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HAZARDOUS WASTE—THE OIL AND GAS EXCEPTION†

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I. INTRODUCTION

Increasingly, the field of environmental regulation has become characterized by the enforcement of existing regulatory programs, rather than the development, promulgation, and implementation of new programs. This generally has been the case with respect to hazardous waste regulation since November 19, 1980, when the federal hazardous waste management program was established and made effective for all but a few exempted wastes pursuant to the Resource Conservation and Recovery Act of 1976 (RCRA).¹ However, RCRA significantly deviates from this general trend in its potential for expansion to include a class of wastes that previously has not been regulated as hazardous waste. These excluded wastes are generally high in volume, but low in toxicity, and include wastes produced by the crude oil and natural gas industry in exploration, development, and production operations.² The exemption which applies to these wastes continues pending completion of a study by the United States Environmental Protection Agency (EPA or Agency)³ and a decision by its Administrator concerning whether regulation of these wastes as hazardous wastes is necessary. This Article discusses the nature of the current exemption of crude oil and natural gas exploration, development, and production wastes from regulation as hazardous waste and evaluates the ongoing effort by EPA to determine whether these wastes should be regulated.

II. STATUTORY FRAMEWORK: SWDA, RCRA, AND HSWA

The Solid Waste Disposal Act (SWDA),⁴ the Resource Conservation and Recovery Act of 1976 (RCRA);⁵ the Solid Waste Disposal Act Amendments

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¹ 42 U.S.C. §§ 6901-6991i (1982 & Supp. III 1986).

² 42 U.S.C. § 6921(b)(2) (1982).

³ 42 U.S.C. § 6921(b)(2)(B). *See also* 42 U.S.C. § 6982(m) (1982).

⁴ Solid Waste Disposal Act, Pub. L. No. 89-272, 79 Stat. 997 (1965) (codified as amended at 42 U.S.C. §§ 6901-6991i (1982 & Supp. III 1985)).

⁵ Resource Conservation & Recovery Act of 1976, Pub. L. No. 94-580, 80 Stat. 2796 (codified as amended at 42 U.S.C. §§ 6901-2991i (Supp. 1985)).

of 1980 (SWDA of 1980);⁶ and the Hazardous and Solid Waste Amendments of 1984 (HSWA)⁷ establish a comprehensive program for the regulation and control of both solid and hazardous waste.⁸ Under the statutory program authorized by RCRA, regulation is divided into two broad areas. Subtitle C of RCRA is designed to control the generation, treatment, storage, and disposal of hazardous waste from "cradle-to-grave."⁹ Under Subtitle D of RCRA, provision is made for the regulation of solid waste.

Subtitle C of RCRA interjects the federal government directly into the management of hazardous waste by authorizing EPA to develop a federal program for the regulation and control of hazardous waste. States may operate their own hazardous waste programs in lieu of the federal program if their regulatory programs are at least as stringent as the federal program. Statutory authority for the regulation of hazardous waste in West Virginia is found in the West Virginia Hazardous Waste Management Act, codified in West Virginia Code sections 20-5E-1 to 20-5E-23. West Virginia received final authorization to operate the state's hazardous waste management program in lieu of the federal program, subject to the authority retained by EPA in accordance into the Hazardous and Solid Waste Amendments of 1984, on May 15, 1986.¹⁰

Under Subtitle D of RCRA, the regulation of solid waste is achieved by the establishment of minimum guidelines for nonhazardous waste management activities. States can obtain federal grants if they comply with EPA's regulations and implement their own Subtitle D programs.¹¹ Under Subtitle D of RCRA,

⁶ Solid Waste Disposal Act Amendments of 1980, Pub. L. No. 96-482, 94 Stat. 2334 (codified at 42 U.S.C. §§ 6901-6991i (1982 & Supp. III 1985)).

⁷ Hazardous and Solid Waste Amendments of 1984, Pub. L. No. 98-616, 98 Stat. 3224 (codified as amended at 42 U.S.C. §§ 6901-6991i (1982 & Supp. III 1985)).

