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GOVERNMENT OF
NEWFOUNDLAND AND LABRADOR

Department of
Environment
Pollution Prevention Division

Guidance Document

Title: **Leachable Toxic Waste, Testing and Disposal**

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1.0 SUBJECT

Leachable toxic waste (LTW): the definition, determinative tests, and assessment of appropriate, environmentally sound disposal options.

2.0 DEFINITIONS

BTEX refers to Benzene, Toluene, Ethylbenzene and Xylene, respectively. BTEX are benchmark parameters used as indicators to assess concentrations of a larger number of hydrocarbon compounds.

Hazardous substances/ material means a material, recyclable material, substance or waste that is listed in regulations or exhibits a hazard classification of a gas, a flammable liquid, an oxidizer, or a substance that is dangerously reactive, toxic, infectious, corrosive, radioactive or environmentally hazardous, as determined by the criteria, tests and lists referred to in Federal and other Provincial regulations.

Hazardous Waste
means a product, substance or organism that is
(a) included in any of Classes 2 to 6 and 8 of the Transportation of Dangerous Goods Regulations, or in Class 9 of those Regulations and destined for disposal;
(b) hazardous and intended for disposal
(c) listed in *Schedule III of the Export and Import of Hazardous Waste Regulations (EIHWR) under the Canadian Environmental Protection Act (CEPA) [appended as Attachment 1].

"waste dangerous goods" means a substance designated as waste dangerous goods by regulation

"Leachate Test" - means the U.S. EPA Toxicity Characteristic Leaching Procedure (TCLP), Test Method 1311 (as amended), and is to be used to determine the leachate toxicity hazard.

The TCLP is a standard designed to determine the mobility of both organic and inorganic analytes present in liquid, solid and multi-phase wastes.

If a total analysis of the waste demonstrates that individual analytes of concern are not present in the waste or that they are present but at such low concentrations that the appropriate regulatory levels could not possibly be exceeded, the test need not be run.

This test does not apply to metals in non-dispersible form, which include bits and pieces of metal parts, bars, rods, sheets, wires, cables, bales, scrap automobiles (crushed, baled, shredded or otherwise), railroad box cars, used beverage cans, whole television sets and white goods.

The criteria limits are based upon 100 times the Canadian Drinking Water Quality Guidelines (CDWQG) latest edition. These criteria are tabulated under **Schedule II Leachate Test Canadian Environmental Protection Act (CEPA) proposed Regulations [table appended as Attachment 2].

Criteria limits for hazardous constituents that are not listed in Schedule II may be derived from other regulations and standards, subject to professional opinion and/or risk assessment. Criteria limits cited in some other regulations and standards have been included as Attachments 4 and 5 for reference. Additional research may always be required for hazardous constituents where criteria limits are not readily available.

"Leachable Toxic Waste"
Waste material which, upon laboratory analysis, is shown to contain levels of contaminants that exceed parameters listed in the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG); and/or the leachate from the material exceeds criteria limits when the material is subjected to the leachate (TCLP) test (as described above).

"PCB's" refers to polychlorinated biphenyls, which means the chlorobiphenyls that have the molecular formula $C_{12}H_{10-n}Cl_n$ in which "n" is greater than 2;

> "PCB liquid" means a liquid containing more than 50 parts per million by weight of chlorobiphenyls;
>
> "PCB solid" means a material or substance other than PCB liquid that contains chlorobiphenyls at a concentration greater than 50 parts per million by weight and includes contaminated materials and solids;
>
> "PCB wastes" include PCB liquids, PCB solid and PCB equipment that have been taken out of service for the purpose of disposal; and

TPH refers to total petroleum hydrocarbons.

3.0 PURPOSE/APPLICATION

To determine whether a material / waste in question may leach toxic contaminants into the environment, and may therefore pose a hazard to human health and the environment. Leachate test results are compared with the numerical criteria (limits) for various contaminants of concern to determine whether land-filling is an acceptable disposal option. A leachate test may also be employed as part of an environmental site assessment to determine whether a material may be a source of toxic leachate and should be removed and properly disposed, or if the material may be left insitu without adverse effects.

4.0 PROVINCIAL LEGISLATION

The Environmental Protection Act and Regulations
- *Storage and Handling of Gasoline and Associated Products Regulations*
- *Used Oil Control Regulations*
- *Heating Oil Storage Tank System Regulations*

The Water Resources Act

Environmental Control Water & Sewage Regulations

5.0 OTHER LEGISLATION/ GUIDELINES

Canadian Environmental Protection Act and Regulations:
Interprovincial Movement of Hazardous Waste and Hazardous Recyclables
Export and Import of Hazardous Waste
Chlorobiphenyl Regulations
Federal Transportation of Dangerous Goods Act and Regulations

6.0 A Description of Leaching And Materials That May be "Leachable Toxic Waste"

Leaching involves the physical and chemical reactions that mobilize a contaminant, as well as the mechanisms of transport that carry the contaminant away from a waste.

The kinds of solid wastes that are of greatest concern with respect to leaching include: **incinerator, fly, bottom, and other combustion ashes; sludges and cakes from physical and chemical wastewater treatment operations; contaminated soils; foundry sands; mine tailings; tank bottom sludge; dredged sediments; waste chemicals; and low and medium level radioactive wastes**. These wastes are disposed of in the form of dry powders, slurries, sludges, or other waste forms and may contain a wide range of organic and inorganic constituents. The constituents that are potentially hazardous to the environment are termed contaminants and their presence in potable water must not exceed Canadian Drinking Water Quality Guidelines (CDWQG).

In general, a leaching test involves contacting a waste material with a liquid to determine which components in the waste will dissolve in the liquid. The liquid, prior to contact with the waste, is called the leachant; after contact it is called the leachate.

This test does not apply to metals in non-dispersible form, which include bits and pieces of metal parts, bars, rods, sheets, wires, cables, bales, scrap automobiles (crushed, baled, shredded or otherwise), railroad box cars, used beverage cans, whole television sets and white goods.

7.0 DESCRIPTION OF SAMPLE ANALYSES

A laboratory analysis must be conducted on samples of the material and results compared to the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG), March, 1997 or as amended; and / or the Interim Canadian Environmental Quality Guidelines, September, 1991.

The minimum laboratory analysis conducted for the initial comparison against CSQG or the Interim CEQG are:
a) inorganic parameters for hazardous waste / contaminated sites assessment: aluminum, antimony,

arsenic, barium, beryllium, bismuth, boron, cadmium, chromium, calcium, chloride, cobalt, copper, cyanide, fluoride, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, phosphorus, potassium, selenium, silver, sodium, strontium, sulfur, thallium, tin, titanium, uranium, vanadium, zinc
b) polycyclic aromatic hydrocarbons (PAHs)
c) BTEX and TPH
d) pH

For various contaminated sites or dredge spoils additional required analyses may include:
i/ Biological Oxygen Demand
ii/ nitrate, nitrite and ammonia as N
iii/ dioxins and furans
iv/ polychlorinated biphenyls (PCBs)
v/ pesticides scan
vi/ fecal coliforms, E.coli., nematodes
vii/ carbonate, bicarbonate, alkalinity, cation sum, anion sum, ion balance, conductivity, colour and turbidity

At this point the proponent has the option of treating the material as a hazardous waste or subjecting the material to an acceptable leachate test.

