



Solid Waste

Identification and Listing of Hazardous Waste

PLAINTIFF'S EXHIBIT

CAP-1816

This package is a complete reprint of the EPA regulations identifying and listing hazardous waste that were promulgated under Section 3001 of the Resource Conservation and Recovery Act (RCRA) on May 19, 1980. If you need a copy of the preamble discussion to this regulation or a copy of other regulations for hazardous waste management that were promulgated under Subtitle C of RCRA please contact:

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- Authority: Secs. 1008, 2002(a), 3001, and 3002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6905, 6912, 6921 and 6922).

Subpart A—General**§ 261.1 Purpose and scope.**

(a) This Part identifies those solid wastes which are subject to regulation as hazardous wastes under Parts 262

through 265 and Parts 122 through 124 of this Chapter and which are subject to the notification requirements of Section 3010 of RCRA. In this Part:

(1) Subpart A defines the terms "solid waste" and "hazardous waste," identifies those wastes which are excluded from regulation under Parts 262 through 265 and 122 through 124 and establishes special management requirements for hazardous waste produced by small quantity generators and hazardous waste which is used, re-used, recycled or reclaimed.

(2) Subpart B sets forth the criteria used by EPA to identify characteristics of hazardous waste and to list particular hazardous wastes.

(3) Subpart C identifies characteristics of hazardous waste.

(4) Subpart D lists particular hazardous wastes.

(b) This Part identifies only some of the materials which are hazardous wastes under Sections 3007 and 7003 of RCRA. A material which is not a hazardous waste identified in this part is still a hazardous waste for purposes of those sections if:

(1) In the case of Section 3007, EPA has reason to believe that the material may be a hazardous waste within the meaning of Section 1004(5) of RCRA.

(2) In the case of Section 7003, the statutory elements are established.

§ 261.2 Definition of solid waste.

(a) A solid waste is any garbage, refuse, sludge or any other waste material which is not excluded under § 261.4(a).

(b) An "other waste material" is any solid, liquid, semi-solid or contained gaseous material, resulting from industrial, commercial, mining or agricultural operations, or from community activities which:

(1) Is discarded or is being accumulated, stored or physically, chemically or biologically treated prior to being discarded; or

(2) Has served its original intended use and sometimes is discarded; or

(3) Is a manufacturing or mining by-product and sometimes is discarded.

(c) A material is "discarded" if it is abandoned (and not used, re-used, reclaimed or recycled) by being:

- (1) Discarded or
- (2) Burned or incinerated, except

where the material is being burned as a fuel for the purpose of recovering usable energy; or

(3) Physically, chemically, or biologically treated (other than burned or incinerated) in lieu of or prior to being disposed of.

(d) A material is "disposed of" if it is discharged, deposited, injected, dumped, spilled, leaked or placed into or on any land or water so that such material or any constituent thereof may enter the environment or be emitted into the air or discharged into ground or surface waters.

(e) A "manufacturing or mining by-product" is a material that is not one of the primary products of a particular manufacturing or mining operation, is a secondary and incidental product of the particular operation and would not be solely and separately manufactured or mined by the particular manufacturing or mining operation. The term does not include an intermediate manufacturing or mining product which results from one of the steps in a manufacturing or mining process and is typically processed through the next step of the process within a short time.

§ 261.3 Definition of hazardous waste.

(a) A solid waste, as defined in § 261.2, is a hazardous waste if:

(1) It is not excluded from regulation as a hazardous waste under § 261.4(b); and

(2) It meets any of the following criteria:

(i) It is listed in Subpart D and has not been excluded from the lists in Subpart D under §§ 260.20 and 260.22 of this Chapter.

(ii) It is a mixture of solid waste and one or more hazardous wastes listed in Subpart D and has not been excluded from this paragraph under §§ 260.20 and 260.22 of this Chapter.

(iii) It exhibits any of the characteristics of hazardous waste identified in Subpart C.

(b) A solid waste which is not excluded from regulation under paragraph (a)(1) of this section becomes a hazardous waste when any of the following events occur:

(1) In the case of a waste listed in Subpart D, when the waste first meets the listing description set forth in Subpart D.

(2) In the case of a mixture of solid waste and one or more listed hazardous wastes, when a hazardous waste listed

in Subpart D is first added to the solid waste.

(3) In the case of any other waste (including a waste mixture), when the waste exhibits any of the characteristics identified in Subpart C.

(c) Unless and until it meets the criteria of paragraph (d):

(1) A hazardous waste will remain a hazardous waste.

(2) Any solid waste generated from the treatment, storage or disposal of a hazardous waste, including any sludge, spill residue, ash, emission control dust or leachate (but not including precipitation run-off), is a hazardous waste.

(d) Any solid waste described in paragraph (c) of this section is not a hazardous waste if it meets the following criteria:

(1) In the case of any solid waste, it does not exhibit any of the characteristics of hazardous waste identified in Subpart C.

(2) In the case of a waste which is a listed waste under Subpart D, contains a waste listed under Subpart D or is derived from a waste listed in Subpart D, it also has been excluded from paragraph (c) under §§ 260.20 and 260.22 of this Chapter.

§ 261.4 Exclusions.

(a) *Materials which are not solid wastes.* The following materials are not solid wastes for the purpose of this Part:

(1) (i) Domestic sewage; and
(ii) Any mixture of domestic sewage and other wastes that passes through a sewer system to a publicly-owned treatment works for treatment.
"Domestic sewage" means untreated sanitary wastes that pass through a sewer system.

(2) Industrial wastewater discharges that are point source discharges subject to regulation under Section 402 of the Clean Water Act, as amended.

[Comment: This exclusion applies only to the actual point source discharge. It does not exclude industrial wastewaters while they are being collected, stored or treated before discharge, nor does it exclude sludges that are generated by industrial wastewater treatment.]

(3) Irrigation return flows.

(4) Source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 *et seq.*

(5) Materials subjected to in-situ mining techniques which are ~~not~~ removed from the ground as part of the extraction process.

(b) *Solid wastes which are not hazardous wastes.* The following solid wastes are not hazardous wastes:

(1) Household waste, including household waste that has been collected, transported, stored, treated, disposed, recovered (e.g., refuse-derived fuel) or reused. "Household waste" means any waste material (including garbage, trash and sanitary wastes in septic tanks) derived from households (including single and multiple residences, hotels and motels.)

(2) Solid wastes generated by any of the following and which are returned to the soils as fertilizers:

(i) The growing and harvesting of agricultural crops.

(ii) The raising of animals, including animal manures.

(3) Mining overburden returned to the mine site.

(4) Fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels.

(5) Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas or geothermal energy.

§ 261.5 Special requirements for hazardous waste generated by small quantity generators.

(a) Except as otherwise provided in this section, if a person generates, in a calendar month, a total of less than 1000 kilograms of hazardous wastes, those wastes are not subject to regulation under Parts 262 through 265 and Parts 122 through 124 of this Chapter, and the notification requirements of Section 3010 of RCRA.

(b) If a person whose waste has been excluded from regulation under paragraph (a) of this Section accumulates hazardous wastes in quantities greater than 1000 kilograms, those accumulated wastes are subject to regulation under Parts 262 through 265 and Parts 122 through 124 of this Chapter, and the notification requirements of Section 3010 of RCRA.

(c) If a person generates in a calendar month or accumulates at any time any of the following hazardous wastes in quantities greater than set forth below, those wastes are subject to regulation under Parts 262 through 265 and Parts 122 through 124 of this Chapter, and the notification requirements of Section 3010 of RCRA:

(1) One kilogram of any commercial product or manufacturing chemical intermediate having the generic name listed in § 261.33(e).

(2) One kilogram of any off-specification commercial chemical product or manufacturing chemical intermediate which, if it met

specifications, would have the generic name listed in § 261.33(e).

(3) Any containers identified in § 261.33(c) that are larger than 20 liters in capacity.

(4) 10 kilograms of inner liners from containers identified under § 261.33(c);

(5) 100 kilograms of any residue or contaminated soil, water or other debris resulting from the cleanup of a spill, into or on any land or water, of any commercial chemical product or manufacturing chemical intermediate having the generic name listed in § 261.33(e).

(d) In order for hazardous waste to be excluded from regulation under this section, the generator must comply with § 262.11 of this Chapter. He must also either treat or dispose of the waste in an on-site facility, or ensure delivery to an off-site treatment, storage or disposal facility, either of which is:

(1) Permitted by EPA under Part 122 of this Chapter, or by a State with a hazardous waste management program authorized under Part 123 of this Chapter;

(2) In interim status under Parts 122 and 265 of this Chapter; or,

(3) Permitted, licensed, or registered by a State to manage municipal or industrial solid waste.

(e) Hazardous waste subject to the reduced requirements of this section may be mixed with non-hazardous waste and remain subject to these reduced requirements even though the resultant mixture exceeds the quantity limitations identified in this section, unless the mixture meets any of the characteristics of hazardous waste identified in Subpart C.

§ 261.6 Special requirements for hazardous waste which is used, re-used, recycled or reclaimed.

(a) Except as otherwise provided in paragraph (b) of this section, a hazardous waste which meets either of the following criteria is not subject to regulation under Parts 262 through 265 or Parts 122 through 124 of this Chapter and is not subject to the notification requirements of Section 3010 of RCRA until such time as the Administrator promulgates regulations to the contrary:

(1) It is being beneficially used or re-used or legitimately recycled or reclaimed.

(2) It is being accumulated, stored or physically, chemically or biologically treated prior to beneficial use or re-use or legitimate recycling or reclamation.

(b) A hazardous waste which is a sludge, or which is listed in Subpart D, or which contains one or more hazardous wastes listed in Subpart D; and which is transported or stored prior

to being used, re-used, recycled or reclaimed is subject to the following requirements with respect to such transportation or storage:

- (1) Notification requirements under Section 3010 RCRA.
- (2) Part 262 of this Chapter.
- (3) Part 263 of this Chapter.
- (4) Subparts A, B, C, D and E of Part 264 of this Chapter.
- (5) Subparts A, B, C, D, E, G, H, I, J and L of Part 265 of this Chapter.
- (6) Parts 122 and 124 of this Chapter, with respect to storage facilities.

Subpart B—Criteria for Identifying the Characteristics of Hazardous Waste and for Listing Hazardous Waste

§ 261.10 Criteria for identifying the characteristics of hazardous waste.

(a) The Administrator shall identify and define a characteristic of hazardous waste in Subpart C only upon determining that:

- (1) A solid waste that exhibits the characteristic may:
 - (i) Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or
 - (ii) Pose a substantial present or potential hazard to human health or the environment when it is improperly treated, stored, transported, disposed of or otherwise managed; and
- (2) The characteristic can be:
 - (i) Measured by an available standardized test method which is reasonably within the capability of generators of solid waste or private sector laboratories that are available to serve generators of solid waste; or
 - (ii) Reasonably detected by generators of solid waste through their knowledge of their waste.

§ 261.11 Criteria for listing hazardous waste.

(a) The Administrator shall list a solid waste as a hazardous waste only upon determining that the solid waste meets one of the following criteria:

- (1) It exhibits any of the characteristics of hazardous waste identified in Subpart C.
- (2) It has been found to be fatal to humans in low doses or, in the absence of data on human toxicity, it has been shown in studies to have an oral LD 50 toxicity (rat) of less than 50 milligrams per kilogram, an inhalation LC 50 toxicity (rat) of less than 2 milligrams per liter, or a dermal LD 50 toxicity (rabbit) of less than 200 milligrams per kilogram or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible, illness. (Waste

listed in accordance with these criteria will be designated **Acute Hazardous Waste**.)

