ENVIRONMENTAL PROTECTION AGENCY

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

[SWH–FRL–7167–8]

RIN 2050–AE32

Hazardous Waste Management System; Identification and Listing of Hazardous Waste; Paint Production Wastes; Land Disposal Restrictions for Newly Identified Wastes; and CERCLA Hazardous Substance Designation and Reportable Quantities; Final Determination

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final determination.

SUMMARY: The Environmental Protection Agency (EPA) is issuing a final determination not to list as hazardous certain wastes generated from the production of paint. EPA is making this determination under the Resource Conservation and Recovery Act (RCRA), which directs EPA to determine whether certain wastes from the paint production industry may present a substantial hazard to human health or the environment. EPA proposed concentration-based listings for certain paint waste solids (K179) and liquids (K180) on February 13, 2001. However, following a review of the public comments and supplemental analyses based on public comments, EPA has determined that the paint wastes identified in the February 13, 2001 proposal do not present a substantial hazard to human health or the environment. Therefore, EPA is making a final determination that these paint wastes are not listed hazardous wastes. Also, because the identified paint wastes are not listed hazardous wastes, EPA is not promulgating Land Disposal Restriction (LDR) treatment standards for these wastes, designating these wastes as Comprehensive, Environmental Response, Compensation, and Liability Act (CERCLA) hazardous substances with reportable quantities (RQs), or designating any of the constituents in these wastes as new Appendix VIII constituents.

EFFECTIVE DATE: May 6, 2002.

ADDRESSES: Supporting materials are available for viewing in the RCRA Information Center (RIC), located at Crystal Gateway I, First Floor, 1235 Jefferson Davis Highway, Arlington, VA. The Docket Identification Number is F–2002–PMLF–FFFFF. The RIC is open from 9 a.m. to 4 p.m., Monday through Friday, excluding federal holidays. To review docket materials, we recommend that you make an appointment by calling (703) 603–9230. The public may copy a maximum of 100 pages from any regulatory docket at no charge. Additional copies cost $0.15/page. The index and some supporting materials are available electronically. See the beginning of the **SUPPLEMENTARY INFORMATION** section for information on accessing them.

FOR FURTHER INFORMATION CONTACT: For general information, contact the RCRA Hotline 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. For information on specific aspects of the notice, contact Ms. Patricia Cohn 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: *cohn.patricia@epa.gov*, (703) 308–8675.]

SUPPLEMENTARY INFORMATION: The docket index and some supporting documents in the docket for this determination are available in electronic format on the Internet at: *http://www.epa.gov/epaoswer/hazwaste/id/paint.*

We will keep the official record for this action in paper form. The official record is the paper record maintained at the RCRA Information Center, also referred to as the Docket, at the address provided in the **ADDRESSES** section at the beginning of this document.

ACRONYMS USED IN THE DOCUMENT

Acronym	Definition
CAA	Clean Air Act.
CERCLA	Comprehensive Environmental Response Compensation and Liability Act.
CFR	Code of Federal Regulations.
CWT	Centralized Wastewater Treatment Facility (may also be referred to as a wastewater treatment facility, or WWTF).
ED	Environmental Defense (previously Environmental Defense Fund or EDF).
EO	Executive Order.
EPA	Environmental Protection Agency.
FR	Federal Register.
HAP	Hazardous Air Pollutant.
HQ	Hazard Quotient.
HSWA	Hazardous and Solid Waste Amendments.
ICR	Information Collection Request.
LDR	Land Disposal Restriction.
MACT	Maximum Achievable Control Technology.
mg/kg	Milligram per kilogram.
MSDS	Material Safety Data Sheet.
NAICS	North American Industrial Classification System.
NESHAP	National Emission Standards for Hazardous Air Pollutants.
NPDES	National Pollutant Discharge Elimination System.
NTTAA	National Technology Transfer and Advancement Act.
AIM Rule	National Volatile Organic Compound Emissions Standards for Architectural Coatings and Industrial Maintenance Coatings (AIM) rule.
OEM	Original Equipment Manufacturing.
OSHA	Occupational Safety and Health Administration.
OMB	Office of Management and Budget.
OSWER	Office of Solid Waste and Emergency Response.
POTW	Publicly Owned Treatment Works.
ppm	Parts Per Million.
RCRA	Resource Conservation and Recovery Act.

ACRONYMS USED IN THE DOCUMENT—Continued

Acronym	Definition
RFA	Regulatory Flexibility Act.
RfC	Reference Concentration.
RFSA	Regulatory Flexibility Screening Analysis.
RIC	RCRA Information Center.
RQ	Reportable Quantity.
SBA	Small Business Administration.
SBREFA	Small Business Regulatory Enforcement Fairness Act.
SIC	Standard Industry Code.
TC	Toxicity Characteristic.
TRI	Toxic Release Inventory.
UMRA	Unfunded Mandates Reform Act.
USC	United States Code.
UTS	Universal Treatment Standard.
VOC	Volatile Organic Compound.

The contents of this final determination are listed in the following outline:

I. Overview

I. Who Will Be Affected by This Final Determination?

Beginning January 1, 1999 all documents related to EPA's regulatory, compliance and enforcement activities, including rules, policies, interpretive guidance, and site-specific determinations with broad application, should properly identify the regulated entities, including descriptions that correspond to the applicable SIC codes or NAICS codes (source: October 9, 1998 USEPA memo from Peter D. Robertson, Acting Deputy Administrator of USEPA). The proposed listing determination had the potential to affect manufacturers of paints and coatings, as well as those who handle the wastes, such as landfills. However, we have decided not to list these wastes as hazardous under Subtitle C of RCRA program. Therefore, today's action will not have any effect on any entities.

B. What Is the ''Readable Regulations'' Format?

Today's final listing determination is written in ''readable regulations'' format, using: active rather than passive voice; plain language; a question-and-answer format; the pronouns ''we'' for EPA and ''you'' for the owner/generator; and other techniques to make the information in today's notice easier to read and understand. This format is part of our efforts toward regulatory re-invention. We believe this format helps readers understand the Agency's regulatory decisions and regulations (if any), which should then increase compliance, make enforcement easier, and foster better relationships between EPA and the regulated community.

C. What Are the Statutory Authorities for This Final Determination?

We conducted this investigation and listing determination 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 several times, 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)).

D. Does This Final Determination Satisfy the Terms of the ED v. Whitman Consent Decree?

The 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA require EPA to make listing determinations for paint production wastes (see RCRA section 3001(e)(2)). In 1989, the Environmental Defense Fund (EDF), which recently changed its name to Environmental Defense (ED), filed a lawsuit to enforce the statutory deadlines for listing decisions in RCRA section 3001(e)(2). (*ED* vs. *Whitman,* D.D.C. Civ. No. 89–0598). To resolve most of the issues in the case, ED and EPA entered into a consent decree, which has been amended several times to revise deadlines for EPA action. Paragraph 1.d (as amended) of the consent decree addresses the paint production industry:

> EPA shall promulgate a final listing determination for paint production wastes on or before March 30, 2002. This listing determination shall be proposed for public comment on or before January 28, 2001. This listing determination shall include the following wastes: solvent cleaning wastes (K078), water/caustic cleaning wastes (K079), wastewater treatment sludge (K081), and emission control dust or sludge (K082) for which listings were suspended on January 16, 1981 (46 FR 4614), and off-specification production wastes.

Today's final determination satisfies EPA's duty under paragraph 1.d to promulgate listing determinations for the specified paint production wastes. Moreover, compliance with the consent decree fulfills EPA's duty to make listing determinations for the paint production industry under section 3001(e)(2) of RCRA.

II. Summary of Today's Action

In today's notice, we are finalizing a determination not to add paint production wastes to the list of hazardous wastes in 40 CFR 261.32. However, this determination does not in any way affect the status of these wastes under existing hazardous waste listings. Also, these wastes remain subject to a determination on whether or not they exhibit any of the hazardous waste characteristics (see 40 CFR 261.21 through 261.24).

We apply the listing criteria described in 40 CFR 261.11 to make listing determinations. We are making this listing determination based on the third criterion (see 40 CFR 261.11(a)(3)), which includes a number of factors for consideration as are discussed below. We assessed and considered these factors for each of the wastestreams identified in the consent decree that are generated by the paint production industry through the use of risk assessments and risk modeling, as well as consideration of other pertinent information. Today's final listing determination follows the elements of our listing decision policy that was presented in the proposed listing determination for wastes generated by the dye and pigment industries published in the **Federal Register** on December 22, 1994 (see 59 FR at 66073). This policy uses a ''weight-of-evidence'' approach in which calculated risk information is a key factor in making a listing determination.

Under 40 CFR 261.11(a)(3), there are eleven factors for determining whether a waste is capable of posing a ''substantial present or potential hazard to human health or the environment.'' Nine of these factors, as described generally below, are directly incorporated into EPA's completion of a risk assessment for the wastestreams of concern:[1]

- Toxicity (§ 261.11(a)(3)(i)) is considered in developing the health benchmarks used in the risk assessment modeling.
- Constituent concentrations and waste quantities (§§ 261.11(a)(3)(ii) and 261.11(a)(3)(viii)) are used to define the initial conditions for the risk evaluation.
- Potential to migrate, persistence, degradation, and bioaccumulation of the hazardous constituents and any degradation products (§§ 261.11(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.
- Plausible mismanagement and other regulatory actions (§§ 261.11 (a)(3)(vii) and 261.11(a)(3)(x)) are considered for establishing the waste management scenario(s) modeled in the risk assessment.

EPA conducted analyses of the risks posed by waste solids (K179) and waste liquids (K180) from the production of paint to assist in the determination of whether the wastes meet the criteria for listing set forth in 40 CFR 261.11(a)(3). In the preamble to the proposed rule (66 FR 10060), we discussed the human health risk analyses and ecological risk screening analyses EPA conducted to support our proposed listing determinations for K179 and K180. These analyses, as well as comments EPA received on the analyses, are further discussed in this notice in section IV below. We considered the results of the risk analyses, as well as comments received, and the results of analyses conducted in response to information provided by public commenters in finalizing our listing determinations for each wastestream. The risk analyses conducted in support of our proposed listing determination are presented in detail in the Risk Assessment Technical Background Document for the Paint and Coatings Hazardous Waste Listing Determination. Additional information and analyses conducted in response to comments received on our proposed rule are included in the Addendum to the Risk Assessment Technical Background Document for the Paint and Coatings Hazardous Waste Listing Determination. This document is located in the docket for today's final determination.

A. Waste Liquids From Paint Manufacturing

We are making a final determination not to list waste liquids from paint manufacturing, because we now believe that the management scenario we used as the basis for the proposed listing, an off-site unlined surface impoundment, is not plausible. Information we received in comments indicates that management in any surface impoundment is a rare occurrence (we found only one case), and we have no indication that such units are unlined. Furthermore, we also found an error in our modeling equations that overestimated risks for most constituents of concern (discussed in detail in section IV.B.1). This factor, as well as the infrequent occurrence of other key constituents in the waste, further supports our decision not to list this waste. Finally, we believe that existing and upcoming regulations under RCRA and the Clean Air Act (CAA) will limit the levels of most

[1] The remaining two factors, damage cases as result of mismanagement and other factors (§§ 261.11(a)(3)(ix) and 261.11(a)(3)(xi)) are considered, as appropriate.

organic chemicals of concern in paint wastes.

B. Waste Solids From Paint Manufacturing

We also are making a final determination not to list waste solids from paint manufacturing. Correcting an error in modeling (discussed above and in detail in section IV.B.1) causes some constituents to drop from further consideration. In addition, after considering information we received in comments, as well as information we collected from the survey and elsewhere, we do not now believe the concentrations of the remaining constituents of concern in paint wastes would approach the listing levels. While one of the constituents (antimony) has some uses in paint formulations, we do not believe we have a reasonable basis to list this waste for this constituent. In particular, we did not find any surveyed facility that generated wastes with antimony concentrations at or above the listing level. Furthermore, we believe any paint waste solids with high antimony levels would be generated infrequently and not pose significant risks.

III. Summary of Proposed Rule

A. What Regulations Did EPA Propose?

In the February 13, 2001 proposed rule (66 FR 10060), we proposed two hazardous waste listings, K179 for paint manufacturing waste solids and K180 for waste liquids. We proposed a concentration-based listing, such that only wastes that met or exceeded certain listing levels for constituents of concern would have to be managed as hazardous under RCRA. We proposed that if you generate any of the identified paint manufacturing wastes (from tank and equipment cleaning operations that use solvents, water, and/or caustic; emission control dusts; wastewater treatment sludges; or off-specification product, as specified in each proposed listing description), you would need to determine whether your waste contains any of the constituents of concern identified for each listing at a concentration equal to or greater than the concentration level set for that constituent.

As part of the K179 and K180 listing process, EPA also proposed to amend Appendix VIII of 40 CFR part 261 to add n-butyl alcohol, ethyl benzene, methyl isobutyl ketone, styrene, and xylenes to the list of hazardous constituents. We also proposed to add the constituents that served as the basis for the proposed listings to Appendix VII.

Under the Land Disposal Restrictions program, we proposed to: establish treatment standards for each of the two candidate listings; add styrene to the Universal Treatment Standards (UTS) Table in 268.48; add styrene and acrylamide to the F039 treatment standards applicable to hazardous waste landfill leachate; and designate styrene as an underlying hazardous constituent.

We also proposed to designate K179 and K180 as hazardous substances subject to the release reporting requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and to adjust their one pound statutory reportable quantities (RQs).