⁸ The four statutes are often referred to generically in their entirety as "RCRA."

⁹ The passage of Subtitle C of RCRA "closed the circle" on environmental regulation in the United States with major statutory initiatives and regulatory programs addressing the problems associated with air pollution, water pollution, solid waste, and hazardous waste. See generally Flannery & Poland, *Hazardous Waste Management Act—Closing the Circle*, 84 W. VA. L. REV. 347 (1982).

¹⁰ 51 Fed. Reg. 17,739 (1986).

¹¹ Regulation of hazardous waste in West Virginia is achieved under the authority of the West Virginia Hazardous Waste Management Act, W. VA. CODE §§ 20-5E-1 to -23 (1985). The regulation of solid waste is achieved in West Virginia under the statutory authority found in the West Virginia Solid Waste Management Act, W. VA. CODE §§ 20-5F-1 to -8 (1985). Passage of The West Virginia Energy Act vested exclusive jurisdiction in the Department of Energy over the issuance of regulations, permits, or other governmental authorizations required in all matters pertaining to the exploration, development, production, storage, and recovery of coal, oil and gas, and other mineral resources. W. VA. CODE §§ 22-1-1 to -13 (1985). The Department's jurisdiction includes waste disposal, reclamation and environmental regulations, permits and authorizations related to such activities as are called for pursuant to W. VA. CODE §§ 20-5A-1 to -24 (1985) (Water Pollution Control Act); W. VA. CODE §§ 20-5D-1 to -14 (1985) (Dam Control Act); and W. VA. CODE §§ 20-5F-1 to -8 (Solid Waste Management Act).

“open dumps” are prohibited.¹² The open dump prohibition is independently enforceable under a citizen suit provided under section 7002 of RCRA¹³ or by states. Subtitle D requirements relating to solid waste management practices are not independently enforceable by the federal government.¹⁴

Subtitle D regulation is triggered when a substance or material meets the definition of “solid waste.”¹⁵ Regulation as a hazardous waste under Subtitle C of RCRA is dependent upon a substance meeting the criteria for being both a “solid waste” and a “hazardous waste.”¹⁶

¹² Section 4005 of RCRA provides, in relevant part, as follows:

(a) Closing or Upgrading of Existing Open Dumps.

Upon promulgation of criteria under section 6907(a)(3) of this title any solid waste management practice or disposal of solid waste or hazardous waste which constitutes the open dumping of solid waste or hazardous waste is prohibited, except in the case of any practice or disposal of solid waste under a timetable or schedule for compliance established under this section. The prohibition contained in the preceding sentence shall be enforceable under section 7002 against persons engaged in the act of open dumping. . . .

42 U.S.C. § 6945(a) (1982).

¹³ 42 U.S.C. § 6972 (1982). Whether one has engaged in prohibited “open dumping” in the context of section 4005 is dependent upon criteria promulgated by the Administrator pursuant to section 1008(a)(3) (42 U.S.C. § 6907(a)(3)) of RCRA. The minimum criteria promulgated by EPA pursuant to this statutory charge can be found at 40 C.F.R. 257 (1986). This part, entitled “Criteria for Classification of Solid Waste Disposal Facilities and Practices,” establishes standards for two purposes. First, under section 4004(a) of RCRA, they provide standards for the states to use in establishing state solid waste management programs funded under Subtitle D of RCRA. Second, under section 1008(a)(3), the criteria define those solid waste disposal practices that constitute “open dumping” amenable to citizen suits through the section 4005 prohibition on such practices. *See* 45 Fed. Reg. 72710 (Nov. 3, 1980).

¹⁴ However, under section 7003 of RCRA, 42 U.S.C. § 6973 (1982 & Supp. III 1985), the Administrator of EPA may bring suit on behalf of the United States to enjoin persons who have engaged in or are engaging in handling, storage, treatment, transportation, or disposal of solid waste which may present an imminent and substantial endangerment to health or the environment.