If a parameter(s) exceed(s) the appropriate CSQG criteria for the source of the sample e.g. soil at commercial industrial sites, the material will be subject to the **Toxicity Characteristic Leaching Procedure** USEPA (United States Environmental Protection Agency) Method 1311, commonly referred to as TCLP. This laboratory procedure mimics conditions in the landfill by placing a material in contact with a (usually) slightly acidic solution (leachant) (like rainfall). For highly alkaline wastes, a solution of acetic acid is used, whereas for other wastes a buffered leachant may be used. The test duration is 18 hours, after which time the concentration of contaminants in the resulting solution, the leachate, is measured using standardized laboratory procedures. This provides an indication of the potential leachability or mobility of the contaminant(s) from the material.

The results of a leachate test may vary depending upon the nature of the leachant (e.g. pH), the addition of a buffering solution (e.g. acetate) and the characteristics (e.g .chemical state) of the material/ waste in question. Jurisdictional differences in test procedures have resulted in materials of similar composition being classified as hazardous in one province and non-hazardous in another. Professional judgement of the actual leaching potential under the given disposal conditions and/or the level of risk is required in the application of criteria limits for various hazardous constituents.

If the source/origin and the composition/constituents of the material are known, laboratory analysis may be limited to specific parameters. Absent parameters may be excluded from the analyses, and/or parameters of specific concern may be added to the laboratory analyses. This may be the case if certain compounds are expected to be found based on the type of activity which produced the material.

8.0 ASSESSMENT /CRITERIA

Landfill disposal for most hazardous substances /materials possessing these characteristics is NOT an option.

With respect to leachable toxic waste, however, a risk assessment of the receiving environment is also important in determining the potential or likelihood for toxic leachate to enter and to negatively affect human health and the environment. Consideration should be given to such factors as: the amount of waste to be disposed; the annual net water infiltration in the area of the landfill/disposal site.; possible waste-leachate interactions; the physical condition of the waste; the fate of the leachate after it leaves the waste and passes through additional wastes or soil; and the containment options. Human health exposure and environmental impact must be accounted for in regulatory decisions/ requirements.

9.0 PERMISSION FOR FINAL DISPOSAL BY LANDFILL

The Government Services Centre, on behalf of the Department of Environment will allow the disposal of material, at approved Waste Disposal Site, with the permission of the owner/ operator, ONLY if the following conditions are met:

Results of sample analysis by a Canadian Association of Environmental Analytical Laboratories (CAEAL) certified laboratory
Either:
(1) meet the CCME Canadian Soil Quality Guidelines for industrial land use;
Or:
(2) pass the Toxicity Characteristic Leaching Procedure U.S. 1311 standard test for leachability for the parameters listed in Schedule II Leachate Test, Canadian Environmental Protection Act (CEPA) proposed Regulations, 2002.

Where there is no existing guideline for the a contaminant, the potential adverse environmental and human health impacts of the contaminant shall be reviewed by a knowledgeable professional, and the Department of Environment will make a decision on disposal options. Guidelines and criteria, from other jurisdictions and/or applicable scientific reviews may be used in this determination. Criteria cited in the Federal Hazardous Waste effluent release limits; and the Modified Universal Treatment Standards have been appended.

Professional judgement is particularly appropriate when analytical results are close to the limits. Please refer to Section 8.0 Assessment/Criteria.

10.0 ATTACHMENTS

1) Subparts 261.21; 261.22; 261.23 and 261.24 of USEPA Code of Federal Regulations 40.

2) *Schedule III of the Export and Import of Hazardous Waste Regulations (EIHWR) under the Canadian Environmental Protection Act (CEPA)

3) **Schedule II Leachate Test, Canadian Environmental Protection Act (CEPA) proposed Regulations, 2002.

4) Schedule I Effluent Release Limits Federal Hazardous Waste Regulations of the Government of Canada

5) Modified Universal Treatment Standards (UTS) Table - Adopted by the USEPA in September, 1994, these criteria limits for contaminants are presently being considered for adoption as part of the CCME revised national guidelines for pre-treatment of hazardous waste prior to disposal in a hazardous waste landfill. A hazardous waste landfill is generally lined so as to be relatively impervious, and is engineered for leachate containment, collection and treatment. Acceptable hazardous waste landfills have been constructed on a naturally impervious clay.

6) Canadian Council of Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines (CEQG) (Printed file copy only - please verify for latest version.)

ATTACHMENT 1.

EPA listed wastes based on hazardous characteristics

Adapted from the U.S. Code of Federal Regulations (CFR)

Characteristics	40 CFR subpart	Considerations	Hazard Code
Ignitability	261.21	1. Liquids with flashpoints of less than 140°F (60°C). 2. Nonliquids liable to cause fires through friction, spontaneous chemical change, etc.. 3. Ignitable compressed gas. 4. Is an oxidizer.	I
Corrosivity	261.22	1. Aqueous wastes exhibiting a pH of <3 or >12.5. 2. Liquid wastes capable of corroding steel at a rate greater than 0.250 in./year.	C
Reactivity	261.23	1. Instability and readiness to undergo violent change. 2. Violent reactions when mixed with water. 3. Formation of potentially explosive mixtures when mixed with water 4. Generation of toxic fumes when mixed with water. 5. Cyanide or sulfide bearing material that generates toxic fumes when exposed to acidic conditions. 6. Ease of detonation or explosive reaction when exposed to pressure or heat. 7. Ease of detonation or explosive decomposition or reaction at standard temperature and pressure. 8. Defined as forbidden explosive or a Class A or B explosive by U.S. Department of Transportation.	R
Toxicity characteristic (TC), as defined by the toxicity characteristics leaching procedures (TCLP) test	261.24	The following steps are required in the TCLP test: 1. If the waste is liquid (i.e. contains less than 0.5% solids), after it is filtered the waste itself is considered the extract (simulated leachate). 2. If the waste contains greater than 0.5% solid material, the solid phase is separated from the liquid phase, if any. If required, the particle size of the solid phase is reduced until it passes through a 9.5 mm sieve. 3. For analysis other than for volatiles, the solid phase is then placed in an acidic solution and rotated at 30 rev/min for 18 hours. The pH of the solution is approximately 5, unless the solid	E

		is more basic, in which case a solution with a pH of approximately 3 is used. After extraction (rotation), soids are filtered from the liquid extract and discarded. 4. For volatiles analysis a solution of pH 5 is used and a zero headspace extraction vessel is used for liquid/solid separation, agitation and filtration. 5. Liquid extracted from the solid/acid mixture is combined with any original liquid separated from the solide material and is analyzed for the presence of specified contaminants. 6. If any of the contaminants in the extract meets or exceeds any of the maximum concentration levels allowed for the specified contaminants, the waste is classified as TC hazardous waste.	