(3) It contains any of the toxic constituents listed in Appendix VIII, unless, after considering any of the following factors, the Administrator concludes that the waste is not capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed:

- (i) The nature of the toxicity presented by the constituent.
- (ii) The concentration of the constituent in the waste.
- (iii) The potential of the constituent or any toxic degradation product of the constituent to migrate from the waste into the environment under the types of improper management considered in paragraph (a)(3)(vii) of this section.
- (iv) The persistence of the constituent or any toxic degradation product of the constituent.
- (v) The potential for the constituent or any toxic degradation product of the constituent to degrade into non-harmful constituents and the rate of degradation.
- (vi) The degree to which the constituent or any degradation product of the constituent bioaccumulates in ecosystems.
- (vii) The plausible types of improper management to which the waste could be subjected.
- (viii) The quantities of the waste generated at individual generation sites or on a regional or national basis.
- (ix) The nature and severity of the human health and environmental damage that has occurred, as a result of the improper management of wastes containing the constituent.
- (x) Action taken by other governmental agencies or regulatory programs based on the health or environmental hazard posed by the waste or waste constituent.
- (xi) Such other factors as may be appropriate.

Substances will be listed on Appendix VIII only if they have been shown in scientific studies to have toxic, carcinogenic, mutagenic or teratogenic effects on humans or other life forms. (Wastes listed in accordance with these criteria will be designated **Toxic wastes**.)

(b) The Administrator may list classes or types of solid waste as hazardous waste if he has reason to believe that individual wastes, within the class or type of waste, typically or frequently are hazardous under the definition of hazardous waste found in Section 1004(5) of the Act.

(c) The Administrator will use the criteria for listing specified in this section to establish the exclusion limits referred to in § 261.5(c).

Subpart C—Characteristics of Hazardous Waste

§ 261.20 General.

(a) A solid waste, as defined in § 261.2, which is not excluded from regulation as a hazardous waste under § 261.4(b), is a hazardous waste if it exhibits any of the characteristics identified in this Subpart.

[Comment: § 262.11 of this Chapter sets forth the generator's responsibility to determine whether his waste exhibits one or more of the characteristics identified in this Subpart.]

(b) A hazardous waste which is identified by a characteristic in this subpart, but is not listed as a hazardous waste in Subpart D, is assigned the EPA Hazardous Waste Number set forth in the respective characteristic in this Subpart. This number must be used in complying with the notification requirements of Section 3010 of the Act and certain recordkeeping and reporting requirements under Parts 262 through 265 and Part 122 of this Chapter.

(c) For purposes of this Subpart, the Administrator will consider a sample obtained using any of the applicable sampling methods specified in Appendix I to be a representative sample within the meaning of Part 260 of this Chapter.

[Comment: Since the Appendix I sampling methods are not being formally adopted by the Administrator, a person who desires to employ an alternative sampling method is not required to demonstrate the equivalency of his method under the procedures set forth in §§ 260.20 and 260.21.]

§ 261.21 Characteristic of Ignitability.

(a) A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

- (1) It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume, and has a flash point less than 60°C (140°F), as determined by a Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79, or a Setaflash Closed Cup Tester, using the test method specified in ASTM standard D-3277, or as determined by an equivalent test method approved by the Administrator under the procedures set forth in §§ 260.20 and 260.21.¹

¹ ASTM Standards are available from ASTM, 1916 Race Street, Philadelphia, PA 19103.

(2) It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

(3) It is an ignitable compressed gas as defined in 49 CFR 173.300 and as determined by the test methods described in that regulation or equivalent test methods approved by the Administrator under §§ 260.20 and 260.21.

(4) It is an oxidizer as defined in 49 CFR 173.151.

(b) A solid waste that exhibits the characteristic of ignitability, but is not listed as a hazardous waste in Subpart D, has the EPA Hazardous Waste Number of D001.

§ 261.22 Characteristic of corrosivity.

(a) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

(1) It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using either the test method specified in the "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" ² (also described in "Methods for Analysis of Water and Wastes" EPA 600/4-79-020, March 1979), or an equivalent test method approved by the Administrator under the procedures set forth in §§ 260.20 and 260.21.

(2) It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) Standard TM-01-69 ³ as standardized in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," or an equivalent test method approved by the Administrator under the procedures set forth in §§ 260.20 and 260.21.

(b) A solid waste that exhibits the characteristic of corrosivity, but is not listed as a hazardous waste in Subpart D, has the EPA Hazardous Waste Number of D002.

² This document is available from Solid Waste Information, U.S. Environmental Protection Agency, 26 W. St. Clair Street, Cincinnati, Ohio 45268.

³ The NACE Standard is available from the National Association of Corrosion Engineers, P.O. Box 980, Katy, Texas 77450.

§ 261.23 Characteristic of reactivity.

(a) A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:

(1) It is normally unstable and readily undergoes violent change without detonating.

(2) It reacts violently with water.

(3) It forms potentially explosive mixtures with water.

(4) When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

(5) It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

(6) It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

(7) It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

(8) It is a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined in 49 CFR 173.53 or a Class B explosive as defined in 49 CFR 173.88.

(b) A solid waste that exhibits the characteristic of reactivity, but is not listed as a hazardous waste in Subpart D, has the EPA Hazardous Waste Number of D003.

§ 261.24 Characteristic of EP Toxicity.

(a) A solid waste exhibits the characteristic of EP toxicity if, using the test methods described in Appendix II or equivalent methods approved by the Administrator under the procedures set forth in §§ 260.20 and 260.21, the extract from a representative sample of the waste contains any of the contaminants listed in Table I at a concentration equal to or greater than the respective value given in that Table. Where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering, is considered to be the extract for the purposes of this section.

(b) A solid waste that exhibits the characteristic of EP toxicity, but is not listed as a hazardous waste in Subpart D, has the EPA Hazardous Waste Number specified in Table I which corresponds to the toxic contaminant causing it to be hazardous.

Table I.—Maximum Concentration of Contaminants for Characteristic of EP Toxicity—Continued

EPA hazardous waste number	Contaminant	Maximum concentration (milligrams per liter)
D004	Arsenic	50
D005	Barium	1000
D006	Cadmium	10
D007	Chromium	50
D008	Lead	50
D009	Mercury	0.2
D010	Selenium	1.0
D011	Silver	50
D012	Endrin (1,2,3,4,10,10-hexachloro-1,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo-5,8-dimethano naphthalene)	0.02
D013	Lindane (1,2,3,4,5,6-hexachlorocyclohexane, gamma isomer)	0.4
D014	Methoxychlor (1,1,1-Trichloro-2,2-bis (p-methoxyphenyl)ethane)	100
D015	Toxaphene (C ₁₂ H ₁₄ Cl ₆ , Technical chlorinated camphene, 67-69 percent chlorine)	0.5
D016	2,4-D, (2,4-Dichlorophenoxyacetic acid)	100
D017	2,4,5-TP Silvex (2,4,5-Trichlorophenoxypropionic acid)	10

Subpart D—Lists of Hazardous Wastes

§ 261.30 General.

(a) A solid waste is a hazardous waste if it is listed in this Subpart, unless it has been excluded from this list under §§ 260.20 and 260.22.

(b) The Administrator will indicate his basis for listing the classes or types of wastes listed in this Subpart by employing one or more of the following Hazard Codes:

Ignitable Waste	(I)
Corrosive Waste	(C)
Reactive Waste	(R)
EP Toxic Waste	(E)
Acute Hazardous Waste	(H)
Toxic Waste	(T)

Appendix VII identifies the constituent which caused the Administrator to list the waste as an **EP Toxic Waste (E)** or **Toxic Waste (T)** in §§ 261.31 and 261.32.

(c) Each hazardous waste listed in this Subpart is assigned an EPA Hazardous Waste Number which precedes the name of the waste. This number must be used in complying with the notification requirements of Section 3010 of the Act and certain recordkeeping and reporting requirements under Parts 262 through 265 and Part 122 of this Chapter.

(d) Certain of the hazardous wastes listed in § 261.31 or § 261.32 have exclusion limits that refer to § 261.5(c)(5).

§ 261.31 Hazardous waste from nonspecific sources.

Industry and EPA hazardous waste No	Hazardous waste	Hazard code
General:		
F001	The spent halogenated solvents used in degreasing, tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and the chlorinated fluorocarbons; and sludges from the recovery of these solvents in degreasing operations.	(T)
F002	The spent halogenated solvents, tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, o-dichlorobenzene, trichlorofluoromethane and the still bottoms from the recovery of these solvents.	(T)
F003	The spent non-halogenated solvents, xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, n-butyl alcohol, cyclohexanone, and the still bottoms from the recovery of these solvents.	(T)
F004	The spent non-halogenated solvents, cresols and cresylic acid, nitrobenzene, and the still bottoms from the recovery of these solvents.	(T)
F005	The spent non-halogenated solvents, methanol, toluene, methyl ethyl ketone, methyl isobutyl ketone, carbon disulfide, isobutanol, pyridine and the still bottoms from the recovery of these solvents.	(L, T)
F006	Wastewater treatment sludges from electroplating operations.	(T)
F007	Spent plating bath solutions from electroplating operations.	(R, T)
F008	Plating bath sludges from the bottom of plating baths from electroplating operations.	(R, T)
F009	Spent stripping and cleaning bath solutions from electroplating operations.	(R, T)
F010	Quenching bath sludge from baths from metal heat treating operations.	(R, T)
F011	Spent solutions from salt bath pot cleaning from metal heat treating operations.	(R, T)
F012	Quenching wastewater treatment sludges from metal heat treating operations.	(T)
F013	Filtration tailings from selective flotation from mineral metals recovery operations.	(T)
F014	Cyanidation wastewater treatment sludge from mineral metals recovery operations.	(T)
F015	Spent cyanide bath solutions from mineral metals recovery operations.	(R, T)
F016	Dewatered air pollution control scrubber sludges from coke ovens and blast furnaces.	(T)

§ 261.32 Hazardous waste from specific sources.