¹⁵ Under RCRA section 1004 (27), the term “solid waste” is defined as follows:

[a]ny garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to a permit under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880) [33 U.S.C.S. § 134], or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923) [42 U.S.C.S. § 2201 et. seq.].

42 U.S.C. § 6903(27) (1982).

¹⁶ The term “hazardous waste” has been defined by RCRA, in pertinent part, as follows: The term “hazardous waste” means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical or infectious characteristics may

(A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

As previously mentioned, some wastes are exempt from coverage under RCRA. These materials, listed in section 3001 of RCRA,¹⁷ include oil and gas exploration, development, and production wastes;¹⁸ wastes from the extraction, beneficiation, and processing of ores and minerals;¹⁹ certain wastes generated primarily from the combustion of fossil fuels;²⁰ and cement kiln dust wastes.²¹

(B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

42 U.S.C. § 6903(5) (1982).

¹⁷ 42 U.S.C. § 6921 (1982 & Supp. III 1985).

¹⁸ *Id.* at § 6921(b)(2). Section 3001(b)(2) of RCRA, enacted by Congress in 1980, currently exempts certain wastes relating to the oil and gas industry from regulation as hazardous waste under Subtitle C of the statute. The section provides as follows:

(2) (A) Notwithstanding the provisions of paragraph (1) of this subsection, drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of oil and natural gas or geothermal energy shall be subject only to existing State or Federal regulatory programs in lieu of this subchapter until at least 24 months after October 21, 1980 [date of enactment of the solid Waste Disposal Act Amendments of 1980] and after promulgation of the regulations in accordance with subparagraphs (B) and (C) of this paragraph.

42 U.S.C. § 6921(b)(2)(A).

The remainder of the language of RCRA section 3001(b)(2) provides as follows:

It is the sense of the Congress that such State or Federal programs should include, for waste disposal sites which are to be closed, provisions requiring at least the following:

(i) The identification through surveying, platting, or other measures, together with recordation of such information on the public record, so as to assure that the location where such wastes are disposed of can be located in the future; except however, that no such surveying, platting, or other measure identifying the location of a disposal site for drilling fluids and associated wastes shall be required if the distance from the disposal site to the surveyed or plated located to the associated well is less than two hundred lineal feet; and

(ii) A chemical and physical analysis of a produced water and a composition of a drilling fluid suspected to contain a hazardous material, with such information to be acquired prior to closure and to be placed on the public record.

(B) Not later than six months after completion and submission of the study required by section 6982(m) of this title [8002(m) of the Act] the Administrator shall, after public hearings and opportunity for comment, determine either to promulgate regulations under this subchapter for drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas or geothermal energy or that such regulations are unwarranted. The Administrator shall publish his decision in the Federal Register accompanied by an explanation and justification of the reasons for it. In making the decision under this paragraph, the Administrator shall utilize the information developed or accumulated pursuant to the study required 6982(m) of this title.

(C) The Administrator shall transmit his decision, along with any regulations, if necessary, to both Houses of Congress. Such regulations shall take effect only when authorized by Act of Congress.

42 U.S.C. § 6921(b)(2).

¹⁹ *Id.* at § 6921(b)(3)(A)(ii).

²⁰ *Id.* at § 6921(b)(3)(A)(i).

²¹ *Id.* at § 6921(b)(3)(A)(iii).

As a general matter, the exemption from regulation as a "hazardous waste" under Subtitle C of RCRA by the operation of this statutory provision imposes a corresponding obligation upon EPA under section 8002 of RCRA to perform a comprehensive study of such wastes to determine whether regulation under Subtitle C of RCRA is appropriate.²²

²² See generally 42 U.S.C. § 6982(f) (1982) (solid waste from active and abandoned surface and underground mines); 42 U.S.C. § 6982(m) (drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas or geothermal energy); 42 U.S.C. § 6982(n) (materials generated from the combustion of coal and other fossil fuels including fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste); 42 U.S.C. § 6982(o) (cement kiln dust waste); 42 U.S.C. § 6982(p) (materials generated from the extraction, beneficiation, and processing of ores and minerals, including phosphate rock and overburden from uranium mining).

