ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 148, 261, 268, 271, and 302

[RCRA–2003–0001; SWH–FRL–7587–6]

RIN 2050–AD80

Hazardous Waste Management System; Identification and Listing of Hazardous Waste; Dyes and/or Pigments Production Wastes; Land Disposal Restrictions for Newly Identified Wastes; CERCLA Hazardous Substance Designation and Reportable Quantities; Designation of Five Chemicals as Appendix VIII Constituents; Addition of Five Chemicals to the Treatment Standards of F039 and the Universal Treatment Standards

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to list nonwastewaters from the production of certain dyes, pigments, and FD&C colorants as hazardous wastes under the Resource Conservation and Recovery Act (RCRA), which directs EPA to determine whether these wastes present a hazard to human health or the environment. EPA is proposing a mass loading-based approach for these wastes. Under this approach, these wastes are hazardous if they contain any of the constituents of concern at annual mass loading levels that meet or exceed regulatory levels. If generators determine that their wastes are below regulatory levels for all constituents of concern, then their wastes are nonhazardous. If their wastes meet or exceed the regulatory levels for any of eight specific constituents of concern, the wastes must be managed as listed hazardous wastes. However, even if the wastes meet or exceed the regulatory levels, the wastes would not be hazardous if two conditions are met: The wastes do not meet or exceed annual mass loadings for toluene-2,4-diamine, and the wastes are disposed in a Subtitle D landfill cell subject to the municipal solid waste landfill design criteria or in a Subtitle C landfill cell subject to applicable design criteria. When mass loadings meet or exceed the specified annual levels, the generator may still manage as nonhazardous all wastes generated up to the loading limit.

This proposal would also add the toxic constituents o-anisidine, p-cresidine, 1,2-phenylenediamine, 1,3-phenylenediamine, and 2,4-dimethylaniline associated with these identified wastes to the list of constituents that serves as the basis for classifying wastes as hazardous. In addition, this proposal would establish treatment standards for the wastes.

If these dyes and/or pigments production wastes are listed as hazardous waste, then they will be subject to stringent management and treatment standards under Subtitle C of RCRA.

Additionally, this action proposes to designate these wastes as hazardous substances subject to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The proposal would not adjust the one pound statutory reportable quantity (RQ) for K181 waste, nor would EPA develop a ''reference RQ'' for the new constituents identified for K181.

Other actions proposed in this notice would add o-anisidine, p-cresidine, 1,3-phenylenediamine, toluene-2,4-diamine, and 2,4-dimethylaniline to the treatment standards applicable to multisource leachate and also to add these chemicals to the Universal Treatment Standards. As a result, a single waste code would continue to be applicable to multisource landfill leachates and residues of characteristic wastes would require treatment when any of these chemicals are present above the proposed land disposal treatment standards.

DATES: EPA will accept public comments on this proposed rule until February 23, 2004. Comments postmarked after this date will be marked ''late'' and may not be considered. Any person may request a public hearing on this proposal by filing a request with Mr. Robert Dellinger, whose address appears below, by December 9, 2003. Consult the sources of information in **FOR FURTHER INFORMATION CONTACT** for the time and location of the hearing, if such hearing is requested.

ADDRESSES: Comments may be submitted by mail to: OSWER Docket, Environmental Protection Agency, Mailcode: 5305T, 1200 Pennsylvania Ave., NW., Washington, DC, 20460, Attention Docket ID No. RCRA–2003–0001. Comments may also be submitted electronically, by facsimile, or through hand delivery/courier. Follow the detailed instructions as provided in the **SUPPLEMENTARY INFORMATION** section.

If you would like to file a request for a public hearing on this proposal, please submit your request to Mr. Robert Dellinger at: Office of Solid Waste, Hazardous Waste Identification Division (5304W), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW., Washington, DC 20460, (703) 308–7271 or via email at *dellinger.robert@epa.gov*.

See the beginning of the **SUPPLEMENTARY INFORMATION** section for information on how to submit your comments as well as view public comments and supporting materials.

FOR FURTHER INFORMATION CONTACT: For general information, contact the RCRA Call Center at (800) 424–9346 or TDD (800) 553–7672 (hearing impaired). In the Washington, DC, metropolitan area, call (703) 412–9810 or TDD (703) 412–3323 or review our Web site at *http://www.epa.gov/epaoswer/hazwaste/id/dyes/index.htm*. For information on specific aspects of the rule, contact Ms. Gwen DiPietro of the Office of Solid Waste (5304W), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW., Washington, DC 20460, (E-mail address and telephone number: *dipietro.gwen@epa.gov*, (703) 308–8285). For technical information on the CERCLA aspects of this rule, contact Ms. Lynn Beasley, Office of Emergency Prevention, Preparedness, and Response, Emergency Response Center (5204G), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW., Washington, DC 20460, (E-mail address and telephone number: *beasley.lynn@epa.gov*, (703) 603–9086). For information on the procedures for submitting CBI data, contact Ms. Regina Magbie (5305W), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW., Washington, DC 20460, (E-mail address and telephone number: *magbie.regina@epa.gov*, (703) 308–7909).

SUPPLEMENTARY INFORMATION:

Who Potentially Will Be Affected by This Proposed Rule?

If promulgated as proposed, this regulation could directly impact businesses that generate and manage certain organic dyes and/or pigments production wastes. In addition, manufacturers that do not make dyes or pigments, but that generate wastes containing selected constituents of concern, may be indirectly impacted. This is because we are adding new treatment standards for eight chemicals, and we are adding five new constituents to the list of hazardous constituents on appendix VIII of part 261. Thus, these actions may result in indirect impacts on these manufacturers. In addition, landfill owners/operators who previously accepted these wastes may be indirectly impacted. This action may also affect entities that need to respond

to releases of these wastes as CERCLA hazardous substances. Impacts on potentially affected entities, direct and indirect, are summarized in section IX of this Preamble. The economics background document, ''Economic Assessment for the Proposed Loadings-Based Listing of Non-Wastewaters from the Production of Selected Organic Dyes, Pigments, and Food, Drug, and Cosmetic Colorants,'' presents a comprehensive analysis of all potentially impacted entities. This document is available in the docket established in support of today's proposed rule. A summary of potentially affected businesses is provided in the table below.

Our aim in the table below is to provide a guide for readers regarding entities likely to be directly regulated, or indirectly affected by this action. This action, however, may affect other entities not listed in the table. To determine whether your facility is regulated or affected by this action, you should examine 40 CFR parts 260 and 261 carefully, along with the proposed regulatory language amending RCRA. This language is found at the end of this **Federal Register** notice. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding section entitled **FOR FURTHER INFORMATION CONTACT**.

SUMMARY OF FACILITIES POTENTIALLY AFFECTED BY EPA'S 2003 DYES AND/OR PIGMENTS PRODUCTION WASTE LISTING PROPOSAL

SIC code	NAICS code	Industry sector name	Estimated number of relevant facilities *
Directly Impacted			
2865	325132–1	Synthetic Organic Dyes	37
	325132–4	Synthetic Organic Pigments, Lakes, and Toners.	
Indirectly Impacted			
2800 (except 2865)	325 (except 325132)	Chemical Manufacturing	Less than 50 facilities total **
4953	562212	Solid Waste Landfills and disposal sites, nonhazardous.	
5169	42269	Other Chemicals and Allied Products (wholesale).	

SIC—Standard Industrial Classification.
NAICS—North American Industrial Classification System.
* Note: The figures in this column represent individual facilities, not companies.
** Estimate based on 13 expanded scope facilities plus no more than 37 separate solid waste landfills (562212) potentially receiving wastes of concern.

How Can I Get Copies of This Document and Other Related Information?

1. *Docket.* EPA has established an official public docket for this action under Docket ID No. RCRA–2003–0001. The official public docket consists of the documents specifically referenced in this action, any public comments received, and other information related to this action. The docket for this proposed rulemaking currently contains no Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. If EPA receives such information in comments or finds that it must use such information, it will place it in the official docket, but will not make it available to the public. The official public docket is the collection of materials that is available for public viewing at the OSWER Docket in the EPA Docket Center (EPA/DC), EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the OSWER Docket is (202) 566–0270.

2. *Electronic Access.* You may access this **Federal Register** document electronically through the EPA Internet under the ''Federal Register'' listings at *http://www.epa.gov/fedrgstr/,* and you can make comments on this proposed rule at the Federal e-rulemaking portal, *http://www.regulations.gov.*

An electronic version of the public docket is available through EPA's electronic public docket and comment system, EPA Dockets. You may use EPA Dockets at *http://www.epa.gov/edocket/* to submit or view public comments, access the index listing of the contents of the official public docket, and to access those documents in the public docket that are available electronically. Once in the system, select ''search,'' then key in the appropriate docket identification number.

Certain types of information will not be placed in the EPA Docket. Information claimed as CBI and other information whose disclosure is restricted by statute, which is not included in the official public docket, will not be available for public viewing in EPA's electronic public docket. EPA's policy is that copyrighted material will not be placed in EPA's electronic public docket but will be available only in printed, paper form in the official public docket. To the extent feasible, publicly available docket materials will be made available in EPA's electronic public docket. When a document is selected from the index list in EPA Dockets, the system will identify whether the document is available for viewing in EPA's electronic public docket. Although not all docket materials may be available electronically, you may still access any of the publicly available docket materials through the RCRA Docket facility. EPA intends to work toward providing electronic access to all of the publicly available docket materials through EPA's electronic public docket.

For public commenters, it is important to note that EPA's policy is that public comments, whether submitted electronically or in paper,

will be made available for public viewing in EPA's electronic public docket as EPA receives them and without change, unless the comment contains copyrighted material, CBI, or other information whose disclosure is restricted by statute. When EPA identifies a comment containing copyrighted material, EPA will provide a reference to that material in the version of the comment that is placed in EPA's electronic public docket. The entire printed comment, including the copyrighted material, will be available in the public docket.

Public comments submitted on computer disks that are mailed or delivered to the docket will be transferred to EPA's electronic public docket. Public comments that are mailed or delivered to the Docket will be scanned and placed in EPA's electronic public docket. Where practical, physical objects will be photographed, and the photograph will be placed in EPA's electronic public docket along with a brief description written by the docket staff.

For additional information about EPA's electronic public docket visit EPA Dockets online or see 67 FR 38102, May 31, 2002.

How and to Whom Do I Submit Comments?

You may submit comments electronically, by mail, by facsimile, or through hand delivery/courier. To ensure proper receipt by EPA, identify the appropriate docket identification number in the subject line on the first page of your comment. Please ensure that your comments are submitted within the specified comment period. Comments received after the close of the comment period will be marked ''late.'' EPA is not required to consider these late comments. If you wish to submit CBI or information that is otherwise protected by statute, please follow the instructions provided later in this section. Do not use EPA Dockets or e-mail to submit CBI or information protected by statute.

1. *Electronically.* If you submit an electronic comment as prescribed below, EPA recommends that you include your name, mailing address, and an e-mail address or other contact information in the body of your comment. Also include this contact information on the outside of any disk or CD ROM you submit, and in any cover letter accompanying the disk or CD ROM. This ensures that you can be identified as the submitter of the comment and allows EPA to contact you in case EPA cannot read your comment due to technical difficulties or needs further information on the substance of your comment. EPA's policy is that EPA will not edit your comment, and any identifying or contact information provided in the body of a comment will be included as part of the comment that is placed in the official public docket, and made available in EPA's electronic public docket. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment.

i. *EPA Dockets.* Your use of EPA's electronic public docket to submit comments to EPA electronically is EPA's preferred method for receiving comments. Go directly to EPA Dockets at *http://www.epa.gov/edocket,* and follow the online instructions for submitting comments. To access EPA's electronic public docket from the EPA Internet Home Page, select ''Information Sources,'' ''Dockets,'' and ''EPA Dockets.'' Once in the system, select ''search,'' and then key in Docket ID No. RCRA–2003–0001. The system is an ''anonymous access'' system, which means EPA will not know your identity, e-mail address, or other contact information unless you provide it in the body of your comment.

ii. *E-mail.* Comments may be sent by electronic mail (e-mail) to *rcra-docket@epa.gov,* Attention Docket ID No. RCRA–2003–0001. In contrast to EPA's electronic public docket, EPA's e-mail system is not an ''anonymous access'' system. If you send an e-mail comment directly to the Docket without going through EPA's electronic public docket, EPA's e-mail system automatically captures your e-mail address. E-mail addresses that are automatically captured by EPA's e-mail system are included as part of the comment that is placed in the official public docket, and made available in EPA's electronic public docket.

iii. *Disk or CD ROM.* You may submit comments on a disk or CD ROM that you mail to the mailing address identified below. These electronic submissions will be accepted in WordPerfect or ASCII file format. Avoid the use of special characters and any form of encryption.

2. *By Mail.* Send your comments to: OSWER Docket, Environmental Protection Agency, Mailcode: 5305T, 1200 Pennsylvania Ave., NW., Washington, DC 20460, Attention Docket ID No. RCRA–2003–0001.

3. *By Hand Delivery or Courier.* Deliver your comments to: EPA Docket Center, Public Reading Room, Room B102, EPA West Building, 1301 Constitution Avenue, NW., Washington, DC 20004, Attention Docket ID No. RCRA–2003–0001. Such deliveries are only accepted during the Docket's normal hours of operation (8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays).

4. *By Facsimile.* Fax your comments to: (202) 566–0272, Attention Docket ID. No. RCRA–2003–0001.

How Should I Submit CBI to the Agency?

Do not submit information that you consider to be CBI electronically through EPA's electronic public docket or by e-mail. Send or deliver information identified as CBI only to the following address: RCRA CBI Document Control Officer, Office of Solid Waste (5305W), U.S. EPA, 1200 Pennsylvania Avenue, NW., Washington, DC 20460, Attention Docket ID No. RCRA–2003–0001. You may claim information that you submit to EPA as CBI by marking any part or all of that information as CBI (if you submit CBI on disk or CD ROM, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is CBI). Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

In addition to one complete version of the comment that includes any information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket and EPA's electronic public docket. If you submit the copy that does not contain CBI on disk or CD ROM, mark the outside of the disk or CD ROM clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and EPA's electronic public docket without prior notice. If you have any questions about CBI or the procedures for claiming CBI, please consult the person identified in the **FOR FURTHER INFORMATION CONTACT** section.

What Should I Consider as I Prepare My Comments for EPA?

You may find the following suggestions helpful for preparing your comments:

1. Explain your views as clearly as possible.

2. Describe any assumptions that you used.

3. Provide any technical information and/or data you used that support your views.

4. If you estimate potential burden or costs, explain how you arrived at your estimate.

5. Provide specific examples to illustrate your concerns.

6. Offer alternatives.

7. Make sure to submit your comments by the comment period deadline identified.

8. To ensure proper receipt by EPA, identify the appropriate docket identification number in the subject line on the first page of your response. It would also be helpful if you provided the name, date, and **Federal Register** citation related to your comments.

Readable Regulations

Today's proposed hazardous waste listing determination (or ''listing determination'') preamble and regulations are written in ''readable regulations'' format. The authors tried to use active rather than passive voice, plain language, a question-and-answer format, the pronouns ''we'' for EPA and ''you'' for the owner/generator, as well as other techniques, including an acronym list (see below), to make the information in today's proposed rule easier to read and understand. This format is part of our efforts toward regulatory reinvention. We believe that this format will help readers understand the regulations and foster better relationships between EPA and the regulated community.

ACRONYMS

Acronym	Definition
AOC	Areas of Concern
AWQC	Ambient Water Quality Criteria
BDAT	Best Demonstrated Available Technology
BHP	Biodegradation, hydrolysis and photolysis
BRS	Biennial Reporting System
CAA	Clean Air Act
CalEPA	California Environmental Protection Agency
CARBN	Carbon Absorption
CAS	Chemical Abstract Services
CBI	Confidential Business Information
CCL	Compacted Clay Liner
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response Compensation and Liability Information System
CFR	Code of Federal Regulations
CHOXD	Chemical or Electrolytic Oxidation
CL	Clay Lined
CMBST	Combustion
CMS	Corrective Measures Study
CoC	Constituent of Concern
CPMA	Color Pigments Manufacturers Association
CSF	Cancer Slope Factor
CWA	Clean Water Act
CWT	Centralized Wastewater Treatment Facility (may also be referred to as a wastewater treatment facility, or WWTF)
ED	Environmental Defense (previously the Environmental Defense Fund or EDF)
EO	Executive Order
EP	Extraction Procedure
EPA	Environmental Protection Agency
EPACMTP	EPA's Composite Model for Leachate Migration with Transformation Products
EPCRA	Emergency Planning and Community Right-To-Know Act
ETAD	Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers
EU	European Union
FB	Followed By
FDA	Food and Drug Administration
FD&C	Food, Drug and Cosmetic
FR	**Federal Register**
GC/MS	Gas Chromatography/Mass Spectroscopy
GCL	Geosynthetic Clay Liner
GM	Geomembrane
GRAS	Generally Recognized as Safe
HAP	Hazardous Air Pollutant
HDPE	High Density Polyethylene
HEAST	Health Effects Assessment Summary Table
HELP	Hydrologic Evaluation of Landfill Performance
HPLC/MS or UV	High Performance Liquid Chromatography/Mass Spectroscopy or Ultraviolet Light
HPV	High Production Volume
HQ	Hazard Quotient
HSWA	Hazardous and Solid Waste Amendments
IACM	International Association of Color Manufacturers
ICR	Information Collection Request
IRIS	Integrated Risk Information System
IWAIR	Industrial Waste Air
KG	Kilogram
LDR	Land Disposal Restriction
MACT	Maximum Achievable Control Technology
mg/kg	Milligram per kilogram
mg/L	Milligram per liter
MINTEQ	MINTEQ (model for geochemical equilibria in ground water)
MSDS	Material Safety Data Sheet

ACRONYMS—Continued

Acronym	Definition
MSWLF	Municipal Solid Waste Landfill
MT	Metric Ton
NAICS	North American Industrial Classification System
NAPL	Non-Aqueous Phase Liquid
NCV	National Capacity Variance
NESHAP	National Emission Standards for Hazardous Air Pollutants
NL	No Liner
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRC	National Response Center
NSPS	New Source Protection Standard
NTTAA	National Technology Transfer and Advancement Act
OCPSF	Organic Chemicals, Plastics, and Synthetic Fibers
OMB	Office of Management and Budget
OSW	Office of Solid Waste
OSWER	Office of Solid Waste and Emergency Response
POTW	Publicly Owned Treatment Works
ppb	Parts Per Billion
ppm	Parts Per Million
PRA	Paperwork Reduction Act
QA	Quality Assurance
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFA	Regulatory Flexibility Act
RfC	Reference Concentration
RfD	Reference Dose
RFI	RCRA Facility Investigation
RFSA	Regulatory Flexibility Screening Analysis
RODS	Record of Decision System
RQ	Reportable Quantity
SBA	Small Business Administration
SBREFA	Small Business Regulatory Enforcement Fairness Act
SIC	Standard Industry Code
SL	Synthetic Liner
SOCMI	Synthetic Organic Chemical Manufacturing Industry
SOP	Standard Operating Procedure
SRI	Stanford Research Institute
SW–846	Test Methods for Evaluating Solid Wastes
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
TSDF	Treatment, Storage and Disposal Facility
TSS	Total Suspended Solids
UMRA	Unfunded Mandates Reform Act
USC	United States Code
UTS	Universal Treatment Standard
VOC	Volatile Organic Compound
WETOX	Wet Air Oxidation
WMU	Waste Management Unit
WWT	Wastewater Treatment

Contents of This Proposed Rule

I. Overview

A. What Impact May This Proposed Rule Have?

We are proposing to list nonwastewaters from the production of certain dyes and/or pigments as hazardous wastes under Subtitle C of RCRA. If you are a dye, pigment or FD&C colorant manufacturer and you generate nonwastewaters described in this proposed rule, then you would need to determine if your wastes meet the new hazardous waste code, K181, if finalized. Your waste would become a listed hazardous waste if it contains annual mass loadings (kilograms/year, abbreviated as kg/yr) of any of the K181 constituents of concern at a level equal to or greater than the hazardous loading identified for that constituent (*see* Table IV–1), unless you meet both of the following conditions: (1) Your wastes do not contain annual mass loadings of the constituent for which we are proposing a second, higher tier listing limit (*see* Table IV–2), and (2) you manage your wastes in a Subtitle D landfill cell subject to the design criteria in § 258.40 or in a Subtitle C landfill cell subject to § 264.301 or § 265.301. When mass loadings meet or exceed the specified annual levels, you may still manage as nonhazardous all wastes generated up to the loading limit. If you determine that your nonwastewaters are hazardous under this listing, then the wastes must be stored, treated and disposed in a manner consistent with the RCRA Subtitle C hazardous waste regulations at 40 CFR parts 260–272. If you were not previously a hazardous waste generator, and you determine that you generate this newly-listed hazardous waste, then you must notify the EPA or your authorized state, according to section 3010 of RCRA, that you generate hazardous waste.

If you believe that your wastes do not exceed the K181 listing levels, or that you meet the conditions for exclusion from the listing, you can document your findings on an annual basis, and manage your wastes as nonhazardous. If your annual generation of nonwastewaters potentially subject to the K181 listing exceeds 1,000 metric tons and you wish to demonstrate that your wastes do not exceed the K181 listing levels, you must conduct sampling and analysis of the affected wastes, calculate the constituent-specific mass-loadings, and keep certain records of these wastes on-site. On the other hand, if your annual generation of nonwastewaters potentially subject to the K181 listing is

less than 1,000 metric tons and you wish to demonstrated that your wastes do not exceed the K181 listing levels, you can use your knowledge of your wastes to calculate your wastes' mass loadings. Following the initial determination that your wastes are nonhazardous under this listing, you would have a continuing obligation to make such a determination at least on an annual basis. After three consecutive annual demonstrations that your wastes are not subject to K181, you would be able to make subsequent determinations based on your knowledge of the wastes, rather than by conducing waste analysis.

We are proposing not to list wastewaters from the production of dyes and/or pigments.

Section II provides background on the Listing Program, past proposed listing determinations for these wastes, relevant litigation, the scope of this effort, an overview of this industry and the general types of data that we used. Section III describes our approach to conducting this listing determination. Section IV presents our basis for concluding that nonwastewaters should be listed as K181 and that wastewaters do not warrant listing. Section V describes the proposed process for demonstrating that your wastes are not K181.

B. What Are the Statutory Authorities for This Proposed Rule?

Except as specified below, these regulations are being proposed under the authority of sections 2002(a), 3001(b), 3001(e)(2), 3004(d)–(m), and 3007(a) of the Solid Waste Disposal Act, 42 U.S.C. 6912(a), 6921(b) and (e)(2), 6924(d)–(m), and 6927(a), as amended, most importantly by the Hazardous and Solid Waste Amendments of 1984 (HSWA). These statutes commonly are referred to as the Resource Conservation and Recovery Act (RCRA), and are codified at Volume 42 of the United States Code (U.S.C.), sections 6901 to 6992(k) (42 U.S.C. 6901–6992(k)).

Section 102(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9602(a) is the authority under which EPA is proposing amendments to 40 CFR part 302.

II. Background

A. How Does EPA Define a Hazardous Waste?

EPA's regulations establish two ways of identifying solid wastes as hazardous under RCRA. A waste may be considered hazardous if it exhibits certain hazardous properties (''characteristics'') or if it is included on a specific list of wastes EPA has determined are hazardous (''listing'' a waste as hazardous) because we found them to pose substantial present or potential hazards to human health or the environment. EPA's regulations in the Code of Federal Regulations (40 CFR) define four hazardous waste characteristic properties: ignitability, corrosivity, reactivity, or toxicity (*see* 40 CFR 261.21–261.24). As a generator, you must determine whether or not a waste exhibits any of these characteristics by testing the waste, or by using your knowledge of the process that produced the waste (*see* § 262.11(c)). While you are not required to sample your waste, you will be subject to enforcement actions if you are found to be improperly managing materials that are characteristic hazardous waste.

EPA may also conduct a more specific assessment of a waste or category of wastes and ''list'' them if they meet criteria set out in 40 CFR 261.11. As described in § 261.11, we may list a waste as hazardous if it:

—Exhibits any of the characteristics noted above, *i.e.*, ignitability, corrosivity, reactivity, or toxicity (§ 261.11(a)(1));

—Is ''acutely'' hazardous, *i.e.*, if it is fatal to humans at low doses, or in the absence of human data, it has been shown in animal studies to meet certain criteria, or otherwise capable of causing or significantly contributing to an increase in serious illness (§ 261.11(a)(2)); or

—Is capable of posing a substantial present or potential hazard to human health or the environment when improperly managed (§ 261.11(a)(3)).

Under the third criterion, at 40 CFR 261.11(a)(3), we may decide to list a waste as hazardous if it contains hazardous constituents identified in 40 CFR part 261, appendix VIII, and if, after considering the factors noted in this section of the regulations, we ''conclude that the waste is capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.'' We place a chemical on the list of hazardous constituents on Appendix VIII only if scientific studies have shown a chemical has toxic effects on humans or other life forms. When listing a waste, we also add the hazardous constituents that serve as the basis for listing the waste to 40 CFR part 261, appendix VII.

The regulations at 40 CFR 261.31 through 261.33 contain the various hazardous wastes the Agency has listed to date. Section 261.31 lists wastes generated from non-specific sources, known as ''F-wastes,'' and contains wastes that are usually generated by various industries or types of facilities, such as ''wastewater treatment sludges from electroplating operations'' (*see* code F006). Section 261.32 lists hazardous wastes generated from specific industry sources, known as ''K-wastes,'' such as ''Spent potliners from primary aluminum production'' (*see* code K088). Section 261.33 contains lists of commercial chemical products and other materials, known as ''P-wastes'' or ''U-wastes,'' that become hazardous wastes when they are discarded or intended to be discarded.

Today's proposed regulations would list certain dyes and/or pigments production wastes as a K-waste code under § 261.32. We are also proposing to add constituents that serve as the basis for the proposed listings to appendix VII of part 261, as well as to add certain constituents to appendix VIII of part 261 that are not already included.

''Derived-From'' and ''Mixture'' Rules

Residuals from the treatment, storage, or disposal of most listed hazardous wastes are also classified as hazardous wastes based on the ''derived-from'' rule (40 CFR 261.3(c)(2)(i)). For example, ash or other residuals generated from the treatment of a listed waste generally carries the original hazardous waste code and is subject to the hazardous waste regulations. Also, the ''mixture'' rule (40 CFR 261.3(a)(2)(iii) and (iv)) provides that, with certain limited exceptions, any mixture of a listed hazardous waste and a solid waste is itself a RCRA hazardous waste.

B. How Does EPA Regulate RCRA Hazardous Wastes?

If a waste exhibits a hazardous characteristic or is listed as a hazardous waste then it is subject to federal requirements under RCRA. These regulations affect persons who generate, transport, treat, store or dispose of such waste. Facilities that must meet hazardous waste management requirements, including the need to obtain permits to operate, commonly are referred to as ''Subtitle C'' facilities. Subtitle C is Congress' original statutory designation for that part of RCRA that directs EPA to issue regulations for hazardous wastes as may be necessary to protect human health or the environment. EPA standards and procedural regulations implementing Subtitle C are found generally at 40 CFR parts 260 through 273.

All RCRA hazardous wastes are also hazardous substances under the

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as defined in section 101(14)(C) of the CERCLA statute. This applies to wastes listed in §§ 261.31 through 261.33, as well as any wastes that exhibit a RCRA characteristic. Table 302.4 at 40 CFR 302.4 lists CERCLA hazardous substances along with their reportable quantities (RQs). Anyone spilling or releasing a substance at or above the RQ must report the release to the National Response Center, as required in CERCLA section 103. In addition, section 304 of the Emergency Planning and Community Right-to-Know Act (EPCRA) requires facilities to report the release of a CERCLA hazardous substance at or above its RQ to State and local authorities. Today's rule proposes to establish RQs for the newly listed wastes.

C. How Does EPA Regulate Solid Wastes That Are Not RCRA Hazardous Wastes?

If your waste is a solid waste, but is not, or is determined not to be a listed and/or characteristic hazardous waste, then you may manage them at Subtitle D facilities. These facilities are approved by state and local governments and generally impose less stringent requirements on management of wastes. Subtitle D is the statutory designation for that part of RCRA that deals with disposal of nonhazardous solid waste. EPA regulations affecting Subtitle D facilities are found at 40 CFR parts 240 thru 247, and 255 thru 258. Regulations for Subtitle D landfills that accept municipal waste (''municipal solid waste landfills'') are in 40 CFR part 258.

D. Overview of the Hazardous Waste Listing Determination Process for Dyes and/or Pigments Production Wastes

1. Previous Proposals

Under the Resource Conservation and Recovery Act (RCRA) of 1976, as an amendment to the Solid Waste Disposal Act of 1965, Congress directed EPA to establish a framework for RCRA's Subtitle C hazardous waste program. Congress also required EPA to propose and write timely rules identifying wastes as hazardous under Subtitle C.

In the early 1980's, the EPA's Office of Solid Waste began an investigation of the wastes generated by the dyes and/or pigments production industries. Then in 1984, Congress passed the Hazardous and Solid Waste Amendments (HSWA) to RCRA to significantly expand the scope of RCRA, requiring EPA, in part, to make listing determinations for a number of wastes including those from the manufacture of dyes and pigments (RCRA section 3001(e)(2)). The Agency has made two listing determination proposals with regard to organic dyes and pigments manufacture, one in 1994 and another in 1999, according to the deadlines set forth in a consent decree entered between EPA and Environmental Defense (ED; formerly Environmental Defense Fund, or EDF). The consent decree is described further in II.C.2.

On December 22, 1994, the Agency proposed its first listing determinations for wastes from the production of organic dyes and pigments (59 FR 66071). Specifically, the Agency proposed to list five wastes, not to list six other wastes, and to defer action on an additional three wastes. On July 23, 1999, the Agency proposed concentration-based listings for two of the three deferred wastes from the 1994 proposed rule (64 FR 40192). EPA redacted underlying data from both proposals due to a court injunction that placed restrictions on the Agency's release of underlying data with unresolved confidentiality claims. (The court injunction is discussed further in II.C.3.) EPA has not taken final action on either of these proposals.

Today's proposed rule completely supercedes the '94 and '99 proposals. We have transferred over to the new docket those non-CBI materials that we are using as a basis for the new proposal.

2. Consent Decree Schedule for This Proposal

As noted above, HSWA established deadlines for completion of a number of listing determinations, including for dyes and pigments production wastes (*see* RCRA section 3001(e)(2)). Due to competing demands for Agency resources and shifting priorities, these deadlines were not met. As a result, in 1989, ED filed a lawsuit to enforce the statutory deadlines for listing decisions in RCRA section 3001(e)(2). (*Environmental Defense* v. *Whitman*, D.D.C. Civ. No. 89–0598.) To resolve most of the issues in the case, in 1991 ED and EPA entered into a consent decree which has been amended several times to revise the deadlines for EPA action. Paragraph 1.h.(i) (as amended in December 2002) of the consent decree addresses the organic dyes and pigments production industries:

> EPA shall promulgate final listing determinations for azo/benzidine, anthraquinone, and triarylmethane dye and pigment production wastes on or before February 16, 2005 * * * These listing determinations shall be proposed for public comment on or before November 10, 2003.

Furthermore, paragraph 6.e. (as amended) stipulates that:

> On or before November 10, 2003, EPA's Administrator shall sign a notice of proposed rulemaking proposing land disposal restrictions for dye and pigment wastes proposed for listing under paragraph 1.h.(i). EPA shall promulgate a final rule establishing land disposal restrictions for dye and pigment wastes listed under paragraph 1.h.(i) on the same date that it promulgates a final listing determination for such wastes.

Today's proposal satisfies EPA's duty under paragraphs 1.h and 6.e of the ED consent decree to propose listing determinations and land disposal restrictions for the specified organic dyes and/or pigments production wastes.

3. Effect on Proposals of Legal Actions Pertaining to Confidential Business Information

In late 1994, just prior to EPA's issuance of the first listing proposal for dyes and/or pigments production wastes, EPA was sued by a number of pigment manufacturers who successfully sought an injunction prohibiting EPA from releasing the companies' information that they had submitted to EPA and claimed as Confidential Business Information (CBI). (*Magruder Color Co.* v. *EPA,* Civ. No. 94–5768 (D.N.J.) The U.S. District Court in New Jersey enjoined EPA from disclosing any of the claimed CBI at issue in the litigation. As a result, EPA redacted underlying data from both its 1994 and 1999 proposed dye and pigment listing determinations. Members of the public (including ED) informed EPA that they could not adequately comment on the proposals without access to the redacted data.

EPA had intended to litigate the *Magruder* case and publish a notice of data availability releasing any information that the Court determined not to be CBI. However, litigation proved extremely time-consuming. Consequently, in 2002 EPA decided to try a new strategy—issuing a completely new proposal that did not rely on data subject to the injunction in *Magruder*. EPA also reached a settlement with *Magruder* plaintiffs that stayed the litigation during this new rulemaking and permitted EPA to disclose certain specified masked and aggregated waste sampling data. The Stipulation and Consent Order entered by the District Court on June 30, 2003 is available in the docket for today's proposal.

Today's proposal has been developed independently of the first and second proposals. It does use some data developed for the 1994 proposal. First, it uses RCRA § 3007 questionnaire

responses submitted by dyes and/or pigments manufacturers that were not plaintiffs in *Magruder* and that we have determined are not CBI. We also use the masked and aggregated data from EPA's record sampling and analysis of dye and pigment wastes disclosed pursuant to the settlement described above. Finally, we use some data submitted in public comments that are not claimed as CBI. We are not using, however, any of the analyses or background documents prepared for the two previous proposals. We have conducted new analyses, prepared new background documents, and reached new conclusions. Today's proposal completely supersedes the 1994 and 1999 proposals. EPA does not intend to respond to comments submitted on those proposals. Thus, if you believe that any comments submitted on those proposals remains germane to today's proposal, you should submit them (or relevant portions) again during this comment period.

E. Existing Regulations That Apply to This Industry

RCRA authorizes EPA to evaluate industry waste management practices and, if necessary, regulate how wastes are handled to ensure that present or potential hazards are not posed to human health and the environment. In addition to RCRA, the Clean Water Act (CWA) and Clean Air Act (CAA) provide EPA with the statutory authority to evaluate industry practices and, if necessary, regulate industry releases of pollutants to environmental media such as water and air.

Currently, there are no hazardous waste listings under RCRA specifically directed at organic dyes and/or pigments production wastes. Organic dyes and/or pigments production waste streams may, however, carry hazardous waste listing and/or characteristic codes if they are generated from the use of certain common organic solvents (spent solvent wastes F001 through F005) or if they exhibit a hazardous waste characteristic (ignitability-D001, corrosivity-D002, reactivity-D003, toxicity-D004-D043). In addition, a variety of intermediates used in dyes and pigments production are listed hazardous waste when disposed as discarded commercial chemical products under § 261.33. EPA is not soliciting comment on these existing hazardous waste listings and does not intend to respond to such comments if received. As explained in section IV.B.3, EPA is proposing to exclude from today's proposed listing dyes and/or pigments production wastes that are subject to these existing listings or hazardous waste characteristics.

Regulatory requirements under the CWA (40 CFR part 414) specify effluent guidelines for wastewaters discharged from the organic chemical industry, including certain dyes and/or pigments production wastes that are discharged to navigable waters. These guidelines are implemented through national pollutant discharge elimination system (NPDES) permits. These regulations apply to dyes and/or pigments production wastes that originate from the manufacture of cyclic crudes and intermediates, dyes, and organic pigments classified under SIC 2865 (among various organic chemicals, plastics, and synthetic fibers (OCPSF) products). In addition, manufacturers who discharge wastewaters generated from dyes and/or pigments production to a publicly owned treatment works (POTW) may be required to comply with general pretreatment requirements (40 CFR part 403) as established by the POTW. Finally, some dyes and/or pigments manufacturers send their wastewaters to privately-owned centralized wastewater treatment facilities (CWTs) that are operated under NPDES permits. The Agency promulgated effluent guidelines for these facilities at 40 CFR part 437.

Under the CAA, there are existing regulatory requirements for the organic chemical industry that may apply to dyes and/or pigments production facilities, such as:

- 40 CFR part 60—several subparts on standards of performance for VOC emissions for new stationary sources.
- 40 CFR part 61—national emission standards for hazardous air pollutants on equipment leaks from fugitive emission sources, benzene operations, etc.
- 40 CFR part 63—several subparts on national emission standards for hazardous air pollutants (NESHAP) for the synthetic organic chemical manufacturing industry (SOCMI).
- 40 CFR part 68—chemical accident prevention provisions.
- 40 CFR part 82—protection of stratospheric ozone.

For example, 40 CFR part 60 subpart Kb provides standards of performance for volatile organic liquid storage vessels; subpart III provides standards of performance for VOC emissions from the SOCMI air oxidation unit processes; and subpart RRR provides standards of performance for VOC emissions from the SOCMI reactor processes. The NESHAP in part 63 subpart F applies to chemical manufacturing processing units; the NESHAP in part 63 subpart G applies to process vents, storage vessels, transfer operations, and wastewater; the NESHAP in part 63 subpart H covers equipment leaks; the NESHAP in part 63 subpart I applies to certain processes subject to the negotiated regulation for equipment leaks; and the NESHAP in part 63 subpart Q applies to industrial cooling towers.

There is also a proposed new source performance standard (NSPS) for volatile organic compound emissions for wastewaters from the synthetic organic chemical manufacturing industry (SOCMI) (*see* 59 FR 46780, September 12, 1994; and 63 FR, 68087; and December 9, 1998, amendments to the proposed rule based on public comments and changes to other SOCMI rules). This SOCMI Wastewater NSPS proposal will most likely be promulgated and published in the **Federal Register** in late 2003 or early 2004. Furthermore, the Agency proposed on April 4, 2002, Subpart FFFF NESHAP, to reduce hazardous air pollutants from the miscellaneous organic chemical manufacturing and the miscellaneous coating manufacturing categories (67 FR 16154). This proposal would apply to the production of a variety of SIC 28/NAICS 325 organic chemicals including organic dyes and pigments.

In addition, the Agency has promulgated performance standards and emission guidelines for new and existing commercial and industrial solid waste incineration units burning nonhazardous wastes (see 65 FR 75337; December 1, 2002). The Agency also has recently proposed a NESHAP for industrial/commercial/institutional boilers and process heaters identified as major sources of hazardous air pollutants (HAP) emissions (see 63 FR 1659; January 13, 2003).

There are also air emission regulations for steam generating boilers under 40 CFR Part 60 Subparts D, Da, Dc and Db that provide New Source Performance Standards (NSPS) limiting emissions from boilers built after certain dates. Moreover, the Agency has published an amendment for standards of performance for industrial-commercial-institutional steam generating units located at chemical manufacturing plants and petroleum refineries burning high-nitrogen byproduct/wastes (66 FR 49830; October 1, 2001).

F. What Industries and Wastes Are Covered in This Proposed Rule?

1. Scope of Industry Classifications

EPA based many of its decisions concerning the scope of the industries and wastes covered in this proposal on the ED v. Browner consent decree. Paragraph 1.h.(i) of the consent decree stipulates that:

EPA shall promulgate final listing determinations for azo/benzidine, anthraquinone, and triarylmethane dye and pigment production wastes * * * The azo/benzidine listing determination shall include the following azo/benzidine dye and pigments classes: azo, monoazo, diazo, triazo, polyazo, azoic, benzidine, and pyrazolone. The anthraquinone listing determination shall include the following anthraquinone dye and pigment classes: anthraquinone and perylene. The triarylmethane listing determination shall include the following triarylmethane dye and pigment classes: triarylmethane and triphenylmethane.

Today's proposal applies only to certain organic dye and/or pigment production industries. The end-user markets for dyes and pigments, which include textiles, paper, leather, inks, paints, coatings, plastics, fibers, lacquers, varnishes, cosmetics, food items, and other low volume markets, are not within the scope of our listing determination. Similarly, we are not addressing wastes from the post-production formulation and packaging of dyes and/or pigments. Consistent with both HSWA Amendments of 1984 and the consent decree, EPA is only making proposed determinations on wastes from the production of the organic dyes and/or pigments at issue.

Facilities impacted by today's proposal manufacture a range of products. Some are exclusive dye manufacturers, while others produce exclusively pigments. Others produce both pigments and dyes, and many of these facilities produce other products that are not dyes or pigments. While the various trade associations have asserted over time that wastes from dye manufacture differs from wastes from pigment manufacture, we are not differentiating between the two types of products for the purposes of this proposal. Dyes and pigments commonly use similar raw materials, and pigments are often made by insolubilizing dyes. The mass loadings-based approach proposed today will only impact those facilities that generate wastes with significant levels of the K181 constituents, irrespective of whether they are associated with dyes, pigments or both processes. As a result, this notice uses the terminology ''dyes and/or pigments'' to refer to all of the facilities or processes potentially impacted by this proposal.

Products produced by the organic dyes and/or pigments industries that are included within the scope of this proposed rule are referred to as ''dyes,'' ''pigments'' or ''FD&C colorants.'' The consent decree covers three major chemical classes of organic dyes and pigments: azo/benzidine, anthraquinone, and triarylmethane. This includes entities who manufacture azo, monoazo, diazo, triazo, polyazo, azoic, benzidine, and pyrazolone categories of the azo/benzidine class; anthraquinones and perylenes; and triarylmethane and triphenylmethane categories of the triarylmethane class.

Commenters on the previous proposed listing determinations for these wastes raised several questions about the range of products that would be associated with any listed wastes from the production of dyes and/or pigments. For the purposes of clarity, we are addressing those particular concerns in today's proposal. One commenter [1] stated that wastes from the manufacture of polymeric colorants should not be included in the proposed listings. The commenter noted that polymeric colorants are not classified as dyes or pigments by various authoritative sources and are not considered dyes or pigments by industry or end-users. Specifically, the commenter noted that (1) no polymeric colorant is listed in the worldwide dyes registry administered by the United Kingdom-based Royal Society of Dyers and Colourists, *i.e.*, the Colour Index; and (2) polymeric colorants do not appear to qualify as a conventional dye or pigment under the guidelines provided in Kirk-Othmer Encyclopedia of Chemical Technology (Fourth Edition). The commenter described polymeric colorants as polymers with much higher molecular weights (approximately 3,500) than either dyes or pigments (less than 500). The commenter also noted that in prior rulemakings (*e.g.*, carbamate rulemaking [2] and polymer exemption provisions under the Toxic Substances Control Act (TSCA)),[3] EPA recognized the reduced toxicity associated with higher molecular weight molecules. The commenter further noted that producers of such products claim that the manufacturing process and end uses of polymeric colorants are different than dyes or pigments in that polymeric colorants must be non-staining. The dyes manufacturers' trade association, ETAD, noted in their comments that they do not classify polymeric colorants as dyes.[4] We agree that polymeric colorants do not fall within the classes of products of interest to today's proposal. Wastes from production of polymeric colorants, therefore, are not within the scope of today's proposed listing determination.

