

US EPA ARCHIVE DOCUMENT

This Regulatory Impact Analysis (RIA) estimates the costs, economic impacts, and benefits of the supplemental rule addressing newly identified hazardous mineral processing wastes. The supplemental rule expands upon the proposed Phase IV Land Disposal Restriction (LDR) rule published on 22 August 1995 (60 FR 43654).

In the supplemental proposed rule, EPA is proposing standards for mineral processing wastes no longer exempt from Subtitle C requirements under the Bevill exemption. Under the provisions of today's proposal, previously exempt Bevill mineral processing wastes must meet RCRA Universal Treatment Standards (UTS) before management or disposal in a land-based unit. At the same time, however, operators may reclaim hazardous mineral processing residues and store them in land-based units prior to reclamation without complying with Subtitle C requirements under certain specified conditions. EPA expects to promulgate a unified final Phase IV rule addressing both the Phase IV LDR wastes and the mineral processing wastes covered by today's proposal by mid-1996.

In accordance with the requirements of Executive Order No. 12866, EPA must develop and submit to the Office of Management and Budget (OMB) an RIA for any significant regulatory action. The purpose of this document is to present the industry sectors and wastes that will be affected by imposing Phase IV LDR treatment standards (and, as described in Chapter 2, some new waste management requirements), estimate the costs associated with treating those wastes to comply with LDR standards, assess at a preliminary level the economic impacts of these costs, and evaluate the human health and ecological benefits attributable to reductions in pollutant discharges required by the rule.<sup>1</sup>

## 1.1 BACKGROUND

### 1.1.1 The RCRA Subtitle C LDR Program

This component of the Phase IV Land Disposal Restrictions (LDR) rule is one in a series of regulations that restricts the continued land disposal of hazardous wastes under the 1984 Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA).<sup>2</sup> Section 3004(g) of RCRA outlines a schedule for the development of waste treatment and disposal practices for wastes that EPA determines are hazardous. Under RCRA, waste is deemed hazardous either because it demonstrates the characteristic of ignitability, corrosivity, reactivity, or toxicity (ICRT wastes), or because it contains constituents listed as hazardous by EPA.<sup>3</sup>

At the time HSWA was enacted, EPA was required to promulgate treatment and disposal standards by May 8, 1990 for wastes already identified or listed as hazardous. EPA established treatment standards

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<sup>1</sup> Under EPA's revised guidelines for implementing the Regulatory Flexibility Act, the Agency also evaluates separately potential economic impacts of regulation on small entities. With respect to the Land Disposal Restrictions program, however, EPA has determined that legal avenues do not exist to provide regulatory relief to small entities. Therefore, we have not conducted a regulatory flexibility analysis for this rule. This issue is discussed further in Chapter 6 of this document.

<sup>2</sup> Land disposal includes any placement of hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, or underground mine or cave.

<sup>3</sup> Appendix VIII of 40 CFR Part 261 identifies these hazardous constituents, as well as the eleven factors that EPA considers in determining whether the constituent poses significant human health risks.

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and waste management practices for these wastes in five rules promulgated between 1986 and 1990 (the solvents and dioxins rule, the California list rule, and the First Third, Second Third, and Third Third rules).

Treatment standards for wastes subsequently identified or listed as hazardous must be developed by EPA within six months of waste listing or identification. EPA is addressing these "newly identified" wastes in several "phases." The Phase I LDR rule established standards for hazardous debris and several newly identified wastes. The Phase II LDR rule established treatment standards for newly identified pesticide wastes (D012 through D017) and newly identified toxic organic wastes (D018 through D043). The Phase II LDR rule also established Universal Treatment Standards (UTS) for 216 constituents in hazardous waste. UTS levels, which set a common treatment standard for a constituent across all waste types, were developed for both wastewaters and non-wastewaters based on the best demonstrated achievable technology (BDAT) for reducing these contaminants. The Phase III rule established treatment standards for several newly listed wastes (spent aluminum potliners, organobromine wastes, and carbamate wastes). In addition, the Phase III rule established end-of-pipe discharge treatment standards for underlying hazardous constituents in land-based wastewater treatment systems managing "decharacterized" characteristic wastes. The Phase III rule did not, however, address leaks, sludges, and air emissions from these land-based systems that might occur prior to end-of-pipe discharges. The Phase IV rule proposed on 22 August 1995 did address these contaminant releases to the environment, and also proposed applying UTS to TC wastes exhibiting the hazardous characteristic for metals and all underlying hazardous constituents expected to be present at the point of generation, as well as to three newly listed wood preserving wastes (F032, F034, and F035).