Industry and EPA hazardous waste No	Hazardous waste	Hazard code
Wood Preservation, K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.	(T)
Inorganic Pigments:		
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments.	(T)
K003	Wastewater treatment sludge from the production of molybdate orange pigments.	(T)
K004	Wastewater treatment sludge from the production of zinc yellow pigments.	(T)
K005	Wastewater treatment sludge from the production of chrome green pigments.	(T)
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).	(T)
K007	Wastewater treatment sludge from the production of iron blue pigments.	(T)
K008	Oven residue from the production of chrome oxide green pigments.	(T)
Organic Chemicals:		
K009	Distillation bottoms from the production of acetaldehyde from ethylene.	(T)
K010	Distillation side cuts from the production of acetaldehyde from ethylene.	(T)
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile.	(R, T)
K012	Still bottoms from the final purification of acrylonitrile in the production of acrylonitrile.	(T)
K013	Bottom stream from the acetonitrile column in the production of acrylonitrile.	(R, T)
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile.	(T)
K015	Still bottoms from the distillation of benzyl chloride.	(T)
K016	Heavy ends or distillation residues from the production of carbon tetrachloride.	(T)
K017	Heavy ends (still bottoms) from the purification column in the production of perchloroethylene.	(T)
K018	Heavy ends from fractionation in ethyl chloride production.	(T)
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.	(T)
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.	(T)
K021	Aqueous spent antimony catalyst waste from fluoropolymer production.	(T)
K022	Distillation bottom tars from the production of phenol/acetone from cumene.	(T)
K023	Distillation light ends from the production of phthalic anhydride from naphthalene.	(T)
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene.	(T)
K025	Stripping still tails from the production of methyl ethyl pyridines.	(T)
K026	Centrifuge residue from toluene diisocyanate production.	(R, T)
K027	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.	(T)
K028	Waste from the product stream stripper in the production of 1,1,1-trichloroethane.	(T)
K029	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.	(T)
Pesticides:		
K031	By-products salts generated in the production of MSMA and cacodylic acid.	(T)
K032	Wastewater treatment sludge from the production of chlordane.	(T)
K033	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.	(T)
K034	Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.	(T)
K035	Wastewater treatment sludges generated in the production of creosote.	(T)
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton.	(T)
K037	Wastewater treatment sludges from the production of disulfoton.	(T)
K038	Wastewater from the washing and stripping of phosphate production.	(T)
K039	Filter cake from the filtration of diethylphosphorothion acid in the production of phosphate.	(T)
K040	Wastewater treatment sludge from the production of phosphate.	(T)
K041	Wastewater treatment sludge from the production of toxaphene.	(T)
K042	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.	(T)
K043	2,6-Dichlorophenol waste from the production of 2,4-D.	(T)
Explosives:		
K044	Wastewater treatment sludges from the manufacturing and processing of explosives.	(R)
K045	Spent carbon from the treatment of wastewater containing explosives.	(R)
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.	(R)
K047	Pink/red water from TNT operations.	(R)
Petroleum Refining:		
K048	Dissolved air flotation (DAF) float from the petroleum refining industry.	(T)
K049	Slop oil emulsion solids from the petroleum refining industry.	(T)
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.	(T)
K051	API separator sludge from the petroleum refining industry.	(T)
K052	Tank bottoms (leaded) from the petroleum refining industry.	(T)
Leather Tanning Finishing:		
K053	Chrome (blue) trimmings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse, through-the-blue, and shearing.	(T)

§ 261.32 Hazardous waste from specific sources.—Continued

Industry and EPA hazardous waste No.	Hazardous waste	Hazard code
K054.....	Chrome (blue) shavings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; no beamhouse; through-the-blue; and shearing.	(T)
K055.....	Buffing dust generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; no beamhouse; and through-the-blue.	(T)
K056.....	Sewer screenings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; no beamhouse; through-the-blue, and shearing.	(T)
K057.....	Wastewater treatment sludges generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; no beamhouse; through-the-blue and shearing.	(T)
K058.....	Wastewater treatment sludges generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; and through-the-blue.	(R, T)
K059.....	Wastewater treatment sludges generated by the following subcategory of the leather tanning and finishing industry: hair save/non-chrome tan/retan/wet finish.	(R)
Iron and Steel:		
K060.....	Ammonia still lime sludge from coking operations.....	(M)
K061.....	Emission control dust/sludge from the electric furnace production of steel.....	(M)
K062.....	Spent pickle liquor from steel finishing operations.....	(C, T)
K063.....	Sludge from lime treatment of spent pickle liquor from steel finishing operations.....	(M)
Primary Copper: K064.....	Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production.....	(T)
Primary Lead: K065.....	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.....	(T)
Primary Zinc:		
K066.....	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production.....	(M)
K067.....	Electrolytic anode slimes/sludges from primary zinc production.....	(M)
K068.....	Cadmium plant leach residue (iron oxide) from primary zinc production.....	(M)
Secondary Lead: K069.....	Emission control dust/sludge from secondary lead smelting.....	(M)

§ 261.33 Discarded Commercial Chemical Products, Off-Specification Species, Containers, and Spill Residues Thereof.

The following materials or items are hazardous wastes if and when they are discarded or intended to be discarded:

(a) Any commercial chemical product, or manufacturing chemical intermediate having the generic name listed in paragraphs (e) or (f) of this section.

(b) Any off-specification commercial chemical product or manufacturing chemical intermediate which, if it met specifications, would have the generic name listed in paragraphs (e) or (f) of this section.

(c) Any container or inner liner removed from a container that has been used to hold any commercial chemical product or manufacturing chemical intermediate having the generic name listed in paragraph (e) of this section, unless:

(1) The container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate;

(2) The container or inner liner has been cleaned by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal; or

(3) In the case of a container, the inner liner that prevented contact of the commercial chemical product or manufacturing chemical intermediate with the container, has been removed.

(d) Any residue or contaminated soil, water or other debris resulting from the cleanup of a spill, into or on any land or water, of any commercial chemical product or manufacturing chemical

intermediate having the generic name listed in paragraphs (e) or (f) of this Section.

[Comment: The phrase "commercial chemical product or manufacturing chemical intermediate having the generic name listed in . . ." refers to a chemical substance which is manufactured or formulated for commercial or manufacturing use. It does not refer to a material, such as a manufacturing process waste, that contains any of the substances listed in paragraphs (e) or (f). Where a manufacturing process waste is deemed to be a hazardous waste because it contains a substance listed in paragraphs (e) or (f), such waste will be listed in either §§ 261.31 or 261.32 or will be identified as a hazardous waste by the characteristics set forth in Subpart C of this Part.]

(e) The commercial chemical products or manufacturing chemical intermediates, referred to in paragraphs (a) through (d) of this section, are identified as acute hazardous wastes (H) and are subject to the small quantity exclusion defined in § 261.5(c). These wastes and their corresponding EPA Hazardous Waste Numbers are:

Hazardous waste No.	Substance
1080 see P058	
1081 see P057	
(Acetaldo)phenylmercury see P092	
Acetone cyanohydrin see P069	
P001.....	3-(alpha-Acetoxybenzyl)-4-hydroxycoumarin and salts
P002.....	1-Acetyl-2-thiourea
P003.....	Acrolen
	Agaric see P007
	Agroclan GN 5 see P092
	Aldcarb see P050
	Aldrin see P048

—Continued

Hazardous waste No.	Substance
P004.....	Aldrin
	Alginic acid see P092
P005.....	Allyl alcohol
P006.....	Aluminum phosphide (R)
	ALVIT see P037
	Aminostyrene see P054
P007.....	5-(Aminomethyl)-3-isoxazolid
P008.....	4-Aminopyridine
	Ammonium molybdate see P119
P009.....	Ammonium picrate (R)
	ANTIMUCIN HDR see P092
	ANTURAT see P073
	AQUATHOL see P088
	ARETIT see P020
P010.....	Arsenic acid
P011.....	Arsenic pentoxide
P012.....	Arsenic trioxide
	Athrombin see P001
	AVITROL see P006
	Azobenzene see P054
	AZOFOS see P061
	Azophos see P061
	BANTU see P072
P013.....	Benzen cyanide
	BASENITE see P020
	BCME see P016
P014.....	Benzanethiol
	Benzocaine see P050
P015.....	Beryllium dust
P016.....	Bis(chloromethyl) ether
	BLADAN-MI see P071
P017.....	Bromoacetone
P018.....	Bromoform
P019.....	2-Butanone peroxide
	BUFEN see P082
	Butaphene see P020
P020.....	2-sec-Butyl-4,5-dinitrophenol
P021.....	Calcium cyanide
	CALDON see P020
P022.....	Carbon disulfide
	CERESAN see P092
	CERESAN UNIVERSAL see P092
	CHEMOX GENERAL see P020
	CHEMOX P.E. see P020
	CHEM-TOL see P090
P023.....	Chloroacetaldehyde
P024.....	p-Chloroanisole
P025.....	1-(p-Chlorobenzoyl)-5-methoxy-2-methylindole-3-acetic acid
P026.....	1-(o-Chlorophenyl)thiourea
P027.....	3-Chloropropionitrile
P028.....	alpha-Chlorotoluene
P029.....	Copper cyanide
	CRETOX see P108
	Coumadin see P001
	Coumelen see P001
P030.....	Cyanides