Several commenters [5] stated that perylene and perinone pigments are misclassified as anthraquinones. They argue that although the Colour Index classifies perylenes and perinones as being subclasses of anthraquinone, these pigment classes are not structurally related to anthraquinones and are not derived from anthraquinone-based raw materials, and therefore, should be classified separately. While there may be a question as to whether perylenes should be classified as anthraquinones, we are proposing to retain wastes from the production of perylene products within the scope of today's proposed listing determination. The consent decree specifically requires us to assess perylene products, and therefore we must make listing determinations that cover any corresponding wastes, regardless of whether or not perylenes are properly classified as anthraquinones.

Regarding perinone pigments, while the Colour Index groups perinones under the broader classification of ''Anthraquinones and Related Colouring Matters,'' we are persuaded by the commenters' arguments that these products are sufficiently dissimilar from anthraquinones. Perinones do not have the quinone-type structure that is distinctive of anthraquinones, but rather perinones are derivatives of naphthalene-1,4,5,8-tetracarboxylic acid.[6] Therefore, we are not proposing that perinones be covered by today's proposed listing determination.

Commenters also stated that quinacridone pigments are not within the anthraquinone pigment category since they are quinonoid in type and carry Colour Index numbers outside of the anthraquinone category. We agree that these products are sufficiently dissimilar from anthraquinones. Quinacridones are classified as acridines, which have a nitrogen in the fused ring system.[7] Therefore, we are not proposing to include their wastes

[1] *See* Milliken comments on 1994 and 1999 proposals, available in the docket for today's proposal.

[2] 60 FR 7824, 7830 (February 9, 1995).

[3] 40 CFR 723.250.

[4] See ETAD's comments on 1994 proposal, available in the docket for today's proposal.

[5] See comments on the 1994 proposal submitted by CDR, Bayer, and CPMA, and on the 1999 proposal submitted by CPMA, available in the docket for today's proposal.

[6] For example, see the perinone pigment: C.I. Pigment Orange 43; in this case the pigment has only one carbon bound to an oxygen in a carbonyl group (instead of two in the typical anthraquinone) and this carbon is bonded to a nitrogen in an amide linkage (instead of a carbon in an anthraquinone).

[7] For example, see the quinacridone pigment: C.I. Pigment Red 202; this pigment has only one carbonyl group (instead of two in the typical anthraquinone) and instead of another carbonyl moiety the molecule has a nitrogen in the typical acridine ring structure.

within the scope of today's proposed listing determination.

Additional information on polymeric colorants, perylenes, perinones, and quinacridones is presented in the ''Background Document for Identification and Listing of Wastes from the Production of Organic Dyes and Pigments'' (hereafter referred to as the Listing Background Document) and in the referenced comments which are available in the public docket for today's proposal.

2. Scope of Waste Classifications

Paragraph 1.h.(ii) of the consent decree describes the dyes and/or pigments production wastes that must be addressed by our listing determination:

> Listing determinations under paragraph 1(h) of this Decree shall include the following wastes, where EPA finds such wastes are generated: spent catalysts, reactor still overhead, vacuum system condensate, process waters, spent adsorbent, equipment cleaning sludge, product mother liquor, product standardization filter cake, dust collector fines, recovery still bottoms, treated wastewater effluent, and wastewater treatment sludge.

In this proposal, we have grouped all of the wastes for these industries that are identified in the consent decree into two major categories of process wastes: Wastewaters and nonwastewaters. Some manufacturers may commingle nonprocess wastes (*i.e.*, cafeteria and office refuse, sanitary wastes) with wastewaters or nonwastewaters from dyes and/or pigment production. We consider these nonprocess wastes to be outside the scope of the consent decree and we have not evaluated them. However, if they are commingled with the process nonwastewaters that we propose to list, they will be regulated as K181 hazardous wastes under the RCRA mixture rule.

G. Description of the Dyes and/or Pigments Production Industries

Organic dye and/or pigment manufacturers are typically concentrated near large metropolitan areas, with the majority of facilities located on the East Coast and in the Midwest. We estimate that there are 37 dyes and/or pigments production facilities operating in the United States by about 29 different companies (a few larger companies operate several facilities).[8] Of this universe, we estimate that about 15 of these companies meet the Small Business Administration definition of a small business (total company employment of fewer than 750 people at the corporate level).

Kirk-Othmer defines dyes as intensely colored or fluorescent organic substances which impart color to a substrate by selective absorption of light.[9] When applied, dyes penetrate the substrate in a soluble form, after which they may or may not become insoluble. The structure of dyes is temporarily altered during the application process and colors are imparted only by selective absorption.

Dyes are used to color fabrics, leather, paper, ink, lacquers, varnishes, plastics, cosmetics, and some food items. Several thousand individual dyes of various colors and types are manufactured. This large number is attributable to the many different types of materials to which dyes are applied and the different conditions of service for which dyes are required.[10]

Synthetic dyes are derived in whole or in part from cyclic intermediates. Approximately two-thirds of the dyes consumed in the United States are used by the textiles industry to dye fabrics, and about one-sixth are used for coloring paper, while the remainder are used primarily in the production of organic pigments and in the dyeing of leather and plastics.[11]

Commercial dyes are sold in several physical forms including granular, powders, liquid solutions, and pastes. The dyes contain color at concentrations ranging from approximately 1 to more than 98 percent.[12]

Organic dyes are classified in several ways, including their chemical structure or class, general dye chemistry, and application process. Chemical structure classifications include azos, triarylmethanes, diphenylmethanes, anthraquinones, stilbenes, methines, polymethines, xanthenes, phthalocyanines, sulfurs and so on. Kirk-Othmer describes the common application process classes of dyestuffs to include acid dyes, mordant dyes, metal complex dyes, direct dyes, fiber-reactive dyes, basic dyes, vat dyes, sulfur dyes, disperse dyes, ingrain dyes/azoic dyes, and other dyes. Using general dye chemistry, textile dyes typically are grouped into the following categories: acid dyes, direct (substantive dyes), azoic dyes, disperse dyes, sulfur dyes, fiber reactive dyes, basic dyes, oxidation dyes, mordant (chrome) dyes, developed dyes, vat dyes, pigments, optical/fluorescent brighteners, and solvent dyes.[13] The trade association representing the dye industry is the Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers (ETAD).

The Color Pigment Manufacturers' Association (CPMA), which primarily represents the pigments industry, defines pigments as ''colored, black, white, or fluorescent particulate organic or inorganic solids, which usually are insoluble in, and essentially physically and chemically unaffected by, the vehicle or substrate in which they are incorporated.'' [14] According to the CPMA, the primary difference between pigments and dyes is that pigments are insoluble in the substrate during the application process, while dyes are soluble in the substrate. Pigments retain a crystalline or particulate structure and impart color by selective absorption or by scattering of light.

The approximate percentage of synthetic organic pigments by use during 1991–1995 was as follows: inks (60%), paints and coatings (25%), plastics (10%), and other (5%). Pigments are used primarily in printing inks. There are fewer pigments produced than dyes, however, pigment batches generally are larger in size. U.S. production of organic pigments increased by 5 percent during 1997–99, from 75,500 tons to 79,500 tons. Production is estimated to increase at an average annual rate of 2.7 percent through 2005.[15]

Organic pigments are derived in whole or in part from benzenoid chemicals and colors and are described as being toners or lakes. Toners and lakes essentially are the same in final form, but differ in their preparation method.

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[8] ''Economic Assessment for the Proposed Loadings-Based Listing of Non-Wastewaters from the Production of Selected Organic Dyes, Pigments, and Food, Drug, and Cosmetic Colorants,'' U.S. EPA. November, 2003.

[9] ''Dyes and Dye Intermediates.'' Kirk-Othmer Encyclopedia of Chemical Technology, Fourth Edition. Volume 8. New York: John Wiley & Sons, Inc, 1993.

[10] ''Chemical Economic Handbook Marketing Research Report—Dyes,'' SRI International, 2000.

[11] ''Synthetic Organic Chemicals United States Production and Sales, 1991,'' USITC Publication 2607, February 1993.

[12] ''Chemical Economic Handbook Marketing Research Report—Dyes,'' SRI International, 2000.

[13] S. V. Kulkarni, C. D. Blackwell, A. L. Blackard, C. W. Stackhouse, and M. W. Alexander, U.S. Environmental Protection Agency, Air and Energy Engineering Research Laboratory, ''Project Summary Textile Dyes and Dyeing Equipment: Classification, Properties, and Environmental Aspects,'' EPA/600/S2–85/010, April 1985.

[14] See, for example, CPMA comments on the Testing of Certain High Production Volume Chemical; Data Collection and Development on High Production Volume (''HPV'') Chemicals Proposed Rule and Notice 65 FR 81658, December 26, 2000, Docket Control No. OPPTS–42213A, *http://www.thecre.com/watchlist/20010423_cpma.html#start.*

[15] Data and estimates taken from Will, Raymond and Akihiro Kishi. SRI International, The Chemical Economics Handbook, 2001. *CEH Marketing Research Report—Pigments* (pages 3 and 5).

FD&C colorants are dyes and pigments that have been certified or provisionally certified by the Food and Drug Administration (FDA) for use in food items, drugs, and/or cosmetics. The International Association of Color Manufacturers (IACM) represents certain FD&C colorant manufacturing facilities. Typically, FD&C colorants are azo, anthraquinone, or triarylmethane dyes with azo representing the largest category. These products are similar or identical to larger-volume dye products not used in food, drugs, and cosmetics.

The dyes and/or pigments industries typically operate successive batch processes producing varying dyes and/or pigments products. These batch operations generate a wide variety of solid wastes periodically. Wastes are often commingled from multiple processes prior to management, and include secondary wastes generated from the treatment of commingled waste (*e.g.*, facilities commingle wastewaters prior to managing them in tanks or impoundments, and generate commingled wastewater treatment sludges). Some wastes may also be process-specific wastes that are generated from a specific process and may be managed independently of other wastes (*e.g.*, spent filter aids).[16], [17]

For more detailed information, see the Listing Background Document available in the public docket for today's proposed rule.

H. What Publicly Available Information Did EPA Collect and Use?

In light of the constraints imposed by the *Magruder* injunction on survey and analytical data with unresolved CBI claims, we identified a variety of publicly available sources of information for today's listing determinations. We used these data (as described elsewhere in this proposal and in the docket materials available in the public docket for today's proposal) for several purposes: (1) To support a general assessment of the dyes and/or pigments industries' waste generation and management practices; (2) to develop a list of potential constituents of concern; (3) to identify plausible waste management scenarios that are the basis for our risk assessment and listing determination; and (4) to project potential impacts associated with the proposal.

The more important data sources we used include the following:

—Non-CBI RCRA § 3007 questionnaire information and data, collected during the 1992 Agency survey of wastes generated in the dyes and/or pigments industries, and supplemented, corrected, and updated (for the year 1997) by the surveyed facilities. Surveys submitted by the twelve plaintiffs in *Magruder* remain unavailable. The available surveys are (1) surveys submitted by non-plaintiffs who made no CBI claims; (2) surveys submitted by non-plaintiffs who made CBI claims, but later withdrew them; and (3) surveys submitted by non-plaintiffs who made CBI claims, which EPA denied under the procedures set out in 40 CFR part 2.

—EPA's analytical data from sampling and analysis of the wastes of concern, developed in the early 1990s and used to support the 1994 and 1999 proposed listing determinations, as masked and aggregated per Table 1 of the June 2003 settlement agreement with the *Magruder* plaintiffs.

—Split sample analytical data submitted by the Color Pigments Manufacturing Association (CPMA), in a letter dated April 20, 1994 from J. Lawrence Robinson of CPMA to Ed Abrams of EPA.

—The Toxics Release Inventory (TRI) for Reporting Year 2000.

—The European Union (EU)'s directive for a community ban on azocolourants (76/769/EEC, Annex I, point 43), relating to restrictions on the marketing and use of certain dangerous substances and preparations (azocolourants).

—Public comments without CBI claims submitted on the 1994 and 1999 proposed listing determinations.

—Colour Index 2.0, Intermediates Database, Third Edition, July 1999.

—Kirk-Othmer Encyclopedia of Chemical Technology, Fourth Edition, 2001.

—The Stanford Research Institute (SRI)'s 2000 Directory of Chemical Producers.

—Information provided by trade associations (CPMA and ETAD) in 2002–2003 regarding the status of dye, pigment and FD&C facilities potentially generating the wastes of concern.

—Information provided by trade associations (CPMA and ETAD) in 2002–2003 regarding onsite waste management units for dyes and/or pigments manufacturers potentially generating the wastes of concern.

—Dyes and/or pigments manufacturers' websites.

III. Approach Used in This Proposed Listing

A. Summary of Today's Action

In hazardous waste listings promulgated by EPA, we typically describe the scope of the listing in terms of the waste material and the industry or process generating the waste. However, in today's rule, we are proposing to use a newly developed ''mass loadings-based'' approach for listing dyes and/or pigments production wastes. In a mass loadings-based listing, a waste would be hazardous once a determination is made that it contains any of the constituents of concern at or above specified mass-based levels of concern.

In this proposed rule, we identify constituents of concern likely to be present in nonwastewaters which may pose a risk above specified mass loading levels. Using risk assessment tools developed to support our hazardous waste identification program, we assessed the potential risks associated with the constituents of concern in plausible waste management scenarios. From this analysis, we developed ''listing loading limits'' for each of the constituents of concern.

If you generate any dyes and/or pigments production nonwastewaters addressed by this proposed rule, you would be required either to determine whether or not your waste is hazardous or assume that it is hazardous as generated under today's proposed K181 listing. (Note, we are proposing that if wastes are otherwise hazardous due to an existing listing in §§ 261.31–33 or the hazardous waste characteristics in §§ 261.21–24, the listing under K181 would not apply.) We are proposing a three-step determination process. The first step is a categorical determination where you would determine whether your waste falls within the categories of wastes covered by the listing (*e.g.*, nonwastewaters generated from the production of dyes and/or pigments that fall within the product classes of azo, triarylmethane, perylene or anthraquinone) and whether any of the regulated constituents could be in your waste. If you determine under this first step that your waste meets the categorical description of K181 and that your waste may contain any K181 constituent, you would then in the second step determine whether your waste meets the numerical standards for K181 (*e.g.*, compare the mass loading of the regulated constituents in your waste to the numerical standards). Your waste

[16] ''Dyes and Dye Intermediates.'' Kirk-Othmer Encyclopedia of Chemical Technology, Fourth Edition. Volume 8. New York: John Wiley & Sons, Inc. 1993.

[17] ''Pollution Prevention Guidance Manual for the Dye Manufacturing Industry.'' U.S. Environmental Protection Agency and the Ecological and Toxicological Association of the Dyestuffs Manufacturing Industry. 1990.

would be a listed hazardous waste if it contains any of the constituents of concern at a mass loading equal to or greater than the annual hazardous mass limit identified for that constituent. Under the proposed approach, all waste handlers may manage as nonhazardous all wastes generated up to the loading limit, even if the waste subsequently exceeds one or more annual mass loading limits. The detailed descriptions of the steps you would be required to follow to demonstrate that your waste does not exceed the K181 listing limits is presented in section V. Finally, in the third step, you would be able to determine whether your waste is eligible for a conditional exemption from the K181 listing. You would need to demonstrate that your waste does not exceed a higher loading limit for one constituent and that it is being disposed of a landfill subject to design standards set out in § 258.40, § 264.301, or § 265.301.

B. Why Is a Mass Loadings-Based Approach Being Used for This Listing?

We have previously proposed two concentration-based listing determinations that were similar to today's proposal of a mass loadings-based listing. These proposals (the 1999 dyes and pigments listing proposal and the 2001 paint listing proposal) identified concentrations that would have served as listing levels for the constituents of concern for those wastes. Both proposals dealt with industries that generate highly variable wastes. We believed these proposals added a valuable level of flexibility to the listings, by clarifying the levels at which the wastes of concern began to pose risk that warranted hazardous waste control. These levels would have served as both pollution prevention goals, whereby facilities could reengineer their processes to minimize specific risks, and built-in delisting levels, allowing generators to exit the Subtitle C system without invoking the rulemaking process required by the current Delisting Program.

As we assessed this approach, we concluded that a mass loadings-based approach to listing dyes and/or pigments production wastes as hazardous has all of the advantages of a concentration-based listing. For example, a mass loadings-based approach allows generators to evaluate the variable wastes they generate individually for hazard, so only wastes that are hazardous are listed. As a result, there should be less burden on dyes and/or pigments manufacturers than would be imposed by a traditional listing that would bring entire wastes into the hazardous waste system, regardless of the amount of constituents found in wastes generated by individual generators. Also, a mass loadings-based listing approach may provide an incentive for hazardous waste generators to modify their manufacturing processes. For example, if a manufacturer has a listed hazardous waste based on constituent-specific mass loading levels established by EPA, the generator knows that if the wastes' mass loading levels are reduced below the regulatory level due to raw material substitution or process change, the waste would not be regulated as a listed hazardous waste. Therefore, the generator may decide to substitute raw materials in order to generate a nonhazardous waste. This approach encourages waste minimization and reduced use of toxic constituents, goals of both RCRA and the Pollution Prevention Act of 1990 (42 U.S.C. 13101 *et seq.*, Pub. L. 101–508, November 5, 1990).

Section 1003 of RCRA states that one goal of the statute is to promote protection of human health and the environment and to conserve valuable material and energy resources by ''minimizing the generation of hazardous waste and the land disposal of hazardous waste by encouraging process substitution, materials recovery, properly conducted recycling, and reuse and treatment.'' Section 1003 further provides that it is a national policy of the United States that, whenever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible.

The Pollution Prevention Act of 1990 provides a hierarchy of approaches. Pollution should be prevented or reduced; wastes that cannot be prevented should be recycled or reused in an environmentally safe manner; wastes that cannot be prevented/reduced or recycled should be treated; and disposal or release into the environment should be chosen only as a last resort. If EPA provides a mass loadings-based target in the listing, generators would have regulatory and economic incentives to meet the reduced levels.

The mass loading approach also offers two additional advantages. It will improve environmental protection by capturing large volume, dilute wastes that would not be regulated under a concentration-based approach. Also, since it requires less data from individual facilities, it allows us to move forward on the last of the HSWA-mandated listings without complete resolution of the *Magruder* CBI litigation.

While this approach represents a new way of assessing wastes, we believe that the underlying concepts of assessing the mass of constituents of concern are similar to other EPA programs, including reporting that may be required for major sources under the CAA, for facilities subject to the TRI, and for facilities subject to NPDES permits. Many facilities potentially impacted by this listing will already be assessing constituent masses under these types of programs.

EPA solicits public comment on all aspects of this mass-loading-based approach to making a listing determination, including the impact of such an approach compared to approaches used in the past (*e.g.*, concentration-based approach) and its usefulness as a means of encouraging pollution prevention.

C. What Wastes Are Generated by This Industry?

As explained earlier in Section II.G, we estimate that currently there are 37 active dyes and/or pigments facilities operated by 29 companies (excluding those no longer making in-scope dyes and/or pigments products and those due to be closed) based on the information provided by the trade associations (CPMA, ETAD and IACM) in 2002–2003.

Based on the non-CBI portions of the 1992 RCRA § 3007 survey data (as supplemented and updated) submitted by entities who were not plaintiffs in the *Magruder* litigation, organic dyes and/or pigments manufacturers mainly generate the following types of waste: Wastewaters (including process washes, equipment rinse waters, and other waste liquors), spent solvents, still bottoms, wastewater treatment sludge and other solid materials (such as emission control dust and fines, off-specification products, spent filter aids/cloths, process sludge and filter cake.)

We estimate that the 37 dyes and/or pigments production facilities generate up to 22 million metric tons of wastewaters and 69,000 metric tons of nonwastewaters per year.[18] Our estimates of wastewater generation rates were based on rates reported in NPDES permits for those facilities that discharge directly to surface water. For facilities that discharge their wastewaters indirectly through POTWs, we estimated their wastewater generation rates using data compiled by

[18] *See* ''Economic Assessment for the Proposed Loadings-Based Listing of Non-Wastewaters from the Production of Selected Organic Dyes, Pigments, and Food, Drug, and Cosmetic Colorants' in the public docket for today's proposed rule for a description of our waste quantity estimation.

the Office of Water in support of the OCPSF effluent guidelines development process. We estimated nonwastewater generation rates by applying engineering estimates of wastewater treatment sludge generation rates. Wherever possible, we used facility-specific generation rates, including those provided in non-CBI public comments and non-CBI portions of § 3007 surveys. Note that our estimates of nonwastewater generation rates do not include estimates of waste solids other than wastewater treatment sludges (*e.g.*, filter solids, off-specification products, *etc.*). Our review of the non-CBI § 3007 data show that these waste quantities are often significantly smaller than wastewater treatment sludge quantities generated at the same facilities. At the same time, our estimated nonwastewater quantities are likely to be somewhat overstated due to our use of conservative assumptions about the amount of sludge generated during wastewater treatment. Consequently, we believe that our estimates of wastewater treatment sludge volumes are large enough to encompass volumes of the other types of solids generated by these facilities.

D. How Are These Wastes Currently Managed?

We used the following sources to characterize the management of those wastes covered by this listing determination:

- Non-CBI portions of RCRA § 3007 surveys submitted by facilities that are not plaintiffs in the *Magruder* litigation.
- Non-CBI public comments on the 1994 and 1995 proposed listing determinations for this industry.
- State agencies.
- TRI.
- Industry trade associations.
- Facility Web sites.

The non-CBI surveys (available in the docket for today's rule) provided limited historical data about the waste management practices performed by the surveyed facilities, including: Wastewater treatment in tanks, wastewater treatment and/or storage in surface impoundments, discharge of wastewaters to a POTW or under NPDES, solvent recovery, combustion of waste solids/liquids onsite or offsite, fuel blending in industrial furnaces, and disposal of nonwastewaters in nonhazardous landfills onsite or offsite, and disposal of nonwastewaters in hazardous offsite landfills.

We explored a number of more recent publicly available data sources to update the non-CBI survey information on the waste management practices at the operating dyes and/or pigments production facilities and to understand current management practices at facilities whose survey data were unavailable due to the *Magruder* injunction. We reviewed non-CBI information from public commenters on the December 22, 1994 and July 23, 1999 proposed rules. The commenters claimed that all the onsite land disposal units of concern (nonhazardous waste landfills and surface impoundments) described in the 1992 RCRA § 3007 survey were equipped with protective liners, or had been replaced with tanks, or were closed or undergoing closure. (These comments have been placed in the docket for today's proposal.)

In 2002 we contacted nine State agencies to learn about the existing status of onsite land disposal units located at potential dyes and/or pigments production facilities in those States.[19] None of the State contacts identified any facilities with active onsite land disposal units, with the exception of a single facility slated for closure that was described as operating surface impoundments equipped with double high density polyethylene (HDPE) liners.

Furthermore, we reviewed the most recent available TRI data (reporting year 2000) for onsite and offsite chemical releases of interest at the dyes and/or pigments production facilities. As summarized in the Listing Background Document, the TRI data describes a variety of management practices, including: discharge to POTW or surface water; thermal treatment in offsite incinerators, cement kilns, energy recovery facilities, or fuel blenders; disposal in onsite landfills; disposal in offsite landfills; and shipment to waste brokers or treatment facilities.

We also met with the three primary trade associations (CPMA, ETAD, and IACM) in December of 2002. The trade associations reviewed our compilation of available information regarding onsite waste management practices at known dyes and/or pigments production facilities. (*See* meeting summaries available in the public docket for today's proposed rule.) Both CPMA and ETAD collected additional information, and provided input on the status of those identified onsite waste management practices (copies available in the public docket for today's proposed rule). ETAD indicated that the only active onsite landfill was at a facility that treats waste by incineration prior to disposal. This is consistent with TRI reporting data, which show that the only constituents of concern that were disposed of in the onsite landfill were metals (presumably the organic constituents were effectively destroyed). Furthermore, ETAD confirmed that the production of dyes at this facility was a very small fraction of the onsite production processes. Thus, we believe that the use of this one onsite landfill was not representative of management practices for the waste we are evaluating. Based on all of this information, we concluded that all wastes of concern going to landfills are disposed of in offsite landfills. As discussed further in the following sections, we ultimately concluded that all of the landfilled wastes are placed in municipal solid waste landfills.

Consistent with their comments on the 1994 and 1999 proposals, the trade associations asserted that there are currently no active unlined surface impoundments at operating dyes and/or pigments production facilities that receive untreated in-scope wastes, since the previously identified unlined or clay-lined onsite impoundments had been closed. The trade associations were also able to confirm that one production facility treats wastewater in an impoundment with double composite liners (including synthetic materials) and a leachate collection system, and that one other facility with a double-lined impoundment was scheduled to close.

In a subsequent review of some facility websites, we discovered that one facility operates onsite surface impoundments. According to the State regulating authority contacted, these impoundments are clay-lined and are used to store wastewater after treatment and prior to NPDES discharge. This facility is discussed in more detail in section IV.C.

E. What Waste Management Scenarios Did We Select for Risk Assessment Modeling?

This section summarizes our findings and conclusions concerning current dyes and/or pigments production practices for nonhazardous waste management; the plausible waste management scenarios that we chose to model for the risk assessment; and why we did not model certain management practices.

We chose to model three waste management scenarios based upon our review of the current waste handling practices reported in the publicly available data and the plausibility that these scenarios represent actual practices that are used or could be used for disposal of dyes and/or pigments production wastes. The scenarios that

[19] *See* ''On-Site Waste Management Determination,'' dated May 20, 2003 in the public docket for details.

we chose are nonwastewaters disposed in nonhazardous municipal solid waste landfills; wastewaters stored and treated in on-site tanks prior to discharge to a POTW or under a NPDES permit; and wastewaters managed in onsite surface impoundments prior to discharge to a POTW or under a NPDES permit. The general criteria for selection of plausible waste management scenarios and the rationale for choosing each of these scenarios are described in this section.

1. Plausible Waste Management Selection Criteria and Modeling Considerations

Our regulations at § 261.11(a)(3)(vii) require us to consider the risk associated with ''the plausible types of improper management to which the waste could be subjected'' because exposures to wastes (and therefore the risks involved) will vary by waste management practice. The choice of which ''plausible management scenario'' (or scenarios) to use in a listing determination depends on a combination of factors which are discussed in general terms in our policy statement on hazardous waste listing determinations contained in the first proposed Dyes and Pigments Listing Determination (59 FR 66072, December 22, 1994). We have applied this policy in all subsequent listings and believe it is appropriate to continue to apply it here.

Our approach to selecting waste management scenarios to model for risk analysis is to examine current industry management practices; assess whether or not other practices are available to the industry; and to decide what practices the industry would reasonably be expected to use. There are common waste management practices, such as landfilling, which we generally presume are plausible for solid wastes and which we will evaluate for potential risk. There are other practices which are less common, such as land treatment, which we consider plausible only where the disposal methods have been reported to be practiced. Where a practice is actually reported in use, that practice is generally considered ''plausible'' and may be considered for potential risk. In some situations, potential trends in waste management for a specific industry suggest we will need to project ''plausible'' management even if it is not currently in use in order to be protective of potential changes in management and therefore in potential risk. We then evaluate which of these current or projected management practices for each waste are likely to pose significant risk based on an assessment of exposure pathways of concern associated with those practices.

2. Selection of Waste Management Scenarios for Risk Assessment Modeling of Dyes and/or Pigments Nonwastewaters

The majority of nonwastewaters are landfilled. Based on information available as we started our risk analyses, we decided to model disposal of nonwastewaters in both offsite municipal solid waste landfills and a small number of onsite and offsite nonhazardous industrial waste landfills. After we began these analyses, ETAD submitted additional information indicating that our initial information regarding an onsite landfill was not relevant, as the facility operating that landfill treats waste by incineration prior to disposal. In addition, we obtained information from the State of Illinois regarding the offsite landfill that we had initially identified as an industrial landfill, clarifying that this landfill in fact accepts municipal wastes. Consequently, we decided that disposal in an industrial landfill is not a plausible management practice for these wastes, and we are basing our proposed listing decision solely on our assessment of disposal in MSWLFs. Upon receipt of this information, we modified our subsequent modeling runs to reflect a landfill distribution that was solely made up of MSWLFs.

The primary difference between modeling industrial nonhazardous landfills and municipal landfills is that industrial nonhazardous landfills are slightly smaller than municipal landfills so the quantities of dyes and/or pigments production waste modeled in an industrial landfill would be a relatively larger proportion of the total waste quantities going into the unit. Given the linear nature of our modeling for the organic loading limits, we do not believe that the model results would differ significantly if the landfill size distribution reflected industrial landfills. The preliminary runs that we conducted on a distribution of industrial and municipal landfills reflected our preliminary (and incorrect) characterization of some of the currently used landfills as industrial nonhazardous landfills. These preliminary results were very similar to the results for MSWLFs only (that serve as the basis for today's proposal).

We modeled three liner scenarios: unlined, clay-lined, and synthetic-lined landfills. The risk assessment in section III.G.2.d.i contains more details about our risk modeling for landfills and the three liner scenarios. In past listings, EPA has not included the effect of liners in the modeling of releases from landfills. Previously, we generally assumed that liners may fail over the long term, and therefore we modeled landfills as if they were unlined. We have been reluctant to take liners into account due to the uncertainties in the long term efficacy of liners and because we lacked data that we could use to project infiltration rates from a lined unit.[20]

More recently, EPA has modeled reduced infiltration rates for lined landfills to support the Guide for Industrial Waste Management. The Industrial Waste Evaluation Model (IWEM) incorporated models to evaluate the groundwater protection afforded by various liner systems.[21] For modeling composite liners, the IWEM used empirical data for infiltration rates collected from lined landfills. As part of the effort to characterize and develop distributions for the infiltration rates through liners, EPA collected information for nonhazardous waste management unit liner systems (*i.e.*, the rates of leachate infiltration through liners).[22] EPA is today proposing to use data collected in this effort to construct distributions of infiltration rates for modeling of Subtitle D MSWLFs.

We believe it is appropriate to consider liners in today's listing determination for several reasons. First, we have no indication that these wastes are (or are likely to be) landfilled in cells without liners. In comments on the earlier listing proposals for dye and pigment wastes, industry groups (ETAD and CPMA) stated that industry does not use unlined landfills; ETAD went further and identified the landfills being used by their members and described the liner systems in place at these landfills. Second, CERCLA liability concerns create strong incentives against the operation of such units by landfill owners and against the placement of these wastes in such units by waste generators. Third, our data show that the industry uses municipal solid waste landfills. These units have been subject to the Part 258 standards

[20] For example, we argued this most recently in the chlorinated alphatics listing, where we concluded that uncertainties regarding the long-term effectiveness of landfill liners were sufficient to support a decision to list. We emphasized, however, that this decision was specific to a waste containing high concentration of mercury, a highly toxic, very persistent constituent. 65 FR 67101 (Nov. 8, 2000).

[21] *Industrial Waste Management Evaluation Model (IWEM) Technical Background Document.* EPA530–R–02–012, U.S. EPA, August 2002. *See also http://www.epa.gov/epaoswer/non-hw/industd/iwem_tbd.htm.*

[22] ''Characterization of Infiltration Rate Data to Support Groundwater Modeling Efforts,'' Draft Final TetraTech, Inc. September 28, 2001.

since the regulations were promulgated in 1991. Fourth, we previously have considered the attenuative properties of liners in prior listing determinations for surface impoundments (*e.g.*, *see* the proposal for listing paint manufacturing wastes at 66 FR 10108, February 13, 2001), as well as in the Guide for Industrial Waste Management. Finally, we now have data describing infiltration rates through various liner systems, allowing us to build distributions reflective of real landfills. For these reasons, we believe it is now appropriate to assess the impact of liners on the attenuation of toxicants in waste management units, where such liners are widely used for the disposal of the wastes of interest. We request comments on this approach.

Available data suggests that a relatively small portion of the nonwastewaters from dyes and/or pigments production are combusted and, consequently, that combustion is a plausible management method. We chose not to model combustion. In past listing determinations where we have attempted to assess risks from incineration, we found that the potential risks from the release of constituents through incineration would be at least several orders of magnitude below potential air risks from releases from tanks or impoundments (*see* listing determination for solvent wastes at 63 FR 64371, November 19, 1998). Further, it is difficult to model what goes into combustion units in relation to the residual constituents that are released from the combustion unit either in ash or air.[23] We believe the existing and proposed air regulation can effectively regulate these combustion units, as described in section II.E.

Furthermore, we did not model management in Subtitle C landfills. Subtitle C modeling is unnecessary, since we modeled a less protective MSWLF scenario. Finally, we also did not model management scenarios that involved recycling. We had no information to lead us to believe that such practices involved land placement. As explained below, we modeled air releases from wastes in tanks and found no risks warranting listing. We think secondary materials stored in tanks prior to recycling would pose similarly low risks.

3. Selection of Waste Management Scenarios for Risk Assessment Modeling of Dyes and/or Pigments Production Wastewaters

As delineated in section III.D, the publicly available data showed a number of management scenarios of interest for wastewaters from production of dyes and/or pigments: management in tanks or surface impoundments prior to discharge to a POTW or under an NPDES permit; incineration; and fuel blending in industrial furnaces.

We modeled two scenarios: (1) Onsite treatment of wastewater in tanks, and (2) onsite management of wastewaters in clay-lined and synthetic-lined surface impoundments. As described in the previous section, currently operating organic dyes and/or pigments production facilities manage their wastes in these types of units. We also modeled unlined surface impoundments, although we did not use these results as the basis for our listing determination. We believe unlined impoundments are unlikely to be utilized for untreated wastewater, not only because our data do not indicate that such units are currently in use, but also because storage or treatment in an impoundment without any kind of liner seems unlikely.

For surface impoundments, EPA has recently relied on the effectiveness of liners in deciding not to list wastewaters from paint manufacturing.[24] Although we did not try to model liner performance for paint wastewaters, we assumed that composite liners provide significant protection during the relatively short operational life of an impoundment (30 to 50 years). As noted in the final determination for paint manufacturing wastes, we believe that the level of protection afforded by a liner system would be significant (67 FR 16267). Furthermore, if leaks occurred during its operating life, the unit can be drained and repaired. Since we do not have data on infiltration rates for lined surface impoundments, we used calculated infiltration rates. This is the same approach used for the IWEM guidance, referenced above for lined landfills; see the Risk Background Document for today's proposal for more discussion.

We believe it is appropriate to consider liners in modeling surface impoundments in today's listing determination for reasons similar to those noted for landfills in the above section. Specifically, our data indicate that the untreated wastewaters in scope are not (and are not likely to be) managed in impoundments without liners. Industry groups (ETAD and CPMA) have confirmed that there are no active unlined surface impoundments at operating dyes and/or pigments production facilities that receive untreated in-scope wastes. We believe it is less likely that unlined landfills would be in operation in the future, given liability concerns. Also, we are using an approach similar to that we used for describing infiltration rates through various liner systems for the IWEM guidance. We request comments on this approach.

We did not assess discharges of wastewaters by dye and/or pigment facilities under NPDES permits or discharges to POTWs. The discharges to surface waters are regulated under the Clean Water Act by means of NPDES permits or national pretreatment standards. Many of these discharges are excluded from RCRA hazardous waste regulation. *See* 40 CFR 261.4(a)(1) and (2). We also chose not to model combustion of wastewaters in incinerators, cement kilns or industrial furnaces. In the previous section on nonwastewaters, we explain the Agency's rationale for not modeling combustion or fuel blending. That rationale applies equally to wastewaters.

F. What Factors Did EPA Incorporate Into Its Quantitative Risk Assessment?

In making listing determinations, the Agency considers the listing criteria set out in 40 CFR 261.11. The criteria provided in 40 CFR 261.11(a)(3) include eleven factors for determining ''substantial present or potential hazard to human health and the environment.'' Nine of these factors, as described generally below, are incorporated into EPA's risk assessment for the wastes of concern:

- Toxicity (§ 261.11(a)(3)(i)) is considered in developing the health benchmarks used in the risk assessment modeling.
- Constituent concentrations (§ 261.11(a)(3)(ii)) and the quantities of waste generated (§ 261.11(a) (3)(viii)) are combined in the calculation of mass loading levels that pose a hazard.
- Potential to migrate, persistence, degradation, and bioaccumulation of the hazardous constituents and any degradation products (§§ 261(a)(3)(iii), 261.11(a)(3)(iv), 261.11(a)(3)(v), and 261.11(a)(3)(vi)) are all considered in the design of the fate and transport models used to determine the concentrations of the contaminants to which individuals are exposed.

[23] Whle other products of incomplete combustion may present possible risks, it is difficult for us to assess this potential for the chemicals of concern.

[24] *See* the proposed rule at 66 FR 10108 (Feb. 13, 2001) and the final rule at 67 FR 16267 (Apr. 4, 2002).

As discussed in the previous section, we considered two factors, plausible mismanagement and other regulatory actions ((§§ 261.11(a)(3)(vii) and 261.11(a)(3)(x)) in establishing the waste management scenario(s) modeled in the risk assessment.

One of the remaining factors of the eleven listed in 261.11(a)(3) is consideration of damage cases (§ 261.11(a)(3)(ix)); this is discussed in section G.5 below. The final factor allows EPA to consider other factors as appropriate (§ 261.11(a)(3)(xi)).

EPA conducted analyses of the risks posed by the wastes evaluated for this listing to determine the mass loadings of constituents that, if found in dyes and/or pigments production wastes, would meet the criteria for listing set forth in § 261.11(a)(3). Section G discusses the human health risk analyses and ecological risk screening analyses EPA conducted to support our proposed listing determinations for dyes and/or pigments production wastes. We consider the risk analyses in developing our listing decisions for each of the wastes.

G. Overview of the Risk Assessment

We conducted a risk assessment to calculate the mass loadings of individual constituents that can be present in waste and remain below a specified level of risk to both humans and the environment.

To establish these listing levels, we: (1) Selected constituents of potential concern in wastes from dyes and/or pigments production, (2) evaluated plausible waste management scenarios (as described previously in section III.E), (3) calculated exposure concentrations by modeling the release and transport of the constituents from the waste management unit to the point of exposure, and (4) calculated waste constituent loadings that are likely to pose unacceptable risk. In addition, we conducted a screening level ecological risk assessment to ensure that the loading limits were protective of the environment.

The following sections explain the selection of the constituents that we evaluated in the risk assessment and present an overview of the analysis we used to calculate risk-based listing levels for nonwastewaters and wastewaters from dyes and/or pigments production. Details of the risk assessment are provided in the Risk Assessment Background Document, which is in the docket for today's rule.

1. How Did EPA Chose Potential Constituents of Concern?

Our overall goal in choosing potential constituents of concern was to identify a list of chemicals that could reasonably be expected to be associated with wastes from the production of azo, triarylmethane, perylene or anthraquinone dyes or pigments and that could be derived entirely from sources that were not restricted by the *Magruder* injunction.

We first created a primary list of all of the chemicals identified in a series of non-CBI data sources, and then removed from that list those compounds not expected to have toxicity benchmarks and those chemicals not expected to be directly linked with the manufacture of the dyes and pigments of concern. This process ultimately resulted in the identification of 35 constituents of concern (CoC) (*see* Table III–1 below) that we further assessed via risk assessment. The details of this analysis are described in ''Background Document: Development of Constituents of Concern for Dyes and Pigments Listing Determination,'' available in the docket for today's proposal.

TABLE III–1.—DYES AND PIGMENTS CONSTITUENTS OF CONCERN

Chemical compound	Synonyms	CAS
Aminoanthraquinone	2-Aminoanthraquinone	117–79–3
Aniline	Benzenamine; aminobenzene	62–53–3
o-Anisidine	2-Methoxyaniline, 2-methoxybenzenamine	90–04–0
Azobenzene	Diphenyldiazene, diphenyl diimide	103–33–3
Barium		7440–39–3
Benzaldehyde		100–52–7
Benzidine		92–87–5
4–4'-bis(dimethylamino) benzophenone		90–94–8
4-Chloroaniline	p-Chloroaniline	106–47–8
Copper		7440–50–8
p-Cresidine	2-Methoxy-5-methylbenzenamine, 3-amino-4-methoxytoluene	120–71–8
p-Cresol	4-Methylphenol	106–44–5
1,2-Dichlorobenzene	o-Dichlorobenzene	95–50–1
3,3'-Dichlorobenzidine	3,3'-Dichlorobiphenyl-4,4'-ylenediamine	91–94–1
3,3'-Dimethoxybenzidine	Dianisidine	119–90–4
2,4-Dimethylaniline	2,4-Xylidine	95–68–1
N,N-Dimethylaniline	N,N-Dimethylbenzenamine	121–69–7
3,3-'Dimethylbenzidine	4,4'-bi-o-Toluidine, diaminoditolyl	119–93–7
Diphenylamine	N-Phenylbenzeneamine	122–39–4
Formaldehyde		50–00–0
Lead		7439–92–1
Methanol		67–56–1
4,4'-Methylenedianiline	p-p'-Diaminodiphenyl methane; 4,4'-methylene-bis[benzenamine]	101–77–9
Naphthalene		91–20–3
5-Nitro-o-anisidine	2-methoxy-5-nitroaniline	99–59–2
5-Nitro-o-toluidine	2-methyl-5-nitroaniline; 2-amino-4-nitrotoluene	99–55–8
Phenol		108–95–2
1,2-Phenylenediamine	o-phenylenediamine, 2-aminoaniline	95–54–5
1,3-Phenylenediamine	3-Aminoaniline, m-phenylenediamine	108–45–2
1,4-Phenylenediamine	4-aminoaniline; p-Phenylenediamine	106–50–3
Sodium nitrite		7632–00–0
Toluene-2,4-diamine	4-m-tolylenediamine, 2,4-diaminotoluene, 4-methyl-m- phenylenediamine	95–80–7
o-Toluidine	2-toluidine; 2-aminotoluene	95–53–4
p-Toluidine	4-toluidine; 4-aminotoluene	106–49–0

TABLE III–1.—DYES AND PIGMENTS CONSTITUENTS OF CONCERN—Continued

Chemical compound	Synonyms	CAS
Zinc		7440–66–6

Our primary data sources (described in section II.H of this notice and in the public docket for today's rule) used to develop the CoC lists include:

- Sampling and analytical data collected by EPA (as summarized in Table 1 of the *Magruder* consent order) and split sample analytical data compiled and provided by CPMA. These data characterized wastes generated from dyes and/or pigments production.
- Non-CBI RCRA § 3007 survey data characterizing wastes from dyes and/or pigments production.
- A list of 22 aromatic amines associated with azo dyes regulated by the European Union.
- Intermediates associated with dye and pigment products reported to be manufactured in the U.S. in the ''Colour Index,'' Third Edition.
- Public comments on the prior 1994 and 1999 proposed listing determinations for dyes and pigment wastes.
- TRI releases reported by known manufacturers of dyes and/or pigments impacted by this proposal.