ATTACHMENT 2

Export and Import of Hazardous Waste Regulations (reproduced from)
SCHEDULE III
(Subsections 2(1) and 3.1(1) and (2))

FORM 1
NOTICE

For proposed export or import of hazardous wastes, where Canada is not a country of transit, pursuant to subsection 185(1) and section 191 of the Canadian Environmental Protection Act, 1999

GRAPHIC IS NOT DISPLAYED, SEE SOR/94-459, S. 8; SOR/2000-103, S. 4

FORM 2
TRANSIT NOTICE

For transit of hazardous wastes through Canada pursuant to subsection 185(1) and section 191 of the Canadian Environmental Protection Act, 1999

GRAPHIC IS NOT DISPLAYED, SEE SOR/94-459, S. 8; SOR/2000-103, S. 5

FORM 3
MANIFEST

GRAPHIC IS NOT DISPLAYED, SEE SOR/2002-300, S. 12

SOR/94-459, s. 8; SOR/2000-103, ss. 4, 5; SOR/2002-300, ss. 11, 12.

SCHEDULE III
(Subsection 2(1), Paragraphs 6(o) and (u) and 7(m) and (s), section 10, paragraphs 11(o) and (t) and 12(m) and (r), section 15, paragraphs 16(1)(e) and (f) and 17(1)(e) and (f) and sections 23 and 29)

LIST OF HAZARDOUS WASTES REQUIRING EXPORT OR IMPORT NOTIFICATION

1. In this Schedule, "TDGR" means the Transportation of Dangerous Goods Regulations.

PART I

Column I	Column II
Item	Type of Hazardous Waste	Identification Number
Division (A)		
1.	Wastes that contain more than 2 mg/kg of polychlorinated terphenyls or polybrominated biphenyls described in Schedule I CD0001 of the Act	

Wastes that contain more than 100 ng/kg of 2,3,7,8-tetrachlorodibenzo-p-dioxin equivalent, as calculated in accordance

with the International Toxicity Equivalency Factors, of

2. (a) total polychlorinated dibenzofurans that have a molecular formula C12H8-nClnO in which "n" is greater than 1; or CD0002

(b) total polychlorinated dibenzo-p-dioxins that have a molecular formula C12H8-nClnO2 in which "n" is greater than 1

Division (B)

Biomedical wastes as defined in section 2.2 of the Guidelines for the Management of Biomedical Waste in Canada 1. (CCME-EPC-WM-42E) published by the Canadian Council of Ministers of the Environment in February 1992, except that the CD0003 definition shall be read without reference to the expression "a trained person has certified that"

Division (C)

1. Household wastes that are leachable toxic wastes as determined in accordance with the Leachate Extraction Procedure CD0004 (164-GP-1MP) published by the Canadian General Standards Board in February 1987

PART II

Item	Column I Type of Hazardous Waste	Column II Identification Number
1.	Wastes that contain or consist of polychlorinated biphenyls (PCBs) at a concentration of 50 mg/kg or more	CR0101
2.	Asbestos dust or fibres that come within class 9 of TDGR and are wastes	CR0102
3.	Sludge that contains leaded anti-knock compounds and comes within class 6.1 or 9 of TDGR	CR0103
4.	Tarry residues, excluding asphalt cement, from refining, distillation or any pyrolytic treatment that come within class 6.1 or 9 of TDGR and are wastes	CR0104
5.	Peroxides, other than hydrogen peroxide, that come within class 5 of TDGR and are wastes	CR0105
6.	Pyrophoric thorium metal that is a waste	CR0106
7.	Catalysts that come within class 6.1 of TDGR and are wastes	CR0107

8. Corrosive liquids that are flammable, come within classes 3 and 8 of TDGR, are wastes and are not described in another item of this Schedule CR0108

9. Corrosive liquids that are poisonous, come within classes 6.1 and 8 of TDGR, are wastes and are not described in another item of this Schedule CR0109

10. Corrosive solids that are flammable, come within classes 4 and 8 of TDGR, are wastes and are not described in another item of this Schedule CR0110

11. Corrosive solids that are poisonous, come within classes 6.1 and 8 of TDGR, are wastes and are not described in another item of this Schedule CR0111

12. Flammable liquids that are corrosive, come within classes 3 and 8 of TDGR, are wastes and are not described in another item of this Schedule CR0112

13. Flammable liquids that are poisonous, come within classes 3 and 6.1 of TDGR, are wastes and are not described in another item of this Schedule CR0113

14. Liquids that come within class 3 of TDGR, are wastes and are not described in another item of this Schedule CR0114

15. Flammable solids that are corrosive, come within classes 4 and 8 of TDGR, are wastes and are not described in another item of this Schedule CR0115

16. Flammable solids that are poisonous, come within classes 4 and 6.1 of TDGR, are wastes and are not described in another item of this Schedule CR0116

17. Gases that come within class 2.1 or 2.2 of TDGR, are wastes and are not described in another item of this Schedule CR0117

18. Gases that come within class 2.3 or 2.4 of TDGR, are wastes and are not described in another item of this Schedule CR0118

19. Powders, sludge, dust, solids that encase liquids or liquids that are leachable toxics that come within class 9 of TDGR, are wastes and are not described in another item of this Schedule CR0119

20. Oxidizing solids or liquids that are corrosive, come within classes 5 and 8 of TDGR, are wastes and are not described in another item of this Schedule CR0120

21. Oxidizing solids or liquids that are poisonous, come within classes 5 and 6.1 of TDGR, are wastes and are not described in another item of this Schedule CR0121

22. Poisonous solids or liquids that are corrosive, come within classes 6.1 and 8 of TDGR, are wastes and are not described in another item of this Schedule CR0122

23. Poisonous solids or liquids that are flammable, come within classes 3 and 6.1 or classes 4 and 6.1 of TDGR, are wastes and are not described in another item of this Schedule CR0123

24. Solids or liquids that come within class 4.2 or 4.3 of TDGR, are wastes and are not described in another item of this Schedule CR0124

25. Solids or liquids that come within class 5 of TDGR, are wastes and are not described in another item of this Schedule CR0125

26. Solids or liquids that come within class 6.1 of TDGR, are wastes and are not described in another item of this Schedule CR0126

27. Solids or liquids that come within class 8 of TDGR, are wastes and are not described in another item of this Schedule

CR0127
28. Solids that come within class 4.1 of TDGR, are wastes and are not described in another item of this Schedule CR0128

PART III

Column I	Column II
Item	Type of Hazardous Waste	Identification Number

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1. Ashes, residues, slag, dross, skimmings, scalings, dust, sludge or cake that comes from the manufacture of iron or steel, comes within class 4, 6.1, 8 or 9 of TDGR and is not described in another item of this Schedule CR1001

2. Zinc ashes, residues, slag, dross, skimmings, scalings, dust, sludge or cake that comes within class 4, 5.1, 6.1, 8 or 9 of TDGR and is not described in another item of this Schedule CR1002

3. Lead ashes, residues, slag, dross, skimmings, scalings, dust, sludge or cake that comes within class 6.1, 8 or 9 of TDGR and is not described in another item of this Schedule CR1003

4. Copper ashes, residues, slag, dross, skimmings, scalings, dust, sludge or cake that comes within class 4, 6.1, 8 or 9 of TDGR and is not described in another item of this Schedule CR1004

5. Aluminum ashes, residues, slag, dross, skimmings, scalings, dust, sludge or cake that comes within class 4, 8 or 9 of TDGR and is not described in another item of this Schedule CR1005