Hazardous waste No.	Substance ¹	Hazardous waste No.	Substance ¹	Hazardous waste No.	Substance ¹
P031	Cyanogen		MALIK see P050	P102	2-Propyn-1-ol
P032	Cyanogen bromide		MAREVAN see P001		PROTHROMADIN See P001
P033	Cyanogen chloride		MAR-FRIN see P001		QUICKSAM see P002
	Cyclodan see P050		MARTIND MAR-FRIN see P001		QUINTOX see P037
P034	2-Cyclohexyl-4,6-dinitrophenol		MAVERAN see P001		RAT AND MICE BAIT see P001
	D-COIN see P001		MEGATOX see P005		RAT-A-WAY see P001
	DETHIMOR see P001	P065	Mercury fulminate		RAT-B-GON see P001
	DETHNEL see P001		MERSOLITE see P092		RAT-C-ODE #2 see P001
	DFF see P043		METACID 50 see P071		RAT-GUARD see P001
P035	2,4-Dichlorophenoxyacetic acid (2,4-D)		METAFOS see P071		RAT-KILL see P001
P036	Dichlorophenylarsine		METAPHOR see P071		RAT-MIX see P001
	Dicyanogen see P031		METAPHOS see P071		RATS-NO-MORE see P001
P037	Dieldrin		METASOL 30 see P092		RAT-OLA see P001
	DIELDREX see P037	P066	Methomyl		RATOREX see P001
P038	Diethylarsine	P067	2-Methylaziridine		RATTUNAL see P001
P039	0,0-Diethyl-S-(2-ethylthio)ethyl ester of phosphorothioic acid		METHYL E 505 see P071		RAT-TROL see P001
P040	0,0 Diethyl-O-(2-pyrazinyl)phosphorothioate	P068	Methyl hydrazine		RO-DETH see P001
P041	0,0-Diethyl phosphonic acid, O-p-nitrophenyl ester		Methyl isocyanate see P064		RO-DEX see P108
P042	3,4-Dihydroxy-alpha-(methylamino)-methyl benzyl alcohol	P069	2-Methylactonitrile		ROSEX see P001
		P070	2-Methyl-2-(methylthio)propanaldehyde-O-(methylcarbonyl) oxime		ROUGH & READY MOUSE MIX see P001
P043	D-isopropylfluorophosphate		METHYL NIRON see P042		SANASEED see P108
	DIMETATE see P044	P071	Methyl parathion		SANTOBRITE see P090
	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro endo see P060		METRON see P071		SANTOPHEN see P090
P044	Dimethoate		MOLE DEATH see P108		SANTOPHEN 20 see P090
P045	3,3-Dimethyl-1-(methylthio)-2-butanone-O-((methylamino)carbonyl) oxime		MOUSE-NOTS see P108		SCHRADAN see P085
P046	alpha, alpha-Dimethylphenethylamine		MOUSE-RID see P108	P103	Selenourea
	Dinitrocyclohexylphenol see P034		MOUSE-TOX see P108	P104	Silver Cyanide
P047	4,6-Dinitro-o cresol and salts	P072	1-Naphthyl-2-thiourea		SMITE see P105
P048	2,4-Dinitrophenol	P073	Nickel carbonyl		SPARIC see P020
	DINOSEB see P020	P074	Nickel cyanide		SPOR-KIL see P092
	DINOSEDE see P020	P075	Nicotine and salts		SPRAY-TROL BRAND ROOGEN-TROL see P001
	Disulfoton see P039	P076	Nitric oxide		SPURGE see P020
P049	2,4-Dithioburet	P077	p-Nitroaniline	P105	Sodium azide
	DNBP see P020	P078	Nitrogen dioxide		Sodium coumatrin see P001
	DOLCO MOUSE CEREAL see P108	P079	Nitrogen peroxide		Sodium cyanide
	DOW GENERAL see P020	P080	Nitrogen tetroxide		Sodium fluoracetate see P056
	DOW GENERAL WEED KILLER see P020	P081	Nitroglycerine (R)		SODIUM WARFARIN see P001
	DOW SELECTIVE WEED KILLER see P020	P082	N-Nitrosodimethylamine		SOLFARIN see P001
	DOOWICIDE G see P090	P083	N-Nitrosodiphenylamine		SOLFOBLACK BB see P048
	DYANACIDE see P092	P084	N-Nitrosomethylmethylamine		SOLFOBLACK SB see P048
	EASTERN STATES DUOCIDE see P001		NYLMERATE see P092	P107	Strontium sulfide
	ELGETOL see P020	P085	Octamethylpyrophosphoramide		Strychnine and salts
P050	Endosulfan		OCTAN see P092	P108	SUBTEX see P020
P051	Endrin	P086	Olefin alcohol condensed with 2 moles ethylene oxide		SYSTEM see P085
	Epinephrine see P042		OMPA see P085		TAG FUNGICIDE see P092
P052	Ethylcyanide		OMPACIDE see P085		TEKWAISA see P071
P053	Ethylene diamine		OMPAX see P085		TEMIX see P070
P054	Ethyleneimine	P087	Osmium tetroxide		TERM-1-TROL see P090
	FASCO FASCRAT POWDER see P001	P088	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	P109	Tetraethylidithiopyrophosphate
	FEWMA see P091		PANIVARFIN see P001	P110	Tetraethyl lead
	Ferric cyanide		PANDRAM D-31 see P037	P111	Tetraethylpyrophosphate
P055	Fluorine		PANTHERINE see P007	P112	Tetranormethane
P056	Fluorine		PANWARFIN see P001		Tetraphosphoric acid, hexaethyl ester see P062
P057	2-Fluoroacetamide	P089	Parathion		TETROSULFUR BLACK PB see P048
P058	Fluoroacetic acid, sodium salt		PCP see P090	P113	Tetrosulphur PBR see P048
	FOLODOL-80 see P071		PENNCAP-M see P071	P114	Thallium oxide
	FOLODOL M see P071		PENOXYL CARBON N see P048	P115	Thallium selenite
	FOSFERNO M 50 see P071	P090	Pentachlorophenol		Thallium (I) sulfate
	FRATOL see P058		Pentachlorophenolate see P090		THIFOR see P092
	Fulminate of mercury see P065		PENTA-KILL see P090		THIMUL see P092
	FUNGITOX OR see P092		PENTASOL see P090		THIODAN see P050
	FUSSOF see P057		PENMAR see P090		THIOFOR see P050
	GALLOTOX see P092		PERMAGUARD see P090		THIOMUL see P050
	GEARPHOS see P071		PERMITE see P090		THIONEX see P050
	GERUTOX see P020		PERMITE see P090		THIOPHENIT see P071
P059	Heptachlor		PERMITE see P090	P116	Thiosulfon tonel see P050
P060	1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4,5,8-endo, endo-dimethanonaphthalene		PERMITE see P090	P117	Thuram
	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050		PESTOX III see P085		THOMPSON'S WOOD FIX see P090
P061	Hexachloropropene		PHENMAD see P092	P118	Tinchloromethanethiol
P062	Hexaethyl tetraphosphate		PHENOTAN see P020		TWIN LIGHT RAT AWAY see P001
	HOSATAQUICK see P092	P091	Phenyl dichlorocarsine		USAF RH-8 see P069
	HOSATAQUICK see P092		Phenyl mercaptan see P014		USAF EX-4890 see P002
	Hydrazomethane see P068	P092	Phenylmercury acetate	P119	Vanadic acid, ammonium salt
	Hydrocyanic acid	P093	N-Phenylthiourea	P120	Vanadium pentoxide
	ILLOXOL see P037		PHILIPS 1861 see P006		VOFATOX see P071
	INDOCI see P025		PHIX see P092		WANADU see P120
	Indomethacin see P025	P094	Phorate		WARCOUMIN see P001
	INSECTOPHENE see P050	P095	Phosgene		WARFARIN SODIUM see P001
	Isodrin see P050	P096	Phosphine		WARFICIDE see P001
P064	Isocyanic acid, methyl ester	P097	Phosphorothioic acid, O,O-dimethyl ester, O-ester with N,N-dimethyl benzene sulfonamide		WOFOTOX see P072
	KILOSEB see P020		Phosphorothioic acid, O,O-dimethyl-O-(p-nitrophenyl) ester see P071		YANOCK see P057
	KOP-THIODAN see P050		PIED PIPER MOUSE SEED see P108		YASOKNOCK see P058
	KWIK-KIL see P108	P098	Potassium cyanide	P121	Zinc cyanide
	KWIKSAN see P092	P099	Potassium silver cyanide	P122	Zinc phosphide (R,T)
	KYPARIN see P001		PREMERGE see P020		ZOOCUMARIN see P001
	LEYTOSAN see P092	P100	1,2-Propanediol		
	LIQUIPHENE see P092	P101	Propionitrile		

¹The Agency included those trade names of which it was aware; an omission of a trade name does not imply that the omitted material is not hazardous. The material is hazardous if it is listed under its generic name.

(f) The commercial chemical products or manufacturing chemical intermediates, referred to in paragraphs (a), (b) and (d) of this section, are identified as toxic wastes (T) unless otherwise designated and are subject to the small quantity exclusion defined in § 261.5 (a) and (b). These wastes and their corresponding EPA Hazardous Waste Numbers are:

Hazardous Waste No.	Substance ¹
U001.....	AAF see U005
U002.....	Acetaldehyde
U003.....	Acetone (I)
U004.....	Acetonitrile (I,T)
U005.....	Acetophenone
U006.....	2-Acetylaminofluorene
U007.....	Acetyl chloride (C,T)
U008.....	Acrylamide
U009.....	Acetylene tetrachloride see U209
U010.....	Acetylene trichloride see U228
U011.....	Acrylic acid (I)
U012.....	Acrylonitrile
U013.....	AEROTHENE TT see U226
U014.....	3-Amino-5-(p-acetamidophenyl)-1H-1,2,4-triazole, hydrate see U011
U015.....	6-Amino-1,1a,2,8,8a,8b-hexahydro-8-(hydroxymethyl)-8-methoxy-5-methylcarbamate aziridine(2',3',3,4) pyrrole(1,2-a) indole-4, 7-dione (ester)
U016.....	Amidrole
U017.....	Aniline (I)
U018.....	Asbestos
U019.....	Auramine
U020.....	Azaserine
U021.....	Benz(c)acridine
U022.....	Benzal chloride
U023.....	Benz(a)anthracene
U024.....	Benzene
U025.....	Benzenesulfonyl chloride (C,R)
U026.....	Benzidine
U027.....	1,2-Benzisothiazolin-3-one, 1,1-dioxide see U202
U028.....	Benzol(a)pyrene
U029.....	Benzotrichloride (C,R,T)
U030.....	Bis(2-chloroethoxy)methane
U031.....	Bis(2-chloroethyl) ether
U032.....	N,N-Bis(2-chloroethyl)-2-naphthylamine
U033.....	Bis(2-chloropropyl) ether
U034.....	Bis(2-ethylhexyl) phthalate
U035.....	Bromomethane
U036.....	4-Bromophenyl phenyl ether
U037.....	n-Butyl alcohol (I)
U038.....	Calcium chromate
U039.....	Carbolic acid see U188
U040.....	Carbon tetrachloride see U211
U041.....	Carbonyl fluoride
U042.....	Chloral
U043.....	Chlorambucil
U044.....	Chlorane
U045.....	Chlorobenzene
U046.....	Chlorobenzilate
U047.....	p-Chloro-m-cresol
U048.....	Chlorodibromomethane
U049.....	1-Chloro-2,3-epoxypropane
U050.....	CHLOROETHENE NU see U226
U051.....	Chloroethyl vinyl ether
U052.....	Chloroethene
U053.....	Chloroform (I,T)
U054.....	Chloromethane (I,T)
U055.....	Chloromethyl methyl ether
U056.....	2-Chloronaphthalene
U057.....	2-Chlorophenol
U058.....	4-Chloro-o-toluidine hydrochloride
U059.....	Chrysene
U060.....	C1 23060 see U073
U061.....	Cresote
U062.....	Cresols
U063.....	Crotonaldehyde
U064.....	Cresylic acid
U065.....	Cumene
U066.....	Cyanomethane see U003
U067.....	Cyclohexane (I)
U068.....	Cyclohexanone (I)
U069.....	Cyclophosphamide
U070.....	Dauromycin
U071.....	DDT

Hazardous Waste No.	Substance ¹
U061.....	DOT
U062.....	Dialate
U063.....	Dbenz(a,h)anthracene
U064.....	Dbenz(a,h)anthracene see U063
U065.....	Dbenz(a,h)pyrene
U066.....	Dibromochloromethane
U067.....	1,2-Dibromo-3-chloropropane
U068.....	1,2-Dibromopropane
U069.....	Dibromomethane
U070.....	D-n-butyl phthalate
U071.....	1,2-Dichlorobenzene
U072.....	1,3-Dichlorobenzene
U073.....	1,4-Dichlorobenzene
U074.....	3,3'-Dichlorobenzidine
U075.....	1,4-Dichloro-2-butene
U076.....	3,3'-Dichloro-4,4'-diaminobiphenyl see U073
U077.....	3,3'-Dichlorodifluoromethane
U078.....	1,1-Dichloroethane
U079.....	1,2-Dichloroethane
U080.....	1,1-Dichloroethylene
U081.....	1,2-trans-Dichloroethylene
U082.....	Dichloromethane
U083.....	Dichloromethylbenzene see U017
U084.....	2,4-Dichlorophenol
U085.....	2,6-Dichlorophenol
U086.....	1,2-Dichloropropane
U087.....	1,3-Dichloropropane
U088.....	Diisopropylamine (I,T)
U089.....	1,2-Diethylhydrazine
U090.....	0,0-Diethyl-S-methyl ester of phosphorodithioic acid
U091.....	Diethyl phthalate
U092.....	Diethylstilbestrol
U093.....	Dihydrosalrole
U094.....	3,3'-Dimethoxybenzidine
U095.....	Dimethylamine (I)
U096.....	p-Dimethylaminobenzene
U097.....	7,12-Dimethylbenz(a)anthracene
U098.....	3,3'-Dimethylbenzidine
U099.....	alpha, alpha-Dimethylbenzylthio peroxide (R)
U100.....	Dimethylcarbamoyl chloride
U101.....	1,1-Dimethylhydrazine
U102.....	1,2-Dimethylhydrazine
U103.....	Dimethylnitrosamine
U104.....	2,4-Dimethylphenol
U105.....	2,4-Dinitrotoluene
U106.....	2,6-Dinitrotoluene
U107.....	D-n-octyl phthalate
U108.....	1,4-Dioxane
U109.....	1,2-Diphenylhydrazine
U110.....	Dipropylamine (I)
U111.....	D-n-propyl nitrosamine
U112.....	EDC see U114
U113.....	1,4-Epoxybutane see U213
U114.....	Ethyl acetate (I)
U115.....	Ethyl acrylate (I)
U116.....	Ethylenebis(dithiocarbamate)
U117.....	Ethylene, oxide (I,T)
U118.....	Ethylene thiourea
U119.....	Ethyl ether (I,T)
U120.....	Ethylmethacrylate
U121.....	Ethyl methanesulfonate
U122.....	Ethyniline see U003
U123.....	Fluoraster T23P see U235
U124.....	Fluoranthene
U125.....	Fluorotrichloromethane
U126.....	Formaldehyde
U127.....	Formic acid (C,T)
U128.....	Furan (I)
U129.....	Furfural (I)
U130.....	Glycidylaldehyde
U131.....	Hexachlorobenzene
U132.....	Hexachlorobutadiene
U133.....	Hexachlorocyclohexane
U134.....	Hexachlorocyclopentadiene
U135.....	Hexachloroethane
U136.....	Hexachlorophene
U137.....	Hydrazine (R,T)
U138.....	Hydrofluoric acid (C,T)
U139.....	Hydrogen sulfide
U140.....	Hydroxybenzene see U188
U141.....	Hydroxymethyl arsine oxide
U142.....	4,4'-(Imidocarbonyl)bis(N,N-dimethyl)aniline see U014
U143.....	Indeno(1,2,3-cd)pyrene
U144.....	Iodomethane
U145.....	Iron Dextran
U146.....	Isobutyl alcohol

