

Environmental Protection Agency**Part 268**

termining the facility's impact on ground-water in the uppermost aquifer so as to assure compliance with § 267.10 of this part. The design of the ground-water monitoring system must reflect a consideration of:

(a) The placement and depth of monitoring wells that is necessary to obtain a representative sample of constituents in the uppermost aquifer, including those present in the ground-water upgradient from the facility;

(b) Measures such as casing which maintain the integrity of the monitoring well bore hole; and

(c) Measures which prevent contamination of ground-water samples.

§ 267.52 Ground-water monitoring procedures.

(a) The ground-water monitoring procedures required by this subpart must be capable of assuring compliance with § 267.10 of this part. The procedures must reflect a consideration of:

- (1) Sample collection procedures;
- (2) Sample preservation and shipment procedures;
- (3) Analytical methods;
- (4) Chain of custody control; and
- (5) Evaluation procedures, including methods for determining the extent and rate of migration of waste constituents.

(b) The ground-water monitoring procedures required by this subpart must include appropriate procedures for when the ground-water monitoring program indicates that the facility is not in compliance with § 267.10 of this part. Such response procedures must be contained in the contingency plan required by Subpart D of Part 264.

§ 267.53 Additional requirements.

The Regional Administrator may place additional ground-water monitoring requirements on owners or operators of facilities subject to this part, besides those otherwise required by this subpart, where necessary to comply with § 267.10 of this part.

Subpart G—Underground Injection

§ 267.60 Applicability.

The regulations in this subpart apply to owners and operators of new

facilities that dispose of hazard waste in underground injection wells which are classified as Class I under § 122.32(a) of this chapter.

§ 267.61 General design requirements.

An injection well must be designed to comply with § 267.10 of this part. The facility design must include measures (e.g. casing, tubing and packer set) to prevent the escape of injected fluids to the area above the zone of injection.

§ 267.62 General operating requirements.

An injection well must be operated in a manner that will comply with § 267.10 of this part. The methods for operating the injection well must reflect a consideration of:

(a) The volume and physical and chemical characteristics of the waste injected in the well;

(b) The injection pressure; and

(c) Monitoring measures to assure that the mechanical integrity of the well is maintained.

§ 267.63 Closure.

An injection well must be plugged and sealed at closure to prevent the escape of injected fluids to the area above the zone of injection.

§ 267.64 Additional requirements.

The Regional Administrator may place additional requirements on owners and operators of new injection wells, besides those otherwise required by this subpart, where necessary to comply with § 267.10 of this part.

PART 268—LAND DISPOSAL RESTRICTIONS

Subpart A—General

Sec.

- 268.1 Purpose, scope, and applicability.
 268.2 Definitions applicable to this part.
 268.3 Dilution prohibited as a substitute for treatment.
 268.4 Treatment surface impoundment exemption.
 268.5 Procedures for case-by-case extensions to an effective date.



Sec.

268.6 Petitions to allow land disposal of a waste prohibited under Subpart C of Part 268.

268.7 Waste analysis.

268.8 Landfill and surface impoundment disposal restrictions.

Subpart B—Schedule for Land Disposal Prohibition and Establishment of Treatment Standards

268.10 Identification of wastes to be evaluated by August 8, 1988.

268.11 Identification of wastes to be evaluated by June 8, 1989.

268.12 Identification of wastes to be evaluated by May 8, 1990.

268.13 Schedule for wastes identified or listed after November 8, 1984.

Subpart C—Prohibitions on Land Disposal

268.30 Waste specific prohibitions—Solvent wastes.

268.31 Waste specific prohibitions—Dioxin-containing wastes.

268.32 Waste specific prohibitions—California list wastes.

268.33 Waste specific prohibitions—First third wastes.

268.34 Waste specific prohibitions—second third wastes.

Subpart D—Treatment Standards

268.40 Applicability of treatment standards.

268.41 Treatment standards expressed as concentrations in waste extract.

268.42 Treatment standards expressed as specified technologies.

268.43 Treatment standards expressed as waste concentrations. [Reserved]

268.44 Variance from a treatment standard.

Subpart E—Prohibitions on Storage

268.50 Prohibitions on storage of restricted wastes.

APPENDIX I—TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)

APPENDIX II—TREATMENT STANDARDS (AS CONCENTRATIONS IN THE TREATMENT RESIDUAL EXTRACT)

APPENDIX III—LIST OF HALOGENATED ORGANIC COMPOUNDS REGULATED UNDER § 268.32

AUTHORITY: 42 U.S.C. 6905, 6912(a), 6921, and 6924.

Subpart A—General

SOURCE: 51 FR 40638, Nov. 7, 1986, unless otherwise noted.

§ 268.1 Purpose, scope and applicability.

(a) This part identifies hazardous wastes that are restricted from land disposal and defines those limited cir-

cumstances under which an otherwise waste may continue to be land disposed.

(b) Except as specifically provided otherwise in this part or Part 261 of this chapter, the requirements of this part apply to persons who generate or transport hazardous waste and owners and operators of hazardous waste treatment, storage, and disposal facilities.

(c) Prohibited wastes may continue to be land disposed as follows:

(1) Where persons have been granted an extension to the effective date of a prohibition under Subpart C of this part or pursuant to § 268.5, with respect to those wastes covered by the extension;

(2) Where persons have been granted an exemption from a prohibition pursuant to a petition under § 268.6, with respect to those wastes and units covered by the petition;

(3) **Removed and Reserved**

(4) **Removed and Reserved**

(5) Prior to May 8, 1990, in a landfill or surface impoundment unit where all applicable persons are in compliance with the requirements of § 268.8, with respect to wastes that are not subject to the treatment standards set forth in Subpart D and not subject to the prohibitions in § 268.32 or RCRA § 3004(d).

(d) The requirements of this part shall not affect the availability of a waiver under section 121(d)(4) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).

(e) The following hazardous wastes are not subject to any provision of part 268:

(1) Waste generated by small quantity generators of less than 100 kilograms of non-acute hazardous waste or less than 1 kilogram of acute hazardous waste per month, as defined in § 261.5 of this chapter;

(2) Waste pesticides that a farmer disposes of pursuant to § 262.70;

(3) Wastes identified or listed as hazardous after November 8, 1984 for which EPA has not promulgated land disposal prohibitions or treatment standards.

[51 FR 40638, Nov. 7, 1986; 52 FR 21016, June 4, 1987, as amended at 52 FR 25788, July 8, 1987; 53 FR 27165, July 19, 1988; 53 FR 31212, Aug. 17, 1988]

Environmental Protection Agency

§ 268.4

§ 268.2 Definitions applicable to this part.

(a) When used in this part the following terms have the meanings given below:

"*Halogenated organic compounds*" or "*HOCs*" means those compounds having a carbon-halogen bond which are listed under Appendix III to this part.

"*Hazardous constituent or constituents*" means those constituents listed in Appendix VIII to Part 261 of this chapter.

"*Land disposal*" means placement in or on the land and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, underground mine or cave, or placement in a concrete vault or bunker intended for disposal purposes.

"*Polychlorinated biphenyls*" or "*PCBs*" are halogenated organic compounds defined in accordance with 40 CFR 761.3.

(b) All other terms have the meanings given under §§ 260.10, 261.2, 261.3, or 270.2 of this chapter.

[51 FR 40638, Nov. 7, 1986; 52 FR 21016, June 4, 1987, as amended at 52 FR 25788, July 8, 1987]

§ 268.3 Dilution prohibited as a substitute for treatment.

No generator, transporter, handler, or owner or operator of a treatment, storage, or disposal facility shall in any way dilute a restricted waste or the residual from treatment of a restricted waste as a substitute for adequate treatment to achieve compliance with Subpart D of this part, to circumvent the effective date of a prohibition in Subpart C of this part, to otherwise avoid a prohibition in Subpart C of this part, or to circumvent a land disposal prohibition imposed by RCRA section 3004.

[52 FR 25788, July 8, 1987]

§ 268.4 Treatment surface impoundment exemption.

(a) Wastes which are otherwise prohibited from land disposal under this part may be treated in a surface impoundment or series of impoundments provided that:

(1) Treatment of such wastes occurs in the impoundments;

(2) The following conditions are met:

(i) *Sampling and testing.* For wastes with treatment standards in Subpart D of this part and/or prohibition levels in Subpart C of this part or RCRA section 3004(d), the residues from treatment are analyzed, as specified in § 268.7 or § 268.32, to determine if they meet the applicable treatment standards or where no treatment standards have been established for the waste, the applicable prohibition levels. The sampling method, specified in the waste analysis plan under § 264.13 or § 265.13, must be designed such that representative samples of the sludge and the supernatant are tested separately rather than mixed to form homogeneous samples.

(ii) *Removal.* The following treatment residues (including any liquid waste) must be removed at least annually: residues which do not meet the treatment standards promulgated under Subpart D of this part; residues which do not meet the prohibition levels established under Subpart C of this part or imposed by statute (where no treatment standards have been established); residues which are from the treatment of wastes prohibited from land disposal under Subpart C of this part (where no treatment standards have been established and no prohibition levels apply); or residues from managing listed wastes which are not delisted under § 260.22 of this chapter. However, residues which are the subject of a valid certification under § 268.8 made no later than a year after placement of the wastes in an impoundment are not required to be removed annually. If the volume of liquid flowing through the impoundment or series of impoundments annually is greater than the volume of the impoundment or impoundments, this flow-through constitutes removal of the supernatant for the purpose of this requirement.

(iii) *Subsequent management.* Treatment residues may not be placed in any other surface impoundment for subsequent management unless the residues are the subject of a valid certification under § 268.8 which allows disposal in surface impoundments

meeting the requirements of section 268.8(a).

(iv) *Recordkeeping.* The procedures and schedule for the sampling of impoundment contents, the analysis of test data, and the annual removal of residues which do not meet the treatment standards, or prohibition levels (where no treatment standards have been established), or which are from the treatment of wastes prohibited from land disposal under Subpart C (where no treatment standards have been established and no prohibition levels apply), must be specified in the facility's waste analysis plan as required under § 264.13 or § 265.13 of this chapter.

(3) The impoundment meets the design requirements of § 264.221(c) or § 265.221(a) of this chapter, regardless that the unit may not be new, expanded, or a replacement, and be in compliance with applicable ground water monitoring requirements of Subpart F of Part 264 or Part 264 of this chapter unless:

(i) Exempted pursuant to § 264.221(d) or (e) of this chapter, or to § 265.221(c) or (d) of this chapter; or,

(ii) Upon application by the owner or operator, the Administrator, after notice and an opportunity to comment, has granted a waiver of the requirements on the basis that the surface impoundment:

(A) Has at least one liner, for which there is no evidence that such liner is leaking;

(B) Is located more than one-quarter mile from an underground source of drinking water; and

(C) Is in compliance with generally applicable ground water monitoring requirements for facilities with permits; or,

(iii) Upon application by the owner or operator, the Administrator, after notice and an opportunity to comment, has granted a modification to the requirements on the basis of a demonstration that the surface impoundment is located, designed, and operated so as to assure that there will be no migration of any hazardous constituent into ground water or surface water at any future time.

(4) The owner or operator submits to the Regional Administrator a written

certification that the requirements of § 268.4(a)(3) have been met and submits a copy of the waste analysis plan required under § 268.4(a)(2). The following certification is required:

I certify under penalty of law that the requirements of 40 CFR 268.4(a)(3) have been met for all surface impoundments being used to treat restricted wastes. I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(b) Evaporation of hazardous constituents as the principal means of treatment is not considered to be treatment for purposes of an exemption under this section.

[51 FR 40638, Nov. 7, 1986; 52 FR 21016, June 4, 1987, as amended at 52 FR 25788, July 8, 1987; 53 FR 31212, Aug. 17, 1988]

§ 268.5 Procedures for case-by-case extensions to an effective date.

(a) Any person who generates, treats, stores, or disposes of a hazardous waste may submit an application to the Administrator for an extension to the effective date of any applicable restriction established under Subpart C of this part. The applicant must demonstrate the following:

(1) He has made a good-faith effort to locate and contract with treatment, recovery, or disposal facilities nationwide to manage his waste in accordance with the effective date of the applicable restriction established under Subpart C of this Part;

(2) He has entered into a binding contractual commitment to construct or otherwise provide alternative treatment, recovery (e.g., recycling), or disposal capacity that meets the treatment standards specified in Subpart D or, where treatment standards have not been specified, such treatment, recovery, or disposal capacity is protective of human health and the environment.

(3) Due to circumstances beyond the applicant's control, such alternative capacity cannot reasonably be made available by the applicable effective date. This demonstration may include a showing that the technical and practical difficulties associated with providing the alternative capacity will

Environmental Protection Agency

result in the capacity not being available by the applicable effective date;

(4) The capacity being constructed or otherwise provided by the applicant will be sufficient to manage the entire quantity of waste that is the subject of the application;

(5) He provides a detailed schedule for obtaining required operating and construction permits or an outline of how and when alternative capacity will be available;

(6) He has arranged for adequate capacity to manage his waste during an extension and has documented in the application the location of all sites at which the waste will be managed; and

(7) Any waste managed in a surface impoundment or landfill during the extension period will meet the requirements of paragraph (h)(2) of this section.

(b) An authorized representative signing an application described under paragraph (a) of this section shall make the following certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(c) After receiving an application for an extension, the Administrator may request any additional information which he deems as necessary to evaluate the application.

(d) An extension will apply only to the waste generated at the individual facility covered by the application and will not apply to restricted waste from any other facility.

(e) On the basis of the information referred to in paragraph (a) of this section, after notice and opportunity for comment, and after consultation with appropriate State agencies in all affected States, the Administrator may grant an extension of up to 1 year from the effective date. The Administrator may renew this extension for up to 1 additional year upon the request of the applicant if the demonstration required in paragraph (a) of this section can still be made. In no event will an extension extend beyond 24 months from the applicable effective date specified in Subpart C of Part 268. The length of any extension au-

§ 268.5

thorized will be determined by the Administrator based on the time required to construct or obtain the type of capacity needed by the applicant as described in the completion schedule discussed in paragraph (a)(5) of this section. The Administrator will give public notice of the intent to approve or deny a petition and provide an opportunity for public comment. The final decision on a petition will be published in the FEDERAL REGISTER.

(f) Any person granted an extension under this section must immediately notify the Administrator as soon as he has knowledge of any change in the conditions certified to in the application.

(g) Any person granted an extension under this section shall submit written progress reports at intervals designated by the Administrator. Such reports must describe the overall progress made toward constructing or otherwise providing alternative treatment, recovery or disposal capacity; must identify any event which may cause or has caused a delay in the development of the capacity; and must summarize the steps taken to mitigate the delay. The Administrator can revoke the extension at any time if the applicant does not demonstrate a good-faith effort to meet the schedule for completion, if the Agency denies or revokes any required permit, if conditions certified in the application change, or for any violation of this chapter.

(h) Whenever the Administrator establishes an extension to an effective date under this section, during the period for which such extension is in effect:

(1) The storage restrictions under § 268.50(a) do not apply; and

(2) Such hazardous waste may be disposed in a landfill or surface impoundment only if such unit is in compliance with the technical requirements of the following provisions regardless of whether such unit is existing, new, or a replacement or lateral expansion.

(i) The landfill, if in interim status, is in compliance with the requirements

§ 268.6

40 CFR Ch. I (7-1-89 edition)

of Subpart F of Part 265 and § 265.301 (a), (c), and (d) of this chapter; or,

(ii) The landfill, if permitted, is in compliance with the requirements of Subpart F of Part 264 and § 264.301 (c), (d) and (e) of this chapter;

(iii) The surface impoundment, if in interim status, is in compliance with the requirements of Subpart F of Part 265, § 265.221 (a), (c), and (d) of this chapter, and RCRA section 3005(j)(1); or

(iv) The surface impoundment, if permitted, is in compliance with the requirements of Subpart F of Part 264 and § 264.221 (c), (d) and (e) of this chapter.

(v) The landfill, if disposing of containerized liquid hazardous wastes containing PCBs at concentrations greater than or equal to 50 ppm but less than 500 ppm, is also in compliance with the requirements of 40 CFR 761.75 and Parts 264 and 265.

(i) Pending a decision on the application the applicant is required to comply with all restrictions on land disposal under this part once the effective date for the waste has been reached.

(Approved by the Office of Management and Budget under control number 2050-0062)

[51 FR 40638, Nov. 7, 1986; 52 FR 21016, June 4, 1987, as amended at 52 FR 25788, July 8, 1987; 53 FR 31212, Aug. 17, 1988]

§ 268.6 Petitions to allow land disposal of a waste prohibited under Subpart C of Part 268.

(a) Any person seeking an exemption from a prohibition under Subpart C of this part for the disposal of a restricted hazardous waste in a particular unit or units must submit a petition to the Administrator demonstrating, to a reasonable degree of certainty, that there will be no migration of hazardous constituents from the disposal unit or injection zone for as long as the wastes remain hazardous. The demonstration must include the following components:

(1) An identification of the specific waste and the specific unit for which the demonstration will be made;

(2) A waste analysis to describe fully the chemical and physical characteristics of the subject waste;

(3) A comprehensive characterization of the disposal unit site including an analysis of background air, soil, and water quality.

(4) A monitoring plan that detects migration at the earliest practicable time;

(5) Sufficient information to assure the Administrator that the owner or operator of a land disposal unit receiving restricted waste(s) will comply with other applicable Federal, State, and local laws.

(b) The demonstration referred to in paragraph (a) of this section must meet the following criteria:

(1) All waste and environmental sampling, test, and analysis data must be accurate and reproducible to the extent that state-of-the-art techniques allow;

(2) All sampling, testing, and estimation techniques for chemical and physical properties of the waste and all environmental parameters must have been approved by the Administrator;

(3) Simulation models must be calibrated for the specific waste and site conditions, and verified for accuracy by comparison with actual measurements;

(4) A quality assurance and quality control plan that addresses all aspects of the demonstration must be approved by the Administrator; and,

(5) An analysis must be performed to identify and quantify any aspects of the demonstration that contribute significantly to uncertainty. This analysis must include an evaluation of the consequences of predictable future events, including, but not limited to, earthquakes, floods, severe storm events, droughts, or other natural phenomena.

(c) Each petition referred to in paragraph (a) of this section must include the following:

(1) A monitoring plan that describes the monitoring program installed at and/or around the unit to verify continued compliance with the conditions of the variance. This monitoring plan must provide information on the monitoring of the unit and/or the environment around the unit. The following specific information must be included in the plan:

Environmental Protection Agency

(i) The media monitored in the cases where monitoring of the environment around the unit is required;

(ii) The type of monitoring conducted at the unit, in the cases where monitoring of the unit is required;

(iii) The location of the monitoring stations;

(iv) The monitoring interval (frequency of monitoring at each station);

(v) The specific hazardous constituents to be monitored;

(vi) The implementation schedule for the monitoring program;

(vii) The equipment used at the monitoring stations;

(viii) The sampling and analytical techniques employed; and

(ix) The data recording/reporting procedures.

(2) Where applicable, the monitoring program described in paragraph (c)(1) of this section must be in place for a period of time specified by the Administrator, as part of his approval of the petition, prior to receipt of prohibited waste at the unit.

(3) The monitoring data collected according to the monitoring plan specified under paragraph (c)(1) of this section must be sent to the Administrator according to a format and schedule specified and approved in the monitoring plan, and

(4) A copy of the monitoring data collected under the monitoring plan specified under paragraph (c)(1) of this section must be kept on-site at the facility in the operating record.

(5) The monitoring program specified under paragraph (c)(1) of this section meet the following criteria:

(i) All sampling, testing, and analytical data must be approved by the Administrator and must provide data that is accurate and reproducible.

(ii) All estimation and monitoring techniques must be approved by the Administrator.

(iii) A quality assurance and quality control plan addressing all aspects of the monitoring program must be provided to and approved by the Administrator.

(d) Each petition must be submitted to the Administrator.

(e) After a petition has been approved, the owner or operator must report any changes in conditions at

§ 268.6

the unit and/or the environment around the unit that significantly depart from the conditions described in the variance and affect the potential for migration of hazardous constituents from the units as follows:

(1) If the owner or operator plans to make changes to the unit design, construction, or operation, such a change must be proposed, in writing, and the owner or operator must submit a demonstration to the Administrator at least 30 days prior to making the change. The Administrator will determine whether the proposed change invalidates the terms of the petition and will determine the appropriate response. Any change must be approved by the Administrator prior to being made.

(2) If the owner or operator discovers that a condition at the site which was modeled or predicted in the petition does not occur as predicted, this change must be reported, in writing, to the Administrator within 10 days of discovering the change. The Administrator will determine whether the reported change from the terms of the petition requires further action, which may include termination of waste acceptance and revocation of the petition, petition modifications, or other responses.

(f) If the owner or operator determines that there is migration of hazardous constituent(s) from the unit, the owner or operator must:

(1) **Immediately suspend receipt of prohibited waste at the unit, and**

(2) Notify the Administrator, in writing, within 10 days of the determination that a release has occurred.

(3) Following receipt of the notification the Administrator will determine within 60 days of receiving notification, whether the owner or operator can continue to receive prohibited waste in the unit and whether the variance is to be revoked. The Administrator shall also determine whether further examination of any migration is warranted under applicable provisions of Part 264 or Part 265.

(g) Each petition must include the following statement signed by the petitioner or an authorized representative:

§ 268.7

40 CFR Ch. I (7-1-89 Edition)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this petition and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(h) After receiving a petition, the Administrator may request any additional information that reasonably may be required to evaluate the demonstration.

(i) If approved, the petition will apply to land disposal of the specific restricted waste at the individual disposal unit described in the demonstration and will not apply to any other restricted waste at that disposal unit, or to that specific restricted waste at any other disposal unit.

(j) The Administrator will give public notice in the FEDERAL REGISTER of the intent to approve or deny a petition and provide an opportunity for public comment. The final decision on a petition will be published in the FEDERAL REGISTER.

(k) The term of a petition granted under this section shall be no longer than the term of the RCRA permit if the disposal unit is operating under a RCRA permit, or up to a maximum of 10 years from the date of approval provided under paragraph (g) of this section if the unit is operating under interim status. In either case, the term of the granted petition shall expire upon the termination or denial of a RCRA permit, or upon the termination of interim status or when the volume limit of waste to be land disposed during the term of petition is reached.

