in the regulations.

The hotline telephone number is **(202) 554-1404**.

The FAX number is **(202) 554-5603**.

# 10. REFERENCES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10. Roy F. Weston, Inc. 1992. *Risk Assessment for PCB Releases from Natural Gas Transmission and Distribution.* GRI-92/0349, August 1992.

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12. U.S. Department of Energy, *Management of Polychlorinated Biphenyls*. Office of Environmental Guidance, RCRA/CERCLA Division, EH-231. November 1993.