Hazardous Waste No.	Substance ¹
U141.....	Isosafrole
U142.....	Kepone
U143.....	Lasocarpine
U144.....	Lead acetate
U145.....	Lead phosphate
U146.....	Lead subacetate
U147.....	Maleic anhydride
U148.....	Maleic hydrazide
U149.....	Malononitrile
U150.....	MEK Peroxide see U180
U151.....	Melphalan
U152.....	Mercury
U153.....	Methacrylonitrile
U154.....	Methanethiol
U155.....	Methaphenylene
U156.....	Methyl alcohol see U154
U157.....	Methyl chloroformate see U228
U158.....	3-Methylchloranthrene
U159.....	Methyl chloroformate see U156
U160.....	4,4'-Methylene-bis(2-chloroaniline)
U161.....	Methyl ethyl ketone (MEK) (I,T)
U162.....	Methyl ethyl ketone peroxide (R)
U163.....	Methyl iodide see U138
U164.....	Methyl isobutyl ketone
U165.....	Methyl methacrylate (R,T)
U166.....	N-Methyl-N'-nitro-N-nitrosoguanidine
U167.....	Methylthiourea
U168.....	Mitomycin C see U010
U169.....	Naphthalene
U170.....	1,4-Naphthoquinone
U171.....	1-Naphthylamine
U172.....	2-Naphthylamine
U173.....	Nitrobenzene (I,T)
U174.....	Nitrobenzyl see U169
U175.....	4-Nitrophenol
U176.....	2-Nitropropane (I)
U177.....	N-Nitrosod-n-butylamine
U178.....	N-Nitrosodethanolamine
U179.....	N-Nitrosodethylamine
U180.....	N-Nitrosod-n-propylamine
U181.....	N-Nitrosod-n-ethylurea
U182.....	N-Nitrosod-n-methylurea
U183.....	N-Nitrosod-n-methylurethane
U184.....	N-Nitrosopropene
U185.....	N-Nitrosopyrrolidine
U186.....	5-Nitro-o-toluidine
U187.....	Paraldehyde
U188.....	PCNB see U185
U189.....	Pentachlorobenzene
U190.....	Pentachloroethane
U191.....	Pentachloronitrobenzene
U192.....	Perc see U210
U193.....	Perchloroethylene see U210
U194.....	Phenacetin
U195.....	Phenol
U196.....	Phosphorous sulfide (R)
U197.....	Phthalic anhydride
U198.....	2-Picoline
U199.....	Pronamide
U200.....	1,3-Propane sultone
U201.....	n-Propylamine (I)
U202.....	Pyridine
U203.....	Quonones
U204.....	Reserpine
U205.....	Resorcinol
U206.....	Saccharin
U207.....	Saltrole
U208.....	Selenous acid
U209.....	Selenium sulfide (R,T)
U210.....	Silvex see U233
U211.....	Streptozotocin
U212.....	2,4,5-T see U232
U213.....	1,2,4,5-Tetrachlorobenzene
U214.....	1,1,1,2-Tetrachloroethane
U215.....	1,1,2,2-Tetrachloroethane
U216.....	Tetrachloroethene
U217.....	Tetrachloroethylene see U210
U218.....	Tetrachloromethane
U219.....	2,3,4,6-Tetrachlorophenol
U220.....	Tetrahydrofuran (I)
U221.....	Thallium (I) acetate
U222.....	Thallium (I) carbonate
U223.....	Thallium (I) chloride
U224.....	Thallium (I) nitrate
U225.....	Thioacetamide
U226.....	Thiourea
U227.....	Toluene
U228.....	Toluenediamine
U229.....	o-Toluidine hydrochloride

Hazardous Waste No.	Substance ¹
U223.....	Toluene diisocyanate
U224.....	Toxaphene
	2,4,5-TP see U233
U225.....	Tribromomethane
U226.....	1,1,1-Trichloroethane
U227.....	1,1,2-Trichloroethane
U228.....	Trichloroethene
	Trichloroethylene see U228
U229.....	Trichlorofluoromethane
U230.....	2,4,5-Trichlorophenol
U231.....	2,4,6-Trichlorophenol
U232.....	2,4,5-Trichlorophenoxyacetic acid
U233.....	alpha, alpha, Trichlorotoluene see U023
	TRI-CLENE see U228
U234.....	Tinotrobenzene (RT)
U235.....	Tin(2,3-dibromopropyl) phosphate
U236.....	Trypan blue
U237.....	Uracil mustard
U238.....	Urethane
	Vinyl chloride see U043
	Vinylidene chloride see U078
U239.....	Xylene

¹ The Agency included those trade names of which it was aware, an omission of a trade name does not imply that it is not hazardous. The material is hazardous if it is listed under its generic name.

Appendix I—Representative Sampling Methods

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste materials to be sampled. Samples collected using the sampling protocols listed below, for sampling waste with properties similar to the indicated materials, will be considered by the Agency to be representative of the waste.

Extremely viscous liquid—ASTM Standard D140-70 Crushed or powdered material—ASTM Standard D346-75 Soil or rock-like material—ASTM Standard D420-69 Soil-like material—ASTM Standard D1452-65 Fly Ash-like material—ASTM Standard D2234-76 [ASTM Standards are available from ASTM, 1916 Race St., Philadelphia, PA 19103]

Containerized liquid wastes—"COLIWASA" described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," U.S. Environmental Protection Agency, Office of Solid Waste, Washington, D.C. 20460. [Copies may be obtained from Solid Waste Information, U.S. Environmental Protection Agency, 26 W. St. Clair St., Cincinnati, Ohio 45268] Liquid waste in pits, ponds, lagoons, and similar reservoirs—"Pond Sampler" described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods."

This manual also contains additional information on application of these protocols.

¹ These methods are also described in "Samplers and Sampling Procedures for Hazardous Waste Streams," EPA 600/2-80-016, January 1980.

Appendix II—EP Toxicity Test Procedure

A. Extraction Procedure (EP)

1. A representative sample of the waste to be tested (minimum size 100 grams) should be obtained using the methods specified in Appendix I or any other methods capable of yielding a representative sample within the meaning of Part 260. [For detailed guidance on conducting the various aspects of the EP see "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," SW-846, U.S. Environmental Protection Agency Office of Solid Waste, Washington, D.C. 20460.]

2. The sample should be separated into its component liquid and solid phases using the method described in "Separation Procedure" below. If the solid residue² obtained using this method totals less than 0.5% of the original weight of the waste, the residue can be discarded and the operator should treat the liquid phase as the extract and proceed immediately to Step 8.

3. The solid material obtained from the Separation Procedure should be evaluated for its particle size. If the solid material has a surface area per gram of material equal to, or greater than, 3.1 cm² or passes through a 9.5 mm (0.375 inch) standard sieve, the operator should proceed to Step 4. If the surface area is smaller or the particle size larger than specified above, the solid material should be prepared for extraction by crushing, cutting or grinding the material so that it passes through a 9.5 mm (0.375 inch) sieve or, if the material is in a single piece, by subjecting the material to the "Structural Integrity Procedure" described below.

4. The solid material obtained in Step 3 should be weighed and placed in an extractor with 16 times its weight of deionized water. Do not allow the material to dry prior to weighing. For purposes of this test, an acceptable extractor is one which will impart sufficient agitation to the mixture to not only prevent stratification of the sample and extraction fluid but also insure that all sample surfaces are continuously

¹ Copies may be obtained from Solid Waste Information, U.S. Environmental Protection Agency, 26 W. St. Clair Street, Cincinnati, Ohio 45268.

² The percent solids is determined by drying the filter pad at 80° C until it reaches constant weight and then calculating the percent solids using the following equation:

$$\frac{(\text{weight of pad + solid}) - (\text{tare weight of pad})}{\text{initial weight of sample}} \times 100 = \% \text{ solids}$$

brought into contact with well mixed extraction fluid.

5. After the solid material and deionized water are placed in the extractor, the operator should begin agitation and measure the pH of the solution in the extractor. If the pH is greater than 5.0, the pH of the solution should be decreased to 5.0 ± 0.2 by adding 0.5 N acetic acid. If the pH is equal to or less than 5.0, no acetic acid should be added. The pH of the solution should be monitored, as described below, during the course of the extraction and if the pH rises above 5.2, 0.5N acetic acid should be added to bring the pH down to 5.0 ± 0.2 . However, in no event shall the aggregate amount of acid added to the solution exceed 4 ml of acid per gram of solid. The mixture should be agitated for 24 hours and maintained at 20°-40° C (68°-104° F) during this time. It is recommended that the operator monitor and adjust the pH during the course of the extraction with a device such as the Type 45-A pH Controller manufactured by Chemtrix, Inc., Hillsboro, Oregon 97123 or its equivalent, in conjunction with a metering pump and reservoir of 0.5N acetic acid. If such a system is not available, the following manual procedure shall be employed:

(a) A pH meter should be calibrated in accordance with the manufacturer's specifications.

(b) The pH of the solution should be checked and, if necessary, 0.5N acetic acid should be manually added to the extractor until the pH reaches 5.0 ± 0.2 . The pH of the solution should be adjusted at 15, 30 and 60 minute intervals, moving to the next longer interval if the pH does not have to be adjusted more than 0.5N pH units.

(c) The adjustment procedure should be continued for at least 6 hours.