(l) Prior to the Administrator's decision, the applicant is required to comply with all restrictions on land disposal under this part once the effective date for the waste has been reached.

(m) The petition granted by the Administrator does not relieve the petitioner of his responsibilities in the management of hazardous waste under 40 CFR Part 260 through Part 271.

(n) Liquid hazardous wastes containing polychlorinated biphenyls at concentrations greater than or equal to 500 ppm are not eligible for an exemption under this section.

(Approved by the Office of Management and Budget under control number 2050-0062)

[51 FR 40638, Nov. 7, 1986; 52 FR 21016, June 4, 1987, as amended at 52 FR 25789, July 8, 1987; 53 FR 31212, Aug. 17, 1988]

§ 268.7 Waste analysis.

(a) Except as specified in § 268.32 or section 268.43 of the part, the generator must test his waste, or test an extract developed using the test method described in Appendix I of this part, or use knowledge of the waste, to determine if the waste is restricted from land disposal under this part.

(1) If a generator determines that he is managing a restricted waste under this part and the waste does not meet the applicable treatment standards set forth in Subpart D of this part or exceeds the applicable prohibition levels set forth in § 268.32 or RCRA § 3004(d), with each shipment of waste the generator must notify the treatment or storage facility in writing of the appropriate treatment standards set forth in Subpart D of this part and any applicable prohibition levels set forth in § 268.32 or RCRA § 3004(d). The notice must include the following information:

(i) EPA Hazardous Waste Number;

(ii) The corresponding treatment standards and all applicable prohibitions set forth in § 268.32 or RCRA section 3004(d);

(iii) The manifest number associated with the shipment of waste; and

(iv) Waste analysis data, where available.

(2) If a generator determines that he is managing a restricted waste under this part, and determines that the waste can be land disposed without further treatment, with each shipment of waste he must submit, to the treatment, storage, or land disposal facility, a notice and a certification stating that the waste meets the applicable treatment standards set forth in Subpart D of this part and the appli-

Environmental Protection Agency

cable prohibition levels set forth in § 268.32 or RCRA § 3004(d).

(i) The notice must include the following information:

(A) EPA Hazardous Waste Number;
(B) The corresponding treatment standards and all applicable prohibitions set forth in § 268.32 or RCRA section 3004(d);

(C) The manifest number associated with the shipment of waste;

(D) Waste analysis data, where available.

(ii) The certification must be signed by an authorized representative and must state the following:

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

(3) If a generator's waste is subject to an exemption from a prohibition on the type of land disposal method utilized for the waste (such as, but not limited to, a case-by-case extension under § 268.5, an exemption under § 268.3, or a nationwide capacity variance under subpart C), with each shipment of waste he must submit a notice to the facility receiving his waste stating that the waste is not prohibited from land disposal. The notice must include the following information:

(i) EPA Hazardous Waste Number;
(ii) The corresponding treatment standards and all applicable prohibitions set forth in § 268.32 or RCRA section 3004(d);

(iii) The manifest number associated with the shipment of waste;

(iv) Waste analysis data, where available; and

(v) The date the waste is subject to the prohibitions.

(4) If a generator determines that he is managing a waste that is subject to the prohibitions under § 268.33(f) (including wastes that are disposed of in disposal units other than landfills or surface impoundments) and is not subject to the prohibitions set forth in § 268.32 of this part, with each shipment of waste the generator must notify the treatment,

§ 268.7

storage or disposal facility, in writing, of any applicable prohibitions set forth in § 268.33(f). The notice must include the following information:

(i) EPA Hazardous Waste Number;
(ii) The applicable prohibitions set forth in section 268.33(f);

(iii) The manifest number associated with the shipment of waste; and

(iv) Waste analysis data, where available.

(5) If a generator determines whether the waste is restricted based solely on his knowledge of the waste, all supporting data used to make this determination must be retained on-site in the generator's files. If a generator determines whether the waste is restricted based on testing this waste or an extract developed using the test method described in Appendix I of this part, all waste analysis data must be retained on-site in the generator's files.

(6) Generators must retain on-site a copy of all notices, certifications, demonstrations, waste analysis data, and other documentation produced pursuant to this section for at least five years from the date that the waste that is the subject of such documentation was last sent to on-site or off-site treatment, storage, or disposal. The five year record retention period is automatically extended during the course of any unresolved enforcement action regarding the regulated activity or as requested by the Administrator.

(b) Treatment facilities must test their wastes according to the frequency specified in their waste analysis plans as required by § 264.13 or § 265.13. Such testing must be performed as provided in paragraphs (b)(1), (b)(2) and (b)(3) of this section.

(1) For wastes with treatment standards expressed as concentrations in the waste extract (§ 268.41), the owner or operator of the treatment facility must test the treatment residues, or an extract of such residues developed using the test method described in Appendix I of this part, to assure that the treatment residues or extract meet the applicable treatment standards.

(2) For wastes that are prohibited under § 268.32 of this part or RCRA section 3004(d) but not subject to any treatment standards under Subpart D of this part, the owner or operator of the treatment facility must test the

§ 268.7

treatment residues according to the generator testing requirements specified in § 268.32 to assure that the treatment residues comply with the applicable prohibitions.

(3) For wastes with treatment standards expressed as concentrations in the waste (§ 268.43), the owner or operator of the treatment facility must test the treatment residues (not an extract of such residues) to assure that the treatment residues meet the applicable treatment standards.

(4) A notice must be sent with each waste shipment to the land disposal facility which includes the following information:

(i) EPA Hazardous Waste Number;
(ii) The corresponding treatment standards and all applicable prohibitions set forth in § 268.32 or RCRA section 3004(d);

(iii) The manifest number associated with the shipment of waste; and

(iv) Waste analysis data, where available.

(5) The treatment facility must submit a certification with each shipment of waste or treatment residue of a restricted waste to the land disposal facility stating that the waste or treatment residue has been treated in compliance with the applicable performance standards specified in Subpart D of this part and the applicable prohibitions set forth in § 268.32 or RCRA section 3004(d).

(1) For wastes with treatment standards expressed as concentrations in the waste extract or in the waste (§ 268.41 or § 268.43), or for wastes prohibited under § 268.32 of this part or RCRA section 3004(d) which are not subject to any treatment standards under Subpart D of this part, the certification must be signed by an authorized representative and must state the following:

I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA section 3004(d) without dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

40 CFR Ch. I (7-1-89 Edition)

(ii) For wastes with treatment standards expressed as technologies (§ 268.42), the certification must be signed by an authorized representative and must state the following:

I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

(6) If the waste or treatment residue will be further managed at a different treatment or storage facility, the treatment, storage or disposal facility sending the waste or treatment residue off-site must comply with the notice and certification requirements applicable to generators under this section.

(7) For wastes that are subject to the prohibitions under § 268.33(f) of this part and are not subject to the prohibitions set forth in § 268.32 of this part, with each shipment of such waste the owner or operator must notify any subsequent treatment, storage, or disposal facility, in writing, of any applicable prohibitions set forth in § 268.33(f). The notice must include the following information:

(i) EPA Hazardous Waste Number;
(ii) The applicable prohibitions set forth in section 268.33(f);

(iii) The manifest number associated with the shipment of waste; and

(iv) Waste analysis data, where available.

(8) Where the wastes are recyclable materials used in a manner constituting disposal subject to the provisions of § 266.20(b) regarding treatment standards and prohibition levels, the owner or operator of a treatment facility (*i.e.*, the recycler) is not required to notify the receiving facility, pursuant to paragraph (b)(4) of this section.

With each shipment of such wastes the owner or operator of the recycling facility must submit a certification described in paragraph (b)(5) of this section, and a notice which includes the information listed in paragraph (b)(4) of this section (except the manifest number) to the Regional Administrator, or his delegated representative. The recycling facility also must keep records of the name and location of each entity receiving the hazardous waste-derived product.

Environmental Protection Agency

(c) The owner or operator of any land disposal facility disposing any waste subject to restrictions under this part must:

(1) Have copies of the notice and certifications specified in paragraph (a) or (b) of this section, and the certification specified in § 268.8 if applicable.

(2) Test the waste, or an extract of the waste or treatment residue developed using the test method described in Appendix I of this part or using any methods required by generators under § 268.32 of this part, to assure that the wastes or treatment residues are in compliance with the applicable treatment standards set forth in Subpart D of this part and all applicable prohibitions set forth in § 268.32 of this part or in RCRA section 3004(d). Such testing must be performed according to the frequency specified in the facility's waste analysis plan as required by § 264.13 or § 265.13.

(3) Where the owner or operator is disposing of any waste that is subject to the prohibitions under § 268.33(f) of this part but not subject to the prohibitions set forth in § 268.32, he must ensure that such waste is the subject of a certification according to the requirements of § 268.8 prior to disposal in a landfill or surface impoundment unit, and that such disposal is in accordance with the requirements of § 268.5(h)(2). The same requirement applies to any waste that is subject to the prohibitions under § 268.33(f) of this Part and also is subject to the statutory prohibitions in RCRA section 3004(d) or the codified prohibitions in § 268.32 of this Part.

(4) Where the owner or operator is disposing of any waste that is a recyclable material used in a manner constituting disposal subject to the provisions of § 266.20(b), the owner or operator is not subject to paragraphs (c) (1)-(3) of this section with respect to such waste.

(Approved by the Office of Management and Budget under control number 2050-0062 and 2040-0042)

[51 FR 40638, Nov. 7, 1986; 52 FR 21016, June 4, 1987, as amended at 52 FR 25789, July 8, 1987; 53 FR 31213, Aug. 17, 1988; 54 FR 26648, June 23, 1989]

§ 268.8 Landfill and surface impoundment disposal restrictions.

(a) Prior to May 8, 1990, wastes which are otherwise prohibited from land disposal under § 268.33(f) of this part may be disposed in a landfill or

§ 268.8

surface impoundment which is in compliance with the requirements of § 268.5(h)(2) provided that the requirements of this section are met.

(1) Prior to such disposal, the generator has made a good faith effort to locate and contract with treatment and recovery facilities practically available which provide the greatest environmental benefit.

(2) If a generator determines that there is no practically available treatment for his waste, he must fulfill the following specific requirements:

(i) Prior to the initial shipment of waste, the generator must submit a demonstration to the Regional Administrator that includes: a list of facilities and facility officials contacted, addresses, telephone numbers, and contact dates, as well as a written discussion of why he was not able to obtain treatment or recovery for that waste. The generator must also provide to the Regional Administrator the following certification:

I certify under penalty of law that the requirements of 40 CFR 268.8(a)(1) have been met and that disposal in a landfill or surface impoundment is the only practical alternative to treatment currently available. I believe that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

The generator does not need to wait for Regional Administrator approval of the demonstration/certification before shipment of the waste. However, if the Regional Administrator invalidates the demonstration/certification for the reasons outlined in § 268.8(b)(2), the generator must immediately cease further shipments of the waste, and immediately inform all facilities that received the waste of such invalidation, and keep records of such communication on-site in his files.

(ii) With the initial shipment of waste, the generator must submit a copy of the demonstration and the certification discussed above in § 268.8(a)(2)(i) to the receiving facility. With each subsequent waste shipment, only the certification is required to be submitted provided that the conditions being certified remain unchanged. Such a generator must retain on-site a copy of the demonstration (if applicable) and certification required for each waste shipment for at least five

years from the date that the waste that is the subject of such documentation was last sent to on-site or off-site disposal. The five-year record retention requirement is automatically extended during the course of any unresolved enforcement action regarding the regulated activity or as requested by the Administrator.

(3) If a generator determines that there are practically available treatments for his waste, he must contract to use the practically available technology that yields the greatest environmental benefit. He must also fulfill the following specific requirements:

(i) The generator must submit to the Regional Administrator, prior to the initial shipment of waste, a demonstration that includes: a list of facilities and facility officials contacted, addresses, telephone numbers, and contact dates, as well as a written discussion explaining why the treatment or recovery technology chosen provides the greatest environmental benefit. The generator must also provide to the Regional Administrator the following certification:

I certify under penalty of law that the requirements of 40 CFR 268.8(a)(1) have been met and that I have contracted to treat my waste (or otherwise provide treatment) by the practically available technology which yields the greatest environmental benefit, as indicated in my demonstration. I believe that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

The generator does not need to wait for Regional Administrator approval of the demonstration, certification before shipment of the waste.

(ii) With the initial shipment of waste the generator must submit to the receiving facility a copy of the demonstration and the certification discussed above in § 268.8(a)(3)(i). With each subsequent waste shipment, only the certification is required to be submitted provided that the conditions being certified remain unchanged. Such a generator must retain on-site a copy of the demonstration (if applicable) and certification required for each waste shipment for at least five years from the date that the waste that is the subject of such documentation was last sent to on-

site or off-site disposal. The five-year record retention requirement is automatically extended during the course of any unresolved enforcement action regarding the regulated activity or as requested by the Administrator.

(4) Where the generator has determined that there is practically available treatment for his waste prior to disposal, with the initial shipment of waste, such generator must submit a copy of the demonstration and the certification required in paragraph (a)(2)(B) of this section to the receiving facility. With each subsequent waste shipment, only the certification is required to be submitted provided that the conditions being certified remain unchanged. Such a generator must retain on-site a copy of the demonstration (if applicable) and certification required for each waste shipment for at least five years from the date that the waste that is the subject of such documentation was last sent to on-site or off-site disposal. The five-year record retention requirement is automatically extended during the course of any unresolved enforcement action regarding the regulated activity or as requested by the Administrator.

(b) After receiving the demonstration and certification, the Regional Administrator may request any additional information which he deems necessary to evaluate the certification.

(1) A generator who has submitted a certification under this section must immediately notify the Regional Administrator when he has knowledge of any change in the conditions which formed the basis of his certification

and submit a new demonstration and certification as provided in § 268.8(a) to the receiving facility.

(2) If, after review of the certification, the Regional Administrator determines that practically available treatment exists where the generator has certified otherwise, or that there exists some other method of practically available treatment yielding greater environmental benefit than that which the generator has certified, the Regional Administrator may invalidate the certification.

(3) If the Regional Administrator invalidates a certification, the generator must immediately cease further shipments of the waste, and inform all facilities that received the waste of such invalidation and keep records of such

Environmental Protection Agency
communication on-site in his files.

(c) A treatment, recovery or storage facility receiving wastes subject to a valid certification must keep copies of the generator's demonstration (if applicable) and certification in his operating record.

(1) The owner or operator of a treatment or recovery facility must certify that he has treated the waste in accordance with the generator's demonstration. The following certification is required:

I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with treatment as specified in the generator's demonstration. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(c)(2) The owner or operator of a treatment, recovery or storage facility must, for each initial shipment of waste, send a copy of the generator's demonstration (if applicable) and certification under § 268.8(a)(2)(i) or § 268.8(a)(3)(i) and certification under § 268.3(c)(1) (if applicable) to the facility receiving the waste or treatment residues. With each subsequent waste shipment, only the certification is required to be submitted provided that the conditions being certified remain unchanged.

(d) The owner or operator of a disposal facility must ensure that those wastes prohibited under § 268.33(f) are

***This page contains
no changes at this
time. It is the result
of revisions to the
federal regulations.***

(4) The solvent waste is a residue from treating a waste described in paragraphs (a)(1), (a)(2), or (a)(3) of this section; or the solvent waste is a residue from treating a waste not described in paragraphs (a)(1), (a)(2), or (a)(3) of this section provided such residue belongs to a different treatability group than the waste as initially generated and wastes belonging to such a treatability group are described in paragraph (a)(3) of this section.

(b) Effective November 8, 1988, the F001-F005 solvent wastes listed in paragraphs (a) (1), (2), (3), or (4) of this section are prohibited from land disposal.

(c) Effective November 8, 1990, the F001-F005 solvent wastes which are contaminated soil and debris resulting from a response action taken under section 104 or 106 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) or a corrective action required under subtitle C of the Resource Conservation and Recovery Act (RCRA) and the residues from treating these wastes are prohibited from land disposal. Between November 8, 1988, and November 8, 1990, these wastes may be disposed in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in § 268.5(h)(2).

(d) The requirements of paragraphs (a), (b), and (c) of this section do not apply if:

(1) The wastes meet the standards of Subpart D of this part; or

(2) Persons have been granted an exemption from a prohibition pursuant to a petition under § 268.6, with respect to those wastes and units covered by the petition; or

(3) Persons have been granted an extension to the effective date of a prohibition pursuant to § 268.5, with respect to those wastes and units covered by the extension.

[53 FR 31216, Aug. 17, 1988]

§ 268.31 Waste specific prohibitions—Dioxin-containing wastes.

(a) Effective November 8, 1988, the dioxin-containing wastes specified in 40 CFR 261.31 as EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, F027, and F028, are prohibited

from land disposal unless the following condition applies:

(1) The F020-F023 and F026-F028 dioxin-containing waste is contaminated soil and debris resulting from a response action taken under section 104 or 106 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) or a corrective action taken under subtitle C of the Resource Conservation and Recovery Act (RCRA).

(b) Effective November 8, 1990, the F020-F023 and F026-F028 dioxin-containing wastes listed in paragraph (a)(1) of this section are prohibited from land disposal.

(c) Between November 8, 1988, and November 8, 1990, wastes included in paragraph (a)(1) of this section may be disposed in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in § 268.5(h)(2) and all other applicable requirements of Parts 264 and 265 of this chapter.

(d) The requirements of paragraphs (a) and (b) of this section do not apply if:

(1) The wastes meet the standards of Subpart D of this part; or

(2) Persons have been granted an exemption from a prohibition pursuant to a petition under § 268.6, with respect to those wastes and units covered by the petition; or

(3) Persons have been granted an extension to the effective date of a prohibition pursuant to § 268.5, with respect to those wastes covered by the extension.

[53 FR 31216, Aug. 17, 1988]

§ 268.32 Waste specific prohibitions—California list wastes.

(a) Effective July 8, 1987, the following hazardous wastes are prohibited from land disposal (except in injection wells):

(1) Liquid hazardous wastes having a pH less than or equal to two (2.0);

(2) Liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 50 ppm;

(3) Liquid hazardous wastes that are primarily water and contain halogenated organic compounds (HOCs) in

total concentration greater than or equal to 1,000 mg/l and less than 10,000 mg/l HOCs.

(b)—(c) [Reserved]

(d) The requirements of paragraphs (a) and (e) of this section do not apply until:

(1) July 8, 1989 where the wastes are contaminated soil or debris not resulting from a response action taken under section 104 or 106 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or a corrective action taken under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Between July 8, 1987 and July 8, 1989, the wastes may be disposed in a landfill or surface impoundment only if such disposal is in compliance with the requirements specified in § 268.5(h)(2).

(2) November 8, 1990 where the wastes are contaminated soil or debris resulting from a response action taken under section 104 or 106 of CERCLA or a corrective action taken under Subtitle C of RCRA. Between November 8, 1988, and November 8, 1990, the wastes may be disposed in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in § 268.5(h)(2).

(e) Effective November 8, 1988, the following hazardous wastes are prohibited from land disposal (subject to any regulations that may be promulgated with respect to disposal in injection wells):

(1) Liquid hazardous wastes that contain HOCs in total concentration greater than or equal to 1,000 mg/l and are not prohibited under paragraph (a)(3) of this section; and

(2) Nonliquid hazardous wastes containing HOCs in total concentration greater than or equal to 1,000 mg/kg and are not wastes described in paragraph (d) of this section.

(f) Between July 8, 1987 and November 8, 1988, the wastes included in paragraphs (e)(1) and (e)(2) of this section may be disposed in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in § 268.5(h)(2).

(g) The requirements of paragraphs (a), (d), and (e) of this section do not apply if:

(1) Persons have been granted an exemption from a prohibition pursuant to a petition under § 268.6, with respect to those wastes and units covered by the petition (except for liquid hazardous wastes containing polychlorinated biphenyls at concentrations greater than or equal to 500 ppm which are not eligible for such exemptions); or

(2) Persons have been granted an extension to the effective date of a prohibition pursuant to § 268.5, with respect to those wastes covered by the extension; or

(3) The wastes meet the applicable standards specified in Subpart D of this part or, where treatment standards are not specified, the wastes are in compliance with the applicable prohibitions set forth in this section or RCRA section 3004(d).

(h) The prohibitions and effective dates specified in paragraphs (a)(3), (d), and (e) of this section do not apply where the waste is subject to a Part 268 Subpart C prohibition and effective date for a specified HOC (such as a hazardous waste chlorinated solvent, see e.g., § 268.30(a)).

(i) To determine whether or not a waste is a liquid under paragraphs (a) and (e) of this section and under RCRA section 3004(d), the following test must be used: Method 9095 (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," EPA Publication No. SW-846. (Incorporated by reference, see § 260.11(a) of this chapter.)

(j) Except as otherwise provided in this paragraph, the waste analysis and recordkeeping requirements of § 268.7 are applicable to wastes prohibited under this part or RCRA section 3004(d):

(1) The initial generator of a liquid hazardous waste must test his waste (not an extract or filtrate) in accordance with the procedures specified in § 261.22(a)(1), or use knowledge of the waste, to determine if the waste has a pH less than or equal to two (2.0). If the liquid waste has a pH less than or equal to two (2.0), it is restricted from land disposal and all requirements of Part 268 are applicable, except as otherwise specified in this section.

Environmental Protection Agency

(2) The initial generator of either a liquid hazardous waste containing polychlorinated biphenyls (PCBs) or a liquid or nonliquid hazardous waste containing halogenated organic compounds (HOCs) must test his waste (not an extract or filtrate), or use knowledge of the waste, to determine whether the concentration levels in the waste equal or exceed the prohibition levels specified in this section. If the concentration of PCBs or HOCs in the waste is greater than or equal to the prohibition levels specified in this section, the waste is restricted from land disposal and all requirements of Part 268 are applicable, except as otherwise specified in this section.