We found data linking each of the 35 CoCs listed above to dyes and/or pigments manufacture from at least two (and generally from at least four) of these data sources, and often found additional corroborating data from other more general encyclopedia and chemical dictionaries. In addition, we found toxicity benchmark data for each of these CoCs, allowing us to conduct risk assessment modeling of these compounds. As an example, we identified 4-chloroaniline as a CoC because (1) it was detected in our and CPMA's analytical data; (2) it was confirmed as present in dyes and/or pigments wastes in public comments; (3) it was reported to be released by known dyes and/or pigments manufacturers in the TRI; (4) it is regulated by the European Union as an aromatic amine linked to azo dyes; and (5) we identified toxicity benchmarks that allowed us to conduct risk assessment modeling of this compound.

2. What Was EPA's Approach to Conducting Human Health Risk Assessment?

The risk analysis for the dyes and/or pigments production wastes estimates the mass loadings of individual constituents that can be present in each waste and still provide a specified level of protection to human health and the environment. The risk assessment evaluates waste management scenarios that may occur nationwide. We selected a national analysis that captures variability in meteorological and hydrogeological conditions for this listing determination because facilities that manage the wastes of interest are found in many areas of the country.

For this listing determination, we defined the target level of protection for human health to be an incremental lifetime cancer risk of no greater than one in 100,000 (10^{-5}) for carcinogenic chemicals and a hazard quotient of 1.0 for noncarcinogenic chemicals. The hazard quotient is the ratio of an individual's chronic daily dose of a constituent to the reference dose for that constituent, where the reference dose is an estimate of the daily dose that is likely to be without appreciable risk of deleterious effects over a lifetime.

To determine the allowable mass loadings for constituents of concern, we used a probabilistic analysis to calculate the exposure to nearby residents from disposal of those constituents in the types of waste management units used by the dyes and pigments industries. We then set the allowable loading level such that the exposure to each constituent would not exceed the target level of protection for 90 percent of the nearby residents (adults and children). Thus, the allowable mass loadings meet a target cancer risk level of 10^{-5} or hazard quotient of one for 90 percent of the receptor scenarios we evaluated. We calculated estimates of exposure in the upper end of the distribution (*i.e.*, at or above the 90th percentile), while avoiding estimates that are beyond the true distribution. EPA guidance for risk characterizations states that ''the 'high end' of the risk distribution (generally the area of concern for risk managers) is conceptually above the 90th percentile of the actual (either measured or estimated) distribution. This conceptual range is not meant to precisely define the limits of this descriptor, but should be used by the assessor as a target range for characterizing 'high-end risk.' '' [25] Therefore, a high-end estimate that falls within the range (at or above the 90th percentile but still realistically on the distribution) is a reasonable input to a decision.

We believe that the 90th percentile levels from our probabilistic analysis are appropriate to set the levels for this mass loadings-based listing. The dyes and/or pigments production waste that remains nonhazardous at the proposed levels would pose risks below that indicated by the benchmark risk level at the 90th percentile. We also used the 90th percentile risk levels in two prior proposed concentration-based listings. See the proposed rules for wastes from paint manufacturing (66 FR 10060, February 13, 2001) and two dyes and/or pigments wastes (64 FR 40192, July 23, 1999).[26]

A probabilistic analysis calculates distributions of results (in this case a protective mass loading for each constituent) by allowing some of the parameters used in the analysis to have more than one value. The model is run numerous times (for this analysis we generally ran the model 10,000 times), each time with different values selected from the distributions of input parameters. A parameter is any one of a number of inputs or variables (such as distance between the waste management unit and the receptor) required for the fate and transport and exposure models and equations that EPA uses to assess risk. In the probabilistic analysis, we vary sensitive parameters for which distributions of data are available.

Parameters varied for this analysis include waste management unit size, parameters related to the location of the waste management unit such as climate and hydrogeologic data, location of the receptor, and exposure factors (*e.g.*, drinking water ingestion rates). In some cases, to maintain the inherent correlation between parameters, we treat multiple parameters as a single parameter for the purpose of conducting the analysis. We do this to prevent inadvertently combining parameters in our analysis in ways that are unrealistic. For example, we treat environmental setting (location) parameters such as climate, depth to groundwater, and

[25] ''Guidance on Risk Characterization for Risk Managers and Risk Assessors,'' by then Deputy Administrator F. Henry Habicht, 1992.

[26] For traditional listing decisions, we have considered a range of probabilistic results at or above the 90th percentile, *e.g.*, see the proposed listings for wastes from the production of chlorinated aliphatics (64 FR 46476, August 25, 1999) and inorganic chemicals (65 FR 55684 September 14, 2000).

aquifer type as a single set of parameters. We believe that, for example, allowing the climate from one location to be paired with the depth to groundwater from another location could result in a scenario that would not represent reality.

We set some of the parameters in the probabilistic analysis as constant values because (1) there are insufficient data to develop a probability distribution function, and (2) from previous listing determinations, the analysis has been shown to be insensitive to the value of the parameter.

a. What Waste Management and Release Scenarios Were Modeled?

We evaluated three waste management units that represent plausible management scenarios that are likely destinations for dyes and/or pigments production waste. The modeled units were nonhazardous landfills, surface impoundments, and wastewater treatment tanks. Section III.E describes in detail why these waste management units were selected for evaluation in the risk assessment. The waste management scenarios for each of these units were created using publicly available information reported and provided by industry on the management of their dyes and/or pigments production wastes. In addition, we used information on the national distributions of waste management unit characteristics (*e.g.*, size and waste capacity) collected with surveys conducted for other rulemakings to establish the characteristics of the waste management units.

As noted in section III.E.2, we originally believed that facilities managed dyes and/or pigments wastes in onsite or offsite nonhazardous landfills that are not MSWLFs, *i.e.*, Subtitle D ''industrial landfills.'' Thus, our initial modeling of landfill scenarios used a distribution of landfills that included a small fraction of industrial units (91 percent MSWLFs and 9 percent industrial landfills). Further review of the available information showed that we did not have any evidence that industrial landfills were currently in use for these wastes. Therefore, subsequent risk analyses used a landfill distribution made up of MSWLFs only. As previously discussed, the differences between the industrial and MSW landfill scenarios were relatively minor; this change did not have a significant impact on the risk results. Also, in the initial analyses, we inadvertently used a landfill life of forty years, while for subsequent modeling we corrected this to a thirty-year life. We have used a thirty-year life in recent listings, and we believe a thirty-year life is more appropriate for MSWLFs.[27] Comparisons of some modeling runs using the different landfill lives and distributions showed that these were not significant factors.

We have developed distributions for each type of waste management unit that characterizes the units' capacities and dimensions (*e.g.*, area and depth). These dimensions and operating characteristics are important determinants of the extent to which a contaminant may be released from the unit. We assume specific operational lifetimes (between 30–50 years) for each type of waste management unit, as well as different lengths of time during which constituents are assumed to be released from these units.

We determined that releases from all of the waste management units (tanks, landfills, and surface impoundments) can occur through release of vapor emissions to the air. We evaluated air releases for organic constituents that had a toxicity benchmark for the inhalation exposure route. Seventeen of the 30 organic constituents assessed did not have adequate benchmarks for such analysis. We did not assess the metals for vapor emissions because they do not volatilize. We assumed that particulate emissions to the air from solids disposed in landfills would be minimal because municipal landfills are typically required to have daily cover (*see* regulations for daily cover at § 258.21). Therefore, we did not consider particulate emissions for either organic or metal constituents in this assessment.

For landfill and surface impoundment scenarios, we determined that releases could also occur through leaching of waste contaminants into the subsurface to both groundwater and surface water. The Agency assumed that landfills and surface impoundments followed standard construction and operational requirements such that runoff and water erosion did not occur. We assumed that tanks were sufficiently impermeable that they were highly unlikely to release any significant amount of waste to the subsurface.

b. What Exposure Scenarios did EPA Evaluate?

We assumed that exposure from vapor emissions would be through inhalation of ambient air, while exposure to contaminants in groundwater would be through drinking and through inhalation of volatile contaminants released during showering. We did not add the risks from vapor releases and from groundwater contamination because vapor releases reach nearby residents in a matter of hours, while releases to groundwater take many years to migrate to nearby wells. For adults, we did add risks from both drinking and showering with contaminated groundwater. We assumed small children took baths instead of showers, so we did not model the risk of inhaling volatile chemicals while showering with groundwater for them. Previous analyses have indicated that exposure to chemicals volatilized from groundwater during household uses other than showering are very low compared to exposures in the bathroom during and immediately after showering. Therefore, we did not model exposure from other household uses of groundwater.

As noted above, particulate emissions to the air from solids disposed in landfills would be minimal because municipal landfills are required to have daily cover. In addition, releases from landfills or surface impoundments through volatilization are unlikely to lead to significant deposition and food chain uptake because this release pathway would only be significant for constituents that are more volatile than those of concern for dyes and/or pigments production wastes.

c. How did EPA Quantify Each Receptor's Exposure to Contaminants?

The amount of contaminant ingested or inhaled by a receptor is a function of the concentration of the contaminant in the water or air and various exposure factors, such as how much drinking water the receptor consumes each day (the intake rate), how much air the receptor breathes, the number of years the receptor is exposed (the exposure duration), and how often the receptor is exposed (the exposure frequency). Another important exposure factor affecting risk is the body weight of the receptor, since most toxicity measures are expressed as dose per unit of body weight. Our primary source of exposure factors is the ''Exposure Factors Handbook'' published by EPA in August 1997.

The one situation where we do not calculate dose to determine risk is the case when we use the reference concentrations (RfCs) to assess health impacts. RfCs are expressed as ambient air concentrations which are protective of human health; as such, they already have the appropriate exposure factors (inhalation rate, body weight) included in their derivation.

Children are an important subpopulation to consider in a risk assessment because, compared to adults, children drink more water and breathe more air per unit of body weight.

[27] ''Calculation of Municipal Landfill Active Life.'' U.S. EPA. November 10, 2003.

Therefore, their dose per unit of body weight at any particular time is higher than an adult's. To evaluate childhood exposure for this analysis, we evaluated a child whose exposure begins at a random age between one and six years old. We then aged the child for the number of years defined by the randomly selected exposure duration. As children mature, their physical characteristics and behavior patterns change. To capture these changes in the analysis, we divided the life of a resident who moved into the home as a child into several cohorts: cohort 1 (ages 1–5), cohort 2 (ages 6 to 11), cohort 3 (ages 12 to 19), and cohort 4 (ages 20 to 70). Each cohort has a discrete distribution of exposure parameters that are used to calculate exposure to an individual, so our analysis updated the exposure factors as the child aged from one cohort to another.

d. How Did EPA Predict the Release and Transport of Constituents From a Waste Management Unit to Receptor Locations?

We conducted contaminant fate and transport modeling to determine what the concentrations of contaminants will be in the air or groundwater that the receptor comes into contact with. These concentrations are called ''exposure point concentrations.'' There are a number of computer-based models and sets of equations that we use to predict exposure point concentrations. In the following sections, we briefly discuss these models and equations and their application in the risk analyses.

(i) Predicting Release of Constituents. *Landfill Partitioning Model.* The landfill model is designed to simulate the gradual filling of an active landfill and the long-term releases from the active and closed landfill cells. We also used this model in the February 13, 2001 proposed listing determination for paint production wastes (66 FR 10060). The design assumes that the landfill is composed of a series of vertical cells of equal volume that are filled sequentially. We assumed that each cell requires one year to be filled. The formulation of the landfill model is based on the assumption that the contaminant mass in the landfill cells might be linearly partitioned into the aqueous, vapor, and solid phases. The partitioning coefficients are based on those reported in literature, and are listed in the Risk Assessment Background Document. The model simulates the active lifetime of the landfill (30 years) and continues simulating releases until less than 1 percent of the peak mass is left or for a total of 200 years, whichever occurs first.

We assumed three different liner scenarios, unlined landfills where the underlying substrate is native soil (represented by a national distribution of soil types), landfills with compacted clay liners, and landfills with composite liners. For the unlined and clay-lined scenarios, we used EPA databases of landfill infiltration rates and regional recharge rates (calculated using the Hydrologic Evaluation of Landfill Performance (HELP) water-balance model). For the composite liner scenario, we used empirical distributions of infiltration rates.

The empirical infiltration rates were compiled from measured leak detection system flow rates for composite lined landfill cells.[28] There are several broad categories of liner types now in use. A typical composite liner is made up of a geosynthetic liner (GM) and a clay liner of some kind underneath. The clay liner is often a compacted clay liner (CCL). A CCL is composed of natural mineral materials, a bentonite-soil blend, and other materials placed and compacted in layers to build up a thick liner system (typically at least two feet thick). Another clay-based liner is a geosynthetic clay liner (GCL). A GCL is a relatively thin layer of processed clay (typically bentonite) either bonded to a geomembrane or fixed between two layers of geotextile. GCLs were developed relatively recently and are typically used with a GM in a composite liner.

In the composite liner scenario (annotated as SL) we modeled, we used a distribution of composite liners used at MSWLFs, including GM/GCLs, geomembrane/compacted clay liners (GM/CCLs), and a few examples of other combinations of liners. In developing this distribution, we excluded infiltration data from nonmunicipal landfills (Subtitle C landfills and landfills that accepted specialized wastes, such as ash) because our data indicate that all landfills reported to be used by dyes and/or pigments manufacturers are municipal solid waste landfills, and because we believe it is not appropriate to include data from units that accept very different waste (*e.g.,* hazardous wastes) and have different design requirements. In addition, we tried to use infiltration data that represented infiltration through a composite liner, *i.e.,* a combination of synthetic and clay liner that is consistent with the design requirements in § 258.40. For this reason, we excluded infiltration data that only represented infiltration through a single liner, such as the geomembrane liner by itself. Our evaluation of the results for these different liner assumptions is given in section IV.A.

We also modeled a select group of landfills that used geomembrane/geosynthetic clay liners (GM/GCL). The GM/GCL data set, unlike our composite liner data set, excluded all data from liner systems that included compacted clay liner (CCL). The CCL infiltration rates may include significant amounts of water expelled from the CCL as waste is placed in the landfill (''consolidation water'').[29] The consolidation water is difficult to account for and therefore may cause our infiltration rate data to be somewhat overstated. However, we believe that the contribution from consolidation water is not likely to be significant at the higher infiltration rates that are most important to the modeling results (*i.e.,* the 90th percentile probabilistic results are likely to be weighted toward the high end portion of the distribution of infiltration rates where any impact from consolidation water should be minimal). While the modeling results for the composite liner may be slightly higher due to this factor, we do not believe this materially affects the results. We also believe that the larger composite liner data set provides a better distribution of infiltration rates. The data used for the GM/GCL modeling were fairly limited in number and represented only a relatively small subset of the landfill units with data. Therefore, we relied on the composite modeling results (the SL scenario) for setting the listing limits proposed in this notice. The GM/GCL scenario results are provided in the Risk Assessment Background Document in the docket for today's proposal.

As usual for listing landfill modeling, we also assumed that there are adequate controls of runoff and erosion from the unit, preventing releases to groundwater or air from these routes. We assumed that the cover at closure is a soil cover that still permits volatilization. We also assumed that landfills would release leachate to the subsurface.

Based on the design assumptions above, we simulated the annual release of chemical mass by leaching to the unsaturated zone beneath the landfill and volatilization to the air. Within the landfill, we simulated losses of mass through anaerobic biodegradation (*i.e.,* degradation processes that occur in an oxygen-free environment). Hydrolysis

[28] ''Characterization of Infiltration Rate Data to Support Groundwater Modeling Efforts,'' Draft Final. TetraTech, Inc. September 28, 2001.

[29] ''Characterization of Infiltration Rate Data to Support Groundwater Modeling Efforts,'' Draft Final. Tetra Tech, Inc. September 28, 2001.

was not a significant factor for any of the constituents of concern. We used the highest 9-year average leachate concentration predicted by the partitioning model as input into EPA's Composite Model for Leachate Migration with Transformation Products (discussed in section ii below).

In modeling biodegradation, we used anaerobic degradation rates that were available in our primary reference.[30] This reference did not provide biodegradation rates for seven constituents of concern: aniline, azobenzene, benzaldehyde, 4-chloroaniline, 2,4-dimethylaniline, 1,2-phenylenediamine, and o-toluidine. For these chemicals, we selected conservative surrogates for assigning biodegradation rates. In selecting surrogates, we considered likely degradation pathways, potential interim products, and chemical structure. We used surrogates that were similar in structure and had similar or identical functional groups; in some cases, the surrogates were closely related isomers with the same chemical formula (*e.g.,* we used the rate for 1,4-phenylenediamine for 1,2-phenylenediamine). The use of surrogates is discussed in more detail in the Risk Assessment Background Document. We solicit comment on the use of surrogates for estimating biodegradation rates. We believe that using appropriate surrogates is preferable to assigning a default value of zero for the biodegradation rate. However, we also modeled these seven constituents by assuming a zero degradation rate for comparison. The mass loading limits resulting from modeling landfill releases without the surrogate biodegradation rates for these constituents are shown in Table IV–4 in section IV.A.4.

The partitioning model incorporates other assumptions intended to improve the efficiency of the model. These assumptions are described in detail in the Risk Assessment Background Document. The assumptions included the lack of lateral transport between cells, simulation of only a single cell and then aggregation of results based on the time each cell is filled, and the assumption that waste is added at a constant concentration and at a constant rate.

We do not believe that the wastes evaluated for the landfill scenario will contain or form nonaqueous phase liquids (NAPLs). NAPLs would be a problem only for wastes containing high concentrations of liquid organic material. Regulations for municipal landfills restrict the placement of any bulk or containerized liquids in a MSWLF unit (§ 258.28). Further, we have no information to indicate that such wastes would be destined for disposal in landfills. For example, the TRI releases reported for the constituents of concern do not suggest large quantities of organics are disposed in landfills. We expect wastes with high organic content to undergo thermal treatment, such as energy recovery. Therefore we did not model NAPL migration.

Surface Impoundment Partitioning Model. The surface impoundment model simulates the disposal of liquid wastes in a surface impoundment and the releases of chemicals during the lifetime of the unit. We also used this model in the September 14, 2000 proposed listing determination for inorganic chemical manufacturing wastes (65 FR 55684) and the February 13, 2001 proposed listing determination for paint production wastes (66 FR 10060). The entire time series of leachate concentrations are then used as input into EPA's Composite Model for Leachate Migration with Transformation Products (*see* section ii) which estimates the movement of the plume through the saturated and unsaturated zone over a 10,000 year time period. The time series of emissions for both vapors and particulates are also utilized along with air dispersion modeling results to estimate ambient air concentrations. We assume that the impoundments are properly designed and operated such that runoff and erosion do not occur. We assume that the unit is not covered. The model assumes that the waste in the impoundment consists of two phases: Aqueous liquid and sediment. The model simulates the changes at the bottom of the impoundment over time as settled solids fill pore space in native soils and act to reduce chemical transport to underlying soils and groundwater. In addition, the model allows for a fraction of each surface impoundment to be aerated, which enhances biodegradation and increases volatilization of some chemicals. The surface impoundment is assumed to operate 50 years and then undergoes clean closure (that is, all the waste is removed from the unit).

We modeled three liner systems for the surface impoundments: No liner, clay liner, and composite liner. The infiltration rates for unlined and clay-lined units were calculated internally by the groundwater model we used (EPACMTP). For the composite-lined surface impoundment, we calculated infiltration rates assuming a distribution of leak densities assembled from a survey of composite-lined units.[31] This approach is described in the Risk Assessment Background Document.

Based on the design assumptions, the surface impoundment module simulates annual release of leachate to the unsaturated zone and volatile emissions to the air. The model does not account for redeposition of volatiles into the unit from precipitation. The model accounts for various biological, chemical, and physical processes in the liquid phase, including hydrolysis, volatilization, sorption, settlement, resuspension, growth and decay of solids, and activated biodegradation (degradation which is dependent on the amount of biomass present). For the solid phase, the model accounts for anaerobic biodegradation in the sediments and has the ability to account for hydrolysis, although the hydrolysis rates for the constituents of concern were all zero. As noted above for the landfill partition model, we lacked biodegradation rates for seven constituents. As described previously, we used surrogates to estimate aerobic and anaerobic biodegradation rates for these constituents.

Tank Emissions Model. The tank model simulates time-varying releases of constituents to the atmosphere. The treatment tank is divided into two primary compartments: A liquid compartment and a sediment compartment. Mass balances are performed on these primary compartments at time intervals small enough that the hydraulic retention time in the liquid compartment is not significantly impacted by the solids settling and accumulation. In the liquid compartment, there is flow both in and out of the waste management unit (WMU). Solids generation occurs in the liquid compartment due to biological growth; solids destruction occurs in the sediment compartment due to sludge digestion. Using a well-mixed assumption, the suspended solids concentration within the WMU is assumed to be constant throughout the tank. However, some stratification of sediment is expected across the length and depth of the WMU so that the effective total suspended solids (TSS) concentration within the tank is assumed to be a function of the WMU's TSS removal efficiency rather than equal to the effluent TSS concentration. The liquid (dissolved) phase

[30] Howard, P.H., R.S. Boethling, W.F. Jarvis, W.M. Meyland, E.M. Michalenko, and H.T. Printup (ed.). 1991. *Handbook of Environmental Degradation Rates.* Lewis Publishers.

[31] ''Characterization of Infiltration Rate Data to Support Groundwater Modeling Efforts,'' Draft Final. Tetra Tech, Inc. September 28, 2001.

contaminant concentration within the tank, however, is assumed to be equal to the effluent dissolved phase concentration (*i.e.,* liquid is well mixed). The time series of emissions for vapors is utilized along with air dispersion modeling results to estimate ambient air concentrations.

Biological treatment occurs in treatment tanks due to both aerobic and anaerobic biodegradation. As noted above for the landfill partition model, we lacked biodegradation rates for seven constituents. Thus, as described previously, we used surrogates to estimate aerobic and anaerobic biodegradation rates for these constituents.

(ii) Predicting Transport of Constituents. *Air Dispersion Model* The air dispersion model uses information on meteorology (*e.g.,* wind speed, wind direction, temperature) to estimate the movement of constituents associated with contaminant releases through the atmosphere and the constituent concentrations in the air at the locations of potential receptors. The air concentrations for this analysis are based on the air dispersion factors from the Industrial Waste Air (IWAIR) model. These dispersion factors were calculated based on national distributions of location, waste management unit surface areas, and distance to receptors. As noted above, releases through volatilization are unlikely to lead to significant deposition and food chain uptake, and thus, deposition was not considered.

The calculated air concentrations were then averaged over the exposure duration. For the exposure duration, we used a time period centered around the occurrence of the peak concentration. These average concentrations were used to determine the receptor's exposure and risk.

Groundwater Model We used the EPA Composite Model for Leachate Migration with Transformation Products (EPACMTP) to model the subsurface fate and transport of contaminants that leach from the waste management units (landfills and surface impoundments) and migrate to a residential drinking water well. We assume that the soil and aquifer are uniform porous media and that flow and transport is described by Darcy's law and the advection-dispersion equation, respectively.

EPACMTP accounts for the following processes affecting contaminant fate and transport: Advection, hydrodynamic dispersion, equilibrium sorption by the soil and aquifer solids (both in the unsaturated and saturated zones), and contaminant hydrolysis. EPACMTP does not account for preferential pathways such as fractures, macropores, or facilitated transport (*i.e.,* any chemical process that has the potential to speed the transport of a pollutant beyond what is expected), which may increase the migration of constituents. Conversely, while the model has the capability of modeling biodegradation in groundwater, we do not have any appropriate coefficients to apply in the subsurface, so we do not account for the potential decrease in constituent migration.

The groundwater pathway consists of two components: Flow and transport in the vadose zone (the unsaturated zone directly below the unit), and flow and transport in the saturated zone. The primary transport mechanisms are downward movement along with infiltrating water flow in the unsaturated zone and movement along with ambient groundwater flow in the saturated zone. The advective movement in the unsaturated zone is one-dimensional, while the saturated zone module accounts for three-dimensional flow and transport. The model also considers mixing due to hydrodynamic dispersion in both the unsaturated and saturated zones.

In the unsaturated zone, flow is gravity-driven and prevails in the vertically downward direction. Therefore, the flow is modeled in the unsaturated zone as one-dimensional in the vertical direction. It is also assumed that transverse dispersion (both mechanical dispersion and molecular diffusion) is negligible in the unsaturated zone. This assumption is based on the fact that lateral migration due to transverse dispersion is negligible compared with the horizontal dimensions of the WMUs. In addition, this assumption is environmentally protective because it allows the leading front of the constituent plume to arrive at the water table with greater peak concentration.

In the saturated zone, the movement of constituents is primarily driven by ambient groundwater flow, which in turn is controlled by a regional hydraulic gradient and hydraulic conductivity in the aquifer formation. The model does take into account the effects of infiltration from the waste source as well as regional recharge into the aquifer. The effect of infiltration from the waste source is to increase the horizontal and vertical spreading of the plume, while the effect of regional recharge outside of the waste source is to cause a downward dip in the movement of the plume as it moves in the down gradient groundwater flow direction.

In addition to advective movement along with groundwater flow, the model simulates mixing of contaminants with groundwater due to hydrodynamic dispersion, which acts in the longitudinal, (*i.e.,* along the groundwater flow direction), as well as in horizontal and vertical transverse directions. The rate of movement of contaminants is strongly affected by chemical-specific sorption reactions in both the unsaturated and saturated zone.

e. What Are the Human Health Toxicities of the Constituents of Concern?

To characterize the risk from human exposures to the constituents of concern, toxicity information on each constituent of concern was integrated with the results of exposure assessment. Chronic human health benchmarks were used in this risk assessment to evaluate potential noncancer and cancer risks. We use reference doses (RfDs) and reference concentrations (RfCs) to evaluate noncancer health impacts from oral and inhalation exposures, respectively. Oral cancer slope factors (CSFs), inhalation unit risk factors, and inhalation CSFs are used to evaluate risk for carcinogens. The benchmarks are chemical-specific and do not vary between receptors (*i.e.,* residents, farmers, recreational fishers) or age groups. We used several sources to obtain human health benchmarks.

Health benchmarks for this risk assessment were obtained primarily from the most recent Integrated Risk Information System (IRIS) and from provisional benchmarks approved by EPA's Office of Research and Development. Other sources included EPA's most recent Health Effects Assessment Summary Tables (HEAST), Agency for Toxic Substances and Disease Registry minimal risk levels, California Environmental Protection Agency (CalEPA) chronic inhalation reference exposure levels, and CalEPA cancer potency factors. For lead, we used EPA's drinking water action level for lead of 0.015 mg/L for the groundwater pathway. We also used a drinking water action level for the groundwater pathway analysis for copper since an ingestion benchmark was not available.

Section 7 of the Risk Assessment Background Document contains the toxicological information used in our analysis. The studies used as the basis for each of these benchmarks have been reviewed, along with reference to the complete studies, and are presented in section 7 of the Risk Assessment Background Document.

f. What Are the Risk Assessment Results for Nonwastewaters?

We developed mass loading limits for nonwastewaters managed in a landfill. We calculated risk-based mass loading limits for the air and groundwater pathways. Table III–2 shows the loading limits derived from probabilistic analysis for the landfill groundwater pathway for several liner scenarios: No liner (NL), a compacted clay liner (CL), and a range of composite synthetic/clay liner (SL).

Reviewers should note that inputs used in the modeling to support today's proposal may change, and minor modifications to the model itself may be made as a result of ongoing internal quality assurance/quality control reviews and public comments. As a consequence, the proposed constituent levels may change as well. Reviewers should bear in mind that levels that increase or decrease sufficiently could result in adding or deleting constituents from the listing, based on whether the risk-based levels are likely to occur in dyes and/or pigments production wastes.

We propose to eliminate constituents from further consideration for nonwastewaters if the calculated allowable loading exceeds 10,000 kg/yr. Our basis for this is that mass loading limits for nonwastewaters in excess of 10,000 kg/yr are implausible, because such a loading would require waste concentrations that are unlikely to occur. For example, using our estimated average annual quantity of wastewater treatment sludge (1,894 metric tons/year (MT/yr)),[32] a loading of 10,000 kg/yr would correspond to a waste concentration above 5,000 ppm. Such a high concentration is highly unlikely in typical nonwastewaters, as shown by the available analytical data for dye and/or pigment wastes.[33] The results in Table III–2 only show the results for the constituents that yielded loadings that were below the 10,000 kg/yr level (>1.0E+04). The modeling for the groundwater pathway yielded loading limits less than 10,000 kg/yr for 12 out of the 35 constituents of concern for the unlined landfill scenario. Modeling of compacted clay lined landfills yielded eight loading limits less than 10,000 kg/yr; while modeling the range of composite liners which we call the ''SL'' scenario yielded only one such loading limit. (*See* the Risk Assessment Background Document for the full modeling results).

In contrast, the results for the air pathway for all landfill scenarios did not show any levels of concern, *i.e.*, the loading limits were all above 10,000 kg/yr. Details for this analysis can be found in the Risk Assessment Background Document.

TABLE III–2.—MASS LOADING LIMITS FOR POSSIBLE CONSTITUENTS OF CONCERN IN LANDFILLS: GROUNDWATER PATHWAY

Chemical	CAS No.	Mass loading (kg/yr)		
		NL	CL	SL
Toluene-2,4-diamine	95–80–7	0.34	0.99	140
2,4-Dimethylaniline (2,4-xylidine)	95–68–1	21	100	>1.0E+04
4-Chloroaniline	106–47–8	630	4,800	>1.0E+04
o-Anisidine	90–04–0	30	110	>1.0E+04
Benzidine	92–87–5	120	>1.0E+04	>1.0E+04
p-Cresidine	120–71–8	120	660	>1.0E+04
1,2-Phenylenediamine	95–54–5	160	710	>1.0E+04
1,3-Phenylenediamine	108–45–2	300	1,200	>1.0E+04
Lead	7439–92–1	1,300	4,900	>1.0E+04
Aniline	62–53–3	1,900	9,300	>1.0E+04
N,N-Dimethylaniline	121–69–7	2,500	>1.0E+04	>1.0E+04
1,4-Phenylenediamine	106–50–3	6,500	>1.0E+04	>1.0E+04

NL = limits for unlined landfill scenario.
CL = limits for clay-lined landfill scenario.
SL = limits for composite liner landfill scenario.

In addition to the results shown in Table III–2, we also conducted a screening analysis for sodium nitrite; the resulting loading limits were calculated to be 493 kg/yr, 740 kg/yr, and 19,720 kg/yr for the unlined, clay-lined, and composite-lined (SL) landfill scenarios.[34] Nitrite exists in the environment in a complex equilibrium with other forms of nitrogen, including less toxic nitrate, ammonia, and nitrogen gas. Equilibrium is affected by a variety of factors, and nitrite levels would be driven by the complex nitrogen cycle and the landfill and subsurface conditions. While we know nitrite is converted to nitrate and nitrogen under various conditions, our models were not able to quantify these processes. Also, we assumed that nitrite migrates with no significant adsorption (K_d=0). Therefore, we view the modeling results for sodium nitrite as a conservative screening analysis, because we used a variety of simplifying assumptions.

Only two facilities reported any TRI releases of sodium nitrite through offsite disposal (which we assume are releases of nonwastewaters), with the larger release being 363 kg (the other was 2 kg). This larger release is still below the very conservative loadings from our screening analyses for the three landfill scenarios. Furthermore, given the solubility of sodium nitrite, it seems unlikely that it could be present in any wastewater treatment sludges in significant amounts, but would preferentially partition to the wastewater. This is supported by the TRI data, which show that nearly all of

[32] *See* the Economic Analysis Background Document for a full description of our estimation of waste quantities.

[33] *See* the summary of analytical data in the Listing Background Document. Exceptions include high organic wastes, such as still bottoms, however these are relatively rare and are reportedly treated by combustion (*i.e.*, are not sent to a landfill). See, for example, Attachment C to the comments from BASF on the 1994 proposal, available in the docket for today's rule.

[34] Note that the Risk Background Document presents the loading limits for sodium nitrite in terms of ''nitrogen,'' rather than the complete sodium nitrite molecule (NaO_2). This occurs because the toxicity benchmark for sodium nitrite is given in terms of ''nitrogen.'' The TRI data are given for total mass of sodium nitrite. Therefore, for comparison to the TRI data, the loading limits are converted to the molecular formula for sodium nitrite; this requires multiplying the loadings given in terms of ''nitrogen'' by a factor of 4.93.

the sodium nitrite released by dyes and/or pigments facilities was in wastewaters sent to POTWs or discharged under NPDES permits to surface water. Because our screening assessment is likely to be very conservative, and because it is unlikely that any nonwastewaters from dyes and/or pigments production contain sodium nitrite at levels exceeding the screening analysis results, we believe that it is not necessary to set a nonwastewater loading limit for this chemical.

g. What Are the Risk Assessment Results for Wastewaters?

We developed mass loading limits for wastewaters managed in tanks and in surface impoundments. For surface impoundments, we calculated risk-based mass loading limits for both the air and groundwater pathways. For tanks, because of their relative impermeability, we calculated limits based only on the air pathway.

We assumed that allowable loadings in excess of 100,000 kg/yr were implausible. In developing this assumption, we used this plausibility threshold to calculate a theoretical wastewater concentration. At 100,000 kg/yr, we estimate that typical wastewater constituents concentrations would be 163 ppm.[35] To test the validity of this assumption, we looked at the available analytical data for wastewaters, as summarized in the masked and aggregated results presented in the Listing Background Document. We found only one constituent of concern—aniline—with wastewater concentrations above 163 ppm.[36] Thus, the sampling data generally support our assumption that constituents of concern will not be found in wastewaters in amounts exceeding 100,000 kg/yr.

As discussed in sections III.D, III.E, and IV.C, we believe that the mostplausible impoundment scenario for these industries is management of wastewaters in synthetic-lined impoundments. For the groundwater ingestion pathway of the synthetic-lined impoundment scenario, none of the modeled wastewater constituent loadings are less than 100,000 kg/yr. As a result, we conclude that our assessment of the synthetic-lined surface impoundment scenario did not identify any constituents that present a concern for the groundwater ingestion pathway. For specific results, see the Risk Assessment Background Document.

For both tanks and/or surface impoundments, the loading limits for the air pathway for 10 of the 17 constituents modeled were below 100,000 kg/yr. These constituents are shown in Table III–3. The air pathway results did not vary significantly for surface impoundments under the various liner scenarios. We show the results for the synthetic-lined impoundments below. Our evaluation of these results are presented in section IV.C. The Risk Assessment Background Document presents additional results for the unlined and clay-line surface impoundment scenarios.

TABLE III–3. MASS LOADING LIMITS FOR POSSIBLE CONSTITUENTS OF CONCERN IN TANKS AND SURFACE IMPOUNDMENTS DUE TO AIR EMISSIONS [1]

Chemical	CAS No.	Mass loading (kg/yr)	
		Tank	Surface impoundment
Aniline	62–53–3	2,700	1,500
Naphthalene	91–20–3	2,200	2,200
Azobenzene	103–33–3	3,700	2,400
o-Toluidine	95–53–4	2,600	2,400
o-Anisidine	90–04–0	9,500	2,900
p-Cresidine	120–71–8	50,000	13,000
Formaldehyde	50–00–0	>1.0E+05	14,000
Toluene-2,4-diamine	95–80–7	>1.0E+05	51,000
1,2-Dichlorobenzene	95–50–1	71,000	63,000
Benzidine	92–87–5	>1.0E+05	89,000

[1] Levels represent the 90th percentile minimum loading limit derived from probabilistic analysis for the air pathway for tanks and synthetic-lined surface impoundments.

We also conducted a screening analysis for sodium nitrite, which resulted in loading limits of 19,277 kg/yr for the unlined impoundment and 48,807 kg/yr for the clay-lined impoundment; the loading limit for the synthetic-lined impoundment scenario was well above the 100,000 kg/yr level. As discussed for the landfill scenario, nitrite exists in the environment in equilibrium with other forms of nitrogen. As noted previously, the modeling results for sodium nitrite represent a conservative screening analysis that incorporated a variety of simplifying assumptions. In this case, we also believe that nitrite is likely to be converted to nitrate in the aerobic environment of a surface impoundment.[37]

The only TRI release of sodium nitrite to wastewater comparable to these screening levels was one quantity of 20,586 kg/yr (released to a POTW, not an impoundment). This release is barely above the very conservative loading from our screening analysis for an unlined impoundment (19,277 kg/yr), but well below the loading limit for the clay-lined scenario (48,807 kg/yr). Furthermore, the loading limit for the synthetic-lined impoundment (which is the most plausible management practice) is well above the level of concern. Because our screening assessment is likely to be very conservative, and because wastewaters from dyes and/or pigments production are unlikely to contain sodium nitrite at levels exceeding the screening analysis results, we believe that it is not

[35] Assuming an average wastewater quantity of 615,000 metric tons/yr, *see* ''Economic Assessment for the Proposed Loadings-Based Listing of Non-Wastewaters From the Production of Selected Organic Dyes, Pigments, and Food, Drug, and Cosmetic Colorants'' in the docket for today's proposal.

[36] A second chemical, acetone, also exceeded 163 ppm in some samples. Acetone, however, is not a constituent of concern in this rulemaking because it is typically used as a solvent (rather than an intermediate) and as such is already subject to regulation as a hazardous waste under F003.

[37] Note that the toxicity benchmark for nitrate (Rfc) in IRIS indicates that nitrate is 16-fold less toxic than nitrite.

necessary to set a wastewater loading limit for this chemical.

3. What Was EPA's Approach to Conducting the Ecological Risk Assessment?

We conducted a screening analysis to estimate whether there might be significant impacts from these constituents on ecological receptors. This analysis was limited to evaluating the impact of contaminated groundwater discharging into surface waters and potentially affecting aquatic life and consumers of aquatic life. We did not assess potential impacts from vapor emissions to air because we did not have inhalation health benchmarks for ecological receptors.

The evaluation of potential impacts on surface waters consisted of modeling the increase in constituent concentrations in surface waters due to the discharge of groundwater contaminated by dyes and/or pigments production wastes into those waters. We used EPA's Ambient Water Quality Criteria (AWQC) to calculate allowable loadings of the potential constituents of concern (Table III–1) for this pathway. For all constituents, the allowable loadings calculated using the AWQC were above the loadings derived using human health toxicity benchmarks. This means that the loading limits calculated to protect human health are also protective for aquatic life. Therefore, we did not find any significant impact from these constituents in this ecological screening analysis.

4. What Is the Uncertainty in the Risk Results?

Liner Infiltration Rates

The infiltration rates used in calculating releases from lined landfills were significant sources of uncertainty in our modeling results. In modeling releases from landfills with liners, we had to rely on limited data for infiltration rates through various liner systems. To account for the expected variability in infiltration rates, we incorporated distributions of rates for composite liners with synthetic components (our SL scenario). The data available were limited both in terms of the number of lined units from which we collected data, and also in terms of the length of time the liner systems were in place. Most of the landfills from which infiltration data was obtained had initial waste placement between 10 and 15 years ago (between 1987 and 1992). Liner systems may suffer increased releases from a variety of causes, such as liner failure due to improper installation, faulty materials, or long-term degradation of the liner system. These factors would tend to increase infiltration rates.

Our concern about the representativeness of the length of time the infiltration data represents is somewhat balanced by our assumption that biodegradation occurs in MSWLFs. We accounted for biodegradation for all organic constituents of concern. The half-lives we used for the organic constituents are relatively short. We estimate that the mass loading of these constituents would biodegrade over the landfill life to low levels. The slowest degradation rate we evaluated is 9.6E–04 per day, which corresponds to a half-life of 2 years. After 10 years of degradation at this rate, 97 percent of the constituent mass would have degraded (ignoring for this example the competing processes of leaching and volatilization). Therefore, almost all of what is placed into the landfill during the first 20 years of operation (as well as most of what is landfilled during the last 10 years) would be degraded by the time the landfill is closed. We think, therefore, that our data on infiltration rates reasonably represents liner performance for this limited period of time.

In addition, there are other factors that we did not account for in our modeling that would tend to decrease releases of constituents of concern from landfills with composite liners. Our modeling did not account for the effect of a leachate collection system, which would tend to decrease leachate release; this is a required element in the design of a composite MSWLF liner (§ 248.40(b)). Nor did we consider that a final cover would tend to decrease infiltration rates after the unit is closed. The closure regulations for a MSWLF unit (§ 258.60) include a requirement for a low permeability final cover, but our data set did not include many closed units. Note that these final covers are often constructed using geomembrane liners, which are generally more impermeable to surface infiltration than earthen or clay liners. While a cover may also degrade over time, post-closure regulations (§ 258.61) require the owner to maintain the integrity of the cover for 30 years (the post-closure period may be extended, if deemed necessary). In addition, while not required under the part 258 regulations, many landfill units are equipped with additional liners, *i.e.*, units may have a double composite liner system. This is apparent from the units from which the infiltration data were collected (the units had a secondary liner in place, thus allowing the infiltration from the top liner to be measured). Also, information submitted by an industry group in comments on the 1999 proposed listing for dyes and/or pigments wastes indicates that over half of the landfills receiving the wastes in question reported having some kind of double liner in place.[38]

Other Sources of Uncertainty

This section discusses other major areas of risk assessment uncertainty: scenario uncertainty, model uncertainty, and parameter uncertainty.

Scenario uncertainty results from the assumptions we make regarding how receptors become exposed to contaminants. This uncertainty occurs because of the difficulty and general impracticality of making actual studies of all activities involved in the management of a waste and the human activities that occur around the waste management unit.