We proposed that all generators could use knowledge of the waste to make an initial determination as to whether any of the regulated constituents are present in the waste. If you determined that none of the constituents were present, your wastes would not be considered K179 or K180 and you would have no further obligation for making a listing determination. However, the wastes would have remained subject to a determination on whether or not they exhibit any of the hazardous waste characteristics (see 40 CFR 261.21 through 261.24). If there was a possibility that the constituents of concern might be present, we proposed a two tiered approach for determining whether the wastes were hazardous at the point of generation. If your total projected annual generation of paint manufacturing waste solids was more than 40 metric tons, and/or more than 100 metric tons of waste liquids, you would need to test your wastes annually to determine whether constituent concentrations were below the listing levels. If your projected annual waste volumes were below these levels, you could use knowledge of the waste or testing to determine whether the wastes were hazardous. Alternatively you could assume your wastes were hazardous.

If your wastes met the listing description, they would have been subject to all applicable RCRA subtitle C hazardous waste requirements, including the LDR requirements. You can find more detailed discussions of the proposal in the preamble to the proposed rule and in the Background Documents we have placed in the rulemaking docket.

B. What Paint Manufacturing Wastes Are Within the Scope of the Consent Decree for This Listing Determination?

EPA based its decisions regarding the scope of the industries and wastes covered by the proposed listing on RCRA section 3001(e)(2) and the *ED* v. *Whitman* (D.D.C. Civ. No. 89–598) consent decree. The proposed rule applied to paint and coatings manufacturers.[2] It did not apply to miscellaneous allied products[3] or artist paint.

The consent decree required the Agency to make hazardous waste listing determinations on five types of paint production wastes. These wastes are:

(1) Solvent cleaning wastes as waste liquids and solids generated from equipment and tank cleaning operations;

(2) water and/or caustic cleaning wastes as waste liquids and solids generated from equipment and tank cleaning operations;

(3) wastewater treatment sludge as waste solids generated in on-site or captive wastewater treatment processes solely or primarily for treating paint production waste liquids;

(4) emission control dust or sludge as waste solids collected in a facility's particulate emission control devices such as baghouses;

(5) off-specification production wastes as waste solids.

We stated that the proposed listing would not apply to off-specification paint that a downstream entity decides to discard or send back to the manufacturer. However, once the manufacturer determined that unused product was destined for disposal, that off-specification product would be subject to the listing.

C. What Risk Assessment Approach Was Used for the Proposed Rule?

We conducted human health risk analyses and a screening level ecological risk assessment to support our proposed concentration-based listing determinations. The human health risk assessments that we conducted to support the listing determination included four primary tasks: (1) Selecting constituents of potential concern in waste, (2) evaluating plausible waste management scenarios, (3) calculating exposure concentrations by modeling the release and transport of the constituents from the waste management unit to the point of exposure, and (4) calculating waste concentrations that are unlikely to pose unacceptable risk.

In choosing potential constituents of concern, we identified commonly used,

[2] Including, but not limited to, entities who manufacture: paints (including undercoats, primers, finishes, sealers, enamels, refinish paints, and tinting bases), stains, varnishes (including lacquers), product finishes for original equipment manufacturing and industrial application, and coatings (including special purpose coatings and powder coatings).

[3] Not included were paint and varnish removers, thinners for lacquers and other solvent-based paint products, pigment dispersions or putty.

potentially hazardous constituents that could pose unacceptable risk if present in mismanaged paint manufacturing wastes. In addition, we selected constituents for which SW–846 test methods were available and for which we had access to toxicity, fate, and transport data with which to conduct a risk assessment (see 66 FR 10084).

Establishing plausible exposure scenarios depended on the way a particular waste was being or could be managed. We reviewed current waste handling practices reported in the RCRA 3007 survey and based on that chose to model four waste management scenarios: (1) Waste solids disposed in industrial nonhazardous waste landfills; (2) waste liquids stored and treated in off-site tanks at centralized wastewater treatment facilities (CWTs) prior to discharge to a POTW or under an NPDES permit; (3) waste liquids disposed in surface impoundments at CWTs; and (4) waste liquids stored and treated in tanks on-site at paint manufacturing facilities prior to discharge to a POTW or under an NPDES permit.

We used information on the national distributions of waste management unit characteristics (e.g., size and waste capacity) collected in surveys conducted for other rulemakings to establish the characteristics of the off-site waste management units. On the other hand, we used information from the RCRA 3007 survey on the nature of on-site management units and on the quantities of waste solids and liquids sent by each facility to the four management practices of concern.

We determined that there are several pathways for releases from the management units. Each of the four waste management units can release vapor emissions to the air. Landfills can also release particulate emissions to the air from solids disposed of in landfills. Releases can also occur through leaching of waste into the subsurface from landfills and surface impoundments. We assumed that tanks were sufficiently impermeable that they were highly unlikely to release volumes of waste to the subsurface sufficient to pose an unacceptable groundwater risk.

Human receptors may be exposed to releases through a variety of routes, both direct and indirect. Direct routes include consumption of affected groundwater and inhalation of ambient air or air in the home contaminated by releases from use of affected groundwater. Indirect paths include consumption of contaminated food products such as vegetables, beef and dairy products, and fish. We conducted contaminant fate and transport modeling and indirect exposure modeling to determine what the concentrations will be in the media with which a human receptor comes into contact. There are a number of computer-based models and equations that we used to predict these concentrations.

As part of the characterization of the risk levels from human exposures to the constituents of concern, toxicity information on each constituent of concern was integrated with the results of the exposure assessment. Chronic human health benchmarks were used in this assessment to evaluate potential noncancer and cancer risks.

The calculated concentration levels we proposed represent the probabilistic results at the 90th percentile risk level based on individuals living closest to the waste management unit. In other words, for 90% of the receptor scenarios we evaluated, the concentration levels are lower than our chosen target cancer risk level of 1E–05 (one chance in 100,000) excess lifetime cancer risk for individuals exposed to carcinogens in the waste streams or, for noncarcinogens, the target hazard quotient (HQ) of 1.0.

In general, we relied on the risk assessment results to guide us in deciding which constituents would be most useful for defining which paint manufacturing wastes should potentially be listed hazardous wastes. We dropped constituents from further examination if the risk-based concentration levels for the waste exceeded or approached 100% of the waste mass because such conditions were unlikely to exist in the wastes we examined. We also chose not to include constituents that are already sufficiently regulated by the Toxicity Characteristic.

The preamble to the proposed rule provides a detailed discussion of EPA's risk assessment for the paint manufacturing listing determination (see 66 FR 10083). A full description of all risk analyses conducted in support of our listing determinations finalized in today's decision can be found in the risk assessment background documents available in the docket. (See Risk Assessment Technical Background Document for the Paint and Coatings Hazardous Waste Listing Determination and Addendum to the Risk Assessment Technical Background Document for the Paint and Coatings Hazardous Waste Listing Determination.)

D. Which Wastes Did EPA Propose To List as Hazardous?

1. Waste Solids From Paint Manufacturing That Meet Certain Constituent Concentration Levels (K179)

We proposed to list as hazardous those waste solids from paint manufacturing that meet certain constituent concentration levels for the following constituents: acrylamide, acrylonitrile, antimony, methyl isobutyl ketone, and methyl methacrylate. This proposed listing included waste solids generated by paint manufacturing facilities from tank and equipment cleaning operations that use solvents, water, and/or caustic; emission control dusts; wastewater treatment sludges; or off-specification product.

We also proposed to use the listing concentrations as ''exit'' levels for residues from paint manufacturing waste solids (K179). The use of the listing concentrations as exit levels would terminate the applicability of the derived-from rule and, therefore, the treatment residues would no longer be considered a listed hazardous waste.

2. Waste Liquids From Paint Manufacturing That Meet Certain Constituent Concentration Levels, Unless Managed Under Certain Conditions (K180)

We proposed to list waste liquids from paint manufacturing that meet certain constituent concentration levels for the following constituents: acrylamide, acrylonitrile, antimony, ethylbenzene, formaldehyde, methyl isobutyl ketone, methyl methacrylate, methylene chloride, n-butyl alcohol, styrene, toluene, and xylene (mixed isomers). This proposed listing included waste liquids generated by paint manufacturing facilities from tank and equipment cleaning operations that use solvents, water, and/or caustic.

We proposed this listing as a contingent-based listing. That is, if your waste liquids are managed exclusively in tanks or containers prior to discharge to a POTW or under an NPDES permit, your waste would not be subject to the proposed listing and you would not need to make a hazardous waste determination for those wastes. We proposed this approach because we believe wastes managed in this manner do not pose sufficient risk to warrant hazardous waste regulation.

Due to the uncertainties in our assessment of the management of paint manufacturing liquids in surface impoundments, we also proposed an alternative option not to list waste liquids from paint manufacturing. Further details of the proposed listings

and the various options are contained in the proposed rule (66 FR 10108).

IV. What Is the Rationale for Today's Final Determination?

A. What Is the Basis for EPA's Final Determination Not To List Paint Production Waste Liquids?

We have decided not to list as hazardous waste liquids generated by paint manufacturing facilities. We proposed a hazardous waste listing, K180, for paint manufacturing waste liquids that contain any of the twelve constituents of concern at or above the designated listing levels. In the proposed rule, we based our listing levels on modeling we performed for a surface impoundment scenario. We found potential risks of concern from the management of liquid wastes in an off-site centralized wastewater treatment system with an unlined surface impoundment; thus, we proposed the K180 listing. However, we noted in the proposal (66 FR 10108) that we were also considering not listing this waste due to the uncertainties with the management practice that we modeled in our risk assessment. We received numerous comments disputing the plausibility of this scenario and questioning other assumptions we used in modeling. Furthermore, as noted in the discussion of risk assessment issues in section IV.B, we found an error in the model that overestimated risks for eight of the 12 constituents. Below we summarize the critical comments we received and present our rationale for not listing waste liquids from paint manufacturing.

1. Management Scenario

The Agency received eight comments from industry and industry associations stating that disposal in unlined surface impoundments is not a plausible waste management scenario. For example, one commenter noted that the listing proposal for liquid paint production wastes is driven by potential risks arising from unlined surface impoundments. However, EPA identified only one case where a surface impoundment was used to manage these wastes. The commenter stated that this limited waste management practice does not support a nationwide listing. In addition, the commenter argued that EPA should not rely on a management scenario as the basis for a hazardous waste listing unless it establishes a ''rational relationship'' between the wastes and the management scenario.

When researching possible risks from the management of liquid paint wastes in surface impoundments for the proposal, we contacted nine of the 24 off-site centralized wastewater treatment (CWT) facilities that were reported in the RCRA 3007 survey to receive liquid wastes from paint manufacturers. We found only one facility and it used lined surface impoundments. We extrapolated this finding to suggest that there may be other facilities with surface impoundments, and that perhaps as many as 4 or 5 CWT facilities that receive paint wastes may use surface impoundments of some kind.[4] One commenter contacted the remaining active CWT facilities (three were no longer in business) that were reported to receive paint manufacturing waste and found that none of the remaining facilities used surface impoundments. The commenter argued that, based on EPA's own statistics, there would only be at most one other unidentified surface impoundment in addition to the identified lined surface impoundment managing waste liquids from paint manufacturing. The commenter concluded that a surface impoundment, particularly an unlined surface impoundment, is not a plausible management scenario, and that using this speculative scenario overestimates potential risks from the disposal of paint manufacturing waste liquids.

After reviewing the information in the comments and reconsidering the available information, we agree with the commenters that the use of surface impoundments for treatment of paint manufacturing waste liquids appears to be even less frequent than we estimated at the proposal. Our data for the surveyed facilities show that one off-site CWT facility used surface impoundments to treat paint manufacturing wastes, and probably no more than two such facilities are likely to exist nationwide that accept liquid wastes from paint manufacturers.[5] The one facility that we found to use impoundments has only lined impoundments, and we have no indication that off-site unlined impoundments are used for this waste.[6] Therefore, we concur that the management scenario we modeled, an unlined surface impoundment, does not appear plausible, because the factual record does not support a finding that this management scenario is either currently in use or is likely to be used in the future (for further discussion of EPA's concept of plausible management see the proposed rule for solvent wastes at 61 FR 42323, August 14, 1996, and also the final determination for solvents at 63 FR 64384, November 19, 1998).

As noted in the proposed rule, we also believe that the level of protection afforded by a liner system could be significant for a surface impoundment, which will contain liquid wastes only during its operating life (66 FR 10108). A lined impoundment with a finite operational life (30 to 50 years) is less likely to release liquids; releases to the subsurface would be reduced due the liner and leachate collection system in place. If, however, leaks occurred in the liners of such an impoundment during its operating life, the unit can be drained and repaired before continued use. Therefore, we do not believe the risk analysis presented in the proposal for unlined impoundments can be applied to lined impoundments. For this reason, we are not listing the liquid paint wastes. We believe that our decision is further supported by the considerations presented in the following sections.

2. Estimates of Surface Impoundment Risks Were Likely Overstated

In the proposed rule, we also discussed the likelihood that EPA's groundwater modeling scenarios contain impoundments with characteristics that are unlikely for large off-site treatment facilities, i.e., small units with low flow rates and long retention times (66 FR 10108). This is because the database we used for impoundment parameters contained data for on-site units, which may not be representative of off-site commercial CWT facilities. This means that many of the small impoundments used in the probabilistic modeling contained a high fraction of paint wastes. We suggested that this may not be representative of actual off-site commercial treatment units, which are likely to be larger, and that paint wastes would make up a smaller fraction of wastewaters in such units. One commenter contacted the CWT facility that reported a surface impoundment and found that

[4] The commenter suggested that the number of possible impoundments estimated by EPA's contractor was 2–4, not the 4–5 EPA described in the proposal. However, we note that the estimate of 2–4 was for the sampled facilities, and that the estimates of 4 and 5 were derived for the larger number of relevant paint manufacturers in the database of interest (see the memo from Paul Denault, Dynamac Corp., to Dave Carver of EPA, October 4, 2000).