[52 FR 25790, July 8, 1987, as amended at 52 FR 41296, Oct. 27, 1987; 53 FR 31216, Aug. 17, 1988]

§ 268.33 Waste specific prohibitions—First Third Wastes

(a) Effective August 8, 1988, the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste Nos. F006 (nonwastewater), K001, ~~K004 wastes specified in § 268.43(a)~~, ~~K008 wastes specified in § 268.43(a)~~, K016, K018, K019, K020, (nonwastewater), ~~K021 wastes specified in § 268.43(a)~~ K022 (nonwastewater), K024, K030, K036 (nonwastewater), ~~K025 nonwastewaters specified in § 268.43(a)~~, K037, K044, K045, nonexplosive K046 (nonwastewater), K047, K060 (nonwastewater), K061 (nonwastewaters containing less than 15% zinc), K062, non CaSO₄, K069 (nonwastewaters), K086 (solvent washes), K087, K099, K100 nonwastewaters specified in § 268.43(a), K101 (wastewater), K101 (nonwastewater, low arsenic subcategory—less than 1% total arsenic), K102 (wastewater), K102 (nonwastewater, low arsenic subcategory—less than 1% total arsenic), K103, and K104 are prohibited from land disposal (except in an injection well).

(1) Effective August 8, 1988 and continuing until August 7, 1990, K061 wastes containing 15% zinc or greater are prohibited from land disposal pursuant to the treatment standards specified in § 268.41 applicable to K061 wastes that contain less than 15% zinc.

(b) Effective August 8, 1990, the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste Nos. K048, K049, K050, K051, K052, K061 (containing 15% zinc or greater), and K071 are prohibited from land disposal.

§ 268.33

(c) Effective August 8, 1990, the wastes specified in 40 CFR 268.10 having a treatment standard in Subpart D of this part based on incineration and which are contaminated soil and debris are prohibited from land disposal.

(d) Between November 8, 1988 and August 8, 1990, wastes included in paragraphs (b) and (c) of this section may be disposed of in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in § 268.5(h)(2).

(e) The requirements of paragraphs (a), (b), (c), and (d) of this section do not apply if:

(1) The wastes meet the applicable standards specified in Subpart D of this Part; or

(2) Persons have been granted an exemption from a prohibition pursuant to a petition under § 268.6, with respect to those wastes and units covered by the petition; or

(3) Persons have been granted an extension to the effective date of a prohibition pursuant to § 268.5, with respect to those wastes covered by the extension.

(f) Between August 8, 1988, and May 8, 1990, the wastes specified in § 268.10 for which treatment standards under Subpart D of this Part **have not been promulgated**.

Including those wastes which are subject to the statutory prohibitions of RCRA section 3004(d) or codified prohibitions under § 268.32 of this Part, but not including wastes subject to a treatment standard under § 268.42 of this Part, are prohibited from disposal in a landfill or surface impoundment **unless a demonstration and certification have been submitted**.

(g) To determine whether a hazardous waste listed in § 268.10 exceeds the applicable treatment standards specified in § 268.41 and § 268.43, the initial generator must test a representative sample of the waste extract or the entire waste depending on whether the treatment standards are expressed as concentrations in the waste extract **of the waste, or the generator may use knowledge of the waste**.

If the waste contains constituents in excess of the applicable Subpart D levels, the waste is prohibited from land disposal and all requirements of Part 268 are applicable, except as otherwise specified.

§ 268.34

[53 FR 31217, Aug. 17, 1988]

**§ 268.34 Waste specific prohibitions—
second third wastes.**

(a) Effective June 8, 1989, the following wastes specified in 40 CFR 261.31 as EPA Hazardous Waste Nos. F010; F024; the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste Nos. K005, K007; K009 (nonwastewaters), K010; K023; K027; K028; K029 (nonwastewaters); K036 (wastewaters); K038; K039; K040; K043; K093; K094; K095 (nonwastewaters); K096 (nonwastewaters); K113; K114; K115; K116; and the wastes specified in 40 CFR 261.33 as EPA Hazardous Waste Nos. P013; P021; P029; P030; P039; P040; P041; P043; P044; P062; P063; P071; P074; P085; P089; P094; P097; P098; P099; P104; P106; P109; P111; P121; U028; U058; U069; U087; U088; U102; U107; U221; U223; and U235 are prohibited from land disposal.

(b) Effective June 8, 1989, the following wastes specified in 40 CFR 261.32 as EPA Hazardous Waste Nos. K009 (wastewaters), K011 (nonwastewaters), K013 (nonwastewaters), and K014 (nonwastewaters) are prohibited from land disposal except when they are underground injected pursuant to 40 CFR 148.14(f) and 148.15(d).

(c) Effective July 8, 1989, the wastes specified in 40 CFR 261.31 as EPA Hazardous Waste Nos. F006—cyanide (nonwastewater); F008; F009; F011 (wastewaters) and F012 (wastewaters) are prohibited from land disposal.

(1) Effective July 8, 1989, the following waste specified in 40 CFR 261.31 as EPA Hazardous Waste No. F007 is prohibited from land disposal except when it is underground injected pursuant to 40 CFR 148.14(f).

(2) Effective July 8, 1989 and continuing until December 8, 1989, F011 (nowastewaters) and F012 (nonwastewaters) are prohibited from land disposal pursuant to the treatment standards specified in §§ 268.41 and 268.43 applicable to F007, F008, and F009 nonwastewaters. Effective December 8, 1989 F011 (nowastewaters) and F012 (nonwastewaters) are prohibited from land disposal pursuant to the treatment standards specified in §§ 268.41 and 268.43 applicable to F011

40 CFR Ch. I (7-1-89 Edition)

(nonwastewaters) and F012 (nonwastewaters).

(d) Effective June 8, 1991, the wastes specified in this section having a treatment standard in Subpart D of this part based on incineration, and which are contaminated soil and debris are prohibited from land disposal.

(e) Between June 8, 1989 and June 8, 1991, (for wastes F007, F008, F009, F011, and F012 between June 8, 1989 and July 8, 1989) wastes included in paragraphs (c) and (d) of this section may be disposed in a landfill or surface impoundment, regardless whether such unit is a new, replacement, or lateral expansion unit, only if such unit is in compliance with the technical requirements specified in § 268.5(h)(2).

(f) The requirements of paragraphs (a), (b), (c), and (d) of this section do not apply if:

(1) The wastes meet the applicable standards specified in Subpart D of this Part; or

(2) Persons have been granted an exemption from a prohibition pursuant to a petition under § 268.6, with respect to those wastes and units covered by the petition.

(g) The requirements of paragraphs (a), (b), and (c) of this section do not apply if persons have been granted an extension to the effective date of a prohibition pursuant to § 268.5, with respect to those wastes covered by the extension.

(h) Between June 8, 1989 and May 8, 1990, the wastes specified in § 268.11 for which treatment standards under Subpart D of this Part are not applicable, including California list wastes subject to the statutory prohibitions of RCRA section 3004(d) or codified prohibitions under § 268.32, are prohibited from disposal in a landfill or surface impoundment unless the wastes are the subject of a valid demonstration and certification pursuant to § 268.8.

(i) To determine whether a hazardous waste listed in §§ 268.10, 268.11, and 268.12 exceeds the applicable treatment standards specified in §§ 268.41 and 268.43, the initial generator must test a representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as

Environmental Protection Agency

§ 268.10

subject to a certification according to the requirements of this section prior to disposal in a landfill or surface impoundment, and that the units receiving such wastes must meet the minimum technological requirements of § 268.5(h)(2).

(e) Once the certification is received by the Regional Administrator, and provided that the wastes have been treated by the treatment (if any), determined by the generator to yield the greatest environmental benefit practically available, the wastes or treatment residuals may be disposed in a landfill or surface impoundment unit meeting the requirements of § 268.5(h)(2), unless otherwise prohibited by the Regional Administrator.

(Approved by the Office of Management and Budget under control number 2050-0085).

[53 FR 31214, Aug. 17, 1988]

Subpart B—Schedule for Land Disposal Prohibition and Establishment of Treatment Standards

SOURCE: 51 FR 19305, May 28, 1986, unless otherwise noted.

§ 268.10 Identification of wastes to be evaluated by August 8, 1988.

EPA will take action under sections 3004(g)(5) and 3004(m), of the Resource Conservation and Recovery Act, by August 8, 1988, for the following wastes (for ease of understanding the wastes have been listed by the section of 40 CFR Part 261 under which they were listed):

§ 261.31 Wastes

F006—Wastewater treatment sludges from electroplating operations except from the following processes: (1) Sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.

F007—Spent cyanide plating bath solutions from electroplating operations.

F008—Plating bath sludges from the bottom of plating baths from electroplating operations where cyanides are used in the process.

F009—Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.

F019—Wastewater treatment sludges from the chemical conversion coating of aluminum.

§ 261.32 Wastes

K001—Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.

K004—Wastewater treatment sludge from the production of zinc yellow pigments.

K008—Over residue from the production of chrome oxide green pigments.

K011—Bottom stream from the wastewater stripper in the production of acrylonitrile.

K013—Bottom stream from the acetonitrile column in the production of acrylonitrile.

K014—Bottoms from the acetonitrile purification column in the production of acrylonitrile.

K015—Still bottoms from the distillation of benzyl chloride.

K016—Heavy ends or distillation residues from the production of carbon tetrachloride.

K017—Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.

K018—Heavy ends from the fractionation column in ethyl chloride production.

K020—Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.

K021—Aqueous spent antimony catalyst waste from fluoromethanes production.

K022—Distillation bottom tars from the production of phenol/acetone from cumane.

K024—Distillation bottoms from the production of phthalic anhydride from naphthalene.

K030—Column bottom or heavy ends from the combined production of trichloroethylene and perchloroethylene.

K031—By-products salts generated in the production of MSMA and cacodylic acid.

K035—Wastewater treatment sludges generated in the production of creosote.

K036—Still bottoms from toluene reclamation distillation in the production of disulfoton.

K037—Wastewater treatment sludge from the production of disulfoton.

K044—Wastewater treatment sludges from the manufacturing and processing of explosives.

K045—Spent carbon from the treatment of wastewater containing explosives.

K046—Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.

K047—Pink/red water from TNT operations.

§ 268.10

40 CFR Ch. I (7-1-89 Edition)

- K048—Dissolved air flotation (DAF) float from the petroleum refining industry.
- K049—Stop oil emulsion solids from the petroleum refining industry.
- K050—Heat exchange bundle cleaning sludge from the petroleum refining industry.
- K051—API separator sludge from the petroleum refining industry.
- K052—Tank bottoms (leaded) from the petroleum refining industry.
- K060—Ammonia still lime sludge from coking operations.
- K061—Emission control dust/sludge from the primary production of steel in electric furnaces.
- K062—Spent pickle liquor from steel finishing operations in chlorine production.
- K069—Emission control dust/sludge from secondary lead smelting.
- K071—Brine purification muds from the mercury cells process in chlorine production, where separately prepurified brine is not used.
- K073—Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes
- K083—Distillation bottoms from aniline production.
- K084—Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
- K085—Distillation of fractionation column bottoms from the production of chlorobenzenes.
- K086—Solvent washes and sludges; caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.
- K087—Decanter tank tar sludge from coking operations.
- K099—Untreated wastewater from the production of 2,4-D.
- K101—Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
- K102—Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
- K103—Process residues from aniline extraction from the production of aniline.
- K104—Combined wastewater streams generated from nitrobenzene/aniline production.
- K106—Waste water treatment sludge from the mercury cell process in chlorine production.

§ 261.33(e) Wastes

- P001—Warfarin, when present at concentration greater than 0.3%

- P004—Aldrin
- P005—Allyl alcohol
- P010—Arsenic acid
- P011—Arsenic (V) oxide
- P012—Arsenic (III) oxide
- P015—Beryllium dust
- P016—Bis-(chloromethyl) ether
- P018—Brucine
- P020—Dinoseb
- P030—Soluble cyanide salts not elsewhere specified
- P036—Dichlorophenylarsine
- P037—Dieldrin
- P039—Disulfoton
- P041—Diethyl-p-nitrophenyl phosphate
- P048—2,4-Dinitrophenol
- P050—Endosulfan
- P058—Fluoroacetic acid, sodium salt
- P059—Heptachlor
- P063—Hydrogen cyanide
- P068—Methyl Hydrazine
- P069—Methylactonitrile
- P070—Aldicarb
- P071—Methyl parathion
- P081—Nitroglycerine
- P082—N-Nitrosodimethylamine
- P084—N-Nitrosomethylvinylamine
- P087—Osmium tetroxide
- P089—Parathion
- P092—Phenylmercuric acetate
- P094—Phorate
- P097—Famphur
- P102—Propargyl alcohol
- P105—Sodium azide
- P108—Strychnine and salts
- P110—Tetraethyl lead
- P115—Thallium (I) sulfate
- P120—Vanadium pentoxide
- P122—Zinc phosphide, when present at concentrations greater than 10%
- P123—Toxaphene

§ 261.33(f) Wastes

- U007—Acrylamide
- U009—Acrylonitrile
- U010—Mitomycin C
- U012—Aniline
- U016—Benz(c)acridine
- U018—Benz(a)anthracene
- U019—Benzene
- U022—Benzo(a)pyrene
- U029—Methyl bromide
- U031—n-Butanol
- U036—Chlordane, technical
- U037—Chlorobenzene
- U041—n-Chloro-2,3-epoxypropane
- U043—Vinyl chloride
- U044—Chloroform
- U046—Chloromethyl methyl ether
- U050—Chrysene
- U051—Creosote
- U053—Crotonaldehyde
- U061—DDT
- U063—Dibenz o (a, h) anthracene
- U064—1,2,7,8 Dibenzopyrene
- U066—Dibromo-3-chloropropane 1,2-

Environmental Protection Agency**§ 268.11**

U067—Ethylene dibromide
U074—1,4-Dichloro-2-butene
U077—Ethane, 1,2-dichloro-
U078—Dichloroethylene, 1,1-
U086—N,N Diethylhydrazine
U089—Diethylstilbestrol
U103—Dimethyl sulfate
U105—2,4-Dinitrotoluene
U108—Dioxane, 1,4-
U115—Ethylene oxide
U122—Formaldehyde
U124—Furan
U129—Lindane
U130—Hexachlorocyclopentadiene
U133—Hydrazine
U134—Hydrofluoric acid
U137—Indeno(1,2,3-cd)pyrene
U151—Mercury
U154—Methanol
U155—Methapyrilene
U157—3-Methylcholanthrene
U158—4,4-Methylene-bis-(2-chloroaniline)
U159—Methyl ethyl ketone
U171—Nitropropane, 2-
U177—N-Nitroso-N-methylurea
U180—N-Nitrosopyrrolidine
U185—Pentachloronitrobenzene
U188—Phenol
U192—Pronamide
U200—Reserpine
U209—Tetrachloroethane, 1,1,2,2-
U210—Tetrachloroethylene
U211—Carbon tetrachloride
U219—Thiourea
U220—Toluene
U221—Toluenediamine
U223—Toluene diisocyanate
U226—Methylchloroform
U227—Trichloroethane, 1,1,2-
U228—Trichloroethylene
U237—Uracil mustard
U238—Ethyl carbamate
U248—Warfarin, when present at concentrations of 0.3% or less
U249—Zinc phosphide, when present at concentrations of 10% or less

§ 268.11 Identification of wastes to be evaluated by June 8, 1989.

EPA will take action under sections 3004(g)(5) and 3004(m) of the Resource Conservation and Recovery Act, by June 8, 1989, for the following wastes (for ease of understanding the wastes have been listed by the section of 40 CFR Part 261 under which they were listed):

§ 261.31 Wastes

F010—Quenching bath sludge from oil baths from metal heat treating operations where cyanides are used in the process.
F011—Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.

F012—Quenching wastewater treatment sludges from metal heat operations where cyanides are used in the process.

F024—Wastes including but not limited to, distillation residues, heavy ends, tars and reactor clean-out wastes from the production of chlorinated aliphatic hydrocarbons, having carbon content from one to five, utilizing free radical catalyzed processes. (This listing does not include light ends, spent filters and filter aids, spend desiccants, wastewater, wastewater treatment sludges, spent catalysts, and wastes listed in § 261.32.1.)

§ 261.32 Wastes

K009—Distillation bottoms from the production of acetaldehyde from ethylene.
K010—Distillation side cuts from the productions of acetaldehyde from ethylene.
K019—Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.
K025—Distillation bottoms from the production of nitrobenzene by the nitration of benzene.
K027—Centrifuge and distillation residues from toluene diisocyanate production.
K028—Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.
K029—Waste from the product steam stripper in the production of 1,1,1-trichloroethane.
K038—Wastewater from the washing and stripping of phorate production.
K039—Filter cake from the filtration of diethylphosphoro-dithioic acid in the production of phorate.
K040—Wastewater treatment sludge from the production of phorate.
K041—Wastewater treatment sludge from the production of toxaphene.
K042—Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.
K043—2,6-Dichlorophenol waste from the production of 2,4-D.
K095—Distillation bottoms from the production of 1,1,1-trichloroethane.
K096—Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.
K097—Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.
K098—Untreated process wastewater from the production of toxaphene.
K105—Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.

§ 261.33(e) Wastes

P002—1-Acetyl-2-thiourea
P003—Acrolein

§ 268.12

40 CFR Ch. I (7-1-59 Edition)

P007—5-(Aminoethyl)-3-isoxazolol
 P008—4-Aminopyridine
 P014—Thiophenol
 P026—1-(o-Chlorophenyl)thiourea
 P027—Propanenitrile, 3-chloro
 P029—Copper cyanides
 P040—O,O-Diethyl o-pyrazinyl phosphorothioate
 P043—Diisopropyl fluorophosphate
 P044—Dimethoate
 P049—2,4-Dithiobiuret
 P054—Aziridine
 P057—Fluoracetamide
 P060—Isodrin
 P062—Hexaethyltetraphosphate
 P066—Methomyl
 P067—2-Methylaziridine
 P072—Alpha-naphthylthiourea (ANTU)
 P074—Nickel cyanide
 P085—Octamethylpyrophosphoramidate
 P098—Potassium cyanide
 P104—Silver cyanide
 P106—Sodium cyanide
 P107—Strontium sulfide
 P111—Tetraethylpyrophosphate
 P112—Tetranitromethane
 P113—Thallic oxide
 P114—Thallium (I) selenite

§ 261.33(f) Wastes

U002—Acetone
 U003—Acetonitrile
 U005—o-Acetylaminofluorene
 U008—Acrylic acid
 U011—Amitrole
 U014—Auramine
 U015—Azaserine
 U020—Benzenesulfonyl chloride
 U021—Benzidine
 U023—Benzotrichloride
 U025—Dichloroethyl ether
 U026—Chloromaphazine
 U028—Bis-(2-ethylhexyl)phthalate
 U032—Calcium chromate
 U035—Chlorambucil
 U047—Beta-chloronaphthalene
 U049—4-Chloro-o-toluidine, hydrochloride
 U057—Cyclohexanone
 U058—Cyclophosphamide
 U059—Daunomycin
 U060—DDD
 U062—Diallate
 U070—o-Dichlorobenzene
 U073—Dichlorobenzidine, 3,3-
 U080—Methylene chloride
 U083—Dichloropropane, 1,2-
 U092—Dimethylamine
 U093—Dimethylaminoazobenzene
 U094—Dimethylbenz(a)anthracene, 7,12-
 U095—Dimethylbenzidine, 3,3'-
 U097—Dimethylcarbamoyl chloride
 U098—Dimethylhydrazine, 1,1-
 U099—Dimethylhydrazine, 1,2-
 U101—Dimethylphenol, 2,4-
 U106—Dinitrotoluene, 2,6-
 U107—Di-n-octyl phthalate
 U109—1,2-Diphenylhydrazine

U110—Dipropylamine
 U111—Di-N-Propylnitrosamine
 U114—Ethylenebis-(dithiocarbamic acid)
 U116—Ethylene thiourea
 U119—Ethyl methanesulfonate
 U127—Hexachlorobenzene
 U128—Hexachlorobutadiene
 U131—Hexachloroethane
 U135—Hydrogen sulfide
 U138—Methyl iodide
 U140—Isobutyl alcohol
 U142—Kepone
 U143—Lasiocarpine
 U144—Lead acetate
 U146—Lead subacetate
 U147—Maleic anhydride
 U149—Malononitrile
 U150—Melphalan
 U161—Methyl isobutyl ketone
 U162—Methyl methacrylate
 U163—N-Methyl-N-nitro-N-nitrosoguanidine
 U164—Methylthiouracil
 U165—Naphthalene
 U168—Naphthylamine, 2-
 U169—Nitrobenzene
 U170—p-Nitrophenol
 U172—N-Nitroso-di-n-butylamine
 U173—N-Nitroso-diethanolamine
 U174—N-Nitroso-diethylamine
 U176—N-Nitroso-N-ethylurea
 U178—N-Nitroso-N-methylurethane
 U179—N-Nitrosopiperidine
 U189—Phosphorus sulfide
 U193—1,3-Propane sultone
 U196—Pyridine
 U203—Safrole
 U205—Selenium disulfide
 U206—Streptozotocin
 U208—Tetrachloroethane, 1,1,1,2-
 U213—Tetrahydrofuran
 U214—Thallium (I) acetate
 U215—Thallium (I) carbonate
 U216—Thallium (I) chloride
 U217—Thallium (I) nitrate
 U218—Thioacetamide
 U235—Tris (2,3-Dibromopropyl) phosphate
 U239—Xylene
 U244—Thiram

§ 268.12 Identification of wastes to be evaluated by May 8, 1990.

(a) EPA will take action under sections 3004(g)(5) and 3004(m) of the Resource Conservation and Recovery Act, by May 8, 1990, for the following wastes (for ease of understanding, the wastes have been listed by the section of 40 CFR Part 261 under which they were listed):

§ 261.32 Wastes

K002—Wastewater treatment sludge from the production of chrome yellow and orange pigments.

Environmental Protection Agency

§ 268.12

- K003—Wastewater treatment sludge from the production of molybdate orange pigments.
K005—Wastewater treatment sludge from the production of chrome green pigments.
K006—Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).
K007—Wastewater treatment sludge from the production of iron blue pigments.
K023—Distillation light ends from the production of phthalic anhydride from naphthalene.
K026—Stripping still tails from the production of methyl ethyl pyridines.
K032—Wastewater treatment sludge from the production of chlordanes.
K033—Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordanes.
K034—Filter solids from the hexachlorocyclopentadiene in the production of chlordanes.
K093—Distillation light ends from the production of phthalic anhydride from orthoxylene.
K094—Distillation bottoms from the production of phthalic anhydride from orthoxylene.
K100—Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.

