

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 268 and 271

[FRL-6168-7]

RIN 2050-ZA01

Land Disposal Restrictions; Treatment Standards for Spent Potliners From Primary Aluminum Reduction (K088)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: EPA is promulgating treatment standards for spent potliners from primary aluminum reduction (EPA hazardous waste: K088) under its Land Disposal Restrictions (LDR) program. The purpose of the LDR program, authorized by the Resource Conservation and Recovery Act (RCRA), is to minimize threats to human health and the environment due to land disposal of hazardous wastes. As a result of today's rule, spent potliners will be prohibited from land disposal unless the wastes have been treated in compliance with the numerical standards contained in this rule. These treatment standards are necessary to minimize threats to human health and the environment from exposure to hazardous constituents which may potentially leach from landfills to groundwater.

EFFECTIVE DATE: September 21, 1998.

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 RIC is open from 9 a.m. to 4 p.m., Monday through Friday, excluding federal holidays. The Docket Identification number is F-98-K88F-FFFFF. To review docket materials, it is recommended that the public 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 "Supplementary Information" section for information on accessing them.

FOR FURTHER INFORMATION CONTACT: For general information, contact the RCRA Hotline at (800) 424-9346 (toll-free) or TDD (800) 553-7672 (hearing impaired). In the Washington, DC, metropolitan area, call (703) 412-9810 or TDD (703) 412-3323. For specific information, contact Elaine Eby, John Austin, or Katrin Kral, Office of Solid Waste

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SUPPLEMENTARY INFORMATION:

Availability of Rule on Internet

Please follow these instructions to access the rule: From the World Wide Web (WWW), type <http://www.epa.gov/rules> and regulations.

Affected Entities

Entities potentially affected by this action are generators of spent aluminum potliner from primary aluminum reduction, or entities that treat, store, transport, or dispose of these wastes.

Category	Affected entities
Industry	Generators of the following listed wastes, or entities that treat, store, transport, or dispose of these wastes. K088—Spent potliners from primary aluminum reduction.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. This table lists those entities of which EPA now is aware that potentially could be affected by this action. Other entities not listed in the table also could be affected. To determine whether your facility is regulated by this action, you should examine 40 CFR parts 260 and 261 carefully in concert with the amended rules found at the end of this **Federal Register** document. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT SECTION**.

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I. Background

A. Process Description

K088 (spent potliners from primary aluminum reduction) (40 CFR 261.32) is generated by the aluminum manufacturing industry. Aluminum production occurs in four distinct steps: (1) mining of bauxite ores; (2) refining of bauxite to produce alumina; (3) reduction of alumina to aluminum metal; and (4) casting of the molten aluminum. Bauxite is refined by dissolving alumina (aluminum oxide) in a molten cryolite bath. Next, alumina is reduced to aluminum metal. This reduction process requires high purity aluminum oxide, carbon, electrical power, and an electrolytic cell. An electric current reduces the alumina to aluminum metal in electrolytic cells, called pots. These pots consist of a steel shell lined with brick with an inner lining of carbon. During the pot's service the liner is degraded and broken down. Upon failure of a liner in a pot, the cell is emptied, cooled, and the lining is removed. In 1980, EPA originally listed spent potliners as a RCRA hazardous waste and assigned the hazardous waste code K088. See 45 FR 47832.

B. Regulation

The Phase III—Land Disposal Restrictions Rule (61 FR 15566, April 8, 1996) prohibited the land disposal of spent potliner unless the waste satisfied the section 3004(m) treatment standard established in the same rulemaking. The

Phase III rule established treatment standards, expressed as numerical concentration limits, for various constituents in the waste (25 in all, with standards for both wastewaters and non-wastewaters). These constituents included arsenic, cyanide, fluoride, toxic metals, and a group of organic compounds called polycyclic aromatic hydrocarbons (PAHs).

With the exception of fluoride, the treatment standard limits established for K088 were equivalent to the universal treatment standards. See 61 FR 15585; see also 40 CFR 268.48 ("Universal Treatment Standards" Table). The fluoride standard, however, was based generally on data submitted in a delisting petition from the Reynolds Metals Company. In the Phase III rule, the Agency granted a nine-month national capacity variance pursuant to section 3004(h)(2) "to allow facilities generating K088 adequate time to work out logistics." See 61 FR 15589. Unexpected performance problems in the Reynolds treatment process resulted in the generation of leachate exhibiting characteristics of hazardous waste. In addition, the company was disposing of the treatment residues in non-subtitle C units. EPA therefore felt that further time was needed to evaluate whether adequate protective treatment capacity was available (within the meaning of RCRA section 3004(h)(2)), and, as part of this determination, whether Reynolds' practices in fact satisfied the mandate of section 3004(m) that threats posed by land disposal of the hazardous waste be minimized through treatment. Until these questions were answered, and a finding of sufficient protective treatment capacity made, there was insufficient treatment capacity for the waste because Reynolds, at the time, was the only existing commercial treatment facility for spent potliners. Consequently, on January 14, 1997, the Agency extended the national capacity variance, and postponed implementing the land disposal prohibition for an additional six months to be able to study the efficacy of the Reynolds treatment process and the resulting leachate. See generally 62 FR 1992.

In July 1997, EPA announced that, "Reynolds" treatment (albeit imperfect) does reduce the overall toxicity associated with the waste," and that disposal of treatment residues would occur only in units meeting subtitle C standards and consequently was an improvement over the disposal of untreated spent potliner and provided adequate protective treatment capacity. See 62 FR 37696 (July 14, 1997). On October 8, 1997, the national capacity extension ended and the prohibition on

land disposal of untreated spent potliner took effect.

C. Litigation

Petitions for judicial review of the Phase III rule, and the January 1997, and July 1997 rules were filed by Columbia Falls Aluminum Company, and other aluminum producers from the Pacific Northwest. The petitioners argued (among other things) that the use of the Toxicity Characteristic Leaching Procedure (TCLP) did not accurately predict the leaching of waste constituents, particularly arsenic and fluoride, to the environment and that it was therefore arbitrary to measure compliance with the treatment standard using this test. The United States Court of Appeals for the District of Columbia Circuit decided on April 3, 1998, that EPA's use of the TCLP as a basis for setting treatment standards for K088 was arbitrary and capricious for those constituents for which the TCLP demonstratively and significantly underpredicted the amount of the constituent which would leach. 139 F.3d 914; see also 63 FR 28571 (May 26, 1998) (EPA's interpretation Court's opinion). Notwithstanding that this finding affected only two of the hazardous constituents for which EPA established treatment standards, namely arsenic and fluoride nonwastewaters (so that only 2 of 54 treatment standards were implicated), and the Court's express statement that "[o]ur decision today does not affect the viability of the concentration limits established for other constituents," 139 F. 3d at 923, the Court vacated all of the treatment standards and the prohibition on land disposal. *Id.* at 923-24. In its decision, the Court expressly invited EPA to file a motion to delay issuance of the mandate in this case for a reasonable time in order to develop a replacement standard. *Id.* On May 18, 1998, EPA filed a motion with the Court to stay its mandate for four months while the Agency promulgated a replacement prohibition and accompanying treatment standards. The motion explained at length the type of standard EPA expected to adopt and in fact is adopting in this document. The Court granted this motion over the objections of Petitioners, indicating that its mandate would not issue before September 24, 1998. Today's action promulgates interim replacement standards for K088 which will be in place until EPA has fully reviewed all information on all treatment processes which may serve as a basis for a more permanent revised standard.