This risk assessment, like other recent listing risk assessments (*e.g.*, *see* the proposal for paint manufacturing wastes at 66 FR 10060; February 13, 2001) does not consider the additive risk from exposure to multiple constituents. Chemical mixtures can display both synergistic and antagonist behavior with regard to risk. In general, however, the overall risks of a mixture are very likely to be greater than that of exposure to a single chemical. Therefore not adding exposures across the chemicals is an area of uncertainty that leads to an underestimate of total risk.

We did not calculate the additive effects from co-disposal of dyes and/or pigments nonwastewaters since the available information from TRI on the mass loading and co-management of particular constituents of concern in dyes and/or pigments production wastes indicated that such co-disposal by multiple generators in landfills was not a significant occurrence.

Also, certain contaminants from these industries may also be present in the environment as a result of both natural processes and anthropogenic activities. Under these circumstances, receptors potentially receive a ''background'' exposure that adds to the exposure resulting from release of contaminants from the waste. For a national analysis like this assessment, the inclusion of background concentrations as part of the analysis is difficult because of the lack of data on national background concentrations for each constituent and the potential high variability of background concentrations.

[38] *See* comments by Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers, Attachment A, October 21, 1999, placed in the docket for today's proposal.

Model uncertainty is associated with all models used in all phases of a risk assessment, because models and their mathematical expressions are simplifications of reality that are used to approximate real-world conditions and processes, and their relationships. Models do not include all parameters or equations necessary to express reality because of the inherent complexity of the natural environment and the lack of sufficient data to describe it. Even though the models used in the risk analyses are used widely and have been accepted for numerous applications, they each retain significant sources of uncertainty.

For example, in modeling the fate and transport of chemicals in groundwater, we did not assess complex hydrogeology such as karst or highly fractured aquifers. In general, fractured flow in groundwater can channel the contaminant plume, thus allowing it to move faster and more concentrated than in nonfractured flow environments. As a result, our modeling may underestimate the concentrations in the groundwater.

Also, there is considerable uncertainty in predicting the movement of contaminants over long periods of time. We assess the risk to receptors for the groundwater pathway over a time period of 10,000 years. There are likely to be significant changes in environmental conditions over time, yet the modeling methodology maintains constant assumptions over this 10,000 year period.

Parameter uncertainty occurs when (1) there is a lack of data about the parameters used in the equations, (2) the data that are available are not representative of the particular instance being modeled, or (3) parameter values cannot be measured precisely and/or accurately because of limitations in measurement technology.

The age of several of the databases used in this analysis to characterize the waste management units or the location of the receptors leads to uncertainty in the analysis. These databases contain information collected by the EPA in several surveys during the mid-to late 1980's. While these databases represent the best available information the Agency has, there may have been significant changes in waste management units or residential locations over the last 15–20 years. The uncertainty associated with these data may lead to an over or under estimate of risk.

For organic chemicals, single values for parameters such as partitioning coefficients and biodegradation rates were obtained from public literature sources, yet there is general agreement that these types of values may be highly variable under different environmental conditions. We recognize that biodegradation rates are dependent on a variety of environmental conditions, thus where more than one rate was found, we chose the lowest one. We selected anaerobic degradation rates reported as the most appropriate for constituents within landfills. Depending on the site specific conditions, the degradation rates may underestimate or overestimate the amount of degradation that would occur in a landfill. Note that we did not, however, attempt to account for biodegradation in the subsurface, because we believe this degradation is more variable and difficult to predict. For metals, EPA used the MINTEQ model to estimate the variation in partitioning of metals as a function of subsurface chemistry. However, this model is still undergoing review, which indicates an additional source of uncertainty.

Limited data were available on the physical and chemical characteristics of dyes and/or pigments production waste. To address this, assumptions on the waste characteristics are based on general knowledge of dyes and pigments and other similar industrial wastes. In this analysis, EPA assumes that the dyes and/or pigments production wastes have the same general characteristics (*e.g.*, fraction of organic carbon, pH, particle size) as other wastes.

We typically use regional databases to obtain the parameter values necessary to model contaminant fate and transport. Because the data that we used are not specific to the facilities at which the actual wastes are managed, the data represent our estimates of the generic site conditions. For an analysis where waste management locations are so variable, we believe this type of approach is reasonable and is the best method to address the fate and transport of constituents. Nevertheless, the use of these databases in lieu of site-specific data may result in either overestimates or underestimates of risk.

Sources of uncertainty in toxicological benchmarks include one or more of the following: extrapolation from laboratory animal data to humans, variability of response within the human population, extrapolation of responses at high experimental doses under controlled conditions to low doses under highly variable environmental conditions, and adequacy of the database (number of studies available, toxic endpoints evaluated, exposure routes evaluated, sample sizes, length of study, *etc.*). Toxicological benchmarks are designed to be conservative (that potentially overestimates risk) because of the uncertainties and challenges associated with condensing toxicity data into a single quantitative expression. Uncertainty factors are applied to address limitations of the available toxicological data and are necessary to ensure that the RfD or RfC is protective of individuals in the general population. The use of uncertainty factors is based on long-standing scientific practice. Uncertainty factors, when combined, commonly range from 10 to 1000 depending on the nature and quality of the underlying data. The RfD/RfC methodology is expected to have an uncertainty spanning perhaps an order of magnitude.

Toxicological effects in children are also an area of uncertainty. Cancer slope factors and reference doses for children are based on comparing childhood exposure, for which we have age-specific data, with adult toxicity measures, where adequate age-specific dose-response data is lacking. This mismatch results in a large amount of uncertainty in the estimation of hazard quotients for children and the concern that we may be underestimating the potential impacts on children.

5. How Did EPA Use Damage Case Information?

We considered whether any damage cases exist that indicate impacts on human health or the environment from improper management of the wastes of concern, as required under the listing regulations (§ 261.11(a)(3)(ix)). Damage incidents might also provide some information on the potential of the waste constituents to migrate, persist, or degrade in the environment. We compiled damage incidents involving dyes and/or pigments production wastes for a previous proposal,[39] and we updated this report for today's proposal.[40] We found and reported eleven incidents in the August 1994 damage case report that appeared to involve some kind of contamination from the mismanagement of dye and/or pigment production wastes. Our updated analysis did not produce any other cases with useful information.

The available information on potential problems related to apparent mismanagement of dye and/or pigment wastes at manufacturing sites. The

[39] *See* the report prepared for the 1994 proposed rule, ''Resource Damage Incidents for Dye and Pigment Industry,'' August 1994, in the docket for today's rule.

[40] *See* the updated report, ''Damage Incident Analysis for the for Identification and Listing of Wastes from the Production of Organic Dyes and Pigments,'' July 2003, in the docket for today's rule.

information of most potential utility came from the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS), which contains information on potential and actual Superfund sites, and EPA Region or State files. We found further information on the Superfund Record of Decision System (RODS), which documents remediation actions at sites on the National Priority List (NPL).

We examined eleven cases closely, because these sites appear to involve sites where dyes and/or pigments production occurred. However, comments from a number of companies and trade associations on the 1994 proposal argued that most of these cases did not support the proposed listings in the 1994 rule. Commenters argued that the damage cases did not reflect current management practices, nor did the cases confirm risks were posed by the wastes proposed for listing. Upon further review, we agree that the damage cases have limited utility for determining current plausible mismanagement scenarios. The majority of damage cases (especially Superfund sites) were from sites that operated prior to implementation of the current RCRA regulations for hazardous wastes (*e.g.*, characteristically hazardous waste) or nonhazardous wastes (*e.g.*, current regulations for municipal landfills in part 258), and generally reflect management practices that no longer occur (such as disposal of untreated waste in unlined surface impoundments and indiscriminate disposal of wastes on the ground). Also, most of the facilities with damage cases have closed or ceased production of the in-scope dyes and pigments. Therefore, we believe these past damage incidents do not represent current waste management practices used by the dyes and/or pigments production industry.

In most cases, the available damage incident data do not attribute contamination to the specific dyes and/or pigments production wastes at issue in today's proposed rule. Contamination may be caused by other unrelated processes or activities onsite. Even where historical problems can be traced to dye or pigment materials, they are not very useful in assessing the potential risks for dyes and/or pigments production as they are currently generated or managed. The damage cases provide some anecdotal information to suggest that some dyes and/or pigments production wastes may yield environmental contamination when managed in the ways that lead to the damage cases. Some damage incidents also provide information indicating the potential for the migration, mobility, and persistence of constituents in dyes and/or pigments production wastes. For example, the information on the chemicals contaminating the groundwater or other media at the damage sites show contamination from some of the constituents of concern in today's rule (aniline, 4-chloroaniline, 1,2-dichlorobenzene). This provides some support that these constituents may migrate to the groundwater and may present risks if the contaminated groundwater is consumed. However, this information does not assist in determining the mass loadings at which dyes and/or pigments production wastes could pose a hazard.

In general, because the wastes in the damage cases may include wastes not in the scope of today's rule, and because the cases reflect management scenarios that we do not believe are currently common or plausible, it is difficult to use them to reach conclusions as to whether the wastes under evaluation in today's proposal may pose significant risks. Certainly, it is inappropriate to use damage cases to ascertain at what mass loadings the dyes and/or pigments production wastes under evaluation may pose such risks. Thus, while the damage cases support the concept that some dyes and/or pigments production wastes may sometimes pose risks, EPA is relying upon its quantitative risk assessment in formulating today's proposal.

IV. Proposed Listing Determinations

A. What Are the Proposed Regulations for Dyes and/or Pigments Production Nonwastewaters?

We are proposing to list nonwastewaters from the production of dyes and/or pigments. Such wastes would become a listed hazardous waste if they are generated during the production of any of the specified classes of dyes and/or pigments products and if, at the point of generation, they contain any of the K181 constituents of concern at a mass loading equal to or greater than the annual mass loading limit identified for that constituent. All wastes generated during a calendar year up to the mass loading limits are outside the scope of the listing, even if the wastes subsequently meet or exceed the limits. Such wastes would be excluded from the listing from their point of generation, and would not be subject to any RCRA Subtitle C management requirements for generation, storage, transport, treatment, or disposal (including the land disposal restrictions).

We are also proposing a conditional exemption for nonwastewaters listed in K181 with specific constituent loadings below a higher limit at the point of generation, so long as the wastes are disposed of in a Subtitle D or Subtitle C landfill cell subject to specified design standards. We are proposing the following listing description for these wastes:

K181: Nonwastewaters from the production of dyes and/or pigments (including nonwastewaters commingled at the point of generation with nonwastewaters from other processes) that, at the point of generation, contain mass loadings of any of the constituents identified in paragraph (c)(1) of this section that are equal to or greater than the corresponding paragraph (c)(1) levels, as determined on a calendar year basis. These wastes would not be hazardous if: (i) The nonwastewaters do not contain annual mass loadings of the constituent identified in paragraph (c)(2) of this section at or above the corresponding paragraph (c)(2) level; and (ii) the nonwastewaters are disposed in a Subtitle D landfill cell subject to the design criteria in § 258.40 or in a Subtitle C landfill cell subject to either § 264.301 or § 265.301. For the purposes of this listing, dyes and/or pigments production is defined in paragraph (b)(1) of this section. Paragraph (d) of this section describes the process for demonstrating that a facility's nonwastewaters are not K181. This listing does not apply to wastes that are otherwise identified as hazardous under §§ 261.21–24 and 261.31–33 at the point of generation. Also, the listing does not apply to wastes generated before any annual mass loading limit is met.

We also specify the procedures and recordkeeping requirements that generators would use to demonstrate whether or not they exceed the loading limits and, if applicable, whether they meet the landfill design requirements. These implementation provisions are discussed in section V of today's proposal.

We are proposing that the constituents and the mass loadings in the listing (which would be specified in paragraph (c)(1) of § 261.32) would be those shown in Table IV–1. For the conditional exemption, we are proposing the constituent and mass loading limit shown in Table IV–2 (to be set out in § 261.32(c)(2)). These constituents and listing levels are based on the risk modeling for nonwastewaters disposed of in nonhazardous waste landfills summarized in section III.G.

TABLE IV–1.—PROPOSED SECTION 261.32(C)(1) MASS LOADING LIMITS FOR K181 NONWASTEWATERS

Constituent	Chemical abstracts No.	Mass levels (kg/yr)
Aniline	62–53–3	9,300
o-Anisidine	90–04–0	110
4-Chloroaniline	106–47–8	4,800
p-Cresidine	120–71–8	660
2,4-Dimethylaniline	95–68–1	100
1,2-Phenylenediamine	95–54–5	710
1,3-Phenylenediamine	108–45–2	1,200
Toluene-2,4-diamine	95–80–7	0.99

TABLE IV–2.—PROPOSED SECTION 261.32(C)(2) MASS-LOADING LIMIT FOR CONDITIONAL EXEMPTION TO K181 FOR NONWASTEWATERS DISPOSED OF IN LANDFILL CELLS SUBJECT TO DESIGN REQUIREMENTS

Constituent	Chemical abstracts No.	Mass levels (kg/yr)
Toluene-2,4-diamine	95–80–7	140

1. Landfill Scenarios Underlying Listing Loading Limits

Table III–2 sets out the loading limits we calculated for several landfill liner scenarios representing decreasing infiltration rates: No liner (NL), clay liner (CL), and a composite synthetic/clay liner (SL). These results reflect a broad spectrum of potential Subtitle D landfills that might receive nonwastewaters. However, we based the listing levels on the two scenarios we believe are most applicable. We are proposing to use the modeling results for a clay-lined landfill (CL scenario) as the basic loading levels for dyes and/or pigments production nonwastewaters in Table IV–1. As discussed in section 2 below, we are proposing to use the results for the composite liner modeling (SL scenario) as the basis for a conditional exemption from the listing to set the loading limit in Table IV–2 that would apply to wastes that are managed in landfills that are equipped with a minimum of a composite liner system.

We found that management in an offsite municipal solid waste landfill was a plausible management practice for nonwastewaters (*see* section III.F.2). The regulations governing municipal landfills require a composite liner design (or a strict performance standard; *see* 40 CFR 258.40), but this requirement does not apply to existing units (existing units are municipal landfill cells that accepted waste as of the dates specified in § 258.1(e), generally October 9, 1993). Most key parts of the MSWLF regulations codified in 40 CFR part 258 apply to existing units. Some of these regulations (notably the groundwater monitoring and corrective measures regulations at § 258.50 through § 258.58) probably have encouraged facilities to close unlined units because of the long-term liability of adverse groundwater impact.[41] We believe that it is likely that a landfill currently receiving these industrial wastes would have at least a clay liner.[42] In fact, an industry association presented detailed information in comments on the 1999 proposed listing for dye and pigment wastes that showed that landfills receiving these wastes are reported to have liners.[43] Therefore, we are proposing that the mass loading limits from the clay-lined results shown in Table IV–1 define the hazardous mass loadings for these dye and/or pigment wastes (in § 261.32(c)(1)). Nevertheless, because there may be unlined MSWLFs that might be used for these wastes, we are soliciting comment on whether the listing (and levels in § 261.32(c)(1)) should be conditioned on the wastes being placed in a landfill with a minimum of a clay liner. We may consider this option, for example, if we receive data that shows dye and pigment wastes are being disposed of in unlined landfills.

2. Conditional Exemption for Certain Landfilled Wastes

We are also proposing that wastes that otherwise meet the K181 listing description could be managed as nonhazardous so long as both of the following conditions are met: (1) The nonwastewaters do not contain an annual mass loading of toluene-2,4-diamine that is equal to or greater than 140 kg/yr, and (2) the nonwastewaters are disposed in a Subtitle D landfill cell subject to the design criteria in § 258.40 or in a Subtitle C landfill cell subject to the design criteria in § 264.301 or § 265.301. We are proposing this exemption because our modeling indicates that management in landfills that comply with or exceed these design standards should not pose a risk to human health and the environment (so long as the waste does not exceed the § 261.32(c)(2) listing levels for toluene-2,4-diamine).

As previously discussed in IV.A.1, the § 261.32(c)(1) listing levels reflect our risk assessment modeling results for a clay-lined landfill. Wastes with mass loadings above the § 261.32(c)(1) listing levels pose risk to human health when placed in a landfill that is only lined with clay because of the modeled mobility of the K181 constituents through a clay liner into the subsurface and subsequent movement through an aquifer used for domestic consumption. Many landfills, however, have been designed with more protective liner systems than a simple clay liner. The § 258.40 landfill liner requirements provide significantly more protection against contaminant migration into

[41] See ''Waste Age,'' Volume 30, p. 64; July 1999. Also, the number of MSWLFs operating has decreased from 7,683 in 1986 to 3,581 in 1995 and to about 2,300 in 2000; See EPA's updated lists of MSWLFs (EPA530–R–96–006) and at *http://www.epa.gov/epaoswer/non-hw/muncpl/longdesc/4-8longdesc.htm*.

[42] While our data indicate that dyes and/or pigments manufacturers do not appear to currently use nonmunicipal (*i.e.*, ''industrial'') Subtitle D landfills, we believe that this type of landfill is also likely to be lined. Commercial offsite landfills are subject to considerable regulations by States, including liner requirements. See the report by ASTSWMO, ''Non-Municipal, Subtitle D Waste Survey,'' March 1996 and EPA's report ''List of Industrial Waste Landfills and Construction and Demolition Waste Landfills,'' September 30, 1994 (PB195–208914, 530–R–95–019), *http://www.epa.gov/epaoswer/hazwaste/sqg/list/lfillpdf.pdf*.

[43] See comments by Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers, Attachment A, October 21, 1999, placed in the docket for today's proposal.

groundwater. We believe that the SL modeling results closely match the § 258.40 requirement, because the infiltration data used for the SL scenario were derived from municipal landfills with composite liners (*i.e.*, a combination of a geomembrane liner and a clay liner of some sort). This modeling, reflected in the § 261.32(c)(2) listing levels, demonstrates that the majority of the constituents that warrant establishment of listing levels based on a clay-lined landfill scenario (*i.e.*, the § 261.32(c)(1) levels) are effectively controlled in a landfill with a composite clay and synthetic liner similar to the liner required under § 258.40. Our modeling of the composite liner scenario indicates that only one constituent, toluene-2,4-diamine, poses risk that warrants further control due to possible infiltration through a composite liner system.

Based on our risk assessment results that indicate that the majority of the assessed constituents can be safely managed in § 258.40 compliant landfills, we have proposed to exempt those wastes that would otherwise meet the K181 standards when those wastes are managed in landfills subject to the § 258.40 standards, so long as the wastes do not contain mass loadings in excess of the § 261.32(c)(2) standard of 140 kg/yr we are proposing for toluene-2,4-diamine.

Hazardous waste regulations require double composite liners that are even more protective than part 258 composite liners. Some generators of dyes and/or pigments nonwastewaters may choose to dispose of their wastes in hazardous waste landfills. Wastes which contain mass loadings below the § 261.32(c)(2) standard would not pose threats if placed in landfill cells subject to the hazardous waste landfill requirements. Accordingly, we are also proposing to exempt wastes that would otherwise meet the K181 listing if they do not exceed the § 261.32(c)(2) mass level and if they are placed in landfill cells subject to 40 CFR 264.301 or § 265.301. We request comment on this exemption.

3. Selecting K181 Constituents and Mass Loading Limits

As described in section III, we developed risk-based mass loading limits for the set of constituents shown in Table III–1. In general, we relied on the modeling results to guide us in deciding which constituents would be appropriate in defining these dyes and/or pigments production nonwastewaters as listed hazardous wastes. We dropped constituents from further concern if the calculated allowable mass loadings exceeded 10,000 kg/yr, because these constituents are unlikely to occur in these wastes above this level. That is, mass loadings of this magnitude are so high in comparison with expected waste generation rates, that the resultant theoretical concentrations are well in excess of the concentrations we expect to be present in these wastes and thus can be considered implausible. Thus, using this concept of a theoretical waste concentration to screen the constituents listed in Table III–1, we narrowed the list of constituents by eliminating those with calculated allowable mass loadings above 10,000 kg/yr.

Table IV–3 summarizes various information sources we have identified that link these chemicals to the production of dyes or pigments of concern. We believe this information supports our proposal to propose listing levels for these constituents in K181. Additional details are presented in the Listing Background Document and in ''Background Document: Development of Constituents of Concern for Dyes and Pigments Listing Determination,'' both of which are available in the docket for today's proposal. We solicit comment on the proposed list of constituents and their levels in Tables IV–1 and IV–2. We seek comment and supporting information as to whether any constituents should be added to or dropped from the list of constituents of concern for dyes and/or pigments nonwastewaters and the basis for such action. More specifically, we seek any information that may assist us in deciding whether any of the constituents in Table IV–1 are unlikely to be present at the levels of concern, and thus whether we should drop them from the listing.

TABLE IV–3.—OVERVIEW OF DATA SOURCES LINKING K181 CONSTITUENTS TO DYES AND/OR PIGMENTS PRODUCTION

Constituent	CAS No.	Analytical data	Colour index	TRI	EU Ban	§ 3007 survey	Manufacturer web sites
Aniline	62–53–3	X	X	X		X	X
o-Anisidine	90–04–0	X	X	X	X		X
4-Chloroaniline	106–47–8	X		X	X		
p-Cresidine	120–71–8		X	X	X		X
2,4-Dimethylaniline	95–68–1	X				X	X
1,2-Phenylenediamine	95–54–5	X	X	X			X
1,3-Phenylenediamine	108–45–2		X	X		X	X
Toluene-2,4-diamine	95–80–7		X	X	X		X

We also specifically seek comment on the constituent in Table IV–2 that is at issue for wastes disposed of in a landfill subject to § 258.40, § 264.301 or § 265.301 design requirements. TRI releases for toluene-2,4-diamine were reported by two dyes and/or pigments production facilities. One facility reported an annual release of less than 500 lbs., or 227 kg (*i.e.*, as reported in a Form A for the TRI). The second facility reported the transfer of 396 kg of mixed toluenediamine isomers to a broker for disposal; we could not determine whether this waste was treated prior to disposal. The TRI data therefore indicates that one or two facilities may be disposing of toluene-2,4-diamine in the modeled management practice at levels on the same order of magnitude as the proposed listing levels. In addition to the TRI data, the Colour Index and two facilities' Web site indicate that four companies manufacture products that may be derived from toluene-2,4-diamine. Note that we do not have any analytical data for this constituent in dye and pigment wastes, because we did not analyze wastes for this chemical. After evaluating all available information, including information on the potential presence of toluene-2,4-diamine at the proposed levels in nonwastewaters and the current use of this constituent in dyes and/or pigments production, we will determine whether toluene-2,4-diamine should be included in § 261.32(c)(2).

4. Assessment of Biodegradation

As described in section III.G.2.d.i, we accounted for the biodegradation of the constituents of concern in our landfill modeling. In modeling biodegradation, we used anaerobic degradation rates

that were available in the primary reference;[44] when rates were not available for seven chemicals of concern, we used conservative surrogates derived from the same reference. The loading limits for nonwastewaters in Tables IV–1 and IV–2 were derived using this approach. We also completed modeling for these seven constituents using a default degradation rate of zero.

Table IV–4 presents the mass loading limits for nonwastewaters that would result from using zero degradation rates for the seven constituents. Under this approach, three additional constituents would be added to the § 261.32(c)(1) list (benzaldehyde, azobenzene, and p-toluidine) and five additional constituents would be added to the § 261.32(c)(2) list (2,4-dimethylaniline, 4-chloroaniline, 1,2-phenylenediamine, aniline, and p-toluidine). We believe that using appropriate surrogates is preferable to assigning a default value of zero for the biodegradation rate. However, we request comment on whether the risk assessment results derived from the default rate of zero should be used as the basis for setting listing levels for some or all of these constituents.

TABLE IV–4.—ALTERNATE MASS LOADING LIMITS CALCULATED WITHOUT DEGRADATION

Constituent	Chemical abstracts no.	§ 261.32(c)(1) Mass levels (kg/yr)	§ 261.32(c)(2) Mass levels (kg/yr)
2,4-Dimethylaniline	95–68–1	3.7	160
4-Chloroaniline	106–47–8	89	3,400
1,2-Phenylenediamine	95–54–5	5.7	180
Benzaldehyde	100–52–7	1,500	[1]
Azobenzene	103–33–3	6,800	[1]
Aniline	62–53–3	110	4,300
p-Toluidine	106–49–0	11	400

[1] Not applicable: Calculated degradation rates exceed 10,000 kg/yr, no listing level proposed.

We specifically seek comment on the five constituents that would be added to the conditional exclusion in § 261.32(c)(2) if this alternate approach of using zero biodegradation rates were adopted. We recognize that some information we have in the record suggests that mass loadings in these wastes may not reach the Table IV–4 levels for some constituents.

For example, we have historical analytical data for dyes and/or pigments nonwastewaters for 2,4-dimethylaniline, 4-chloroaniline, p-toluidine, 1,2-phenylenediamine, and aniline (see the Listing Background Document). 2,4-Dimethylaniline was detected only in wastewater (two samples, maximum of 1.19 ppm). 4-Chloroaniline was found in five waste samples, but at fairly low concentrations (maximum of 13 ppm). p-Toluidine (also known as 4-methylaniline) was detected at high levels in one sample of nonwastewater (presumably a still bottom or spent solvent), and it was also possibly detected as a co-eluting component of 2/3/4-aminotoluene (maximum of 10.4 ppm). 1,2-Phenylenediamine (also know as 2-aminoaniline) was possibly detected at a maximum of 7.17 ppm as a co-eluting component of 2,4-aminoaniline and 2-methoxyaniline. However, the analytical data for 1,2-phenylenediamine is difficult to interpret because this chemical could not be separated from the other closely related isomers by the method used, and also because further evaluation of data from other wastes indicated that the recovery of 1,2-phenylenediamine from some matrices is difficult (*see* section IV.A.5 for a discussion on waste analysis problems). Aniline was found in numerous waste samples, including wastewater sludges and other nonwastewaters; some samples had high aniline concentrations. Data from comments suggests that the higher concentrations may be associated with special wastes (*e.g.*, still bottoms), but this cannot be confirmed from the available analytical data. In any case, aniline appears to be fairly prevalent in dye and/or pigment wastes. For these five constituents, the detected concentrations are generally below the theoretical waste concentrations we calculated using an estimated average waste quantity (*e.g.*, the loading 160 kg/yr for 2,4-dimethylaniline contained in the average estimated waste quantity of 1,894 kg/yr would give a theoretical concentration of 84 ppm). Exceptions include one detection for p-toluidine and at least three samples for aniline.

We also considered TRI data from known dyes and/or pigments manufacturers reported for these constituents. The TRI data for 4-chloroaniline show that total reported releases of 212 kg were far below the § 261.32(c)(2) mass loading limits. 2,4-Dimethylaniline and p-toluidine are not on the TRI list of chemicals. The only TRI release for 1,2-phenylenediamine was the filing of a form A by one facility, indicating a release of less than 500 lbs., or 227 kg/yr. Five facilities reported releases of aniline (two others also filed form A); three of these reported total aniline releases that exceed the § 261.32(c)(2) mass loading limit.

In addition, some facilities appear to manufacture dyes and/or pigments products that are derived from these constituents. For example, company Web sites and the Colour Index link four facilities with products derived from 2,4-dimethylaniline. Also, while we were not able to find specific links between current dyes and/or pigments production facilities for products derived from 4-chloroaniline, we believe that this constituent's presence in multiple waste samples suggests it may be in use, or perhaps occurs as a by-product. The Colour Index and company websites also link several dyes and/pigments production facilities with products derived from 1,2-phenylenediamine and p-toluidine. Aniline is a common raw material for dyes and pigments; this constituent is linked to at least eight companies. Thus, if we decide to adopt this alternate approach to assessing degradation rates for these constituents, we will evaluate information submitted by commenters on the potential presence of these constituents at the proposed levels in nonwastewaters and the current use of these constituents in dyes and/or pigments production. After considering all available information, we will determine whether we should set

[44] Howard, P.H., R.S. Boethling, W.F. Jarvis, W.M. Meylan, E.M. Michalenko, and H.T. Printup (ed.). 1991. *Handbook of Environmental Degradation Rates.* Lewis Publishers.

exemption loading limits for these chemicals.

We also solicit comment on retaining benzaldehyde as a K181 constituent in the § 261.32(c)(1) list, if we were to adopt this alternate approach to assessing biodegradation. Benzaldehyde is a naturally occurring chemical that is found in many foods, and is widely used in flavors and fragrances;[45] it is on FDA's list of generally recognized as safe (GRAS) substances (21 CFR 172.515). While our primary degradation reference did not report a degradation rate for benzaldehyde, we are aware that benzaldehyde is fairly reactive and will degrade to benzoic acid, which is 40-times less toxic (*see* IRIS database). When we used a conservative surrogate degradation rate for benzaldehyde, the modeling results showed this constituent would not present a problem (*i.e.*, the results were well above 10,000 kg/yr.). We request information on the degradation rate for this chemical. We also request information on the frequency of benzaldehyde use in dyes and/or pigments production, as well as information on the likelihood that nonwastewaters will contain loadings of benzaldehyde at or above our proposed loading limits. If we adopt this alternate way of assessing biodegradation, information indicating that benzaldehyde is rarely used or unlikely to exceed the proposed loading limit may lead us to delete this chemical from the listing.

5. Lead as a Potential K181 Constituent

We are proposing not to set K181 standards for the metal, lead, despite modeling results for the clay-lined landfill scenario (4,900 kg/yr) that are below our screening threshold of 10,000 kg/yr. We do not believe it is appropriate to set lead standards for K181 for a number of reasons. First, we think it is unlikely that lead is used extensively in current dyes and/or pigments production. While historical information indicates that lead has been used in this industry (*e.g.*, as an oxidizing agent), we believe that environmental regulations (such as the Toxicity Characteristic) and increased general concerns about the use of lead in consumer products may have contributed to declines in the use of lead in this industry. Our analysis of the TRI data shows very limited reporting of lead releases by the 35 dyes and/or pigments manufacturers that report to the TRI. In fact, only two facilities report lead releases: Eastman Chemical (Kingsport, TN) and Harshaw Chemical/Engelhard Corporation (Louisville, KY). As previously discussed, Eastman is a very large chemical manufacturer, with an extensive product list (over 1,200 plastics/polymers, fibers and other chemicals). Dye production accounts for an extremely small portion of their operations. We do not believe their waste is representative of dye and/or pigment wastes in general, or that it is likely that their reported lead releases are associated with their very limited dye product line. Harshaw Chemical is a major manufacturer of inorganic pigments, and currently generates a significant quantity of characteristic lead wastes (D008) as well as listed wastes from the production of inorganic pigments containing lead (K002 and K003).[46] Therefore, we believe that the lead releases reported by Harshaw in the TRI are highly likely to be associated with their inorganic pigment production (rather than their organic pigment processes). The TRI data is consistent with this interpretation. Harshaw reported in the 2000 TRI that all of the lead sent offsite for disposal underwent stabilization/solidification; nearly all of this (except for 45 kg) was sent to a Subtitle C facility. No other dyes and/or pigment manufacturers reported any releases of lead in 2000.

Second, we evaluated the available analytical data for these wastes for lead. Our analytical results showed two samples contained lead, with a maximum concentration of 16.8 mg/kg. By assuming that this is a typical concentration in these industries' wastes (despite the TRI data that indicates that it is rarely reported in releases from these industries), we calculated the necessary waste quantity that would need to be generated in order to exceed the modeled threshold level of 4,900 kg/yr. The resultant calculated theoretical minimum waste quantity of 274,000 metric tons is significantly greater than the total quantity of nonwastewaters that we estimate that all of the potentially impacted facilities generate in total (47,000 metric tons). This analysis indicates that, even if any other dye and/or pigment manufacturers do generate lead-bearing wastes, they are unlikely to contain lead at mass loading levels above the modeled threshold level.

Finally, we also note that lead is currently regulated as D008, a characteristic hazardous waste when TCLP levels exceed 5.0 mg/L. The TC levels serve as a safety net for lead-bearing wastes, if any, that might be generated by facilities manufacturing the relevant dyes and pigments. We are soliciting comments, however, on whether we should include a threshold loading limit for lead in the K181 listing.

6. Waste Analysis Concerns

Some problems have surfaced in past chemical analysis of dyes and/or pigments production wastes for some of the potential constituents of concern in Table IV–1. In a few cases, our analysis could not distinguish between co-eluting compounds when we used the typical EPA methods (*e.g.*, method 8270 in SW–846). However, significant improvements have been made in instrument sensitivity and chromatographic column performance in the approximately ten years since EPA conducted its prior analyses. In general, we believe that following methods in SW–846 should be adequate for the constituents in Table IV–1: method 8270 (GC/MS), method 8315 (HPLC), and method 8321 (HPLC/MS or HPLC/UV).[47] Therefore, we believe that these constituents may now be readily measured by the majority of laboratories equipped to perform such analyses.[48]

The most problematic constituent appears to be 1,2-phenylenediamine (also known as o-phenylenediamine). We originally promulgated numerical treatment standards for 1,2-phenylenediamine in a prior rulemaking (64 FR 15583, April 8, 1996). However, we subsequently withdrew the standard because of poor method performance (*see* 63 FR 47409, September 4, 1998). The methods used at the time did not provide adequate recovery of the chemical from samples at the 5.6 mg/kg level. We solicit comment on options to deal with this potential problem (short of dropping the constituent, which is also an option) and other analytical issues. For example, we could allow generators to use knowledge of their waste in lieu of testing for these constituents (regardless of waste quantities generated—see section V for differing testing requirements for smaller and larger waste quantities). Alternatively, we could allow the generator to show compliance with the

[45] See the ''Flavor And Fragrance High Production Volume Consortia—The Aromatic Consortium Test Plan For Benzyl Derivatives,'' December, 2001 submitted to EPA's High Production Volume Challenge Program *(http://www.epa.gov/chemrtk/benzylde/c13450tc.htm).*

[46] See 1999 data from the facility in EPA's Biennial Reporting System (BRS) for hazardous waste.

[47] See the discussion on page 3–25 and elsewhere in the background document ''Best Demonstrated Available Technology (BDAT) Background Document For Dye and Pigment Production Wastes'', which is in the docket for today's rule.

[48] See the Economic Analysis Background Document for our cost estimates. See also *http://www.speclab.com/price.htm.*

mass loading limits based on good-faith analytical efforts that demonstrate that the constituent could not exceed the mass loading limit by an order of magnitude (factor of ten), similar to the allowance specified for meeting the land disposal treatment standards for combustion residues (*see* § 268.40(d)(3)).

7. Proposed Additions to Appendices VII and VIII of Part 261

As required under § 261.30(b), we are proposing to add the constituents that are the basis for the listings to Appendix VII of Part 261. Thus, we are proposing to add the constituents that are listed in Table IV–1 to Appendix VII as the basis for listing K181. In addition, a number of constituents in Table IV–1 are not currently listed in Appendix VIII to Part 261 as ''hazardous constituents.'' EPA places constituents on Appendix VIII if scientific studies show the chemicals have toxic, carcinogenic, mutagenic, or teratogenic effects on humans or other life forms (*see* § 261.11(a)(3)). The Risk Assessment Background Document contains the detailed toxicological data for all constituents we evaluated, including the chemicals we are proposing to add to Appendix VIII: o-anisidine, p-cresidine, 2,4-dimethylaniline, 1,2-phenylenediamine, and 1,3-phenylenediamine. We recognize that Appendix VIII already contains the chemical name ''phenylenediamine'' with a CAS number of 25265–76–3. This Appendix VIII listing represents a mixture of isomers (*i.e.*, benzenediamines with the presence of two amino-groups in unspecified locations on the benzene ring). We are proposing to add the specific isomers (1,2-phenylenediamine and 1,3-phenylenediamine) to clarify that these are listed on Appendix VIII, even though we believe that the existing listing for the mixed isomers would cover the specific isomers in question. If in response to comments we decide to add any additional constituents from Table III–2 to the loading limits in § 261.32(c)(1) or (c)(2), then we would also add these constituents to Appendix VII and VIII, if necessary. For example, under the alternative approach in section IV.A.4 using zero degradation rates, we would also add benzaldehyde, azobenzene and p-toluidine to Appendix VII of Part 261, and benzaldehyde and azobenzene would be additional constituents added to appendix VIII of part 261.

8. Co-Generation With Out-of-Scope Wastes

A number of U.S. manufacturers of dyes and/or pigments produce products other than those dyes and pigments classes described above in II.F.1. For example, some manufacturers might also produce sulphur or phthalocyanine dyes, dye intermediates, or other completely unrelated products (*e.g.*, surfactants). These facilities are likely to commingle their wastewaters from most or all of their processes for treatment prior to discharge. The resultant wastewater treatment sludges contain constituents from all of the mingled wastewaters.

We are proposing that, to the extent that a facility commingles wastewaters from the dye or pigment processes of interest in today's rule with other ''out-of-scope'' wastewaters, the resultant sludge would be entirely subject to the K181 listing if the commingled waste contained sufficient mass loadings of the K181 constituents of concern to trigger the K181 listing. This means, for example, that the entire mass of toluene-2,4-diamine in a facility's wastewater treatment sludge, would be compared to the K181 listing level for toluene-2,4-diamine, irrespective of whether some of that mass originated in processes other than the manufacture of azo, anthraquinone, perylene or anthraquinone dyes or pigments. Note that other process wastes that are commingled when generated (*e.g.*, dusts and fines) would also be covered by the K181 listing, if the commingled wastes contain some wastes that are in the scope of the listing.

We believe it is appropriate to propose that the scope of the listing cover mass contributions from other processes for several reasons. First, the toxicity and risk associated with the constituents of concern does not change as a function of the type of manufacturing process that is the source of that constituent in a commingled waste. For example, aniline in a facility's wastewater treatment sludge that comes from the dye production process poses the same risk as an equivalent amount of aniline in that same sludge as a result of treating commingled aniline-bearing wastewaters from manufacturing photographic chemicals. Second, while the ED consent decree serves as a strong guide to the Agency in determining the scope of our listing determination (by establishing priorities and timeframes for the completion of specific listings), the consent decree in no way prohibits the Agency from proposing listings with broader or different scope. As an example, in the listing determination for inorganic chemical manufacturing wastes, we listed K178 (solids from manufacturing and manufacturing-site storage of ferric chloride from acids formed during the production of titanium dioxide using the chloride-ilmenite process); see November 20, 2001 (66 FR 58258). The K178 listing addressed wastes not directly related to the wastes specified in the consent decree (*i.e.*, titanium dioxide production wastes (except for chloride process waste solids)). Finally, we believe that the proposed approach also is the most straightforward way of structuring this type of mass-based listing. The regulatory presentation in the CFR, as well as the implementation and enforcement of the listing, are simpler under the proposed approach.

Facilities impacted by this portion of the listing description (*e.g.*, those whose wastewater treatment solids contain the K181 regulated constituents from non-dyes and/or pigments processes) would have the option of segregating their wastewaters prior to commingling with wastewaters from the dyes and/or pigments processes covered by K181. Segregated solids that have no contribution of K181 constituents from the dyes and/or pigments processes of concern would not be subject to K181. We believe, however, that a more desirable environmental outcome (and perhaps technically more feasible) would be achieved if those facilities used the K181 listing levels as goals for their pollution prevention programs, and if they adopted process modifications designed to reduce overall loadings of the K181 constituents.

We request comments on this aspect of the proposed scope of the K181 listing. We also request comment on an alternative approach which would allow facilities to count only those mass loadings associated with azo/triarylmethane/perylene/anthraquinone dyes and/or pigments manufacture when assessing whether their wastes exceed the K181 listing levels. For example, a facility may have specific chemical analytical data for its wastewater prior to commingling that might be used to demonstrate that the vast majority of a constituent of concern is not derived from wastes that are in the scope of K181. Using such data, the facility could demonstrate using a mass-loading calculation that the mass of the constituent resulting from the in-scope process is well below the mass loading limits specified in K181.

B. How Does K181 Impact Wastes That Are Not Landfilled, Combusted, or Previously Listed?

1. What Is the Status of Wastes That Are Not Landfilled?

We are setting the § 261.32(c)(1) listing levels as the baseline levels that establish when nonwastewaters from the production of dyes and/or pigments pose sufficient risk to warrant listing as hazardous waste. Although these levels are derived from a landfill management scenario, we are proposing, consistent with our past practice, that these levels apply to all nonwastewaters within the scope of the listing definition, irrespective of how the waste may be managed. As a specific example of what this means, we are not setting separate ''entry/exit'' levels for wastes that might be combusted. We are assuming that wastes with constituent amounts below the listing levels do not pose risks in a combustion scenario, so the landfill-based listing limits provide sufficient protection. This is consistent with our general approach to unconditional hazardous waste listings. If we find that waste does not pose risks in a landfill or surface impoundment scenario, we do not list the waste, although we have not assessed the risks posed by combustion.

This approach is also similar to the proposed concentration-based listing determination for paint production wastes, where we also proposed threshold levels that were not based on any modeling of combustion practices. As we noted in that proposal, in past listing determinations where we attempted to assess risks from combustion, we found that the potential risks from the release of constituents through combustion would be at least several orders of magnitude below potential air risks from tanks or impoundments (*see* 63 FR 64371, November 19, 1998). We also noted that it is difficult to assess what goes into combustion units in relation to the residual constituents that might persist in ash or be released to the air, such as products of incomplete combustion.

Our assessment of the tank management scenario for wastewaters from the production of dyes and/or pigments indicates that the lowest allowable mass loadings associated with air releases from tanks for the constituents of concern is in the range of 2,000–3,000 kg/yr. Based on the analysis conducted in previous determinations (*e.g.*, 63 FR 64371, November 19, 1998), a comparable assessment of air releases from the combustion scenario would establish allowable mass loading levels several orders of magnitude higher, well in excess of the proposed § 261.32(c)(1) listing levels.

2. What Is the Status of Wastes Destined for Combustion That Trigger the K181 Listing Levels?

We are proposing that nonwastewaters exceeding the listing loading levels will be K181 listed wastes even if they are combusted. This is consistent with our general approach to listing, in which we model land disposal units and, if we find risks of concern, promulgate a listing that includes wastes sent to combustion. We have taken this approach because we anticipate difficulties developing modeling that could adequately capture the various complex aspects of this combustion, including destruction efficiency, formation of toxic products of incomplete combustion, partitioning of uncombusted toxicants among air, scrubber water and ash, and transport.[49]

However, we are soliciting comment on the option of exempting K181 nonwastewaters sent to combustion facilities. Without risk assessment results to rely on, we have qualitatively assessed the data we have gathered regarding current combustion management practices for dyes and/or pigments nonwastewaters. The TRI is our primary source of information. It shows that ten facilities send nonwastewaters offsite for thermal treatment and two facilities combust wastes onsite. All ten of the offsite treatment facilities are RCRA TSDFs. However, we cannot determine for certain whether the wastes of concern to this proposal are in fact being combusted in Subtitle C combustors, or in co-located Subtitle D combustors.