6. Vanadium ashes, residues, slag, dross, skimmings, scalings, dust, sludge or cake that comes within class 6.1, 8 or 9 of TDGR and is not described in another item of this Schedule CR1006

7. Ashes, residues, slag, dross, skimmings, scalings, dust, sludge or cake that contains metals or metal compounds, comes within class 4, 5, 6.1, 8 or 9 of TDGR and is not described in another item of this Schedule CR1007

8. Residues that come from alumina production, except neutralized red mud, and come within class 6.1 or 9 of TDGR CR1008

9. Ashes or slag that comes within class 4, 5, 6.1, 8 or 9 of TDGR and is not described in another item of this Schedule CR1009

10. Residues that come from the combustion of municipal waste and come within class 9 of TDGR CR1010

11. Wastes that come from the production or processing of petroleum coke or bitumen, excluding anode butts, and come within class 4 or 6.1 of TDGR CR1011

12. Lead-acid batteries, whole or crushed, that come within class 8 or 9 of TDGR and are wastes CR1012

13. Oils that come within class 3 or 9 of TDGR and are wastes CR1013

14. Mixtures or emulsions of oil and water or of hydrocarbons and water that come within class 3 or 9 of TDGR and are wastes CR1014

15. Wastes that come from the production, formulation or use of inks, dyes, pigments, paints, lacquers or varnish and come within any of classes 3 to 6.1, 8 and 9 of TDGR CR1015

16. Wastes that come from the production, formulation or use of resins, latex, plasticizers, glues or adhesives and come within any of classes 3 to 6.1, 8 and 9 of TDGR CR1016

17. Wastes that come from the production, formulation or use of reprographic or photographic chemicals or processing materials, except photographic film base or photographic film waste that does not contain silver, and come within class 6.1, 8 or 9 of TDGR CR1017

18. Single-use cameras that have batteries, come within class 9 of TDGR and are wastes CR1018

19. Wastes that result from surface treatment of metals or plastics using non-cyanide-based processes and that come within class 6.1, 8 or 9 of TDGR CR1019

20. Asphalt cement that comes within class 4, 6.1 or 9 of TDGR and is a waste CR1020

21. Phenols or phenol compounds, including chlorophenol, in the form of liquids or sludges, that come within class 6.1 or 9 of TDGR and are wastes CR1021

22. Treated cork or wood that comes within class 4, 6.1 or 9 of TDGR and is a waste CR1022

23. Batteries or accumulators, whole or crushed, other than lead-acid batteries, that come within class 6.1, 8 or 9 of TDGR and are wastes, or waste or scrap from the production of batteries or accumulators that comes within class 6.1, 8 or 9 of TDGR CR1023

24. Nitrocellulose that comes within class 3 or 4.1 of TDGR and is a waste CR1024

25. Glass from cathode-ray tubes or other activated glasses that come within class 9 of TDGR and are wastes CR1025

26. Dust, ashes, sludge or flours from the tanning of leather that come within class 3, 4, 6.1 or 9 of TDGR CR1026

27. Calcium fluoride sludges that come within class 8 or 9 of TDGR CR1027

28. Inorganic fluoride compounds, excluding calcium fluoride, that are in the form of liquid or sludge, come within class 5.1, 6.1, 8 or 9 of TDGR and are wastes CR1028

29. Zinc slag that contains not more than 18% zinc by weight and comes within class 9 of TDGR CR1029

30. Galvanic sludges that come within class 6.1, 8 or 9 of TDGR CR1030

31. Liquors that come from the pickling of metals, come within class 6.1, 8 or 9 of TDGR and are wastes CR1031

32. Sands that come from foundry operations, come within class 6.1 or 9 of TDGR and are wastes CR1032

33. Thallium compounds that come within class 5.1, 6.1 or 9 of TDGR and are wastes CR1033

34. Ethers that come within class 2, 3 or 6.1 of TDGR and are wastes CR1034

35. Residues in solid form that contain precious metals and traces of inorganic cyanides and come within class 6.1 or 9 of TDGR CR1035

36. Hydrogen peroxide solutions that come within class 5.1 of TDGR and are wastes CR1036

37. Triethylamine catalysts for setting foundry sands that come within class 4, 6.1 or 9 of TDGR and are wastes CR1037

38. Arsenic wastes that come within class 6.1 or 9 of TDGR CR1038

39. Waste that contains or consists of mercury and comes within class 6.1, 8 or 9 of TDGR CR1039

40. Ashes, sludge, dust or other residues that contain precious metals and come within class 4, 6.1 or 9 of TDGR CR1040

41. Catalysts that come within class 4 or 8 of TDGR and are wastes CR1041

42. Dust, sludge or leaching residues from zinc processing that come within class 9 of TDGR CR1042

43. Hydrates of aluminum that come within class 6.1 of TDGR and are wastes CR1043
44. Alumina that comes within class 6.1 of TDGR and is a waste CR1044

45. Wastes that contain or consist of inorganic cyanides, except those cyanides contained in residues described in item 35, or organic cyanides and come within class 4, 6.1 or 9 of TDGR CR1045

46. Wastes of an explosive nature that do not come within class 1 of TDGR and are not described in another item of this Schedule CR1046

47. Wastes that come from the manufacture, formulation or use of wood-preserving chemicals and come within class 6.1 of TDGR CR1047
48. Leaded gasoline sludge that comes within class 6.1 or 9 of TDGR CR1048
49. Used blasting grit that comes within class 6.1 or 9 of TDGR CR1049
50. Wastes that contain or consist of chlorofluorocarbons and come within class 2 or 6.1 of TDGR CR1050

51. Halons that come within class 2 of TDGR and are wastes CR1051
52. Fluff that comes from metal shredding, comes within class 9 of TDGR and is a waste CR1052 53. Heat-transfer fluids that come within class 6.1 or 9 of TDGR and are wastes CR1053
54. Hydraulic fluids that come within class 3, 6.1 or 9 of TDGR and are wastes CR1054
55. Brake fluids that come within class 3, 6.1 or 9 of TDGR and are wastes CR1055
56. Antifreeze fluids that come within class 3 or 6.1 of TDGR and are wastes CR1056
57. Ion-exchange resins that come within class 6.1, 8 or 9 of TDGR and are wastes CR1057
58. Organic phosphorus compounds that come within class 3, 6.1 or 9 of TDGR and are wastes CR1058

59. Non-halogenated solvents that come within class 3, 6.1 or 9 of TDGR and are wastes CR1059

60. Halogenated solvents that come within class 3, 6.1, 8 or 9 of TDGR and are wastes CR1060

61. Halogenated or non-halogenated non-aqueous distillation residues from organic solvent recovery operations that come within class 3, 4, 6.1, 8 or 9 of TDGR CR1061

62. Wastes that come from the production, formulation or use of biocides or phytopharmaceuticals and come within any of classes 3 to 6.1, 8 and 9 of TDGR CR1062

63. Wastes that come from the production or preparation of pharmaceutical products and come within any of classes 3 to 6.1, 8 and 9 of TDGR CR1063
64. Acidic solutions that come within class 8 or 9 of TDGR and are wastes CR1064
65. Basic solutions that come within class 8 or 9 of TDGR and are wastes CR1065
66. Surface-active agents that come within class 6.1 or 9 of TDGR and are wastes CR1066