§ 261.33(e) Wastes

- P006—Aluminum phosphide
P009—Ammonium picrate
P013—Barium cyanide
P017—Bromoacetone
P021—Calcium cyanide
P022—Carbon disulfide
P023—Chloroacetaldehyde
P024—p-Chloroaniline
P028—Benzyl chloride
P031—Cyanogen
P033—Cyanogen chloride
P034—4,6-Dinitro-o-cyclohexylphenol
P038—Diethylarsine
P042—Epinephrine
P045—Thiofanox
P046—Alpha, alpha-Dimethylphenethylamine
P047—4,6-Dinitro-o-cresol and salts
P051—Endrin
P056—Fluorine
P064—Methyl isocyanate
P065—Mercury fulminate
P073—Nickel carbonyl
P075—Nicotine and salts
P076—Nitric oxide
P077—p-Nitroaniline
P078—Nitrogen dioxide
P088—Endothall
P093—N-Phenylthiourea
P095—Phosgene
P096—Phosphine
P099—Potassium silver cyanide
P101—Propanenitrile

- P103—Selenourea
P109—Tetraethylthiopyrophosphate
P116—Thiosemicarbazide
P118—Trichloromethanethiol
P119—Ammonium vanadate
P121—Zinc cyanide

§ 261.33(f) Wastes

- U001—Acetaldehyde
U004—Acetophenone
U006—Acetyl chloride
U017—Benzal chloride
U024—Bis(2-chloroethoxy)methane
U027—Bis(2-chloroisopropyl)ether
U030—Benzene, 1-bromo-4-phenoxy
U033—Carbonyl fluoride
U034—Chloral
U038—Ethyl-4,4'-dichlorobenzilate
U039—4-Chloro-m-cresol
U042—Vinyl ether, 2-chloroethyl
U045—Methyl chloride
U048—o-Chlorophenol
U052—Cresols
U055—Cumene
U056—Cyclohexane
U068—Methane, dibromo
U069—Dibutyl phthalate
U071—m-Dichlorobenzene
U072—p-Dichlorobenzene
U075—Dichlorodifluoromethane
U076—Ethane, 1,1-dichloro-
U079—1,2-Dichlorethylene
U081—2,4-Dichlorophenol
U082—2,6-Dichlorophenol
U084—1,3-Dichloropropene
U085—2,2'-Dioxirane
U087—0,0,-Diethyl-S-methyl-dithiophosphate
U088—Diethyl phthalate
U090—Dihydrosafrole
U091—3,3'-Dimethoxybenzidine
U096—alpha,alpha-Dimethylbenzylhydroxyperoxide
U102—Dimethyl phthalate
U112—Ethyl acetate
U113—Ethyl acrylate
U117—Ethyl ether
U118—Ethylmethacrylate
U120—Fluoranthene
U121—Trichloromonofluoromethane
U123—Formic acid
U125—Furfural
U128—Glycidylaldehyde
U132—Hexachlorophene
U136—Cacodylic acid
U139—Iron dextran
U141—Isosafrole
U145—Lead phosphate
U148—Maleic hydrazide
U152—Methacrylonitrile
U153—Methanethiol
U156—Methyl chlorocarbonate
U160—Methyl ethyl ketone peroxide
U166—1,4-Naphthaquinone
U167—1-Naphthylamine
U181—5-Nitro-o-toluidine

§ 268.13

U182—Paraldehyde
U183—Pentachlorobenzene
U184—Pentachloroethane
U186—1,3-Pentadiene
U187—Phenacetin
U190—Phthalic anhydride
U191—2-Picoline
U194—1-Propanamine
U197—p-Benzoquinone
U201—Resorcinol
U202—Saccharin and salts
U204—Selenious acid
U207—1,2,4,5-tetrachlorobenzene
U222—o-Toluidine hydrochloride
U225—Bromoform
U234—Sym-Trinitrobenzene
U236—Trypan blue
U240—2,4-D. salts and esters
U243—Hexachloropropene
U246—Cyanogen bromide
U247—Methoxychlor

Wastes identified as hazardous based on a characteristic alone (i.e., corrosivity, reactivity, ignitability and EP toxicity).

(b) Wastewater residues (less than 1% total organic carbon and less than 1% total suspended solids) resulting from the following well-designed and well-operated treatment methods for wastes listed in §§ 268.10 and 268.11 for which EPA has not promulgated wastewater treatment standards: metals recovery, metals precipitation, cyanide destruction, carbon adsorption, chemical oxidation, steam stripping, biodegradation, and incineration or other direct thermal destruction.

(c) Hazardous wastes listed in §§ 268.10 and 268.11 that are mixed hazardous/radioactive wastes.

(d) Multi-source leachate that is derived from disposal of any listed waste, except from Hazardous Wastes F020, F021, F022, F023, F026, F027, or F028.

(e) Nonwastewater forms of wastes listed in § 268.10 that were originally disposed before August 17, 1988 and for which EPA has promulgated "no land disposal" as the treatment standard (§ 268.43, Table CCW, No Land Disposal Subtable). This provision does not apply to waste codes K044, K045, K047, and K061 (high zinc subcategory).

(f) Nonwastewater forms of wastes listed in § 268.10 for which EPA has promulgated "no land disposal" as the treatment standard (§ 268.43, Table CCW, No Land Disposal Subtable) that are generated in the course of

40 CFR Ch. I (7-1-89 Edition)

treating wastewater forms of the wastes. This provision does not apply to waste codes K044, K045, K047, and K061 (high zinc subcategory).

(g) Nonwastewater forms of waste codes K015 and K083.

[51 FR 19305, May 28, 1986, as amended at 53 FR 31215, Aug. 17, 1988; 54 FR 8266, Feb. 27, 1989; 54 FR 18837, May 2, 1989; 54 FR 26648, June 23, 1989]

§ 268.13 Schedule for wastes identified or listed after November 8, 1984.

In the case of any hazardous waste identified or listed under section 3001 after November 8, 1984, the Administrator shall make a land disposal prohibition determination within 6 months after the date of identification or listing.

Subpart C—Prohibitions on Land Disposal

SOURCE: 51 FR 40641, Nov. 7, 1986, unless otherwise noted.

§ 268.30 Waste specific prohibitions—Solvent wastes.

(a) Effective November 8, 1986, the spent solvent wastes specified in 40 CFR 261.31 as EPA Hazardous Waste Nos. F001, F002, F003, F004, and F005, are prohibited under this part from land disposal (except in an injection well) unless one or more of the following conditions apply:

(1) The generator of the solvent waste is a small quantity generator of 100–1000 kilograms of hazardous waste per month; or

(2) The solvent waste is generated from any response action taken under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) or any corrective action taken under the Resource Conservation and Recovery Act (RCRA), except where the waste is contaminated soil or debris; or

(3) The initial generator's solvent waste is a solventwater mixture, solvent-containing sludge or solid, or solventcontaminated soil (non-CERCLA or RCRA corrective action) containing less than 1 percent total F001–F005 solvent constituents listed in Table CCWE of § 268.41 of this part; or

Environmental Protection Agency

concentrations in the waste extract or the waste, or the generator may use knowledge of the waste. If the waste contains constituents in excess of the applicable Subpart D levels, the waste is prohibited from land disposal and all requirements of Part 268 are applicable, except as otherwise specified.

[54 FR 26648, June 23, 1989]

Subpart D—Treatment Standards

SOURCE: 51 FR 40642, Nov. 7, 1986, unless otherwise noted.

§ 268.40 Applicability of treatment standards.

(a) A restricted waste identified in § 268.41 may be land disposed only if an extract of the waste or of the treatment residue of the waste developed using the test method in Appendix I of this part does not exceed the value shown in Table CCWE of § 268.41 for any hazardous constituent listed in Table CCWE for that waste.

(b) A restricted waste for which a treatment technology is specified under § 268.42(a) may be land disposed after it is treated using that specified technology or an equivalent treatment method approved by the Administrator under the procedures set forth in § 268.42(b).

(c) A restricted waste identified in § 268.43 may be land disposed only if the constituent concentrations in the waste or treatment residue of the waste do not exceed the value shown in Table CCW of § 268.43 for any hazardous constituent listed in Table CCW for that waste.

[52 FR 25790, July 8, 1987, as amended at 53 FR 31217, Aug. 17, 1988]

§ 268.41 Treatment standards expressed as concentrations in waste extract.

(a) Table CCWE identifies the restricted wastes and the concentrations of their associated hazardous constituents which may not be exceeded by the in Appendix I of this part for the allowable land disposal of such waste. (Appendix II of this part provides Agency guidance on treatment methods that have been shown to achieve the Table CCWE levels for the respective wastes. Appendix II is not a regulatory requirement but is provided to assist generators and owners/oper-

§ 268.41

tors in their selection of appropriate treatment methods.)

TABLE CCWE—CONSTITUENT CONCENTRATIONS IN WASTE EXTRACT

F001—F005 spent solvents	Concentration (in mg/l)	
	Wastewaters containing spent solvents	All other spent solvent wastes
Acetone.....	0.05	0.59
n-Butyl alcohol.....	5.0	5.0
Carbon disulfide.....	1.05	4.81
Carbon tetrachloride.....	.05	.96
Chlorobenzene.....	.15	.05
Cresols (and cresylic acid).....	2.82	.75
Cyclohexanone.....	.125	.75
1,2-Dichlorobenzene.....	.65	.125
Ethyl acetate.....	.05	.75
Ethylbenzene.....	.05	.053
Ethyl ether.....	.05	.75
Isobutanol.....	5.0	5.0
Methanol.....	.25	.75
Methylene chloride.....	.20	.96
Methyl ethyl ketone.....	0.05	0.75
Methyl isobutyl ketone.....	0.05	0.33
Nitrobenzene.....	0.66	0.125
Pyridine.....	1.12	0.33
Tetrachloroethylene.....	0.079	0.05
Toluene.....	1.12	0.33
1,1,1-Trichloroethane.....	1.05	0.41
1,1,1,2-Trichloro-1,2,2,2-tetrafluoroethane.....	1.05	0.96
Trichloroethylene.....	0.062	0.091
Trichlorofluoromethane.....	0.05	0.96
Xylene.....	0.05	0.15

F006 nonwastewaters (see also Table CCW in § 268.43)	Concentration (in mg/l)
Cadmium.....	0.066
Chromium (Total).....	5.2
Lead.....	.51
Nickel.....	.32
Silver.....	.072

F007, F008, and F009 nonwastewaters (see also table CCW in § 268.43)	Concentration (in mg/l)
Cadmium.....	0.066
Chromium (total).....	5.2
Lead.....	0.51
Nickel.....	0.32
Silver.....	0.072

F011 and F012 nonwastewaters (see also table CCW in § 268.43)	Concentration (in mg/l)
Cadmium.....	0.066
Chromium (total).....	5.2
Lead.....	0.51
Nickel.....	0.32
Silver.....	0.072

F020—F023 and F026—F028 dioxin containing wastes	Concentration
HxCDD—All Hexachlorodibenzo-p-dioxins.....	< 1 ppb
HxCDF—All Hexachlorodibenzofurans.....	< 1 ppb
PeCDD—All Pentachlorodibenzo-p-dioxins.....	< 1 ppb

§ 268.41

F020-F023 and F026-F028 dioxin containing wastes	Concentration
PeCDF—All Pentachlorodibenzofurans	< 1 ppb
TCDD—All Tetrachlorodibenzo-p-dioxins	< 1 ppb
TCDF—All Tetrachlorodibenzofurans	< 1 ppb
2,4,5-Trichlorophenol	< 0.05 ppm
2,4,6-Trichlorophenol	< 0.05 ppm
2,3,4,6-Tetrachlorophenol	< 0.10 ppm
Pentachlorophenol	< 0.01 ppm

F024 nonwastewaters (see also table CCW in § 268.43)	Concentration (in mg/l)
Chromium (total)	Reserved.
Nickel	Reserved.

K001 nonwastewaters (see also Table in § 268.43)	Concentration (in mg/l)
Lead	0.51

K022 nonwastewaters (see also Table CCW in § 268.43)	Concentration (in mg/l)
Chromium (Total)	5.2
Nickel	0.32

K028 nonwastewaters (see also table CCW in § 268.43)	Concentration (in mg/l)
Chromium (total)	Reserved.
Nickel	Reserved.

K046 nonwastewaters (Nonreactive Subcategory)	Concentration (in mg/l)
Lead	0.18

K046, K049, K050, K051 and K052 nonwastewaters (see also Table CCW in § 268.43)	Concentration (in mg/l)
Arsenic	0.004
Chromium (Total)	1.7
Nickel .....	.048
Selenium .....	.025

K061 nonwastewaters (Low Zinc Subcategory—less than 15% total zinc)	Concentration (in mg/l)
Cadmium	0.14
Chromium (Total)	5.2
Lead .....	.24
Nickel .....	.32

40 CFR Ch. I (7-1-89 Edition)

K061 nonwastewaters (High Zinc Subcategory—15% or greater total zinc): effective until 8/8/90	Concentration (in mg/l)
Cadmium	0.14
Chromium (Total)	5.2
Lead .....	.24
Nickel .....	.32

K062 nonwastewaters	Concentration (in mg/l)
Chromium (Total)	0.094
Lead .....	.37

K071 nonwastewaters	Concentration (in mg/l)
Mercury	0.025

K086 nonwastewaters (Solvent Washes Subcategory) see also Table CCW in § 268.43	Concentration (in mg/l)
Chromium (Total)	0.094
Lead .....	.37

K087 nonwastewaters (see also Table CCW in § 268.43)	Concentration (in mg/l)
Lead	0.51

K101 and K102 nonwastewaters (Low Arsenic Subcategory—less than 1% Total Arsenic) (see also Table CCW in § 268.43)	Concentration (in mg/l)
Cadmium	0.068
Chromium (Total)	5.2
Lead .....	.51
Nickel .....	.32

K115 nonwastewaters (see also table CCW in § 268.43)	Concentration (in mg/l)
Nickel	0.32

P074 nonwastewaters (see also table CCW in § 268.43)	Concentration (in mg/l)
Nickel	0.32

P099 nonwastewaters (see also table CCW in § 268.43)	Concentration (in mg/l)
Silver	0.072

Environmental Protection Agency

§ 268.43

P104 nonwastewaters (see also table CCW in § 268.43)	Concentration (in mg/l)
Silver.....	0.072

(b) When wastes with differing treatment standards for a constituent of concern are combined for purposes of treatment, the treatment residue must meet the lowest treatment standard for the constituent of concern.

[51 FR 40642, Nov. 7, 1986; 52 FR 21017, June 4, 1987, as amended at 53 FR 31217, Aug. 17, 1988; 54 FR 26649, June 23, 1989]

§ 268.42 Treatment standards expressed as specified technologies.

(a) The following wastes must be treated using the identified technology or technologies, or an equivalent method approved by the Administrator.

(1) Liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 50 ppm but less than 500 ppm must be incinerated in accordance with the technical requirements of 40 CFR 761.70 or burned in high efficiency boilers in accordance with the technical requirements of 40 CFR 761.60. Liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 500 ppm must be incinerated in accordance with the technical requirements of 40 CFR 761.70. Thermal treatment under this section must also be in compliance with applicable regulations in Parts 264, 265, and 266.

(2) Nonliquid hazardous wastes containing halogenated organic compounds (HOCs) in total concentration greater than or equal to 1,000 mg/kg and liquid HOC-containing wastes that are prohibited under § 268.32(e)(1) of this part must be incinerated in accordance with the requirements of Part 264, Subpart O or Part 265, Subpart O, or in boilers or industrial furnaces burning in accordance with applicable regulatory standards. These treatment standards do not apply where the waste is subject to a Part 268, Subpart C treatment standard for a specific HOC (such as a hazardous waste chlorinated solvent) for which a treatment standard is established under § 268.41(a)).

(3) The nonwastewater form of the following hazardous wastes listed in §§ 268.10, 268.11, and 268.12 must be incinerated in accordance with the requirements of Part 264, Subpart O, or Part 265, Subpart O, or burned in boilers or industrial furnaces burning in accordance with applicable regulatory standards: K027, K039, K113, K114, K115, K116, P040, P041, P043, P044, P062, P085, P109, P111, U058, U087, U221, and U223.

(4) The wastewater form of the following hazardous wastes listed in §§ 268.10, 268.11, and 268.12 must be treated by carbon adsorption, or incineration, or pretreatment followed by carbon adsorption: K027, K039, K113, K114, K115, K116, P040, P041, P043, P044, P062, P085, P109, P111, U058, U087, U221, and U223.

(b) Any person may submit an application to the Administrator demonstrating that an alternative treatment method can achieve a measure of performance equivalent to that achievable by methods specified in paragraph (a) of this section. The applicant must submit information demonstrating that his treatment method is in compliance with Federal, state, and local requirements and is protective of human health and the environment. On the basis of such information and any other available information, the Administrator may approve the use of the alternative treatment method if he finds that the alternative treatment method provides a measure of performance equivalent to that achieved by methods specified in paragraph (a) of this section. Any approval must be stated in writing and may contain such provisions and conditions as the Administrator deems appropriate. The person to whom such approval is issued must comply with all limitations contained in such a determination.

[51 FR 40642, Nov. 7, 1986, as amended at 52 FR 25790, July 8, 1987; 53 FR 31218, Aug. 17, 1988; 54 FR 26649, June 23, 1989]

§ 268.43 Treatment standards expressed as waste concentrations.

(a) Table CCW identifies the restricted wastes and the concentrations of their associated hazardous constitu-

§ 268.43

ents which may not be exceeded by the waste or treatment residual (not an extract of such waste or residual) for the allowable land disposal of such waste or residual. The wastewater and nonwastewater treatment standards in Table CCW are based on analysis of grab samples except the wastewater treatment standards that are based on analysis of composite samples for wastes, K009, K010, K036, K038, K040, P039, P071, P089, P094, P097, and U235.

TABLE CCW—CONSTITUENT CONCENTRATIONS IN WASTES

F001, F002, F003, F004 and F005 wastewaters (Pharmaceutical Industry)	Concentration (in mg/l)
Methylene chloride.....	0.44

F006 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Cyanides (Total).....	590
Cyanides (Amenable).....	30

F007, F008, and F009 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Cyanides (Total).....	590
Cyanides (Amenable).....	30

F007, F008, and F009 wastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/l)
Cyanides (Total).....	1.9
Cyanides (Amenable).....	0.10
Chromium (Total).....	0.32
Lead.....	0.04
Nickel.....	0.44

F010 nonwastewaters	Concentration (in mg/kg)
Cyanides (Total).....	1.5

F010 wastewaters	Concentration (in mg/l)
Cyanides (Total).....	1.9
Cyanides (Amenable).....	0.10

40 CFR Ch. I (7-1-89 Edition)

F011 and F012 nonwastewaters ¹	Concentration (in mg/kg)
Cyanides (Total).....	110
Cyanides (Amenable).....	9.1

¹ Effective December 8, 1989; from July 8, 1989 until December 8, 1989, these wastes are subject to the same treatment standards as F007, F008, and F009 nonwastewaters (see also Table CCWE in § 268.41).