### 1.1.2 Hazardous Mineral Processing Wastes

Under the provisions of the Mining Waste Exclusion of the Resource Conservation and Recovery Act (RCRA), solid waste from the extraction, beneficiation, and processing of ores and minerals is exempt from regulation as hazardous waste under Subtitle C of RCRA, as amended. The Mining Waste Exclusion was established in response to §3001(b)(3)(A)(ii) of the statute, which was added in the 1980 Solid Waste Disposal Act Amendments (also known as the "Bevill Amendment"). The Bevill Amendment precluded EPA from regulating these wastes until the Agency performed a study and submitted a Report to Congress, as directed by §8002(f) and (p), and determined either to promulgate regulations under Subtitle C or that such regulations were unwarranted, (i.e., that the Exclusion should continue), as directed by §3001(b)(3)(C) of the statute. In response to the Bevill Amendment, EPA modified its final hazardous waste regulations in November 1980 to reflect this new exemption, and issued a preliminary and very broad interpretation of the scope of its coverage ("solid waste from the exploration, mining, milling, smelting and refining of ores and minerals" (45 FR 76618, November 19, 1980)).

In 1984, the Agency was sued for failing to complete the required Report to Congress and regulatory determination in conformance with the statutory deadline (*Concerned Citizens of Adamstown v. EPA*, No. 84-3041, D.D.C., August 21, 1985). In responding to this lawsuit, EPA explained that it planned to propose a narrower interpretation of the scope of the Exclusion, and proposed to the Court two schedules: one for completing the §8002 studies of mineral extraction and beneficiation wastes and submitting the associated Report to Congress, and one for proposing and promulgating a reinterpretation for mineral processing wastes. In so doing, the Agency, in effect, split the wastes that might be eligible for exclusion from regulation into two groups: mining (extraction and beneficiation) wastes and mineral processing wastes. The Court agreed to this approach and established a schedule for completing these two initiatives.

The Report to Congress on mining wastes was published on December 31, 1985, and on July 3, 1986 (51 FR 24496) EPA published the regulatory determination for these wastes, which stated that, in the Agency's judgment, Subtitle C regulation of these wastes was unwarranted. In keeping with its agreement, EPA also proposed to narrow the scope of the Mining Waste Exclusion for mineral processing wastes on October 2, 1985 (50 FR 40292). In this proposal, however, the Agency did not specify the criteria that it used to distinguish the mineral processing wastes that qualified for the Exclusion from those that did not.

In response to the proposed rule, many companies and industry associations "nominated" wastes that they believed should be retained within the Exclusion. Faced with an inability at that time to articulate criteria that could be used to distinguish exempt from non-exempt wastes and the approaching Court-ordered deadline for final action, EPA withdrew its proposal on October 9, 1986 (51 FR 36233); the Agency was promptly sued by a coalition of environmental/public interest groups. In July 1988, the Court in

*Environmental Defense Fund v. EPA*, 852 F.2d 1316 (D.C. Cir. 1988), cert. denied, 109 S. Ct. 1120 (1989) held that EPA's withdrawal of the 1985 proposal was arbitrary and capricious, and ordered the Agency to define the specific mineral processing wastes that were eligible for the Mining Waste Exclusion. The Court also directed the Agency to restrict the scope of the Exclusion to include only "large volume, low hazard" wastes, based upon the legislative history of the special wastes concept.

During the three years that followed this decision, EPA's Special Wastes Branch (SWB) proposed and promulgated several rules that redefined the boundaries of the Exclusion for mineral processing wastes. These rulemaking notices included explicit criteria for defining mineral beneficiation and processing, and large volume and low hazard, as well as evaluations of which specific mineral industry wastes were in conformance with these criteria and thus, eligible for special waste status. This rulemaking process was completed with the publication of final rules on September 1, 1989 (54 FR 36592) and January 23, 1990 (54 FR 2322). EPA's evaluations led to the finding that only 20 specific mineral processing wastes fulfilled the newly promulgated special wastes criteria; all other mineral processing wastes were removed from the Mining Waste Exclusion. The 20 special wastes were studied in a comprehensive Report to Congress published on July 30, 1990. Subsequently, EPA ruled, after considering public comment and performing additional analysis, that Subtitle C regulation was unwarranted for these 20 waste streams.