The two facilities that conduct onsite thermal treatment are Eastman (Kingsport, TN) and BASF (Huntington, WV). Eastman apparently operates both hazardous and nonhazardous waste combustion.[50] BASF operates a nonhazardous waste unit used to treat still bottoms and related wastes from an aniline/triarylmethane process.[51] While this boiler is not permitted for managing hazardous wastes, it is covered by a State permit that sets low release limits for aniline (40 kg/yr).[52] As part of BASF's 1995 comments on our initial proposed listing determination for these wastes, they submitted a risk assessment for this unit demonstrating low risk potential.

The available information regarding current combustion indicates that the majority, and perhaps all, of the wastes that are combusted are managed either in Subtitle C units, or units with air permits that specifically address key K181 constituents potentially present in those wastes. We solicit comments on whether this is sufficient information to support an exemption from K181 for wastes that are managed in combustion units that are permitted under Subtitle C, or that have other relevant CAA permits.

3. Applicability to Wastes That Are Already Hazardous

We are also proposing that wastes that are subject to another hazardous waste listing under § 261.31–33 or a hazardous waste characteristic under § 261.21–24 would not be subject to listing under K181. Generators would not count the mass of any constituent of concern in these wastes toward the loading limits in the K181 listing.

This avoids complications that would arise in implementing the loadings-based listing. For example, consider an azo dye producer who generates a sludge meeting the F004 listing due to solvent use during production. This F004 sludge could also be captured by the narrative description in the K181 listing, as it would be a nonwastewater from the production of azo dyes. If the facility also generates another separate wastewater treatment sludge from the production of azo dyes, the facility would need to assess the total mass of a constituent of concern for all wastes potentially subject to the K181 listing. Thus, the facility would have to add the mass of any constituents of concern in the F004 waste to the mass of the constituents present in the treatment sludge. It is possible that the additional mass from the F004 waste would cause the total mass of some constituent in the treatment sludge to meet or exceed the listing levels in § 261.32(c)(1) or (c)(2). However, the F004 waste is already hazardous and subject to full Subtitle C control. Regulating the treatment sludge based on the additional mass in the

[49] While we attempted to model combustion of these wastes in the 1994 proposed listing determination for dyes and pigment wastes, commenters argued strenuously that our modeling was overly conservative, and presented stack testing for aniline showing much higher destruction efficiency for aniline than we had assumed, and risk assessment results showing very low risk (*see* ''Comments on the 1994 Proposed Rule for Dye and Pigment Wastes,'' originally submitted by BASF Corporation, December 15, 1995, in the docket for today's proposal).

[50] See Listing Background Document.

[51] See the docket for today's proposal for ''Comments on the 1994 Proposed Rule for Dye and Pigment Wastes,'' originally submitted by BASF Corporation, December 15, 1995 (Attachment C), for a more complete description of this unit.

[52] See BASF's air permit in the docket for today's proposal.

listed waste appears inappropriate, given that the F004 waste could not be disposed with the treatment sludge as non hazardous waste. Therefore, we are proposing that wastes that are already classified as hazardous wastes would not be subject to listing as K181.

If the above example is modified, such that the F004 waste is generated in commingled form with the wastewater treatment sludge (*e.g.*, from commingled wastewaters), then the waste would be F004, regardless of the mass levels present in the K181 constituents of concern. EPA has not evaluated all of the hazardous constituents reasonably expected to be present in F004 wastes and set levels at which it is safe to dispose of them in nonhazardous waste landfills with or without composite liners. In this case, therefore, our proposed approach would mean that the F004 wastes would remain hazardous, but the waste would not be subject to the K181 listing.

C. Why Are We Proposing Not To List Wastewaters?

As described previously in section III.E.3, we evaluated the potential management of wastewaters from dyes and/or pigments production in two scenarios: Tanks and lined surface impoundments. After consideration of the risk assessment modeling results, the plausibility of each management scenario, and the level of environmental protection provided by existing and upcoming air regulations, we are proposing not to list wastewaters from dyes and/or pigments production. Our logic supporting this determination is presented below.

1. Air Emissions From Tanks and Surface Impoundments

We assessed air emissions from both tanks and surface impoundments, as previously described, and calculated mass loadings for those CoCs with inhalation toxicity benchmarks. Because the modeled mass loading results for these scenarios were very similar, we are presenting a combined analysis of these results here.

As discussed previously in section III.G.2.g, we assumed that calculated allowable loadings in excess of 100,000 kg/yr were implausible and therefore screened out those constituents for which our modeling gave a calculated allowable loading in excess of 100,000 kg/yr.

Ten constituents had calculated allowable loadings less than 100,000 kg/yr. Table IV–5 presents these CoCs, the modeled allowable loading results for tanks and surface impoundments (synthetic lined), theoretical concentrations (using the estimated average wastewater quantity), a summary of available analytical data, and total onsite and offsite releases reported in the TRI by the dyes and/or pigments production industries.

TABLE IV–5.—ANALYSIS OF AIR PATHWAY LOADING RESULTS

Constituent of concern	Calculated allowable loading for tanks/surface impoundments (kg/yr)	Theoretical wastewater concentration for tanks/surface impoundments (ppm)	Available analytical data for wastewaters (ppm)	TRI: D&P industry total on- and off-site releases (kg/yr, RY2000)
Naphthalene	2,200/2,200	3.6/3.6	0.011–0.1	1,294
o-Toluidine	2,600/2,400	4.2/3.9	0.044–0.16	234
Aniline	2,700/1,500	4.4/2.4	0.66–120	237,100
Azobenzene	3,700/2,400	5.2/3.9	0.093–0.104	(3)
o-Anisidine	9,500/2,900	15.5/4.7	0.76	0
p-Cresidine	50,000/13,000	81.3/21.1	(1)	5,680
Formaldehyde	>100,000/14,000	>160/22.8	0.064–0.819	10,962
Toluene-2,4-diamine	>100,000/51,000	>160/82.9	(2)	817
1,2-Dichlorobenzene	71,000/63,000	115/102	0.004–0.059	31,490
Benzidene	>100,000/89,000	>160/145	0.0055–0.023	0

[1] Not reported
[2] Not analyzed.
[3] Not a TRI constituent.

With the exception of aniline (discussed further below), we believe that it is highly unlikely that these constituents would be present at levels above the calculated allowable mass loadings in any facility's wastewaters. Our assessment of the TRI releases reported by the dyes/pigments industries indicates that the total releases from the entire industry are less than the calculated allowable mass loading limits predicted by our risk assessment modeling that would be applied on a facility-specific basis (except for aniline). For example, total reported releases of naphthalene by dye and/or pigments manufacturers were 1,294 kg/yr, which is less than the calculated allowable loading level of 2,200 kg/yr. This comparison greatly overestimates potential wastewater levels because total TRI releases include releases from all facilities to air and land, as well as water.

The available analytical data support the TRI analysis, showing that (with the exception of aniline), these constituents are unlikely to be present in dyes and/or pigments wastewaters at concentrations high enough to result in mass loadings above the calculated allowable levels. The theoretical concentrations presented in the table above assume an average wastewater quantity of 615,000 MT/yr. The majority of the facilities in this industry are expected to generate lower wastewater quantities (*i.e.*, the median wastewater quantity is 119,000 MT/yr), and thus the theoretical concentration of these constituents in these wastewaters at the calculated allowable levels would be even higher, and thus more implausible.

Aniline, however, may in fact be present in dyes and/or pigments industry wastewaters at levels exceeding the calculated allowable loading of 2,700 kg/yr. Of the four dyes and/or pigments manufacturers reporting aniline releases in the TRI, two report releases of aniline-bearing wastewaters to POTWs in excess of 2,700 kg/yr, and are presumably managing these wastewaters in tanks prior to discharge. One of these two facilities (BASF/Huntington, WV) is operating under a state air permit that limits the actual aniline air emissions from wastewater treatment to levels well below the potential wastewater loading limit for aniline (permit available in docket for today's rulemaking). The

second facility (Sun Chemical/ Muskegon, MI) treats its wastewaters via powdered activated carbon and biological treatment prior to discharge to a POTW.[53] The treatment unit in use has been subject to State air permits in the past. The facility recently obtained a wavier from permitting requirements for the treatment unit based on analysis showing that emissions (including aniline) are very low.[54]

Existing federal air regulations that pertain to facilities manufacturing dyes and pigments are summarized in section II.E. Aniline is regulated as a ''hazardous air pollutant'' (HAP) under the Clean Air Act. In general, the existing and upcoming regulations on air releases will limit the actual releases of many organic chemicals from dyes and/or pigments wastes. Based on our evaluation of the information available, we believe that air releases of aniline at dyes and/or pigments facilities are adequately controlled and such releases do not present significant risks.

We note that we could not make a TRI comparison for azobenzene because it is not a TRI constituent. Azobenzene is a degradation product associated with certain specialized dye and/or pigment production (*e.g.*, aniline-based triarylmethane products), rather than an actual intermediate. We do not believe that azobenzene would be present in wastewaters above the mass loading limits, but expect it to be present at low levels in very few wastes. The historical analytical data support this conclusion.

As described previously in section III.G.2.d.i, we assessed the biodegradation of certain constituents by assigning them rates from structurally similar constituents. We also, as an alternative, assessed these chemicals using a default degradation rate of zero. In the wastewater analysis, the constituents affected were aniline and azobenzene. The alternate calculated allowable loadings determined for aniline were 2,000 kg/yr and 980 kg/yr for the tank and surface impoundment scenarios, respectively. The alternate values for azobenzene were 3,200 kg/yr and 1,700 kg/yr for the tank and surface impoundment scenarios, respectively.

We solicit comments on our proposed decision not to list wastewaters and set mass loading-based regulatory levels derived from the air emission pathways from tanks and/or surface impoundments. We also request comments on an alternative approach that would list wastewaters from the production of dyes and/or pigments, establishing loading limits in a manner similar to that being proposed today for K181. We might adopt this alternative if, for example, we received data and information that these wastewaters are more likely to exceed the calculated mass loading limits than our current data indicates, or our modeling was insufficiently conservative, or that existing air regulations are not effectively controlling risks from aniline.

2. Groundwater Releases From Surface Impoundments

The dyes/pigments industries are known to operate a small number of surface impoundments (*see* section III.E.3). As a result, we modeled the management of wastewaters in unlined, clay-lined, and synthetic-lined surface impoundments for the groundwater pathway. We believe that the synthetic-lined impoundment is the most plausible management scenario for these wastes. Our analysis (*see* section III.G.2.g) indicates that releases to groundwater from impoundments with synthetic liners are unlikely to pose risk because the calculated allowable mass loadings all exceeded 100,000 kg/yr, an implausible loading in these wastewaters. While clay-lined impoundments are in use at one dye manufacturing site, we have not selected this scenario as plausible because these impoundments are not used to manage untreated wastes (*see* following discussion). We also determined that the unlined scenario for surface impoundments is not plausible for these wastes (*see* section III.D.2).

Our risk modeling of the clay-lined impoundment scenario indicates that the potential listing loading levels are below 100,000 kg/yr for 31 of the 35 constituents of concern (*see* the Risk Assessment Background Document for these results). We considered whether the one facility known to be operating clay-lined impoundments (Lobeco, located in Lobeco, SC) is likely to be managing wastewaters with constituents at levels of concern.

Lobeco indicated that their wastewater treatment system consists of neutralization, aeration with activated sludge, and holding ponds.[55] Staff from South Carolina's Department of Health and Environmental Control described four in-ground units at this site: An equalization unit and a digestion unit, both concrete-lined (with secondary clay liners), and two clay-lined holding basins. The holding basins receive wastewater treated in the concrete lined units prior to discharge to surface waters under an NPDES permit. 1999 TRI data for this facility shows that they had low levels of two constituents of potential concern in the influent to their wastewater treatment facility: Formaldehyde (<1 part per billion or ppb) and naphthalene (1 ppb–1 ppm). The facility reported that the only chemical reported to be discharged to surface water was ammonia. Consequently, we conclude that the treatment in the upstream units removed the naphthalene and formaldehyde before wastewaters reached the clay-lined holding basins.

The facility's NPDES monitoring data shows that only one of the constituents of concern for this listing for which the facility conducted analysis was detected in their effluent; copper was found at 0.3–0.9 pounds/day (50–150 kg/yr), well below the copper calculated allowable loading limit of 5,600 kg/yr for clay-lined impoundments. Since we believe the water in the clay-lined holding basins closely resembles the effluent, we do not believe that these particular impoundments are likely to manage wastewaters that would contain constituents of concern at levels above the calculated allowable mass loading limits.

We request comment on our proposal not to list wastewaters from dyes and/or pigments production and not to set loading levels derived from the groundwater pathway for clay-lined surface impoundments. We also request comments on an alternative approach that would list wastewaters from the production of dyes and/or pigments that are managed in clay-lined surface impoundments, establishing mass loading limits in a manner similar to that being proposed today for K181. This alternative approach would not list as hazardous those wastewaters that are managed in synthetic-lined impoundments or in tanks. We would consider this alternative further if we receive data and information that, for example, would indicate that there are additional clay-lined surface impoundments in use by the industry or our assessment of the risks posed by wastewaters is insufficiently conservative.

D. Scope of the Listings and the Effect on Treatment Residuals

Today's proposal would result in a new hazardous waste listing that differs from previously promulgated listed hazardous wastes in that it includes

[53] Contact between Dr. Robert Kayser, OSW and John Fagiolo, Remedial Project Manager, EPA, June 24, 2003.

[54] Contact between Dr. Robert Kayser, OSW and Tracey McDonald, Air Quality Division, Michigan Department of Environmental Quality, June 24, 2003 in the docket for today's rule.

[55] *http://www.lobecoproducts.com/environment.html.*

constituent-specific mass loading limits to define the scope of the listing. The primary purpose of this ''mass loadings-based listing'' is to establish levels at the point of generation of a waste, at or above which that waste is considered to be a listed hazardous waste (*i.e.*, ''entrance'' levels). Wastes that are generated with constituent masses below these levels (on an annual basis) would not be subject to these listings.

Residuals from the treatment, storage, or disposal of listed hazardous wastes are usually classified as hazardous wastes based on the ''derived-from'' rule (*see* 40 CFR 261.3(c)(2)(i)).[56] We are not proposing to use the mass loading-based levels as ''exit'' levels for residues from treatment of dyes and/or pigments production nonwastewaters (K181). Thus, we are not proposing any exemption to the mixture rule for the K181 wastes.

In the listing determination for paint manufacturing waste solids, we proposed that the concentration-based listing levels would also serve as ''exit'' levels. That is, we proposed that waste solids that were treated to below the listing limits could exit the hazardous waste system and would become nonhazardous waste (66 FR 10110). We considered proposing to use the mass loading limits as exit levels for dye and pigment wastes, but we decided not to do this for several reasons. Most important, the mass-based loading is different from a concentration-based listing, because the proposed mass-based approach already builds in an exemption for wastes with constituent masses below the loading limit. Thus, the proposed approach allows a facility to handle as nonhazardous any wastes containing constituents of concern up to the loading limit. In contrast, a concentration-based listing would require all wastes that meet the listing level to be handled as hazardous.

In addition, an exemption for treatment residuals would be complex to implement. For example, a facility could generate an initial portion of waste up to the mass loading limit and handle that portion as nonhazardous. With an exemption for treatment residuals, the facility could then treat additional wastes and claim the residuals are below the loading limits. However, given that the facility already generated and disposed of wastes that contained the permissible mass loading limits, it would be inappropriate to classify the treatment residuals as nonhazardous.

Difficulties would also arise in any exemption for treatment residuals, if such treatment were to occur offsite. The offsite facility would have to demonstrate that the conditions set out in the proposed regulations were met and document that the waste is nonhazardous (*i.e.*, according to the proposed listing regulations in subparagraphs (c), (d) and (e)). An offsite treatment facility may not have the knowledge to track the cumulative loadings from the generator to ensure that the conditions for becoming nonhazardous are met. Furthermore, the treatment facility would likely be accepting a variety of hazardous wastes from numerous generators. Thus, even if this facility was able to comply with the conditions for determining the treated waste is not K181, the treatment residuals could still carry other hazardous waste codes under the mixture rule (see 40 CFR 261.3(a)(2)(iv)), as well as the derived-from rule. Thus, any implementation scheme for offsite treatment facilities appears problematic.

Finally, the treatment of any waste that is classified as K181 at the point of generation would have to comply with hazardous waste regulations. For example, if the waste was incinerated, the combustion unit would have to be permitted under Subtitle C. Therefore, the benefits of possibly classifying the treatment residuals as nonhazardous do not appear to be significant, compared to the cost of constructing and permitting a hazardous waste treatment unit (which, if we limited any exemption to onsite treatment, would have to be located onsite).

We seek comment on the need for any exemption for treatment residuals, and how such an exemption could be structured. If we were to adopt such an exemption, we would add an exemption to the derived-from rule (*e.g.*, in § 261.3(c)(2)(ii)), which would require the generator to show that the treated waste no longer meets the listing levels of K181 (using the determination process proposed in § 261.32(d)), and that the residuals meet the requirements specified in part 268. As described above, we believe that any exemption from the derived-from rule would be most applicable to generators who treat their waste onsite, because the generator would have the information needed to track the cumulative mass of the various constituents in the treated waste.

E. What Is the Status of Previously Disposed Wastes and Landfill Leachate From Previously Disposed Wastes?

The Agency has been clear in the past that hazardous waste listings normally apply to wastes disposed of prior to the effective date of a listing, even if the landfill ceases disposal of the waste when the waste becomes hazardous. (*See* 53 FR 31147, August 17, 1988.) We also have a well-established interpretation that listings apply to leachate derived from the disposal of listed hazardous wastes, including leachate derived from wastes meeting the listing descriptions that were disposed before the effective date of a listing. Leachate derived from the treatment, storage, or disposal of listed hazardous wastes is classified as a hazardous waste by virtue of the ''derived-from'' rule in 40 CFR 261.3(c)(2). We are not reopening nor taking comment on any of these issues with this proposed rulemaking.

As set out in detail in the August 1988 notice, this does not mean that landfills simply holding wastes that are listed now as hazardous become subject to Subtitle C regulation. However, previously disposed wastes now meeting a listing description that are actively managed,[57] including actively managed residues such as leachate that are derived from such wastes, become subject to Subtitle C regulation. (*See* 53 FR at 31149, August 17, 1988.) In most circumstances, active management of leachate is exempt from Subtitle C regulation. Specifically, management of leachate in wastewater treatment tanks prior to discharge under the CWA is exempt from RCRA regulation (40 CFR 264.1(g)(6)). Discharge to a POTW via the sewer system, where leachate mixes with domestic sewage, is also excluded from RCRA jurisdiction (*see* RCRA section 1004(27) and 40 CFR 261.4(a)(1)). Similarly, discharge to navigable waters is excluded from RCRA jurisdiction (*see* RCRA section 1004(27) and 40 CFR 261.4(a)(2)).

[56] Also, the ''mixture'' rule (*see* 40 CFR 261.3(a)(2)(iii) and (iv)) provides that, with certain limited exceptions, any mixture of a listed hazardous waste and a solid waste is itself a RCRA hazardous waste.

[57] The Agency often uses the term ''active management'' as a catch-all term to describe the types of activities that may trigger RCRA Subtitle C permitting requirements. In general, those activities are hazardous waste treatment, storage, and disposal, all of which are defined in 40 CFR 260.10. It is important to note, however, that EPA interprets the disposal that triggers RCRA Subtitle C permitting requirements to be the types of disposal as described in the definition of ''disposal facility'' in 40 CFR 260.10, and not the broader, more general definition of ''disposal'' in that section and in RCRA section 1004(3). *See*, *e.g.*, 53 FR 31149 (August 17, 1988). Instead, the latter, broader definition is used to determine the applicability of certain statutory provision, such as RCRA section 7003, 7002(a)(1)(B), 3013, and 3007. *See, e.g.*, 55 FR 8759 (March 8, 1990).

It is possible that nonwastewaters within the proposed scope of K181 (and the relevant mass loading limits) may have been disposed in landfills. However, the proposed listing for K181 waste is a mass loading-based listing, and it would be difficult to know whether the previously disposed wastes that meet the narrative description of K181 did, in fact, have constituent mass loadings that would be at or above the K181 regulatory levels. We don't anticipate that records documenting the mass of proposed constituents of concern in these wastes exist for previously disposed wastes.

Typically, the status of the previously disposed waste is not an issue, unless the waste is actively managed in some way. One way this question might arise is if the derived-from leachate is actively managed; we discuss this question below. This issue would arise more directly, however, if the waste previously disposed were to be excavated for further management, perhaps as part of a corrective action or other remediation effort. In this case, we believe it would be most practical to evaluate the managed waste as if it were newly generated. That is, a facility engaged in excavation of wastes that are potentially K181 would use the procedures in the proposed listing to determine if the constituents of concern meet or exceed the relevant mass loading limits. If the mass loadings are met or exceeded, then the actively managed waste would be K181. As noted, except in cases where the origin of the waste and its constituents are well documented, we believe classifying a previously disposed waste as K181 will be difficult, at best.

If actively managed landfill leachate and gas condensate derived from the newly-listed wastes proposed for listing in today's notice could be classified as K181, we would be concerned about the potential disruption in current leachate management that could occur, and the possibility of redundant regulation.[58] This issue was raised to the Agency in the context of the petroleum refinery waste listings (*see* 63 FR 42173, August 6, 1998). A commenter expressed concern that, because some of the commenter's nonhazardous waste landfills received newly-listed petroleum wastes prior to the effective date of the listing decision, the leachate that is collected and managed from these landfills would be classified as hazardous. The commenter argued that this could lead to vastly increased treatment and disposal costs without necessarily any environmental benefit. After examining and seeking comment on this issue, we published a final rule that temporarily defers regulation of landfill leachate and gas condensate derived from certain listed petroleum refining wastes (K169–K172) that were disposed before, but not after, the new listings became effective, provided certain conditions are met. (*See* 64 FR 6806, February 11, 1999.) We proposed deferrals for similar wastes derived from landfills in the 1999 proposal for the dye and pigment industries (64 FR 40192, July 23, 1999), the inorganic chemical manufacturing industries (65 FR 55684, September 14, 2000), the chlorinated aliphatics industry (65 FR 67068, November 8, 2000) and the paint and coatings industry (66 FR 10060, February 13, 2001). We also promulgated a final listing determination for the inorganic chemical manufacturing industries that retains the deferral (66 FR 58258, November 20, 2001).

At the time this issue was brought to the Agency's attention in the context of the petroleum refinery waste listings, EPA's Office of Water had recently proposed national effluent limitations guidelines and pretreatment standards for wastewater discharges—most notably, leachate—from certain types of landfills. (*See* 63 FR 6426, February 6, 1998). In support of this proposal, EPA conducted a study of the volume and chemical composition of wastewaters generated by both subtitle C (hazardous waste) and Subtitle D (nonhazardous waste) landfills, including treatment technologies and management practices currently in use. Most pertinent to finalizing the temporary deferral for the petroleum refining wastes, EPA did not propose pretreatment standards for subtitle D landfill wastewaters sent to POTWs because the Agency's information indicated that such standards were not required. EPA subsequently finalized its decision that pretreatment standards were not necessary (*see* 65 FR 3008, January 19, 2000).

The conditions included in the temporary deferral we published on February 11, 1999 are that the leachate is subject to regulation under the Clean Water Act, and the leachate cannot be stored in surface impoundments after a period of two years. *See* 40 CFR 261.4(b)(15). We believe that it was appropriate to temporarily defer the application of the new waste codes to such leachate in order to avoid disruption of ongoing leachate management activities, while the Agency decides if any further integration is needed of the RCRA and CWA regulations consistent with RCRA section 1006(b)(1). We believe that it is still appropriate to defer regulation and avoid leachate management activities, and to permit the Agency to decide whether any further integration of the two programs is needed. As such, we would be concerned about forcing pretreatment of leachate even though pretreatment is neither required by the CWA, nor needed. Therefore, we are proposing to temporarily defer the regulation of landfill leachate and gas condensate derived from management of K181 waste that we are proposing for listing in today's rule, with the same conditions as described in 40 CFR 261.4(b)(15) for petroleum wastes. We request comment on this proposed conditional deferral.

V. Proposed Requirements for K181 Determinations

We are proposing that listing determinations for K181 would be self-implementing. This means that you (the waste generator) would be responsible for determining whether or not your wastes are K181 listed hazardous wastes at the point of generation based on the proposed procedures we describe below. First, you must determine whether your nonwastewaters are included within the categorical K181 text (*i.e.,* nonwastewaters from the production of azo, triarylmethane, perylene and anthraquinone dyes or pigments). If so, then you would need to determine if your nonwastewaters could contain any of the K181 constituents of concern (CoCs). If your wastes at the point of generation could not contain any of the CoCs, we are proposing that your wastes are not subject to K181.

If your dyes and/or pigments production nonwastewaters might contain any of the K181 CoCs and you wish to demonstrate that the mass loadings of these constituents in your waste are below the regulatory levels, you would use one of two demonstration methodologies, depending on the annual quantity of waste you generate. If you generate or expect to generate 1,000 metric tons or less of these wastes in a calendar year, then you would have the option of testing your wastes or using your knowledge of the wastes to demonstrate that they are nonhazardous. If you expect to generate more than 1,000 metric tons/year of these wastes in a calendar year, then you would have to test the wastes annually to demonstrate that they are nonhazardous. Our reasons

[58] We do not believe that the mass loading limits in the proposed K181 listing would be useful in determining if the leachate was K181 waste. This is because the mass loading limits in K181 were derived for nonwastewaters, not landfill leachate, which are wastewaters.

for proposing this two-tiered approach and requiring annual testing of larger quantity wastes are discussed in section V.A.3 below.

If you determine that part or all of your dyes and/or pigments production nonwastewaters are nonhazardous, we are proposing to require, under the authority of sections 2002 and 3007 of RCRA, that you keep certain records of your determination at the generating site (onsite). You must make a new demonstration each calendar year. Your wastes, however, would be hazardous if your onsite records and/or testing conducted by EPA or an authorized state demonstrate the presence of one or more CoCs at or above the listing mass loading levels. Your wastes would also be hazardous if the landfill disposal conditions were applicable, but were not satisfied.

Note that the proposed approach would mean that even if your mass loadings meet or exceed the specified mass loading levels on an annual basis, you may still manage as nonhazardous all wastes generated up to the mass loading limit. In other words, we are proposing that the K181 listing would apply to only the portion of wastes that meet or exceed the mass loadings. This is illustrated by the following example. Using the proposed mass loading for toluene-2,4-diamine in Table IV–1 (0.99 kg/yr.), if a facility generates 200 kg/yr, the amount up to just below the mass loading limit in § 261.32(c)(1) (*i.e.,* 0.99 kg/yr.) would be nonhazardous, and the facility would only be required to handle the waste containing the rest of the mass of toluene-2,4-diamine as hazardous waste. Furthermore, if the generator sends this waste to a landfill that meets the design requirements under § 258.40, then the generator may dispose up to just below the mass loading limit in § 261.32(c)(2) (*i.e.,* 140 kg/yr) as nonhazardous and handle the remaining portion above this limit as hazardous. This approach has some advantages. First, this is consistent with the results of the risk analysis, which indicates that quantities up to the loading limit could be safely managed as nonhazardous. Second, this would simplify the facility's concern with how to manage wastes generated during the year, if the facility is not certain how close the waste will come to meeting the loading limit for the entire year. Thus, if the facility has sufficient knowledge to know that the cumulative total for intermediate batches of the waste will not meet the loading limit, the facility can safely handle and dispose of this portion of the waste as nonhazardous. If or when the waste reaches the loading limit, then the facility simply handles all subsequent waste as hazardous.

However, for wastes which meet or exceed the mass loading threshold, another alternative would be for the loading limit to apply to all of a generator's waste, including the waste generated before the mass loading limit is met or exceeded. Under this option, a generator would need a high level of certainty that wastes generated for the calendar year would not meet or exceed the mass loading limits in § 261.32(c)(1), or if the waste is sent to a landfill meeting the § 258.40 design criteria, the waste would have to be below the limits in § 261.32(c)(2). This approach would be more consistent with past listings, in which wastes with similar characteristics would be managed the same, rather than allowing a portion of the waste to be managed as nonhazardous. This approach would provide added incentive to a generator to manage potentially hazardous wastes properly and perhaps to reduce mass loadings through pollution prevention actions. However, this approach may result in serious problems for a generator who, in good faith, underestimates the mass loadings for a calendar year. If the generator manages the waste as nonhazardous, and then discovers that wastes generated later in the year cause the total waste to meet or exceed mass loading limits, then the generator would be in violation for improperly managing hazardous waste. Furthermore, if a Subtitle D landfill accepted the initial waste batches as nonhazardous, then when the generator reaches or exceeds the mass loading for that calendar year, then all of the waste from that generator in that calendar year would be hazardous waste subject to the K181 listing. The landfill owner would have placed hazardous waste in units that do not meet the requirements of Subtitle C. We solicit comment on this alternative approach.

The following discussion covers how we are proposing that you could demonstrate that your waste doesn't contain any CoCs at levels of concern (section III.A), and how you could demonstrate that your waste could be placed in a landfill that meets or exceeds the design criteria in § 258.40 as nonhazardous (section III.B). Section C describes the proposed status of your wastes prior to completion of your nonhazardous determination. Section D provides examples illustrating how the listing determination for K181 might work. Section E describes compliance and enforcement implications for the determinations.

A. How Do I Demonstrate That My Wastes Are Nonhazardous?

We are proposing that you could determine that your wastes are not listed as K181 because they don't contain CoCs at levels in excess of the listing levels in a number of ways.

1. Categorical Determination

You could determine that your wastes do not fall within the categorical K181 text included in the proposed regulations for this action under § 261.32(a). For example, if you do not produce any azo, triarylmethane, perylene, or anthraquinone products (as described in proposed § 261.32(b)), your nonwastewaters would not fall within the scope of the listing. Any wastes that are already hazardous due to the characteristics (§§ 261.21–261.24) or are otherwise listed (§§ 261.31–261.33) do not also fall within the scope of the listing. Wastewaters are not within the scope of the listing.

2. No K181 Constituents of Concern

We are proposing at § 261.32(d)(1) that you can use your knowledge of your wastes to demonstrate that your wastes do not contain any of the K181 CoCs identified in § 261.32(c)(1). You would have to compare the CoCs identified in § 261.32(c)(1) for K181 to constituents expected in your wastes. You could use process knowledge (*e.g.,* knowledge of the constituents in your wastes based on existing sampling and analysis data and/or information about raw materials used, production processes used, and reaction and degradation products formed) to make these initial determinations. If you determine that your potential K181 wastes at the point of generation do not contain any of the CoCs for K181 listed in § 262.32(c)(1), then you can determine your wastes to be nonhazardous. We are proposing that you keep documentation onsite for three years supporting your determinations that wastes are nonhazardous based on your knowledge that they do not contain any of the CoCs. We discuss enforcement of this and other recordkeeping provisions below in section E.

3. Low Quantity Versus High Quantity Wastes With K181 Constituents

If you generate less than 1,000 MT/yr of nonwastewaters that meet the K181 categorical description, you are eligible for determining that your wastes do not exceed the § 261.32(c)(1) or (c)(2) listing levels using the procedures proposed in § 261.32(d)(2). These procedures are based on your knowledge of your wastes, and do not require that you

conduct waste analysis to support your demonstration. The procedures that apply to generators of quantities less than 1,000 MT/yr of waste are described further in section 4 below. If you generate more than 1,000 MT/yr, you would have to use the more extensive procedures proposed in §261.32(d)(3) to demonstrate that your wastes are not hazardous, as described further in section 5, below.

To support either a § 261.32(d)(2) or § 261.32(d)(3) demonstration, you will need to keep track of how much potential K181 waste you generate from January 1 to December 31 of each year. For the year that this listing becomes effective, the demonstration would cover the period of time between the effective date and December 31 of that year. We are proposing a calendar year basis for these demonstrations to ease implementation of the rule, ensuring that industry and regulators have a common, clear understanding of the time period covered by such demonstrations.

In the proposed categorical K181 text, these wastes are defined as nonwastewaters from the production of dyes and/or pigments (including nonwastewaters commingled at the point of generation with nonwastewaters from other processes) that are not otherwise already listed or captured by the hazardous waste characteristics. To the extent that your nonwastewaters from other processes are segregated from wastes that fall within the scope of K181, they would not be included in your K181 waste quantity determination. Similarly, your dyes and/or pigments production wastes that are listed as hazardous for listings other than K181, or that are characteristically hazardous would not be included in your K181 waste quantity determination. However, if you generate a commingled waste (such as wastewater treatment sludge or other wastes) that contains waste contributions from both K181 and non-K181 sources (that are not otherwise hazardous), the entire commingled waste volume would be included in your K181 waste quantity determination, until and unless you were to segregate these sources. See discussion above in section IV.A.7 on commingled wastes.

The rationale for the selection of 1,000 metric tons per year (MT/yr) cutoff for the two tiers is included in the docket for today's rule.[59] In general, the 1,000 MT/yr cutoff for nonwastewaters (above which testing is required) is intended to ensure that the largest quantities of nonwastewaters generated by the dyes and/or pigments production facilities are tested and, at the same time, to minimize the burden on small generators. We believe that larger quantities of wastes have the potential for posing greater environmental risk than smaller quantities of wastes if a nonhazardous determination based on knowledge turns out to be inaccurate. Therefore, we believe it is reasonable to require larger quantity waste generators to test their wastes to make their determination, while smaller quantity waste generators are given the option to either test their wastes or use knowledge of their wastes annually to make a determination. We request comment on the appropriateness of giving smaller quantity waste generators the option of using knowledge of their wastes in making such a demonstration. We will consider requiring smaller quantity waste generators to test their wastes, like the larger quantity waste generators, if significant and defensible arguments are presented by commenters to support these requirements as necessary and appropriate. We will also consider adjusting the 1,000 Mt/yr cut off higher or lower, if we receive more precise information on waste quantities.

We request comment on an alternative to the two-tiered implementation approach discussed above. The alternative implementation approach would allow any generator to rely on either process knowledge or testing to evaluate the concentrations of CoCs in their nonwastewaters, irrespective of the annual quantity generated. This implementation approach would be similar to the existing program for determining whether a waste exhibits a hazardous characteristic (*see* 40 CFR 261.24 and 262.11). Although we prefer the two-tiered approach being proposed in today's rule, we will give careful consideration to any arguments presented or relevant waste analysis data submitted in response to today's proposal (*e.g.,* data showing that only a small portion of the wastes in the industry exceed the listing mass levels) to decide whether an alternative approach is warranted.

4. Section 261.32(d)(2) Demonstrations for Waste Quantities Less Than 1,000 MT/yr

If you generate less than 1,000 MT/yr of wastes potentially subject to K181, you can use knowledge to demonstrate that your waste does not contain mass loadings above either set of K181 listing levels. The following discussion describes our proposed approach to this type of demonstration.

Estimate Waste Quantity: You must estimate how much waste you expect to generate in the next calendar year (*e.g.,* based on past annual waste generation data and/or current knowledge about future generation). You must include all wastes that meet the categorical K181 listing description to determine the total waste quantity for the dyes and/or pigments production nonwastewaters.

If you initially estimated that your waste generation would be less than 1,000 MT/yr and, at any time within the year you exceed 1,000 MT/yr, you would then no longer be eligible for making a § 261.32(d)(2) demonstration, and would need to comply with § 261.32(d)(3) to demonstrate that the remainder of the waste that you generate in that calendar year is not hazardous. This means that if you had not already been testing your wastes to demonstrate that they are not hazardous, you would then have to test your wastes for the remainder of the year.

Track Waste Generation: You must track the actual quantity of dyes and/or pigments production nonwastewaters generated during each calendar year. Again, you must include all wastes that meet the listing description for K181 to determine the total waste quantity for the dyes and/or pigments production nonwastewaters.

Estimate Waste Mass Loadings Using Knowledge: Under a § 261.32(d)(2) determination, we are proposing that you could use knowledge of your wastes (*e.g.,* knowledge of the constituents in your wastes based on existing sampling and analysis data and/or information about raw materials used, production processes used, and reaction and degradation products formed) to estimate waste concentrations for the constituents of concern in your waste, and to then calculate estimated mass loading levels for the CoCs. You should calculate the cumulative mass loadings of the CoCs in your waste over the course of the year, taking into consideration known variations in constituent concentration over the course of the year. You should estimate the mass loadings of the CoCs associated with each shipment of wastes during the year. So long as your cumulative estimated mass loading levels during the year remain below the regulatory levels, you can manage your waste as nonhazardous. Note that a new determination would have to be made in subsequent calendar years, with the possible changes noted below under *Subsequent Annual Determinations.*

Recordkeeping: If you make a knowledge-based determination that

[59] See Appendix J in the Listing Background Document for ''Determination of Tiered Waste Analysis Requirements for Dyes and/or Pigments Production Nonwastewaters.''

levels of the CoCs in your wastes are below the regulatory levels, then we are proposing that you keep the following records onsite for three years to support your § 261.32(d)(2) nonhazardous determination:

- The actual quantity of dyes and/or pigments nonwastewaters generated.
- The process knowledge information that was used.
- The calculations performed to determine mass and annual running total mass levels for each CoC in the waste during the year based on process knowledge information that was used to support a nonhazardous determination.

We discuss the consequences of failing to keep records below in section E.

5. Section 261.32(d)(3) Demonstrations for Waste Quantities Greater Than 1,000 MT/yr

If the annual volume of your potential K181 nonwastewaters is greater than 1,000 MT/yr and you wish to demonstrate that your wastes do not exceed any of the relevant mass-based loading thresholds, we are proposing that you must test your wastes. You may not use knowledge of the wastes to determine the levels of the CoCs in your wastes. For those wastes that you must test, we are proposing that you use the following procedures:

- Determine which K181 constituents are reasonably expected to be present in your waste.
- Develop a waste sampling and analysis plan (SAP) (if you do not already have one that is appropriate) to collect and analyze representative samples of your wastes for those constituents.
- Collect and analyze an appropriate number of representative samples of your wastes in accordance with your waste SAP.
- Record the actual quantity of wastes that is represented by your sampling and analysis results.
- Calculate CoC-specific mass loadings (multiply the CoC concentration by waste quantity).
- Determine whether the annual running total mass (year-to-date mass loadings) for CoCs, including mass totals from earlier in the year, are below the K181 listing mass levels.
- Keep your records onsite for three years.
- Conduct your determination each calendar year to verify that the wastes remain nonhazardous.

Each of these steps is described further below.

Identify Target Constituents: Using knowledge of your wastes, you would need to identify which of the K181 constituents are potentially present in your wastes (proposed § 261.32(d)(3)(i)). If you can use your knowledge to demonstrate that any of the § 261.32(c)(1) or (c)(2) constituents would not or could not be present in your waste, you would not be required to conduct any waste analysis for those constituents. Your ''knowledge'' might include previous waste analyses (conducted for a different purpose), information about raw materials used at your facility, production processes in use, and reaction or degradation products potentially formed in your process or waste handling.

Waste Sampling and Analysis Plan: You must develop a sampling and analysis plan to characterize the levels of the K181 constituents that may be present in your wastes. Your SAP must consider any expected temporal or spatial fluctuations in CoC concentrations. Your sample design must be described in the SAP. The sample design and the sensitivity of the analytical methods used must be sufficient to determine whether the mass levels of the CoCs in your wastes (based on the quantity of wastes you generate annually and concentrations of the CoCs in your wastes) are above or below the mass loading-based levels for these constituents.

Conduct Sampling and Analysis: Following your SAP, you then would collect the appropriate number of samples, and conduct the planned waste analysis. Note that we are not proposing a required number of samples that you would need to collect annually to obtain representative data for your wastes. When you determine the appropriate number of samples to be collected, you must consider facts such as the variability of the wastes you generate during the course of the year.

We are not proposing mandated use of grab or composite sampling to obtain samples that are representative of your wastes. However, it would be your responsibility to ensure that your sampling and analysis is unbiased, precise, and representative of your wastes and to provide documentation of this representativeness in your SAP.

Similarly, we are not mandating the use of specific analytical methods, so long as you can demonstrate that the selected methods have the appropriate sensitivity, bias, and precision to determine the presence or absence of the constituents of concern at or below K181 mass loading levels. Specifically, we are not proposing to require the use of SW–846[60] methods to comply with these requirements. However, you would be required to document the: (1) Detailed standard operating procedures (SOPs) for the sampling and analysis protocols that you used; (2) sensitivity and bias of the measurement process; (3) precision of the analytical results for each batch of waste tested; and (4) analytical results.

We would consider the analytical results adequate to support your demonstration if you show, using spiked samples for the CoCs, that those constituents can be measured at concentrations corresponding to the regulatory levels in your wastes, within the analytical method performance limits (*e.g.,* sensitivity, bias, and precision). You might establish this target concentration for your spiked sample analysis by dividing the K181 listing level by your projected annual waste quantity. To determine the performance limits for a method, we recommend following quality control (QC) guidance provided in Chapters One and Two of SW–846. Your method performance data should be retained onsite with your analytical results as described below.

Calculate Mass Loadings: We are proposing that you must record your analytical results (§ 261.32(d)(3)(iv)), record the quantity of your wastes associated with those results (§ 261.32(d)(3)(v)), and calculate the corresponding constituent-specific mass loadings (product of constituent concentration and waste quantity) (§ 261.32(d)(3)(vi)).

Following sampling and analysis, you must calculate the mass of each constituent of concern in your wastes and keep a running total of the mass of each CoC throughout the year. In addition, you should also calculate mass loading levels for the CoCs in your waste and keep a running total of the mass of each CoC prior to disposal of any quantity of your waste during the year. The mass of a CoC depends on both the quantity of waste and the concentration of the constituent in the waste. For example, 1,000 metric tons (1 million kilograms) of waste that contains a constituent at a concentration of 1 mg/kg will have 1 million milligrams (or 1 kilogram) of that constituent. During the year, the dyes and/or pigments nonwastewaters that are generated may contain different concentrations of a constituent. In this case, the mass of a constituent in a fixed quantity of waste will also go up or

[60] EPA Publication SW–846, ''Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.''

down based on the concentrations of the constituent in the wastes being generated. A running total for the mass of a constituent will be the sum total of all mass calculations for the constituent in all quantities of nonwastewaters that have been generated from beginning of the year to present. At the end of the year, if the annual running total mass of a CoC is less than its listing mass level, it will be possible to demonstrate that a final annual mass of a CoC in the waste is below its listing mass level.