F011 and F012 wastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/l)
Cyanides (Total).....	1.9
Cyanides (Amenable).....	0.10
Chromium (Total).....	0.32
Lead.....	0.04
Nickel.....	0.44

F024 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
2-Chloro-1,3-butadiene.....	0.28
3-Chloropropene.....	0.28
1,1-Dichloroethane.....	0.014
1,2-Dichloroethane.....	0.014
1,2-Dichloropropane.....	0.014
cis-1,3-Dichloropropene.....	0.014
trans-1,3-Dichloropropene.....	0.014
Bis(2-ethylhexyl)phthalate.....	1.8
Hexachloroethane.....	1.8
Hexachlorodibenzo-furans.....	0.001
Hexachlorodibenzo-p-dioxins.....	0.001
Pentachlorodibenzo-furans.....	0.001
Pentachlorodibenzo-p-dioxins.....	0.001
Tetrachlorodibenzo-furans.....	0.001

F024 wastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/l)
2-Chloro-1,3-butadiene.....	0.28
3-Chloropropene.....	0.28
1,1-Dichloroethane.....	0.014
1,2-Dichloroethane.....	0.014
1,2-Dichloropropane.....	0.014
cis-1,3-Dichloropropene.....	0.014
trans-1,3-Dichloropropene.....	0.014
Bis(2-ethylhexyl) phthalate.....	0.036
Hexachloroethane.....	0.036
Hexachlorodibenzo-furans.....	0.001
Hexachlorodibenzo-p-dioxins.....	0.001
Pentachlorodibenzo-furans.....	0.001
Pentachlorodibenzo-p-dioxins.....	0.001
Tetrachlorodibenzo-furans.....	0.001
Chromium (Total).....	0.35
Nickel.....	0.47

K001 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Naphthalene.....	8.0
Pentachlorophenol.....	37
Phenanthrene.....	8.0
Pyrene.....	7.3
Toluene.....	.14

Environmental Protection Agency

§ 268.43

K001 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Xylenes.....	.16

K001 wastewaters	Concentration (in mg/l)
Naphthalene.....	0.15
Pentachlorophenol.....	.88
Phenanthrene.....	.15
Pyrene.....	.14
Toluene.....	.14
Xylenes.....	.16
Lead.....	.037

K009 and K010 nonwastewaters	Concentration (in mg/kg)
Chloroform.....	6.0

K009 and K010 wastewaters	Concentration (in mg/l)
Chloroform.....	0.10

K011, K013, and K014 nonwastewaters	Concentration (in mg/kg)
Acetonitrile.....	1.8
Acrylonitrile.....	1.4
Acrylamide.....	23
Benzene.....	0.03
Cyanides (Total).....	57

K015 wastewaters	Concentration (in mg/l)
Anthracene.....	1.0
Benzal chloride.....	.28
Benzo (b and/or k) fluoranthene.....	.29
Phenanthrene.....	.27
Toluene.....	.15
Chromium (Total).....	.32
Nickel.....	.44

K016 nonwastewaters	Concentration (in mg/kg)
Hexachlorobenzene.....	28
Hexachlorobutadiene.....	5.6
Hexachlorocyclopentadiene.....	5.6
Hexachloroethane.....	28
Tetrachloroethene.....	6.0

K016 wastewaters	Concentration (in mg/l)
Hexachlorobenzene.....	0.033
Hexachlorobutadiene.....	.007
Hexachlorocyclopentadiene.....	.007
Hexachloroethane.....	.033
Tetrachloroethene.....	.007

K018 nonwastewaters	Concentration (in mg/kg)
Chloroethane.....	6.0
1,1-Dichloroethane.....	6.0
1,2-Dichloroethane.....	6.0
Hexachlorobenzene.....	28
Hexachlorobutadiene.....	5.6
Hexachloroethane.....	28
Pentachloroethane.....	5.6
1,1,1-Trichloroethane.....	6.0

K018 wastewaters	Concentration (in mg/l)
Chloroethane.....	0.007
Chloromethane.....	.007
1,1-Dichloroethane.....	.007
1,2-Dichloroethane.....	.007
Hexachlorobenzene.....	.033
Hexachlorobutadiene.....	.007
Pentachloroethane.....	.007
1,1,1-Trichloroethane.....	.007

K019 nonwastewaters	Concentration (in mg/kg)
Bis(2-chloroethyl)ether.....	5.6
Chlorobenzene.....	6.0
Chloroform.....	6.0
1,2-Dichloroethane.....	6.0
Hexachloroethane.....	28
Naphthalene.....	5.6
Phenanthrene.....	5.6
Tetrachloroethene.....	6.0
1,2,4-Trichlorobenzene.....	19
1,1,1-Trichloroethane.....	6.0

K019 wastewaters	Concentration (in mg/l)
Bis(2-chloroethyl)ether.....	0.007
Chlorobenzene.....	.006
Chloroform.....	.007
p-Dichlorobenzene.....	.008
1,2-Dichloroethane.....	.007
Fluorene.....	.007
Hexachloroethane.....	.033
Naphthalene.....	.007
Phenanthrene.....	.007
1,2,4,5-Tetrachlorobenzene.....	.017
Tetrachloroethene.....	.007
1,2,4-Trichlorobenzene.....	.025

§ 268.43

K019 wastewaters	Concentration (in mg/l)
1,1,1-Trichloroethane .....	.007

K020 nonwastewaters	Concentration (in mg/kg)
1,2-Dichloroethane.....	6.0
1,1,2,2-Tetrachloroethane.....	5.6
Tetrachloroethene.....	6.0

K020 wastewaters	Concentration (in mg/l)
1,2-Dichloroethane.....	0.007
1,1,2,2-Tetrachloroethane.....	.007
Tetrachloroethene.....	.007

K022 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Acetophenone.....	19
Sum of Diphenylamine and Diphenylnitrosamine.....	13
Phenol.....	12
Toluene.....	0.034

K023, K093, and K094 nonwastewaters	Concentration (in mg/kg)
Phthalic anhydride (measured as Phthalic acid).....	28

K023, K093, and K094 wastewaters	Concentration (in mg/l)
Phthalic anhydride (measured as Phthalic acid).....	0.54

K024 nonwastewaters	Concentration (in mg/kg)
Phthalic anhydride (measured as Phthalic acid).....	28

K024 wastewaters	Concentration (in mg/l)
Phthalic anhydride (measured as Phthalic acid).....	0.54

40 CFR Ch. I (7-1-89 Edition)

K028 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
1,1-Dichloroethane.....	6.0
trans-1,2-Dichloroethane.....	6.0
Hexachlorobutadiene.....	5.8
Hexachloroethane.....	28
Pentachloroethane.....	5.6
1,1,1,2-Tetrachloroethane.....	5.8
1,1,2,2-Tetrachloroethane.....	5.8
1,1,1-Trichloroethane.....	6.0
1,1,2-Trichloroethane.....	6.0
Tetrachloroethylene.....	6.0

K028 wastewaters	Concentration (in mg/l)
1,1-Dichloroethane.....	0.007
trans-1,2-Dichloroethane.....	0.033
Hexachlorobutadiene.....	0.007
Hexachloroethane.....	0.033
Pentachloroethane.....	0.033
1,1,1,2-Tetrachloroethane.....	0.007
1,1,2,2-Tetrachloroethane.....	0.007
Tetrachloroethylene.....	0.007
1,1,1-Trichloroethane.....	0.007
1,1,2-Trichloroethane.....	0.007
Cadmium.....	6.4
Chromium (Total).....	0.35
Lead.....	0.037
Nickel.....	0.47

K029 nonwastewaters	Concentration (in mg/kg)
Chloroform.....	6.0
1,2-Dichloroethane.....	6.0
1,1-Dichloroethylene.....	6.0
1,1,1-Trichloroethane.....	6.0
Vinyl chloride.....	6.0

K030 nonwastewaters	Concentration (in mg/kg)
Hexachlorobutadiene.....	5.8
Hexachloroethane.....	28
Hexachloropropene.....	19
Pentachlorobenzene.....	28
Pentachloroethane.....	5.6
1,2,4,5-Tetrachlorobenzene.....	14
Tetrachloroethene.....	6.0
1,2,4-Trichlorobenzene.....	19

K030 wastewaters	Concentration (in mg/l)
o-Dichlorobenzene.....	0.008
p-Dichlorobenzene.....	.008
Hexachlorobutadiene.....	.007
Hexachloroethane.....	.033
Pentachloroethane.....	.007
1,2,4,5-Tetrachlorobenzene.....	.017
Tetrachloroethene.....	.007
1,2,4-Trichlorobenzene.....	.023

Environmental Protection Agency

§ 268.43

K038 wastewaters	Concentration (in mg/l)
Disulfoton.....	0.025

K037 nonwastewaters	Concentration (in mg/kg)
Disulfoton.....	0.1
Toluene.....	28

K037 wastewaters	Concentration (in mg/l)
Disulfoton.....	0.003
Toluene.....	.028

K038 and K040 nonwastewaters	Concentration (in mg/kg)
Phorate.....	0.1

K038 and K040 wastewaters	Concentration (in mg/l)
Phorate.....	0.025

K043 nonwastewaters	Concentration (in mg/kg)
2,4-Dichlorophenol.....	0.38
2,6-Dichlorophenol.....	0.34
2,4,5-Trichlorophenol.....	8.2
2,4,6-Trichlorophenol.....	7.6
Tetrachlorophenols (Total).....	0.68
Pentachlorophenol.....	1.9
Tetrachloroethene.....	1.7
Hexachlorodibenzo-p-dioxins.....	0.001
Hexachlorodibenzo-furans.....	0.001
Pentachlorodibenzo-p-dioxins.....	0.001
Pentachlorodibenzo-furans.....	0.001
Tetrachlorodibenzo-p-dioxins.....	0.001
Tetrachlorodibenzo-furans.....	0.001

K043 wastewaters	Concentration (in mg/l)
2,4-Dichlorophenol.....	0.049
2,6-Dichlorophenol.....	0.013
2,4,5-Trichlorophenol.....	0.016
2,4,6-Trichlorophenol.....	0.039
Tetrachlorophenols (Total).....	0.018
Pentachlorophenol.....	0.22
Tetrachloroethene.....	0.006
Hexachlorodibenzo-p-dioxins.....	0.001
Hexachlorodibenzo-furans.....	0.001
Pentachlorodibenzo-p-dioxins.....	0.001
Pentachlorodibenzo-furans.....	0.001
Tetrachlorodibenzo-p-dioxins.....	0.001
Tetrachlorodibenzo-furans.....	0.001

K048 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Benzene.....	9.5
Benzo(a)pyrene.....	.84
Bis(2-ethylhexyl)phthalate.....	37
Chrysene.....	2.2
Di-n-butyl phthalate.....	4.2
Ethylbenzene.....	67
Naphthalene.....	[Reserved]
Phenanthrene.....	7.7
Phenol.....	2.7
Pyrene.....	2.0
Toluene.....	9.5
Xylenes.....	[Reserved]
Cyanides (Total).....	1.8

K048 wastewaters	Concentration (in mg/l)
Benzene.....	0.011
Benzo(a)pyrene.....	.047
Bis(2-ethylhexyl)phthalate.....	.043
Chrysene.....	.043
Di-n-butyl phthalate.....	.080
Ethylbenzene.....	.011
Fluorene.....	.050
Naphthalene.....	.033
Phenanthrene.....	.039
Phenol.....	.047
Pyrene.....	.045
Toluene.....	.011
Xylenes.....	.011
Chromium (Total).....	.20
Lead.....	0.37

K049 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Anthracene.....	6.2
Benzene.....	9.5
Benzo(a)pyrene.....	0.84
Bis(2-ethylhexyl)phthalate.....	37
Chrysene.....	2.2
Ethylbenzene.....	67
Naphthalene.....	[Reserved]
Phenanthrene.....	7.7
Phenol.....	2.7
Pyrene.....	2.0
Toluene.....	9.5
Xylenes.....	[Reserved]
Cyanides (Total).....	1.8

K049 wastewaters	Concentration (in mg/l)
Anthracene.....	0.039
Benzene.....	.011
Benzo(a)pyrene.....	.047
Bis(2-ethylhexyl)phthalate.....	.043
Carbon disulfide.....	.011
Chrysene.....	.043
2,4-Dimethylphenol.....	.033
Ethylbenzene.....	.011
Naphthalene.....	.033

§ 268.43

40 CFR Ch. I (7-1-89 Edition)

K049 wastewaters	Concentration (in mg/l)
Phenanthrene.....	.039
Phenol.....	.047
Pyrene.....	.045
Toluene.....	.011
Xylenes.....	.011
Chromium (Total).....	.20
Lead.....	.037

K050 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Benzo(a)pyrene.....	0.84
Phenol.....	2.7
Cyanides (Total).....	1.8

K050 wastewaters	Concentration (in mg/l)
Benzo(a)pyrene.....	0.047
Phenol.....	.047
Chromium (Total).....	.20
Lead.....	.037

K051 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Anthracene.....	6.2
Benzene.....	9.5
Benzo(a)anthracene.....	1.4
Benzo(a)pyrene.....	.84
Bis(2-ethylhexyl)phthalate.....	.37
Chrysene.....	2.2
Di-n-butyl phthalate.....	4.2
Ethylbenzene.....	67
Naphthalene.....	[Reserved]
Phenanthrene.....	7.7
Phenol.....	2.7
Pyrene.....	2.0
Toluene.....	9.5
Xylenes.....	[Reserved]
Cyanides (Total).....	1.8

K051 wastewaters	Concentration (in mg/l)
Acenaphthene.....	0.050
Anthracene.....	.039
Benzene.....	.011
Benzo(a)anthracene.....	.043
Benzo(a)pyrene.....	.047
Bis(2-ethylhexyl) phthalate.....	.043
Chrysene.....	.043
Di-n-butyl phthalate.....	.060
Ethylbenzene.....	.011
Fluorene.....	.050
Naphthalene.....	.033
Phenanthrene.....	.039
Phenol.....	.047
Pyrene.....	.045
Toluene.....	.011

K051 wastewaters	Concentration (in mg/l)
Xylenes.....	.011
Chromium (Total).....	.20
Lead.....	.037

K052 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Benzene.....	9.5
Benzo(a)pyrene.....	0.84
o-Cresol.....	2.2
p-Cresol.....	0.90
Ethylbenzene.....	67
Naphthalene.....	[Reserved]
Phenanthrene.....	7.7
Phenol.....	2.7
Toluene.....	9.5
Xylenes.....	[Reserved]
Cyanides (Total).....	1.8

K052 wastewaters	Concentration (in mg/l)
Benzene.....	0.011
Benzo(a)pyrene.....	.047
o-Cresol.....	.011
p-Cresol.....	.011
2,4-Dimethylphenol.....	.033
Ethylbenzene.....	.011
Naphthalene.....	.033
Phenanthrene.....	.039
Phenol.....	.047
Toluene.....	.011
Xylenes.....	.011
Chromium (Total).....	.20
Lead.....	.037

K062 wastewaters	Concentration (in mg/l)
Chromium (Total).....	0.32
Lead.....	.04
Nickel.....	.44

K071 wastewaters	Concentration (in mg/l)
Mercury.....	0.030

K086 nonwastewaters—Solvent Washes Subcategory (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Acetone.....	0.37
bis(2-ethylhexyl) phthalate.....	.49
n-Butyl alcohol.....	.37
Cyclohexanone.....	.49
1,2-Dichlorobenzene.....	.49
Ethyl acetate.....	.37

Environmental Protection Agency

§ 268.43

K086 nonwastewaters—Solvent Washes Subcategory (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Ethyl benzene .....	.031
Methanol .....	.37
Methylene chloride .....	.037
Methyl ethyl ketone .....	.37
Methyl isobutyl ketone .....	.37
Naphthalene .....	.49
Nitrobenzene .....	.49
Toluene .....	.031
1,1,1,-Trichloroethane .....	.044
Trichloroethylene .....	.031
Xylenes .....	.015

K086 wastewaters—Solvent Washes Subcategory	Concentration (in mg/1)
Acetone	0.015
bis(2-ethylhexyl)phthalate .....	.044
n-Butyl alcohol .....	.031
Cyclohexanone .....	.022
1,2-Dichlorobenzene .....	.044
Ethyl acetate .....	.031
Ethyl benzene .....	.015
Methanol .....	.031
Methylene chloride .....	.031
Methyl ethyl ketone .....	.031
Methyl isobutyl ketone .....	.031
Naphthalene .....	.044
Nitrobenzene .....	.044
Toluene .....	.029
1,1,1,-Trichloroethane .....	.031
Trichloroethylene .....	.029
Xylenes .....	.015
Chromium (Total) .....	.32
Lead .....	.037

K087 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Acenaphthalene	3.4
Benzene .....	.071
Chrysene	3.4
Fluoranthene	3.4
Indeno (1,2,3-cd) pyrene	3.4
Naphthalene	3.4
Phenanthrene	3.4
Toluene .....	.65
Xylenes .....	.070

K087 wastewaters	Concentration (in mg/1)
Acenaphthalene	0.028
Benzene .....	.014
Chrysene .....	.028
Fluoranthene .....	.028
Indeno (1,2,3-cd) pyrene .....	.028
Naphthalene .....	.028
Phenanthrene .....	.028
Toluene .....	.008
Xylenes .....	.014
Lead .....	.037

K095 nonwastewaters	Concentration (in mg/kg)
1,1,1,2-Tetrachloroethane	5.6
1,1,2,2-Tetrachloroethane	5.6
Tetrachloroethene	6.0
1,1,2-Trichloroethane	6.0
Trichloroethylene	5.6
Hexachloroethane	26
Pentachloroethane	5.6

K096 nonwastewaters	concentration (in mg/kg)
1,3-Dichlorobenzene	5.6
Pentachloroethane	5.6
1,1,1,2-Tetrachloroethane	5.6
1,1,2,2-Tetrachloroethane	5.6
Tetrachloroethylene	6.0
1,2,4-Trichlorobenzene	19
Trichloroethylene	5.6
1,1,2-Trichloroethane	6.0

K099 nonwastewaters	Concentration (in mg/kg)
2,4-Dichlorophenoxyacetic acid	1.0
Hexachlorodibenzo-p-dioxins .....	.001
Hexachlorodibenzofurans .....	.001
Pentachlorodibenzo-p-dioxins .....	.001
Pentachlorodibenzofurans .....	.001
Tetrachlorodibenzo-p-dioxins .....	.001
Tetrachlorodibenzofurans .....	.001

K099 wastewaters	Concentration (in mg/1)
2,4-Dichlorophenoxyacetic acid	1.0
Hexachlorodibenzo-p-dioxins .....	.001
Hexachlorodibenzofurans .....	.001
Pentachlorodibenzo-p-dioxins .....	.001
Pentachlorodibenzofurans .....	.001
Tetrachlorodibenzo-p-dioxins .....	.001
Tetrachlorodibenzofurans .....	.001

K101 nonwastewaters (Low Arsenic Subcategory—less than 1% total arsenic) (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Ortho-Nitroaniline	14

K101 wastewaters	Concentration (in mg/1)
Ortho-Nitroaniline	0.27
Arsenic	2.0
Cadmium .....	.24
Lead .....	.11
Mercury .....	.027

§ 268.43

K102 nonwastewaters (Low Arsenic Subcategory—less than 1% total arsenic) (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Ortho Nitrophenol.....	13

K102 wastewaters	Concentration (in mg/l)
Ortho-Nitrophenol.....	0.028
Arsenic.....	2.0
Cadmium.....	.24
Lead.....	.11
Mercury.....	.027

K103 nonwastewaters	Concentration (in mg/kg)
Aniline.....	5.6
Benzene.....	6.0
2,4-Dinitrophenol.....	5.6
Nitrobenzene.....	5.6
Phenol.....	5.6

K103 wastewaters	Concentration (in mg/l)
Aniline.....	4.5
Benzene.....	.15
2,4-Dinitrophenol.....	.61
Nitrobenzene.....	.073
Phenol.....	1.4

K104 nonwastewaters	Concentration (in mg/kg)
Aniline.....	5.6
Benzene.....	6.0
2,4-Dinitrophenol.....	5.6
Nitrobenzene.....	5.6
Phenol.....	5.6
Cyanides (Total).....	1.8

K104 wastewaters	Concentration (in mg/l)
Aniline.....	4.5
Benzene.....	.15
2,4-Dinitrophenol.....	.61
Nitrobenzene.....	.073
Phenol.....	1.4
Cyanides (Total).....	2.7

K115 wastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/l)
Nickel.....	0.47

40 CFR Ch. I (7-1-89 Edition)

P013 nonwastewaters	Concentration (in mg/kg)
Cyanides (Total).....	110
Cyanides (Amenable).....	9.1

P013 wastewaters	Concentration (in mg/l)
Cyanides (Total).....	1.9
Cyanides (Amenable).....	0.10

P021 nonwastewaters	Concentration (in mg/kg)
Cyanides (Total).....	110
Cyanides (Amenable).....	9.1

P021 wastewaters	Concentration (in mg/l)
Cyanides (Total).....	1.9
Cyanides (Amenable).....	0.10

P029 nonwastewaters	Concentration (in mg/kg)
Cyanides (Total).....	110
Cyanides (Amenable).....	9.1

P029 wastewaters	Concentration (in mg/l)
Cyanides (Total).....	1.9
Cyanides (Amenable).....	0.10

P030 nonwastewaters	Concentration (in mg/kg)
Cyanides (Total).....	110
Cyanides (Amenable).....	9.1

P030 wastewaters	Concentration (in mg/l)
Cyanides (Total).....	1.9
Cyanides (Amenable).....	0.10

P039 nonwastewaters	Concentration (in mg/kg)
Disulfotcin.....	0.1

Environmental Protection Agency

§ 268.43

P039 wastewaters	Concentration (in mg/l)
Diuron.....	0.025

P063 nonwastewaters	Concentration (in mg/kg)
Cyanides (Total).....	110
Cyanides (Amenable).....	9.1

P063 wastewaters	Concentration (in mg/l)
Cyanides (Total).....	1.9
Cyanides (Amenable).....	0.10

P071 nonwastewaters	Concentration (in mg/kg)
Methyl parathion.....	0.1

P071 wastewaters	Concentration (in mg/l)
Methyl parathion.....	0.025

P074 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Cyanides (Total).....	110
Cyanides (Amenable).....	9.1

P074 wastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/l)
Cyanides (Total).....	1.9
Cyanides (Amenable).....	0.10
Nickel.....	0.44

P089 nonwastewaters	Concentration (in mg/kg)
Parathion.....	0.1

P089 wastewaters	Concentration (in mg/l)
Parathion.....	0.025

P094 nonwastewaters	Concentration (in mg/kg)
Phorate.....	0.1

P094 wastewaters	Concentration (in mg/l)
Phorate.....	0.025

P097 nonwastewaters	Concentration (in mg/kg)
Famphur.....	0.1

P097 wastewaters	Concentration (in mg/l)
Famphur.....	0.025

P098 nonwastewaters	Concentration (in mg/kg)
Cyanides (Total).....	110
Cyanides (Amenable).....	9.1

P098 wastewaters	Concentration (in mg/l)
Cyanides (Total).....	1.9
Cyanides (Amenable).....	0.10

P099 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Cyanides (Total).....	110
Cyanides (Amenable).....	9.1

P099 wastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/l)
Cyanides (Total).....	1.9
Cyanides (Amenable).....	0.10

P104 nonwastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/kg)
Cyanides (Total).....	110
Cyanides (Amenable).....	9.1

P104 wastewaters (see also Table CCWE in § 268.41)	Concentration (in mg/l)
Cyanides (Total).....	1.9
Cyanides (Amenable).....	0.10

P106 nonwastewaters	Concentration (in mg/kg)
Cyanides (Total).....	110
Cyanides (Amenable).....	9.1

§ 268.10

40 CFR Ch. I (7-1-89 Edition)

- K048—Dissolved air flotation (DAF) float from the petroleum refining industry.
- K049—Stop oil emulsion solids from the petroleum refining industry.
- K050—Heat exchange bundle cleaning sludge from the petroleum refining industry.
- K051—API separator sludge from the petroleum refining industry.
- K052—Tank bottoms (lead) from the petroleum refining industry.
- K060—Ammonia still lime sludge from coking operations.
- K061—Emission control dust/sludge from the primary production of steel in electric furnaces.
- K062—Spent pickle liquor from steel finishing operations in chlorine production.
- K069—Emission control dust/sludge from secondary lead smelting.
- K071—Brine purification muds from the mercury cells process in chlorine production, where separately prepurified brine is not used.
- K073—Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes
- K083—Distillation bottoms from aniline production.
- K084—Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
- K085—Distillation of fractionation column bottoms from the production of chlorobenzenes.
- K086—Solvent washes and sludges; caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.
- K087—Decanter tank tar sludge from coking operations.
- K099—Untreated wastewater from the production of 2,4-D.
- K101—Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
- K102—Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
- K103—Process residues from aniline extraction from the production of aniline.
- K104—Combined wastewater streams generated from nitrobenzene/aniline production.
- K106—Waste water treatment sludge from the mercury cell process in chlorine production.