II. Prohibition on Land Disposal of Untreated K088

As just noted, this rule promulgates a land disposal prohibition for K088 waste and establishes interim treatment standards. EPA is issuing this replacement prohibition to assure that the fundamental premise of the statute—a prohibition on land disposal of hazardous waste not satisfying treatment standards which result in substantial destruction or immobilization of the waste—is not weakened. See *Chemical Waste Management v. EPA*, 976 F. 2d 2, 22, 25 (D.C. Cir. 1992) (prohibition and treatment standards are the heart of the RCRA hazardous waste management scheme). Congress enacted the prohibition regime due to "the long-term uncertainties associated with land disposal, the goal of managing hazardous waste in an appropriate manner in the first instance, and the persistence, toxicity, mobility, and propensity to bioaccumulate such hazardous wastes and their hazardous constituents." RCRA section 3004(d)(1)(A)-(C). The legislative history states that the statute "makes Congressional intent clear that land disposal without prior treatment of these wastes with significant concentrations of highly persistent, highly toxic, highly mobile and highly bioaccumulative constituents is not protective of human health and the environment." 130 Cong. Rec. S9178 (daily ed. July 25, 1984) (floor statement of Sen. Chafee introducing amendment which became section 3004 (m)).

Spent potliners are exactly this type of waste: highly toxic, containing persistent and bioaccumulative hazardous constituents, and associated with numerous damage incidents arising from improper land disposal. Among the highly toxic, mobile, and bioaccumulative hazardous constituents found in the waste are cyanide, polyaromatic hydrocarbons, and toxic metals. The Agency believes that the land disposal of untreated spent potliners (K088) is a highly undesirable management scenario, that would result in large volumes of hazardous constituents being land disposed, constituents which would otherwise be destroyed or immobilized by treatment.

These untreated hazardous constituents can pose significant threats to human health and the environment. For example, treatment of K088 waste to the interim standards promulgated today will ensure that cyanide—the most dangerous constituent in spent potliners based on its concentration, toxicity, and the extent of

contamination caused by past land disposal of untreated spent potliners—will be largely destroyed. See 62 FR 37696 (July 14, 1997) (spent potliners listed as hazardous due to the presence of cyanide). See also Docket items PH3F-S0015 and S0016 (summary of damage incidents involving improper disposal of spent potliners, showing extensive cyanide contamination of groundwater and soil); see also Section VIII A. below, revising EPA's previous erroneous analysis that cyanide leaching from spent potliners would not pose a threat to groundwater. EPA, in fact, estimates that compliance with the land disposal prohibition and interim treatment standard for cyanide will result in the annual reduction of approximately 300 tons of cyanide being land disposed. Docket item P33F-S0012. Cyanide also will leach from untreated spent potliners in concentrations hundreds of times higher than the highest level observed in leachate from potliners treated to meet existing standards. Docket Item PH3F-S0049A at data set J and 62 FR 37695 (July 14, 1997). EPA thus views the prohibition and treatment standards as reducing by orders of magnitude the amount of cyanide actually leached from these wastes.

In addition, treatment to meet the treatment standards will destroy all the polyaromatic hydrocarbons in spent potliners. These are highly carcinogenic compounds which have caused environmental contamination at the spent potliner damage sites. Docket PH3F-S0015 and S0016. Finally, virtually all of the toxic metals—some of which likewise caused environmental contamination at the damage sites, *id.*—will be immobilized.

Petitioners nevertheless argue in public comments that EPA should not retain a land disposal prohibition at this time, but rather allow spent potliners to be disposed untreated until the Agency completes its evaluation of different treatment technologies and (potentially) amends treatment standards based upon the performance of these technologies. This result is antithetical to the statutory scheme. Congress has found that land disposal is inherently unsafe because landfills are not capable of assuring long-term containment of certain hazardous wastes, and that land disposal of hazardous waste should be minimized in favor of properly conducted treatment. RCRA sections 1002(b)(7) and 1003(a)(6). Congress therefore intended to end land disposal of hazardous waste without prior treatment: "The intent here is to require utilization of available technology in lieu of continued land disposal without

prior treatment." 130 Cong. Rec. S9178 (July 25, 1984) (statement of Sen. Chafee). Petitioners' argument to do no treatment at all because two treatment standards out of 54 are not optimized (and one of which is now being appropriately revised) would frustrate this explicit Congressional intent and EPA's overall commitment to protection of human health and the environment. EPA is simply not willing to permit the continued land disposal of 300 tons of untreated cyanide annually in the face of a statutory scheme calling for untreated land disposal to cease and calling for destruction of cyanide before land disposal. 130 Cong. Rec. S 9179. This is particularly the case when destruction of cyanide (and destruction of PAHs and immobilization of hazardous constituent metals) and consequent minimization of threats will be assured through treatment. Finally, the Congressionally mandated date for prohibiting spent potliners from land disposal—March, 1989 (per RCRA section 3004(g)(4))—has long since passed. Consequently, EPA is acting today to assure that spent potliners remain prohibited from land disposal.

III. Interim Treatment Standards

A. Introduction

EPA has both a short-term and long-term objective for treatment standards for K088 waste. The Agency's long-term goal, expected to be completed within two years, is to promulgate another set of treatment standards for spent potliners (K088) based on the performance of a treatment technology which results in the immobilization of arsenic and fluoride, as well as the other toxic metals in the waste (these metals will be immobilized by meeting the treatment standards established in today's rule). The Agency is aware of numerous technologies that may be used to treat K088 waste, a number of which may be finally coming on line as commercially available.¹ However, at the present time, there are insufficient data or information on these technologies to provide the basis for a rapidly implementable final treatment

¹ The Agency notes that although there has been much said about potential marketing of potliner treatment technologies, see 60 FR 11724-11725 (March 2, 1995) (detailing technologies potentially able to treat spent potliners), these technologies were not offered commercially until EPA's promulgation of an actual land disposal prohibition. (The notable exception is the Reynolds Metals process, which the company brought to market a bit before spent potliners were prohibited from land disposal in 1996. *Id.* at 11723.) Without a prohibition further development of commercial treatment thus could easily end. This is another reason EPA believes it imperative to retain the prohibition on land disposal of K088 wastes.

standard. More information is needed to characterize the performance of these technologies, as well as to assess their safety and (in some cases) the safety of hazardous waste-derived products which may be generated as part of these treatment processes. Cf. *Chemical Waste Management*, 976 F. 2d at 17 (treatment technologies whose air emissions are not adequately controlled are not treating in conformance with requirements of section 3004(m)). The Agency is in the process of gathering and identifying potential technologies that may be evaluated as the basis for a permanently revised treatment standard. EPA is studying technologies such as vitrification, gasification, the "Cashman Process," and the "Alcoa-Selca" process. The Agency plans to propose a standard for K088 within the next twelve months.

B. Detailed Discussion of the New Treatment Standards

1. Cyanide, Polyaromatic Hydrocarbons, and Certain Metals

The D.C. Circuit found the existing treatment standards arbitrary and capricious because the TCLP was significantly overpredicting the extent to which certain hazardous constituents would be immobilized by treatment. The problem arose because certain constituents in the waste are more soluble in alkaline rather than weakly acidic conditions. Since the TCLP uses a weakly acidic extractant for these constituents, the TCLP was not modeling a reasonable worst case disposal situation at all, but instead was failing to predict what occurs when treated potliners are disposed in industrial landfills. See generally 139 F. 3d at 922.