Pursuant to section 8002(m) of RCRA, the EPA Administrator must undertake a study of the wastes exempted by section 3001(b)(2) to determine, whether or not, if at all, regulation of these wastes under Subtitle C is warranted. Section 8002(m) provides as follows:

(m) Drilling fluids, produced waters, and other wastes associated with the exploration, development or production of crude oil or natural gas or geothermal energy.

(1) The Administrator shall conduct a detailed and comprehensive study and submit a report on the adverse effects, if any, of drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas or geothermal energy on human health and the environment, including, but not limited to, the effects of such wastes on humans, water, air, health, welfare, and natural resources and on the adequacy of means and measures currently employed by the oil and gas and geothermal drilling and production industry, Government agencies and others to dispose of and utilize such wastes and to prevent or substantially mitigate such adverse effects. Such study shall include an analysis of:

- (A) the sources and volume of discarded material generated per year from such wastes;
- (B) present disposal practices;
- (C) potential danger to human health and the environment from the surface runoff or leachate;
- (D) documented cases which prove or have caused danger to human health and the environment from surface runoff or leachate;
- (E) alternatives to current disposal methods;
- (F) the cost of such alternatives and;
- (G) the impact of those alternatives on the exploration for, and development and production of, crude oil and natural gas or geothermal energy.

In furtherance of this study, the Administrator shall, as he deems appropriate, review studies and other actions of other Federal agencies concerning such wastes with a view toward avoiding duplication of effort and the need to expedite such study. The Administrator shall publish a report of such study and shall include appropriate findings and recommendations for Federal and non-Federal actions concerning such effects.

(2) The Administrator shall complete the research and study and submit the report required under paragraph (1) not later than twenty-four months from October 21, 1980 [the date of enactment of the Solid Waste Disposal Act Amendments]. Upon completion of the study, the Administrator shall prepare a summary of the findings of the study, a plan for research, development, and demonstration respecting the findings of the study, and shall submit the findings and the study, along with any recommendations resulting

III. REGULATORY FRAMEWORK

The regulatory program implemented under Subtitle C of RCRA by EPA is found in volume 40 of the *Code of Federal Regulations* (C.F.R.). 40 C.F.R. parts 260 and 261 contain definitions and other general regulations relating to the hazardous waste program, as well as regulations concerning the identification and listing of hazardous waste.²³ 40 C.F.R. part 262 provides standards for generators of hazardous waste.²⁴ Performance requirements for transporters of hazardous waste are contained in 40 C.F.R. part 263.²⁵ The provisions contained in 40 C.F.R. parts 264 and 265 impose permitting and technological performance standards for facilities which treat, store, or dispose of hazardous waste.²⁶ 40 C.F.R. parts 270, 271²⁷ and 124 of the Subtitle C program²⁸ relate to the issuance of hazardous waste permits and the delegation of the federal Subtitle C program to the states.

Regulations establishing management standards for specific types of hazardous waste and hazardous waste facilities are found in 40 C.F.R. part 266.²⁹ EPA's standards for owners and operators of new hazardous waste land disposal facilities are contained in 40 C.F.R. part 267.³⁰ 40 C.F.R. parts 268,³¹ 272,³² and 280³³ contain provisions relevant to land disposal restrictions approved state hazardous waste management programs, and underground storage tanks, respectively.

The genesis of the present exemption and study obligations for crude oil and natural gas wastes from this regulatory program can be traced to rules proposed by EPA on December 18, 1978, which set forth initial guidelines and

from such study, to the Committee on Environment and Public Works of the United States Senate and the Committee on Interstate and Foreign Commerce of the United States House of Representatives.