(d) If at the end of the 24-hour extraction period, the pH of the solution is not below 5.2 and the maximum amount of acid (4 ml per gram of solids) has not been added, the pH should be adjusted to 5.0 ± 0.2 and the extraction continued for an additional four hours, during which the pH should be adjusted at one hour intervals.

6. At the end of the 24 hour extraction period, deionized water should be added to the extractor in an amount determined by the following equation:

$$V = (20)(W) - 16(W) - A$$

V = ml deionized water to be added
W = weight in grams of solid charged to extractor
A = ml of 0.5N acetic acid added during extraction

7. The material in the extractor should be separated into its component liquid and solid phases as described under "Separation Procedure."

8. The liquids resulting from Steps 2 and 7 should be combined. This

combined liquid (or the waste itself if it has less than 1/2 percent solids, as noted in Step 2) is the extract and should be analyzed for the presence of any of the contaminants specified in Table I of § 261.24 using the Analytical Procedures designated below.

Separation Procedure

Equipment: A filter holder, designed for filtration media having a nominal pore size of 0.45 micrometers and capable of applying a 5.3 kg/cm² (75 psi) hydrostatic pressure to the solution being filtered shall be used. For mixtures containing nonabsorptive solids, where separation can be affected without imposing a 5.3 kg/cm² pressure differential, vacuum filters employing a 0.45 micrometers filter media can be used. (For further guidance on filtration equipment or procedures see "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.")

Procedure:

(i) Following manufacturer's directions, the filter unit should be assembled with a filter bed consisting of a 0.45 micrometer filter membrane. For difficult or slow to filter mixtures a prefilter bed consisting of the following prefilterers in increasing pore size (0.65 micrometer membrane, fine glass fiber prefilter, and coarse glass fiber prefilter) can be used.

(ii) The waste should be poured into the filtration unit.

(iii) The reservoir should be slowly pressurized until liquid begins to flow from the filtrate outlet at which point the pressure in the filter should be immediately lowered to 10-15 psig. Filtration should be continued until liquid flow ceases.

(iv) The pressure should be increased stepwise in 10 psi increments to 75 psig and filtration continued until flow ceases or the pressurizing gas begins to exit from the filtrate outlet.

(v) The filter unit should be depressurized, the solid material removed and weighed and then transferred to the extraction apparatus, or, in the case of final filtration prior to analysis, discarded. Do not allow the

³This procedure is intended to result in separation of the "free" liquid portion of the waste from any solid matter having a particle size >0.45µm. If the sample will not filter, various other separation techniques can be used to aid in the filtration. As described above, pressure filtration is employed to speed up the filtration process. This does not alter the nature of the separation. If liquid does not separate during filtration, the waste can be centrifuged. If separation occurs during centrifugation the liquid portion (centrifugate) is filtered through the 0.45µm filter prior to becoming mixed with the liquid portion of the waste obtained from the initial filtration. Any material that will not pass through the filter after centrifugation is considered a solid and is extracted.

material retained on the filter pad to dry prior to weighing.

(vi) The liquid phase should be stored at 4°C for subsequent use in Step 8.

B. Structural Integrity Procedure

Equipment: A Structural Integrity Tester having a 3.18 cm (1.25 in.) diameter hammer weighing 0.33 kg (0.73 lbs.) and having a free fall of 15.24 cm (6 in.) shall be used. This device is available from Associated Design and Manufacturing Company, Alexandria, VA., 22314, as Part No. 125, or it may be fabricated to meet the specifications shown in Figure 1.

Procedure:

1. The sample holder should be filled with the material to be tested. If the sample of waste is a large monolithic block, a portion should be cut from the block having the dimensions of a 3.3 cm (1.3 in.) diameter x 7.1 cm (2.8 in.) cylinder. For a fixated waste, samples may be cast in the form of a 3.3 cm (1.3 in.) diameter x 7.1 cm (2.8 in.) cylinder for purposes of conducting this test. In such cases, the waste may be allowed to cure for 30 days prior to further testing.

2. The sample holder should be placed into the Structural Integrity Tester, then the hammer should be raised to its maximum height and dropped. This should be repeated fifteen times.

3. The material should be removed from the sample holder, weighed, and transferred to the extraction apparatus for extraction.

Analytical Procedures for Analyzing Extract Contaminants

The test methods for analyzing the extract are as follows:

(1) For arsenic, barium, cadmium, chromium, lead, mercury, selenium or silver: "Methods for Analysis of Water and Wastes," Environmental Monitoring and Support Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268 (EPA-600/4-79-020, March 1979).

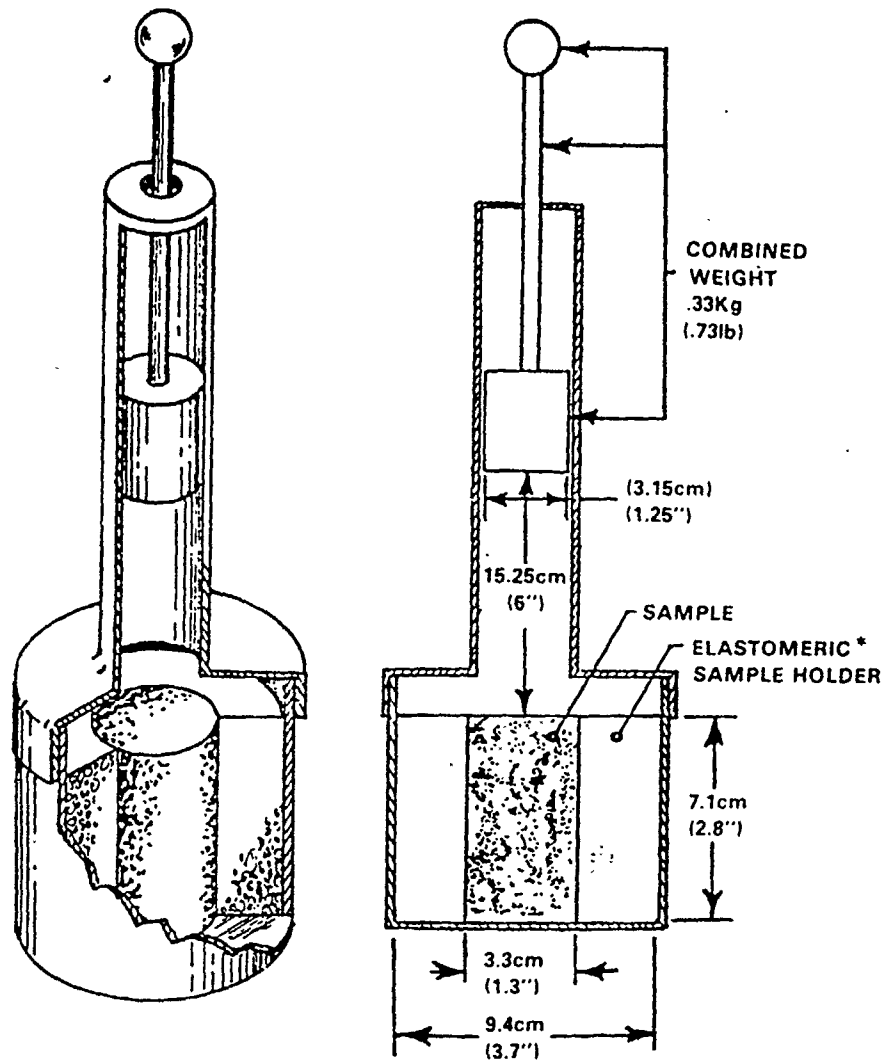
(2) For Endrin: Lindane; Methoxychlor; Toxaphene; 2,4-D; 2,4,5-TP Silver: in "Methods for Benzidine, Chlorinated Organic Compounds, Pentachlorophenol and Pesticides in Water and Wastewater," September 1978, U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268,

as standardized in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods."

For all analyses, the method of standard addition shall be used for the quantification of species concentration.

This method is described in "Test Methods for the Evaluation of Solid Waste." (It is also described in "Methods for Analysis of Water and Wastes.")

BILLING CODE 6560-01-M



*ELASTOMERIC SAMPLE HOLDER FABRICATED OF
MATERIAL FIRM ENOUGH TO SUPPORT THE SAMPLE

Figure 1

COMPACTION TESTER

BILLING CODE 8560-01-C

CAPCO JEN 0004833

Appendix III—Chemical Analysis Test Methods

Tables 1, 2 and 3 specify the appropriate analytical procedures, described in "Test Methods for Evaluating Solid Waste" (SW-846), which should be used in determining whether the waste in question contains a given toxic constituent. Table 1 identifies the analytical class and the approved measurement techniques for each organic chemical listed in Appendix VII. Table 2 identifies the corresponding methods for the inorganic

species. Table 3 identifies the specific sample preparation and measurement instrument introduction techniques which may be suitable for both the organic and inorganic species as well as the matrices of concern.

Prior to final selection of the analytical method the operator should consult the specific method descriptions in SW-846 for additional guidance on which of the approved methods should be employed for a specific waste analysis situation.

Table 1.—Analytical Characteristics of Organic Chemicals

Compound	Sample handling class/fraction	Non-GC methods	Measurement techniques		
			GC/MS	Conventional GC	Detector
Acetonitrile	Volatiles		8.24	8.03	NSD
Acrolein	Volatiles		8.24	8.03	NSD
Acrylamide	Volatiles		8.24	8.01	FID
Acrylonitrile	Volatiles		8.24	8.03	NSD
Benzene	Volatiles		8.24	8.02	PID
Benz(a)anthracene	Extractable/BN	8.10 (HPLC)	8.25	8.10	FID
Benz(a)pyrene	Extractable/BN	8.10 (HPLC)	8.25	8.10	FID
Benzotrichloride	Extractable/BN		8.25	8.12	ECD
Benzyl chloride	Volatiles or Extractable/BN		8.24	8.01	HSD
			8.25	8.12	ECD
			8.25	8.10	FID
Benz(b)fluoranthene	Extractable/BN	8.10 (HPLC)	8.25	8.01	HSD
Bis(2-chloroethoxy)methane	Volatiles		8.24	8.01	HSD
Bis(2-chloroethyl)ether	Volatiles		8.24	8.01	HSD
Carbon disulfide	Volatiles		8.24	8.01	HSD
Carbon tetrachloride	Volatiles		8.24	8.01	HSD
Chlordane	Extractable/BN		8.25	8.08	HSD
Chlornated dibenzodioxins	Extractable/BN		8.25	8.08	ECD
Chlornated biphenyls	Extractable/BN		8.25	8.08	HSD
Chloroacetaldehyde	Volatiles		8.24	8.01	HSD
Chlorobenzene	Volatiles		8.24	8.02	PID
Chloroform	Volatiles		8.24	8.01	HSD
Chloromethane	Volatiles		8.24	8.01	HSD
2-Chlorophenol	Extractable/BN		8.25	8.04	FID, ECD
Chrysene	Extractable/BN	8.10 (HPLC)	8.25	8.10	FID
Cresole	Extractable/BN		8.25	8.10	ECD
Cresol(s)	Extractable/A		8.25	8.04	FID, ECD
Cresylic acid(s)	Extractable/A		8.25	8.04	FID, ECD
Dichlorobenzene(s)	Extractable/BN		8.25	8.01	HSD
				8.02	PID
				8.12	ECD
Dichloroethane(s)	Volatiles		8.24	8.01	HSD
Dichloromethane	Volatiles		8.24	8.01	HSD
Dichlorophenoxyacetic acid	Extractable/A		8.25	8.40	HSD
Dichloropropanol	Extractable/BN		8.25	8.12	ECD
2,4-Dimethylphenol	Extractable/A		8.25	8.04	FID, ECD
Dinitrobenzene	Extractable/BN		8.25	8.09	FID, ECD
4,6-Dinitro-o-cresol	Extractable/A		8.25	8.04	FID, ECD
2,4-Dinitrotoluene	Extractable/BN		8.25	8.09	FID, ECD
Endrin	Extractable/P		8.25	8.08	HSD
Ethyl ether	Volatiles		8.24	8.01	FID
				8.02	FID
Formaldehyde	Volatiles		8.24	8.01	FID
Formic acid	Extractable/BN		8.25	8.06	FID
Heptachlor	Extractable/P		8.25	8.06	HSD
Hexachlorobenzene	Extractable/BN		8.25	8.12	ECD
Hexachlorobutadiene	Extractable/BN		8.25	8.12	ECD
Hexachlorocyclopentadiene	Extractable/BN		8.25	8.12	ECD
Hexachlorocyclopentadiene	Extractable/BN		8.25	8.12	ECD
Lindane	Extractable/P		8.25	8.08	HSD
Maleic anhydride	Extractable/BN		8.25	8.06	ECD, FID
Methanol	Volatiles		8.24	8.01	FID
Methomyl	Extractable/BN	8.32 (HPLC)			
Methyl ethyl ketone	Volatiles		8.25	8.01	FID
				8.02	FID
Methyl isobutyl ketone	Volatiles		8.25	8.01	FID
				8.02	FID
Naphthalene	Extractable/BN		8.25	8.10	FID
Naphthoquinone	Extractable/BN		8.25	8.06	ECD, FID
				8.09	FID
Nitrobenzene	Extractable/BN		8.25	8.09	ECD, FID
4-Nitrophenol	Extractable/A		8.24	8.04	ECD, FID
Paraldehyde (trimer of acetaldehyde)	Volatiles		8.24	8.01	FID