However, only two of the 54 treatment standards suffer from this deficiency. The treatment standards for cyanide and PAHs do not use the TCLP at all, but rather are implemented on a total constituent concentration basis. (As noted earlier, the Court expressly held that these standards are reasonable. (139 F. 3d at 923.)) Likewise, none of the standards for wastewaters use the TCLP. In addition, none of the standards for metals, except for arsenic and fluoride, suffer from any deficiency even though the TCLP is used to measure compliance. These other metals are not highly alkaline soluble, so that the TCLP will not underpredict environmental performance as occurred with arsenic and fluoride. In fact, leachate sampling data from the Reynolds facility shows reasonable correlation with levels predicted by the TCLP, and further indicates that the TCLP is not

underpredicting leachate levels of these metals. Docket Item P33F-S0002.B.²

The Agency is thus today promulgating those portions of the K088 treatment standard that do not suffer from the deficiencies noted in the Court's opinion. These are the standards for the following constituents in both wastewaters and nonwastewaters: acenaphthene, anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene, antimony, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, and cyanide. The nonwastewater treatment standards for cyanide and the organic constituents, and all of the standards for wastewaters, are based on a total composition concentration analysis. The nonwastewater treatment standards for the metal constituents are based on analysis using the TCLP. As noted above, these standards are essential in ensuring that the toxicity of K088 is "substantially diminished" and threats to human health and the environment are thereby minimized (RCRA section 3004(m)(2)) through the destruction of cyanides and organics and the immobilization of toxic metals prior to land disposal.

2. Total Arsenic Standard

The Agency is promulgating a revised treatment standard for arsenic in nonwastewater forms of K088, based on a total recoverable arsenic concentration from strong acid digestion, as defined by EPA SW-846 Method 3050, 3051, or the equivalent, hereafter referred to as "total arsenic." This change to the K088 treatment standard addresses the D.C. Circuit's holding that EPA arbitrarily relied on an inaccurately predictive model (the TCLP) in promulgating the K088 treatment standard. The Agency recognizes that for K088 nonwastewaters, arsenic treatment, (i.e., immobilization) may not be accurately

² Commenters argued that the TCLP could not be used to measure compliance with these standards under the reasoning of *Columbia Falls*, and that there is no information showing that the acidic leaching media used in the TCLP would be a reasonable predictor for leaching of these metals under alkaline disposal conditions. Comment p. 11. As mentioned in the text, these assertions are not correct. The TCLP is not underpredictive of actual leaching for these wastes because the other metals are not more mobile under alkaline conditions. This is borne out by the actual leachate data (cited above) showing reasonable correlation between predicted and actual leachate levels and, most importantly, confirming that all of the other toxic metals are substantially immobilized as required by section 3004(m).

predicted through the use of the TCLP because the TCLP uses a weakly acidic extractant, whereas actual disposal conditions are often highly alkaline (due to the potliner's alkalinity), and arsenic is more soluble under highly alkaline than weakly acidic conditions. See 62 FR 1993 (January 14, 1997). Specifically, the TCLP uses a weakly acidic leachate (pH 5.0) which, together with the alkaline treatment residual (K088), results in a leachate pH of approximately 7.6 and not the observed landfill pH of approximately 12.5, at which arsenic is highly mobile. However, because there is no other predictive leaching test available at this time, the Agency has developed an alternative treatment standard for arsenic in K088 nonwastewaters based on the total arsenic present in the treatment residue. As explained below, this total arsenic treatment standard for K088 will be consistent with the current improved performance of the Reynolds process, which has been reconfigured to reduce use of arsenic-containing additives during treatment. The standard also should ensure that the treatment process successfully incorporates the arsenic into the matrix of the treated residual and so minimizes environmental release. This is because arsenic is soluble under strongly acidic conditions, so that the total arsenic analytic method (strong acid digestion) measures all arsenic not incorporated into an impervious silica matrix.

On August 4, 1998 (63 FR 41536), the Agency issued a Notice of Data Availability (NODA) identifying four data sets as possible data sets from which a total arsenic standard could be developed. Two of the data sets represented full-scale data from the treatment of K088 at the Reynolds Metals Company treatment facility³, and two data sets represented pilot-scale data from vitrification⁴ treatment studies. We discuss below the Agency's

³ The Reynolds treatment process entails the crushing and sizing of spent potliner materials (K088), the addition of roughly equal portions of limestone and "sand" as flux, and the feeding of the combined mixture to a rotary kiln for thermal destruction of cyanide and PAHs, while reducing the mobility of the fluoride and arsenic in the resulting slag. 62 FR 37694, July 14, 1997.

⁴ Vitrification is a treatment process which involves dissolving the waste at high temperatures into glass or a glass-like matrix. High temperature vitrification is applicable to nonwastewaters containing arsenic or other characteristic toxic metal constituents that are relatively nonvolatile at the temperatures at which the process is operated. Volatile arsenic compound are usually converted to nonvolatile arsenate salts such as calcium arsenate prior to the use of this process. See USEPA "Treatment Technology Background Document", Office of Solid Waste, January 1991. (Document is available in the docket for today's rule. F-98-K88F-FFFFF)

choice of data set for establishing a revised treatment standard.

The first data set, generated in late 1997 by the Reynolds Metals Company, consists of 30 measurements for total arsenic in treated K088 waste. Total arsenic concentrations ranged from 8.77 to 27.6 mg/kg. Quality assurance/quality control (QA/QC) documentation was provided with the data. The second data set has also been generated by Reynolds and identified as a one-page "Special Laboratory Report" (December 6, 1996) showing total arsenic concentrations (mg/kg) for K088 potliner in both the untreated and treated forms. This data set consists of six treated and untreated data pairs. No quality assurance/quality control documentation was provided with these data.

The third data set was submitted to the EPA in 1994 from the Ormet Primary Aluminum Corporation facility in Hannibal, Ohio (see 63 FR 41536, August 4, 1998). These data consisted of arsenic samples, analyzed on a total arsenic basis, taken from a pilot-scale vitrification unit treating K088 waste. This data set consists of five treated and untreated data pairs. Partial quality assurance/quality control documentation was provided with this data set.

The fourth data set, generated in 1997, consists of pilot-scale data from two vitrification studies on K088 waste from two different generators. The first study consisted of only one datum point on total arsenic measuring "not detected" (less than 3 mg/kg total arsenic). Total arsenic concentrations (mg/kg) for this second study consisted of seven data points. No quality assurance/quality control nor any waste characterization documentation were provided.

When evaluating any performance data set with regard to its treatment effectiveness on a particular hazardous constituent, the Agency's Land Disposal Restrictions Program (LDR) has specific requirements for any data set evaluated for possible Best Demonstrated Available Technology (BDAT) analysis. A full range of information is necessary to determine whether a treatment and its corresponding performance data warrants further evaluation for possible development of the treatment standard. For example, waste characterization; treatment design and operating conditions; and QA/QC documentation are all necessary components of a "BDAT quality" data set. See USEPA "Final Best Demonstrated Available Technology (BDAT) Background Document for Quality Assurance/Quality Control Procedures and Methodology," Office of Solid Waste, October 23, 1991.

The Agency has completed a thorough evaluation of the four data sets with regard to BDAT protocols. As discussed above, each data set has certain limitations. Faced with imperfect data, EPA has used the best data available to set this interim standard. EPA has determined that the data set consisting of 30 data points submitted by the Reynolds Metals Company is the most appropriate for development of a total arsenic standard for K088 nonwastewaters. This decision was made for a number of reasons. First, when developing any treatment standard, the Agency attempts to collect as much data as possible to reflect the diversity of the waste stream. With respect to the Reynolds 30-day data, the data satisfy this objective by having the most diverse range of total arsenic concentrations (8.77 to 27.6 mg/kg) in treated spent potliners. In fact, the data represented treatment of spent potliners from 15 of the 23 aluminum producers in the United States.⁵ Conversely, the vitrification data sets (covering spent aluminum potliners from three different aluminum facilities) show no such diversity and are limited to five, one, and seven data points respectively. While the Agency does not have untreated data on total arsenic concentrations for the Reynolds 30-day data set, the data are consistent with the other data sets and previously reported maximum arsenic concentrations for untreated and treated spent potliner (56 FR 33004, July 18, 1991).