To determine the mass of a CoC, we are proposing that you use the maximum detected concentration or, if multiple samples have been collected, you may use either the maximum or a concentration based on the 95th percentile upper confidence limit on the mean, for each CoC and multiply it with the total waste quantity which it characterizes. However, we request comment on whether you should be allowed to average the concentrations of constituents detected in multiple waste samples. Alternatively, we request comment on whether use of another confidence limit of the mean (*e.g.,* 90th or 80th percentile) would be more appropriate for concentrations of constituents detected in multiple samples.

If your tested wastes are representative of the wastes that will be generated during part or the rest of the year (or you can reliably determine that these wastes exhibited the maximum concentrations for the constituents of concern), then you could use these concentrations for each CoC to calculate the additional mass of each CoC in your waste based on additional waste that you generate for part or rest of the year.

Compare Loadings to K181 Listing Limits: You would need to track the cumulative mass loading of CoCs in your waste over the course of each year. As long as the cumulative mass for each CoC in your waste remains below the respective K181 levels during the course of the year (and you meet the landfill disposal condition, if applicable), then your corresponding waste quantity generated to that point in time would be nonhazardous. You would, however, continue to be responsible for maintaining records that support a nonhazardous determination. However, if the cumulative mass for any of the constituents of concern equals or exceed its listing mass level during the course of the year, then at that point your waste would be listed hazardous waste and subject to all applicable RCRA Subtitle C hazardous waste requirements. Waste generated in the same year prior to that point would remain nonhazardous waste. It would not become subject to the K181 listing. Earlier in section V. we solicited comment on an alternative approach that would have the listing determination applying to all wastes generated in any year that the listing levels are exceeded.

Keep Records Onsite: Under § 261.32(d)(3)(viii), we are proposing that you keep the following records onsite for three years to support a nonhazardous determination based on testing:

- The sampling and analysis plan used for collecting and analyzing samples representative of your wastes, including detailed sampling methods used to account for spatial and temporal variability of the wastes, and sample preparative, cleanup (if necessary) and determinative methods.
- The sampling and analysis data (including QA/QC data) and knowledge (if used to determine that one or more constituents of concern are not present in the wastes) that support a nonhazardous determination.
- The actual quantity of dyes and pigments nonwastewaters generated.
- The calculations performed to determine mass and annual running total mass levels for each CoC in the waste during the year that support a nonhazardous determination.
- If the annual testing requirements for your wastes were suspended based on three consecutive years of nonhazardous determinations (*see* Subsequent Annual Determinations in the following section), then you need to keep the process knowledge information used to support a nonhazardous determination. If testing is re-instituted (following suspension of testing requirements) because of a significant process change (as discussed further below), then describe this process change.

We request comment on the adequacy of the above recordkeeping requirements to support a nonhazardous determination. See section E below for a discussion of the consequences of failing to meet these recordkeeping requirements.

Subsequent Annual Determinations: We are proposing that you continue to perform waste analysis annually after you have determined your wastes to be nonhazardous for the purpose of verifying that your wastes remain nonhazardous.

We are proposing that subsequent waste analysis requirements could change under the following circumstances:

(i) After completing annual testing requirements for your wastes under § 261.32(d)(3), if the annual running total mass levels for the CoCs during any three consecutive years based on sampling and analysis results for the CoCs in your wastes are determined to be nonhazardous, then the annual testing requirements for your wastes would be suspended and you could use knowledge of your wastes annually to support a nonhazardous determination.

(ii) After suspension of the annual testing requirements for your wastes, if dyes and/or pigments production or waste treatment processes generating these wastes are significantly altered (*i.e.*, if it could result in significantly higher levels of the CoCs for K181 in your wastes and greatly increase the potential for your wastes to become hazardous), then the annual testing requirements for your wastes would be reinstituted. In order to again suspend the annual testing requirements for your wastes, the requirement under step (i) above would have to be met.

We request comment on whether the annual testing requirement should be continued beyond three years, if the generator determines all of its dyes and/or pigments production wastes to be nonhazardous for three consecutive years. Following suspension of annual testing requirements, the generator would still be liable if testing by EPA or an authorized state finds the waste to be hazardous.

6. EPA and State Oversight

Regardless of which approach you choose to determine whether your waste contains constituents in amounts lower than the § 261.32(c)(1) or (c)(2) listing levels, EPA and authorized States may make their own determinations for enforcement and oversight purposes. EPA and authorized States may sample your waste and calculate the mass of any constituent of concern. If EPA concluded that your waste met or exceeded the applicable mass limits, it could bring an enforcement action under section 3008 of RCRA for violations of hazardous waste requirements if you have not managed the waste in compliance with applicable Subtitle C requirements. Authorized States could use enforcement authorities under State law.

B. How Do I Document Compliance With the Landfill Condition?

You may determine through a § 261.32(d)(2) or (3) determination that your wastes in fact contain K181 constituents at levels in excess of the § 261.32(c)(1) listing levels. If your demonstration shows, however, that the level in your wastes of the § 261.32(c)(2) constituent is below their corresponding § 261.32(c)(2) listing level, you may manage your wastes as nonhazardous if

you dispose of them in a landfill cell subject to Part 258 or Subtitle C design standards.

As noted above in section IV, § 258.40 applies to new MSWLFs or new cells at existing MSWLFs. It requires use of a composite liner and leachate collection system or an equivalent design approved by the Director of an approved state program or by EPA. The composite liner must include a synthetic layer. The infiltration rates we modeled for landfills with synthetic liners were based on data from landfills with composite liners very similar to the design required under § 258.40. Consequently, we are proposing to allow disposal of dyes and/or pigments production nonwastewaters meeting the § 261.32(c)(2) mass limits in a municipal landfill cell that is subject to the § 258.40 design requirements.

We are specifying that the cell must be subject to these requirements because we believe that some operating landfills still use older cells that are not required to meet the design requirements. Our risk assessment shows that placing dyes and/or pigments nonwastewaters with constituent masses up to the § 261.32(c)(2) level in unlined landfills would not adequately protect human health and the environment.

EPA has found that 49 states have adequate permitting programs to implement the Part 258 regulations for MSWLFs. Permit programs must ensure that all MSWLFs in the state comply with the § 258.40 design standards. (*See* 40 CFR 239.6 (e).) No dyes and/or pigments production facility is located in the state that lacks EPA approval. Consequently, we think that all landfill cells subject to the Part 258 design standards are complying with those standards. We request comment, however, on whether we should also require a more specific demonstration that the landfill cell is in compliance with the design standards—and, if so, what it should consist of, and who would be responsible. One possibility would be to require the use of a cell subject to § 258.40 at a MSWLF that has a permit issued under a state program that EPA found to be adequate under 40 CFR part 239.

Some generators of dyes and/or pigments production wastes may choose to send nonwastewaters meeting the § 261.32(c)(2) limits wastes to hazardous waste landfills. New landfill units and lateral expansions of existing hazardous waste landfills are required to have ''double'composite liners including synthetic components. See 40 CFR 264.301 and 265.301. Available data suggest that these liner systems have even lower infiltration rates than the liners required under part 258. We are proposing to give generators the option of sending wastes with constituents up to the § 261.32(c)(2) levels to landfill cells subject to these stricter hazardous waste liner requirements.

We request comment on whether a third class of appropriate landfill should be included, namely, industrial solid waste landfill cells that have liner systems that meet the § 258.40 or Subtitle C standards. We request comment on what an appropriate demonstration might consist of, and who should be responsible for making the demonstration.

We are proposing to require you to keep records showing that you used a qualifying landfill cell. We are not proposing any specific requirements. Rather, we are proposing a more flexible performance standard similar to the documentation requirement in 40 CFR 261.2(f) for claims that materials are not solid wastes. One of the simplest ways to demonstrate fulfillment of the landfill disposal condition may be to provide, upon request by a compliance or enforcement official, a copy of a signed contract with either a municipal landfill subject to the relevant Part 258 requirements or a hazardous waste landfill subject to Subtitle C requirements. The contract would need to show that the landfill operator would use only cells subject to the applicable Part 258 or Subtitle C design requirements. In cases where such a contract does not exist, the following alternative types of documentation may be adequate: signed nonhazardous waste manifests, shipping papers, or invoices showing that wastes were placed in municipal landfills cells subject to the applicable Part 258 or Subtitle C design requirements.

We would regard a showing that all of your recent or ongoing shipments of potential K181 wastes have been sent to appropriate landfill cells as sufficient evidence of intent to continue to use appropriate landfill cells for any wastes that you are storing onsite prior to shipment.

As explained in more detail in section E below, if your potential K181 waste is not disposed of in a qualifying landfill cell, or you cannot demonstrate that it was, your waste is subject to the K181 listing from the time that it was generated, and EPA or an authorized state may take enforcement action against any person who failed to meet applicable Subtitle C requirements while they managed it.

C. How Would I Manage My Wastes During the Period Between Generation and Hazardous Waste Determination?

If you generate wastes that are included within the categorical K181 text, you may not presume that your wastes are not subject to the listing until you make a determination which shows that your wastes are nonhazardous. From the time you generate the wastes to the time you make a determination on your wastes, you are responsible for storing your wastes properly. If your wastes are determined to be hazardous and you did not comply with applicable Subtitle C requirements prior to the determination, then you could be subject to an enforcement action.

D. Implementation Examples

To assist you and the regulating authorities alike in understanding the proposed implementation procedures for K181, we present below some scenarios describing how different types of dyes and/or pigments production facilities would determine whether or not their nonwastewaters would be subject to the proposed K181 listing. These examples cover those circumstances where facilities assess whether they can use knowledge or must use sampling and analysis to determine that their wastes are not subject to regulation as K181. Note that these examples are not meant to describe all situations.

Example 1: Using knowledge to show waste contains no K181 constituents (§ 261.32(d)(1)).

Facility A manufactures a limited number of azo dyes, as well as a variety of dye product classes not addressed by the K181 listing scope. The facility reviews the raw materials used in the production of its azo dyes and determines that none of the K181 constituents are used in their azo dye production. In addition, the facility assesses their azo product line and determines that none of the K181 constituents would be present in their nonwastewaters as a result of reaction byproducts, or degradation of their products or raw materials, or as a result of being present in their raw materials as impurities. The facility documents its findings as per proposed § 261.32(d)(1), and manages their wastes as nonhazardous.

Example 2: Quantities Less Than 1,000 MT/yr: Using knowledge to show wastes do not exceed § 261.32(c)(1) listing levels (§ 261.32(d)(2)).

Facility B manufactures disazo and triarylmethane pigments. The facility routinely uses several K181

constituents, aniline and p-cresidine, as pigment raw materials. Its production processes generate mother liquor, process filtrates, equipment washouts, spent filter aids and various solid residues. All wastewaters are discharged to a local POTW for treatment. Nonwastewaters, approximately 20 metric tons per month (totaling 240 metric tons per year), are accumulated in dumpsters prior to disposal.

The facility believes that its nonwastewaters will not exceed the § 261.32(c)(1) listing levels. As less than 1,000 metric tons of total nonwastewaters are generated each calendar year, the facility can use knowledge of its processes and wastes to estimate its waste constituent levels under proposed § 261.32(d)(2). Based on its assessment of the raw materials used in the production lines, the facility calculates that its pigment production processes use no more than 1,800 kg/year of aniline and 150 kg/year of p-cresidine per calendar year; and no other K181 chemicals are used as input materials. In addition, the facility does not use aniline or p-cresidine for any other purposes onsite. Based on its assessment of its process chemistry and review of raw material purity information, the facility concludes that none of the other K181 chemicals are expected to be present in its nonwastewaters.

The facility thus determines that its pigment production nonwastewaters do not meet the definition of K181 because the wastes would not contain more than the listing levels of 9,300 kg/year and 660 kg/year of aniline and p-cresidine, respectively, and no other K181 constituents are expected in the wastes. The facility documents its findings as per (d)(2), and manages the waste as nonhazardous.

Example 3: Quantities Less Than 1,000 MT/yr: Using knowledge to show wastes do exceed § 261.32(c)(1), but do not exceed § 261.32(c)(2) listing levels, and thus can be landfilled as nonhazardous in landfill subject to § 258.40 or Subtitle C design standards (§ 261.32(d)(2)).

Facility C manufactures a variety of azo and anthraquinone dye products using many ingredients that include 1,3-phenylenediamine, 4-chloroaniline, and toluene-2,4-diamine. The spent process liquors, equipment rinses and other wastewaters resulting from the production are piped to storage tanks, mixed there, and then treated chemically and biologically in several treatment tanks. The treated wastewater is discharged to an adjacent river under an NPDES permit. The facility's records show that the treatment tanks generate wastewater treatment sludge at the average rate of 60 metric tons a month. In addition, approximately 15 metric tons/month of spent filter aids and other process nonwastewaters result from the production processes. The facility commingles its nonwastewaters in storage bins, and ships them offsite for final disposal in a landfill.

The facility determines in the beginning of the calendar year that the combined quantity of the wastewater treatment sludge and other nonwastewaters in question is projected to be less than 1,000 metric tons for the year, and thus should be subject to the low volume K181 listing determination procedure under § 261.32(d)(2). Also, based on its well-documented knowledge of product manufacturing, waste generation and treatment, and wastewater analyses for NPDES discharge, the facility calculates using mass balance that the commingled nonwastewaters could not contain more than 100, 1,000, and 80 kg per year of 1,3-phenylenediamine, 4-chloroaniline, and toluene-2,4-diamine, respectively, using worst-case assumptions. The facility then compares these estimated loadings to the § 261.32(c)(1) listing limits and finds that their projected levels of 1,3-phenylenediamine and 4-chloroaniline are well below the listing limits; while the level of toluene-2,4-diamine exceeds the listing limit of 0.99 kg/year specified in § 261.32(c)(1). The facility now compares the projected level of toluene-2,4-diamine to the level in § 261.32(c)(2) of 140 kg/yr, and concludes that the nonwastewaters are not projected to trigger the § 261.32(c)(2) listing level. Therefore, the facility determines that its nonwastewaters can be managed as nonhazardous when disposed of in a municipal landfill cell subject to the design criteria in § 258.40 or the Subtitle C landfill design criteria.

The facility documents its findings as per § 261.32(d)(2), and manages the waste as nonhazardous in an appropriate landfill. The facility retains documentation regarding the landfill used to manage the waste as per § 261.32(d)(4).

Example 4: Quantities Greater Than 1,000 MT/yr: Using waste analysis to show wastes do exceed § 261.32(c)(1), but do not exceed § 261.32(c)(2) listing levels, and thus can be landfilled as nonhazardous in landfill that meets or exceeds § 258.40 (§ 261.32(d)(3)).

Facility C, described in the previous example, projects in January of the subsequent year, that it will still be able to successfully make a § 261.32(d)(2) demonstration that its wastes are not K181, and continues to dispose of its nonwastewaters at a permitted municipal landfill subject to § 258.40. By October of that year, however, the facility determines that it has generated 1,000 metric tons of nonwastewater due to increased dye production. In addition, the facility estimates that another 200 metric tons would be generated by the end of December. To continue to demonstrate that its wastes are not K181, the facility now is subject to § 261.32(d)(3). Accordingly, the facility develops a waste sampling and analysis plan under § 261.32(d)(3), and then collects and tests representative waste samples for the remainder of the year to demonstrate that the nonwastewaters are still nonhazardous. The analytical results show the maximum concentrations of 29.2, 583, and 41.7 mg/kg for 1,3-phenylenediamine, 4-chloroaniline, and toluene-2,4-diamine, respectively, and contain no other K181 constituents. With these maximum constituent concentrations and the revised waste quantity of 1,200 metric tons, the facility calculates that the nonwastewaters contain no more than 35 kg,[61] 700 kg, and 50 kg of 1,3-phenylenediamine, 4-chloroaniline, and toluene-2,4-diamine for the entire year, which are below the worst case constituent quantities initially estimated under the prior year's § 261.32(d)(2) demonstration. With this confirmation, the facility continues to ship the nonwastewaters generated in November and December to the appropriate municipal landfill. The facility documents its findings as per § 261.32(d)(3). The facility retains documentation regarding the landfill used to manage the waste as per § 261.32(d)(4).

For the next two years, the facility continues to generate more than 1,000 metric tons of nonwastewater each year, and thus continues to sample and analyze its wastes to demonstrate that they do not meet the K181 listing description. At the conclusion of the third year, the facility can revert to a knowledge-based § 261.32(d)(2) demonstration, so long as it doesn't modify its process in a way that might result in higher loadings in excess of the listing limits of any of the K181 constituents in its nonwastewaters.

Example 5: Quantities Greater Than 1,000 MT/yr: Using waste analysis to show wastes exceed § 261.32(c)(2) listing levels, requiring full Subtitle C compliance, pollution prevention subsequently reduces loadings below § 261.32(c)(2) levels.

Facility D produces a variety of dyes and pigments, some of which do not fall

[61] Example calculation: 29.2 mg/kg × (1,200 metric tons × 1,000 kg/metric ton) = 35,000,000 mg = 35 kg

under the K181 listing description, using a number of the chemicals listed under § 261.32(c)(1). The site is equipped with a centralized wastewater treatment (WWT) system that treats all of the wastewaters resulting from the plant's overall operations, discharging the treated wastewater to a surface body under an NPDES permit and generating 800 metric tons of sludge filter cake each calendar year. Moreover, the facility generates numerous batches of nonwastewaters, totaling 400 metric tons/year, from the multiple manufacturing process lines, such as filtration sludges, used filter aids/cloths, dust and fines, and unusable off-specification products. The facility manages these process nonwastewaters along with the WWT sludge.

Due to the combined nonwastewater quantity (800 metric tons of WWT sludge plus 400 metric tons of process solids) in excess of 1,000 metric tons/year, the facility must follow the § 261.32(d)(3) determination process, including sampling and analysis for the constituents expected to be present in the wastes, to demonstrate that the nonwastewaters do not meet the K181 listing criteria.

The facility determines through waste analysis that its nonwastewaters contain more than 500 kg/yr of toluene-2,4-diamine, which exceeds the § 261.32(c)(2) listing levels. The facility believes that much of the 500 kg/yr loading is attributable to production processes not covered by the K181 scope. Due to the commingled nature of the WWT sludge, however, the entire quantity of the sludge (as well as the other nonwastewaters linked to K181 processes) is subject to the K181 listing. This waste must therefore be managed as a hazardous waste, and must meet the corresponding BDAT standards for K181 before being disposed.

The facility conducts an audit of its production processes, and determines that it can reduce the levels of toluene-2,4-diamine in its nonwastewaters through a variety of pollution prevention techniques. After implementing the most cost-effective of these techniques, the facility successfully reduces its toluene-2,4-diamine loadings to below the § 261.32(c)(2) listing levels, and subsequently manages its waste in a municipal landfill subject to the design criteria in § 258.40. The facility documents its findings as per § 261.32(d)(3), and manages the waste as nonhazardous. The facility retains documentation regarding the landfill used to manage the waste as per § 261.32(d)(4).

Example 6: Quantities Greater Than 1,000 MT/yr: Using waste analysis to show wastes do exceed § 261.32(c)(1), but do not exceed § 261.32(c)(2) listing levels (§ 261.32(d)(3)), scope determination for F003 waste, incremental management of wastes generated prior to exceeding § 261.32(c)(1) levels.

Facility E generates 500 MT/yr of process nonwastewaters from a dye production process that uses solvents. The waste is already classified as F003 and therefore is not subject to the K181 listing, even though it contains toluene-2,4-diamine. The facility also generates wastewater treatment sludge at a rate of 10,000 MT/yr. The facility, using existing analytical data, calculates that the wastewater treatment sludge contains 10 kg/yr of toluene-2,4-diamine.

The wastewater treatment sludge is classified as K181 because it exceeds the § 261.32(c)(1) listing level of 0.99 kg/yr of toluene-2,4-diamine. The loading, however, does not exceed the § 261.32(c)(2) listing level of 140 kg/yr, so the wastes would be eligible for exclusion from K181 if the facility manages the wastes in landfills subject to the § 258.40 or Subtitle C landfill design standards.

The facility also generates discrete batches of waste every four to six weeks. By analyzing each batch and determining the toluene-2,4-diamine mass in each batch, the facility is able to ascertain at which point in time the cumulative mass loading in their waste approaches and exceeds the § 261.32(c)(1) listing level of 0.99 kg/yr. Until that time, the wastes are not classified as K181.

E. What Are the Consequences of Failing To Meet Recordkeeping Requirements or Listing Conditions?

In paragraphs (d)(1), (d)(2), (d)(3) and (d)(4) of § 261.32 of the proposed rule, we are proposing to require generators of dyes and/or pigments nonwastewaters from the listed product classes to keep records under the authority of sections 2002 and 3007 of RCRA. We are proposing that these provisions will be RCRA requirements and not conditions which must be fulfilled to prevent the waste from being classified as listed waste K181. Failure to comply with the proposed recordkeeping requirements could result in an enforcement action by EPA under section 3008 of RCRA or by an authorized State under similar State authorities. This section of the statute authorizes the imposition of civil penalties in an amount up to $27,500 for each day of noncompliance. Authorized states could also bring action under comparable state enforcement authorities.

We are proposing to make both sets of annual mass loading limits and the lined landfill requirements applying to wastes meeting the § 261.32(c)(2) limits conditions of the listing. Dyes and/or pigments nonwastewaters would become K181 wastes if anyone failed to fulfill these conditions. EPA or authorized states could bring enforcement actions for violations of hazardous waste requirements against anyone who has not managed the waste in compliance with applicable Subtitle C requirements.

Finally, we note that citizens may file suits under section 7002 of RCRA to enforce the recordkeeping requirements or other Subtitle C hazardous waste requirements if a condition is violated. Moreover, citizens can take action under section 7002 of RCRA, and EPA can take action under section 7003, if the management of dyes and/or pigments nonwastewaters may pose an imminent and substantial endangerment to human health or the environment.

A generator claiming that it is not subject to the listing would have to maintain sufficient documentation to demonstrate that it has not exceeded the relevant annual mass loading limits, and that it has sent its waste to a landfill subject to § 258.40 or Subtitle C design standards (if it claims it is subject to the conditional exemption for waste going to a lined landfill). EPA believes that basic documentation is integrally related to the substantive conditions of this proposal, since it would be difficult for a regulating agency (or even the generator) to know whether a given shipment of waste is hazardous absent records establishing the mass of constituents generated year-to-date. EPA requests comment on whether the proposed approach is sufficient to ensure enforceability of the proposed substantive conditions, or whether some or all of the proposed record-keeping requirements should be converted to conditions. EPA may make all or some of these requirements conditions in the final rule, or establish a general condition that the generator maintain sufficient records to demonstrate that it is remains outside the scope of the listing.

VI. Proposed Treatment Standards Under RCRA's Land Disposal Restrictions

A. What Are EPA's Land Disposal Restrictions (LDRs)?

Congress has specified that land disposal of hazardous waste is prohibited, unless the waste meets

treatment standards established by EPA before the waste is disposed, or is disposed in units from which there will be no migration of hazardous constituents for as long as the waste remains hazardous. RCRA sections 3004 (d), (e), (f), and (g). (These interrelated provisions are often referred to as Land Disposal Restrictions, or LDRs.) Treatment standards must substantially diminish the toxicity or mobility of hazardous waste or constituents thereof, so that short- and long-term threats to human health and the environment are minimized. RCRA section 3004(m). EPA is required to promulgate land disposal prohibitions and treatment standards for waste identified or listed as hazardous after November 1984 within six months of a final rule identifying or listing such waste. We are proposing prohibitions and treatment standards for all of the wastes which we are today proposing to list as hazardous. We are further proposing that the date of the prohibition and treatment standard be on the same date that the listing becomes effective.

B. How Does EPA Develop LDR Treatment Standards?

In an effort to make treatment standards as uniform as possible, while adhering to the fundamental requirement that the standards must minimize threats to human health and the environment, EPA developed the so-called Universal Treatment Standards (UTS) (codified at 40 CFR 268.48). Under the UTS, whenever technically and legally possible, the Agency adopts the same technology-based numerical limit for a hazardous constituent regardless of the type of hazardous waste in which the constituent is present. See 63 FR 28560 (May 26, 1998); 59 FR 47982 (September 19, 1994). The UTS, in turn, reflect the performance of Best Demonstrated Available Treatment (BDAT) Technologies of the constituents in question.

EPA is also authorized in section 3004 (m) to establish methods of treatment as a treatment standard. Doing so involves specifying an actual method by which the waste must be treated (unless a variance or determination of equivalency is obtained). Given this constraint, EPA prefers to establish numerical treatment standards, which leaves the option of using any method of treatment (other than impermissible dilution) to achieve the treatment standard.

C. What Treatment Standards Are We Proposing?

We find that there is significant structural similarity among many of the constituents of concern, including those for which we have not previously set technology-specific standards. The constituents of concern either have been demonstrated to be treated effectively by the BDAT technology to below the analytic detection limit, or are similar enough to these constituents that it can be reasonably determined that they would not be more difficult to treat via combustion or other destructive procedures. Hence, we expect that all constituents of concern for these wastes can be treated with equal effectiveness (*i.e.*, destroyed or removed so as to be no longer detectable) by similar methods of treatment. The obvious most effective treatment for nonwastewater forms of these wastes is combustion. For wastewaters derived from K181, a treatment train of wet air oxidation (WETOX) or chemical oxidation (CHOXD) followed by carbon adsorption (CARBN), or application of combustion (CMBST) is the BDAT for the constituents of concern for which treatment standards have not previously been developed.

We also assessed the potential of developing numerical standards for those constituents with current technology-based treatment standards and those constituents of concern in K181 that lack current treatment requirements. Numerical treatment standards have been promulgated for only nine of the organic constituents of concern. Commenters to the July 23, 1999 listing proposal (64 FR 40192) suggested that EPA establish numerical standards, because they allow any treatment, other than impermissible dilution, to be used to comply with the land disposal restrictions. We find that there is adequate documentation in existing SW–846 methods 8270, 8315, and 8325 to calculate numerical standards for all but benzaldehyde; 1,3-phenylenediamine; 1,2-phenylenediamine; and 2,4-dimethylaniline. For these constituents, with the exception of 1,2-phenylenediamine, we propose to transfer the numerical standards of similar constituents as the universal treatment standards.

For 1,2-phenylenediamine, we have found during past method performance evaluations that it can be difficult to achieve reliable recovery from aqueous matrixes and precise measurements. Therefore, for this constituent we propose that wastewaters be treated by CMBST; or CHOXD followed by BIODG or CARBN; or BIODG followed by CARBN, and all nonwastewaters would be treated by CMBST. If data adequate for the development of a numerical standard is presented in comments, the Agency may promulgate a numerical standard as an alternative, or as the treatment requirement.

If these numerical standards are shown in comments not to be achievable or otherwise appropriate, we could adopt methods of treatment as the exclusive treatment standard. Under this technology only approach, all nonwastewaters identified as K181 would be treated by CMBST, and all derived from wastewaters would be treated by either WETOX or CHOXD, followed by CARBN or CMBST.

The proposed treatment standards are presented in the following table.

TABLE VI–1.—PROPOSED TREATMENT STANDARDS FOR CONSTITUENTS IN K181

Constituents of concern	CAS No.	Wastewater (mg/L)	Nonwastewater (mg/kg)
Aniline	65–53–3	0.81*	14*
o-Anisidine (2-methoxyaniline)	90–04–0	0.010	0.66
Azobenzene**	103–33–3	0.010	0.66
Benzaldehyde**	100–52–7	0.065	4.3
4-Chloroaniline	106–47–8	0.46*	16*
p-Cresidine	120–71–8	0.010	0.66
2,4-Dimethylaniline (2,4-xylidine)	95–68–1	0.010	0.66
1,2-Phenylenediamine	95–54–5	CMBST; or CHOXD fb (BIODG or CARBN); or BIODG fb CARBN.	CMBST
1,3-Phenylenediamine	108–45–2	0.010	0.66
p-Toluidine **	106–49–0	0.010	0.66

TABLE VI–1.—PROPOSED TREATMENT STANDARDS FOR CONSTITUENTS IN K181—Continued

Constituents of concern	CAS No.	Wastewater (mg/L)	Nonwastewater (mg/kg)
Toluene-2,4-diamine	95–80–7	0.020	1.30

*Existing Universal Treatment Standard. No change is proposed.
**Treatment standards would be proposed for this constituent if zero biodegradation is assumed. See section IV.A.4.

D. What Changes to Existing Treatment Requirements Are Proposed?

We also propose to add the constituents in K181 with numerical treatment standards to the Universal Treatment Standards (UTS) listed at 40 CFR 268.48. This action would potentially add five chemicals with the standards in Table VI–1 to the UTS if biodegradation rates are assigned for all constituents based upon structural similarity, namely: o-anisidine, p-cresidine, 2,4-dimethylaniline, 1,3-phenylenediamine, and toluene-2,4-diamine. If biodegradation rates are assumed to be zero for constituents that do not have a reported value, then there are three additional constituents that may require promulgation of universal treatment standards. The three are azobenzene, benzaldehyde, and p-toluidine. As a result, characteristic wastes that also contain these constituents will require additional treatment before disposal, if constituent concentrations exceed the proposed levels.

We propose to amend the constituents of concern in F039 as necessary to include the constituents identified in K181 not already specified in F039 (the same constituents named above for the UTS). F039 applies to landfill leachates generated from multiple listed wastes in lieu of the original waste codes. F039 wastes are subject to numerical treatment standards equivalent to the universal treatment standards listed at 40 CFR 268.48. Without this change in existing regulations, F039 landfill leachates may not receive proper treatment for the constituents of K181.

The proposed treatment standards reflect the performance of best treatment technologies, and are not based on the listing levels of concern derived from the risk assessment for dyes and/or pigments wastes. In that risk assessment, our analysis focused on the plausible management practices for only the dyes and pigments industries. As a result, our models did not attempt to assess all possible pathways, because the plausible management practice (disposal in a municipal Subtitle D landfill) provides a certain level of control over some potential release pathways. In addition, our assessment of potential releases modeled engineered barriers, in the form of various types of liner systems.

It is not appropriate to use the mass loading levels derived from these risk assessments as levels at which threats to human health and to the environment are minimized. The risk analysis does not address all of the long-term uncertainties associated with land disposal of these wastes. (*See* section 3004 (g)(5) and 55 FR 6640, 6642 (February 26, 1990).) Nor is it permissible to consider artificial liner systems, or other engineered barriers, in assessing whether threats posed by land disposal of a hazardous waste have been minimized. *API* v. *EPA,* 906 F. 2d 726, 735–36 (threats to human health and the environment must be minimized *before* land disposal occurs); cf. S. Rep. 284, 98th Cong. 1st Sess. at 15 (''Artificial barriers cannot provide the assurances necessary to meet the standard,'' referring to the parallel no-migration standard for determining if a method of land disposal is protective without the need for pretreating the waste before land disposal occurs).

Because there remain significant uncertainties as to what levels of hazardous constituents in these wastes would minimize threats to human health and to the environment posed by these wastes' land disposal, we are choosing to develop treatment standards for these wastes based on performance of the Best Demonstrated Available Technology for these wastes. *HWTC III,* 886 F. 2d at 361–363 (accepting this approach). For the same reason, we are finding that these technology-based treatment standards are not more stringent than the risk-based levels at which we could find that threats to human health and to the environment are minimized.

E. Other LDR-Related Provisions

EPA has adopted special LDR treatment standards for debris contaminated by hazardous waste. See § 268.45. EPA is proposing that these provisions would also apply to hazardous debris cross-contaminated with K181. Debris contaminated with K181 would be required to be treated prior to land disposal, using specific technologies from one or more of the following families of debris treatment technologies: extraction, destruction, or immobilization. If such debris is treated by immobilization, it remains a hazardous waste and must be managed in a hazardous waste facility. Residuals generated from the treatment of debris contaminated with K181 would remain subject to the treatment standards proposed today. (*See* 57 FR 37277, August 18, 1992, for additional information on the applicability, scope, and content of the hazardous debris provisions.)

Lastly, because land disposal also includes placement in injection wells (40 CFR 268.2(c)) application of the land disposal restrictions to K181 requires the modification of injection well requirements found in 40 CFR part 148. We propose that K181 be prohibited from underground injection. (*See* 40 CFR part 148.) Therefore, K181 wastes may not be underground injected unless they have been treated in compliance with the LDR treatment standards or are injected into a Class 1 well from which it has been determined that there will be no migration of hazardous constituents for as long as the wastes remain hazardous.

F. Is There Treatment and Management Capacity Available for These Proposed Newly Identified Wastes?

1. What Is a Capacity Determination?

When EPA develops new hazardous waste LDR regulations, we must determine whether adequate alternative treatment capacity exists nationally to manage the waste and meet the new treatment standards. The LDRs are effective when promulgated unless EPA grants a national capacity variance from the otherwise-applicable date and establishes a different date (not to exceed two years beyond the statutory deadline) based on ''. . . the earliest date on which adequate alternative treatment, recovery, or disposal capacity which protects human health and the environment will be available'' (RCRA section 3004(h)(2)).

Our capacity analysis methodology focuses on the amount of waste currently disposed on the land, which will require alternative or additional treatment as a result of the LDRs. The quantities of wastes that are not subject to LDRs, such as discharges regulated

under NPDES, discharges to a POTW, or treatment in a RCRA exempt tank, are not included in the quantities requiring additional treatment as a result of the LDRs. Also, land disposed wastes that do not require alternative or additional treatment (*i.e.*, those that are currently treated to meet standards) are excluded from the required capacity estimates. Land disposed wastes requiring alternative or additional treatment or recovery capacity that is available onsite or within the same company also are excluded from the required commercial capacity estimates. The resulting estimates of required commercial capacity are then compared to estimates of available commercial capacity. If adequate commercial capacity exists, the waste is restricted from further land disposal. If adequate capacity does not exist, EPA has the authority to grant a national capacity variance.

In making the estimates described above, the volume of waste requiring treatment depends on the current waste management practices employed by the waste generators before this proposed regulation is finalized and becomes effective. We collected data on waste management practices for the affected facilities from publicly available sources during the development of this proposed rule. However, we realize that as the regulatory process proceeds, generators of these wastes may decide to minimize or recycle their wastes or otherwise alter their management practices. Thus, EPA will monitor changes and update data on current management practices as these changes will affect the volume of wastes ultimately requiring commercial treatment or recovery capacity.

The commercial hazardous waste treatment industry can change rapidly. For example, national commercial treatment capacity changes as new facilities come on-line or old facilities go off-line and as new units and new technologies are added at existing facilities. The available capacity at commercial facilities also changes as facilities change their commercial status (*e.g.*, changing from a fully commercial to a limited commercial or ''captive''—company owned—facility). Thus, EPA also continues to update and monitor changes in available commercial treatment capacity.

We request available data on the industry-wide total annual generation volumes of wastes affected by this proposed rule, including K181 in wastewater and nonwastewater forms, soil or debris contaminated with these wastes, the current and planned management practices for the wastes, and waste mixtures. We also request data on the current treatment or recovery capacity capable of treating these wastes, facility and unit permit status related to treatment of the proposed wastes and any plans that facilities may have to expand or reduce existing capacity, or construct new capacity. Of particular interest to us is available information related to factors that may limit the availability of treatment technologies.

2. What Are the Capacity Analysis Results?

This preamble only provides a brief summary of the capacity analysis performed to support this proposed regulation. For additional and more detailed information, please refer to the ''Background Document for Capacity Analysis for Land Disposal Restrictions: Newly Identified Dye and Pigment Process Wastes (Proposed Rule), November 2003'' (''Capacity Background Document''), available in the RCRA docket established for today's proposed rule.

For this capacity analysis, we examined data on waste characteristics and management practices gathered for the purpose of the dyes and pigments hazardous waste listing determination based on the publicly available information. The data sources are described in detail in section II.H of this preamble.

If K181-derived wastewaters are generated, there is adequate wastewater treatment capacity existing for these wastes. As discussed in section IV.C above, EPA is proposing to treat the wastewater form of K181 by wet air oxidation or chemical oxidation followed by carbon adsorption or applying combustion for the constituents of concern. There is adequate wastewater treatment capacity available should the need for treatment of the wastewater form of the waste arise. The wastewater treatment capacity is detailed in the Capacity Background Document. Therefore, we are proposing not to grant a national capacity variance from LDR treatment standards for the wastewater form of K181. We are proposing that LDRs become effective when the listing determination becomes effective. In addition, we are not listing wastewaters generated at these facilities, so there is no need for additional treatment of wastewater from the production of dyes and/or pigments (other than K181-derived wastewaters).

As described in section IV.C above, EPA is proposing to establish numerical treatment standards or a method of treatment as the treatment standards for the constituents of concern of the newly proposed waste. We expect that the constituents of concern in the nonwastewater form of the newly proposed waste are amenable to the treatment by combustion or other destructive technologies. EPA estimates, at most, 69,000 metric tons of nonwastewater forms of K181 that may require alternative commercial treatment and be managed offsite at a commercial hazardous waste treatment facility. Furthermore, EPA anticipates that much less than 69,000 metric tons of the wastes may require combustion capacity because not all of these wastes are expected to exceed the mass loading limits, and of those wastes that do exceed the loading limits, they may be managed in a Subtitle C combustion unit or may meet the proposed conditional exemption for nonwastewaters that are managed in landfills that meet or exceeds the design criteria in § 258.40 or in a Subtitle C landfill cell subject to either § 264.301 or § 265.301. We estimate that the commercially available sludge and solid combustion capacity is approximately 0.6 million tons per year and therefore sufficient to treat the newly proposed waste which might newly require treatment. We also expect that adequate landfill capacity exists for managing the residuals from treating this waste. Therefore, we are proposing to not grant a national capacity variance from the LDR treatment standards for the nonwastewater form of K181. We are proposing that the LDRs become effective when the listing determination becomes effective.

As discussed in section VI.D, we are also proposing to add the constituents of concern in K181 with numerical standards to the constituent lists for F039 and universal treatment standards (UTS). EPA does not anticipate that waste volumes subject to the treatment standards for F039 or characteristic wastes would increase because of the addition of these organic constituents to F039 and the UTS lists. Based on available data, waste generators already appear to be required to comply with the treatment requirements for other organic constituents in F039 and characteristic wastes. Therefore, additional treatment due to the addition of the constituents to the F039 and UTS lists may not be required. We also do not anticipate laboratory analytical problems as a result of this addition. However, we solicit comments regarding additional treatment needed, as well as the ability and capacity of laboratories to analyze wastes for these contaminants.

For soil and debris contaminated with these wastes, we believe that the vast

majority of contaminated soil and debris, if any, will be managed onsite and therefore would not require substantial commercial treatment capacity. Therefore, we are proposing to not grant a national capacity variance for hazardous soil and debris contaminated with the newly listed waste covered under this proposal. Based on the public information used, there are no data showing mixed radioactive wastes or underground injected wastes associated with the proposed listing. As a result, we are also proposing to not grant a national capacity variance for mixed radioactive waste (*i.e.*, radioactive wastes mixed with K181) or waste being injected underground.

The ultimate volume of waste estimated to require alternative or additional commercial treatment may change if the final listing determination changes; should this occur, we will revise the capacity analysis accordingly. The actual quantity of waste requiring commercial treatment may be smaller due to facility closures and changes in product formulations which may not be subject to LDR treatment standards. We recognize the batch process nature of this industry and the speed at which facilities may change product formulations. We solicit any updated or additional information pertinent to the national capacity variance determinations for all forms of the newly proposed waste. We also request comment on current and future management practices and the volumes managed for these wastes.

VII. State Authority and Compliance

A. How Are States Authorized Under RCRA?

Under section 3006 of RCRA, EPA may authorize qualified states to administer their own hazardous waste programs in lieu of the federal program within the state. Following authorization, EPA retains enforcement authority under sections 3008, 3013, and 7003 of RCRA, although authorized states have primary enforcement responsibility. The standards and requirements for state authorization are found at 40 CFR part 271.

Prior to enactment of the Hazardous and Solid Waste Amendments of 1984 (HSWA), a State with final RCRA authorization administered its hazardous waste program entirely in lieu of EPA administering the Federal program in that state. The Federal requirements no longer applied in the authorized state, and EPA could not issue permits for any facilities in that state, since only the state was authorized to issue RCRA permits. When new, more stringent federal requirements were promulgated, the state was obligated to enact equivalent authorities within specified time frames. However, the new federal requirements did not take effect in an authorized state until the state adopted the federal requirements as state law.

In contrast, under RCRA section 3006(g) (42 U.S.C. 6926(g)), which was added by HSWA, new requirements and prohibitions imposed under HSWA authority take effect in authorized states at the same time that they take effect in unauthorized states. EPA is directed by the statute to implement these requirements and prohibitions in authorized states, including the issuance of permits, until the state is granted authorization to do so. While states must still adopt HSWA related provisions as state law to retain final authorization, EPA implements the HSWA provisions in authorized states until the states do so.

Authorized states are required to modify their programs only when EPA enacts Federal requirements that are more stringent or broader in scope than existing Federal requirements. RCRA section 3009 allows the states to impose standards more stringent than those in the federal program (see also 40 CFR 271.1). Therefore, authorized states may, but are not required to, adopt federal regulations, both HSWA and non-HSWA, that are considered less stringent than previous federal regulations.

B. How Would This Rule Affect State Authorization?

We are proposing today's rule pursuant to HSWA authority. The listing of the new K-waste is promulgated pursuant to RCRA section 3001(e)(2), a HSWA provision. Therefore, we are adding this rule to Table 1 in 40 CFR 271.1(j), which identifies the Federal program requirements that are promulgated pursuant to HSWA and take effect in all States, regardless of their authorization status. The land disposal restrictions for these wastes are promulgated pursuant to RCRA section 3004(g) and (m), also HSWA provisions. Table 2 in 40 CFR 271.1(j) is modified to indicate that these requirements are self-implementing.

States may apply for final authorization for the HSWA provisions in 40 CFR 271.1(j), as discussed below. Until the States receive authorization for these more stringent HSWA provisions, EPA would implement them. The procedures and schedule for final authorization of State program modifications are described in 40 CFR 271.21.

Section 271.21(e)(2) of EPA's State authorization regulations (40 CFR part 271) requires that States with final authorization modify their programs to reflect Federal program changes and submit the modifications to EPA for approval. The deadline by which the States would need to modify their programs to adopt this proposed regulation is determined by the date of promulgation of a final rule in accordance with § 271.21(e)(2). Once EPA approves the modification, the State requirements would become RCRA Subtitle C requirements.