67. Inorganic halide compounds, other than sodium, calcium and potassium chlorides, that come within class 5.1, 6.1, 8 or 9 of TDGR and are wastes CR1067

68. Wastes that come from industrial pollution-control devices used to clean industrial off-gases, come within class 6.1, 8 or 9 of TDGR and are not described in another item of this Schedule CR1068
69. Gypsum that comes from chemical industry processes, comes within class 6.1, 8 or 9 of TDGR and is a waste CR1069
70. Magnesium that comes within class 4 of TDGR and is a waste CR1070
71. Zirconium that comes within class 4 of TDGR and is a waste CR1071
72. Gallium that comes within class 8 of TDGR and is a waste CR1072
73. Drosses that contain zinc, come within class 9 of TDGR and are wastes CR1073
74. Polymers of styrene, in the form of expandable beads, that come within class 9 of TDGR and are wastes CR1074

75. Unsaturated-oil-treated paper, including carbon paper, that is incompletely dry, comes within class 4 of TDGR and is

a waste CR1075

76. Oily cotton or wet cotton that comes within class 4 of TDGR and is a waste CR1076

77. Fish meal or scraps of fish that contain less than 12% moisture by mass, come within class 4 or 9 of TDGR and are wastes CR1077

78. Basic slag that comes from the manufacture of iron or steel and comes within class 8 of TDGR CR1078

PART IV

Item	Column I Type of Hazardous Waste	Column II Identification Number
1.	Polychlorinated napthalenes that are wastes	CR1901

SOR/2000-103, s. 6; SOR/2002-300, ss. 13 to 16.

ATTACHMENT 3

Schedule II (Interprovincial Movement of Hazardous Waste Regulations (pending))

LEACHATE TEST

The U. S. EPA Toxicity Characteristic Leaching Procedure (TCLP) Test Method 1311 (as amended) is to be used to determine the leachate toxicity hazard for Class 9 (Environmentally hazardous substances not otherwise classified.)

Scope and application of the TCLP Canadian Equivalent

"This standard is designed to determine the mobility of both organic and inorganic analystes present in liquid, solid and multi-phasic wastes.

If a total analysis of the waste demonstrates that individual analytes are not present in the waste or that they are present but at such low concentrations that the appropriate regulatory levels could not possibly be exceeded, the test need not be run.

This test does not apply to metals in non-dispersible form, which are bits and pieces of metal parts, bars, rods, sheets, wires, cables, bales, scrap automobiles (crushed, baled, shredded or otherwise, only when all liquids have been drained and batteries have been removed), railroad box cars, used beverage cans, whole television sets and white goods."

Column 1 Hazardous Constituents (synonyms and descriptors)	Column 2 Concentration in Extract (mg/L)	Column 3 Hazardous Constituent Code Number
Aldicarb	0.90	L32
Aldrin + Dieldrin	0.07	L3
arsenic	2.50	L4
atrazine _N-dealkylated metabolites	0.50	L33
azinophos-methyl	2.00	L34
barium	100.00	L5
bendiocarb	4.00	L35
benzene	0.50	L36
benzo(a)pyrene	0.00	L37
boron	500.00	L6
bromoxynil	0.50	L38
cadmium	0.50	L7
carbaryl/sevin/1-Naphthyl-N methyl carbamate	9.00	L8
carbofuran	9.00	L39
carbon tetrachloride (tetrachloromethane)	0.50	L40

chloramines	300.00	L41
chlordane	0.70	L9
chlorobenzene (monochlorobenzene)	8.00	L42
chloroform	10.00	L43
chloropyrifos	9.00	L44
chromium	5.00	L10
Cresol (mixture-total of all isomers, when isomers cannot be differentiated)	200.00	L45
m-cresol	200.00	L46
o-cresol	200.00	L47
p-cresol	200.00	L48
cyanazine	1.00	L49
cyanide	20.00	L11
2,4-D/(2,4-dichlorophenoxy)acetic acid	10.00	L2
2,4-DCP (2,4-dichorophenol	90.00	L50
DDT (total isomers)	3.00	L12
diazanon/phosphordithioic acid, o,o-diethyl o-(2-isopropyl 6-methyl-4-pyrimidinyl)ester	2.00	L13
dicamba	12.00	L51
1,2-dichlorobenzene (0-dichlorobenzene)	20.00	L52
1,4-dichlorobenzene (p-dichlorobenzene)	0.50	L53
1,2-dichloroethane (ethylene dichloride	0.50	L54
1,1-dichlorethylene (vinylidene chloride)	1.40	L55
dichloromethane (also see methylene chloride)	5.00	L56
diclofop-methyl	0.90	L57
dimethoate	2.00	L58

2,4-dinitrotoluene	0.13	L59
dinoseb	1.00	L60
diquat	7.00	L70
diuron	15.00	L71
endrin	0.02	L14
fluoride	150.00	L15
glyphosate	28.00	L72
heptachlor -heptachlor epoxide	0.30	L16
hexachlorobenzene	0.13	L73
hexachlorobutadiene	0.50	L74
hexachloroethane	3.00	L75
lead	5.00	L17
lindane	0.40	L18
malathion	19.00	L76
mercury	0.10	L19
methoxychlor/1,1,1-trichloro-2,2-bis(p-methoxyphenyl)ethane	90.00	L20
methyl ethyl ketone/ethyl methyl ketone	200.00	L77
methyl parathion	0.70	L21
methylene chloride / dichloromethane	5.00	L78
metolachlor	5.00	L79
metribuzin	8.00	L80
nitrate	4500.00	L81
nitrate _+ nitrite	1000.00	L22
nitrilotriacetic acid (NTA)	40.00	L23
nitrite	320.00	L24
nitrobenzene	2.00	L82
paraquat	1.00	L83
parathion	5.00	L26
pentachlorophenol	6.00	L84

phorate	0.20	L85
picloram	19.00	L86
pyridine	5.00	L87
selenium	1.00	L27
simazine	1.00	L88
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	28.00	L89
2,4,5-TP/silvex2-(2,4,5-Trichlorophenoxy) propionic acid	1.00	L1
temephos	28.00	L90
terbufos	0.10	L91
tetrachloroethylene	3.00	L92
2,4,5-trichlorophenol/ (2,3,4,6-TeCP)	10.00	L93
toxaphene	0.50	L29
trialiate	23.00	L94
trichloroethylene	5.00	L95
2,4,5-Trichlorophenol (2,4,5-TCP)	400.00	L96
2,4,6-trichlorophenol (2,4,6-TCP)	0.50	L97
trifluralin	4.50	L98
trihalomethanes-Total (also see chloroform)	10.00	L30
uranium	10.00	L31
vinyl chloride	0.20	L99

ATTACHMENT 4

FEDERAL HAZARDOUS WASTE REGULATIONS (reproduced)