Second, the Reynolds 30-day data are the most current of the four data sets and contain all the necessary quality assurance quality control documentation, unlike the three other data sets. Third, the Reynolds 30-day data set is based on full-scale data while the vitrification data set is based on pilot-scale treatability studies. EPA as part of its LDR program prefers to use full-scale data when developing treatment standards. See "Final Best Demonstrated Available Technology (BDAT) Background Document for Quality Assurance/Quality Control Procedures and Methodology," Office of Solid Waste, October 23, 1991.

Furthermore, the data should be from an optimized and well run process. Reynolds has endeavored to isolate and remove additional sources of arsenic in their process (by changing treatment reagents) and to lower the pH of the residue, which may further reduce arsenic leachability. Reynolds' original process appeared actually to increase the amount of leachable arsenic in the treated waste, possibly due to the

destruction of organic components in the K088 combined with the arsenic levels in the sand that is used as a fluxing agent in the process. 62 FR 37694. Reynolds has recently changed the type of sand used as a fluxing agent (from so-called Brown Sand to Red Clay Sand), and the 30-day data was produced using Reynolds's revised process utilizing Red Clay Sand as a treatment additive. Two separate landfill leachate analytical results from Reynolds, dated May 26, 1998 and June 25, 1998, indicate that leachate levels for arsenic in Cell 2 (the cell which is currently accepting treated K088 waste and using Red Clay Sand as a treatment additive) are significantly lower than arsenic levels from the leachate in Cell 1 (no longer receiving treated K088 waste and containing instead the waste generated using the Brown Sand fluxing agent): 15.7 mg/L and 21.6 mg/L (Cell 1) versus 3.82 mg/L and 1.23 mg/L (Cell 2), respectively.⁶ This suggests that Reynolds is minimizing the amount of arsenic imported to their treatment process, and further minimizing the amount which is released to the environment in accord with section 3004(m). Accordingly, the Agency has calculated and is promulgating an interim final treatment standard of 26.1 mg/kg total arsenic for nonwastewater forms of K088 based on the Reynolds 30-day data set. The total arsenic standard adopted today "by using data reflecting this improved performance should ensure the observed reduction in mobile arsenic. EPA thus finds that this new standard does result in significant reduction in arsenic mobility and consequent minimization of threats posed by disposal of spent potliners. See RCRA section 3004(m)(1).

3. Fluoride

The solubility of fluoride ions is largely governed by the metal ions present and pH. The conditions of the TCLP fail to predict the mobility of fluoride under actual disposal conditions, since fluoride is more soluble under highly alkaline conditions (like the conditions of a dedicated monofill, such as utilized by Reynolds), and not the neutral to weakly basic conditions that result during the TCLP test conducted on the highly alkaline K088 potliner. 62 FR 1993.

Consequently, the Court held that the TCLP was not a proper predictive model for fluoride mobility from these wastes.

EPA has decided not to develop an interim standard for fluoride. It would

take significant technical effort to develop a replacement treatment standard for this constituent and EPA would not be able to meet the D.C. Circuit's deadline of September 24, 1998. The current data are insufficient on which to base a treatment standard that would not be TCLP-based. Therefore, EPA would need to engage in a substantial testing and/or a data gathering effort using alternative test methods. EPA believes that this type of considerable technical resource effort is better directed, given current circumstances, to developing the long-term, more permanent treatment standard described earlier. Moreover, as a practical matter, treatment of K088 potliners to meet the other metal treatment standards will result in some immobilization of fluoride as well.⁷ As a result, looking at the totality of additional environmental protection gained from these interim standards for the suite of hazardous constituents involved, we conclude that immediate promulgation of these interim standards (even without a specific fluoride standard) constitutes the best practical approach to minimizing threats to human health and the environment. The issue of fluoride treatment will of course be fully explored as part of the longer-term effort to establish more permanent treatment standards for K088 waste.

IV. Capacity Determination

A. Introduction

This section summarizes the results of the capacity analysis for the wastes covered by today's rule. For a detailed discussion of capacity analysis-related data sources, methodology, and summary of analysis for K088 covered in this rule, see the background documents entitled "Background Document for Capacity Analysis Update for Land Disposal Restrictions—Phase III: Spent Aluminum Potliners (July 1997)" (62 FR 37694 i.e., referred to as the "Capacity Background Document").

In general, EPA's capacity analysis focuses on the amount of waste to be restricted from land disposal that is currently managed in land-based units and that will require alternative treatment as a result of the LDRs. The quantity of wastes that are not managed

⁷For example, the chief existing treatment process, operated by Reynolds Metals, does provide some treatment of fluoride, on the order of at least 28% reduction in fluoride mobility (based on comparison of fluoride leached from untreated potliners using neutral extractant column tests and levels of fluoride in actual leachate from the Reynolds' disposal unit). Docket Items P33F-S0064 and S0049 Attachment A data set J. This level of treatment will necessarily occur, at least in the Reynolds process, because the process does not treat each constituent selectively.

⁶These leachate levels are in fact significantly lower than the initial treatment standard (5.0 mg/L measured by the TCLP) for arsenic.

⁵Comment K88A-00002.

in land-based units (e.g., wastewater managed only in RCRA exempt tanks, with direct discharge to a Publicly Owned Treatment Works (POTW)) is not included in the quantities requiring alternative treatment as a result of the LDRs. Also, wastes that do not require alternative treatment (e.g., those that are currently treated using an appropriate treatment technology) are not included in these quantity estimates.

EPA's decisions on when to establish the effective date of the treatment standards (e.g., whether to grant a national capacity variance) are based on the availability of appropriate treatment or recovery technologies. Consequently, the methodology focuses on deriving estimates of the quantities of waste that will require either commercial treatment or the construction of new on-site treatment as a result of the LDRs. EPA attempts to subtract from the required capacity estimates the quantities of waste that will be treated adequately either on-site in existing systems or off-site by facilities owned by the same company as the generator (i.e., captive facilities). The resulting estimates of required commercial capacity are then compared to estimates of available commercial capacity. If adequate commercial capacity exists, the waste is restricted from further land disposal before meeting the LDR treatment standards. If adequate capacity does not exist, RCRA section 3004(h)(2) authorizes EPA to grant a national capacity variance for the waste for up to two years or until adequate alternative treatment capacity becomes available, whichever is sooner.

B. Capacity Analysis Results Summary

The D.C. Circuit Court decision vacated the prohibition on land disposal of this waste. EPA therefore needs to make a capacity analysis determination for K088 due to the (nominally) new prohibition of this waste.

As indicated in the Background Documents for Capacity Analysis for Land Disposal Restrictions⁸, an accurate projection of annual generation of K088 is difficult to develop. Primary aluminum production rates B one of the key determinants of K088 generation B vary from year to year. Other factors

⁸Background Document for Capacity Analysis for Land Disposal Restrictions—Phase III—Decharacterized Wastewaters, Carbamate Wastes, and Spent Potliners (Final Rule, February 1996, Volume I Capacity Analysis Methodology and Results, pages 4-5 to 4-8); Background Document for Capacity Analysis Update for Land Disposal Restrictions—Phase III: Spent Aluminum Potliners (Final Rule, July 1997), to the Land Disposal Restrictions Phase III—Emergency Extension of the K088 Capacity Variance; Final Rule (62 FR 37694, July 14, 1997).

include the differences between potliners in terms of their useful life spans, the lag time between aluminum production and waste generation, and the one-time increases in potliner generation due to production starts and stops. Thus, for the purpose of comparing required treatment capacity to available capacity, EPA combined all the data presented in the Capacity Background Document to estimate that approximately 117,000 tons per year of K088 in the U.S. may require off-site alternative treatment. (See memo to this final rule's docket.)