Table 1.—Analytical Characteristics of Organic Chemicals—Continued

Compound	Sample handling class/fraction	Non-GC methods	Measurement techniques		
			GC/MS	Conventional GC	Conventional Detector
Pentachlorophenol	Extractable/A		8.25	8.04	ECD
Phenol	Extractable/A		8.25	8.04	ECD, FID
Phenyl	Extractable/BN			8.22	FPD
Phosphorodithioic acid esters	Extractable/BN			8.06	ECD, FID
				8.09	ECD, FID
				8.22	FPD
Phthalic anhydride	Extractable/BN		8.25	8.06	ECD, FID
				8.09	ECD, FID
2-Picoline	Extractable/BN		8.25	8.06	ECD, FID
				8.09	ECD, FID
Pyridine	Extractable/BN		8.25	8.06	ECD, FID
				8.09	ECD, FID
Tetrachlorobenzene(s)	Extractable/BN		8.25	8.12	ECD
Tetrachloroethane(s)	Volatiles		8.24	8.01	HSD
Tetrachloroethene	Volatiles		8.24	8.01	HSD
Tetrachlorophenol	Extractable/A		8.24	8.04	ECD
Toluene	Volatiles		8.24	8.02	PID
Toluenediamine	Extractable/BN		8.25		
Toluene diisocyanate(s)	Extractable/nonaqueous		8.25	8.06	FID
Toxaphene	Extractable/P		8.25	8.06	HSD
Trichloroethane	Volatiles		8.24	8.01	HSD
Trichloroethene(s)	Volatiles		8.24	8.01	HSD
Trichlorofluoromethane	Volatiles		8.24	8.01	HSD
Trichlorophenol(s)	Extractable/A		8.25	8.04	HSD
2,4,5-TP (Silvex)	Extractable/A		8.25	8.40	HSD
Trichloropropane	Volatiles		8.24	8.01	HSD
Vinyl chloride	Volatiles		8.24	8.01	HSD
Vinylidene chloride	Volatiles		8.24	8.01	HSD
Xylene	Volatiles		8.24	8.02	PID

¹Analyze for phenanthrene and carbazole, if these are present in a ratio between 1.4:1 and 5:1, creosote should be considered present.

ECD = Electron capture detector; FID = Flame ionization detector; FPD = Flame photometric detector; HSD = Halide specific detector; HPLC = High pressure liquid chromatography; NSD = Nitrogen-specific detector; PID = Photoionization detector.

Table 2.—Analytical Characteristics of Inorganic Species

Species	Sample handling class	Measurement technique	Method number
Antimony	Digestion	Atomic absorption-flame	8.50
Arsenic	Hydride	Atomic absorption-flame	8.51
Barium	Digestion	Atomic absorption-flame	8.52
Cadmium	Digestion	Atomic absorption-flame	8.53
Chromium	Digestion	Atomic absorption-flame	8.54
Cyanides	Hydrolysis	Atomic absorption-spectroscopy	8.55
Lead	Digestion	Atomic absorption-flame	8.56
Mercury	Cold Vapor	Atomic absorption-flame	8.57
Nickel	Digestion	Atomic absorption-flame	8.58
Selenium	Hydride digestion	Atomic absorption-flame	8.59
Silver	Digestion	Atomic absorption-flame	8.60

Table 3.—Sample Preparation/Sample Introduction Techniques

Sample handling class	Physical characteristics of waste ¹		
	Fluid	Paste	Solid
Volatiles	Purge and trap.	Purge and trap.	Headspace.
	Direct injection.	Headspace	
Semi-volatile and non-volatile.	Direct injection.	Shake out	Shake out.
	Shake out		Sonication.
Inorganic	Direct injection.		
	Digestion.	Digestion.	Digestion.
	Hydride.	Hydride.	Hydride.

¹For purposes of this Table, fluid refers to readily pourable liquids, which may or may not contain suspended particles. Paste-like materials, while fluid in the sense of flowability, can be thought of as being thixotropic or plastic in nature, e.g., paints. Solid materials are those wastes which can be handled without a container (i.e., can be piled up without appreciable sagging).

Appendix VII.—Basis for Listing Hazardous Wastes

EPA hazardous waste No.	Hazardous constituents for which listed
F001	tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorinated fluorocarbons, carbon tetrachloride
F002	tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2,2-tetrafluoroethane, o-dichlorobenzene, trichlorofluoromethane
F003	N.A.
F004	creosote and creosylic acid, nitrobenzene
F005	methanol, toluene, methyl ethyl ketone, methyl isobutyl ketone, carbon disulfide, isobutanol, pyridine
F006	cadmium, chromium, nickel, cyanide (complexed)
F007	cyanide (salts)
F008	cyanide (salts)
F009	cyanide (salts)
F010	cyanide (salts)
F011	cyanide (salts)
F012	cyanide (complexed)
F013	cyanide (complexed)
F014	cyanide (complexed)
F015	cyanide (salts)
F016	cyanide (complexed)
K001	benzene, benz(a)anthracene, benzo(a)pyrene, chrysene, 4-nitrophenol, toluene, naphthalene phenol, 2-chlorophenol, 2,4-dimethyl phenol, 2,4,6-trichlorophenol, pentachlorophenol, 4,6-dinitro-o-cresol, tetrachlorophenol
K002	chromium, lead
K003	chromium, lead
K004	chromium
K005	chromium, lead
K006	chromium
K007	cyanide (complexed), chromium
K008	chromium
K009	chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid
K010	chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid, chloroacetaldehyde
K011	acrylonitrile, acetonitrile, hydrocyanic acid
K012	acrylonitrile, acetonitrile, acrolein, acrylamide
K013	hydrocyanic acid, acrylonitrile, acetonitrile
K014	acetonitrile, acrylamide
K015	benzyl chloride, chlorobenzene, toluene, benzotrichloride
K016	hexachlorobenzene, hexachlorobutadiene, carbon tetrachloride, hexachloroethane, perchloroethylene
K017	epichlorohydrin, chloroethers (bis(chloromethyl) ether and bis (2-chloroethyl) ethers), trichloropropane, dichloropropanols
K018	1,2-dichloroethane, trichloroethylene, hexachlorobutadiene, hexachlorobenzene
K019	ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, tetrachloroethanes (1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride

Procedure and Method Number(s)

Digestion—See appropriate procedure for element of interest.

Direct injection—8.80

Headspace—8.82

Hydride—See appropriate procedure for element of interest.

Purge & Trap—8.83

Shake out—8.84

Sonication—8.85

Soxhlet—8.86

Appendix VII.—Basis for Listing Hazardous Wastes—Continued

EPA hazardous waste No.	Hazardous constituents for which listed
K020	ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, tetrachloroethanes (1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride
K021	antimony, carbon tetrachloride, chloroform
K022	phenol, tars (polycyclic aromatic hydrocarbons)
K023	phthalic anhydride, maleic anhydride
K024	phthalic anhydride, polynuclear tar-like materials, naphthoquinone
K025	meta-dinitrobenzene, 2,4-dinitrotoluene
K026	paraldehyde, pyridines, 2-picoline
K027	toluene diisocyanate, toluene-2,4-diamine, tars (benzimidazapone)
K028	1,1,1-trichloroethane, vinyl chloride
K029	1,2-dichloroethane, 1,1,1-trichloroethane, vinyl chloride, vinylidene chloride, chloroform
K030	hexachlorobenzene, hexachlorobutadiene, hexachloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, ethylene dichloride
K031	arsenic
K032	hexachlorocyclopentadiene
K033	hexachlorocyclopentadiene
K034	hexachlorocyclopentadiene
K035	creosote, benz(a)anthracene, benz(b)fluoranthene, benzo(a)pyrene
K036	toluene, phosphorodithioic and phosphorothioic acid esters
K037	toluene, phosphorodithioic and phosphorothioic acid esters
K038	phosphate, formaldehyde, phosphorodithioic and phosphorothioic acid esters
K039	phosphorodithioic and phosphorothioic acid esters
K040	phosphate, formaldehyde, phosphorodithioic and phosphorothioic acid esters
K041	toxaphene
K042	hexachlorobenzene, ortho-dichlorobenzene
K043	2,4-dichlorophenol, 2,6-dichlorophenol, 2,4,6-trichlorophenol
K044	N.A.
K045	N.A.
K046	lead
K047	N.A.
K048	chromium, lead
K049	chromium, lead
K050	chromium
K051	chromium, lead
K052	lead
K053	chromium
K054	chromium
K055	chromium, lead
K056	chromium, lead
K057	chromium, lead
K058	chromium, lead
K059	N.A.
K060	cyanide, naphthalene, phenolic compounds, arsenic
K061	chromium, lead, cadmium
K062	chromium, lead
K063	chromium, lead
K064	lead, cadmium
K065	lead, cadmium
K066	lead, cadmium
K067	lead, cadmium
K068	lead, cadmium
K069	chromium, lead, cadmium

N.A.—Waste is hazardous because it meets either the ignitability, corrosivity or reactivity characteristic.