(3) There are authorized to be appropriated not to exceed \$1,000,000 to carry out the provisions of this subsection.

42 U.S.C. § 6921(b)(2).

The issue of the exemption and corresponding study obligation which EPA has related to mining waste was discussed in Graham & Lopatto, *Hazardous and Solid Waste Laws and Regulations: Effects on the Mining of Coal and Other Materials*, 88 W. VA. L. REV. 587 (1986).

²³ See 40 C.F.R. §§ 260.1 to .41 and 261.1 to .33 (1986).

²⁴ See *id.* at §§ 262.10 to .51.

²⁵ See *id.* at §§ 263.10 to .31.

²⁶ See *id.* at §§ 264.1 to .351 and §§ 265.1 to .430.

²⁷ See *id.* at §§ 270.1 to .74 and 271.1 to .138.

²⁸ 42 U.S.C. § 6924 (1982).

²⁹ See 40 C.F.R. §§ 266.20 to .80.

³⁰ See *id.* at §§ 267.1 to .64.

³¹ See *id.* at §§ 268.10 to .13.

³² See *id.* at §§ 272.1 to .1351.

³³ See *id.* at §§ 280.1 to .3.

regulations for the hazardous waste program established pursuant to RCRA.³⁴ The proposed regulations covered the following core elements of the RCRA program: (1) criteria for identifying and listing hazardous waste, identification methods, and a hazardous waste list; (2) standards applicable to generators of hazardous waste; and (3) performance standards for hazardous waste management facilities.³⁵ In the preamble to the proposed regulations, EPA identified three major issues which permeated its newly developed RCRA Subtitle C program. Two of the three issues directly impacted on the regulation of oil and gas drilling and production wastes under Subtitle C.

The first issue concerned the type of regulation which Subtitle C sought to impose. EPA noted in its *Federal Register* discussion that the proposed program could rely on either waste-specific standards or industry-specific standards.³⁶ Under federal regulatory schemes for the control of water and air pollution, regulations are directed at specific industry sources. However, under the proposed RCRA standards, regulations would be structured on standards that did not vary according to the particular source. This was based on EPA's belief that most wastes classified as hazardous required similar management techniques.³⁷ An exception to this general rule was made for certain wastes about which EPA possessed little or no knowledge.³⁸ Included in this category were wastes from crude oil and natural gas exploration, development, and production operations.

A second major issue with the proposed program concerned the possibility of phased implementation of the Subtitle C program to make the program effective for the most hazardous wastes first.³⁹ EPA noted that, although phasing would generally not be used in the regulatory program for RCRA, to some

³⁴ See 43 Fed. Reg. 58,946 (1978).

³⁵ *Id.*

³⁶ *Id.* at 58,948.

³⁷ *Id.*

³⁸ In this regard, EPA noted the following:

Further, there is some waste for which insufficient data are available to determine appropriate management techniques. The proposed regulations attempt to control this problem by allowing for the following: (1) general standards for transportation, treatment, storage, and disposal applicable to all waste; (2) specific provisions in the treatment, storage, and disposal regulations for different design and operating standards to be used by permit writers in the preparation of permits for specific waste types and facilities as long as an equivalent or greater degree of performance is achieved; (3) *deferral of applicability of most of the treatment, storage, and disposal standards for selected high-volume, relatively low risk categories (i.e., mining waste, utility waste, gas and oil drilling muds, gypsum piles, and cement kiln dusts) until information is gathered and assessed to determine how they can best be handled;* and (4) specific provisions for the large numbers of retailers, farmers, and generators of small quantities of hazardous waste. *Id.* (emphasis added).