[5] See Table 4 in the memo from Paul Denault, Dynamac Corp., to Dave Carver of EPA, October 4, 2000. Knowing the ''true'' value for the number of impoundments for the facilities in the survey to be one, the number of impoundments for the total population of facilities of interest was estimated to be two.

[6] The 3007 Survey data also did not show any facilities using on-site surface impoundments for paint manufacturing wastes.

approximately 3% of all the liquid wastes accepted for surface impoundment treatment in 1998 came from the paint manufacturing industry. The commenter argued that if EPA used a more accurate estimate of the fraction of paint manufacturing wastes managed in surface impoundments (*e.g.,* 3%), then this would significantly reduce or eliminate risks in EPA's assessment.

After considering all the available information, we agree that the assumptions for the unit characteristics that we used for modeling likely resulted in an overestimate of possible risks from a surface impoundment. As noted in the proposal, the database of impoundments we used in modeling yielded a 90th percentile value of one for the fraction of paint manufacturing waste in impoundments, i.e., 100% of the liquid waste was assumed to be from paint manufacturing. While we did not attempt to quantify the effect of changing the waste fraction through modeling, we believe that using the much smaller waste fraction reported for the one known impoundment (3%) would reduce risks by over an order of magnitude. Thus, this is an additional factor that would make any significant risks from an impoundment scenario unlikely.

3. Impact of Modeling Error

We also uncovered an error in our modeling due to the assumptions we used to account for risks arising from residential use of groundwater (*e.g.,* showering). As we discuss in detail in section IV.B.1 below, correcting this error would significantly raise the listing levels for 8 of the 12 organic constituents (by about a factor of 50) that we proposed for liquid paint manufacturing wastes. When we consider the likely dilution that occurs for paint washed out during the cleaning of mixing tanks (estimated to be about a factor of 12.5 in the proposed rule, see 66 FR 10107), the levels of these chemicals in paints would approach or exceed 100% to generate wastewater concentrations at the increased listing levels.[7] Similarly, two of the four remaining chemicals already had levels that were high, *i.e.,* the proposed level for formaldehyde was 81,000 ppm and the level for n-butyl alcohol was 41,000 ppm. Thus, factoring in a dilution of at least 12.5 during wash out, the concentrations for these constituents in paint product also would approach unrealistic levels. When we factor in the likely overestimate of risk noted in the above section due to the waste fraction assumptions we used in the proposal, the listing levels would be another order of magnitude higher.

The two remaining constituents that would not be affected by the modeling error are acrylamide and antimony. As discussed in the later section on paint waste solids, we now believe that these two constituents are not likely to be present in paint wastes at the proposed listing levels, or to be present so infrequently that they would not cause a substantial hazard to human health and the environment. In reaching this conclusion, we reviewed the 3007 survey further to assess the potential for liquid wastes to contain these constituents and be disposed of in impoundments of any sort. In the 3007 survey, facilities reported the presence of acrylamide polymers in only two nonhazardous wash waters, and these were sent to POTWs, not off-site CWT facilities. Facilities reported antimony in only four nonhazardous wash waters and the reported levels were ''trace'' or well below the proposed listing level; three of the facilities sent their wastewaters to POTWs, while the other facility reported sending the treated wash water to a CWT facility. We contacted this generating facility and found it used a very small quantity of antimony-containing pigment in the manufacture of only a few paint batches per year. (This facility reported a single ingredient containing antimony out of hundreds of ingredients used in paint production.)

Considering the impact of using the much smaller waste fraction reported for the one known impoundment, and after correcting for the model error (as well as considering the infrequent occurrence of significant levels for key constituents), the constituent concentrations in liquid paint wastes are not likely to approach the corrected listing levels for an impoundment scenario, even if an impoundment scenario was a plausible mismanagement scenario.

4. Other Regulatory Programs

We received comments stating that EPA did not consider the full effect of existing or upcoming rules under the Clean Air Act (CAA) that would limit the potential risks from paint production wastes. Commenters cited several regulations, including the National Volatile Organic Compound Emissions Standards for Architectural Coatings and Industrial Maintenance Coatings (AIM) rule. They stated that regulations severely limiting the use of volatile organic compounds (VOCs) in paint products would greatly reduce VOCs in paint production waste as well. One commenter further indicated that, because our survey collected 1998 data, it does not take into account the changes that have or will be made in paint formulation to meet the AIM Rule regulatory levels.[8] This would include changes required by many states in ozone non-attainment areas, which have developed even more stringent VOC regulations than the National AIM Rule.

Commenters pointed out that there are currently 14 major federal National Emission Standards for Hazardous Air Pollutants (NESHAP) surface coatings categories with Maximum Achievable Control Technology (MACT) standards that have been (or shortly will be) issued for a wide variety of industries. The commenters said that these ''Surface Coating MACTs'' will force coating application facilities to use coatings with low levels of Hazardous Air Pollutants (HAPs) to avoid installing expensive control technologies. The commenters argued that many customers will demand the production of low-HAP coatings, because most MACTs will require at least a 90–95% reduction in surface coating HAP emissions. Noting that nearly all the proposed waste constituents of concern in the proposed rule are HAPs, the commenters suggested that eliminating most of the HAPs in paint products will eliminate most HAPs in paint production waste. Finally, commenters stated that the planned MACT covering paint manufacturers (Miscellaneous Organic Chemical and Coatings Manufacturing, due to be published) will similarly reduce HAPs in paint formulations, and consequently production wastes.

In general, we agree that the existing and upcoming regulations on air releases will limit the levels of many organic chemicals of concern in paint wastes. As we noted in the proposal (66 FR 10103), regulations that limit air releases from off-site CWT facilities are also likely to keep the levels of organic constituents low, including in impoundments that might exist. See subpart DD in 40 CFR part 63 sets NESHAPs for off-site waste and recovery operations, which may include

[7] The listing level for acrylonitrile would increase by a somewhat smaller factor due to the correction (i.e., by about a factor of 7, analogous to the increase found for waste solids) because its carcinogenic risk level becomes the critical endpoint after the correction. Thus, a listing level of about 65 ppm would result. Considering a dilution factor of 12.5 from washing out of a mixing tank, this would reqire a acrylonitrile level of over 800 ppm in the paint itself. For reasons noted in the discussion on waste solids, such levels in paint appear unlikely.

[8] The final rule entitled National Volatile Organic Compound Emission Standards for Architectural Coatings (40 CFR part 59, subpart D) was published September 11, 1998 (FR 63 48848).

off-site centralized wastewater treatment facilities. The impacts of this and the other regulations cited on paint wastes are difficult to quantify. However, such standards provide incentives to reduce HAPs through source reduction or pretreatment to avoid costly engineering controls. Therefore, the impact of these other existing and potential regulatory controls contribute to our belief that listing of this waste is not warranted.

Finally, a significant fraction of paint manufacturing wastes is already RCRA hazardous waste, primarily due to the regulations for characteristic hazardous waste under 40 CFR 261.21 through 261.24. From our survey of the industry, we found that about 36% of the liquid wastes were coded and managed as characteristic or listed hazardous waste. The characteristic liquid wastes typically exhibited the characteristic of ignitability or toxicity, and the listed liquid wastes usually were classified as solvent wastes (F001 through F005). We believe the existing RCRA regulations provide controls for those liquid paint wastes that are most likely to contain many of the constituents of concern, *i.e.,* those with high solvent or organic content.

5. Conclusion for Paint Production Waste Liquids

We are making a final determination not to list waste liquids from paint manufacturing. As noted in Section II of today's notice, we applied the factors under § 261.11(a)(3) in making this listing determination. A key consideration is what constitutes a plausible management scenario for this waste (factor (vii) under § 261.11(a)(3)). After reviewing the comments and considering all the available information, we believe that the management scenario we modeled, an unlined surface impoundment, is not plausible. We find that management of liquid paint wastes in surface impoundments appears to be rare, and we have no indication that such units are unlined. Therefore, we are not listing paint production waste liquids.

This decision is supported by additional considerations. We considered most of the other factors under § 261.11(a)(3) as part of our risk assessment methodology (factors (i) through (viii), including constituent toxicity, constituent concentration, constituent fate and transport, waste volumes).[9] In this regard, we now believe that the unit characteristics we used for modeling impoundments likely resulted in an overestimation of possible risks. After correcting for a modeling error and considering the infrequent occurrence of key constituents, any remaining risks do not support a decision to list this waste, even if an unlined impoundment was plausible.

Finally, we considered the impact of other regulatory programs on the potential management scenarios and the associated risks (factor (x)). We find that the existing and upcoming regulations under the Clean Air Act (CAA) will limit the levels of many organic chemicals of concern in paint wastes. We also find that a significant portion of paint production waste liquid is already managed as hazardous waste under RCRA. Therefore, after considering all these factors we conclude that a listing of paint production waste liquids is not warranted.

B. What Is the Basis for EPA's Final Determination Not To List Paint Production Waste Solids?

We have decided not to list as hazardous waste solids generated by paint manufacturing facilities. We proposed a hazardous waste listing, K179, for paint manufacturing waste solids generated by paint manufacturing facilities that, at the point of generation, contain any of the five constituents of concern at or above the levels listed in Table IV.B–1 below. We tentatively found potential risks of concern from the management of waste solids in an off-site Subtitle D industrial landfill. The paint manufacturing waste solids in the proposed listing were: (1) Waste solids generated from tank and equipment cleaning operations that use solvents, water and/or caustic; (2) emission control dusts or sludges; (3) wastewater treatment sludges; and (4) off-specification product.

TABLE IV.B–1.—PROPOSED LISTING CONCENTRATION LEVELS FOR WASTE SOLIDS (K179)

Constituent	Concentration levels (mg/kg)
Acrylamide	310
Acrylonitrile	43
Antimony	2,300
Methyl Isobutyl Ketone	73,000
Methyl methacrylate	28,000

After the comment period closed, we discovered an error in the calculation of human exposures from showering in the groundwater model that resulted in over estimating exposure levels (discussed in detail in section IV.B.1). In addition, we received numerous comments objecting to the proposed listing based on issues related to: (1) Our interpretation and aggregation of the 3007 survey data on waste volumes and management practices and whether they resulted in an overestimation of waste volumes that were used as inputs to the risk assessment; (2) the statistical design and analysis of the 3007 survey and whether it resulted in unrealistically large waste volume estimates; and (3) the potential for constituents of concern to be present in the waste.

We discuss the correction to the showering model and the key issues commenters raised which influenced our final determination in the following sections. These issues are discussed in the order that we addressed them in our decision making. First, we corrected an error in the shower model that significantly overestimated inhalation exposures to noncarcinogens. As a result, two of the five potential constituents of concern were dropped from further consideration because their calculated listing concentration levels indicated they would not pose a risk. Second, we considered the public comments on our statistical analysis and use of the 3007 survey data to derive waste volumes that were key inputs to the risk assessment. As a result, we made some adjustments to our statistical analysis and derived adjusted waste volumes that we used to re-run the risk assessment. Finally, we considered the likelihood that constituents of concern would actually be present in the waste at concentrations that would pose an unreasonable risk to human health or the environment. We respond to public comments in the Paint Manufacturing Hazardous Waste Listing determination: Response to Comments Document (available in the docket for today's final determination).

1. Changes to the Risk Assessment

We modified the exposure component of the shower model for non-carcinogens to correct an error that we discovered in the risk analysis. The changes to the risk analysis for waste solids (described in the next paragraph) resulted in risk estimates which indicated that two of the five constituents (methyl isobutyl ketone and methyl methacrylate) were no longer of concern.

For the risk assessment in the proposed listing determination, we assumed that contaminants may be transported in groundwater to domestic groundwater wells where the groundwater is extracted and used for showering in addition to drinking water.

[9] Note that we also considered whether any damage cases arising from the mismanagement of paint manufacturing wastes (factor (ix)). We determined that the available data did not provide useful information for a listing determination (see 66 FR 10082–10083).

We assumed that an adult resident inhales vapors that are emitted from the water used for showering. Exposure while showering was the driving pathway of exposure for several constituents in the proposed listing. This exposure pathway is modeled with a set of equations (hereafter referred to as the ''Shower Model'') that estimate the concentration of the constituent in the air after it has volatilized from the water during showering. Based on a review of the model, we determined that the air concentration estimated in the shower was not adjusted for an average inhalation exposure during a 24-hour day. Rather, it was incorrectly compared directly to the noncancer inhalation benchmarks, also known as reference concentrations (RfCs), in order to calculate a hazard quotient. The RfC is a chronic health benchmark and reflects a concentration in air to which an individual can be continuously exposed without experiencing any adverse health effects. A hazard quotient is the ratio of an individual's chronic daily dose of a noncarcinogen to a reference concentration (an estimate of daily exposure that is likely to be without appreciable risk or deleterious effects over a lifetime).

The result of this direct comparison was that the human health hazard from non-carcinogens was based on an individual's exposure to air concentrations in the shower for 24 hours a day, every day. The air concentrations in the shower for the non-carcinogens should have been adjusted to account for the time the receptor is not showering. The non-cancer exposure component of the shower model has been modified to correct this error. For carcinogens, the exposure equations used in the proposal do account for the length of time spent in the shower so that the calculations for carcinogens were correct as proposed. Therefore, the listing levels for acrylamide were not affected by this change in the shower model. For antimony, the results do not change because antimony is not volatile and does not have an inhalation risk component from showering.