When estimating the available treatment or recovery capacity, the Agency includes the capacity currently available and operating in its analysis if the facility can meet all treatment standards, including the new treatment standard for arsenic in K088 waste. Available treatment capacity for K088 could vary due to several factors, such as the feed rate of the waste into the treatment unit, downtime of the units, the number of units that will be able to accept K088, and the amount of retreatment needed. Considering these factors, EPA estimates that approximately 120,000 tons per year of capacity could be available for treating K088. (See the Capacity Background Document for detailed analysis and Reynolds' comment to K088 NODA, 63 FR 41536, August 4, 1998.) In addition, one other commercial facility indicated that its treatment process is expected to begin operation sometime this year. Also, additional technologies as mentioned in Section III of this rule are under development and, therefore, additional treatment or recovery capacity may come on-line at on-site or off-site facilities for K088 waste.

Based on the results of the Agency's capacity analysis, adequate commercially available treatment (or recovery) capacity does currently exist for K088 waste. The largely-identical existing prohibition and treatment standards are still in effect, so there are no logistical barriers to immediate compliance. Therefore, LDR treatment standards will become effective immediately for the waste covered under this rule. (See RCRA section 3004(h)(1); land disposal prohibitions must take effect immediately when there is sufficient protective treatment capacity for the waste available).

V. Compliance and Implementation

A. Applicability of Rule in Authorized States

Under section 3006 of RCRA, EPA may authorize qualified States to administer and enforce the RCRA

program within the State. Following authorization, EPA retains enforcement authority under sections 3008, 3013, and 7003 of RCRA, although authorized States have primary enforcement responsibility. The standards and requirements for authorization are found in 40 CFR part 271.

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

In contrast, under RCRA section 3006(g), new requirements and prohibitions imposed by HSWA take effect in authorized States at the same time that they take effect in unauthorized States. EPA is directed to carry out these requirements and prohibitions in authorized States, including the issuance of permits, until the State is granted authorization to do so.

Today's rule is being promulgated pursuant to sections 3004 (g)(4) and (m) of RCRA. Therefore, the Agency is adding today's rule to Table 1 in 40 CFR 271.1(j), which identifies the Federal program requirements that are promulgated pursuant to HSWA. This rule is therefore effective in all states immediately pursuant to RCRA section 3006(g). States may apply for final authorization for the HSWA provisions in Table 1, as discussed in the following section of this preamble.

B. Effect on State Authorization

As noted above, EPA will implement today's rule in authorized States until they modify their programs to adopt these rules and the modification is approved by EPA. Because today's rule is promulgated pursuant to HSWA, a State submitting a program modification may apply to receive interim or final authorization under RCRA section 3006(g)(2) or 3006(b), respectively, on the basis of requirements that are substantially equivalent or equivalent to EPA's. The procedures and schedule for State program modifications for final authorization are described in 40 CFR 271.21. All HSWA interim authorizations will expire January 1,

2003. (See § 271.24 and 57 FR 60132, December 18, 1992.)

VI. Regulatory Requirements

A. Regulatory Impact Analysis Pursuant to Executive Order 12866

Executive Order No. 12866 requires agencies to determine whether a regulatory action is "significant." The Order defines a "significant" regulatory action as one that "is likely to result in a rule that may: (1) have an annual effect on the economy of \$100 million or more or adversely affect, in a material way, the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order."

The Agency estimated the costs of today's final rule to determine if it is a significant regulation as defined by the Executive Order. Because the treatment standard for K088 promulgated in the Phase III final rule has remained in effect and unchanged except for arsenic and fluoride, treatment costs for spent aluminum potliner have been accounted for in the Phase III final rule rather than today's final rule. Accordingly, EPA believes that there are no costs associated with today's final rule. (According to the Court, none of the standards measured by means other than TCLP were affected by the ruling, 139 F.3d at 923, so no costs should be attributed to treating these constituents under this rule in any case.) However, even in the event that treatment costs are attributed to today's final rule, the upper bound treatment estimate of \$42 million is not economically significant according to the definition in E.O. 12866. The Agency has, however, determined that this rule is significant for novel policy reasons.

Discussion of the methodology used for estimating the costs and economic impacts attributable to today's final rule for K088 wastes may be found in the background document "Economic Assessment for Retention of LDR Treatment Standard for Spent Aluminum Potliner (K088) and Evaluation of Draft Groundwater Pathway Analysis For Aluminum

Potliners (K088)" which was placed in the docket for today's final rule.

1. Methodology Section

The Agency examined reported values for K088 generation from the prior Agency estimates in the Phase III LDR final rule to estimate the volumes of K088 affected by today's rule, to determine the national level incremental costs (for both the baseline and post-regulatory scenarios), economic impacts (including first-order measures such as the estimated percentage of compliance cost to industry or firm revenues).

2. Results

a. Volume Results. Spent potliners (SPL) are generated in large volumes ranging from 95,000 to 125,000 tons annually.⁹ EPA estimated an average of approximately 120,000 tons annually for purposes of assessing cost and economic impacts from today's final rule. This estimated generation volume for K088 is greater than the estimate used in the capacity section because it includes not only volumes requiring alternative treatment, but also volumes currently undergoing treatment.

b. Cost Results. As stated above, because this rule only modifies the treatment standard for arsenic, the Agency believes that this rule does not impose incremental treatment costs associated with treating K088. EPA notes that analytical costs associated with sampling treated spent aluminum potliner may actually decrease because the cost of completing a totals analysis for arsenic is less than the comparable cost per sample of a TCLP analysis.¹⁰ For purposes of comparison, the Agency has estimated treatment costs for K088. If annual treatment costs were attributed to today's rule, they would range from \$9.6 million to \$42 million. EPA previously estimated treatment costs between \$6.4 million and \$42 million for the LDR Phase III final rule. 61 FR 15566, 15591 (April 8, 1996). EPA notes that new K088 treatment technologies are currently being developed that may significantly lower K088 treatment costs nationally.¹¹ EPA does not believe that

⁹ Background Document for Capacity Analysis for Land Disposal Restrictions, Phase III (February 1996, Volume I, pages 4-5 to 4-8)

¹⁰ One commercial testing laboratory provided an estimate of \$40 per sample for an arsenic totals analysis. Today's final rule should lower testing costs overall because the \$40 cost of total test for arsenic is less expensive than the \$90 to \$140 that would be required to run a TCLP test for arsenic for a treated residue.

¹¹ For example, previously Reynolds Metals Company has provided data indicating that the treatment and disposal cost of their process, though variable depending on a series of factors, is between

this final rule will create barriers to market entry for firms wishing to provide alternative treatment capacity for spent aluminum potliner. The Agency believes that the net effect of today's rule to modify the existing K088 treatment standard by changing the TCLP test for arsenic to a totals number is unlikely to burden alternative treatment processes currently under development for the treatment of spent aluminum potliner.

c. Economic Impact Results. To estimate potential economic impacts resulting from today's proposed rule, EPA has used first order economic impacts measures such as the estimated costs of today's final rule as a percentage of affected firms' sales and/or revenues. When the annual costs of regulation are less than one percent of a firm's annual sales or revenues, this analysis presumes that the regulation does not pose a significant economic impact on the affected facilities absent information to the contrary. Because EPA does not view this rule as imposing costs, the Agency does not believe that this rulemaking imposes economic impacts on regulated entities. But even if treatment costs are attributed to this rulemaking, no significant economic impact will result. In 1996, U.S. primary aluminum producers sold 3.6 million metric tons of aluminum at an average market price of \$1400 per ton yielding total sales of \$5.04 billion.¹² The \$42 million upper bound of the treatment cost estimate represents only 0.8 percent of the total value of the aluminum sold by primary aluminum producers. It is likely, as discussed, that treatment costs will decrease as new firms develop commercial technologies for K088. As a result, this final rule will not pose a significant economic impact on primary aluminum producers in the United

\$200 and \$500 per ton. Personal Communication with Jack Gates, Vice-President, Reynolds Metals Company, September 28, 1994 as cited in Regulatory Impact Analysis of the Phase III Land Disposal Restrictions Final Rule, U.S.