SCHEDULE I EFFLUENT RELEASE LIMITS

Column I	Column II	Column III
Parameter	**Effluent* release limits to the Environment or to Storm Sewers**	Effluent* Release Limits to Municipal or Industrial Effluent Treatment Works
Ph	6.5 to 8.5 **	5.0 to 11.0 **
temperature	32°C	
total suspended solids	20	
Toxicity (limit bioassay-50% survival of rainbow trout after 96 hours)	100% effluent	50% effluent
Inorganics		2.0
Aluminum, dissolved	0.5	
ammonia, total (expressed as nitrogen	2.0	0.5
antimony, dissolved	0.25	0.3
barium, dissolved	0.1	2.5
boron, dissolved	10.0	15
cadmium, dissolved	0.05	0.1
chromium, dissolved (hexavalent)	0.1	0.2
chromium, total	0.5	1.0
cobalt, dissolved	0.1	0.3
copper, dissolved	0.1	0.3
cyanide (weak acid dissociable)	0.1	0.2
fluoride, dissolved	15	18
lead, dissolved	0.1	0.3
manganese, dissolved	0.5	1.0
mercury, total	0.001	0.01
molybdenum, dissolved	0.5	1.0
nickel, dissolved	0.5	1.0
selenium, dissolved	0.05	0.1
tin, dissolved	0.5	1.0
zinc, dissolved	0.2	0.5
Organics		
5 day biochemical oxygen demand (BOD)	20	
dioxin & furan TEQ	15 pg/L	0.30 ng/L
hexachlorobenzene	0.001	0.020
Oil	10	60

Column I	Column II	Column III
Phenol	0.2	0.5
Polychlorinated biphenyls, total	0.0005	0.010
Total chlorinated phenol	0.006	0.06
Total organic halogens (as Cl)	1.0	1.0

* Maximum concentration or range in (mg/L) unless otherwise specified. Pg/L is the abbreviation for picograms per litre. (Ng/L is an abbreviation for nanograms per litre.
** pH units are the negative log of the hydrogen ion concentration.

ATTACHMENT 5

3745-270-48
UNIVERSAL TREATMENT STANDARDS

(A) Table UTS identifies the hazardous constituents, along with the non-wastewater and wastewater treatment standard levels, that are used to regulate most prohibited hazardous wastes with numerical limits. For determining compliance with Treatment Standards for underlying hazardous constituents as defined in Rule 3745-270-02 of the administrative code, these treatment Standards may not be exceeded. Compliance with these treatment Standards is measured by an analysis of grab samples, unless otherwise noted in Table UTS.

TABLE UTS: UNIVERSAL TREATMENT STANDARDS

Regulated constituent Common name	CAS number	wastewater standard	nonwastewater standard
		Concentration in mg/kg Unless noted as "mg/l TCLP"	
Organic constituents:			
Acenaphthene	83-32-9	0.059	3.4
Acenaphthylene	208-96-8	0.059	3.4
Acetone	67-64-1	0.28	160.0
Acetonitrile	75-05-8	5.6	38.0
Acetophenone	96-86-2	0.01	9.7
2-acetylaminofluorene	53-96-3	0.059	140.0
Acrolein	107-02-8	0.29	NA
Acrylamide	79-06-1	19.0	23.0
Acrylonitrile	107-13-1	0.24	84.0
Aldicarb sulfone 6	1646-88-4	0.056	0.28
Aldrin	309-00-2	0.021	0.066
4-aminobiphenyl	92-67-1	0.13	NA
Aniline	62-53-3	0.81	14.0
Anthracene	120-12-7	0.059	3.4
Aramite	140-57-8	0.36	NA
Barban 6	101-27-9	0.056	1.4
Bendiocarb 6	22781-23-3	0.056	1.4
Benomyl 6	17804-35-2	0.056	1.4
Benz(a)anthracene	56-55-3	0.059	3.4
Benzal chloride	98-87-3	0.055	6.0
Benzene	71-43-2	0.14	10.0
Benzo(b)fluoranthene [difficult to distinguish From benzo(k)fluoranthene]	205-99-2	0.11	6.8
Benzo(k)fluoranthene [difficult to distinguish	207-08-9	0.11	6.8

From benzo(b)fluoranthene]

Benzo(g,h,i)perylene	191-24-2	0.0055	1.8
Benzo(a)pyrene	50-32-8	0.061	3.4
Alpha-bhc	319-84-6	0.00014	0.066
Beta-bhc	319-85-7	0.00014	0.066
Delta-bhc	319-86-8	0.023	0.066

Regulated constituent Common name	CAS number	wastewater standard	nonwastewater standard
		Concentration in mg/kg Unless noted as "mg/l TCLP"	
Gamma-bhc	58-89-9	0.0017	0.066
Bromodichloromethane	75-27-4	0.35	15.0
Bromomethane / methyl bromide	74-83-9	0.11	15.0
4-bromophenyl phenyl ether	101-55-3	0.055	15.0
N-butyl alcohol	71-36-3	5.6	2.6
Butyl benzyl phthalate	85-68-7	0.017	28.0
Butylate 6	2008-41-5	0.042	1.4
2-sec-butyl-4,6-dinitrophenol / Dinoseb	88-85-7	0.066	2.5
Carbaryl 6	63-25-2	0.006	0.14
Carbenzadim 6	10605-21-7	0.056	1.4
Carbofuran 6	1563-66-2	0.006	0.14
Carbofuran phenol 6	1563-38-8	0.056	1.4
Carbon disulfide	75-15-0	3.8	4.8 mg/l TCLP
Carbon tetrachloride	56-23-5	0.057	6.0
Carbosulfan 6	55285-14-8	0.028	1.4
Chlordane (Alpha and gamma isomers)	57-74-9	0.0033	0.26
P-chloroaniline	106-47-8	0.46	16.0
Chlorobenzene	108-90-7	0.057	6.0
Chlorobenzilate	510-15-6	0.1	NA
2-chloro-1,3-butadiene	126-99-8	0.057	0.28
Chlorodibromomethane	124-48-1	0.057	15.0
Chloroethane	75-00-3	0.27	6.0
Bis(2-chloroethoxy)methane	111-91-1	0.036	7.2
Bis(2-chloroethyl)ether	111-44-4	0.033	6.0
2-chloroethyl vinyl ether	110-75-8	0.062	NA
Chloroform	67-66-3	0.046	6.0
Bis(2-chloroisopropyl)ether	39638-32-9	0.055	7.2
P-chloro-m-cresol	59-50-7	0.018	14.0
Chloromethane / methyl chloride	74-87-3	0.19	30.0
2-chloronaphthalene	91-58-7	0.055	5.6

2-chlorophenol	95-57-8	0.044	5.7
3-chloropropylene	107-05-1	0.036	30.0
Chrysene	218-01-9	0.059	3.4
O-cresol 95-48-7 0.11 5.6			
M-cresol (Difficult to distinguish From p-cresol)	108-39-4	0.77	5.6
P-cresol (Difficult to distinguish From m-cresol)	106-44-5	0.77	5.6
M-cumenyl methylcarbamate 6	64-00-6	0.056	1.4
Cyclohexanone	108-94-1	0.36	0.75 mg/l TCLP
O,p' -ddd	53-19-0	0.023	0.087
P,p' -ddd	72-54-8	0.023	0.087