States with authorized RCRA programs already may have regulations similar to those in this proposed rule. These State regulations have not been assessed against the Federal regulations proposed today to determine whether they meet the tests for authorization. Thus, even after promulgation of final rules, a State would not be authorized to implement these regulations as RCRA requirements until State program modifications are submitted to EPA and approved, pursuant to 40 CFR 271.21. Of course, States with existing regulations that are more stringent than or broader in scope than current Federal regulations may continue to administer and enforce their regulations as a matter of State law. In implementing the HSWA requirements, EPA will work with the States under agreements to avoid duplication of effort.

C. Who Would Need To Notify EPA That They Have a Hazardous Waste?

Under RCRA section 3010, the Administrator may require all persons who handle hazardous wastes to notify EPA of their hazardous waste management activities within 90 days after the wastes are identified or listed as hazardous. This requirement may be applied even to those generators, transporters, and treatment, storage, and disposal facilities (TSDFs) that have previously notified EPA with respect to the management of other hazardous wastes. The Agency is proposing to waive this notification requirement for persons who handle wastes that are covered by today's listings and have already (1) notified EPA that they manage other hazardous wastes, and (2) received an EPA identification number. However, any person who generates, transports, treats, stores, or disposes of these wastes and has not previously received an EPA identification number would need to obtain an identification number pursuant to 40 CFR 262.12 to generate, transport, treat, store, or

dispose of these hazardous wastes within 90 days after the effective date.

Note that under this proposal, nonwastewaters would not become newly listed K181 waste if the constituent mass loadings do not meet the levels in § 261.32(c)(1); the wastes would also not be listed if the constituent mass loadings are below the less stringent levels in § 261.32(c)(2) and if the nonwastewaters are disposed in a landfill that meets or exceeds the design criteria in § 258.40 or in a Subtitle C landfill cell subject to either § 264.301 or § 265.301. Persons who generate only wastes that meet these conditions need not notify EPA or obtain an identification number.

D. What Would Generators and Transporters Have To Do?

Once a final rule is promulgated, persons that generate the newly listed hazardous wastes may be required to obtain an EPA identification number if they do not already have one (as discussed above). In order to be able to generate or transport these wastes after the effective date of this rule, generators of the wastes listed today would be subject to the generator requirements set forth in 40 CFR part 262. These requirements include standards for hazardous waste determination (40 CFR 262.11), compliance with the manifest (40 CFR 262.20 to 262.23), pretransport procedures (40 CFR 262.30 to 262.34), generator accumulation (40 CFR 262.34), record keeping and reporting (40 CFR 262.40 to 262.44), and import/export procedures (40 CFR 262.50 to 262.60). The generator accumulation provisions of 40 CFR 262.34 allow generators to accumulate hazardous wastes without obtaining interim status or a permit in units that are container storage units, tank systems, or containment buildings. These existing regulations also place a limit on the maximum amount of time that wastes can be accumulated in these units. If, however, the wastes covered in today's proposed rule are managed in units that are not tank systems, containers, or containment buildings, then these units would be subject to the permitting requirements of 40 CFR parts 264 and 265, and the generator is required to obtain interim status and seek a permit (or modify interim status or a permit, as appropriate).

Also, current regulations require that persons who transport newly identified hazardous wastes to obtain an EPA identification number as described above; such transporters will be subject to the transporter requirements set forth in 40 CFR part 263.

E. Which Facilities Would Be Subject to Permitting?

1. Facilities Newly Subject to RCRA Permit Requirements

Facilities that treat, store, or dispose of wastes that are subject to RCRA regulation for the first time by this proposed rule (that is, facilities that have not previously received a permit pursuant to section 3005 of RCRA and are not currently operating pursuant to interim status), could be eligible for interim status (see section 3005(e)(1)(A)(ii) of RCRA). To obtain interim status based on treatment, storage, or disposal of such newly identified wastes, eligible facilities would be required to comply with 40 CFR 270.70(a) and 270.10(e) by providing notice under section 3010 and submitting a Part A permit application no later than 6 months after date of publication in the **Federal Register** of the final rule. Such facilities would be subject to regulation under 40 CFR part 265 pending final administrative disposition of the permit application (*e.g.*, until a permit is issued).

In addition, under section 3005(e)(3) and 40 CFR 270.73(d), not later than 6 months after date of publication of the final rule, land disposal facilities newly qualifying for interim status under section 3005(e)(1)(A)(ii) would also need to submit a Part B permit application and certify that the facility is in compliance with all applicable groundwater monitoring and financial responsibility requirements. If the facility fails to submit these certifications and a permit application, then interim status would terminate on that date.

2. Existing Interim Status Facilities

Pursuant to 40 CFR 270.72(a)(1), all existing hazardous waste management facilities (as defined in 40 CFR 270.2) that treat, store, or dispose of the newly listed hazardous wastes and are currently operating pursuant to interim status under section 3005(e) of RCRA, would need to file an amended Part A permit application with EPA no later than six months after the date of publication of a final rule. By doing this, the facility could continue managing the newly listed wastes pending final disposition of the permit application. If the facility fails to file an amended Part A application by that date, the facility would not receive interim status for management of the newly listed hazardous wastes and may not manage those wastes until the facility receives either a permit or a change in interim status allowing such activity (40 CFR 270.1(b); 270.10(g)).

3. Permitted Facilities

Facilities that already have RCRA permits would need to request permit modifications if they want to continue managing the newly listed wastes (*see* 40 CFR 270.42(g)). This provision states that a permittee may continue managing the newly listed wastes by following certain requirements, including submitting a Class 1 permit modification request by the date on which the waste or unit becomes subject to the new regulatory requirements (*i.e.*, the effective date of a final rule), complying with the applicable standards of 40 CFR parts 265 and 266 and submitting a Class 2 or 3 permit modification request within 180 days of the effective date. Generally, a Class 2 modification is appropriate if the newly listed wastes will be managed in existing permitted units or in newly regulated tanks, container units or containment buildings and will not require additional or different management practices than those authorized in the permit.

A Class 2 modification requires the facility owner to provide public notice of the modification request, a 60-day public comment period, and an informal meeting between the owner and the public within the 60-day period. The Class 2 process includes a ''default provision,'' which provides that if the Agency does not reach a decision within 120 days, the modification is automatically authorized for 180 days. If the Agency does not reach a decision by the end of that period, the modification is authorized for the life of the permit (*see* 40 CFR 270.42(b)).

A Class 3 modification is generally appropriate if management of the newly listed wastes requires additional or different management practices than those authorized in the permit or if newly regulated land-based units are involved. The initial public notification and public meeting requirements are the same as for Class 2 modifications. However, after the end of the 60-day public comment period, the Agency will grant or deny the permit modification request according to the more extensive procedures of 40 CFR part 124. There is no default provision for Class 3 modifications (*see* 40 CFR 270.42(c)).

Under 40 CFR 270.42(g)(1)(v), for newly regulated land disposal units, permitted facilities must certify that the facility is in compliance with all applicable 40 CFR part 265 groundwater monitoring and financial responsibility requirements no later than 6 months after the date of publication of a final rule. If the facility fails to submit these certifications, authority to manage the

newly listed wastes under 40 CFR 270.42(g) will terminate on that date.

For states which have not yet picked up the permit modification tables of 40 CFR 270.42, ''major'' and ''minor'' permit modifications should be applied as appropriate to the permit modification request.

4. Units

Units in which the newly listed hazardous wastes are generated or managed would be subject to all applicable requirements of 40 CFR part 264 for permitted facilities or 40 CFR part 265 for interim status facilities, unless the unit is excluded from such permitting by other provisions, such as the wastewater treatment tank exclusions (40 CFR 264.1(g)(6) and 265.1(c)(10)) and the product storage tank exclusion (40 CFR 261.4(c)). Examples of units to which these exclusions could never apply include landfills, waste piles, incinerators, and any other miscellaneous units in which these wastes may be generated or managed. However, as noted above, under this proposal nonwastewaters would not become newly listed K181 waste if the constituent loadings do not meet the levels in § 261.32(c)(1); the wastes would also not be listed if the constituent mass loadings are below the levels in § 261.32(c)(2) and if the nonwastewaters are disposed in a landfill that meets or exceeds the design criteria in § 258.40 or in a Subtitle C landfill cell subject either to § 264.301 or § 265.301.

5. Closure

All units in which the newly listed hazardous wastes are treated, stored, or disposed after the effective date of this regulation that are not excluded from the requirements of 40 CFR parts 264 and 265 would be subject to both the general closure and post-closure requirements of subpart G of 40 CFR parts 264 and 265 and the unit-specific closure requirements set forth in the applicable unit technical standards subpart of 40 CFR part 264 or 265 (*e.g.,* Subpart N for landfill units). In addition, EPA promulgated a final rule that allows, under limited circumstances, regulated landfills or surface impoundments to cease managing hazardous waste, but to delay Subtitle C closure to allow the unit to continue to manage nonhazardous waste for a period of time prior to closure of the unit (*see* 54 FR 33376, August 14, 1989). Units for which closure is delayed continue to be subject to all applicable 40 CFR parts 264 and 265 requirements. Dates and procedures for submittal of necessary demonstrations, permit applications, and revised applications are detailed in 40 CFR 264.113(c) through (e) and 265.113(c) through (e).

VIII. CERCLA Designation and Reportable Quantities

A. What Is the Relationship Between RCRA and CERCLA?

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act of 1980) defines the term ''hazardous substance'' to include RCRA listed and characteristic hazardous wastes. When EPA adds a hazardous waste under RCRA, the Agency also will add the waste to its list of CERCLA hazardous substances. EPA establishes a reportable quantity, or RQ, for each CERCLA hazardous substance. EPA provides a list of the CERCLA hazardous substances along with their RQs in Table 302.4 at 40 CFR 302.4. If you are the person in charge of a vessel or facility that releases a CERCLA hazardous substance in an amount that equals or exceeds its RQ, then you must report that release to the National Response Center (NRC) pursuant to CERCLA section 103. You also may have to notify State and local authorities.

B. How Does EPA Determine Reportable Quantities?

Under CERCLA, all new hazardous substances automatically have a statutory one-pound RQ. EPA adjusts the RQ of a newly added hazardous substance based on an evaluation of its intrinsic physical, chemical, and toxic properties. These intrinsic properties called ''primary criteria'' are aquatic toxicity, mammalian toxicity (oral, dermal, and inhalation), ignitability, reactivity, chronic toxicity, and potential carcinogenicity. EPA evaluates the data for a hazardous substance for each primary criterion. To adjust the RQs, EPA ranks each criterion on a scale that corresponds to an RQ value of 1, 10, 100, 1,000, or 5,000 pounds. For each criterion, EPA establishes a tentative RQ. A hazardous substance may receive several tentative RQ values based on its particular intrinsic properties. The lowest of the tentative RQs becomes the ''primary criteria RQ'' for that substance.

After the primary criteria RQs are assigned, EPA further evaluates substances for their susceptibility to certain degradative processes. These are secondary adjustment criteria. The natural degradative processes are biodegradation, hydrolysis, and photolysis (BHP). If a hazardous substance, when released into the environment, degrades rapidly to a less hazardous form by one or more of the BHP processes, EPA generally raises its RQ (as determined by the primary RQ adjustment criteria) by one level. Conversely, if a hazardous substance degrades to a more hazardous product after its release, EPA assigns an RQ to the original substance equal to the RQ for the more hazardous substance.

The standard methodology used to adjust the RQs for RCRA hazardous waste streams differs from the methodology applied to individual hazardous substances. The procedure for assigning RQs to RCRA waste streams is based on the results of an analysis of the hazardous constituents of the waste streams. The constituents of each RCRA hazardous waste stream are identified in 40 CFR part 261, Appendix VII. EPA first determines an RQ for each hazardous constituent within the waste stream using the methodology described above. The lowest RQ value of these constituents becomes the adjusted RQ for the waste stream. When there are hazardous constituents of a RCRA waste stream that are not CERCLA hazardous substances, the Agency develops an RQ, called a ''reference RQ,'' for these constituents in order to assign an appropriate RQ to the waste stream (see 48 FR 23565, May 25, 1983). In other words, the Agency derives the RQ for waste streams based on the lowest RQ of all the hazardous constituents, regardless of whether they are CERCLA hazardous substances.

C. EPA Will Assign an RQ of One-Pound for the Waste

In today's proposed rule, EPA will assign a one-pound RQ to the K181 waste. The RQ for each constituent contained in the proposed waste is presented in the table below.

TABLE VIII–1.—RQS FOR CONSTITUENTS IDENTIFIED IN K181 WASTE

Constituents in K181 waste stream	Constituent RQ (kg) (40 CFR 302.4)
Aniline	5000 (2270)
o-Anisidine	100 (45.4)
4-Chloroaniline	1000 (454)
p-Cresidine	*1 (0.454)
2,4-Dimethylaniline	*1 (0.454)
Toluene-2,4-diamine	10 (4.54)
1,2-Phenylenediamine	*1 (0.454)
1,3-Phenylenediamine	*1 (0.454)

*RQ of 1 pound assigned to this constituent because we have not yet developed a ''waste constituent RQ'' for this substance.

We are not adjusting the RQ for K181 at this time because we have not yet developed a ''waste constituent RQ'' for

the following constituents of concern in this waste: p-cresidine; 2,4-dimethylaniline; 1,2-phenylenediamine; and 1,3-phenylenediamine.

D. How Does a Mass Loading Limit Hazardous Waste Listing Approach Relate to My Reporting Obligations Under CERCLA? When Would I Need To Report a Release of These Wastes Under CERCLA?

Today's proposed hazardous waste listings are based on the mass loadings of the hazardous constituents in the wastes. An RQ of one-pound is assigned for the waste based on the lowest RQ of the hazardous constituents in the waste. Notification is required under CERCLA when a waste meeting the listing description and threshold for that hazardous waste is released into the environment in a quantity that equals or exceeds the RQ for the waste.

For CERCLA reporting purposes, the Clean Water Act mixture rule (40 CFR 302.6) may be adapted to apply to releases of this waste when the quantity (or mass limit) of all of the K181 hazardous constituents in the waste are known and the waste meets the K181 listing description (*i.e.,* any of the K181 mass loading levels are met or exceeded). In such a case, notification is required where an amount of waste is released that contains an RQ or more of any hazardous substance contained in the waste. When the quantity (or mass limit) of one or more of the K181 hazardous constituents is not known, notification is required when the quantity of K181 waste released equals or exceeds the RQ for the waste stream.

E. How Would I Report a Release?

To report a release of proposed K181 (or any other CERCLA hazardous substance) that equals or exceeds its RQ, you must immediately notify the National Response Center (NRC) as soon as you have knowledge of that release. The toll-free telephone number of the NRC is 1–800–424–8802; in the Washington, DC, metropolitan area, the number is (202) 267–2675.

You may also need to notify State and local authorities. The Emergency Planning and Community Right-to-Know Act (EPCRA) requires that owners and operators of certain facilities report releases of CERCLA hazardous substances and EPCRA extremely hazardous substances (see list in 40 CFR Part 355, Appendix A) to State and local authorities. After the release of an RQ or more of any of those substances, you must report immediately to the community emergency coordinator of the local emergency planning committee for any area likely to be affected by the release, and to the State emergency response commission of any State likely to be affected by the release.

F. What Is the Statutory Authority for This Program?

Section 101(14) of CERCLA defines the term hazardous substance by referring to substances listed under several other environmental statutes, as well as those substances that EPA designates as hazardous under CERCLA section 102(a). In particular, CERCLA section 101(14)(C) defines the term hazardous substance to include ''any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act.'' CERCLA section 102(a) gives EPA authority to establish RQs for CERCLA hazardous substances. CERCLA section 103(a) requires any person in charge of a vessel or facility that releases a CERCLA hazardous substance in an amount equal to or greater than its RQ to report the release immediately to the federal government. EPCRA section 304 requires owners or operators of certain facilities to report releases of CERCLA hazardous substances and EPCRA extremely hazardous substances to State and local authorities.

G. How Can I Influence EPA's Thinking on Regulating K181 Under CERCLA?

In developing this proposal, EPA tried to address the concerns of all our stakeholders. Your comments will help us to improve this proposal. We invite you to provide your views on this proposal and how it may affect you. We also are interested in receiving any comments that you have on the information provided in Table VIII–1, including the hazardous constituents identified for proposed K181.

IX. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735 (October 4, 1993)) the Agency must determine whether a regulatory action is ''significant'' and therefore subject to OMB review and the requirements of the Executive Order. The Order defines ''significant regulatory action'' as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that this rule is a ''significant regulatory action'' under point number four above. This rule, as proposed may raise novel legal or policy issues due to the unique mass loading-based approach used in development of the risk assessment. As such, this action was submitted to OMB for review. Any substantive changes to this Preamble, the regulatory language, or supporting documentation made in response to OMB review are documented in the public record.

Under the terms of Executive Order 12866, we have determined that the annual economic effects of this proposed rule are less than $100 million. Furthermore, this proposed rule is not expected to adversely affect, in a material way, the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities. The annualized benefits associated with today's rule have not been monetized but are believe to be less than $100 million.

The information presented in this Section is derived from the following document: ''Economic Assessment for the Proposed Loadings-Based Listing of Non-Wastewaters from the Production of Selected Organic Dyes, Pigments, and Food, Drug, and Cosmetic Colorants Economic Assessment,'' November 2003. This document is available in the docket established for today's action. EPA seeks public comment on all aspects of this document, including both the magnitude and timing of the costs and benefits.

1. Background

This proposal presents a mass loadings-based listing approach. Historically, the Agency's listing program has captured entire categories of wastes posing unacceptable risks to human health and the environment. Today's approach proposes listing only those wastes from any single facility that contain specific constituents in quantities above acceptable risk levels. This is a new and unique hazardous

waste listings approach for the Office of Solid Waste.

We have prepared two economic support documents for this proposed action. These are: ''Economic Assessment for the Proposed Loadings-Based Listing of Non-Wastewaters from the Production of Selected Organic Dyes, Pigments, and Food, Drug, and Cosmetic Colorants,'' and, ''Regulatory Flexibility Screening Analysis for the Proposed Loadings-Based Listing of Non-Wastewaters from the Production of Selected Organic Dyes, Pigments, and Food, Drug, and Cosmetic Colorants.'' The Economic Assessment focuses primarily on compliance costs to the regulated community, industry economic impacts, and a qualitative benefits discussion. Also covered are findings related to children's health, unfunded mandates, regulatory takings, federalism, tribalism, energy effects, and environmental justice. The Regulatory Flexibility Screening Analysis (RFSA) examines impacts to small entities that may result from this action, as proposed. A summary of findings from this Economic Assessment and the RFSA is presented below. The complete Economic Assessment and RFSA documents are available for public review and comment. These documents are located in the RCRA docket established for this action.

2. Need for the Proposed Rule

The Agency has determined that selected constituents found in certain wastes generated by organic dye, pigment, and food, drug, and cosmetic (FD&C) colorant manufacturers may pose unacceptable risks to human health and the environment when improperly disposed in quantities above specified mass loading levels. We believe that the market and other private sector institutions have failed to adequately address pollution issues associated with these wastes.

In most cases of environmentally related market failure, private industry costs of production do not fully reflect the pollution costs to human health and the environment. This may occur when individuals not responsible for the pollution bear the costs in human health and ecological damages. Environmental economists refer to this situation as a negative environmental externality. If negatively impacted individuals are economically, politically, and/or culturally weaker than the polluter, insufficient incentives are likely to exist for polluters to incur the additional costs necessary for implementation of appropriate pollution control measures. Furthermore, weaker parties harmed by the pollution are not likely to obtain compensation from the polluter due to the high transaction costs, property rights limitations, and the difficulty these citizens may have in establishing a causal relationship between the damage incurred and activity at the polluting facility.

In addition to market failures, we believe that existing State programs designed to protect human health and the environment from unacceptable risks associated with these wastes have resulted in inconsistent protections. Individual State programs often result in a patchwork of inconsistent programs that fail to ensure uniform nationwide protection. Furthermore, variability among State programs covering the management of many wastes tends to reward manufacturers in some states while penalizing manufacturers in other states.

Finally, today's rule implements mandates specifically and explicitly set forth by the U.S. Congress without the exercise of any policy discretion by EPA. This action is proposed under the authority of sections 3001 (b)(1), and 3001(e)(2) of the Hazardous and Solid Waste Amendments (HSWA) of 1984. These sections direct EPA to make a hazardous waste listing determination for wastes from the production of ''dyes and pigments.''

We believe this proposed rule is necessary, as required under RCRA, in order to sufficiently minimize risk to human health and the environment. We further believe that federal government intervention is necessary as the most efficient means to correct for market failures resulting from pollution caused by these wastes. The proposed rule will effectively internalize much of the costs associated with the existing negative externalities. Furthermore, while the Agency is sensitive to Federalism issues, we believe this proposal will help ensure consistent nationwide protection of human health and the environment from potentially inadequate disposal of these wastes, while, at the same time, establishing a more level economic playing field for all affected manufacturers.

3. Consideration of Non-Regulatory Alternatives

Executive Order 12866 recognizes and emphasizes the need for comprehensive, high quality analytical support for all economically significant regulatory actions (as defined under Section 3(f)(1) of EO 12866). While not economically significant, we have completed an Economic Assessment for this proposed action, as discussed above. We have also considered non-regulatory alternatives to this proposed rule. Section 1(b)(3) of the Executive Order instructs Executive Branch Agencies to consider and assess available alternatives to direct regulation prior to making a determination for regulation. This regulatory determination assessment should be considered, ''to the extent permitted by law, and where applicable.'' The ultimate purpose of the regulatory determination assessment is to ensure that the most efficient tool, regulation, or other type of action is applied in meeting the targeted statutory objective(s).

We are currently subject to both a statutory mandate and a Consent Decree requiring a listing determination for specific dye, pigment, and FD&C production wastes. Because of this legal action, we are not at liberty to address this pollution problem through non-regulatory approaches (unless of course, we determine that these dyes and/or pigments wastes do not warrant listing as hazardous wastes). However, in the spirit of the Executive Order, we have contemplated reasonably feasible non-regulatory alternatives.

Reasonably feasible alternatives to regulation may include diverse tools such as market-based incentives, education program(s), voluntary waste minimization/pollution prevention programs, and targeted negotiated agreements. A non-regulatory approach, such as educational outreach programs would be largely ineffective because the people who are made aware of the potential health risks (*e.g.*, those people living near landfills where these wastes are disposed) have limited ability to reduce exposure without incurring significant costs. While we believe that our mass loadings-based approach may stimulate affected manufacturers to improve waste minimization activities, we recognize that various waste minimization and pollution prevention procedures are currently in place. These procedures, however, may be further stimulated in response to our mass loadings-based approach, thereby helping to reduce the toxic loadings from the wastes of concern. Other programs such as market-based incentives or negotiated agreements would be overly difficult, costly, and cumbersome to implement and monitor due to the quantities of waste involved and generation patterns of these wastes. However, we are open to stakeholder comments on non-regulatory alternatives that, when applied in conjunction with a regulatory option, may help ensure cost-efficient protection of human health and the environment.

4. Evaluation of Regulatory Options

We considered the proposed regulatory approach and two primary regulatory options for management of the waste streams examined in this assessment. These were: the proposed mass loadings-based approach (combined with a contingent management approach), a no list status quo option, and the standard listing or traditional approach. The no-list option would result in manufacturers not incurring any incremental management and/or administrative costs under RCRA. This option, however, may result in affected facilities facing future human health and environmental liabilities for groundwater or other damages. In addition, those exposed to the targeted contaminants above the loading levels of concern may continue to suffer adverse health and welfare impacts. The traditional listing option would require that all manufacturers generating any waste meeting a categorical listing description comply with RCRA Subtitle C requirements. Under this option, the entire quantity of the waste of concern would be defined as hazardous, regardless of any mass loadings-based determination. Most of the affected manufacturers would incur waste management and administrative procedure costs incremental to current baseline practices. Our mass loadings-based (with contingent management) approach, as proposed, requires affected manufacturers to determine whether or not their wastes contain the regulated constituents, and, if such constituents are generated in quantities of concern. Wastes with constituent levels exceeding the primary set of thresholds proposed for these wastes may be exempted from the listing if they show that their wastes do not contain constituent loadings above the § 261.32(c)(2) listing levels and their wastes will be disposed of in a landfill subject to the design requirements in 40 CFR 258.40 or in a Subtitle C landfill cell subject to either § 264.301 or § 265.301. Only the incremental quantity above the annual mass loadings limit is affected. The affected manufacturer is not expected to incur any incremental costs if the waste does not contain constituents of concern or meet the applicable mass loading threshold. Furthermore, even if the wastes exceed the threshold mass loadings, the contingent management aspect of the proposed listing allows wastes to be handled as nonhazardous, provided the waste is disposed in a landfill that meets or exceeds the § 258.40 design standards or in a Subtitle C landfill cell subject to either § 264.301 or § 265.301, and if the conditional mass loading limit is not met for toluene-2,4-diamine.

Five out of the eight constituents of concern do not have UTS levels or LDR standards. The establishment of UTS levels and LDR standards for these constituents may result in sampling/analysis and treatment costs to industries beyond the manufacturers generating K181. We have examined these potential cost impacts under two scenarios: no listing—status quo, and UTS/LDR standards for these constituents.

Finally, today's action, as proposed, may also impact Subtitle D landfills who have previously received the newly listed dye, pigment, perylene and FD&C wastes. Leachate collected from landfills that previously received these wastes may be considered hazardous if such waste is determined to have met the hazardous waste definition at the time of disposal, and the leachate generated from these landfills contains the K181 constituents. We considered two regulatory options for these landfills: the no-list option, and, a Clean Water Act temporary deferral option (Agency preferred).

5. Assessment of Costs, Economic Impacts, and Benefits

Today's proposed action is projected to result in incremental compliance costs to selected organic dye, pigment, and FD&C manufacturers subject to the requirements of this rule. In most cases, these manufacturers may face no more than increased analytical and waste disposal costs. Non dyes and/or pigments manufacturers may be impacted by today's action if they generate wastes containing constituents that receive new LDR standards and are newly added to Appendix VIII. There may also be cost impacts to Subtitle D landfill operators if they would need to install tanks and/or piping systems in order to take advantage of the proposed temporary deferral under the Clean Water Act.

a. Introduction and Scope of This Section

The value of any regulatory action is traditionally measured by the net change in social welfare that it generates. The Economic Assessment conducted in support of today's proposed rule examines both costs and qualitative benefits in an effort to assess the overall net change in social welfare. The primary focus of the Economic Assessment document is on compliance costs and economic impacts. In this section, we summarize our analytical methodology and findings for the dyes and pigments production industries. We also briefly review our findings relative to impacts on other industries and potential impacts on landfill operators. General benefits anticipated from the rule, as proposed, are examined in a qualitative format. The information presented here is derived from the Economic Assessment. This document is available in the docket established for today's action. Interested readers are encouraged to read and comment on the data, methodology, findings, and limitations presented in this document.

b. Industry Profile

This proposed listing action affects the Synthetic Organic Dye and Pigment Manufacturing industries. These industries are identified under the Standard Identification Classification (SIC) as 2865, and under the North American Industrial Classification System (NAICS) as 325132. Our review of publically available data, combined with comments from the dyes and/or pigments industry associations has identified a total of 37 facilities that may be subject to the proposed listing. Of this total, twenty are pigment producers, eighteen are dye producers, and six produce FD&C products. Six of the facilities produce both dyes and pigments and one facility produces all three. The 37 facilities are operated by 29 different companies, fifteen of which are defined as ''small businesses'' under the Small Business Administration size standards.

The World market value for all organic dyes and pigments is estimated at $14 billion for 2003, with the U.S. market representing about 20 to 24 percent of this total. The U.S. market for all organic dyes and/or pigments products generating wastes of concern represents approximately 60 to 65 percent of the total market. The U.S. market for organic dyes and pigments is forecast to grow by about 3 percent per year through 2005.

Increased imports, pricing pressures, and rising costs are forcing some U.S. based organic dyes and/or pigments manufacturers to discontinue or modify production. Other manufacturers appear to be switching from onsite manufacturers to importers and/or formulators. Mergers and consolidations have been the general trend over the past ten years for many U.S. based manufacturers. However, recent years have also seen an increase in the number of small, low-cost entrepreneurial manufacturers, finishers and formulators who have been able to carve out market shares which were once held by the major companies. U.S. owned dye companies supply

approximately 25 percent of the total U.S. dye market, while European-owned manufacturers hold the remaining 75 percent. Pigment production ownership is similarly structured.

c. Analytical Methodology

Our first step in the development of the cost and economic impacts analysis was the preparation of an industry profile (briefly discussed above). This profile established the potentially regulated universe, market structure, gross revenues, and estimated value of affected production. We then established baseline conditions for the producers of concern. This included an assessment of waste quantities generated, management practices, and unit costs. Compliance management practices and unit costs were developed next. Compliance costs include implementation costs (waste sampling, and analysis, plus recordkeeping and reporting, if any), transport costs, and compliant treatment and/or disposal costs, as appropriate. Baseline costs less total costs of rule compliance were calculated to determine incremental costs of compliance and economic impacts. All data were derived from publically available government and industry sources. No confidential business information (CBI) was used in the preparation of this analysis.

d. Affected Waste Quantities

This rule proposes a mass loadings-based listing for selected organic dye, pigment, and FD&C production nonwastewaters, to be identified as K181, if they meet or exceed either of two mass-based constituent thresholds. Non-wastewater quantities were estimated for the 37 facilities potentially subject to the rule requirements. Wastewater quantities were first estimated in order to derive wastewater treatment sludge quantities. Annual wastewater generation was estimated for the 37 facilities based on several sources. Facility specific information was available for eight direct dischargers and five indirect dischargers. Wastewater flow rates were estimated for the remaining 24 indirect dischargers based on estimated dyes and/or pigments production and wastewater flow data derived from a 1987 U.S. EPA Office of Water guidance document.[62]

[62] U.S. EPA. October 1987. ''Development Document for Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Organic Chemicals and the Plastics and Synthetic Fibers Point Source Category Volume I.'' Industrial Technology Division, Office of Water Regulations and Standards.

We developed a log normal distribution of wastewater quantities from the statistics available in the above referenced document. A log-normal distribution is widely used under the following conditions: values are positively skewed with most of the values near the lower limit, the variable can increase without limits, but cannot fall below zero; and where the coefficient of variability (the ratio of the standard deviation to the mean) is greater than 30 percent. The wastewater flow statistics met these criteria. The coefficient of variability for the wastewater flow data was 453 percent.We used a commercially available software program to develop a distribution curve for the wastewater data. This program used a Monte Carlo technique to create a distribution of outcomes over thousands of iterations (50,000 in this case). From the distribution created by this program, the wastewater quantities were determined for every fifth percentile. Based on the production revenue data obtained for each facility, a corresponding production revenue percentile was assigned to each of the indirect dischargers. It was assumed that the production revenue directly correlated with the quantity of wastewater generated. For example, if a facility's product production revenue was at the 90th percentile level, it will generate wastewater at the 90th percentile level as well.

Annual wastewater treatment sludge generation rates were estimated for the 37 facilities based on two sources. Facility specific information was available for one facility who reported using a reverse osmosis wastewater treatment system. The wastewater treatment sludge generation rate for one other facility who reported using reverse osmosis, was estimated based on the calculated generation ratio. Wastewater treatment sludge generation rates for the remaining 35 facilities were based on total suspended solids (TSS) data from the 1987 Effluent Guidelines report. The total quantity of potentially impacted solid waste generated annually from the 37 facilities is estimated to range from 44,000 to 69,000 metric tons.

Other non-liquid wastes, in addition to wastewater treatment sludges, are expected to be impacted by this rule. These include: spent catalysts, spent adsorbent, equipment cleaning sludge, product standardization filter cake, and dust collector filter fines. The quantity of solids generated by these waste streams are assumed to be very minor. Furthermore, some of these wastes may be included in the wastewater treatment sludge estimates. No publicly available information regarding the actual generation rates of these wastes within the dyes and/or pigments industry was found.

e. Baseline Waste Management Procedures and Unit Costs

Baseline waste management methods were derived through a review of industry and trade group comments, the 1999 TRI Report, and general public sources (including internet sources).

Baseline management practices for the wastes of concern include sludge dewatering for handling and disposal purposes (based on economic feasibility), then disposal in an unregulated clay-lined or unlined landfill, Subtitle D landfill, or a Subtitle C landfill (bulk or super sack). Three facilities with available site-specific information pertaining to sludge management methods have been identified. Two of these facilities report offsite Subtitle D landfill, while one reported onsite Subtitle C incineration followed by onsite Subtitle C landfill. The remaining facilities are assumed to manage sludge offsite in unregulated clay-lined landfills. This assumption will result in an overestimation of compliance costs if facilities are currently disposing of their wastes in composite lined landfills meeting Part 258 requirements.

Costs for landfill disposal were developed from the Remedial Action Cost Engineering and Requirements (RACER) cost estimating software, and the March 2000 Remediation Market Report Published by Chartwell. Costs in RACER are based on the 2002 Environmental Cost Handling Options and Solutions (ECHOS) cost database. The RACER disposal cost for hazardous and nonhazardous wastes is presented as a 30 city average of major cities across the United States. Chartwell reports the average costs of Subtitle D commercial landfill by state. For the purposes of this analysis, the state averages were averaged for a national average cost of disposal. All costs were inflated to 2003 dollars for this estimate using the Consumer Price Index. Disposal of solid waste in unregulated unlined landfills was estimated using the Subtitle D landfill disposal unit cost. Fifty percent of the Subtitle D landfill cost was used as a proxy for unregulated clay-lined landfill disposal costs. Unit costs are as follows: Subtitle D Landfill—$42.60/ton, Unregulated clay-lined landfill—$21.30/ton.

Costs for commercial incineration were developed from RACER and the Hazardous Waste Resource Center's ''January 2002 Incinerator and Landfill

Cost Data'' survey[63] (HWRC). The HWRC data present the results of a survey of the Environmental Technology Council (ETC). All costs were inflated to 2003 dollars for this estimate using the Consumer Price Index. Incineration costs for shipment quantities less than ten tons were estimated using jumbo sack disposal costs and 55-gallon drum disposal costs for dry sludges/solids and pumpable sludges, respectively. Costs for small quantities of non-pumpable sludge was estimated using a 30 percent markup over the bulk incineration unit cost to account for additional handling costs. The markup for small quantities was approximated using the unit cost increase between jumbo sack and bulk Subtitle C landfill (approximately 37 percent).

Onsite incineration (rotary kiln) costs were estimated from several workbook methodologies.[64] [65] Costs were inflated to 2003 dollars using the Chemical Engineering Plant Cost Index for capital costs and the Consumer Price Index for O&M costs.

Incineration cost estimates are as follows: Onsite Rotary Kiln Incineration of non-pumpable sludge: 147.2 * (tons) + $927,503, Offsite Bulk Incineration of non-pumpable Sludges: $560.14\ton, Offsite Bulk Incineration of pumpable Sludge: $1,033.2/ton, Offsite Small Quantity Incineration of non-pumpable Sludges: $728.2/ton, and Offsite Bulk Incineration of pumpable sludge (drummed): $1,947.5/ton.

f. Compliance Waste Management Procedures and Unit Costs

Compliance with the proposed rule may include one or more of the following incremental cost elements: alternative waste management procedures, additional waste sampling and analysis requirements, alternative waste transport procedures and patterns, manifest requirements, RCRA Part B permit requirements, administrative requirements, and corrective action requirements. Compliance with the waste management procedures for affected sludge quantities may be disposal in a composite lined Part 258 or equivalent Subtitle D landfill, or hazardous waste incineration, depending upon option analyzed. Unit costs for these procedures are identified above.

The annual cost for sampling and analysis of non-aqueous waste streams is estimated to range from $10,509 to $10,858.[66] This estimate includes costs for sample collection, development of procedure, feasibility studies, five annual samples of each analysis for mass loading determination, and 15 samples for characterization of the wastes. Feasibility studies, procedure development, and characterization are annualized over five years at a 7 percent rate for borrowing capital (0.24389). A feasibility study is assumed for all CoCs without a prescribed method in the EPA document SW–846 at an estimated cost of $1,559. Four of the eight CoCs do not have standard methods listed in SW–846. Procedure development is required for these CoCs. Procedure development consists of performing the analysis multiple times (to develop calibration curves, identify spike and dilution rates, *etc.*). Three laboratories are assumed to develop methods and procedures for analysis of constituents without methods and procedures already established. Costs incurred by the laboratories are divided across all 37 generating facilities.

Hazardous waste shipments are tracked through the use of a hazardous waste manifest which accompanies each waste shipment. Manifesting costs were obtained from the ''Hazardous Waste Manifest Cost Benefit Analysis,'' prepared by the Logistics Management Institute in October 2000. Costs were inflated to 2003 dollars using the Consumer Price Index. An average cost of $122 (2003 dollars) per manifest was assumed to be incurred by any generator shipping hazardous waste. The transporter and generator costs were combined to estimate a total manifesting cost per shipment of $239. Costs for shipping papers for nonhazardous wastes are also estimated. These include, costs to prepare, carry, and retain shipping papers. These costs were derived from the ''Hazardous Waste Manifest Cost Benefit Analysis.'' Total costs are estimated at $90.40 per shipment for the transporter and generator, combined. This covers costs to prepare, carry and retain all nonhazardous shipping papers. Cost for disposal of wastes in unregulated or Subtitle D landfills include costs for shipping papers. All other methods of offsite disposal include costs for hazardous waste manifest.

Hazardous waste transportation costs (excluding manifesting costs) were estimated based on van trailer (small quantity) and roll-off bin (bulk) trucking unit costs reported in RACER. Costs are based on distance and maximum truck load size of 18 tons.[67] A minimum of four loads per year is assumed based on the maximum accumulation period of 90 days. Otherwise, the number of loads per year is calculated by dividing the total annual generation quantity by the assumed maximum truck load size of 18 tons. For small businesses, a truck load size of 5 tons was assumed. The ECHOS minimum shipment fee of $730 was used to determine transportation unit costs below 200 miles for hazardous waste. The distances presented in the EPA report: ''Evaluation of Cost and Economic Impacts of F006 Recycling Rulemaking Options'' from December 2001 for landfill disposal of electroplating wastes (based on a sample of 75 facilities) were utilized as a proxy for the transportation distances for sludge disposal. Nonhazardous waste transportation costs (excluding manifesting costs) also were estimated based on bulk hazardous waste transportation costs reported in RACER. Costs are based on distance and a maximum load size of 18 tons. Due to the relatively close transportation distances estimated for Subtitle D landfills, a unit cost of $2.21 per mile ($0.12 per ton-mile) was used. The transportation cost is estimated to be less than the hazardous transportation unit cost due to the regularly scheduled, full 18-ton, bulk nonhazardous waste shipments. For nonhazardous waste and post rule product recovery, no minimum number of loads is assumed. The number of shipments per year is calculated by dividing the total annual generation quantity by the assumed maximum truck load size of 18 tons.

The weighted average hazardous waste transportation unit cost to a Subtitle C landfill was estimated at $3.81/mile with a weighted average distance of 338 miles. The average hazardous waste transportation unit cost to an incineration facility was estimated at $3.26/mile, with an average distance of 577 miles. The assumed average nonhazardous waste transportation unit cost to a Subtitle D landfill was $2.21/mile and an average distance of 50 miles.

Cost for administrative duties were derived using hour estimates for each administrative task based on ''best

[63] Hazardous Waste Resource Center *http://www.etc.org/costsurvey6.cfm.*

[64] Vogel, Gregory A., MITRE Corporation, ''The Estimation of Hazardous Waste Incineration Costs,'' sponsored by U.S. EPA, January, 1983.

[65] K. Lim, R. DeRosier, R. Larkin, and R. McCormick, Acurex Corporation, Energy & Environmental Division, ''Retrofit Cost Relationships for Hazardous Waste Incineration,'' prepared for the U.S. EPA, Office of Research and Development, Industrial Environmental Research Laboratory, Incineration Research Branch, January, 1984.

[66] *See* ''Economic Assessment for the Proposed Loadings-Based Listing of Non-Wastewaters from the Production of Selected Organic Dyes, Pigments, and Food, Drug, and Cosmetic Colorants.''

[67] RACER indicates a maximum truck load size of 18 tons.

engineering judgement'' and are described further in the economic analysis background document.

Costs for the RCRA Part B Permit were estimated using ''Estimated Costs for the Economic Benefits of RCRA Noncompliance'' dated September 1997. General facility requirements and incinerator requirements were included for the construction and operation of an onsite sludge rotary kiln. Under the traditional listing option, we estimate that between four and eight of the 37 facilities would seek a RCRA permit to operate an onsite incinerator, because it is more economical than managing the waste in an offsite commercial incinerator. A cost of $51,924 for the general facility requirements and $26,495 for the incinerator requirements was determined. Permit costs were annualized over 10 years at a 7 percent rate for borrowing capital (0.14238).

Incremental corrective action costs associated with unpermitted facilities include the cost to conduct a RCRA Facility Investigation (RFI), a Corrective Measures Study (CMS), and remediate solid waste management units (SWMUs) and areas of concern (AOCs). Depending upon the option analyzed, some of the unpermitted facilities may be brought into the RCRA program if they seek a RCRA Part B permit for incinerators. RCRA corrective action is typically triggered by facilities seeking a RCRA permit. As noted above, under the traditional listing option, we estimate that between four and eight of the 37 facilities will seek a RCRA permit to operate an onsite incinerator because it is more economical than managing it in an offsite commercial incinerator. These facilities may incur corrective action costs. Potential corrective action costs were not estimated for this analysis.

g. Costs and Economic Impacts on the Affected Industries

Our analysis for this proposed rulemaking evaluated the Agency's preferred approach for management of the wastes of concern, and two primary regulatory options. The Agency's preferred approach is a mass loadings-based (with contingent management) rulemaking. The two options are a no-list—no action determination, and the standard or traditional listing approach. Beyond the time and effort required to read and understand the final rule, the no-list option would result in affected manufacturers incurring no incremental waste management and/or administrative costs. The Agency preferred mass loadings-based approach, and the traditional listing option are discussed below.