Environmental Protection Agency, Office of Solid Waste, February 15, 1996. Recently, Waste Management has quoted treatment and disposal charges at \$160 per ton for treatment capacity now being developed at its Arlington, Oregon facility. Letter from Mitchell S. Hahn, Manager, Environment Health and Safety, Waste Management Inc. to Paul A. Borst, Economist, USEPA, Office of Solid Waste, June 4, 1998. The Waste Management treatment and disposal charge is determined by subtracting the \$85 storage price from a new customer price of \$245 per ton. Transportation costs are not factored into this estimate. Of the \$160 per ton treatment and storage cost, \$80 per ton is attributable to treatment and \$80 is attributable to disposal. Personal Communication between Mitchell Hahn, Chemical Waste Management, and Paul Borst, U.S.E.P.A. August 13, 1998.

¹² Mineral Commodity Summaries 1997, U.S. Department of the Interior, U.S. Geological Survey, February 1997, p. 18.

States. More detailed information on this estimate can be found in the economic assessment placed into today's docket.

d. Benefits Assessment. EPA has not calculated benefits associated with the total limitation on arsenic in today's final rule. Because today's final rule promulgates a prohibition and treatment standard for K088 with modest changes from the previous treatment standard for K088, the Agency believes that there is only likely to be a modest risk reduction because most of the risk reduction has already been accounted for through the K088 treatment standard in the Phase III final rule (as has the cost of treatment), although, as noted earlier, the total arsenic standard will ensure the minimization of leachable arsenic, as shown by recent monitoring data. However, the Agency wishes to correct an error in previous groundwater risk analysis for K088 with respect to cyanide.

EPA's groundwater risk analysis for K088 completed for the Phase III rulemaking indicated that cyanide did not pose a risk to human health.¹³ A review of the analysis indicates that the analysis results may have underestimated groundwater risk from cyanides in potliners for a variety of reasons. First, the analysis modeled cyanide ion, CN⁻ (CAS # 57-12-5), as the cyanide species being considered for mobilization.¹⁴ However, other data indicate that ferrocyanide, Fe(CN)₆⁻⁴ (CAS # 13408-63-4), rather than cyanide ion is the prevalent cyanide species in spent potliner leachate typically accounting for 89 percent of total cyanide present.¹⁵ This is significant because cyanide ion may be less persistent in the environment than ferrocyanide. Cyanide ion may decompose in soil environments through hydrolysis, biodegradation or other means. Ferrocyanide is an extremely persistent cyanide species.¹⁶ Ferrocyanide mobility may be limited in soil but yet retains the ability to form more toxic forms of cyanide—either

hydrogen cyanide or free cyanide decomposition products.¹⁷

In addition, the groundwater risk analysis modeled K088 cyanide leachate concentrations in a manner lower than what real-world experience has shown. The analysis modeled approximate TCLP cyanide concentrations of 110 ppm.¹⁸ However, in its K088 listing background document, EPA noted slab liquor (the runoff from concrete slabs on which spent potliners were placed during open storage) total cyanide concentrations of 13,000 mg/L total cyanide, more than two orders of magnitude greater than leachate concentration used in the modeling analysis.¹⁹ A second source reports typical cyanide concentrations in potliner leachate at 5000 ppm.²⁰ See also Docket Item P33F-S0049A data set J (column testing of untreated potliners with neutral extractant showing cyanide concentrations between 1325 and 2885 ppm.)

Third, EPA's groundwater analysis may have underestimated groundwater risk from cyanide by not accounting for high pH conditions caused by the alkalinity of the potliner itself. The analysis used a national distribution of pH values for the saturated zone parameters from EPA's STORET database. This national distribution modeled low (4.9), medium (6.8) and high (8.0) values. However, the pH of the saturated zone in a site where spent potliner is leaching may be substantially higher than the national distribution. Spent aluminum potliner typically has a pH of 12.3 to 12.6.²¹ Under these elevated pH conditions, volatilization of cyanide ion as hydrogen cyanide gas, and hydrolysis and biodegradation are limited so cyanide available to contaminate groundwater would not be attenuated (as initially incorrectly modeled).²²

Finally, at least four damage incidents to groundwater from cyanides from disposed potliner demonstrate the potential of cyanide in this waste to contaminate groundwater. In EPA's listing background document for spent potliner, the Agency documents cyanide contamination of drinking water wells in Washington State from Kaiser

Aluminum's Mead Works facility near the Spokane aquifer. Some drinking water wells had levels of cyanide of 1 ppm exceeding the maximum contaminant level (MCL) of 0.2 ppm.²³ In addition, cyanide concentrations in leachate from a landfill containing potliner at a primary aluminum smelter site on the National Priority List (NPL) ranged between 373 and 1280 ppm.²⁴ Additional damage incidents showing cyanide groundwater contamination caused by improper disposal of spent potliners are summarized at Docket item PH3F-S0015. EPA thus believes the risks of groundwater contamination due to potliner disposal were incorrectly understated in the earlier RIA, and hereby withdraws the earlier conclusions regarding the low possibility and nature of cyanide contamination. Moreover, given the long-term inability of Subtitle C disposal to fully contain hazardous wastes, see RIA for Phase III final rule at 4-13 (Feb. 1996); and Inyang and Tomassoni, *Indexing of Long-Term Effectiveness of Waste Containment Systems for a Regulatory Impact Analysis*, EPA OSW (Nov. 1992), and the demonstrated cyanide contamination of exceeding health-based levels of groundwater already caused by improper disposal of these wastes, EPA finds that disposal of untreated potliners does pose a risk of cyanide contamination of groundwater at levels harmful to human health.

B. Regulatory Flexibility

The Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement and Fairness Act, 5 U.S.C. 601-612, generally requires an agency to conduct a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. However, the Agency has determined that this final rule is not subject to the Regulatory Flexibility Act (RFA) and, moreover, it will not have a significant economic impact on a substantial number of small entities.

First, by its terms, the RFA applies only to rules subject to notice-and-comment rulemaking requirements under the Administrative Procedure Act (APA) or any other statute. Today's rule is not subject to notice and comment requirements under the APA or any other statute. Although today's rule is

¹³ Groundwater Pathway Analysis for Aluminum Potliners (K088), Draft, U.S. Environmental Protection Agency, Office of Solid Waste, February 16, 1996. Tables 3-2 and 3-3.

¹⁴ *Ibid.* p. 9.

¹⁵ F.M. Kimmerle, et al., "Cyanide Destruction in Spent Potlining," *Light Metals 1989*, Proceedings of the Technical Sessions by the TMS Light Metals Committee, 117th TMS Annual Meeting, Phoenix Arizona, January 25-28, 1988 as cited in Jim Mavis, CH2M Hill, "Aluminum Industry" in *Pollution Prevention Handbook*, ed. Thomas Higgins (Boca Raton: CRC Press, 1995), p.379.

¹⁶ Adrian Smith and Terry Mudder, *Chemistry and Treatment of Cyanidation Wastes* (London: Mining Journal Books Ltd, 1991) p.11.

¹⁷ U.S.E.P.A., Listing Background Document—Primary Aluminum Production/Spent Potliners from Primary Aluminum Production, p.7.

¹⁸ Groundwater Pathway Analysis, p.9.

¹⁹ Listing Background Document, p.5.

²⁰ Kimmerle as cited in Mavis, *supra* note 6, p.379.

²¹ Special Laboratory Report, Reynolds Metals Company, 1996.

²² Adrian Smith and Terry Mudder, *Chemistry and Treatment of Cyanidation Wastes* (London: Mining Journal Books Ltd, 1991) p.49, 64, and 82.

²³ K088 Listing Background Document, p.8.