Table IV.B–2 contains both the proposed and the corrected risk-based concentration levels for the non-carcinogenic constituents (except antimony) we considered for the K179 waste solids listing proposal. The results are the total concentration in mg/kg for both the combined solid and emission control dust waste streams when managed in landfills. The ''corrected'' concentrations are what the concentrations would have been if there had not been an error in the shower model. The corrected concentrations were calculated using the original waste volume weights; thus, the only change in the risk assessment that is reflected in the table below is the correction of the shower model. The reason the acrylonitrile level did not increase as much as the others is due to the fact that the concentration level proposed was based on noncarcinogenic effects of acrylonitrile, whereas the corrected level is based on carcinogenic effects. That is, when the shower model correction was made, the concentration level based on noncarcinogenic effects increased to the point where carcinogenic effects are now considered to pose a greater risk and, therefore, are the basis for the corrected numbers.

TABLE IV.B–2.—RISK-BASED CONCENTRATION LEVELS FOR CONSTITUENTS OF CONCERN IN PAINT MANUFACTURING WASTES WHICH ARE AFFECTED BY RISK FROM INHALATION WHILE SHOWERING [1]

Constituent	Combined waste solids		Emission control dust waste	
	Proposal concentration level (mg/kg)	Corrected concentration level (mg/kg)	Proposal concentration level (mg/kg)	Corrected concentration level (mg/kg)
acrylonitrile	60	440	43	310
methyl isobutyl ketone	120,000	E	73,000	E
methyl methacrylate	41,000	E	28,000	E

[1] These levels are the concentrations in paint manufacturing waste that would potentially present unacceptable risk if met or exceeded. The ''corrected values'' shown in this table are calculated with the original facility weights used in the proposed listing.

E = risk-based waste concentration exceeds 1 million parts per million; therefore, these constituents were eliminated from the listing based on this finding.

2. RCRA Section 3007 Survey of Paint Manufacturers

Our primary source of data for this regulatory determination is a survey of paint manufacturers conducted under authority of RCRA section 3007. The purpose of the survey was to gather information about nonhazardous and hazardous waste generation and management practices in the U.S. paint and coatings manufacturing industry. As explained in the proposal, we used data from the 3007 survey of paint manufacturers for several purposes: (1) To provide a general assessment of the paint and coating industry's waste generation and management practices; (2) to identify plausible waste management scenarios that are the basis for our risk assessment and listing determination; (3) to provide data for risk modeling parameters such as waste types and amounts sent to specific management practices; and (4) to assess land disposal restrictions treatment capacity and potential economic impact on the entire universe of paint manufacturers.

The survey was a stratified random sample of 299 facilities identified as paint manufacturers in the Dun & Bradstreet data base. We stratified the sample to improve our coverage for various industry subsets that were most likely to generate large waste volumes and to identify the vast majority of waste management practices. The stratification divided the sampling universe into categories based on facility size, type of paint manufactured and Toxics Release Inventory (TRI) reporting status. Surveyed facilities were then randomly chosen from each category.

Each surveyed facility was assigned a weight representing the total number of facilities in the category and how likely it was for any facility to be sampled from that category. For example, if a category had ten facilities and two facilities were sampled, the weight assigned to each facility in the category would be five. We used these weights to extrapolate from the surveyed facilities to the sampling population so that we could estimate the various waste streams and waste amounts that were generated by the population of paint manufacturing facilities, as well as the frequency of waste management practices. Again, as an example, if a facility with a weight of five reported generating 100 tons of emission control

dust that were disposed of in a nonhazardous waste landfill, we counted that as five facilities, each generating 100 tons of emission control dust disposed of in a nonhazardous waste landfill. For risk modeling purposes, 100 tons of emission control dust was entered into the waste volume distribution five times. We did not analyze the total quantity of nonhazardous waste solids from all paint manufacturers going into a single landfill because this scenario never occurs. When individual surveyed facilities reported sending multiple waste streams to a single landfill or when more than one facility reported sending solid waste streams to the same landfill (based on name and address provided by survey respondents), we added those waste volumes to ensure that we accurately reflect the combined quantities of paint waste solids that are sent to a single management unit. We also used facility weights to extrapolate for total volumes of paint manufacturing waste generated by the universe of paint manufacturers.

3. Interpretation and Aggregation of Waste Volumes and Management Practices

For waste solids, we modeled one management scenario, disposal in an industrial nonhazardous waste landfill. The vast majority of waste solids are disposed of in municipal or industrial nonhazardous Subtitle D landfills, and, of these, about half go to industrial landfills. We did one risk assessment that combined the individual weighted waste volumes for all four solid waste streams that were reported being sent to Subtitle D landfills: tank and equipment cleaning sludges, wastewater treatment sludges, emission control dust, and off specification product. We did a separate assessment for emission control dust, using only the individual weighted waste volumes for dusts. The proposed listing description for K179 included all four solid waste streams in one waste code.

One trade association objected to our modeling an industrial landfill rather than a municipal landfill. As stated above, we chose to model an industrial landfill because about half of the wastes going to Subtitle D landfills go to industrial landfills. There are only two differences in modeling assumptions for industrial nonhazardous landfills as compared to municipal landfills. First industrial landfills are slightly smaller than municipal landfills so the quantities of paint manufacturing waste modeled in the industrial landfill are a relatively larger proportion of the total waste quantities going into the unit. Also, industrial nonhazardous landfills are assumed not to have daily cover. Both of these add to the conservatism of the protective constituent levels predicted by the risk assessment. Disposal in a Subtitle D industrial landfill is a plausible management scenario because approximately half of the facilities that directly land dispose their wastes send them to Subtitle D industrial landfills. The commenter did not provide any information to support modeling municipal landfills, as an alternative. Therefore, we continue to believe that modeling industrial landfills is an acceptable approach.

The same trade association also raised several issues concerning our interpretation and aggregation of waste volumes and our interpretation of waste management information provided by survey respondents, which they argue contributed to overestimating waste volumes and risks. (The commenter also raised a number of concerns regarding the statistical design of the survey and resulting data analysis which are discussed separately in the following section.) The first point the commenter raised was that two facilities inadvertently reported inaccurate waste volumes in the survey. Only one of these involved a solid waste stream; the facility submitted revised information which reduced the amount of nonhazardous wastewater treatment sludge sent to a landfill from 500 to 250 tons per year. We have made this correction and used the new waste volume in our revised risk analysis.

The same commenter claimed that we incorrectly estimated the waste volumes for one facility that reported two of the largest solid waste streams for emission control dust and off specification product. In order to convert waste amounts into volumes for input into the risk assessment models, we asked 3007 survey respondents to provide information on the amount of each waste stream they generate by weight in metric tons as well as the density of each waste stream. We used the density information to convert the weight of each waste stream into gallons. The commenter claimed that the two waste streams in question are from the production of powder coatings and have a low density of three to four pounds per gallon. The commenter argued that we used the wrong waste densities and, therefore, overestimated volumes of emission control dust and off specification paint from this facility. We have reviewed the data supplied by the facility in question and find that they supplied a density of three pounds per gallon for each of these two waste streams, which were the densities used in calculating their waste volumes. Therefore, we did not overestimate the volume of these waste streams.

The same commenter also argued that combining waste volumes for the four solid waste streams in the risk assessment artificially and arbitrarily inflated the risks associated with the wastes. Rather, they stated that EPA should have modeled the volumes for each waste stream separately. The commenter contended that manufacturing sites would handle each waste stream separately and likely dispose of them separately. Further, the commenter claims that we did not meet our obligation with regard to the scope of the listing determination by combining the solid waste streams, rather than assessing the risks of each separately. We disagree with this contention. We combined in one risk assessment only those waste volumes for different solid waste streams that were reported in the 3007 survey being sent to municipal or industrial nonhazardous Subtitle D landfills. Each waste stream reported separately as going to a unique facility was considered as a separate waste volume in the distribution used in the risk assessment. We only added together waste volumes that were actually sent to the same physical location and type of waste management unit.

In addition, a number of facilities reported that they collect and store different types of waste solids (or waste liquids) in the same containers, as they are generated from a batch production process, and then dispose of all the waste in a single waste management unit. Whether managed and transported separately by a paint manufacturer or combined before transport to a disposal facility, the vast majority of nonhazardous waste solids are managed in nonhazardous landfills, including 99 percent of emission control dust; 97 percent of wastewater treatment sludge; 86 percent of wash water sludge and 56 percent of off specification paint. We believe combining waste distributions from all these solid waste streams is appropriate, because it is a more accurate representation of the waste management practices reported in the survey and of the potential risks. It would only be appropriate to model each solid waste stream separately if each waste stream was being sent to a distinctive type of waste management practice, or if the waste characteristics for individual paint manufacturing solid waste streams are unique.

The commenter also argued that we arbitrarily used the risk assessment results from modeling emission control dust as the proposed listing

concentration levels because the concentrations were lower. We modeled emission control dust waste volumes separately to examine the potential risk from air releases from landfills, i.e., we assumed low moisture content in the emission control dust wastes and assessed risks from wind-blown releases. Our modeling showed that these low moisture wastes did not pose any significant risks via air releases; thus both the dust and combined solids results are driven by the groundwater pathway. In the proposal, we suggested using the listing levels for the dusts because the levels were slightly lower.

The differences in the proposed listing levels for dusts and combined solids were relatively small (combined solids levels were higher by about a factor of 1.5 for the constituents of concern). The slightly lower levels derived from the dust scenario are a result of the volume distribution for dust waste volumes. This is due to the fact that the individual emission control dust waste volumes generated from paint manufacturing tended to be larger. In the combined solids waste volumes, many reported sludge or off-specification paint waste volumes that were quite small. Therefore, even though the total volume of wastes for combined solids was higher, the dust volumes yielded somewhat lower listing levels.

As discussed above, modeling combined waste solids is an accurate representation of waste management practices reported in the 3007 survey and the most accurate representation of ground water risks associated with this disposal practice. Therefore, we conclude that listing levels for waste solids would more appropriately be derived from the combined solids modeling. As noted above, we found that many generators tended to combine waste solids for disposal and that the vast majority of waste solids are disposed of in nonhazardous landfills. Thus, it is plausible to consider the combined solids as a class of waste for potential listing and combined solids results are more representative of the waste category we proposed to list. However, as noted previously, we are not finalizing a listing for this category because we believe that the risks from waste solids do not warrant listing.

The same industry trade association also argued that we should not have modeled emission control dust in the combined solids assessment because the only constituent that would be a basis for listing emission control dust is antimony. They contend that we should not have modeled organic constituents in emission control dust because there is not a high incidence of emission control dust residual containing organic materials. The commenter noted that only one surveyed facility reported any of the proposed organic constituents of concern. That facility inaccurately reported methyl isobutyl ketone (MIBK) in their dust. The facility later submitted revised information to indicate that their dusts do not contain MIBK. As explained above, MIBK was eliminated from consideration as a listing constituent after correcting an error in the shower model.

However, we continue to believe our rationale is appropriate for modeling all of the potential constituents of concern in all waste streams for several reasons. First, we note that 32 surveyed facilities identified potential constituents of concern in their nonhazardous emission control dusts, including constituents such as cobalt, copper, barium, zinc, cadmium and chromium in addition to antimony. This also includes five different facilities reporting a total of eleven different organic constituents in their emission control dusts. In addition, we identified potential constituents of concern that are widely used raw materials in paint production, based on the available literature. The process for selecting these constituents is detailed in the proposal (pp. 10083—10087). Generally, these constituents are likely to occur in a number of different waste streams. We recognize that it is possible that a given constituent could occur in some solid waste streams and not in others, or at substantially different concentration levels. However, we did not have information available to indicate whether there were some constituents that would never occur in particular waste streams. We believe that modeling all constituents of concern for all similarly managed waste streams is a conservative approach to identify those that potentially pose unacceptable risk. In addition, under a concentration-based listing approach, if the constituents do not occur in one solid waste stream, like emission control dust, that waste stream could be managed separately as nonhazardous waste, provided the generator meets the applicable implementation requirements, e.g. certification that the waste does not contain the listing constituents.

This comment raises the broader question of whether the constituents of concern are likely to occur in the waste. We agree that this is a key question in making the listing determination. In addition to risk assessment results, there are a number of additional factors that we considered in making the listing determination. These are discussed below in section IV.B. 5 as the basis for our final determination not to list paint production waste solids as hazardous waste.

In summary, the 3007 survey provided us with a realistic picture of the types of wastes that are generated, waste volumes, and management practices being used. Our initial interpretation of the survey data, based on the information supplied to us by survey respondents, was accurate. While the commenter did identify several survey responses that facilities changed after the proposal was issued, the commenter did not present any information to support the contention that we used the data inappropriately. For purposes of refining our risk assessment, we changed the amount of wastewater treatment sludge for one facility from 500 tons to 250 tons, based on new data the facility provided. In addition, we agree that listing levels for constituents of concern should be based on the analysis results for combined solids waste volume distributions rather than for emission control dust alone. Therefore, the discussion below regarding potential regulatory concentration levels for the constituents of concern is based on levels for the combined solids.

4. Statistical Design and Analysis of the RCRA Section 3007 Survey Data for Estimating Waste Quantities

One industry trade association raised the following key issues concerning the statistical design and analysis of the RCRA section 3007 survey: (1) Whether use of the Dun and Bradstreet database to identify paint manufacturers to categorize facilities for the stratified random sample was appropriate; (2) whether mischaracterization of facilities in the stratified random sample led to overestimates of waste quantities; and (3) whether direct extrapolation from the sampling population to the universe of paint manufacturers led to overestimates of waste quantities.

Following review and consideration of these comments, and following the accepted statistical practice of post-survey refinement of the stratification of surveyed facilities, we adjusted the facility stratification approach and adjusted the statistical weighting procedure to make the sample distribution more representative of the entire paint manufacturing population. These adjustments improve our extrapolation from survey data to the paint universe and, hence, improve our estimates of waste quantity.