Regulated constituent Common name	CAS number	wastewater standard	nonwastewater standard
		Concentration in mg/kg Unless noted as "mg/l TCLP"	
O,p' -dde 3	424-82-6	0.031	0.087
P,p' -dde	72-55-9	0.031	0.087
O,p' -ddt	789-02-6	0.0039	0.087
P,p' -ddt	50-29-3	0.0039	0.087
Dibenz(a,h)anthracene	53-70-3	0.055	8.2
Dibenz(a,e)pyrene	192-65-4	0.061	NA
1,2-dibromo-3-chloropropane	96-12-8	0.11	15.0
1,2-dibromoethane / Ethylene dibromide	106-93-4	0.028	15.0
Dibromomethane	74-95-3	0.11	15.0
M-dichlorobenzene	541-73-1	0.036	6.0
O-dichlorobenzene	95-50-1	0.088	6.0
P-dichlorobenzene	106-46-7	0.09	6.0
Dichlorodifluoromethane	75-71-8	0.23	7.2
1,1-dichloroethane	75-34-3	0.059	6.0
1,2-dichloroethane	107-06-2	0.21	6.0
1,1-dichloroethylene	75-35-4	0.025	6.0
Trans-1,2-dichloroethylene	156-60-5	0.054	30.0
2,4-dichlorophenol	120-83-2	0.044	14.0
2,6-dichlorophenol	87-65-0	0.044	14.0
2,4-dichlorophenoxyacetic acid / 2, 4-d	94-75-7	0.72	10.0
1,2-dichloropropane	78-87-5	0.85	18.0
Cis-1,3-dichloropropylene	10061-01-5	0.036	18.0

Trans-1,3-dichloropropylene	10061-02-6	0.036	18.0
Dieldrin	60-57-1	0.017	0.13
Diethyl phthalate	84-66-2	0.2	28.0
P-dimethylaminoazobenzene	60-11-7	0.13	NA
2-4-dimethyl phenol	105-67-9	0.036	14.0
Dimethyl phthalate	131-11-3	0.047	28.0
Di-n-butyl phthalate	84-74-2	0.057	28.0
1,4-dinitrobenzene	100-25-4	0.32	2.3
4,6-dinitro-o-cresol	534-52-1	0.28	160.0
2,4-dinitrophenol	51-28-5	0.12	160.0
2,4-dinitrotoluene	121-14-2	0.32	140.0
2,6-dinitrotoluene	606-20-2	0.55	28.0
Di-n-octyl phthalate	117-84-0	0.017	28.0
Di-n-propylnitrosamine	621-64-7	0.4	14.0
1,4-dioxane	123-91-1	12.0	170.0
Diphenylamine (Difficult to distinguish From diphenylitrosamine)	122-39-4	0.92	13.0
Diphenylnitrosamine (Difficult to distinguish From diphenylamine)	86-30-6	0.92	13.0

Regulated constituent Common name	CAS number	wastewater standard	nonwastewater standard
		Concentration in mg/kg Unless noted as "mg/l TCLP"	
1,2-diphenylhydrazine	122-66-7	0.087	NA
Disulfoton	298-04-3	0.017	6.2
Dithiocarbamates (total) 6	NA	0.028	28.0
Endosulfan I	959-98-8	0.023	0.066
Endosulfan ii	33213-65-9	0.029	0.13
Endosulfan sulfate	1031-07-8	0.029	0.13
Endrin	72-20-8	0.0028	0.13
Endrin aldehyde	7421-93-4	0.025	0.13
Eptc	759-94-4	0.042	1.4
Ethyl acetate	141-78-6	0.34	33.0
Ethyl benzene	100-41-4	0.057	10.0
Ethyl cyanide / propanenitrile	107-12-0	0.24	360.0
Ethyl ether	60-29-7	0.12	160.0
Ethyl methacrylate	97-63-2	0.14	160.0
Ethylene oxide	75-21-8	0.12	NA
Bis(2-ethylhexyl) phthalate	117-81-7	0.28	28.0
Famphur	52-85-7	0.017	15.0
Fluoranthene	206-44-0	0.068	3.4
Fluorene	86-73-7	0.059	3.4

Formetanate hydrochloride 6	23422-53-9	0.056	1.4
Heptachlor	76-44-8	0.0012	0.066
Heptachlor epoxide	1024-57-3	0.016	0.066
Hexachlorobenzene	118-74-1	0.055	10.0
Hexachlorobutadiene	87-68-3	0.055	5.6
Hexachlorocyclopentadiene	77-47-4	0.057	2.4
Hexachloroethane	67-72-1	0.055	30.0
Hexachloropropylene	1888-71-7	0.035	30.0
Hxcdds (all Hexachlorodibenzo-p-dioxins)	NA	0.000063	0.001
Hxcdfs (all Hexachlorodibenzofurans)	NA	0.000063	0.001
Indeno (1,2,3-c,d) pyrene	193-39-5	0.0055	3.4
Iodomethane	74-88-4	0.19	65.0
Isobutyl alcohol	78-83-1	5.6	170.0
Isodrin	465-73-6	0.021	0.066
Isosafrole	120-58-1	0.081	2.6
Kepone	143-50-0	0.0011	0.13
Methacrylonitrile	126-98-7	0.24	84.0
Methanol	67-56-1	5.6	0.75 mg/l TCLP
Methapyrilene	91-80-5	0.081	1.5
Methiocarb 6	2032-65-7	0.056	1.4
Methomyl	16752-77-5	0.028	0.14
Methoxychlor	72-43-5	0.25	0.18
Methyl ethyl ketone	78-93-3	0.28	36.0
Methyl isobutyl ketone	108-10-1	0.14	33.0
Methyl methacrylate	80-62-6	0.14	160.0
Methyl methansulfonate	66-27-3	0.018	NA

Regulated constituent Common name	cas 1number	wastewater standard	nonwastewater standard
		Concentration in mg/kg Unless noted as "mg/l TCLP"	
Methyl parathion	298-00-0	0.014	4.6
3-methylchlolanthrene	56-49-5	0.0055	15.0
4,4-methylene bis(2-chloroaniline)	101-14-4	0.5	30.0
Methylene chloride	75-09-2	0.089	30.0
Metolcarb 6	1129-41-5	0.056	1.4
Mexacarbate 6	315-18-4	0.056	1.4
Molinate 6	2212-67-1	0.042	1.4
Naphthalene	91-20-3	0.059	5.6
2-naphthylamine	91-59-8	0.52	NA
O-nitroaniline	88-74-4	0.27	14.0
P-nitroaniline	100-01-6	0.028	28.0
Nitrobenzene	98-95-3	0.068	14.0
5-nitro-o-toluidine	99-55-8	0.32	28.0
O-nitrophenol	88-75-5	0.028	13.0
P-nitrophenol	100-02-7	0.12	29.0