§ 261.33(e) Wastes

- P001—Warfarin, when present at concentration greater than 0.3%

- P004—Aldrin
- P005—Allyl alcohol
- P010—Arsenic acid
- P011—Arsenic (V) oxide
- P012—Arsenic (III) oxide
- P015—Beryllium dust
- P018—Bis-(chloromethyl) ether
- P018—Brucine
- P020—Dinoseb
- P030—Soluble cyanide salts not elsewhere specified
- P036—Dichlorophenylarsine
- P037—Dieldrin
- P039—Disulfoton
- P041—Diethyl-p-nitrophenyl phosphate
- P048—2,4-Dinitrophenol
- P050—Endosulfan
- P058—Fluoroacetic acid, sodium salt
- P059—Heptachlor
- P063—Hydrogen cyanide
- P068—Methyl Hydrazine
- P069—Methylacetonitrile
- P070—Aldicarb
- P071—Methyl parathion
- P081—Nitroglycerine
- P082—N-Nitrosodimethylamine
- P084—N-Nitrosomethylvinylamine
- P087—Osmium tetroxide
- P089—Parathion
- P092—Phenylmercuric acetate
- P094—Phorate
- P097—Famphur
- P102—Propargyl alcohol
- P105—Sodium azide
- P108—Strychnine and salts
- P110—Tetraethyl lead
- P115—Thallium (I) sulfate
- P120—Vanadium pentoxide
- P122—Zinc phosphide, when present at concentrations greater than 10%
- P123—Toxaphene

§ 261.33(f) Wastes

- U007—Acrylamide
- U009—Acrylonitrile
- U010—Mitomycin C
- U012—Aniline
- U013—Benz(c)acridine
- U018—Benz(a)anthracene
- U019—Benzene
- U022—Benzo(a)pyrene
- U029—Methyl bromide
- U031—n-Butanol
- U033—Chlordane, technical
- U037—Chlorobenzene
- U041—n-Chloro-2,3-epoxypropane
- U043—Vinyl chloride
- U044—Chloroform
- U046—Chloromethyl methyl ether
- U050—Chrysene
- U051—Creosote
- U053—Crotonaldehyde
- U061—DDT
- U063—Dibenz o (a, h) anthracene
- U064—1,2,7,8-Dibenzopyrene
- U066—Dibromo-3-chloropropane 1,2-

K025 Nonwastewater forms of these wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (Based on No Generation)

K036 Nonwastewater forms of these wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (Based on No Generation)

K044 (Based on Reactivity)

K045 (Based on Reactivity)

K047 (Based on Reactivity)

K060 Nonwastewater forms of these waste generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (Based on No Generation)

K061 Nonwastewater—High Zinc Subcategory (greater than or equal to 15% total zinc) (Based on Recycling); effective 8/8/90

K069 Non-Calcium Sulfate Subcategory—Nonwastewater forms of these waste generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (Based on No Generation)

K100 Nonwastewater forms of these waste generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (Based on Recycling)

54 FR 18837, May 2, 1989; 54 FR 26649, June 23, 1989]

(b) When wastes with differing treatment standards for a constituent of concern are combined for purposes of treatment, the treatment residue must meet the lowest treatment standard for the constituent of concern.

[53 FR 31218, Aug. 17, 1988, as amended at 54 FR 18837, May 2, 1989; 54 FR 26649, June 23, 1989]

§ 268.44 Variance from a treatment standard.

(a) Where the treatment standard is expressed as a concentration in a waste or waste extract and a waste cannot be treated to the specified level, or where the treatment technology is not appropriate to the waste the generator or treatment facility may petition the Administrator for a variance from the treatment standard. The petitioner must demonstrate that because the physical or chemical properties of the waste differs significantly from wastes analyzed in developing the treatment standard, the waste cannot be treated to specified levels or by the specified methods.

(b) Each petition must be submitted in accordance with the procedures in § 260.20.

(c) Each petition must include the following statement signed by the petitioner or an authorized representative:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this petition and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that these are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(d) After receiving a petition for variance from a treatment standard the Administrator may request any additional information or samples which

he may require to evaluate the petition. Additional copies of the complete petition may be requested as needed to send to affected states and Regional Offices.

(e) The Administrator will give public notice in the FEDERAL REGISTER of the intent to approve or deny a petition and provide an opportunity for public comment. The final decision on a variance from a treatment standard will be published in the FEDERAL REGISTER.

(f) A generator, treatment facility, or disposal facility that is managing a waste covered by a variance from the treatment standards must comply with the waste analysis requirements for restricted wastes found under § 268.7.

(g) During the petition review process, the applicant is required to comply with all restrictions on land disposal under this part once the effective date for the waste has been reached.

(h) Where the treatment standard is expressed as a concentration in a waste or waste extract and a waste generated under conditions specific to only one site cannot be treated to the specified level, or where the treatment technology is not appropriate to the waste, the generator or treatment facility may apply to the Administrator, or his delegated representative,

for a site-specific variance from a treatment standard. The applicant for a site-specific variance must demonstrate that because the physical or chemical properties of the waste differs significantly from the waste analyzed in developing the treatment standard, the waste cannot be treated to specified levels or by the specified methods.

(i) Each application for a site-specific variance from a treatment standard must include the information in § 260.20(b)(1)-(4);

(j) After receiving an application for a site-specific variance from a treatment standard, the Assistant Administrator, or his delegated representative, may request any additional information or samples which may be required to evaluate the application.

(k) A generator, treatment facility, or disposal facility that is managing a

waste covered by a site-specific variance from a treatment standard must comply with the waste analysis requirements for restricted wastes found under § 268.7.

(1) During the application review process, the applicant for a site-specific variance must comply with all restrictions on land disposal under this part once the effective date for the waste has been reached.

[51 FR 40642, Nov. 7, 1986; 52 FR 21017, June 4, 1987, as amended at 53 FR 31221, Aug. 17, 1988]

Subpart E—Prohibitions on Storage

§ 268.50 Prohibitions on storage of restricted wastes.

(a) Except as provided in this section, the storage of hazardous wastes restricted from land disposal under Subpart C of this part of RCRA section 3004 is prohibited, unless the following conditions are met:

(1) A generator stores such wastes in tanks or containers on-site solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal and the generator complies with the requirements in § 262.34 of this chapter. (A generator who is in existence on the effective date of a regulation under this part and who must store hazardous wastes for longer than 90 days due to the regulations under this Part becomes an owner/operator of a storage facility and must obtain a RCRA permit. Such a facility may qualify for interim status upon compliance with the regulations governing interim status under 40 CFR 270.70).

(2) An owner/operator of a hazardous waste treatment, storage, or disposal facility stores such wastes in tanks or containers solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal and:

(i) Each container is clearly marked to identify its contents and the date each period of accumulation begins;

(ii) Each tank is clearly marked with a description of its contents, the quantity of each hazardous waste received,

Environmental Protection Agency

Pt. 268, App. I

and the date each period of accumulation begins, or such information for each tank is recorded and maintained in the operating record at that facility. Regardless of whether the tank itself is marked, an owner/operator must comply with the operating record requirements specified in § 264.73 or § 265.73.

(3) A transporter stores manifested shipments of such wastes at a transfer facility for 10 days or less.

(b) An owner/operator of a treatment, storage or disposal facility may store such wastes for up to one year unless the Agency can demonstrate that such storage was not solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal.

(c) A owner/operator of a treatment, storage or disposal facility may store such wastes beyond one year; however, the owner/operator bears the burden of proving that such storage was solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal.

(d) If a generator's waste is exempt from a prohibition on the type of land disposal utilized for the waste (for example, because of an approved case-by-case extension under § 268.5, an approved § 268.8 petition, or a national capacity variance under subpart C), the prohibition in paragraph (a) of this section does not apply during the period of such exemption.

(e) The prohibition in paragraph (a) of this section does not apply to hazardous wastes that meet the treatment standards specified under §§ 268.41, 268.42, and 268.43 or the treatment standards specified under the variance in § 268.44, or, where treatment standards have not been specified, is in compliance with the applicable prohibitions specified in § 268.32 or RCRA section 3004.

(f) Liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 50 ppm must be stored at a facility that meets the requirements of 40 CFR 761.85(b) and must be removed from storage and treated or disposed as required by this part within one year of the date when such wastes are first placed into storage. The pro-

visions of paragraph (c) of this section do not apply to such PCB wastes prohibited under § 268.32 of this part

[51 FR 40642, Nov. 7, 1986; 52 FR 21017, June 4, 1987, as amended at 52 FR 25791, July 8, 1987; 53 FR 31221, Aug. 17, 1988]

APPENDIX I—TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)

1.0 SCOPE AND APPLICATION

1.1 The TCLP is designed to determine the mobility of both organic and inorganic contaminants present in liquid, solid, and multiphase wastes.

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

2.0 SUMMARY OF METHOD

(See Figure 1)

2.1 For liquid wastes (i.e., those containing insignificant solid material), the waste, after filtration through a 0.6- to 0.8-um glass fiber filter, is defined as the TCLP extract.

2.2 For wastes comprised of solids or for wastes containing significant amounts of solid material, the particle-size of the waste is reduced (if necessary), the liquid phase, if any, is separated from the solid phase and stored for later analysis. The solid phase is extracted with an amount of extraction fluid equal to 20 times the weight of the solid phase. The extraction fluid employed is a function of the alkalinity of the solid phase of the waste. A special extractor vessel is used when testing for volatiles (See Table 1). Following extraction, the liquid extract is separated from the solid phase by 0.6- to 0.8-um glass fiber filter filtration.

2.3 If compatible (i.e., multiple phases will not form on combination), the initial liquid phase of the waste is added to the liquid extract, and these liquids are analyzed together. If incompatible, the liquids are analyzed separately and the results are mathematically combined to yield a volume-weighted average concentration.

3.0 INTERFERENCES

3.1. Potential interferences that may be encountered during analysis are discussed in the individual analytical methods.

4.0 APPARATUS AND MATERIALS

4.1 *Agitation apparatus:* An acceptable agitation apparatus is one which is capable

of rotating the extraction vessel in an end-over-end fashion (See Figure 2) at 30 ± 2 rpm. Suitable devices known to EPA are identified in Table 2.

4.2 Extraction Vessel:

4.2.1 Zero-Headspace Extraction Vessel (ZHE). This device is for use *only* when the waste is being tested for the mobility of volatile constituents (see Table 1). The ZHE is an extraction vessel that allows for liquid/solid separation within the device, and which effectively precludes headspace (as depicted in Figure 3). This type of vessel allows for initial liquid/solid separation, extraction, and final extract filtration without having to open the vessel (see Step 4.3.1). These vessels shall have an internal volume of 500 to 600 mL and be equipped to accommodate a 90-mm filter. Suitable ZHE devices known to EPA are identified in Table 3. These devices contain viton O-rings which should be replaced frequently.

For the ZHE to be acceptable for use, the piston within the ZHE should be able to be moved with approximately 15 psi or less. If it takes more pressure to move the piston, the O-rings in the device should be replaced. If this does not solve the problem, the ZHE is unacceptable for TCLP analyses and the manufacturer should be contacted.

The ZHE should be checked after every extraction. If the device contains a built-in pressure gauge, pressurize the device to 50 psi, allow it to stand unattended for 1 hour, and recheck the pressure. If the device does not have a built-in pressure gauge, pressurize the device to 50 psi, submerge it in water, and check for the presence of air bubbles escaping from any of the fittings. If pressure is lost, check all fittings and inspect and replace O-rings, if necessary. Retest the device. If leakage problems cannot be solved, the manufacturer should be contacted.

4.2.2 When the waste is being evaluated for other than volatile contaminants, an extraction vessel that does not preclude headspace (e.g., a 2-liter bottle) is used. Suitable extraction vessels include bottles made from various materials, depending on the contaminants to be analyzed and the nature of the waste (see Step 4.3.3). It is recommended that borosilicate glass bottles be used over other types of glass, especially when inorganics are of concern. Plastic bottles may be used only if inorganics are to be investigated. Bottles are available from a number of laboratory suppliers. When this type of extraction vessel is used, the filtration device discussed in Step 4.3.2 is used for initial liquid/solid separation and final extract filtration.

4.2.3 Some ZHEs use gas pressure to actuate the ZHE piston, while others use mechanical pressure (see Table 3). Whereas the volatile procedure (see Section 9.0)

refers to pounds-per-square inch (psi), for the mechanically actuated piston, the pressure applied is measured in torque-inch-pounds. Refer to the manufacturer's instructions as to the proper conversion.

4.3 Filtration Devices: It is recommended that all filtrations be performed in a hood.

4.3.1 Zero-Headspace Extractor Vessel (see Figure 3): When the waste is being evaluated for volatiles, the zero-headspace extraction vessel is used for filtration. The device shall be capable of supporting and keeping in place the glass fiber filter, and be able to withstand the pressure needed to accomplish separation (50 psi).

Note: When it is suspected that the glass fiber filter has been ruptured, an in-line glass fiber filter may be used to filter the material within the ZHE.

4.3.2 Filter Holder: When the waste is being evaluated for other than volatile compounds, a filter holder capable of supporting a glass fiber filter and able to withstand the pressure needed to accomplish separation is used. Suitable filter holders range from simple vacuum units to relatively complex systems capable of exerting pressures of up to 50 psi or more. The type of filter holder used depends on the properties of the material to be filtered (see Step 4.3.3). These devices shall have a minimum internal volume of 300 mL and be equipped to accommodate a minimum filter size of 47 mm (Filter holders having an internal capacity of 1.5 L or greater and equipped to accommodate a 142 mm diameter filter are recommended). Vacuum filtration is only recommended for wastes with low solids content (<10%) and for highly granular (liquid-containing) wastes. All other types of wastes should be filtered using positive pressure filtration. Filter holders known to EPA to be suitable for use are shown in Table 4.

4.3.3 Materials of Construction: Extraction vessels and filtration devices shall be made of inert materials which will not leach or absorb waste components. Glass, polytetrafluoroethylene (PTFE), or type 316 stainless steel equipment may be used when evaluating the mobility of both organic and inorganic components. Devices made of high-density polyethylene (HDPE), polypropylene, or polyvinyl chloride may be used only when evaluating the mobility of metals. Borosilicate glass bottles are recommended for use over other types of glass bottles, especially when inorganics are constituents of concern.

4.4 Filters: Filters shall be made of borosilicate glass fiber, shall contain no binder materials, and shall have an effective pore size of 0.6- to 0.8-um, or equivalent. Filters known to EPA to meet these specifications are identified in Table 5. Pre-filters must not be used. When evaluating the mobility of metals, filters shall be acid-washed prior

to use by rinsing with 1.0 N nitric acid followed by three consecutive rinses with deionized distilled water (a minimum of 1-L per rinse is recommended). Glass fiber filters are fragile and should be handled with care.

4.5 *pH meters:* Any of the commonly available pH meters are acceptable.

4.6 *ZHE extract collection devices:* TEDLAR® bags or glass, stainless steel or PTFE gas tight syringes are used to collect the initial liquid phase and the final extract of the waste when using the ZHE device. The devices listed are recommended for use under the following conditions.

4.6.1 If a waste contains an aqueous liquid phase or if a waste does not contain a significant amount of non-aqueous liquid (i.e., <1% of total waste), the TEDLAR® bag should be used to collect and combine the initial liquid and solid extract. The syringe is not recommended in these cases.

4.6.2 If a waste contains a significant amount of non-aqueous initial liquid phase (i.e., >1% of total waste), the syringe or the TEDLAR® bag may be used for both the initial solid/liquid separation and the final extract filtration. However, analysts should use one or the other, not both.

4.6.3 If the waste contains no initial liquid phase (is 100% solid) or has no significant solid phase (is 100% liquid), either the TEDLAR® bag or the syringe may be used. If the syringe is used, discard the first 5 mL of liquid expressed from the device. The remaining aliquots are used for analysis.

4.7 *ZHE extraction fluid transfer devices:* Any device capable of transferring the extraction fluid into the ZHE without changing the nature of the extraction fluid is acceptable (e.g., a constant displacement pump, a gas tight syringe, pressure filtration unit (See Step 4.3.2), or another ZHE device).

4.8 *Laboratory balance:* Any laboratory balance accurate to within ± 0.01 grams may be used (all weight measurements are to be within ± 0.1 grams).

5.0 REAGENTS

5.1 *Reagent water:* Reagent water is defined as water in which an interferent is not observed at or above the method detection limit of the analyte(s) of interest. For non-volatile extractions, ASTM Type II water, or equivalent meets the definition of reagent water. For volatile extractions, it is recommended that reagent water be generated by any of the following methods. Reagent water should be monitored periodically for impurities.

5.1.1 Reagent water for volatile extractions may be generated by passing tap water through a carbon filter bed containing about 500 grams of activated carbon (Calgon Corp., Filtrasorb-300 or equivalent).

5.1.2 A water purification system (Millipore Super-Q or equivalent) may also be used to generate reagent water for volatile extractions.

5.1.3 Reagent water for volatile extractions may also be prepared by boiling water for 15 minutes. Subsequently, while maintaining the water temperature at $90 \pm 5^\circ\text{C}$, bubble a contaminant-free inert gas (e.g., nitrogen) through the water for 1 hour. While still hot, transfer the water to a narrow-mouth screw-cap bottle under zero-headspace and seal with a Teflon-lined septum and cap.

5.2 1.0 N Hydrochloric acid (HCl) made from ACS reagent grade.

5.3 1.0 N Nitric acid (HNO₃) made from ACS reagent grade.

5.4 1.0 N Sodium hydroxide (NaOH) made from ACS reagent grade.

5.5 Glacial acetic acid (HOAc) ACS reagent grade.

5.6 Extraction fluid:

5.6.1 Extraction fluid #1: This fluid is made by adding 5.7 mL glacial HOAc to 500 mL of the appropriate water (see Step 5.1), adding 64.3 mL of 1.0 N NaOH, and diluting to a volume of 1 liter. When correctly prepared, the pH of this fluid will be 4.93 ± 0.05 .

5.6.2 Extraction fluid #2: This fluid is made by diluting 5.7 mL glacial HOAc with ASTM Type II water (see Step 5.1) to a volume of 1 liter. When correctly prepared, the pH of this fluid will be 2.88 ± 0.05 .

NOTE: It is suggested that these extraction fluids be monitored frequently for impurities. The pH should be checked prior to use to ensure that these fluids are made up accurately.

5.7 Analytical standards shall be prepared according to the appropriate analytical method.

6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

6.1 All samples shall be collected using an appropriate sampling plan.

6.2 At least two separate representative samples of a waste should be collected. If volatile organics are of concern, a third sample should be collected. The first sample is used in several preliminary TCLP evaluations (e.g., to determine the percent solids of the waste; to determine if the waste contains insignificant solids (i.e., the waste is its own extract after filtration); to determine if the solid portion of the waste requires particle-size reduction; and to determine which of the two extraction fluids are to be used for the non-volatile TCLP extraction of the waste). These preliminary evaluations are identified in Section 7.0. The second and, if required, third samples are extracted using the TCLP non-volatile procedure (Section

8.0) and volatile procedure (Section 9.0), respectively.

6.3 Preservatives shall not be added to samples.

6.4 Samples can be refrigerated unless refrigeration results in irreversible physical change to the waste (e.g., precipitation).

6.5 When the waste is to be evaluated for volatile contaminants, care should be taken to minimize the loss of volatiles. Samples shall be taken and stored in a manner to prevent the loss of volatile contaminants. If possible, it is recommended that any necessary particle-size reduction should be conducted as the sample is being taken (See Step 8.5).

6.6 TCLP extracts should be prepared for analysis and analyzed as soon as possible following extraction. If they need to be stored, even for a short period of time, storage shall be a 4° C, and samples for volatiles analysis shall not be allowed to come into contact with the atmosphere (i.e., no headspace). See Section 10.0 (QA requirements) for acceptable sample and extract holding times.

7.0 PRELIMINARY TCLP EVALUATIONS

The preliminary TCLP evaluations are performed on a minimum 100 gram representative sample of waste that will not actually undergo TCLP extraction (designated as the first sample in Step 6.2). These evaluations include preliminary determination of the percent solids of the waste; determination of whether the waste contains insignificant solids, and is therefore, its own extract after filtration; determination of whether the solid portion of the waste requires particle-size reduction; and determination of which of the two extraction fluids are to be used for the non-volatile TCLP extraction of the waste.

7.1 *Preliminary determination of percent solids:* Percent solids is defined as that fraction of a waste sample (as a percentage of the total sample) from which no liquid may be forced out by an applied pressure, as described below.

7.1.1 If the waste will obviously yield no free liquid when subjected to pressure filtration (i.e., is 100% solids) proceed to Step 7.4.

7.1.2 If the sample is liquid or multiphase, liquid/solid separation to make a preliminary determination of percent solids is required. This involves the filtration device described in Step 4.3.2 and is outlined in Steps 7.1.3 through 7.1.9.

7.1.3 Pre-weigh the filter and the container that will receive the filtrate.

7.1.4 Assemble the filter holder and filter following the manufacturer's instructions. Place the filter on the support screen and secure.

7.1.5 Weigh out a representative subsample of the waste (100 gram minimum) and record the weight.

7.1.6 Allow slurries to stand to permit the solid phase to settle. Wastes that settle slowly may be centrifuged prior to filtration. Centrifugation is to be used only as an aid to filtration. If used, the liquid should be decanted and filtered followed by filtration of the solid portion of the waste through the same filtration system.

7.1.7 Quantitatively transfer the waste sample to the filter holder (liquid and solid phases). If filtration of the waste at 4° C reduces the amount of expressed liquid over what would be expressed at room temperature then allow the sample to warm up to room temperature in the device before filtering.

NOTE: If waste material (>1% of original sample weight) has obviously adhered to the container used to transfer the sample to the filtration apparatus, determine the weight of this residue and subtract it from the sample weight determined in Step 7.1.5 to determine the weight of the waste sample that will be filtered.

Gradually apply vacuum or gentle pressure of 1-10 psi, until air or pressurizing gas moves through the filter. If this point is not reached under 10 psi, and if no additional liquid has passed through the filter in any 2-minute interval, slowly increase the pressure in 10-psi increments to a maximum of 50 psi. After each incremental increase of 10-psi, if the pressurizing gas has not moved through the filter, and if no additional liquid has passed through the filter in any 2-minute interval, proceed to the next 10-psi increment. When the pressurizing gas begins to move through the filter, or when liquid flow has ceased at 50 psi (i.e., filtration does not result in any additional filtrate within any 2-minute period), filtration is stopped.

NOTE: Instantaneous application of high pressure can degrade the glass fiber filter and may cause premature plugging.