Incremental compliance costs for the proposed mass loadings-based approach with contingent management were found to range from $0.6 to $4.3 million per year, depending upon total waste quantity managed, nonconditional mass loading levels, and the number of affected facilities. These findings generally assume baseline waste management in an unregulated clay-lined landfill and compliance management in a Subtitle D landfill meeting § 258.40 standards.[68] Actual baseline nonwastewater management may be in lined municipal landfills meeting § 258 .40 standards for most or all potentially impacted facilities. If this is the case, incremental costs and any associated benefits under the Agency preferred approach would be less than estimated. See Section 4.4.1 and Table 4–7 in the Economic Assessment background document for a complete discussion. The high-end estimate assumes, in part, Subtitle C incineration for all nonwastewaters generated at facilities identified as using toluene-2,4-diamine. Under this scenario, the conditional mass loading level for toluene-2,4-diamine is assumed to be exceeded at these facilities. Additional sampling and analysis, transport, and administrative costs are included, where appropriate. Corporate level economic impacts under this approach were found to be less than 3 percent of total gross annual revenues for but one of the affected companies.

Incremental compliance costs for the standard, or traditional listing option are estimated to range from $9.4 to $15.9 million per year, depending upon the total quantity of waste impacted.[69] This estimate also includes additional sampling and analysis, transport, administrative, RCRA Part B, and corrective action costs, where appropriate. Corporate level economic impacts under this option were found to be less than 3 percent of total gross annual revenues for 93 percent of all affected companies.

h. Impacts on Other Industries

This regulation may result in impacts to other industries. Specifically, two categories may be impacted: Municipal and industrial solid waste landfill operators who previously accepted the wastes of concern, and, non dyes and/or pigments generators of hazardous waste containing one or more of the five Constituents of Concern that are not currently on Appendix VIII or have LDR requirements.

Landfills: A common disposal practice for currently nonhazardous dye, pigment, and FD&C waste is offsite disposal in municipal solid waste landfills. The leachate derived from this waste has traditionally been collected and recirculated, treated, and/or disposed. Because of the proposed listing, collected leachate from landfills (*i.e.,* cells) that have accepted these wastes may be hazardous under the Derived-from Rule (*see* Section IV.E). Also, when the leachate from these two wastes mixes with leachate from other wastes, the entire leachate quantity from the affected landfill (or cell) may be considered hazardous under the Mixture Rule. By changing the regulatory status of the proposed wastes, the collected leachate from the disposal of these wastes may be covered under Subtitle C of RCRA. Municipal Solid Waste (MSW) and other landfills that have previously accepted and generated leachate from these wastes (received in quantities above mass loadings levels of concern) may face increased leachate management costs. This would be an indirect impact of the rule, as proposed.

The EPA report, ''Characterization of Municipal Solid Waste in the United States: 1997 Update,'' EPA 530–R–98–007, May 1998, estimates there were approximately 2,400 MSW landfills in the contiguous U.S. for 1996. Based on the total number of potentially affected dye, pigment, and FD&C facilities, and their locations, it is likely that no more than fifty MSW landfills received wastes of concern (in any quantity). Leachate quantities generated by each of these landfills are dependent upon the geographic location, area, leachate collection system design, and operation of the landfill.

We are proposing a Clean Water Act temporary deferral for potentially affected landfills under today's action. This temporary deferral would exempt the landfill leachate from RCRA Subtitle C regulation if it is managed pursuant to certain conditions. After two years, impacted facilities would no longer be allowed to manage the exempt leachate in surface impoundments as nonhazardous. Under this approach, selected landfills may choose to modify their facilities, or implement expanded personnel training programs and/or alternative operation and maintenance procedures. Costs associated with these activities have not been quantified but are likely to be negligible.

[68] Baseline nonwastewater management in an unregulated clay lined landfill was assumed where facility-specific informaiton was restricted or not available.

[69] **Note:** An extreme high-end scenario was examined where all facilities were required to burn all waste under full Subtitle C requirments. Total annualized costs under this scenario were estimated at $26 million. This scenario was examined for high-end bounding purposes only and is not considered to be a feasible regulatory option.

Non Dyes and/or Pigments Waste Generators: Five of the eight constituents of concern [70] are not currently on Appendix VIII. These are: o-anisidine, p-cresidine, 2,4-dimethylaniline, 1,2-phenylenediamine, and 1,3-phenylenediamine. The proposed listing would also add five chemicals with the standards in Table VI–1 to the UTS, namely: o-anisidine, p-cresidine, 2,4-dimethylaniline, 1,3-phenylenediamine, and toluene-2,4-diamine. The proposed rule will result in the addition of these constituents to Appendix VIII and establishment of the additional UTS standards. This would be a direct impact of the rule potentially affecting an expanded universe of facilities.

We examined the TRI database, Material Safety Data Sheets (MSDS), Chemchannels.com [71] and Biennial Report System (BRS) data in an effort to identify other facilities that may be generating hazardous wastes containing any of the constituents of concern.

Based on available data, we identified 13 non dye and/or pigment facilities that may be impacted by the expanded scope of this proposed rule. The constituents of concern appear to be contained in other hazardous organic nonwastewaters and currently managed by either energy recovery or incineration. This is the common management procedure for these wastes. This procedure is assumed to continue after the rule is promulgated given that it will comply with the LDR requirements. Incremental costs to impacted expanded scope facilities are expected to be limited to additional sampling and analysis requirements necessary to fully characterize the wastes. We estimate that the additional sampling and analysis costs would average $2,183.50 per facility, per year. The total cost for all 13 facilities is estimated to be no more than $28,400 per year.

Remediation of Hazardous Waste Sites: Adding constituents to Appendix VIII, by itself, is not expected to have a significant impact on remediation of hazardous waste sites. The RCRA regulations in 40 CFR Part 264 establish management standards for hazardous waste treatment, storage and disposal facilities. Subpart F of 264 sets standards for addressing releases from solid waste management units. Appendix VIII is identified in section 264.93 of Subpart F as the list from which facility-specific groundwater protection standards are developed as part of a compliance monitoring program under 264.99. These groundwater protection standards are comprised of the Appendix VIII constituents that are ''reasonably expected to be in or derived from waste contained in a regulated unit.'' The addition of these substances to Appendix VIII, therefore, would only potentially affect those facilities in compliance monitoring that (1) would reasonably be expected to use or make these chemicals, or (2) manage these wastes. Throughout the remainder of this Subpart, the Agency directs permit writers to Appendix IX, a list specifically designed to be used in monitoring groundwater. We are not proposing to add any constituents to Appendix IX.

We have addressed the potential impact on the first category of facilities (*i.e.,* those that would reasonably be expected to use or make these chemicals, beyond the Dye and Pigment industries we evaluated) explicitly in our expanded scope analysis. For the second category of facilities, those that manage hazardous wastes that might contain the constituents being added to Appendix VIII, we believe these costs to be negligible. Our analysis indicates that these compounds are not widely used in commerce, and thus be unlikely to trigger the 264.93 standard of ''reasonably expected to be in or derived from waste contained in a regulated unit'' standard. Adding chemicals to Appendix VIII may also result in the remediation of these constituents at Superfund sites. However, for the same reasons noted above, we believe that the addition of these constituents to Appendix VIII will have a very limited impact (if any) on Superfund cleanups.

i. Lead as a Potential K181 Constituent

We have considered whether a K181 lead standard may significantly change our assessment of the costs and economic impacts estimated for the Agency Preferred Approach. Our preliminary assessment indicates that there would be no substantive impacts. Three facilities were found to generate wastes that may contain toluene-2,4-diamine. These three facilities were assumed to generate this constituent above nonconditional loading levels under our ''high'' analytical scenario for the Agency Preferred Approach. If we add lead as a K181 constituent, any of these facilities with lead in their wastes would need to stabilize post incineration residuals to comply with land disposal restrictions. Assuming all waste is incinerated, the maximum aggregate incremental costs associated with stabilization, if required, are likely to be insignificant for these facilities on an individual basis. Aggregate cost impacts for all three facilities would be no more than $340,000 per year.

We also considered the potential impact of a K181 standard for lead for Eastman and Engelhard (Harshaw Chemical). Both of these facilities have reported significant quantities of lead in the Toxic Release Inventory (TRI). We believe that Eastman currently combusts it's commingled (largely non-dyes) wastes, and then manages the resultant residues in an onsite landfill. Based on available data, this landfill does not appear to meet the description of the exempt landfill cells, as detailed in the listing description (*i.e.,* it is not a municipal solid waste landfill or a Subtitle C landfill). Eastman, therefore, may pursue one of a variety of actions. These include: Segregating the wastes in the least costly manner feasible, eliminating the waste altogether, or sending all affected ash to a § 258.40 compliant MSW landfill. Eastman also has a Subtitle C landfill onsite, which could be used for some or all of the incinerated waste of concern. We have not assessed cost impacts associated with these options. Based on 1999 Biennial Reporting data, Engelhard already manages the majority of their lead-bearing wastes as hazardous, while the remainder appears to go to a MSW landfill. We believe, therefore, that the Engelhard facility is not likely to incur any additional costs of concern. Section 5.3 of the Economic Assessment background document provides a more complete discussion of these findings.

j. Risk Assessment and Benefits

As described in detail in Section III, we set the levels for nonwastewaters by modeling disposal in MSW landfills using several liner assumptions. We set the baseline loading limits using the results from clay-lined landfills, and we used the composite-liner results to set the loading limit for one constituent in MSWLFs meeting the liner design criteria in § 258.48. The mass loading limits are based on risks from residential use of groundwater from wells positioned near the landfills.

Groundwater generally moves relatively slowly, such that the constituents of concern are not expected to reach the nearby wells for a number of years. For the eight chemicals for which we are proposing loading limitations, we examined the groundwater travel times to the receptor wells for the 90th percentile runs of the Monte Carlo simulations (these runs were the bases of the loading limits).

[70] The eight constituents of concern are: aniline, o-anisidine, p-cresidine, 4-chloroaniline, 2,4-dimethylaniline, 1,2-phenylenediamine, 1,3-phenylenediamine, and toulene-2,4-diamine.

[71] *http://www.chemchannels.com/chemchannel/default.asp.*

The average groundwater travel time was 189 years, and the range of travel times across the eight constituents was 74 to 424 years.

As noted in the next section, due to data limitations, we have not attempted to estimate the change in net welfare potentially resulting from this proposed rule, nor have we been able to quantify human health or environmental benefits. Thus, the benefits in terms of reduced human health risk are unquantified, but are expected to occur some time after the rule is effective (between 74 to 424 years after the effective date).

k. Social Costs and Benefits

The social costs of any regulatory action should describe the total value of resources used to comply with the rule, resulting in a comprehensive measurement of change in economic net welfare. These impacts are measured following market adjustments based on industry supply and demand functions. Due to our lack of data, limited analytical budget, and strict schedule, we have not attempted to estimate the change in net welfare potentially resulting from this proposed rule. Due to these same limitations, we have not been able to quantify or monetize human health or environmental benefits. Additional data are necessary to make a firm determination as to whether there will be quantifiable net benefits (*i.e.,* benefits exceeding social costs) from the proposed rule.

Below we qualitatively describe those groups who are likely to be positively and negatively impacted by this proposed rule.

Positively Impacted Groups

- Dye, pigment, and FD&C manufacturers who may be producing acceptable lower cost substitutes to the products generating the wastes of concern,
- Population groups surrounding dye, pigment, and FD&C production facilities, plus those near unlined landfills and other landfills that do not meet the design standards in § 258.40. These populations may benefit from lower health risks due to increased management control and/or improved waste treatment, thereby theoretically experiencing reduced health care costs and increased productivity.

Negatively Impacted Groups

- Dye, pigment, and FD&C manufacturers who are subject to requirements of the proposed rule.
- Non dyes and/or pigments manufacturers who may be impacted by expanded scope requirements,
- Consumers who may be impacted if there are increases in dye, pigment, and FD&C prices as a result of the rule,
- Municipal landfills that may need to install new tanks or piping systems, or implement other procedures in order to take advantage of the proposed temporary deferral under the Clean Water Act.

B. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the *Paperwork Reduction Act,* 44 U.S.C. 3501 *et seq.* The Information Collection Request (ICR) document prepared by EPA has been assigned EPA ICR number 2120.01.

EPA is proposing to list dyes and/or pigments nonwastewaters (*i.e.,* K181 waste) under the authority of sections 2002(a), 3001(b), 3001(e)(2), 3004(d)–(m), and 3007(a) of RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA). Section 3001(e)(2) directs EPA to make a determination of whether or not to list under section 3001(b)(1) dyes and pigments, among other wastes. Under this authority, EPA has examined dyes and/or pigments production wastes (*e.g.,* using risk assessment tools), identified CoCs and their potential risks, and established a mass ''loadings-based'' approach that would qualify the waste as hazardous under RCRA. Under sections 2002(a) and 3007(a) of RCRA, EPA is establishing information collection requirements that are needed to ensure that the listed wastes are managed and disposed of properly.

In addition, the proposed rule satisfies EPA's duty under a Consent Decree between EPA and the Environmental Defense (formerly Environmental Defense Fund (EDF)). Under this Consent Decree, the Agency is required to ''promulgate final listing determinations for azo/benzidine, anthraquinone, and triarylmethane dye and pigment production wastes on or before February 16, 2005 * * * These listing determinations shall be proposed for public comment on or before November 10, 2003.''

EPA is proposing that the mass loadings-based listing be self-implementing, which means that no prior governmental review or approval is needed for the waste to be claimed as nonhazardous. Because of this, EPA believes that the recordkeeping requirements in the proposal are needed to ensure that generators characterize their wastes accurately and reliably, and keep records of the claims on site.

EPA believes the proposed mass loadings-based approach allows generators to evaluate the variable wastes they generate individually for hazard, so only wastes that are hazardous are listed. As a result, there should be less burden on dyes and/or pigments manufacturers than would be imposed by a traditional listing that would bring entire wastes into the hazardous waste system, regardless of the characteristics of the wastes generated by individual generators. Finally, a mass loadings-based listing approach may provide an incentive for hazardous waste generating facilities to modify their manufacturing processes or treat their wastes.

EPA estimates that 37 respondents will be subject to the new paperwork requirements under the proposed rule. The hourly recordkeeping burden from the new requirements ranges between one and 11 hours per respondent per year. This burden includes time for reading the regulations (once per respondent over three years), determining whether dyes and/or pigments nonwastewaters exceed regulatory listing levels, and keeping documentation on site, as specified.

EPA estimates the total cost to respondents subject to the new paperwork requirements under the proposed rule to be $76,626 per year. This includes a total labor cost per year of $33,066, a total operations and maintenance cost per year of $43,560, and no capital costs. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing

respondent burden, including the use of automated collection techniques, EPA has established a public docket for this rule, which includes this ICR, under Docket ID number RCRA–2003–0001. Submit any comments related to the ICR for this proposed rule to EPA and OMB. See **ADDRESSES** section at the beginning of this notice for where to submit comments to EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Office for EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after November 25, 2003, a comment to OMB is best assured of having its full effect if OMB receives it by December 26, 2003. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 *et. seq,* generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's rule on small entities, a small entity is defined as: (1) A small business that is defined by the Small Business Administration by category of business using the North American Industrial Classification System (NAICS) and codified at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

We have identified a total of 37 organic dye, pigment, and FD&C facilities in operation in the U.S., which are owned by 29 different companies that are believed to be generating wastes of concern. Of these, 16 facilities are owned by 15 small companies. This determination is based on the Small Business Administration (SBA) definition of ''small business'' for these industries, defined as fewer than 750 employees at the corporate level.[72] A number of these companies are very small, with fewer than 50 total full-time employees. Of the 13 expanded scope companies, one was determined to be a small business.

The cost of compliance impacts for all small companies potentially affected by the rule were found to range from 0.00 percent to 0.52 percent of gross annual corporate revenues, depending upon the level of nonwastewater quantities generated. The percent of annual corporate sales impact for the one expanded scope small business is estimated at 0.08 percent.

After considering the economic impacts of today's proposed rule on small entities, I certify that this action will not result in significant economic impacts on a substantial number of small dyes and/or pigments production businesses subject to the rule requirements. The reader is encouraged to review and comment on the regulatory flexibility screening analysis prepared in support of this determination: ''Regulatory Flexibility Screening Analysis for the Proposed Loadings-Based Listing of Non-Wastewaters from the Production of Selected Organic Dyes, Pigments, and Food, Drug, and Cosmetic Colorants.'' This document is available in the public docket.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Pub. L. 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has determined that this proposed rule would not contain a Federal mandate that may result in expenditures of $100 million or more for state, local, and tribal governments, in the aggregate, or the private sector in any one year. The nationwide annual cost for this rule, as proposed, is estimated to be less than five million dollars. This proposed rule does not impose an enforceable duty on any State, local or tribal government; consequently it does not include any Federal mandate with the potential to result in expenditures of $100 million of more to State, local, or tribal governments. EPA also has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments. In addition, the private sector is not expected to incur costs exceeding $100 million. Thus, today's rule is not subject to the requirements of sections 202 and 205 of the Unfunded Mandates Reform Act. EPA has determined that this proposed rule contains no regulatory requirements that might significantly or uniquely affect small governments.

E. Executive Order 13132: Federalism

Executive Order 13132, entitled ''Federalism'' (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' is defined in the Executive Order to include regulations that have ''substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.''

[72] ''Table of Small Business Size Standards—Matched to North American Industrial Classification System (NAICS) Codes,'' revised May 5, 2003. Small Business Adminsitration (SBA).

Under Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the proposed regulation.

This proposed rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. The proposed rule focuses on requirements for facilities generating wastes of concern. Marginal administrative burden impacts may occur to selected States and/or EPA Regional Offices such as increased administrative needs, enforcement requirements, or voluntary information requests. However, this rule, as proposed, will not have substantial direct effects on the States or the relationships between governments in its implementation. Thus, Executive Order 13132 does not apply to this rule. Although section 6 of Executive Order 13132 does not apply to this rule, EPA did consult with State officials in the development of this rule. State officials were contacted concerning baseline waste management procedures for the wastes of concern.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposed rule from State and local officials.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175,[73] entitled ''Consultation and Coordination with Indian Tribal Governments'' (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure ''meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.'' This proposed rule does not have tribal implications, as specified in Executive Order 13175. The proposed rule focuses on requirements for all regulated sources without affecting the relationships between tribal governments in its implementation, and applies to all regulated sources, without distinction of the surrounding populations affected. Thus, Executive Order 13175 does not apply to this rule. EPA specifically solicits additional comment on this proposed rule from tribal officials.

G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks

The Executive Order 13045, entitled ''Protection of Children from Environmental Health Risks and Safety Risks'' (62 FR 19885, April 23, 1997) applies to any rule that: (1) is determined to be economically significant under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency. EPA interprets Executive Order 13045 as applying only to those regulatory actions that are based on health or safety risks, such that the analysis required under section 5–501 of the Order has the potential to influence the regulation. This proposal is not subject to Executive Order 13045 because it is determined to not be economically significant under Executive Order 12866, and does not concern an environmental health or safety risk that we have reason to believe may cause a disproportionate effect on children. Concerned stakeholders are encouraged to submit any relevant data and provide comments on this determination.

H. Executive Order 12898: Environmental Justice

Executive Order 12898, ''Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Population'' (February 11, 1994), is designed to address the environmental and human health conditions of minority and low-income populations. EPA is committed to addressing environmental justice concerns and has assumed a leadership role in environmental justice initiatives to enhance environmental quality for all citizens of the United States. The Agency's goals are to ensure that no segment of the population, regardless of race, color, national origin, income, or net worth bears disproportionately high and adverse human health and environmental impacts as a result of EPA's policies, programs, and activities. Our goal is to ensure that all citizens live in clean and sustainable communities. In response to Executive Order 12898, and to concerns voiced by many groups outside the Agency, EPA's Office of Solid Waste and Emergency Response (OSWER) formed an Environmental Justice Task Force to analyze the array of environmental justice issues specific to waste programs and to develop an overall strategy to identify and address these issues (OSWER Directive No. 9200.3–17).

We have assessed whether today's proposed rule may help mitigate, or result in disproportionate effects on minority or low-income populations. Due to budgeting and scheduling constraints, we have not compiled data correlating individual facility locations with minority/low income populations. However, our risk assessment did not identify risks from the management of dye, pigment, and FD&C production wastewaters in onsite tanks or surface impoundments at the generating facilities. In fact, based on this assessment, we are not proposing to list these wastewaters as hazardous waste. Therefore, we believe that any populations in proximity to these manufacturing facilities are not adversely affected by common waste management practices for these wastewaters. This proposed listing will reduce risks associated with managing the targeted nonwastewaters in nonhazardous Subtitle D landfills. This may reduce risks for any sensitive populations living in proximity to such facilities who rely on ground water for drinking water supplies.

This proposed rule is expected to provide incentives for reducing the use of hazardous constituents and may thereby reduce environmental risks associated with the facilities generating these wastes. Thus, the Agency believes that this rule may help mitigate health risks to minority and low income communities living near impacted facilities. Furthermore, we have no data indicating that today's proposal would result in disproportionately negative impacts on minority or low income communities.

I. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

This rule is not subject to Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (66 FR 28355 (May 22, 2001)) because it is not an economically significant regulatory action under Executive Order

[73] Executive Order 13084 is revoked by this Executive Order.

12866. Furthermore, it is not expected to have a significant adverse impact on the supply, distribution, or use of energy.

J. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law No. 104–113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.*, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards. This proposed rulemaking does not involve the use of any voluntary consensus standards.

List of Subjects

40 CFR Part 148

Administrative practice and procedure, Hazardous waste, Reporting and record keeping requirements, Water supply.

40 CFR Part 261

Environmental protection, Hazardous materials, Waste treatment and disposal, Recycling.

40 CFR Part 268

Environmental protection, Hazardous materials, Waste management, Reporting and record keeping requirements, Land Disposal Restrictions, Treatment Standards.

40 CFR Part 271

Environmental protection, Administrative practice and procedure, Confidential business information, Hazardous material transportation, Hazardous waste, Indians-lands, Intergovernmental relations, Penalties, Reporting and record keeping requirements, Water pollution control, Water supply.

40 CFR Part 302

Environmental protection, Air pollution control, Chemicals, Emergency Planning and Community Right-to-Know Act, Extremely hazardous substances, Hazardous chemicals, Hazardous materials, Hazardous materials transportation, Hazardous substances, Hazardous wastes, Intergovernmental relations, Natural resources, Reporting and record keeping requirements, Superfund, Waste treatment and disposal, Water pollution control, Water supply.

Dated: November 10, 2003.

Michael O. Leavitt,

Administrator.

For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is proposed to be amended as follows:

PART 148—HAZARDOUS WASTE INJECTION RESTRICTIONS

1. The authority citation for part 148 continues to read as follows:

Authority: Sec. 3004, Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*

2. Section 148.18 is amended by revising the paragraph (l) and adding (m) to read as follows:

§ 148.18 Waste-specific prohibitions—newly listed and identified wastes.

* * * * *

(l) Effective [insert date six months after date of publication of final rule], the waste specified in 40 CFR 261.32 as EPA Hazardous Waste Number K181 is prohibited from underground injection.

(m) The requirements of paragraphs (a) through (l) of this section do not apply:

(1) If the wastes meet or are treated to meet the applicable standards specified in subpart D of 40 CFR part 268; or

(2) If an exemption from a prohibition has been granted in response to a petition under subpart C of this part; or

(3) During the period of extension of the applicable effective date, if an extension has been granted under § 148.4.

PART 261—IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

3. The authority citation for part 261 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6921, 6922, 6924(y), and 6938.

4. Section 261.4 is amended by revising paragraph (b)(15) to read as follows.

§ 261.4 Exclusions.

* * * * *

(b) * * *

(15) Leachate or gas condensate collected from landfills where certain solid wastes have been disposed, provided that:

(i) The solid wastes disposed would meet one or more of the listing descriptions for Hazardous Waste Codes K169, K170, K171, K172, K174, K175, K176, K177, K178 and K181 if these wastes had been generated after the effective date of the listing;

(ii) The solid wastes described in paragraph (b)(15)(i) of this section were disposed prior to the effective date of the listing;

(iii) The leachate or gas condensate do not exhibit any characteristic of hazardous waste nor are derived from any other listed hazardous waste;

(iv) Discharge of the leachate or gas condensate, including leachate or gas condensate transferred from the landfill to a POTW by truck, rail, or dedicated pipe, is subject to regulation under sections 307(b) or 402 of the Clean Water Act.

(v) As of February 13, 2001, leachate or gas condensate derived from K169-K172 is no longer exempt if it is stored or managed in a surface impoundment prior to discharge. As of November 21, 2003, leachate or gas condensate derived from K176, K177, and K178 is no longer exempt if it is stored or managed in a surface impoundment prior to discharge. After [date 24 months from date of final publication], leachate or gas condensate derived from K181 will no longer be exempt if it is stored or managed in a surface impoundment prior to discharge. There is one exception: if the surface impoundment is used to temporarily store leachate or gas condensate in response to an emergency situation (*e.g.*, shutdown of wastewater treatment system), provided the impoundment has a double liner, and provided the leachate or gas condensate is removed from the impoundment and continues to be managed in compliance with the conditions of this paragraph after the emergency ends.

* * * * *

5. Section 261.32 is amended by:

a. Designating the existing text and table as paragraph (a),

b. In the table by adding a new entry in alphanumeric order (by first column) under the heading ''Organic Chemicals'',

c. Adding paragraphs (b), (c) and (d).

The revisions and additions read as follows:

§ 261.32 Hazardous wastes from specific sources.

(a) * * *

Industry and EPA hazardous waste No.	Hazardous waste	Hazard code
* * * * * * *		
Oganic Chemicals:		
* * * * * * *		
K181	Nonwastewaters from the production of dyes and/or pigments (including nonwastewaters commingled at the point of generation with nonwastewaters from other processes) that, at the point of generation, contain mass loadings of any of the constituents identified in paragraph (c)(1) of this section that are equal to or greater than the corresponding paragraph (c)(1) levels, as determined on a calendar year basis. These wastes would not be hazardous if: (i) The nonwastewaters do not contain annual mass loadings of the constituent identified in paragraph (c)(2) of this section at or above the corresponding paragraph (c)(2) level; and (ii) the nonwastewaters are disposed in a Subtitle D landfill cell subject to the design criteria in § 258.40 or in a Subtitle C landfill cell subject to either § 264.301 or § 265.301. For the purposes of this listing, dyes and/or pigments production is defined in paragraph (b)(1) of this section. Paragraph (d) of this section describes the process for demonstrating that a facility's nonwastewaters are not K181. This listing does not apply to wastes that are otherwise identified as hazardous under §§ 261.21–24 and 261.31–33 at the point of generation. Also, the listing does not apply to wastes generated before any annual mass loading limit is met.	(T)
* * * * * * *		

* * * * *

(b) *Listing Specific Definitions:* (1) For the purposes of the K181 listing, dyes and/or pigments production is defined to include manufacture of the following product classes: Dyes, pigments, or FDA certified colors that are classified as azo, triarylmethane, perylene or anthraquinone classes. Azo products include azo, monoazo, diazo, triazo, polyazo, azoic, benzidine, and pyrazolone products. Triarylmethane products include both triarylmethane and triphenylmethane products.

(2) [Reserved]

(c)(1) *K181 Listing Levels.* Nonwastewaters containing constituents in amounts equal to or exceeding the following levels during any calendar year are subject to the K181 listing unless the conditions in the K181 listing are met:

Constituent	Chemical abstracts No.	Mass levels (kg/yr)
Aniline	62–53–3	9,300
o-Anisidine	90–04–0	110
4-Chloroaniline	106–47–8	4,800
p-Cresidine	120–71–8	660
2,4-Dimethylaniline	95–68–1	100
1,2-Phenylenediamine	95–54–5	710
1,3-Phenylenediamine	108–45–2	1,200
Toluene-2,4-diamine	95–80–7	0.99

(2) *K181 Exemption Levels.* The K181 listing does not include nonwastewaters that, at the point of generation, contain no waste constituents meeting or exceeding the following levels during any calendar year, and which meet the landfill disposal condition set out in the listing description:

Constituent	Chemical abstracts No.	Mass levels (kg/yr)
Toluene-2,4-diamine	95–80–7	140

(d) *Procedures for demonstrating that dyes and/or pigments nonwastewaters are not K181.* The following procedures establish when nonwastewaters from production of dyes/pigments can be managed as nonhazardous.

(1) *Determination based on no K181 constituents.* Generators that have knowledge (*e.g.*, knowledge of constituents in wastes based on prior sampling and analysis data and/or information about raw materials used, production processes used, and reaction and degradation products formed) that their wastes contain none of the K181 constituents (see paragraph (c) of this section) can use their knowledge to determine that their waste is not K181. The generator must document the basis for all such determinations on an annual basis and keep each annual documentation for three years.

(2) *Determination for generated quantities less than 1,000 MT/yr. for wastes that contain K181 constituents.* If the total annual quantity of dyes and/or pigments nonwastewaters generated is 1,000 metric tons or less, the generator can use knowledge of the wastes (*e.g.*, knowledge of constituents in wastes based on prior analytical data and/or information about raw materials used, production processes used, and reaction and degradation products formed) to conclude that annual mass loadings for the K181 constituents are below either the paragraph (c)(1) or (c)(2) listing levels of this section. To make this determination, the generator must:

(i) Each year document the basis for determining that the annual quantity of nonwastewaters expected to be generated will be less than 1,000 metric tons.

(ii) Track the actual quantity of nonwastewaters generated from January 1 through December 31 of each year. If, at any time within the year, the actual waste quantity exceeds 1,000 metric tons, the generator must comply with the requirements of paragraph (d)(3) of this section for the remainder of the year.

(iii) Keep a running total of the K181 constituent mass loadings over the course of the calendar year.

(iv) Keep the following records onsite for three years:

(A) The quantity of dyes and/or pigments nonwastewaters generated.

(B) The relevant process information used.

(C) The calculations performed to determine annual total mass loadings for each K181 constituent in the nonwastewaters during the year.

(3) *Determination for generated quantities greater than 1,000 MT/yr. for wastes that contain K181 constituents:*

(i) Determine which K181 constituents (see paragraph (c) of this section) are reasonably expected to be present in the wastes based on knowledge of the wastes (*e.g.*, based on prior sampling and analysis data and/or information about raw materials used, production processes used, and reaction and degradation products formed).

(ii) Develop a waste sampling and analysis plan (or modify an existing plan) to collect and analyze representative waste samples for the K181 constituents reasonably expected to be present in the wastes. At a minimum, the plan must include:

(A) A discussion of the number of samples needed to characterize the wastes fully;

(B) The planned sample collection method to obtain representative waste samples;

(C) A discussion of how the sampling plan accounts for potential temporal and spatial variability of the wastes.

(D) A detailed description of the test methods to be used, including sample preparation, clean-up (if necessary), and determinative methods.

(iii) Collect and analyze samples in accordance with the waste sampling and analysis plan.

(A) The sampling and analysis must be unbiased, precise, and representative of the wastes.

(B) The analytical measurements must be sufficiently sensitive, accurate and precise to support any claim that the constituent mass loadings are below the paragraph (c) listing levels of this section.

(iv) Record the analytical results.

(v) Record the waste quantity represented by the sampling and analysis results.

(vi) Calculate constituent-specific mass loadings (product of concentrations and waste quantity).

(vii) Keep a running total of the K181 constituent mass loadings over the course of the calendar year.

(viii) Determine whether the mass of any of the K181 constituents listed in either paragraph (c)(1) or (c)(2) of this section generated between January 1 and December 31 of any year is below the K181 listing levels.

(ix) Keep the following records onsite for three years:

(A) The sampling and analysis plan.

(B) The sampling and analysis results (including QA/QC data)

(C) The quantity of dyes and/or pigment nonwastewaters generated.

(D) The calculations performed to determine annual mass loadings.

(x) Nonhazardous waste determinations must be conducted annually to verify that the wastes remain nonhazardous.

(A) The annual testing requirements are suspended after three consecutive successful annual demonstrations that the wastes are nonhazardous. The generator can then use knowledge of the wastes to support subsequent annual determinations.

(B) The annual testing requirements are reinstated if the manufacturing or waste treatment processes generating the wastes are significantly altered, resulting in an increase of the potential for the wastes to exceed the listing levels.

(C) If the annual testing requirements are suspended, the generator must keep records of the process knowledge information used to support a nonhazardous determination. If testing is reinstated, a description of the process change must be retained.

(4) *Recordkeeping for (c)(2) exemption.* For the purposes of meeting the landfill disposal condition set out in the K181 listing description, the generator must maintain onsite for three years documentation demonstrating that each shipment of waste was received by a landfill cell subject to the landfill design standards set out in the listing description.

(5) Waste holding and handling. During the interim period, from the point of generation to completion of hazardous waste determination, the generator is responsible for storing the wastes appropriately. If the wastes are determined to be hazardous and the generator has not complied with the subtitle C requirements during the interim period, the generator would be subject to an enforcement action for improper management.

6. Appendix VII to part 261 is amended by adding the following entry in alphanumeric order (by the first column) to read as follows.

APPENDIX VII TO PART 261—BASIS FOR LISTING HAZARDOUS WASTE

EPA hazardous waste No.	Hazardous constituents for which listed
*	* * * * * * *
K181	Aniline, o-anisidine, 4-chloroaniline, p-cresidine, 2,4- dimethylaniline, 1,2-phenylenediamine, 1,3-phenylenediamine, toluene-2,4-diamine.
*	* * * * * * *

* * * * *

Appendix VIII to Part 261—Hazardous Constituents

7. Appendix VIII to Part 261 is amended by adding in alphabetical sequence of common name the following entries:

* * * * *

Common name	Chemical abstracts name	Chemical abstracts No.	Hazardous waste No.
* * *	* * *	*	*
o-Anisidine (o-Aminoanisole)	Benzenamine, 2-Methoxy-	90–04–0	
* * *	* * *	*	*
p-Cresidine	2-Methoxy-5-methylbenzenamine	120–71–8	
* * *	* * *	*	*
2,4-Dimethylaniline (2,4-xylidine)	Benzenamine, 2,4-dimethyl-	95–68–1	
* * *	* * *	*	*
1,2-	1,2-Phenylenediamine Benzenediamine	95–54–5	
* * *	* * *	*	*
1,3-	1,3-Phenylenediamine Benzenediamine	108–45–2	
* * *	* * *	*	*

PART 268—LAND DISPOSAL RESTRICTIONS

8. The authority citation for part 268 continues to read as follows:

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

Subpart C—Prohibitions on Land Disposal

9. Subpart C is amended by adding § 268.20 and adding and reserving §§ 268.21 through 268.29 to read as follows:

§ 268.20 Waste specific prohibitions—Dyes and/or pigments production wastes.

(a) Effective [*date six months from date of publication of final rule*], the waste specified in 40 CFR Part 261 as EPA Hazardous Waste Number K181, and soil and debris contaminated with this waste, radioactive wastes mixed with this wastes, and soil and debris contaminated with radioactive wastes mixed with this waste are prohibited from land disposal.

(b) The requirements of paragraph (a) of this section do not apply if:

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

(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;

(3) The wastes meet the applicable treatment standards established pursuant to a petition granted under § 268.44;

(4) Hazardous debris has met the treatment standards in § 268.40 or the alternative treatment standards in § 268.45; or

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

(c) To determine whether a hazardous waste identified in this section exceeds the applicable treatment standards specified in § 268.40, the initial generator must test a sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste, or the generator may use knowledge of the waste. If the waste contains regulated 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.

10. In § 268.40, the Table of Treatment Standards is amended by revising the entry for F039 to add constituents in alphabetical sequence, and by adding in alphanumeric order the new entry for K181 to read as follows:

§ 268.40 Applicability of treatment standards.

* * * * *

TREATMENT STANDARDS FOR HAZARDOUS WASTES

[**Note:** NA means not applicable]

Waste code	Waste description and treatment/regulatory subcategory [1]	Regulated hazardous constituent		Wastewaters—concentration in mg/L [3], or technology code [4]	Nonwastewaters—concentration in mg/kg [5] unless noted as "mg/L TCLP", or technology code
		Common name	CAS [2] No.		
*	* *	*	*	*	*
F039	Leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste classified as hazardous under Subpart D of this part. (Leachate resulting from the disposal of one or more of the following EPA Hazardous Wastes and no other Hazardous Waste retains its EPA Hazardous Waste Number(s): F020, F021, F022, F026, F027, and/or F028).	* * *			
		o-Anisidine (2-methoxyaniline)	90–04–0	0.010	0.66
		* * *			
		p-Cresidine	120–71–8	0.010	0.66
		* * *			
		2,4-Dimethylaniline (2,4-xylidine)	95–68–1	0.010	0.66
		* * *			
		1,3-Phenylenediamine	108–45–2	0.010	0.66
		* * *			
		Toluene-2,4-diamine	95–80–7	0.020	1.30
		* * *			
*	* *	*	*	*	*
K181	Nonwastewaters from the production of dyes and/or pigments (including nonwastewaters commingled at the point of generation with nonwastewaters from other processes) that, at the point of generation, contain mass loadings of any of the constituents identified in paragraph (c)(1) of this section that are equal to or greater than the corresponding paragraph (c)(1) levels, as determined on a calendar year basis.	Aniline	65–53–3	0.81	14
		o-Anisidine (2-methoxyaniline)	90–04–0	0.010	0.66
		4-Chloroaniline	106–47–8	0.46	16
		p-Cresidine	120–71–8	0.010	0.66
		2,4-Dimethylaniline (2,4xylidine)	95–68–1	0.010	0.66
		1,2-Phenylenediamine	95–54–5	(6)	(7)
		1,3-Phenylenediamine	108–45–2	0.010	0.66
		Toluene-2,4-diamine	95–80–7	0.020	7.30
*	* *	*	*	*	*

Footnotes to Treatment Standard Table 268.40:

[1] The waste descriptions provided in this table do not replace waste descriptions in 40 CFR part 261. Descriptions of Treatment/Regulatory Subcategories are provided, as needed, to distinguish between applicability of different standards.

[2] CAS means Chemical Abstract Services. When the waste code and/or regulated constituents are described as a combination of a chemical with its salts and/or esters, the CAS number is given for the parent compound only.

[3] Concentration standards for wastewaters are expressed in mg/L and are based on analysis of composite samples.

[4] All treatment standards expressed as a Technology Code or combination of Technology Codes are explained in detail in 40 CFR 268.42 Table 1—Technology Codes and Descriptions of Technology-Based Standards.

[5] Except for Metals (EP or TCLP) and Cyanides (Total and Amenable) the nonwastewater treatment standards expressed as a concentration were established, in part, based upon incineration in units operated in accordance with the technical requirements of 40 CFR part 264, subpart O or 40 CFR part 265, subpart O, or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may comply with these treatment standards according to provisions in 40 CFR 268.40(d). All concentration standards for nonwastewaters are based on analysis of grab samples.

[6] CMBST; or CHOXD fb (BIODG or CARBN); or BIODG fb CARBN.

[7] CMBST.

* * * * *

11. The Table—Universal Treatment Standards in § 268.48 is revised by adding in alphabetical sequence the following entries under the heading organic constituents:

§ 268.48 Universal treatment standards.

(a) * * *

UNIVERSAL TREATMENT STANDARDS

[**Note:** NA means not applicable]

Regulated constituent common name	CAS [1] No.	Wastewater standard—concentration in mg/L [2]	Nonwastewater standard—concentration in mg/kg [3] unless noted as "mg/L TCLP"
* * * * *		*	*
o-Anisidine (2-methoxyaniline)	90–04–0	0.010	0.66
* * * * *		*	*
p-Cresidine	120–71–8	0.010	0.66
* * * * *		*	*
2,4-Dimethylaniline (2,4-xylidine)	95–68–1	0.010	0.66
* * * * *		*	*
1,3-Phenylenediamine	108–45–2	0.010	0.66
* * * * *		*	*
Toluene-2,4-diamine	95–80–7	0.020	1.30
* * * * *		*	*

[1] CAS means Chemical Abstract Services. When the waste code and/or regulated constituents are described as a combination of a chemical with its salts and/or esters, the CAS number is given for the parent compound only.

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

[3] Except for Metals (EP or TCLP) and Cyanides (Total and Amenable) the nonwastewater treatment standards expressed as a concentration were established, in part, based upon incineration in units operated in accordance with the technical requirements of 40 CFR part 264, subpart O, or part 265, subpart O, or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may comply with these treatment standards according to provisions in 40 CFR 268.40(d). All concentration standards for nonwastewaters are based on analysis of grab samples.

* * * * *

PART 271—REQUIREMENTS FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

12. The authority citation for part 271 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), and 6926.

13. Section 271.1(j) is amended by adding the following entries to Table 1 and Table 2 in chronological order by date of publication to read as follows.

§ 271.1 Purpose and scope.

* * * * *

(j) * * *

TABLE 1.—REGULATIONS IMPLEMENTING THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984

Promulgation date	Title of regulation	**Federal Register** reference	Effective date
* * * * * * *			
[*insert date of signature of final rule*].	Listing of Hazardous Waste K181	[*insert Federal Register page numbers for final rule*].	[*insert effective date of final rule*]
* * * * * * *			

TABLE 2.—SELF-IMPLEMENTING PROVISIONS OF THE SOLID WASTE AMENDMENTS OF 1984

Effective date	Self-implementing provision	RCRA citation	FEDERAL REGISTER reference
* * * * * * *			
[*Insert effective date of final rule*].	Prohibition on land disposal of K181 waste, and prohibition on land disposal of radioactive waste mixed with K181 wastes, including soil and debris	3004(g)(4)(C) and 3004(m)	[*Insert date of publication date of final rule Federal Register page numbers*] [*FR page numbers*].
* * * * * * *			

PART 302—DESIGNATION, REPORTABLE QUANTITIES, AND NOTIFICATION

14. The authority citation for part 302 continues to read as follows:

Authority: 42 U.S.C. 9602, 9603, and 9604; 33 U.S.C. 1321 and 1361.

15. In § 302.4, Table 302.4 is amended by adding the following new entry in alphanumeric order at the end of the table to read as follows:

§ 302.4 Designation of hazardous substances.

* * * * *

TABLE 302.4.—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

[**Note:** All comments/notes are located at the end of this table]

Hazardous substance	CASRN	Statutory code†	RCRA waste No.	Final RQ pounds (Kg)
* * * * *			*	*
K181 ..... Nonwastewaters from the production of dyes and/or pigments (including nonwastewaters commingled at the point of generation with nonwastewaters from other processes) that, at the point of generation, contain mass loadings of any of the constituents identified in paragraph (c)(1) of this section that are equal to or greater than the corresponding paragraph (c)(1) levels, as determined on a calendar year basis.	.....	4	K181	(##)

†—Indicates the statutory source defined by 1, 2, 3, and 4, as described in the note preceding Table 302.4.

* * * * * * * *

##—The Agency may adjust the statutory RQ for this hazardous substance in a future rulemaking; until then, the statutory RQ applies.

* * * * *

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