Summarized below are the major comments, our responses, and further statistical refinements we performed to

address the commenter's issues. In the following subsections, we discuss: (1) the database used for developing the survey; (2) the important aspects of the original sampling framework design criticized by some commenters; (3) the key statistical issues raised by the commenters and our efforts to refine the facility stratification and weighting scheme in response to comments; (4) the post-survey adjustments of statistical weights to improve data extrapolation; and, (5) our use of adjusted weights for the final risk assessment.

a. Use of the Dun and Bradstreet Database

As explained in the proposed rule (at 66 FR 10070), we used the Dun and Bradstreet database for developing our survey scheme because it provided the most thorough listing of paint manufacturers in the United States. Specifically, we used the following information contained in the Dun and Bradstreet database for developing the survey scheme: facility names and addresses, contact names and telephone numbers, annual sales volume data, and SIC codes for the types of paint or paint-related products manufactured. One commenter argued that EPA arbitrarily relied on outdated and unverified commercial corporate information instead of actual facility specific information. However, the commenter did not describe in their comments any alternative source of ''actual facility specific information'' readily available to us before conducting the survey. Nor did they identify an alternative source when directly asked.

Our only alternative to relying on this existing database would have been to collect the pre-survey information of interest (*e.g.*, facility size, paint types, etc.) from the entire universe of paint manufacturers for sample frame design and stratification. In light of the large number of potential paint manufacturers (1,764 listed under SIC Code 2851 in the July 1999 Dun and Bradstreet database), this was impractical. Under the Paperwork Reduction Act, Federal agencies are required to submit an Information Collection Request (ICR) to and receive approval from the Office of Management and Budget (OMB) prior to collecting substantially similar information from ten or more respondents in any 12-month period. Collecting pre-survey information would have required separate ICR approval and additional time to gather the information; but such time was not available to us under the consent decree. In the absence of ''actual facility specific information'' or pre-survey information of interest for all the facilities in the paint manufacturing facilities universe, we believe the Dun and Bradstreet database provided the best source of information for our survey, and we are continuing to use this database for the final determination today.

b. Original Statistical Design and Analysis of the RCRA Section 3007 Survey

For our RCRA Section 3007 survey of paint manufacturers (see 66 FR 10069—10072 on how the Agency designed the statistical, stratified random-sampling survey), we derived a sampling population of 884 facilities from the Dun and Bradstreet database purchased in July 1999.[10] This database contained a total of 1,764 facilities identified under SIC Code 2851. Discussed below are some aspects of our sample frame design and stratification that were criticized by some commenters.

We first screened the July 1999 database and removed the 880 facilities that fell into one of the following categories: apparent non-paint manufacturers, duplicates, no longer in the December 1999 database, outside of the scope of this listing determination, or found impossible to fully classify for facility stratification. We then classified the remaining 884 facilities into 12 strata based on three categorization criteria: paint types (architectural/special purpose, and OEM), sales volume (less than five million, five to twenty million, and greater than twenty million), and TRI status (whether the facility reported under TRI in 1997). The strata were intended to group those facilities we believed would have somewhat similar characteristics, for example, similar waste amounts and types of waste generated and similar waste management practices.

The sales volume data in the Dun and Bradstreet database contained a number of ''zero'' entries for a significant number of facilities. It was possible that some facilities did not sell any paints during the reporting period, or did not report their sales volume, or reported zero sales for other reasons. However, for the reasons discussed above, it was impracticable for us to contact every individual facility shown with a zero or missing sales volume. Because most facilities in the paint industry are relatively small, we believe it was reasonable to have classified those facilities with zero sales as ''small.''

Of the 880 facilities removed, 705 had insufficient information on the type of paint products manufactured to be fully classified into the various strata. Thus, we excluded the 705 entries from the sampling frame to increase the chances of obtaining useful data (e.g., waste management practices by in-scope paint manufacturers) for this listing determination. Nevertheless, these 705 facilities were still assumed to be represented by the sampling population of 884 facilities and thus were not excluded from the evaluation of paint manufacturing wastes. To relate the data collected from the surveyed facilities to the entire paint universe including the 705, we extrapolated statistically by using the percentages of facilities in the Dun and Bradstreet database that are represented by the surveyed facilities (66 FR 10072).

We applied a statistical weighting and bias correction procedure to produce unbiased estimates from our survey data. This was necessary because we had sampling rates that were not proportional to the facility population sizes within each strata. We then used the extrapolated waste quantity estimates for characterizing the entire paint manufacturers' universe, and for our economic impact analysis and waste treatment and management capacity analyses. For risk modeling purposes, we estimated a national waste quantity distribution for the 884 facilities included in the sampling frame. For the purposes of the risk assessment, we assumed the 884 facilities were proportionally the same as the 705 facilities.[11] Since the risk assessment would not be impacted by the number of facilities but only by the shape and nature of the distribution, this proportional handling of the 705 facilities had no impact on the results of the risk assessment.

One commenter argued that most paint manufacturing sites use the same equipment, same pollution control devices, have similar formulas and have similar manufacturing processes. Therefore, the commenter argued that EPA should have used a realistic, simpler extrapolation tool such as pound or gallon of waste per gallon of product produced. However, the commenter did not provide any specifics or necessary information on

[10] The July 1999 Dun and Bradstreet database we initially purchased for preliminary analysis contained no sales volume data. In December 1999, we purchased another version containing sales volume data as a supplement for sampling stratification.

[11] We assumed that the 705 facilities could be stratified in the same manner as the 884 facilities, such that both groups of facilities would have the same distribution of statistical weights and associated waste quantities, characteristics and management practices. In other words, the same distributions of waste stream data and waste volume percentiles could be developed from both sets for risk assessment.

how to apply its suggested approach. Therefore, we could not evaluate this approach. In addition, from our survey we learned that approximately 27% of paint manufacturers did not generate or dispose of any of the waste residuals of interest because they recycled or reused all paint residuals as feedstock in the manufacturing processes. Using the commenter's suggested ''simpler'' approach would flatly discount this 100% reuse/recycling scenario resulting in an overestimation of waste quantities and an inaccurate account of waste quantity distributions.

c. Commenter's Issues Concerning Incorrect Statistical Weights for Survey Responses Used To Calculate Waste Quantities

One commenter objected to our use of the statistical weights resulting from the sampling stratification to characterize the industry's waste quantities. This commenter also stated that EPA's weighting factors resulting from the sampling stratification were arbitrary and resulted in an overstatement of the total waste generated by the industry. In particular, this commenter argued that EPA used information from the survey to characterize the 705 facilities that could not be stratified for the survey. The commenter contended that this improper use of unverified data very likely mischaracterized the universe of paint manufacturers and led to an overestimation of waste quantities.

This commenter further argued that the Agency mischaracterized some large facilities as small and some TRI facilities as non-TRI facilities, and that those facilities were assigned incorrect weighting factors. The commenter cited specific errors in EPA's facility categorization and the weighting factors assigned to four facilities generating large waste quantities, indicating that the waste quantity distributions used for our risk assessment of waste solids were improperly driven by the incorrect weighting factors for the cited facilities. Two of the cited facilities (survey respondents) also submitted comments in support of this argument. One pointed out that EPA miscategorized its facility as small with sales less than $5 million based on the Dun and Bradstreet database when their 1998 sales volume was actually $109.1 million; the other commenter similarly said that its 1998 sales were actually $30 million, not the $7 million reported in the Dun and Bradstreet database. The first commenter stated that the weights for such miscategorized facilities should be corrected by moving these facilities to the correct strata. We do not agree with the commenter in this respect, as discussed below. But, we do accept the commenter's information as to the two miscategorized facilities as correct.

In response to the comment that the 705 facilities should have been included in the sampling frame, we did not include them in the sampling population for two key reasons. First, we could not distinguish paint and coatings manufacturers from manufacturers of products outside the scope of the listing determination. Second, we could not distinguish architectural/special purpose paints from original equipment manufacturing (OEM) paint types, and believed that this could be significant (based on survey data, we later decided not to distinguish between these).

In the Dun and Bradstreet database used to establish our stratification scheme, the 705 facilities were listed under a general Dun and Bradstreet SIC code, 2851 0000,[12] for undefined paint and allied paint products, some of which are not subject to this listing determination. In contrast, among the defined groups, we could distinguish between architectural/special purpose paint types (under code 2851 0100 through 0109) and OEM paint types (under code 2851 0200 through 0213), and remove those not of concern (*e.g.,* 2851 0104—paint driers; 2851 0300 through 0302—putty, wood fillers and sealers; 2851 04 through 0403—removers and cleaners). Since there was a greater degree of uncertainty in the group of 705 undefined facilities (about whether they might be subject to this listing determination) than the defined groups, and since we could not stratify the 705 facilities into the desired architectural/special purpose and OEM categories, we decided not to sample them. Nevertheless, as already indicated, we did include the 705 facilities when extrapolating waste quantities for the entire paint universe. We did this by assuming that the characteristics of the 705 facilities were proportionate to the characteristics of the sampling population. We used these quantities to estimate the economic impact of the proposed rule on paint manufacturing and our waste treatment and management capacity analysis.

Relative to the TRI status of certain facilities, we wish to clarify that the facilities classified in our TRI categories for the survey reflect those TRI generators that reported chemical releases in 1997 to land-based waste management units (landfills, surface impoundments, waste piles, etc.) of concern to this listing determination. Consequently, some surveyed facilities that reported only non-land-based releases (*e.g.,* air emissions, energy recovery) in 1997 were not included in the TRI categories for survey sampling. Moreover, some facilities in the sampling population that might have reported TRI chemical releases to land-based management units in the years before and/or after 1997 were not included in the TRI categories either. Concerning the three facilities that one commenter argued should have been classified into TRI instead of non-TRI categories, they did not report any chemical releases to land-based management units in 1997. For this reason, we did not reclassify them into TRI categories.

Next, the claim that the sampling or statistical weights resulting from the stratification are incorrect because some facilities were not classified into the appropriate strata reflects a misunderstanding of what weighting represents in probability sampling. The statistical weights assigned to facilities in the various sampling strata reflect or indicate the probability of a facility being sampled from the population in a stratum, depending on how the facilities were categorized for sample selection, not on their true status. For example, if 100 facilities were placed in one stratum and 10 facilities were randomly sampled, each sampled facility would have a weight of 10. Misclassification or miscategorization of some facilities does not make the weights incorrect. In particular, the two misclassified large facilities cited by the commenters may be representative of other large facilities potentially misclassified in the same manner. However, we recognize miscategorization could result in increased uncertainty because facility characteristics within the stratum, in this case waste generation rates, have a much broader range of values than anticipated. As such, the variability of estimates from survey data could be large. Our plan for post-survey adjustments to facility stratification and sampling weights, as described below, essentially treats the two large facilities that were misclassified in the ''small''

[12] Each entry in the Dun and Bradstreet database is identified by an 8-digit code, the first four being the same as SIC's and the next four being proprietary to Dun and Bradstreet that represent segregation of the paints, varnishes, lacquers, enamels, allied products, etc. in more detail. For example, code 2851 0000 refers to paints, varnishes, lacquers, enamels, and allied products; code 2851 0100 refers to paint and paint additives; code 2851 0104 refers to paint driers; code 2851 0200 refers to lacquers, varnishes, enamels, and other coatings; code 2851 0208 refers to polyurethane coatings; code 2851 0300 refers to putty, wood fillers and sealers; code 2851 0400 refers to removers and cleaners. For more details, see the Listing Background Document for Paint Manufacturing Listing Determination available in the public docket.

facility strata as representative of other large facilities that could have been similarly miscategorized in the same database. This approach reduces the variability of survey estimates.

Although our stratified random-sampling survey was designed in a manner to ensure the best possible coverage, we acknowledged in the proposed rule (66 FR 10072) that, as in any other survey, there was uncertainty in our survey due to potential data source and sampling errors. Post-survey adjustment of sampling weights (*i.e.,* re-weighting) to correct miscategorization and improve the certainty in the results involves a process called post-stratification and it is a common and appropriate statistical practice to help reduce the uncertainty associated with estimates from the sampling survey. There are well known statistical techniques (*e.g.,* Cochran, W.G. 1977 [13]) that can be used for post-stratification and are widely employed in U.S. national surveys. Therefore, we developed post-survey adjustments to the survey weights to address the issues raised by the commenter concerning the miscategorization of facilities and the inappropriate extrapolation to the additional 705 facilities that were not included in the sampling population. We did not simply reclassify the strata of the two miscategorized facilities (due to incorrect sales volume information in the Dun and Bradstreet database) identified by the commenters. Their strata status cannot be simply changed by moving them into another stratum because that would violate the underlying probability structure of the survey. Some other surveyed facilities may be similarly mischaracterized in the same database, especially in regards to the facilities that had zero sales or missing data listed in the Dun and Bradstreet database. Unless accurate sales data can also be obtained for all the other facilities in the target population, it is inappropriate to just partially reclassify the two facilities with verified data.

d. Post-Survey Adjustments to Weights

As explained above and in more detail in ''Addendum to the Risk Assessment Technical Background Document for the Paint and Coatings Hazardous Waste Listing Determination'' available in the public docket, we performed post-survey stratification (or post-stratification) and re-weighting to improve our extrapolation from the survey data to the 705 facilities, and to make the sample distribution more representative of the sampling population of 884 facilities and the universe of paint manufacturers. We did this by using the following steps:

(i) Post-stratify the ''small'' facility categories based on the ''number of employees'' data in the Dun and Bradstreet database.

(ii) Adjust statistical weights to compensate for the seven facilities that did not respond to the survey.