### 1.1.3 How LDR Relates to Mineral Processing Wastes

As a consequence of the rulemaking process described above, all but 20 mineral processing wastes have been removed from the Mining Waste Exclusion. These newly non-exempt wastes have the same regulatory status as any other industrial solid waste. That is, if they exhibit characteristics of hazardous waste or are listed as hazardous wastes, they must be managed in accordance with RCRA Subtitle C or equivalent state standards. Existing waste characterization data suggest that many of these wastes may exhibit the characteristic of toxicity for metals (waste codes D004-D011), corrosivity (D002), and/or reactivity (D003).

EPA considers these wastes to be "newly identified" because they were brought into the RCRA Subtitle C system after the date of enactment of the Hazardous and Solid Waste Act (HSWA) Amendments on November 8, 1984. EPA declined to include newly identified wastes within the scope of the Land Disposal Restrictions (LDRs) for Subtitle C characteristic hazardous wastes ("Third Third" Rule) published on June 1, 1990, deciding instead to promulgate additional treatment standards (Best Demonstrated Available Technology, or BDAT) in several phases that would be completed in 1997. The rationale for this decision is articulated at 55 FR 22667. In brief, at that time, EPA had not performed the technical analyses necessary to determine whether the treatment standards being promulgated for characteristic hazardous wastes were feasible for the newly non-exempt mineral processing wastes. The issue was further complicated by the fact that the list of non-exempt wastes was not final at that time, because the regulatory determination for the 20 wastes studied in the 1990 Report to Congress had not yet been promulgated. The boundaries of the Exclusion have now been firmly established, and the Agency is ready to characterize and establish treatment standards for all newly identified hazardous mineral processing wastes.

### 1.1.4 State Authorization

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 HSWA, 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 obliged 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) (42 U.S.C. 6926(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. New federal requirements which are less stringent than the state program are not in effect in the state unless and until the state adopts such provisions.

This proposed rule contains elements that are related to non-HSWA provisions of the statute (e.g., the conditional exclusion from the definition of solid waste for land-applied mineral processing residues) as well as elements that are related to HSWA provisions (the proposed universal treatment standards for land disposed mineral processing wastes). The definition of solid waste provisions of this rule are not being proposed pursuant to HSWA. Thus, when promulgated, these federal requirements will take effect only in states that do not have final RCRA authorization. In contrast, the proposed universal treatment standards for land disposed mineral processing wastes are being proposed pursuant to HSWA. Therefore, these treatment standard provisions will take effect in all states upon the effective date of the rule regardless of final authorization status.

## **1.2 SUMMARY OF TODAY'S PROPOSED RULE**

Today's proposal outlines several different approaches for applying LDR standards to hazardous, non-exempt mineral processing wastes, two of which are examined in detail in this RIA.

The first, and preferred, option would establish UTS as the BDAT treatment standard for all hazardous mineral processing wastes being disposed on the land. It also would establish a conditional exclusion for such wastes destined for reclamation and managed on the ground, thereby providing regulatory relief to the operators of mineral processing operations, who commonly both reintroduce materials to various parts of the production process and store such materials on the land. Another provision of this option would clarify EPA's position that mineral processing wastes may be reintroduced to primary mineral beneficiation operations with no resulting loss of Bevill (special waste) status of any beneficiation wastes (again, under certain conditions).

The second option also would establish UTS standards for all newly identified mineral processing wastes destined for land disposal, but make no other changes to existing regulatory provisions. The third option is identical to Option 1 except that the conditional exclusion would apply only to spent materials. The fourth option has been advanced by the National Mining Association and would codify a very limited set of management controls for hazardous mineral processing wastes.

These regulatory alternatives are described more fully in Chapter 2, below.

## **1.3 ORGANIZATION OF THIS DOCUMENT**

This Regulatory Impact Analysis has six chapters in addition to this Introduction. Chapter 2 presents the options described in the proposed rule. Chapter 3 describes the methodology used to identify and characterize the mineral commodity sectors, facilities, and waste streams that will be affected by the proposed LDR standards and other provisions, and provides a discussion of how the data were organized for analysis. Estimated costs and screening-level economic impacts arising from implementation of the options are discussed in Chapter 4, while screening level risk (benefits) analyses are presented in Chapter 5. Chapter 6 briefly considers other regulatory issues, and the Agency's conclusions are presented in Chapter 7. This document also contains a series of appendices that provide additional detail on data and data sources, methods and assumptions, and detailed analytical results.