N-nitrosodiethylamine	55-18-5	0.4	28.0
N-nitrosodimethylamine	62-75-9	0.4	2.3
N-nitroso-di-n-butylamine	924-16-3	0.4	17.0
N-nitrosomethylethylamine	10595-95-6	0.4	2.3
N-nitrosomorpholine	59-89-2	0.4	2.3
N-nitrosopiperidine	100-75-4	0.013	35.0
N-nitrosopyrrolidine	930-55-2	0.013	35.0
Oxamyl 6	23135-22-0	0.056	0.28
Parathion	56-38-2	0.014	4.6
Total pcbs (sum of all Pcb isomers, or all aroclors)	1336-36-3	0.1	10.0
Pebulate 6	1114-71-2	0.042	1.4
Pentachlorobenzene	608-93-5	0.055	10.0
Pecdds (all Pentachlorodibenzo-p-dioxins)	NA	0.000063	0.001
Pecdfs (all Pentachlorodibenzofurans)	NA	0.000035	0.001
Pentachloroethane	76-01-7	0.055	6.0
Pentachloronitrobenzene	82-68-8	0.055	4.8
Pentachlorophenol	87-86-5	0.089	7.4
Phenacetin	62-44-2	0.081	16.0
Phenanthrene	85-01-8	0.059	5.6
Phenol	108-95-2	0.039	6.2
Phorate	298-02-2	0.021	4.6
Phthalic acid	100-21-0	0.055	28.0
Phthalic anhydride	85-44-9	0.055	28.0
Physostigmine 6	57-47-6	0.056	1.4
Physostigmine salicylate 6	57-64-7	0.056	1.4
Promecarb 6	2631-37-0	0.056	1.4
Pronamide	23950-58-5	0.093	1.5
Propham 6	122-42-9	0.056	1.4
Propoxur 6	114-26-1	0.056	1.4

Regulated constituent Common name	CAS number	wastewater standard	nonwastewater standard
		Concentration in mg/kg Unless noted as "mg/l TCLP"	
Prosulfocarb 6	52888-80-9	0.042	1.4
Pyrene	129-00-0	0.067	8.2
Pyridine	110-86-1	0.014	16.0
Safrole	94-59-7	0.081	22.0
Silvex / 2,4,5-tp	93-72-1	0.72	7.9
1,2,4,5-tetrachlorobenzene	95-94-3	0.055	14.0
Tcdds (all Tetrachlorodibenzo-p-dioxins)			

	NA	0.000063	0.001
Tcdfs (all Tetrachlorodibenzofurans)	NA	0.000063	0.001
1,1,1,2-tetrachloroethane	630-20-6	0.057	6.0
1,1,2,2-tetrachloroethane	79-34-5	0.057	6.0
Tetrachloroethylene	127-18-4	0.056	6.0
2,3,4,6-tetrachlorophenol	58-90-2	0.03	7.4
Thiodicarb 6	59669-26-0	0.019	1.4
Thiophanate-methyl 6	23564-05-8	0.056	1.4
Toluene	108-88-3	0.08	10.0
Toxaphene	8001-35-2	0.0095	2.6
Triallate 6	2303-17-5	0.042	1.4
Tribromomethane / bromoform	75-25-2	0.63	15.0
1,2,4-trichlorobenzene	120-82-1	0.055	19.0
1,1,1-trichlorethane	71-55-6	0.054	6.0
1,1,2-trichlorethane	79-00-5	0.054	6.0
Trichloroethylene	79-01-6	0.054	6.0
Trichloromonofluoromethane	75-69-4	0.02	30.0
2,4,5-trichlorophenol	95-95-4	0.18	7.4
2,4,6-trichlorophenol	88-06-2	0.035	7.4
2,4,5-trichlorophenoxyacetic acid / 2,4,5-t	93-76-5	0.72	7.9
1,2,3-trichloropropane	96-18-4	0.85	30.0
1,1,2-trichloro-1,2,2-trifluoroethane	76-13-1	0.057	30.0
Triethylamine 6	101-44-8	0.081	1.5
Tris-(2,3-dibromopropyl) phosphate	126-72-7	0.11	0.1
Vernolate 6	1929-77-7	0.042	1.4
Vinyl chloride	75-01-4	0.27	6.0
Xylenes-mixed isomers (Sum of o-, m-, and p-xylene Concentrations)	1330-20-7	0.32	30.0
Inorganic constituents:			
Antimony	7440-36-0	1.9	1.15 mg/l TCLP
Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
Barium	7440-39-3	1.2	21.0 mg/l TCLP
Beryllium	7440-41-7	0.82	1.22 mg/l TCLP
Cadmium	7440-43-9	0.69	0.11 mg/l TCLP
Chromium (total)	7440-47-3	2.77	0.60 mg/l TCLP
Cyanides (total) 4	57-12-5	1.2	590.0

Regulated constituent Common name	CAS number	wastewater standard	nonwastewater standard

Concentration in mg/kg
Unless noted as "mg/l TCLP"

Cyanides (amenable) 4	57-12-5	0.86	30.0
Fluoride 5	16984-48-8	35.0	NA
Lead	7439-92-1	0.69	0.75 mg/l TCLP
Mercury- nonwastewater From retort	7439-97-6	NA	0.2 mg/l TCLP
Mercury- all others	7439-97-6	0.15	0.025 mg/l TCLP
Nickel	7440-02-0	3.98	11.0 mg/l TCLP
Selenium 7	7782-49-2	0.82	5.7 mg/l TCLP
Silver	7440-22-4	0.43	0.14 mg/l TCLP
Sulfide 5	18496-25-8	14.0	NA
Thallium	7440-28-0	1.4	0.2 mg/l TCLP
Vanadium 5	7440-62-2	4.3	1.6 mg/l TCLP
Zinc 5	7440-66-6	2.61	4.3 mg/l TCLP

Footnotes:
NA means not applicable.

1. CAS means chemical abstract services. When the waste code and/or regulated constituents are described as a combination of a chemical with it' s salts and/or esters, the CAS number is given for the parent compound only.

2. Concentration standards for wastewaters are expressed in mg/l and are based on analysis of composite samples.

3. Except for metals (ep or TCLP) and cyanides (total and amenable) the nonwastewater treatment standards expressed as a concentration were established, in part, based upon incineration in units operated in accordance with the technical requirements of rules 3745-57-40 to 3745-57-51 or 3745-68-40 to 3745-68-52 of the administrative code, or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may comply with these treatment standards according to provisions in paragraph (d) of rule 3745-270-40 of the administrative code. All concentration standards for nonwastewaters are based on analysis of grab samples.

4. Both cyanides (total) and cyanides (amenable) for nonwastewaters are to be analyzed using method 9010 or 9012, found in "test methods for evaluating solid waste, physical/chemical methods", USEPA publication sw-846, as incorporated by reference in rule 3745-50-11 of the administrative code, with a sample size of ten grams and a distillation time of one hour and fifteen minutes.

5. These constituents are not "underlying hazardous constituents" in characteristic wastes, according to the definition in rule 3745-270-02 of the administrative code.

6. Between August 26, 1998 and March 4, 1999, these constituents are not "underlying hazardous constituents" as defined in rule 3745-270-02 of the administrative code.

7. This constituent is not an "underlying hazardous constituent" as defined in rule 3745-270-02 of the administrative code because its UTS level is greater than its TC Level, thus a treated selenium waste would always be characteristically
hazardous, unless it is treated to below its characteristic level.

(B) reserved.
Effective: 12/7/00
119.032 review dates: exempt
Prior effective dates: none