²⁴ Record of Decision, Martin Marietta Corp., RODS DATA, September 29, 1988.

subject to the APA, the Agency has invoked the "good cause" exemption under APA section 553(b). As discussed below, the good cause exemption provides the notice and comment rulemaking requirements of the APA do not apply to a rulemaking when an agency finds them to be impracticable, unnecessary or contrary to the public interest.

Second, the Agency nonetheless has assessed the potential of this rule to adversely impact small entities. The Agency finds that this final rule does not have the potential to adversely impact small entities. As discussed above, today's final rule does not impose incremental costs to regulated entities. Also, the Agency has evaluated K088 treatment costs previously accounted for under the Phase III final rule and determined that even if these costs were attributed to today's final rule, they would not exceed 1 percent of the sales of small entities subject to this final rule. More information on this analysis can be found in the background document "Economic Assessment for Retention of LDR Treatment Standard for Spent Aluminum Potliner (K088) and Evaluation of Draft Groundwater Pathway Analysis For Aluminum Potliners (K088)" placed in the public docket.

C. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Pub. L. No. 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under Section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of \$100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes

any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has determined that this rule does not include a Federal mandate that may result in estimated costs of \$100 million or more to either State, local, or tribal governments in the aggregate. The rule would not impose any federal intergovernmental mandate because it imposes no enforceable duty upon State, tribal or local governments. States, tribes and local governments would have no compliance costs under this rule. It is expected that states will adopt similar rules, and submit those rules for inclusion in their authorized RCRA programs, but they have no legally enforceable duty to do so. For the same reasons, EPA also has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments. In addition, as discussed above, the private sector is not expected to incur costs exceeding \$100 million. By these findings, EPA has fulfilled the requirement for analysis under the Unfunded Mandates Reform Act.

D. Executive Order 12875: Enhancing the Intergovernmental Partnership

To reduce the burden of Federal regulations on States and small governments, President Clinton issued Executive Order 12875 on October 26, 1993, entitled "Enhancing the Intergovernmental Partnership." Under Executive Order 12875, EPA may not issue a regulation that is not required by statute unless the Federal Government provides the necessary funds to pay the direct costs incurred by the State and small governments or EPA provides to the Office of Management and Budget both a description of the prior consultation and communications the agency has had with representatives of State and small governments and a statement supporting the need to issue the regulation. In addition, Executive Order 12875 requires EPA to develop an effective process allowing elected and other representatives of State and small governments "to provide meaningful and timely input in the development of

regulatory proposals containing significant unfunded mandates."

For the reasons described above, today's final rule will not impose any enforceable duty or contain any unfunded mandate upon any State, local, or tribal government; therefore Executive Order 12875 does not apply to this action.

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

The Executive Order 13045, entitled "Protection of Children from Environmental Health Risks and Safety Risks (62 FR 19885, April 23, 1997), applies to any rule that EPA determines (1) "economically significant" as defined under Executive Order 12866, and (2) the environmental health or safety risk addressed by the rule has 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. This final rule is not subject to E.O. 13045 because this is not an economically significant regulatory action as defined by E.O. 12866, and because the Agency does not have reason to believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. The Agency has concluded this because this rulemaking establishes treatment standards for hazardous constituents in spent aluminum potliner that minimize both short-term and long-term threats to human health and the environment. The environmental health risks or safety risks addressed by this action do not have a disproportionate effect on children.

F. Environmental Justice E.O. 12898

EPA is committed to addressing environmental justice concerns and is assuming a leadership role in environmental justice initiatives to enhance environmental quality for all residents of the United States. The Agency's goals are to ensure that no segment of the population, regardless of race, color, national origin, or income bears disproportionately high and adverse human health and environmental impacts as a result of EPA's policies, programs, and activities, and that all people live in clean and sustainable communities. In response to Executive Order 12898 and to concerns voiced by many groups outside the Agency, EPA's Office of Solid Waste

and Emergency Response 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).

Today's final rule covers K088 spent potliner wastes from primary aluminum operations. It is not certain whether the environmental problems addressed by this rule could disproportionately affect minority or low income communities due to the location of primary aluminum operations. However, because today's final rule establishes treatment standards for K088 being land disposed, the Agency does not believe that today's rule will increase risks from K088. Indeed, as discussed earlier, these treatment standards will ensure that risks to human health and the environment are minimized for all communities. It is, therefore, not expected to result in any disproportionately negative impacts on minority or low income communities relative to affluent or non-minority communities.

G. Paperwork Reduction Act

To the extent that this rule imposes any information collection requirements under existing RCRA regulations promulgated in previous rulemakings, those requirements have been approved by the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*, and have been assigned OMB control numbers 2050-120 (ICR no. 1573, Part B Permit Application); 2050-120 (ICR 1571, General Facility Standards); 2050-0028 (ICR 261, Notification to Obtain an EPA ID); 2050-0034 (ICR 262, Part A Permit Application); 2050-0039 (ICR 801, Hazardous Waste Manifest); 2050-0035 (ICR 820, Generator Standards); and 2050-0024 (ICR 976, Biennial Report).

H. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Pub. L. No. 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.

EPA is not aware of existing voluntary consensus standards that could be used for treatment standards of spent aluminum potliner. EPA believes that such voluntary consensus standards are therefore unavailable. This rulemaking also involves environmental monitoring or measurement. As stated above, this final rule promulgates a revised treatment standard for arsenic in nonwastewater forms of K088, based on a total recoverable arsenic concentration from strong acid digestion as defined by EPA SW-846 Method 3050, 3051 or the equivalent. Consistent with the Agency's Performance Based Measurement System (PBMS), EPA has decided not to require the use of specific, prescribed analytic methods. Rather, the rule will allow the use of any method that meets the prescribed performance criteria. The PBMS approach is intended to be more flexible and cost-effective for regulated entities. It is also intended to encourage innovation in analytical technology and improve data quality. EPA is not precluding the use of any method, whether it constitutes a voluntary consensus standard or not, as long as it meets the performance criteria specified.

I. Executive Order 13084: Consultation and Coordination With Indian Tribal Governments

Under Executive Order 13084, EPA may not issue a regulation that is not required by statute, that significantly or uniquely affects the communities of Indian tribal governments, and that imposes substantial direct compliance costs on those communities unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by the tribal governments. If the mandate is unfunded, EPA must provide to the Office of Management and Budget, in a separately identified section of the preamble to the rule, a description of the extent of EPA's prior consultation with representatives of affected tribal governments, a summary of the nature of their concerns, and a statement supporting the need to issue the regulation. In addition, Executive Order 13084 requires EPA to develop an effective process permitting elected and other representatives of Indian tribal governments "to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities."

Today's rule does not significantly or uniquely affect the communities of Indian tribal governments. Aluminum potliners are not currently generated or treated on any known Indian tribal lands. Today's rule does not create a mandate on State, local or tribal governments. The rule does not impose any enforceable duties on these entities. Accordingly, the requirements of section 3(b) of Executive Order 13084 do not apply to this rule.

J. Congressional Review Act

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. Section 808 allows the issuing agency to make a rule effective sooner than otherwise provided by the CRA if the agency makes a good cause finding that notice and public procedure is impracticable, unnecessary or contrary to the public interest. This determination must be supported by a brief statement. 5 U.S.C. 808(2). In the following section, EPA has made such a good cause finding, including the reasons therefore, and established an effective date of September 21, 1998. EPA will submit a report containing this rule 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 of the rule in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2).

VII. Good Cause for Immediate Final Rule

Under the Administrative Procedure Act (APA), 5 U.S.C. 553(b)(B), an agency may forego notice and comment in promulgating a rule when the agency for good cause finds (and incorporates the finding and a brief statement of the reasons for that finding into the rule) that notice and public comment procedures are impracticable, unnecessary, or contrary to the public interest. For the reasons set forth below, EPA finds good cause to conclude that notice and comment would be unnecessary and contrary to the public interest, and therefore is not required under the APA.