Appendix VIII—Hazardous Constituents

Acetaldehyde
(Acetato)phenylmercury
Acetonitrile
3-(alpha-Acetoxybenzyl)-4-hydroxycoumarin and salts
2-Acetylaminofluorene
Acetyl chloride
1-Acetyl-2-thiourea
Acrolein
Acrylamide
Acrylonitrile
Aflatoxins

Aldrin
Allyl alcohol
Aluminum phosphide
4-Aminobiphenyl
6-Amino-1,1a,2,8,8a,8b-hexahydro-8-(hydroxymethyl)-8a-methoxy-5-methylcarbamate azirino(2',3':3,4)pyrrolo[1,2-a]indole-4,7-dione (ester) (Mitomycin C)
5-(Aminomethyl)-3-isoxazolol
4-Aminopyridine
Amitrole
Antimony and compounds, N.O.S.¹
Aramite
Arsenic and compounds, N.O.S.
Arsenic acid
Arsenic pentoxide
Arsenic trioxide
Auramine
Azaserine
Barium and compounds, N.O.S.
Barium cyanide
Benz[c]acridine
Benz[a]anthracene
Benzene
Benzenearsonic acid
Benzenethiol
Benzidine
Benzo[a]anthracene
Benzo[b]fluoranthene
Benzo[j]fluoranthene
Benzo[a]pyrene
Benzotrichloride
Benzyl chloride
Beryllium and compounds, N.O.S.
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether
N,N-Bis(2-chloroethyl)-2-naphthylamine
Bis(2-chloroisopropyl) ether
Bis(chloromethyl) ether
Bis(2-ethylhexyl) phthalate
Bromoacetone
Bromomethane
4-Bromophenyl phenyl ether
Brucine
2-Butanone peroxide
Butyl benzyl phthalate
2-sec-Butyl-4,6-dinitrophenol (DNBP)
Cadmium and compounds, N.O.S.
Calcium chromate
Calcium cyanide
Carbon disulfide
Chlorambucil
Chlordane (alpha and gamma isomers)
Chlorinated benzenes, N.O.S.
Chlorinated ethane, N.O.S.
Chlorinated naphthalene, N.O.S.
Chlorinated phenol, N.O.S.
Chloroacetaldehyde
Chloroalkyl ethers
p-Chloroaniline
Chlorobenzene
Chlorobenzilate
1-(p-Chlorobenzoyl)-5-methoxy-2-methylindole-3-acetic acid
p-Chloro-m-cresol
1-Chloro-2,3-epoxybutane
2-Chloroethyl vinyl ether
Chloroform
Chloromethane
Chloromethyl methyl ether
2-Chloronaphthalene

¹The abbreviation N.O.S. signifies those members of the general class "not otherwise specified" by name in this listing.

2-Chlorophenol
1-(o-Chlorophenyl)thiourea
3-Chloropropionitrile
alpha-Chlorotoluene
Chlorotoluene, N.O.S.
Chromium and compounds, N.O.S.
Chrysene
Citrus red No. 2
Copper cyanide
Creosote
Crotonaldehyde
Cyanides (soluble salts and complexes), N.O.S.
Cyanogen
Cyanogen bromide
Cyanogen chloride
Cycasin
2-Cyclohexyl-4,6-dinitrophenol
Cyclophosphamide
Daunomycin
DDD
DDE
DDT
Diallate
Dibenz[a,h]acridine
Dibenz[a,j]acridine
Dibenz[a,h]anthracene(Dibenzo[a,h]anthracene)
7H-Dibenzo[c,g]carbazole
Dibenzo[a,e]pyrene
Dibenzo[a,h]pyrene
Dibenzo[a,i]pyrene
1,2-Dibromo-3-chloropropane
1,2-Dibromoethane
Dibromomethane
Di-n-butyl phthalate
Dichlorobenzene, N.O.S.
3,3'-Dichlorobenzidine
1,1-Dichloroethane
1,2-Dichloroethane
trans-1,2-Dichloroethane
Dichloroethylene, N.O.S.
1,1-Dichloroethylene
Dichloromethane
2,4-Dichlorophenol
2,6-Dichlorophenol
2,4-Dichlorophenoxyacetic acid (2,4-D)
Dichloropropane
Dichlorophenylarsine
1,2-Dichloropropane
Dichloropropanol, N.O.S.
Dichloropropene, N.O.S.
1,3-Dichloropropene
Dieldrin
Diepoxybutane
Diethylarsine
0,0-Diethyl-S-(2-ethylthio)ethyl ester of phosphorothioic acid
1,2-Diethylhydrazine
0,0-Diethyl-S-methylester phosphorodithioic acid
0,0-Diethylphosphoric acid, 0-p-nitrophenyl ester
Diethyl phthalate
0,0-Diethyl-0-(2-pyrazinyl)phosphorothioate
Diethylstilbestrol
Dihydrosafrole
3,4-Dihydroxy-alpha-(methylamino)-methyl benzyl alcohol
Di-isopropylfluorophosphate (DFP)
Dimethoate
3,3'-Dimethoxybenzidine
p-Dimethylaminoazobenzene
7,12-Dimethylbenz[a]anthracene
3,3'-Dimethylbenzidine
Dimethylcarbamoyl chloride

1.1-Dimethylhydrazine	Methyl methanesulfonate	Propylthiouracil
1.2-Dimethylhydrazine	2-Methyl-2-(methylthio)propionaldehyde-o-	2-Propyn-1-ol
3.3-Dimethyl-1-(methylthio)-2-butanone-O-	(methylcarbonyl) oxime	Pryidine
(methylamino) carbonyl)oxime	N-Methyl-N'-nitro-N-nitrosoguanidine	Reserpine
Dimethylnitrosoamine	Methyl parathion	Saccharin
alpha, alpha-Dimethylphenethylamine	Methylthiouracil	Safrole
2.4-Dimethylphenol	Mustard gas	Selenious acid
Dimethyl phthalate	Naphthalene	Selenium and compounds, N.O.S.
Dimethyl sulfate	1,4-Naphthoquinone	Selenium sulfide
Dinitrobenzene, N.O.S.	1-Naphthylamine	Selenourea
4.6-Dinitro-o-cresol and salts	2-Naphthylamine	Silver and compounds, N.O.S.
2.4-Dinitrophenol	1-Naphthyl-2-thiourea	Silver cyanide
2.4-Dinitrotoluene	Nickel and compounds, N.O.S.	Sodium cyanide
2.6-Dinitrotoluene Di-n-octyl phthalate	Nickel carbonyl	Streptozotocin
1.4-Dioxane	Nickel cyanide	Strontium sulfide
1.2-Diphenylhydrazine	Nicotine and salts	Strychnine and salts
Di-n-propylnitrosamine	Nitric oxide	1,2,4,5-Tetrachlorobenzene
Disulfoton	p-Nitroaniline	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)
2.4-Dithiobiuret	Nitrobenzene	Tetrachloroethane, N.O.S.
Endosulfan	Nitrogen dioxide	1.1,1,2-Tetrachloroethane
Endrin and metabolites	Nitrogen mustard and hydrochloride salt	1.1,2,2-Tetrachloroethane
Epichlorohydrin	Nitrogen mustard N-oxide and hydrochloride salt	Tetrachloroethene (Tetrachloroethylene)
Ethyl cyanide		Tetrachloromethane
Ethylene diamine	Nitrogen peroxide	2,3,4,6-Tetrachlorophenol
Ethylenebisdithiocarbamate (EBDC)	Nitrogen tetroxide	Tetraethylthiopyrophosphate
Ethyleneimine	Nitroglycerine	Tetraethyl lead
Ethylene oxide	4-Nitrophenol	Tetraethylpyrophosphate
Ethylenethiourea	4-Nitroquinoline-1-oxide	Thallium and compounds, N.O.S.
Ethyl methanesulfonate	Nitrosamine, N.O.S.	Thallic oxide
Fluoranthene	N-Nitrosodi-N-butylamine	Thallium (I) acetate
Fluorine	N-Nitrosodiethanolamine	Thallium (I) carbonate
2-Fluoroacetamide	N-Nitrosodimethylamine	Thallium (I) chloride
Fluoroacetic acid, sodium salt	N-Nitrosodiphenylamine	Thallium (I) nitrate
Formaldehyde	N-Nitrosodiphenylamine	Thallium selenite
Glycidylaldehyde	N-Nitroso-N-propylamine	Thallium (I) sulfate
Halomethane, N.O.S.	N-Nitroso-N-ethylurea	Thioacetamide
Heptachlor	N-Nitrosomethylthylamine	Thiosemicarbazide
Heptachlor epoxide (alpha, beta, and gamma isomers)	N-Nitroso-N-methylurea	Thiourea
Hexachlorobenzene	N-Nitroso-N-methylurethane	Thiuram
Hexachlorobutadiene	N-Nitrosomethylvinylamine	Toluene
Hexachlorocyclohexane (all isomers)	N-Nitrosomorpholine	Toluene diamine
Hexachlorocyclopentadiene	N-Nitrosornicotine	o-Toluidine hydrochloride
Hexachloroethane	N-Nitrosopiperidine	Tolyene diisocyanate
1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo-endo-dimethanonaphthalene	N-Nitrosopyrrolidine	Toxaphene
Hexachlorophene	N-Nitrososarcosine	Tribromomethane
Hexachloropropene	5-Nitro-o-toluidine	1,2,4-Trichlorobenzene
Hexaethyl tetraphosphate	Octamethylpyrophosphoramide	1,1,1-Trichloroethane
Hydrazine	Oleyl alcohol condensed with 2 moles ethylene oxide	1,1,2-Trichloroethane
Hydrocyanic acid	Osmium tetroxide	Trichloroethene (Trichloroethylene)
Hydrogen sulfide	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	Trichloromethanethiol
Indeno[1,2,3-c,d]pyrene	Parathion	2,4,5-Trichlorophenol
Iodomethane	Pentachlorobenzene	2,4,6-Trichlorophenol
Isocyanic acid, methyl ester	Pentachloroethane	2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)
Isosafrole	Pentachloronitrobenzene (PCNB)	2,4,5-Trichlorophenoxypropionic acid (2,4,5-TP) (Silvex)
Kepone	Pentachlorophenol	Trichloropropane, N.O.S.
Lasiocarpine	Phenacetin	1,2,3-Trichloropropane
Lead and compounds, N.O.S.	Phenol	0,0,0-Triethyl phosphorothioate
Lead acetate	Phenyl dichloroarsine	Trinitrobenzene
Lead phosphate	Phenylmercury acetate	Tris(1-aziridinyl)phosphine sulfide
Lead subacetate	N-Phenylthiourea	Tris(2,3-dibromopropyl) phosphate
Maleic anhydride	Phosgene	Trypan blue
Malononitrile	Phosphine	Uracil mustard
Melphalan	Phosphorothioic acid, O,O-dimethyl ester, O-ester with N,N-dimethyl benzene sulfonamide	Urethane
Mercury and compounds, N.O.S.	Phthalic acid esters, N.O.S.	Vanadic acid, ammonium salt
Methapyrilene	Phthalic anhydride	Vanadium pentoxide (dust)
Methomyl	Polychlorinated biphenyl, N.O.S.	Vinyl chloride
2-Methylaziridine	Potassium cyanide	Vinylidene chloride
3-Methylcholanthrene	Potassium silver cyanide	Zinc cyanide
4,4'-Methylene-bis-(2-chloroaniline)	Pronamide	Zinc phosphide
Methyl ethyl ketone (MEK)	1,2-Propanediol	
Methyl hydrazine	1,3-Propane sultone	
2-Methylacetonitrile	Propionitrile	
Methyl methacrylate		

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