7.1.8 The material in the filter holder is defined as the solid phase of the waste, and the filtrate is defined as the liquid phase.

NOTE: Some wastes, such as oily wastes and some paint wastes, will obviously contain some material that appears to be a liquid. But even after applying vacuum or pressure filtration, as outlined in Step 7.1.7, this material may not filter. If this is the case, the material within the filtration device is defined as a solid. The original filter is *not* to be replaced with a fresh filter under any circumstances. Only one filter is used.

7.1.9 Determine the weight of the liquid phase by subtracting the weight of the filtrate container (See Step 7.1.3) from the total weight of the filtrate-filled container.

The weight of the solid phase of the waste sample is determined by subtracting the weight of the liquid phase from the weight of the total waste sample, as determined in

Step 7.1.5 or 7.1.7. Record the weight of the liquid and solid phases. Calculate the percent solids as follows:

$$\text{Percent solids} = \frac{\text{Weight of solid (Step 7.1.9)}}{\text{Total weight of waste (Step 7.1.5 or 7.1.7)}} \times 100$$

7.2 Determination of whether waste is liquid or has insignificant amounts of solid material: If the sample obviously has a significant amount of solid material, the solid phase must be subjected to extraction; proceed to Step 7.3 to determine if the waste requires particle-size reduction (and to reduce particle-size, if necessary). Determine whether the waste is liquid or has insignificant amounts of solid material (which need not undergo extraction) as follows:

7.2.1 Remove the solid phase and filter from the filtration apparatus.

7.2.2 Dry the filter and solid phase at $100 \pm 20^\circ \text{C}$ until two successive weighings yield the same value within $\pm 1\%$. Record final weight.

NOTE: Caution should be taken to insure that the subject solid will not flash upon heating. It is recommended that the drying oven be vented to a hood or appropriate device.

7.2.3 Calculate the percent dry solids as follows:

$$\text{Percent dry solids} = \frac{\text{Weight of dry waste and filter—tared weight of filter}}{\text{Initial weight of waste (Step 7.1.5 or 7.1.1)}} \times 100$$

7.2.4 If the percent dry solids is less than 0.5%, consult Step 8.2 and proceed to Section 8.0 if non-volatiles in the waste are of concern, and to Section 9.0 if volatiles are of interest. In this case, the waste, after filtration is defined as the TCLP extract. If the percent dry solids is greater than or equal to 0.5%, and if the non-volatile TCLP is to be performed, return to the beginning of this Section (7.0) with a new representative waste sample, so that it can be determined if particle-size reduction is necessary (Step 7.3), and so that the appropriate extraction fluid may be determined (Step 7.4) on a fresh portion of the solid phase of the waste. If only the volatile TCLP is to be performed, see the Note in Step 7.4.

7.3 Determination of whether the wastes requires particle-size reduction (particle-size is reduced during this Step): Using the solid portion of the waste, evaluate the solid for particle-size. If the solid has a surface area per gram of material equal to or greater than 3.1 cm^2 , or is smaller than 1 cm in its narrowest dimension (e.g., is capable of passing through a 9.5-mm (0.375-inch) standard sieve), particle-size reduction is not required (proceed to Step 7.4). If the surface area is smaller or the particle-size larger than described above, the solid portion of

the waste is prepared for extraction by crushing, cutting, or grinding the waste to a surface area or particle-size as described above.

NOTE: Surface area requirements are meant for filamentous (e.g., paper, cloth) and similar waste materials. Actual measurement of surface area is not required; nor is it recommended.

7.4 Determination of appropriate extraction fluid: If the solid content is greater than or equal to 0.5% of the waste and if TCLP extraction for non-volatile constituents will take place (Section 8.0), determination of the appropriate fluid (Step 5.6) to use for the non-volatiles extraction is performed as follows.

NOTE: TCLP extraction for volatile constituents entails using only extraction fluid #1 (Step 5.6.1). Therefore, if TCLP extraction for non-volatiles extraction is not required, proceed to section 9.0.

7.4.1 Weigh out a small subsample of the solid phase of the waste, reduce the solid (if necessary) to a particle-size of approximately 1mm in diameter or less, and transfer 5.0 grams of the solid phase of the waste to a 500-mL beaker or Erlenmeyer flask.

7.4.2 Add 96.5 mL of reagent water (ASTM Type II) to the beaker, cover with a watchglass, and stir vigorously for 5 minutes using a magnetic stirrer. Measure and record the pH. If the pH is <5.0 , extraction fluid #1 is used. Proceed to Section 8.0.

7.4.3 If the pH from Step 7.4.2 is >5.0 , add 3.5 mL 1.0 N HCl, slurry briefly, cover with a watchglass, heat to 50°C , and hold at 50°C for 10 minutes.

7.4.4 Let the solution cool to room temperature and record the pH. If the pH is <5.0 , use extraction fluid #1. If the pH is >5.0 , use extraction fluid #2. Proceed to Section 8.0.

7.5 The sample of waste used for performance of this Section shall not be used any further. Other samples of the waste (see Step 6.2) should be employed for the Section 8.0 and 9.0 extractions.

8.0 PROCEDURE WHEN VOLATILES ARE NOT INVOLVED

Although a minimum sample size of 100 grams (solid and liquid phases) is required, a larger sample size may be more appropriate, depending on the solids content of the waste sample (percent solids, see Step 7.1), whether the initial liquid phase of the waste will be miscible with the aqueous extract of the solid, and whether inorganics, semivolatile organics, pesticides, and herbicides are all analytes of concern. Enough solids should be generated for extraction such that the volume of TCLP extract will be sufficient to support all of the analyses required. If the amount of extract generated by the performance of a single TCLP extraction will not be sufficient to perform all of the analyses to be conducted, it is recommended that more than one extraction be performed and that the extracts from each extraction be combined and then aliquoted for analysis.

8.1 If the waste will obviously yield no liquid when subjected to pressure filtration (i.e., is 100% solid, see Step 7.1), weigh out a representative subsample of the waste (100 gram minimum) and proceed to Step 8.9.

8.2 If the sample is liquid or multiphasic, liquid/solid separation is required. This involves the filtration device described in Step 4.3.2 and is outlined in Steps 8.3 to 8.8.

8.3 Pre-weigh the container that will receive the filtrate.

8.4 Assemble the filter holder and filter following the manufacturer's instructions. Place the filter on the support screen and secure. Acid wash the filter if evaluating the mobility of metals (See Step 4.4).

NOTE: Acid washed filters may be used for all non-volatile extractions even when metals are not of concern.

8.5 Weigh out a representative subsample of the waste (100 gram minimum) and record the weight. If the waste was shown to contain $<0.5\%$ dry solids (Step 7.2), the

waste, after filtration is defined as the TCLP extract. Therefore, enough of the sample should be filtered so that the amount of filtered liquid will support all of the analyses required of the TCLP extract. For wastes containing $>0.5\%$ dry solids (Steps 7.1 or 7.2), use the percent solids information obtained in Step 7.1 to determine the optimum sample size (100 gram minimum) for filtration. Enough solids should be generated after filtration to support the analyses to be performed on the TCLP extract.

8.6 Allow slurries to stand to permit the solid phase to settle. Wastes that settle slowly may be centrifuged prior to filtration. Centrifugation is to be used only as an aid to filtration. If used, the liquid should be decanted and filtered followed by filtration of the solid portion of the waste through the same filtration system.

8.7 Quantitatively transfer the waste sample (liquid and solid phases) to the filter holder (see Step 4.3.2). If filtration of the waste at 4°C reduces the amount of expressed liquid over what would be expressed at room temperature, then allow the sample to warm up to room temperature in the device before filtering.

NOTE: If waste material ($>1\%$ of the original sample weight) has obviously adhered to the container used to transfer the sample to the filtration apparatus, determine the weight of this residue and subtract it from the sample weight determined in Step 8.5, to determine the weight of the waste sample that will be filtered.

Gradually apply vacuum or gentle pressure of 1-10 psi, until air or pressurizing gas moves through the filter. If this point is not reached under 10 psi, and if no additional liquid has passed through the filter in any 2-minute interval, slowly increase the pressure in 10-psi increments to maximum of 50 psi. After each incremental increase of 10 psi, if the pressurizing gas has not moved through the filter, and if no additional liquid has passed through the filter in any 2-minute interval, proceed to the next 10-psi increment. When the pressurizing gas begins to move through the filter, or when the liquid flow has ceased at 50 psi (i.e., filtration does not result in any additional filtrate within a 2-minute period), filtration is stopped.

NOTE: Instantaneous application of high pressure can degrade the glass fiber filter and may cause premature plugging.

8.8 The material in the filter holder is defined as the solid phase of the waste, and the filtrate is defined as the liquid phase. Weigh the filtrate. The liquid phase may now be either analyzed (see Step 8.13) or stored at 4°C until time of analysis.

NOTE: Some wastes, such as oily wastes and some paint wastes, will obviously con-

tain some material that appears to be a liquid. But even after applying vacuum or pressure filtration, as outlined in Step 8.7, this material may not filter. If this is the case, the material within the filtration device is defined as a solid and is carried through the extraction as a solid. The original filter is *not* to be replaced with a fresh filter under any circumstances. Only one the filter is used.

8.9 If the waste contains <0.5% dry solids (see Step 7.2), proceed to Step 8.13. If the waste contains >0.5% dry solids (see Step 7.1 or 7.2), and if particle-size reduction of the solid was needed in Step 7.3, proceed to Step 8.10. If particle-size reduction was not required in Step 7.3, quantitatively transfer the solid material into the extractor vessel, including the filter used to separate the initial liquid from the solid phase. Proceed to Step 8.11.

8.10 The solid portion of the waste is prepared for extraction by crushing, cutting, or grinding the waste to a surface area of particle-size as described in Step 7.3. When the surface area of particle-size has been appropriately altered, quantitatively transfer the solid material into the extractor vessel, including the filter used to separate the initial liquid from the solid phase.

NOTE: Sieving of the waste through a sieve that is not Teflon coated should not be done due to avoid possible contamination of the sample. Surface area requirements are meant for filamentous (e.g., paper, cloth) and similar waste materials. Actual measurement of surface area is not recommended.

8.11 Determine the amount of extraction fluid to add to the extractor vessel as follows:

$$\text{Weight of extraction fluid} = \frac{20 \times \% \text{ solids (Step 7.1)} \times \text{weight of waste filtered (Step 8.5 or 8.7)}}{100}$$

Slowly add this amount of appropriate extraction fluid (see Step 7.4) to the extractor vessel. Close the extractor bottle tightly (it is recommended that Teflon tape be used to ensure a tight seal), secure in rotary extractor device, and rotate at 30 ± 2 rpm for 18 ± 2 hours. Ambient temperature (i.e., temperature of room in which extraction is to take place) shall be maintained at 22 ± 3 °C during the extraction period.

NOTE: As agitation continues, pressure may build up within the extractor bottle for some types of wastes (e.g., limed or calcium carbonate containing waste may evolve gases such as carbon dioxide). To relieve excess pressure, the extractor bottle may be periodically opened (e.g., after 15 minutes, 30 minutes, and 1 hour) and vented into a hood.

8.12 Following the 18 ± 2 hour extraction, the material in the extractor vessel is separated into its component liquid and solid phases by filtering through a new glass fiber filter, as outlined in Step 8.7. For final filtration of the TCLP extract, the glass fiber filter may be changed, if necessary, to facilitate filtration. Filter(s) shall be acid-washed (see Step 4.4) if evaluating the mobility of metals.

8.13 The TCLP extract is now prepared as follows:

8.13.1 If the waste contained no initial liquid phase, the filtered liquid material ob-

tained from Step 8.12 is defined as the TCLP extract. Proceed to Step 8.14.

8.13.2 If compatible (e.g., multiple phases will not result on combination), the filtered liquid resulting from Step 8.12 is combined with the initial liquid phase of the waste as obtained in Step 8.7. This combined liquid is defined as the TCLP extract. Proceed to Step 8.14.

8.13.3 If the initial liquid phase of the waste, as obtained from Step 8.7, is not or may not be compatible with the filtered liquid resulting from Step 8.12, these liquids are not combined. These liquids, collectively defined as the TCLP extract, are analyzed separately, and the results are combined mathematically. Proceed to Step 8.14.

8.14 Following collection of the TCLP extract, it is recommended that the pH of the extract be recorded. The extract should be immediately aliquoted for analysis and properly preserved (metals aliquots must be acidified with nitric acid to pH <2; all other aliquots must be stored under refrigeration (4 °C) until analyzed). The TCLP extract shall be prepared and analyzed according to appropriate analytical methods. TCLP extracts to be analyzed for metals, other than mercury, shall be acid digested. If the individual phases are to be analyzed separately, determine the volume of the individual phases (to $\pm 0.5\%$), conduct the appropriate analyses, and combine the results mathematically by using a simple volume-weighted average:

$$\text{Final Analyte Concentration} = \frac{(V_1)(C_1) + (V_2)(C_2)}{V_1 + V_2}$$

where:

V_1 = The volume of the first phase (L).

C_1 = The concentration of the contaminant of concern in the first phase (mg/L).

V_2 = The volume of the second phase (L).

C_2 = The concentration of the contaminant of concern in the second phase (mg/L).

8.15 The contaminant concentrations in the TCLP extract are compared with the thresholds identified in the appropriate regulations. Refer to Section 10.0 for quality assurance requirements.

9.0 PROCEDURE WHEN VOLATILES ARE INVOLVED

The ZHE device is used to obtain TCLP extracts for volatile analysis only. Extract resulting from the use of the ZHE shall not be used to evaluate the mobility of non-volatile analytes (e.g., metals, pesticides, etc.).

The ZHE device has approximately a 500-mL internal capacity. Although a minimum sample size of 100 grams was required in the Section 8.0 procedure, the ZHE can only accommodate a *maximum* of 25 grams of solid (defined as that fraction of a sample from which no liquid (additional) may be forced out by an applied pressure of 50 psi), due to the need to add an amount of extraction fluid equal to 20 times the weight of the solid phase.

The ZHE is charged with sample only once and the device is not opened until the final extract (of the solid) has been collected. Repeated filling of the ZHE to obtain 25 grams of solid is not permitted. The initial filtrate should be weighed and then stored at 4 °C until either analyzed or recombined with the final extract of the solid.

Although the following procedure allows for particle-size reduction during the conduct of the procedure, this could result in the loss of volatile compounds. If possible (e.g., particle-size may be reduced easily by crumbling), particle-size reduction (See Step 9.2) should be conducted on the sample as it is being taken. If necessary, particle-size reduction may be conducted during the procedure.

In carrying out the following steps, do not allow the waste, the initial liquid phase, or the extract to be exposed to the atmosphere for any more time than is absolutely necessary. Any manipulation of these materials should be done when cold (4° C) to minimize loss of volatiles.

9.1 Pre-weigh the (evacuated) container which will receive the filtrate (See Step 4.6), and set aside. If using a TEDLAR® bag, all

liquid must be expressed from the device, whether it be for the initial or final liquid/solid separation, and an aliquot taken from the liquid in the bag, for analysis. The containers listed in Step 4.6 are recommended for use under the following conditions.

9.1.1 If a waste contains an aqueous liquid phase or if the waste does not contain a significant amount of non-aqueous liquid (i.e., <1% of total waste), the TEDLAR® bag should be used to collect and combine the initial liquid and solid extract. The syringe is not recommended in these cases.

9.1.2 If a waste contains a significant amount of non-aqueous initial liquid phase (i.e., >1% of total waste), the syringe or the TEDLAR® bag may be used for both the initial solid/liquid separation and the final extract filtration. However, analysts should use one or the other, not both.

9.1.3 If the waste contains no initial liquid phase (is 100% solid) or has no significant solid phase (is 100% liquid), either the TEDLAR® bag or the syringe may be used. If the syringe is used, discard the first 5 mL liquid expressed from the device. The remaining aliquots are used for analysis.

9.2 Place the ZHE piston within the body of the ZHE (it may be helpful first to moisten the piston O-rings slightly with extraction fluid). Adjust the piston within the ZHE body to a height that will minimize the distance the piston will have to move once the ZHE is charged with sample (based upon sample size requirements determined from Section 9.0, Step 7.1 and/or 7.2). Secure the gas inlet/outlet flange (bottom flange) onto the ZHE body in accordance with the manufacturer's instructions. Secure the glass fiber filter between the support screens and set aside. Set liquid inlet/outlet flange (top flange) aside.

9.3 If the waste is 100% solid (see Step 7.1), weigh out a representative subsample (25 gram maximum) of the waste, record weight, and proceed to Step 9.5.

9.4 If the waste was shown to contain <0.5% dry solids (Step 7.2), the waste, after filtration is defined as the TCLP extract. Enough of the sample should be filtered so that the amount of filtered liquid will support all of the volatile analyses required. For wastes containing >0.5% dry solids (Steps 7.1 and/or 7.2), use the percent solids information obtained in Step 7.1 to determine the optimum sample size to charge into the ZHE. The appropriate sample size recommended is as follows:

9.4.1 For wastes containing >5% solids (see Step 7.1), weigh out a representative 500 gram sample or waste and record the weight.

9.4.2 For wastes containing >5% solids (see Step 7.1), the amount of waste to charge into the ZHE is determined as follows:

$$\text{Weight of waste to charge ZHE} = \frac{25}{\% \text{ solids (Step 7.1)}} \times 100$$

Weigh out a representative subsample of the waste of the appropriate size and record the weight.

9.5 If particle-size reduction of the solid portion of the waste was required in Step 7.3, proceed to Step 9.6. If particle-size reduction was not required in Step 7.3, proceed to Step 9.7.

9.6 The waste is prepared for extraction by crushing, cutting, or grinding the solid portion of the waste to a surface area or particle-size as described in Step 7.3. Wastes and appropriate reduction equipment should be refrigerated, if possible, to 4 °C prior to particle-size reduction. The means used to effect particle-size reduction must not generate heat in and of itself. If reduction of the solid phase of the waste is necessary, exposure of the waste to the atmosphere should be avoided to the extent possible.

NOTE: Sieving of the waste is not recommended due to the possibility that volatiles may be lost. The use of an appropriately graduated ruler is recommended as an acceptable alternative. Surface area requirements are meant for filamentous (e.g., paper, cloth) and similar waste materials. Actual measurement of surface area is not recommended.

When the surface area or particle-size has been appropriately altered, proceed to Step 9.7.

9.7 Waste slurries need not be allowed to stand to permit the solid phase to settle. Wastes that settle slowly shall not be centrifuged prior to filtration.

9.8 Quantitatively transfer the entire sample (liquid and solid phases) quickly to the ZHE. Secure the filter and support screens into the top flange of the device and secure the top flange to the ZHE body in accordance with the manufacturer's instructions. Tighten all ZHE fittings and place the device in the vertical position (gas inlet/outlet flange on the bottom). Do not attach the extraction collection device to the top plate.

NOTE: If waste material (>1% of original sample weight) has obviously adhered to the container used to transfer the sample to the ZHE, determine the weight of this resi-

due and subtract it from the sample weight determined in Step 9.4, to determine the weight of the waste sample that will be filtered.

Attach a gas line to the gas inlet/outlet valve (bottom flange) and, with the liquid inlet/outlet valve (top flange) open, begin applying gentle pressure of 1-10 psi (or more if necessary) to force all headspace (into a hood) slowly out of the ZHE device. At the first appearance of liquid from the liquid inlet/outlet valve, quickly close the valve and discontinue pressure. If filtration of the waste at 4°C reduces the amount of expressed liquid over what would be expressed at room temperature, then allow the sample to warm up to room temperature in the device before filtering. If the waste is 100% solid (see Step 7.1), slowly increase the pressure to a maximum of 50 psi to force most of the headspace out of the device and proceed to Step 9.12.

9.9 Attach the evacuated pre-weighed filtrate collection container to the liquid inlet/outlet valve and open the valve. Begin applying gentle pressure of 1-10 psi to force the liquid phase into the filtrate collection container. If no additional liquid has passed through the filter in any 2-minute interval, slowly increase the pressure in 10-psi increments to a maximum of 50 psi. After each incremental increase of 10 psi, if no additional liquid has passed through the filter in any 2-minute interval, proceed to the next 10-psi increment. When liquid flow has ceased such that continued pressure filtration at 50 psi does not result in any additional filtrate within any 2-minute period, filtration is stopped. Close the liquid inlet/outlet valve, discontinue pressure to the piston, and disconnect the filtrate collection container.

NOTE: Instantaneous application of high pressure can degrade the glass fiber filter and may cause premature plugging.

9.10 The material in the ZHE is defined as the solid phase of the waste and the filtrate is defined as the liquid phase.

NOTE: Some wastes, such as oily wastes and some paint wastes, will obviously contain some material that appears to be a liquid. But even after applying pressure filtration, this material will not filter. If this is the case, the material within the filtration device is defined as a solid and is carried through the TCLP extraction as a solid.

If the original waste contained <0.5% dry solids (see Step 7.2), this filtrate is defined as the TCLP extract and is analyzed directly. Proceed to Step 9.15.

9.11 The liquid phase may now be either analyzed immediately (see Steps 9.13 through 9.15) or stored at 4 °C under minimal headspace conditions until time of analysis. The weight of extraction fluid #1 to add to the ZHE is determined as follows:

$$\text{Weight of extraction fluid} = \frac{20 \times \% \text{ solids (Step 7.1)} \times \text{weight of waste filtered (Step 9.4 or 9.8)}}{100}$$

9.12 The following steps detail how to add the appropriate amount of extraction fluid to the solid material within the ZHE and agitation of the ZHE vessel. Extraction fluid #1 is used in all cases (see Step 5.6).

9.12.1 With the ZHE in the vertical position, attach a line from the extraction fluid reservoir to the liquid inlet/outlet valve. The line used shall contain fresh extraction fluid and should be preflushed with fluid to eliminate any air pockets in the line. Release gas pressure on the ZHE piston (from the gas inlet/outlet valve), open the liquid inlet/outlet valve, and begin transferring extraction fluid (by pumping or similar means) into the ZHE. Continue pumping extraction fluid into the ZHE until the appropriate amount of fluid has been introduced into the device.