(iii) Collapse two sets of statistical weights resulting from the two rounds of sampling.

(iv) Examine the list of 705 facilities previously excluded from the sampling stratification, and include potentially in-scope paint manufacturers for the development of statistical weights for the paint universe.

We discuss these steps in more detail below.

Post-Stratify the ''Small'' Facility Categories Based on the ''Number of Employees'' Data in the Dun and Bradstreet Database

We reexamined the Dun and Bradstreet database used to assess whether the Agency mischaracterized some surveyed facilities. We found that the two facilities cited by the commenters (as miscategorized ''small'') had zero sales; one facility had 300 employees and the other facility had 125 employees in the Dun and Bradstreet database. Moreover, we found numerous zero sales figures in the database. Based on our analyses, many of these zero sales figures were aggregated and reported under a corporate or headquarters office such that sales volume figures for their multiple individual facilities showed zero. For instance, thirteen facilities with the same company name but different addresses and different facility identification numbers carried the same headquarters identification number; one of these facilities had a large sales volume while twelve had zero sales volume. We interpret this scenario as the headquarters reporting the aggregated sales volume under the headquarters address. For the other zero sales figures, we surmise they could be due to a variety of reasons: There were no sales in the reporting period, sales data were not released to Dun and Bradstreet; or there were reporting or entry errors in the database. All the facilities with zero sales in the sampling population were in the ''small'' categories (i.e., Small, non-TRI, SIC 2851–01; Small, non-TRI, SIC 2851–02; Small, TRI, SIC 2851–01; Small, TRI, SIC 2851–02), with the majority in the two ''Small, non-TRI'' strata. Based on this, we decided to use the ''number of employees'' data for post-stratification of the facilities originally classified in the ''Small, non-TRI'' categories since employee data in the database were essentially complete and would offer a reasonable measure of facility size (for more detail see ''Addendum to the Risk Assessment Technical Background Document for the Paint and Coatings Hazardous Waste Listing Determination'' which is available in the docket for today's final determination).

On the other hand, we maintained the ''Large'' and ''Medium'' categories as originally stratified as there is no compelling reason to discount the sales volume data for those large and medium facilities.

Adjust Statistical Weights To Compensate for the Seven Facilities That Did Not Respond to the Survey

Out of the 299 facilities surveyed, seven facilities did not respond to the questionnaires. Using survey data from the respondents inevitably caused some bias, though insignificant in this case, in data extrapolation to the sampling population of 884 facilities (and in turn to the paint universe). That is, without accounting for the seven nonresponding facilities, the total waste generation might have been slightly underestimated. None of the commenters raised this issue. We, nevertheless, took this step to improve the statistical validity of our methodology. We adjusted the statistical weights to compensate for the nonresponse among the six surveyed facilities that we were able to contact. These were determined to be eligible for the survey because they were in business in 1998. (Eligibility only refers to whether the facility was in business and could respond to the survey, not whether the facility was a paint manufacturer.) This allows the respondents to represent the nonrespondents.

Collapse Two Sets of Statistical Weights Resulting From the Two Rounds of Sampling

As described in the listing background document available in the public docket for the proposed rule, the Agency conducted two rounds of sampling in February and March 2000. That is, we initially sent out questionnaires to 250 facilities, after which we discovered that only facilities located in States from Alabama through Ohio (alphabetically) were sampled. In order to correct this error, we sent out additional questionnaires to 49 facilities located in states after Ohio

[13] Cochran, W.G. 1977. Sampling Techniques, 3rd edition, John Wiley & Sons, New York, 428 pp.

(alphabetically), which were randomly selected using the same statistical methodology. This resulted in two sets of facilities with differing sampling weights. While using the two sets of weights for population extrapolation was statistically valid, we decided to collapse the ''through Ohio'' stratum with the ''after Ohio'' stratum to reduce sampling variances and unequal weighting effects. We believe that the alphabetical position of the states within strata bears no relationship to the survey outcomes, and thus collapsing the ''through Ohio'' stratum with the ''after Ohio'' stratum would not introduce bias. As demonstrated in the ''Addendum to the Risk Assessment Technical Background Document for the Paint and Coatings Hazardous Waste Listing Determination'' available in the public docket, collapsing the two sets of weights reduced the variability in the sampling weights and improved the precision of the survey estimates.

Examine the List of 705 Facilities Previously Excluded From the Sampling Stratification, and Include Potentially In-Scope Paint Manufacturers for the Development of Statistical Weights for the Paint Universe

To address the comment that the Agency improperly assumed that the facilities in the sampling population of 884 facilities were representative of those in the group of 705 undefined facilities previously excluded from the sampling stratification, we reexamined the Dun and Bradstreet database to determine which of the 705 previously excluded facilities also could be in-scope paint manufacturers. We eliminated 45 duplicates and added the remaining 660 possible in-scope paint manufacturers to the sampling population of 884 to become the full list of 1,544 facilities (hereafter referred to as the full target population) potentially subject to the listing. We included these 660 possible in-scope facilities in our post-survey analyses, for comparison of the results based on the full target population with those based on the sampling population (i.e., assessing the impact of analysis with or without including the 660 facilities). However, we note that we still could not tell which and how many of these 660 facilities might be associated with the paint types of interest to this listing determination, and thus the uncertainty in the group of 705 undefined facilities persists and carries over to the full target population of 1,544 facilities.

Moreover, as discussed above, we could not distinguish the types of paint production for the group of 660 undefined facilities to classify them into architectural/special purpose and OEM categories. By the same token, after combining the 660 and 884 facilities into the full target population of 1,544 facilities, we could no longer stratify all the facilities into architectural/special purpose and OEM categories. Since paint type was not a relevant factor in our analyses (*i.e.,* from the survey we found no significant difference between the two types of paint production in terms of waste types and amounts generated, waste characteristics and constituents, and waste management practices), this did not affect the validity of the categorization.

Taking steps (i) to (iii), as outlined in IV.B.4.d, we developed post-strata and adjusted weights for the sampling population of 884 facilities. Likewise, taking steps (i) to (iv), as outlined in IV.B.4.d, we developed another set of post-strata and adjusted weights for the paint universe using the target population of 1,544 facilities.

As a result of the aforementioned post-stratification and re-weighting, the statistical weighting factors assigned to the surveyed facilities changed somewhat, as expected. Details about post-stratification and re-weighting, and the statistical techniques used, may be found in ''Addendum to the Risk Assessment Technical Background Document for the Paint and Coatings Hazardous Waste Listing Determination'' available in the public docket.

e. Adjusted Statistical Analyses of RCRA Section 3007 Survey Data

We conducted three adjusted statistical analyses to derive the waste quantity distributions as inputs to the risk modeling, including:

—One bounding analysis, using the revised weights suggested by one commenter for the two facilities miscategorized as small, without making any other weight adjustments;
—One analysis using adjusted weights for the sampling population of 884 facilities per post-survey adjustment and re-weighting (but not the two revised weights suggested by the commenter); and
—One analysis using adjusted weights for the entire paint universe per post-survey adjustment and re-weighting (but not the two revised weights suggested by the commenter).

To assess the impact of changing weights for the two facilities mischaracterized as small, we initially conducted a bounding analysis using the revised weights (one changed from 4.0476 to 1, and the other from 7.6154 to 1) suggested by one commenter. We note that these two facilities generated relatively higher quantities of nonhazardous waste solids among the various quantities modeled for the landfill disposal scenario. Changing their statistical weights would affect the waste quantity distributions and could conceivably result in somewhat different risk assessment results. As we noted above, we consider simply changing these two weights to be statistically incorrect. Nevertheless, we conducted this bounding analysis for two key target constituents, acrylamide and antimony. The results indicate that the changes made to the waste quantity distributions do not appear to have a significant impact on the proposed listing levels for waste solids, i.e., making these changes would increase the listing levels by about a factor of 1.7 for the two constituents (see Table IV.B–3).

Using the corrected waste solid quantity (as discussed above in section IV.B.2), as well as the adjusted statistical weights for both the sampling population of 884 and the full target population of 1,544 facilities, resulted in a modified distribution of nonhazardous waste solids going to nonhazardous landfills. We note that adjusting the weights did not change the distribution significantly. Specifically, the percentile [14] quantities from the resulting waste quantity distributions, which generally represent the characteristics of the paint universe's nonhazardous waste solids that are landfilled, essentially remain as originally estimated with slight variations. We realize that there is a greater degree of uncertainty in the adjusted weights and statistical analysis for the full target population of 1,544 facilities than the sampling population of 884 facilities, because it is likely that more of the 660 (out of 705) facilities are producing products outside the scope of the rulemaking. Therefore, we maintain our conclusion that the waste quantity distributions (whether adjusted or not) for the sampling population of 884 facilities should be more representative of the paint universe than those for the full target population of 1,544 facilities. As such, we performed an adjusted statistical analysis of nonhazardous waste solids going to nonhazardous landfills for the sampling population of 884 facilities. Nonetheless, we also performed a similar adjusted statistical analysis for the full target population of 1,544 facilities for comparison. The final

[14] A percentile of a distribution represents a value below which a specified percentage of the data lie. For example, the 50th percentile is the value that 50% of the data lie below.

results revealed that neither of these two adjusted statistical analyses would significantly impact the risk assessment results.

Results of the final risk assessment using revised/adjusted statistical weights in conjunction with a correction to the shower model inhalation exposure for non-carcinogens (addressed in section IV.B.4) are summarized in Table IV.B–3. For details, see ''Addendum to the Risk Assessment Technical Background Document for the Paint and Coatings Hazardous Waste Listing Determination'' available in the public docket.

TABLE IV.B–3—RISK CONCENTRATION LEVELS FOR COMBINED WASTE SOLIDS (MG/KG) [1]

Constituent of concern	Original level from proposal (*indicates correction for shower model error)	Level resulting from bounding analysis [2]	Level resulting from adjusted weights—population of 884 facilities	Level resulting from adjusted weights—Population of 1,544 facilities
Acrylamide	470	810	370	250
Acrylonitrile	*[440]	[3] Not analyzed	340	220
Antimony	3,200	5,300	2,600	1,700

[1] Revised results from adjusted weights also reflect the corrections for error in the shower model.
[2] Moving two misclassified facilities per comments.
[3] It was already known that an error in the shower model would increase this level.

In summary, considering the uncertainties involved, the originally designed stratified sampling scheme was statistically valid and thus did not mischaracterize the paint universe. However, we agree with the commenters that the two facilities miscategorized as ''small'' due to incorrect sales volume information in the database should have been placed in other categories. Since accurate sales data could not be obtained for some other surveyed facilities that may be similarly mischaracterized in the same database, we did not partially reclassify the strata of those two miscategorized facilities because that would violate the underlying probability structure of the survey. This mischaracterization resulted in a greater degree of uncertainty in extrapolation from the survey data and estimation of waste quantities due to higher variability in the ''small'' facility categories than we thought. Nevertheless, we performed post-survey adjustments to the statistical weights in an attempt to improve data extrapolation, particularly post-stratification of ''small'' facility categories and incorporation of the 660 possible in-scope facilities resulting from the examination of the 705 previously excluded facilities. While the overall adjustments improved data extrapolation and waste quantity estimates, incorporation of the 660 facilities (into the 884 original sampling population to become a target population of 1,544 facilities) contributed to additional uncertainty in the adjusted weights because it is likely that more of the 660 facilities are out of the scope of the listing than in the original sampling population of 884 facilities. We, therefore, maintain our conclusion that the waste quantity distributions for the sampling population of 884 facilities are more representative of the paint universe than those for the full target population of 1,544 facilities. Using the adjusted weights for the sampling population of 884 facilities and the corrected waste solid quantity in response to comments, the final risk assessment for combined waste solids resulted in decreased risk concentration levels for three constituents of concern by about a factor of 1.3. Even at these lower levels, we do not believe listing paint waste solids is warranted; see detailed discussions in sections IV.B.5 and IV.B.6 below.

5. Concentration Levels for the Key Constituents of Concern and the Likelihood That They Occur in Wastes

As noted above, correcting for an error in the modeling causes two of the five constituents of concern (methyl isobutyl ketone and methyl methacrylate) to drop from further consideration, because the projected risk-based waste concentrations indicate these chemicals would not present risks of concern in paint waste solids. Three potential constituents of concern remained: acrylamide, acrylonitrile, and antimony. We carefully considered the comments submitted and all the information available to us on the potential for these constituents to be present in paint waste solids at levels of concern. We conclude that the available information does not indicate that any of these constituents provide a sufficient basis for listing paint waste solids. Below we describe the key information we used to reach a final listing determination. We discuss the organic monomers acrylamide and acrylonitrile together because the issues for the two organic chemicals are closely related and somewhat different from the issues for antimony.

Acrylamide and Acrylonitrile

We proposed listing levels for acrylamide and acrylonitrile based on the limited data we collected in our survey of generators and other information indicating that polymers derived from acrylamide and acrylonitrile are used in paint manufacturing. Acrylamide and acrylonitrile are monomers, *i.e.,* low molecular weight chemicals that serve as building blocks to form larger molecular weight polymers that are used as binders in paints. We were concerned about the unreacted monomers in the binders, not the polymers, due to the known toxicity of the monomer forms.

Information provided by facilities in the 3007 Survey indicated that some manufacturers reported the presence of acrylamide or acrylonitrile derived polymers in wastes. However, the survey showed that these chemicals were reported relatively infrequently. Out of the 151 facilities that reported generating paint manufacturing wastes, three reported acrylamide polymers in paint waste solids (off specification paint or sludges); all such wastes were sent to incinerators. Six facilities reported acrylonitrile polymers in paint waste solids (off specification paint and sludges); for these six facilities, two reported sending their wastes to landfills, while the remainder sent their wastes to incinerators. The 3007 survey did not provide any useful data for monomer levels in these wastes for two reasons. First, submission of concentration information was voluntary, and second, the survey required facilities to note the presence of these constituents as the monomer and associated polymer (e.g., acrylamide and acrylamide derived polymers) under one combined category. Thus, we

believe that the limited information on constituent concentrations only provides information on the prevalence of the associated polymer forms, and does not provide any useful information on monomer levels.