EPA believes that notice and opportunity for comment has been provided here, albeit not through the means of a proposed rule. The Agency has been in protracted discussions with

the regulated community both directly and through court pleadings. Therefore, members of the regulated community have had opportunity to comment and make their views known. Most recently, the Agency provided for specific notice and comment on the data to be used in the development of a standard based on total arsenic content in treatment residue. See 63 FR 41536, August 4, 1998. EPA received comments addressing every aspect of these standards in response to this document, and is responding to these comments in this preamble and also in a separate Response to Comment Background Document. Furthermore, other than for the arsenic standard, this document makes conforming changes that reinstate and maintain the current standards which were already the subject of exhaustive notice and comment in both the Phase III rulemaking and in response to the January 14 document extending the national capacity variance date. Petitioners in the K088 litigation, for example, filed a multitude of different comments in response to these various documents. Further opportunity to comment therefore is not necessary.

Consequently, EPA today is preserving the core of the K088 treatment standards promulgated in the Phase III rule by ensuring that the K088 wastes are prohibited from land disposal unless they first meet the treatment standards in this rule. At the same time, EPA is eliminating the standards found to be arbitrary by the Court. The Agency also concludes that this action must be taken immediately and that notice and comment would be contrary to the public interest in these special circumstances. Delay past the projected date of issuance of the Court's

mandate (September 24, 1998) could result in land disposal of untreated spent potliners, contrary to explicit statutory command that land disposal of this waste be prohibited. (See as well the earlier discussion in this Preamble of the need to assure that this prohibition does not lapse.) For these reasons, EPA believes that there is good cause to issue this final rule immediately without prior notice and comment. This is not to say that EPA would, or could, invoke this type of good cause rationale whenever contemplating promulgation of LDR prohibitions and treatment standards. However, in the present circumstances, where the waste already is prohibited and untreated land disposal of the waste has therefore ended, it appears especially important to avoid backsliding to a regime of untreated land disposal.

For the same reasons, EPA finds, for purposes of 5 U.S.C. 553(d), that there is good cause to make the rule effective immediately. In any case, the statute indicates that LDR prohibitions are to take effect immediately. See RCRA section 3004(h)(1). (Prohibitions on land disposal are effective immediately so long as there is adequate protective treatment capacity available at that time.)

List of Subjects

40 CFR Part 268

Environmental protection, Hazardous waste, Reporting and recordkeeping requirements.

40 CFR Part 271

Environmental protection, Administrative practice and procedure,

Confidential business information, Hazardous material transportation, Hazardous waste, Indians-lands, Intergovernmental relations, Penalties, Reporting and recordkeeping requirements, Water pollution control, Water supply.

Dated: September 21, 1998.

Carol M. Browner,
Administrator.

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

1. The authority for part 268 continues to read as follows:

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

2. Section 268.39 is amended by revising paragraphs (c) to read as follows:

§ 268.39 Waste specific prohibitions—spent aluminum potliners; and carbamate wastes.

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(c) On September 21, 1998, the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste number K088 are prohibited from land disposal. In addition, soil and debris contaminated with these wastes are prohibited from land disposal.

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3. Section 268.40 is amended by revising the entry for K088 in the table of Treatment Standards to read as follows: (The footnotes are republished without change.)

TREATMENT STANDARDS FOR HAZARDOUS WASTES Note: NA means not applicable					
WASTE CODE	Waste Description and Treatment/Regulatory Subcategory ¹	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS ² Number	Concentration in mg/L ³ , or Technology Code ⁴	Concentration in mg/kg ⁵ unless noted as "mg/L TCLP", or Technology Code
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K088	Spent potliners from primary aluminum reduction.	Acenaphthalene	83-32-9	0.059	3.4
		Anthracene	120-12-7	0.059	3.4
		Benzo(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Benzo(b)fluoranthene	205-99-2	0.11	6.8
		Benzo(k)fluoranthene	207-08-9	0.11	6.8
		Benzo(g,h,i)perylene	191-24-2	0.0055	1.8
		Chrysene	218-01-9	0.059	3.4
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
		Fluoranthene	206-44-0	0.068	3.4
		Indeno(1,2,3-c,d)pyrene	193-39-5	0.0055	3.4
		Phenanthrene	85-01-8	0.059	5.6
		Pyrene	129-00-0	0.067	8.2

Antimony	7440-36-0	1.9		1.15 mg/L TCLP	
Arsenic	7440-38-2	1.4		26.1 mg/kg	
Barium	7440-39-3	1.2		21.0 mg/L TCLP	
Beryllium	7440-41-7	0.82		1.22 mg/L TCLP	
Cadmium	7440-43-9	0.69		0.11 mg/L TCLP	
Chromium (Total)	7440-47-3	2.77		0.60 mg/L TCLP	
Lead	7439-92-1	0.69		0.75 mg/L TCLP	
Mercury	7439-97-6	0.15		0.025 mg/L TCLP	
Nickel	7440-02-0	3.98		11.0 mg/L TCLP	
Selenium	7782-49-2	0.82		5.7 mg/L TCLP	
Silver	7440-22-4	0.43		0.14 mg/L TCLP	
Cyanide (Total) ⁷	57-12-5	1.2		590	
Cyanide (Amenable) ⁷	57-12-5	0.86		30	
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Footnotes to Treatment Standard Table 268.40

- 1 The waste descriptions provided in this table do not replace waste descriptions in 40 CFR part 261. Descriptions of Treatment/Regulatory Subcategories are provided, as needed, to distinguish between applicability of different standards.
- 2 CAS means Chemical Abstract Services. When the waste code and/or regulated constituents are described as a combination of a chemical with its salts and/or esters, the CAS number is given for the parent compound only.
- 3 Concentration standards for wastewaters are expressed in mg/L and are based on analysis of composite samples.
- 4 All treatment standards expressed as a Technology Code or combination of Technology Codes are explained in detail in 40 CFR 268.42 Table 1—Technology Codes and Descriptions of Technology-Based Standards.
- 5 Except for Metals (EP or TCLP) and Cyanides (Total and Amenable) the nonwastewater treatment standards expressed as a concentration were established, in part, based upon incineration in units operated in accordance with the technical requirements of 40 CFR Part 264, Subpart O, or Part 265, Subpart O, or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may comply with these treatment standards according to provisions in 40 CFR 268.40(d). All concentration standards for nonwastewaters are based on analysis of grab samples.
- 7 Both Cyanides (Total) and Cyanides (Amenable) for nonwastewaters are to be analyzed using Method 9010 or 9012, found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA Publication SW-846, as incorporated

by reference in 40 CFR 260.11, with a sample size of 10 grams and a distillation time of one hour and 15 minutes.

PART 271—REQUIREMENTS FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

4. The authority citation for Part 271 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), and 6926.

5. Section 271.1(j) is amended by adding the following entries to Table 1 and Table 2 in chronological order by date of publication to read as follows.

§ 271.1 Purpose and scope.

(j) * * *

TABLE 1—REGULATIONS IMPLEMENTING THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984

Promulgation date	Title of Regulation	Federal Register reference	Effective date
Sept. 21, 1998	Treatment Standards for Hazardous Waste K088.	[insert Federal Register page numbers]	Sept. 21, 1998

TABLE 2—SELF-IMPLEMENTING PROVISIONS OF THE SOLID WASTE AMENDMENTS OF 1984

Effective date	Self-implementing provision	RCRA citation	Federal Register reference
Sept. 21, 1998	Prohibition on land disposal of K088 wastes, and prohibition on land disposal of radioactive waste mixed with K088 wastes, including soil and debris.	3004(g)(4)(C) and 3004(m)	Sept. 24, 1998 [Insert FR page numbers].