9.12.2 After the extraction fluid has been added, immediately close the liquid inlet/outlet valve and disconnect the extraction fluid line. Check the ZHE to ensure that all valves are in their closed positions. Physically rotate the device in an end-over-end fashion 2 or 3 times. Reposition the ZHE in the vertical position with the liquid inlet/outlet valve on top. Put 5-10 psi behind the piston (if necessary) and slowly open the liquid inlet/outlet valve to bleed out any headspace (into a hood) that may have been introduced due to the addition of extraction fluid. This bleeding shall be done quickly and shall be stopped at the first appearance of liquid from the valve. Re-pressurize the ZHE with 5-10 psi and check all ZHE fittings to ensure that they are closed.

9.12.3 Place the ZHE in the rotary extractor apparatus (if it is not already there) and rotate the ZHE at 30 ± 2 rpm for 18 ± 2 hours. Ambient temperature (i.e., temperature of room in which extraction is to occur) shall be maintained at 22 ± 3 °C during agitation.

9.13 Following the 18 ± 2 hour agitation period, check the pressure behind the ZHE piston by quickly opening and closing the gas inlet/outlet valve and noting the escape

of gas. If the pressure has not been maintained (i.e., no gas release observed), the device is leaking. Check the ZHE for leaking as specified in Step 4.2.1, and redo the extraction with a new sample of waste. If the pressure within the device has been maintained, the material in the extractor vessel is once again separated into its component liquid and solid phases. If the waste contained an initial liquid phase, the liquid may be filtered directly into the same filtrate collection container (i.e., TEDLAR® bag) holding the initial liquid phase of the waste, unless doing so would create multiple phases, or unless there is not enough volume left within the filtrate collection container. A separate filtrate collection container must be used in these cases. Filter through the glass fiber filter, using the ZHE device as discussed in Step 9.9. All extract shall be filtered and collected in the TEDLAR® bag is used, if the extract is multiphase, or if the waste contained an initial liquid phase (see Steps 4.6 and 9.1).

Note: An in-line glass fiber filter may be used to filter the material within the ZHE when it is suspected that the glass fiber filter has been ruptured.

9.14 If the original waste contained no initial liquid phase, the filtered liquid material obtained from Step 9.13 is defined as the TCLP extract. If the waste contained an initial liquid phase, the filtered liquid material obtained from Step 9.13 and the initial liquid phase (Step 9.9) are collectively defined as the TCLP extract.

9.15 Following collection of the TCLP extract, the extract should be immediately aliquoted for analysis and stored with minimal headspace at 4 °C until analyzed. The TCLP extract will be prepared and analyzed according to the appropriate analytical methods. If the individual phases are to be analyzed separately (i.e., are not miscible), determine the volume of the individual phases (to $\pm 0.5\%$), conduct the appropriate analyses, and combine the results mathematically by using a simple volume-weighted average:

$$\text{Final Analyte Concentration} = \frac{(V_1)(C_1) + (V_2)(C_2)}{V_1 + V_2}$$

where:

V_1 = The volume of the first phases (L).

C_1 = The concentration of the contaminant of concern in the first phase (mg/L).

V_2 = The volume of the second phase (L).

C₂ = The concentration of the contaminant of concern in the second phase (mg/L).

9.16 The contaminant concentrations in the TCLP extract are compared with the thresholds identified in the appropriate regulations. Refer to Section 10.0 for quality assurance requirements.

10.0 QUALITY ASSURANCE REQUIREMENTS

10.1 All data, including quality assurance data, should be maintained and available for reference or inspection.

10.2 A minimum of one blank (extraction fluid #1) for every 10 extractions that have been conducted in an extraction vessel shall be employed as a check to determine if any memory effects from the extraction equipment are occurring.

10.3 For each analytical batch (up to twenty samples), it is recommended that a matrix spike be performed. Addition of matrix spikes should occur once the TCLP extract has been generated (i.e., should not occur prior to performance of the TCLP procedure). The purpose of the matrix spike is to monitor the adequacy of the analytical methods used on the TCLP extract and for determining if matrix interferences exist in analyte detection.

10.4 All quality control measures described in the appropriate analytical methods shall be followed.

10.5 The method of standard addition shall be employed for each analyte if: 1) recovery of the compound from the TCLP extract is not between 50 and 150%, or 2) if the concentration of the constituent measured in the extract is within 20% of the appropriate regulatory threshold. If more than one extraction is being run on samples of the same waste (up to twenty samples), the method of standard addition need be applied only once and the percent recoveries applied to the remainder of the extractions.

10.6 Samples must undergo TCLP extraction within the following time period after sample receipt: Volatiles, 14 days; Semi-Volatiles, 40 days; Mercury, 28 days; and other Metals, 180 days. Extraction of the solid portion of the waste should be initiated as

soon as possible following initial solid/liquid separation. TCLP extracts shall be analyzed after generation and preservation within the following periods: Volatiles, 14 days; Semi-Volatiles, 40 days; Mercury, 28 days; and other Metals, 180 days.

TABLE 1—VOLATILE CONTAMINANTS¹

Compound	CAS No.
Acetone	67-64-1
n-Butyl alcohol	71-36-6
Carbon disulfide	75-15-0
Carbon tetrachloride	56-23-5
Chlorobenzene	106-90-7
Methylene chloride	75-09-2
Methyl ethyl ketone	76-93-3
Methyl isobutyl ketone	108-10-1
Tetrachloroethylene	127-18-4
Toluene	103-88-3
1,1,1-Trichloroethane	71-55-6
Trichloroethylene	79-01-6
Trichlorofluoromethane	75-69-4
Xylene	1330-20-7

¹ Includes compounds identified in the Land Disposal Restrictions Rule. If any or all of these compounds are of concern, the zero-headspace extractor vessel shall be used. If other (non-volatile) compounds are of concern, the conventional bottle extractor shall be used.

TABLE 2—SUITABLE ROTARY AGITATION APPARATUS¹

Company	Location	Model
Associated Design and Manufacturing Company	Alexandria, VA (703) 549-5999	4-vessel device, 6-vessel device
Lars Lande Manufacturing	Whitmore Lake, MI (313) 449-4116	10-vessel device, 5-vessel device
IRA Machine Shop and Laboratory	Santurce, PR (809) 752-4004	16-vessel device
EPRI Extractor		6-vessel device ²
REXNORD	Milwaukee, WI (414) 643-2850	6-vessel device
Analytical Testing and Consulting Services, Inc.	Warrington, PA (215) 343-4490	4-vessel device

¹ Any device that rotates the extraction vessel in an end-over-end fashion at 30 ± 2 rpm is acceptable.

² Although this device is suitable, it is not commercially made. It may also require retrofitting to accommodate ZHE devices.

TABLE 3—SUITABLE ZERO-HEADSPACE EXTRACTOR VESSELS

Company	Location	Model No.
Associated Design & Manufacturing Co.	Alexandria, VA, (703) 549-5999	3740-ZHB, Gas Pressure Device.
Millipore Corp.	Bedford, MA, (800) 225-3384	SD1 P581 C5, Gas Pressure Device.
Analytical Testing & Consulting Services, Inc.	Warrington, PA, (215) 343-4490	C102, Mechanical Pressure Device.

TABLE 4—SUITABLE FILTER HOLDERS ¹

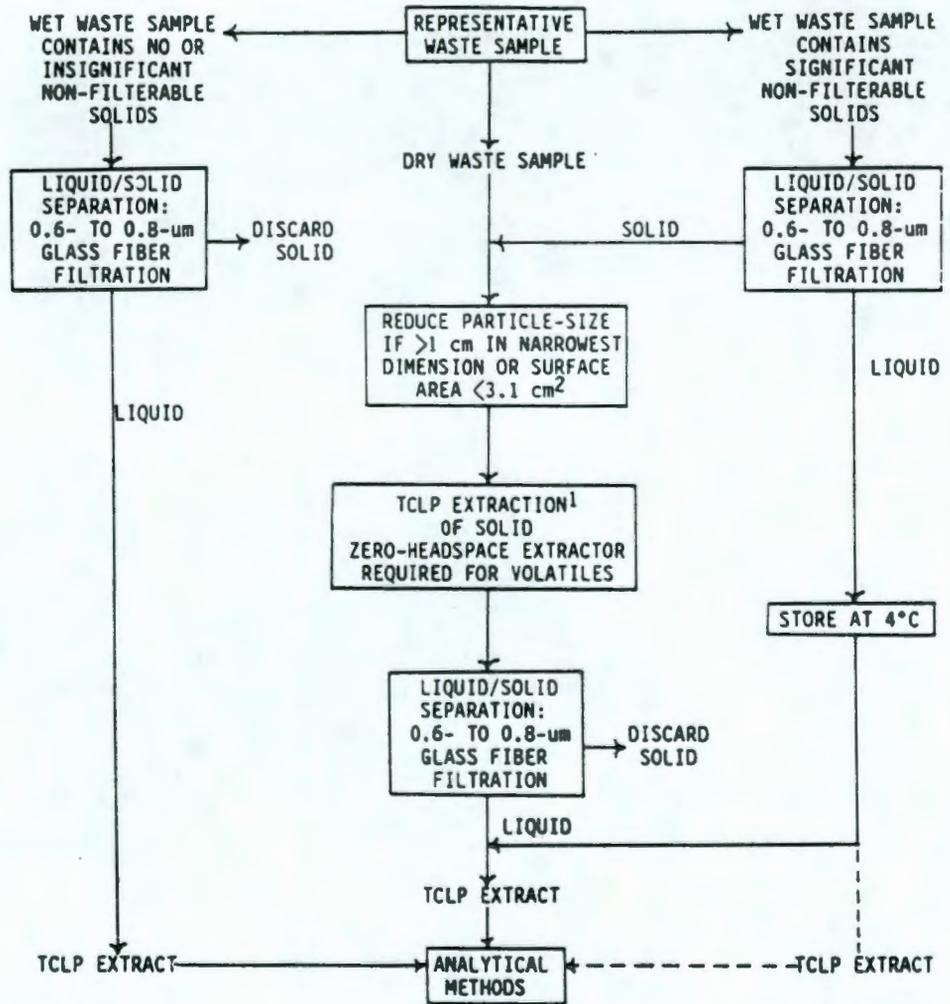
Company	Location	Model	Size
Nuclepore Corp.....	Pleasanton, CA, (800) 882-7711.....	425910	142 mm.
		410400	47 mm.
Micro Filtration Systems.....	Dublin, CA, (415) 828-6010.....	302400	142 mm.
Millipore Corp.....	Bedford, MA, (800) 225-3384.....	YT30142HW	142 mm.
		XX1004700	47 mm.

¹ Any device capable of separating the liquid from the solid phase of the waste is suitable, providing that it is chemically compatible with the waste and the constituents to be analyzed. Plastic devices (not listed above) may be used when only inorganic contaminants are of concern. The 142 mm size filter holder is recommended.

TABLE 5—SUITABLE FILTER MEDIA

Company	Location	Model	Pore size ¹
Whatman Laboratory Products, Inc.....	Clifton, NJ, (201) 773-5800.....	GFF	0.7

¹ Nominal pore size.



¹The extraction fluid employed is a function of the alkalinity of the solid phase of the waste.

FIGURE 1: TCLP FLOWCHART

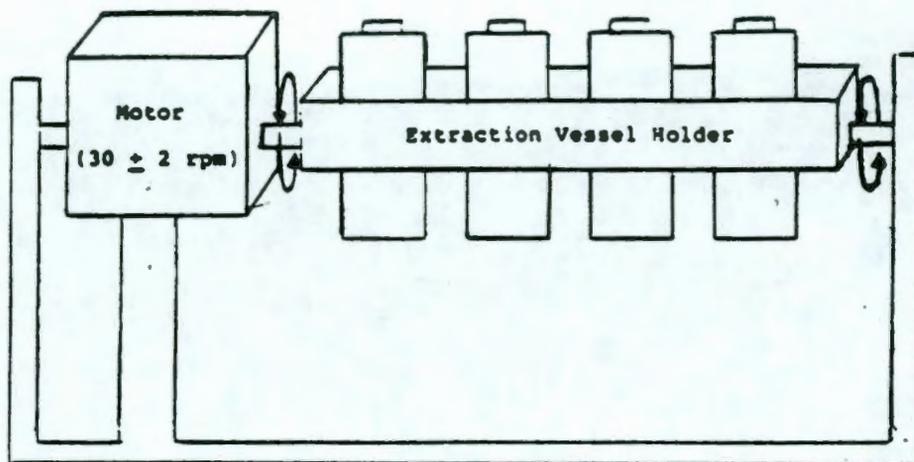


Figure 2: Rotary Agitation

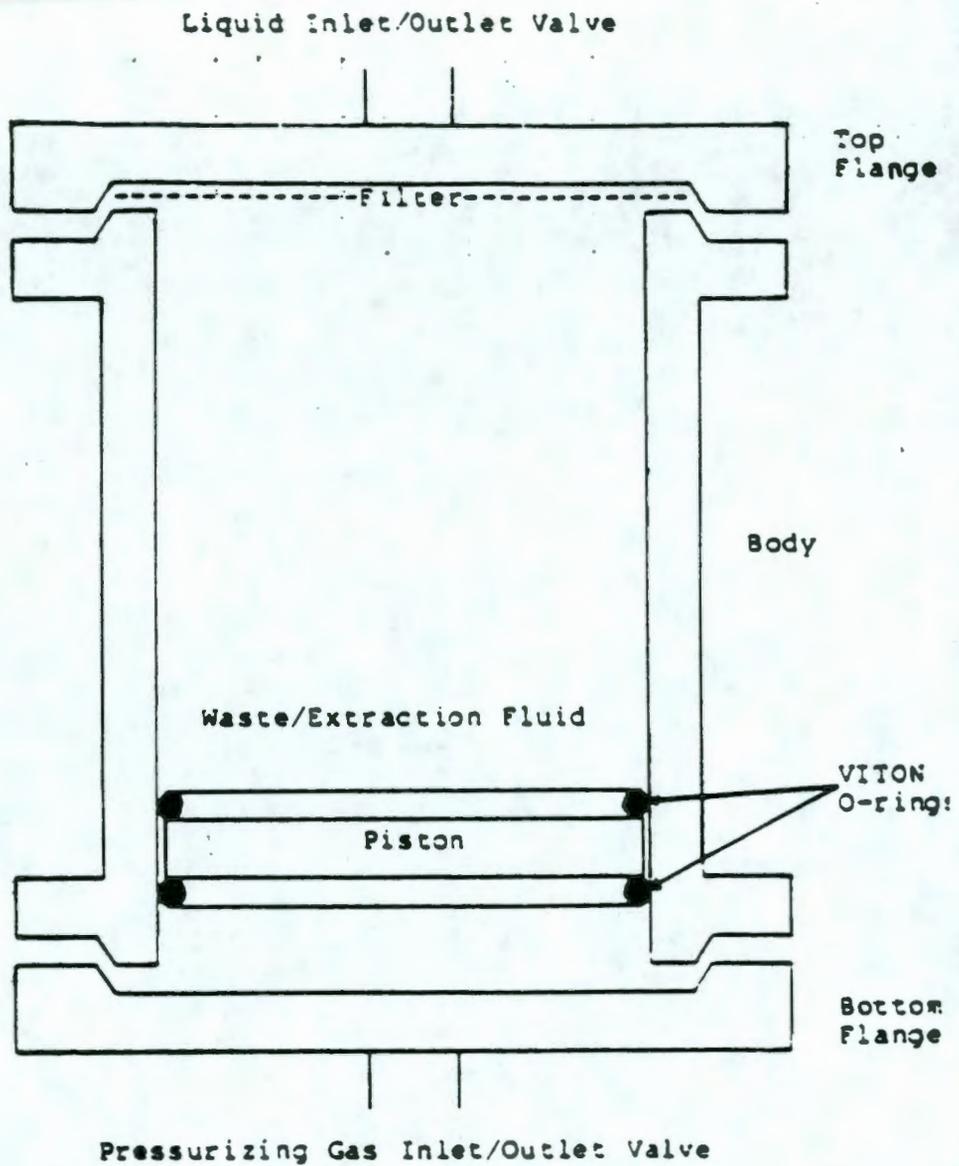


Figure 3: Zero-Headspace Extraction Vessel

[51 FR 40643, Nov. 7, 1986; 52 FR 21018, June 4, 1987]

APPENDIX II—TREATMENT STANDARDS (AS CONCENTRATIONS IN THE TREATMENT RESIDUAL EXTRACT)

[Note: The technologies shown are the basis of the treatment standards. They are not required to be used in meeting the treatment standards.]

Constituents of F001-F005 Spent Solvent Wastes	Waste Treatability Groups For F001-F005 Spent Solvent Wastes (mg/l)			
	Wastewater	Technology Basis ¹	Wastewater Generated by Pharmaceutical Plant ²	All Other ³
Acetone.....	0.05	SS.....		0.59
n-Butyl Alcohol.....	5.00	SS.....		5.00
Carbon disulfide.....	1.05	SS.....		4.81
Carbon tetrachloride.....	0.05	B.....		0.96
Chlorobenzene.....	0.15	B&AC.....		0.05
Cresols (creylic acid).....	2.82	AC.....		0.75
Cyclohexanone.....	0.125	SS.....		0.75
1,2-Dichlorobenzene.....	0.65	B&AC.....		0.125
Ethyl acetate.....	0.05	SS.....		0.75
Ethylbenzene.....	0.05	B.....		0.053
Ethyl ether.....	0.05	SS.....		0.75
Isobutanol.....	5.00	SS.....		5.00
Methanol.....	0.25	SS.....		0.75
Methylene chloride.....	0.20	B.....	12.7	0.96
Methyl ethyl ketone.....	0.05	SS.....		0.75
Methyl isobutyl ketone.....	0.05	SS.....		0.33
Nitrobenzene.....	0.66	SS&AC.....		0.125
Pyridine.....	1.12	B&AC.....		0.33
Tetrachloroethylene.....	0.079	B.....		0.05
Toluene.....	1.12	B&AC.....		0.33
1,1,1-Trichloroethane.....	1.05	SS.....		0.41
1,1,2-Trichloro-1,2,2-trifluoroethane.....	1.05	SS.....		0.96
Trichloroethylene.....	0.062	B&AC.....		0.091
Trichlorofluoromethane.....	0.05	B.....		0.96
Xylene.....	0.05	AC.....		0.15

¹ In some instances other technologies achieved somewhat lower treatment values but waste characterization data were insufficient to identify separate treatability groups. Refer to the BDAT background document for a detailed explanation of the determination of the treatment standards.

SS = steam stripping

B = biological treatment

AC = activated carbon

² Wastewaters generated by pharmaceutical plants must be treated to the standards given for all other wastewaters except in the case of methylene chloride.

³ The treatment standards in this treatability group are based on incineration.

[51 FR 40653, Nov. 7, 1986]

APPENDIX III—LIST OF HALOGENATED ORGANIC COMPOUNDS REGULATED UNDER § 268.32

In determining the concentration of HOCs in a hazardous waste for purposes of the § 268.32 land disposal prohibition, EPA has defined the HOCs that must be included in the calculation as any compounds having a carbon-halogen bond which are listed in this Appendix (see § 268.2). Appendix III to Part 268 consists of the following compounds:

Volatiles

Bromodichloromethane
Bromomethane
Carbon Tetrachloride
Chlorobenzene
2-Chloro-1,3-butadiene

Chlorodibromomethane
Chloroethane
2-Chloroethyl vinyl ether
Chloroform
Chloromethane
3-Chloropropene
1,2-Dibromo-3-chloropropane
1,2-Dibromomethane
Dibromomethane
Trans-1,4-Dichloro-2-butene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethylene
Trans-1,2-Dichloroethene
1,2-Dichloropropane
Trans-1,3-Dichloropropene
cis-1,3-Dichloropropene
Iodomethane
Methylene chloride
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethene

Environmental Protection Agency

Part 270

Tribromomethane
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichloromonofluoromethane
1,2,3-Trichloropropane
Vinyl chloride

Semivolatiles

Bis(2-chloroethoxy)ethane
Bis(2-chloroethyl)ether
Bis(2-chloroisopropyl) ether
p-Chloroaniline
Chlorobenzilate
p-Chloro-m-cresol
2-Chloronaphthalene
2-Chlorophenol
3-Chloropropionitrile
m-Dichlorobenzene
o-Dichlorobenzene
p-Dichlorobenzene
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloropropene
Hexachloropropene
4,4'-Methylenebis(2-chloroaniline)
Pentachlorobenzene
Pentachloroethane
Pentachloronitrobenzene
Pentachlorophenol
Pronamide
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
1,2,4-Trichlorobenzene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
Tris(2,3-dibromopropyl)phosphate

Organochlorine Pesticides

Aldrin
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC
Chlordane
DDD
DDE
DDT
Dieldrin
Endosulfan I
Endosulfan II
Endrin
Endrin aldehyde
Heptachlor
Heptachlor epoxide
Isodrin
Kepone
Methoxychlor
Toxaphene

Phenoxyacetic Acid Herbicides

2,4-Dichlorophenoxyacetic acid

Silvex
2,4,5-T

PCBs

Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
PCBs not otherwise specified

Dioxins and Furans

Hexachlorodibenzo-p-dioxins
Hexachlorodibenzofuran
Pentachlorodibenzo-p-dioxins
Pentachlorodibenzofuran
Tetrachlorodibenzo-p-dioxins
Tetrachlorodibenzofuran
2,3,7,8-Tetrachlorodibenzo-p-dioxin
(52 FR 25791, July 8, 1987)

**PART 270—EPA ADMINISTERED
PERMIT PROGRAMS: THE HAZARDOUS
WASTE PERMIT PROGRAM**

Subpart A—General Information

Sec.
270.1 Purpose and scope of these regulations.
270.2 Definitions.
270.3 Considerations under Federal law.
270.4 Effect of a permit.
270.5 Noncompliance and program reporting by the Director.
270.6 References.

Subpart B—Permit Application

270.10 General application requirements.
270.11 Signatories to permit applications and reports.
270.12 Confidentiality of information.
270.13 Contents of Part A of the permit application.
270.14 Contents of Part B: General requirements.
270.15 Specific Part B information requirements for containers.
270.16 Specific Part B information requirements for tank systems.
270.17 Specific Part B information requirements for surface impoundments.
270.18 Specific Part B information requirements for waste piles.
270.19 Specific Part B information requirements for incinerators.
270.20 Specific Part B information requirements for land treatment facilities.
270.21 Specific Part B information requirements for landfills.