We discussed the potential levels of acrylonitrile in paint binders and paint products in the proposed rule (see 66 FR10106–10107). This discussion was related to the possible levels of acrylonitrile in liquid paint wastes. However, this approach leads to an estimate of monomer levels in paint products, which is useful for an examination of monomer levels in waste solids. For the proposal, we cited a reference that estimated a likely concentration of acrylonitrile in paint of approximately 30–50 ppm. This was based on a maximum concentration of 100 ppm acrylonitrile in the polymer binder, and a fraction of binder in paint formulations of 30–50%.[15] To estimate a possible upper bound, we also used Material Safety Data Sheets (MSDS) for acrylic paint binders, which indicated that acrylonitrile was present in trace amounts. The sheets did not report acrylonitrile levels, but showed levels of <500 ppm and <1000 ppm for the monomers from all the acrylic polymer sources in the binders. Thus, assuming a paint formulation would contain up to 50% binder, we calculated an upper bound of about 500 ppm acrylonitrile in paint.

The same reference we cited in the proposal for acrylonitrile also estimated a likely concentration range for acrylamide in paint binders.[16] The reference noted that acrylamide is less widely used than acrylonitrile monomer in paint formulations. With very limited data, the reference estimated <5 ppm acrylamide monomer in paint, based on a maximum binder concentration of approximately 20 ppm, and assuming the acrylamide containing polymer makes up to 25 wt.% of the formulation.

We received nine comments from industry and industry associations on the proposed constituents of concern and their concentration levels. All of the commenters raised the point that the constituents of concern would not be found in paint production wastes at the levels of concern. Commenters disputed our estimates for monomer levels, and stated that we overestimated the concentrations of acrylonitrile and acrylamide monomers likely to be in paint wastes. They noted that our survey combined monomer and associated polymers into one constituent category, so that when facilities noted the presence of the polymer (e.g., acrylamide derived polymers) in wastes, we incorrectly inferred that there are substantial monomer (e.g., acrylamide) residuals. They did not agree with our use of data from MSDS documents, pointing out that the <0.1% (1000 ppm) residual level specified on the MSDS is based on the Occupational Safety and Health Administration (OSHA) Hazard Communication standard that requires listing individual carcinogenic constituents if they are present at greater than 0.1% (see 29 CFR 1910.1200(g)(2)(I)(C)). The commenters said that the MSDS merely indicates that the residual levels for any of the monomers present are less than the 1000 ppm to comply with the standard. The commenters stated that the manufacturer listed ''trace'' levels of acrylonitrile on the MSDS to comply with other reporting requirements (e.g., California Proposition 65).

Commenters submitted information to support their contention that we overestimated possible monomer concentrations in paint wastes. One commenter submitted documentation on acrylonitrile levels from the same binder manufacturer that was the source of the MSDS documents we cited in the proposal. This documentation showed that acrylonitrile levels in binders are controlled to 10 ppm or less, which is well below the level of 1000 ppm we assumed. In addition, a polymer trade association submitted the results of a confidential survey that showed its members reported maximums of 10 to 25 ppm for acrylonitrile in paint binders.

Commenters stated that acrylamide polymers are rarely used in paint binders. A polymer trade association survey of its members found one limited instance of an acrylamide polymer sold as a binder for use in paint formulations; this manufacturer reported a maximum acrylamide level of 25 ppm and that the product typically contains lower residual levels. Commenters indicated that, while acrylamide may also be used in cross linking other polymer binders, it has limited capacity for this unless first reacted with formaldehyde. This forms N-methylolacrylamide (NMA), which is less toxic.

In response to these comments, we gathered additional information on the potential levels of acrylonitrile and acrylamide monomers in paint binders. We found one other MSDS that listed the presence of acrylonitrile in a paint binder. The information was similar to what we found in the MSDS information for the proposal, i.e., the MSDS listed <0.05% (500 ppm) for all acrylic monomers present, and indicated the presence of a ''trace'' of acrylonitrile. Even assuming all of the monomer in the binder was acrylonitrile, the fraction of binder used in the paint product at issue (25%) would yield an upper bound of <125 ppm acrylonitrile. We also found one other reference to acrylonitrile levels of 50 to 90 ppm in acrylonitrile-butadiene copolymer emulsions; however, we could not determine if the polymer was used in paint formulations.[17]

We were able to find one MSDS that listed the presence of acrylamide in a paint binder (styrene-butadiene latex). This listed a level of <50 ppm acrylamide, and indicated that the level of the formaldehyde-derived form of acrylamide (NMA) was <100 ppm. Thus, it appears that NMA was used as a cross-linking agent and that residual acrylamide may arise from this use.[18] The MSDS indicated that the fraction of binder used in the paint product was 26%, which means that the level of acrylamide in the paint would be <13 ppm.

After reviewing information from the proposal, evaluating the information provided in comments from industry, and considering the information on paint binders, we conclude that the concentrations of these monomers in waste are not likely to approach the listing levels. For acrylonitrile, our original estimate of up to 30–50 ppm of acrylonitrile in paint formulations is similar to information from industry and the limited data from MSDS documents. Similarly, the limited data we have indicate that the levels of acrylamide are not likely to approach the listing level. We agree with commenters that the use of acrylamide in binders appears to be relatively rare.

Because the OSHA reporting for MSDS's only requires listing acrylamide or acrylonitrile if they are present at or above 1000 ppm, we cannot absolutely rule out that they might be present at levels approaching 1000 ppm in some binders. If we were to assume that acrylamide or acrylonitrile levels to be <1000 ppm in paint binders, and if the binder comprised 25% to 50% of a paint formulation, then the upper bound for

[15] See the docket for the memo from Paul Denault, Dynamac Corporation, to David Carver and Cate Jenkins, EPA, dated September 6, 2000.

[16] ibid.

[17] Barristel E., Bernardi A., Maestri P., Enzymatic decontamination of aqueous polymer emulsions containing acrylonitrile. Biotechnology Letters, 19, 131–134 (1997).

[18] The MSDS also noted the total residual monomer content was < 0.5% (5000 ppm). This indicates that the acrylamide (less than 50 ppm) makes up very little of the ''residual monomers'' in this product.

paint would be from <250 to <500 ppm. These concentrations would be in the range of the revised listing levels (e.g., the acrylamide and acrylonitrile levels are 370 and 340 ppm respectively for the revised results for the universe of 884 facilities in Table IV.B–3). However, we have no indication that such levels are realistic for paint formulations, nor do we have any information suggesting that paint manufacturing wastes would ever reach these levels. Furthermore, in the case of acrylamide, we found only three facilities that reported the presence of the polymer in their waste solids; all of which was sent to incineration. Similarly, only six facilities reported acrylonitrile polymer in waste solids. Therefore, the low prevalence of acrylamide and acrylonitrile polymers in paint waste solids also indicates that these chemicals are unlikely to present a significant risk in these wastes.

We agree with commenters that our use of the 1000 ppm concentration of monomers in paint binders from the MSDS represents an implausible case; this assumed that all of the residual monomer would be the monomer of concern, and that the constituent would be present at the upper bound level (assumptions for which we have no factual support and are implausible based on the information in the record). These assumptions were appropriate for the purpose of estimating an upper bound for acrylonitrile levels in paint liquid wastes to illustrate that this constituent was highly unlikely to present risks in liquid wastes that are managed in tanks. However, based on the information provided by commenters and our supplemental investigations performed in response to those comments, we do not believe that the levels of these two constituents are likely to approach 1000 ppm. The information in our possession indicates that the highest expected concentrations are likely to be less than 50 to 100 ppm in paint binders, which would lead to levels in paint and associated wastes (<25 to <50 ppm) that are well below the levels of concern. We would be speculating without information or technical support to assume higher levels in the waste. Therefore, we have decided that neither acrylamide nor acrylonitrile warrant inclusion as constituents of concern for listing waste solids from paint manufacturing.

Antimony

We proposed listing levels for antimony based on the data we collected in our survey of generators and other information indicating that antimony compounds are used in paint manufacturing. The raw materials data base we developed for the proposal (66 FR 10084) shows that several forms of antimony are potentially used in paints, most notable being the use of antimony oxide as a flame retardant and/or pigment. Furthermore, the responses to our 3007 Survey indicated that a total of 11 facilities reported the presence of antimony in some waste (hazardous, nonhazardous, solid, liquid). Four facilities reported generating nonhazardous waste solids that contained antimony.

We received four comments, three from trade associations and one from an industry facility, that stated that antimony should not be considered a constituent of concern. Commenters stated that the only color pigments which incorporate antimony are complex inorganic color pigments. One commenter provided references showing that the most common antimony-derived pigments (chrome antimony titanate and nickel antimony titanate) contain an extremely stable and insoluble form of antimony in a calcined matrix with titanium dioxide, which does not present risks. Other commenters indicated that antimony oxide is used in paints as a pigment, but argued that antimony pigments are used in small amounts and make up a small fraction (<1%) of pigments used.

In response to these comments, we reexamined the data we had for antimony in paint wastes from our 3007 Survey. Eight of the 11 facilities that reported antimony in their wastes provided estimates of antimony levels. Generally, these levels were below levels of concern and were usually presented as ''less than'' values. We closely examined the information for the four facilities that reported the presence of antimony in nonhazardous waste solids. Two provided estimates of antimony levels in the survey: one generator reported very low levels (<0.031%), and one reported potentially significant levels (1% in sludges). However, when we called to confirm the 1% value, this facility revised its estimate for sludges to 0.1% (1000 ppm). The facility contact indicated that they do not use antimony compounds in their products, and suggested that any antimony would be due to trace levels present in the titanium dioxide used in paint formulations. The facility provided information from its supplier for titanium dioxide that indicated levels of antimony were low (<10 ppm). Thus, we consider the facility's revised estimate as a conservative estimate of potential antimony levels.

We contacted the other two facilities that reported the presence of antimony in waste solids, but did not report antimony concentrations, to obtain information on the potential source and level of antimony. One facility reported only *one* ingredient out of hundreds used that contained antimony in a pigment. The company indicated that in the year 2000 it used a total of 50 lbs. of the pigment, which contained about 0.8 lbs. of antimony. Therefore, wastes from this facility are unlikely to contain antimony at levels of concern.[19] The other facility is the only one from the survey that indicated it uses antimony as a flame retardant component. This company produced a small volume of coating products with antimony levels of 1 to 2%. The facility said that these products account for less than 0.6% of coating products manufactured annually, and indicated any levels in waste solids would be ''minute.''

Based on data from our materials data base, as well as MSDS documents we obtained, we recognize that some fire-retardant coatings may contain relatively high levels of antimony compounds (from 1.8 to <8%). Therefore, we contacted an additional 5 facilities from the Dun and Bradstreet data base, which were not included in the survey, that appeared to be manufacturing flame-retardant paints or coatings. In all cases, the facilities indicated that the industry was moving away from antimony-based fire-retardant coatings and toward organic-based products. One of the 5 facilities indicated it still used antimony oxide in some products at levels of 0.5 to 1%. However, this facility said it does not generate waste solids, but only wash water, which is sent offsite for treatment.

As noted by the commenters, there is some limited use of antimony compounds in paint pigments. In addition to use of antimony titanate compounds noted above, we also found MSDS data showing some use of antimony oxide in lead chromate paints at levels of 1 to 2%. However, we do not believe that the use of antimony in lead chromate paints would present significant risks, because we expect that facilities already handle wastes from such paints as hazardous waste under the RCRA TC regulations (40 CFR 261.24) due to the high levels of chromium and lead (26 to 57% lead chromate) in these products.[20]

[19] Using this facility's reported volume of paint manufacturing waste solids in 1998 (43,266 gallons or 394,245 kg), even assuming all the antimony was passed through to the wastes would yield <0.0001% antimony on an annual basis.

[20] The TC threshold for leachable lead, for example, is 5 mg/L or 5 ppm. We found in the 3007

Continued

In summary, after considering the available information on antimony use and the potential for waste to contain this constituent, we do not now believe that the information in hand supports a listing for this constituent. While antimony has some use in paint formulations, we did not find any waste from the surveyed facilities that contained antimony at levels that would approach the listing level. The most likely wastes to have high levels of antimony would be from the production of fire-retardant paints, e.g., off specification products could contain 1 to 2% antimony. However, manufacturers are moving away from antimony to organic-based fire-retardants, and we found very few facilities that reported using antimony in such formulations. Therefore, a listing based on antimony would only be addressing potential wastes from the production of a small proportion of highly specialized products (e.g., fire-retardant paints). The one facility we found that generates waste solids that may originate from flame retardant coatings containing antimony (1–2%) confirmed that these products account for less than 0.6% of its production line. Products with high antimony levels appear to be a small fraction of paints and coatings produced, and even the facilities that use antimony appear unlikely to generate waste with significant levels on an annual basis. We believe such antimony wastes, even if they exist, would be generated infrequently and would not pose significant risks.

6. Conclusion for Paint Production Waste Solids

We are making a final determination not to list waste solids from paint manufacturing. As noted in Section II of today's notice, we applied the factors under 261.11(a)(3) in making this listing determination. Most of these factors are incorporated into our risk assessment methodology (factors (i) through (viii) , including constituent toxicity, constituent concentration, constituent fate and transport, and waste volumes).[21] In this regard, we revised our risk assessment to incorporate adjusted waste volume estimates and also to correct for an error in the modeling. We believe our original sampling scheme is statistically valid; the revised analyses show that different approaches to estimating waste volumes do not significantly alter the results (see Table IV.B–3). Correcting for an error in the modeling causes two constituents to drop from further consideration (methyl methacrylate and methyl isobutyl ketone).

A critical factor in this listing determination is the concentrations of the constituents of concern in the waste (factor (viii)). After considering information from the proposal, the comments on the proposed rule, and other sources (e.g., MSDS documents), we do not believe the concentrations of acrylamide and acrylonitrile in paint wastes approach the revised listing levels. Similarly, after considering the available information on antimony use and the potential for waste to contain this constituent, we do not believe we have a sound basis to list this waste for this constituent. We did not find any surveyed facility that generated wastes with antimony concentrations that would approach the listing level. While antimony has some use in paint formulations, paint manufacturers are moving away from uses of most potential concern (e.g., in fire-retardant paints). We also conclude that products with high antimony levels are a small fraction of paints produced, and even the facilities that use antimony are unlikely to generate wastes that present risks of concern.

Finally, we considered the impact of other regulatory programs on the potential management scenarios and the associated risks (factor (x)). As explained previously, we find that the existing RCRA regulations for wastes limit potential risks that may arise from the use of antimony in paints containing pigments such as lead chromate. Therefore, after considering these factors, we conclude that the available information for these constituents indicates that listing paint waste solids is not warranted.

V. Analytical and Regulatory Requirements

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866, EPA must determine whether a regulatory action is significant and, therefore, subject to comprehensive review by the Office of Management and Budget (OMB), and the other provisions of the Executive Order. A significant regulatory action is defined by the Order as one that may:

—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;
—Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
—Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or rights and obligations or recipients thereof; or
—Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in Executive Order 12866.

Today's final determination was submitted to OMB for review. Pursuant to the terms of the Executive Order, the Agency, in conjunction with OMB, has determined that today's final determination on paint production wastes was significant because of novel policy issues. Changes made in response to OMB suggestions or recommendations are documented in the public record.

The aggregate annualized social costs for this final rule are generally equivalent to baseline costs. Furthermore, this 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 benefits to human health and the environment resulting from today's final determination are equivalent to baseline benefits. In short, today's final determination imposes no costs to industry and government and provides no benefits to human health and the environment.

B. What Economic and Equity Analyses Were Completed in Support of the Proposed Listing for Paint Production Wastes?

We prepared an Economic Assessment[22] in support of the February 13, 2001 proposed rule. We found that the proposal would have resulted in incremental compliance costs to selected paint and coatings manufacturers who were subject to rule's requirements. In most cases, these manufacturers would have experienced incremental costs related to both RCRA administrative and Land Disposal

Survey that facilities coded paint manufacturing waste solids as TC hazardous (D008) when wastes contained levels of 0.02 to 3% lead, well below the levels found in lead chromate paints.

[21] Note that we also considered whether any damage cases arose from the mismanagement of paint manufacturing wastes (factor (ix)). We determined that the available data did not provide useful information for a listing determination (see 66 FR 10082–10083).

[22] U.S. EPA, Office of Solid Waste, Economic Assessment for the Proposed Concentration-Based Listing of Wastewaters and Non-wastewaters from the Production of Paints and Coatings—Final Report, January 19, 2001.

Restriction (LDR) requirements. We also found that there may have been minor cost impacts to Subtitle D landfill operators, if they would have needed to install tanks and/or piping systems in order to take advantage of the proposed temporary deferral under the Clean Water Act. Furthermore, because paint and coatings are so widely used throughout all sectors of the U.S. economy, any direct cost impacts to this industry would likely have rippled throughout the economy in the form of marginally higher prices or product alterations to users of the affected products. The extent of any price modification would have depended upon marketing decisions by individual producers, the availability of direct substitutes, and the regional price elasticity of demand for the products of concern.

Paint and coatings manufacturers are listed under the Standard Identification Classification (SIC) as industry 2851. The North American Industrial Classification System (NAICS) code for Paint and Coatings is 325510. Based on our RCRA 3007 industry survey, we estimated that, at the time of the proposal, there were 972 operational paint and coatings manufacturing facilities in the U.S. (See 66 FR 10072). Census data indicated that total product shipments ranged from 1.2 and 1.5 billion gallons per year between 1992 and 1998, with total 1998 product value estimated at $17.2 billion.

For the proposed concentration-based approach, we estimated aggregate nationwide compliance cost impacts at $7.3 million per year. Waste management costs were found to represent 81.3 percent of this total, followed by RCRA administration costs at 9.3 percent. Analytical and hazardous waste transport costs were found to each represent about 4.7 percent of the total annual cost. The first scenario under this proposed approach assumed that the newly listed wastes currently going to hazardous waste fuel blending or directly to hazardous waste burning cement kilns would be diverted to commercial incineration at a higher cost. Although this is not likely to occur, it was considered here as a sensitivity scenario. Under this scenario, total nationwide costs increased to $18.1 million per year. The second scenario examined total costs for listing only paint production waste solids. The total costs under this scenario were estimated at $6.7 million per year. This scenario may more closely approach actual costs should generators divert all liquid wastes to exclusive management in tanks and discharge to a POTW, or under a NPDES permit. Total incremental compliance costs under the traditional or non-concentration-based option were estimated at $10.9 million per year. Under this option, 100 percent of the targeted waste would have become hazardous. At time of the proposal, we examined the no-list option as one alternative to the Agency's proposed approach. Costs under the no-list option were found to be zero, except perhaps for the negligible costs associated with reading of the final rule for informational purposes.

We were not able to monetize the change in net welfare potentially resulting from the proposed rule. However, we were able to qualitatively describe those who were likely to have been negatively and positively impacted by the rule, as proposed. Positively impacted groups may have included the following: paint manufacturers who would not have been affected by the rule, hazardous waste management facilities and transporters, and population groups surrounding paint manufacturing facilities. Negatively impacted groups may have included paint manufacturers who would have been subject to rule requirements, paint consumers who may be impacted by increased prices, and municipal landfills had they needed to install new tanks or piping systems.

We also examined all relevant Acts and Executive Orders in our assessment of impacts potentially associated with the February 13, 2001 proposed action. These included the following: Executive Order 13045—Children's Health, Executive Order 12898—Environmental Justice, Executive Order 13132—Federalism, Executive Order 13175—Consultation and Coordination with Indian Tribal Governments, Unfunded Mandates Reform Act. Overall, we found that the rule, as proposed, was not subject to these Orders and/or Acts due to the economic threshold or, no impacts were identified, or both.

The January 19, 2001 Economic Assessment provides detailed information on the analytical methodology, data, and limitations associated with our cost analysis. This document also presents a detailed review of how we analyzed each relevant Executive Order and Act. This document is available in the docket established for the proposed action.

In addition to the Economic Assessment, we conducted a Regulatory Flexibility Screening Analysis (RFSA) in support of the February 13, 2001 proposed rule. This analysis, entitled: Regulatory Flexibility Screening Analysis for the Proposed Concentration-Based Listing of Wastewaters and Non-wastewaters from the Production of Paints and Coatings, January 19, 2001, was prepared in response to requirements established under to Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 *et.seq*. Findings from this analysis indicated that the rule, as proposed, would not have resulted in significant economic impacts on a substantial number of small business paint manufacturers potentially subject to the rule's requirements. The RFSA document is available in the docket established for the proposed action.

C. What Substantive Comments Were Received on the Cost/Economic Aspects of the Proposed Listing for Paint Production Wastes?

We received 44 comments in total, including two comments received after the close of the comment period. Of the total 44 comments, 20 included some reference to the Economic Assessment, Regulatory Flexibility Screening Analysis (RFSA), and/or cost and economic issues in general. Fifteen of these comments were from industry and five were from trade associations. The comments can be consolidated into nine substantive issues. These are: (1) Expansion of 40 CFR part 261—appendix VIII, (2) addition of chemicals as UHCs, (3) addition of chemicals to F039, (4) analytical issues, (5) cost impacts on remediation wastes, (6) potential for indirect cost impacts occurring to raw material suppliers, (7) implementation concerns, (8) scope concerns, and, (9) baseline requirements may impact the need for a final rule.

As described in section IV, our final determination not to list any of the targeted paint production wastes was based on considerations other than cost/economic issues presented by commenters. Therefore, none of the public comments on the above substantive economic issues, or any specific economic comment, impacted our final no-list determination. As such, we have not prepared specific responses to these comments. However, we recognize and acknowledge the key economic issues and concerns raised by commenters. These issues are summarized in our response-to-comments document. This document, entitled: Public Comment Summary and Response Document addressing Economic Issues Associated With the Proposed Listing for Paint Production Wastes, in support of the Paint Production Wastes Final Determination, is available in the docket established for today's final determination.

D. What Are the Potential Costs and Benefits of Today's Final Determination?

The value of any regulatory action is traditionally measured by the net change in social welfare that it generates. All other factors being equal, a rule that generates positive net welfare would be advantageous to society, while a rule that results in negative net welfare to society should be avoided.

Today's final determination is expected to generally impose no costs on industry. Thus, aside from the negligible burden of reading and understanding the relevant section of the **Federal Register**, the incremental burden to industry is expected to be zero. Benefits to human health and the environment potentially associated with today's final determination will generally be equivalent to baseline conditions.

E. What Consideration Was Given to Small Entities Under 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.?

The RFA generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedures 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 final determination on small entities, a small entity is defined either by the number of employees or by the annual dollar amount of sales/revenues. The level at which an entity is considered small is determined for each NAICS code by the Small Business Administration (SBA).

The Agency has examined the potential effects today's final determination may have on small entities, as required by the RFA/SBREFA. We have determined that this action will not have a significant economic impact on a substantial number of small entities. This is evidenced by the fact that today's no-list action will result in zero to negligible incremental cost impacts. The only potential impact associated with this action may be the burden associated with reading and understanding the final determination. After considering the economic impacts of today's final determination on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities.

F. Was the Unfunded Mandates Reform Act Considered in This Final Determination?

Executive Order 12875, ''Enhancing the Intergovernmental Partnership'' (October 26, 1993), called on federal agencies to provide a statement supporting the need to issue any regulation containing an unfunded federal mandate and describing prior consultation with representatives of affected state, local, and tribal governments. Signed into law on March 22, 1995, the Unfunded Mandates Reform Act (UMRA) supersedes Executive Order 12875, reiterating the previously established directives while also imposing additional requirements for federal agencies issuing any regulation containing an unfunded mandate.

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 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 single 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, the Agency must develop a small government agency plan, as required under section 203 of UMRA. This 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.

Today's final determination is not subject to the requirements of sections 202 and 205 of UMRA. Today's final determination will not result in $100 million or more in incremental expenditures. The aggregate annualized incremental social costs for today's final determination are projected to be near zero. Furthermore, today's final determination is not subject to the requirements of section 203 of UMRA. Section 203 requires agencies to develop a small government Agency plan before establishing any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments. We have determined that this final determination will not significantly or uniquely affect small governments.

G. Were Equity Issues and Children's Health Considered in This Final Determination?

By applicable executive order, we are required to consider the impacts of today's rule with regard to environmental justice and children's health.

1. Executive Order 13045: ''Protection of Children from Environmental Health Risks and Safety Risks''

''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'' as defined 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. Today's final determination is not subject to the Executive Order because it is not economically significant, as defined in Executive Order 12866.

2. 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. 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 no data indicating that today's final determination would result in disproportionately negative impacts on minority or low income communities.

H. What Consideration Was Given to Tribal Governments?

Executive Order 13175, entitled ''Consultation and Coordination with Indian Tribal Governments'' (65 FR 67249, November 6, 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.'' ''Policies that have tribal implications'' is defined in the Executive Order to include regulations that have ''substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes.''

Today's final determination does not have tribal implications. It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in the Order. Today's final determination will not significantly or uniquely affect the communities of Indian tribal governments, nor impose substantial direct compliance costs on them.

I. Were Federalism Implications Considered in Today's Final Determination?

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'' are 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.''

Today's final determination 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 the Order. Thus, Executive Order 13132 does not apply to this final determination.

J. Were Energy Impacts Considered?

Executive Order 13211, ''Actions Concerning Regulations That Affect Energy Supply, Distribution, or Use'' (May 18, 2001), addresses the need for regulatory actions to more fully consider the potential energy impacts of the proposed rule and resulting actions. Under the Order, agencies are required to prepare a Statement of Energy Effects when a regulatory action may have significant adverse effects on energy supply, distribution, or use, including impacts on price and foreign supplies. Additionally, the requirements obligate agencies to consider reasonable alternatives to regulatory actions with adverse affects and the impacts the alternatives might have upon energy supply, distribution, or use.

Today's final determination is not likely to have any significant adverse impact on factors affecting energy supply. We believe that Executive Order 13211 is not relevant to this action.

VI. Paperwork Reduction Act

This final determination does not impose an information collection burden under the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). Because there are no paperwork requirements as part of this final determination, we are not required to prepare an Information Collection Request (ICR) in support of today's action.

VII. National Technology Transfer and Advancement Act of 1995

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law 104–113, section 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 final determination does not involve technical standards; thus, the requirements of section 12 (d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) do not apply.

VIII. The Congressional Review Act (5 U.S.C. 801 et seq., as Added by the Small Business Regulatory Enforcement Fairness Act of 1996)

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA submitted a report containing this determination, and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication in the **Federal Register**. A ''major rule'' cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2).

Dated: March 28, 2002.

Christine Todd Whitman,

Administrator.

[FR Doc. 02–8153 Filed 4–3–02; 8:45 am]

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