³⁹ *Id.*

extent, deference had been paid to the concept by proposing special procedures for the so-called "special wastes" which included crude oil and natural gas wastes.⁴⁰

The proposed Subtitle C rules for the regulation of gas and oil drilling muds and oil production brines were to have been codified at 40 C.F.R. section 250.46-6.⁴¹ The requirements sought to be imposed on those oil and gas wastes which were determined to be hazardous waste would have included requirements mandating waste analysis, site selection criteria, site security, manifesting, record-keeping, reporting, visual inspection, and closure and post-closure care.⁴²

Subsequent to EPA's initial regulatory proposal of management standards for oil and gas drilling muds and oil production brines, Congress reconsidered the propriety of such regulation in the context of its enactment of legislation which would eventually become known as the Solid Waste Disposal Act Amendments of 1980.⁴³

In a discussion of Senate Bill 1156, a bill to amend and reauthorize the Solid Waste Disposal Act, former West Virginia Senator Jennings Randolph, then Chairman of the Senate Committee on Environment and Public Works, noted that a provision in the bill would temporarily suspend the EPA proposal under which oil and gas drilling fluids might be regulated as hazardous waste.⁴⁴ Randolph noted further that the bill provided for a two-year study to determine the degree of need for and the impact of such regulations before deciding which regulations should become effective.⁴⁵ The bill containing the exemption and study obligation for oil and gas wastes passed, thus legislatively suspending EPA proposals to regulate these wastes.⁴⁶

⁴⁰ *Id.*

⁴¹ See 43 Fed. Reg. *supra* note 34, at 59,016.

⁴² In proposing its special waste standards, EPA admitted it possessed little information regarding the physical and chemical characteristics of such wastes.

The Agency has very little information on the composition, characteristics, and the degree of hazard posed by these wastes, nor does the Agency yet have data on the effectiveness of current or potential waste management technologies or the technical or economic practicability of imposing Subpart D [standards applicable to owners and operators of hazardous waste treatment, storage, and disposal facilities] standards on facilities managing such waste.

The limited information the Agency does have indicates that such waste occurs in very large volumes, that the potential hazards posed by the waste are relatively low, and that the waste generally is not amenable to the control techniques developed in Subpart D [standards applicable to owners and operators of hazardous waste treatment, storage, and disposal facilities].

Id. at 58,991-992.

⁴³ S. 13241, 96th Cong., 1st Sess., 125 Cong. Rec. (daily ed. June 4, 1979).

⁴⁴ *Id.* at S. 13242 (remarks of Senator Randolph).

⁴⁵ *Id.*

⁴⁶ Opposition to the suspension of impending regulation and imposition of a corresponding

In its final hazardous waste regulations issued May 19, 1980,⁴⁷ EPA noted that both the United States Senate and House of Representatives passed bills

study obligation on EPA relating to oil and gas wastes was virtually nonexistent. Senator Chafee of Rhode Island voiced concern over the legislative veto provision contained in the exemption and the precedent the exemption might set for other industries, but supported passage of the bill as a whole.

S. 1156 does not attempt to change any of these policy mandates, but rather to smooth the process of implementing them. The vast majority of the amendments are perfecting in nature and merely minor modifications of the statute. Others, however, are departures from the policies established under the original statute. These concern me.

I am referring to a decision by the committee to exempt the muds, brines, and other wastes associated with the production of oil and gas from regulation under the hazardous waste provision of RCRA. I have two reservations concerning the committee's action. The first concerns the amendments to exempt the oil and gas production wastes from regulations so that a study could be conducted as to whether they are hazardous to humans or to the environment. Some other purposes of the study are also set forth. It seems to me that a decision as to whether to regulate or not regulate these wastes and brines should have been left to the Administrator of EPA after a study is completed. Rather than do this, the committee chose to exempt these wastes entirely. Before these wastes can be brought back under the umbrella of regulation, both Houses of Congress must act affirmatively. In effect, we must pass a new law. I voiced my reservations about that in the committee, but they were overruled.

My second and most serious reservation is for the precedent which this establishes. The committee's action invites pleas from other industries to be excluded from regulation. Those pleas are already being heard. The pulp and paper industry, the electrical utility industry, the coal industry, the chemicals industry, the hard rock mining industry are already seeking exemptions. Some of those proposed exemptions will be incorporated in amendments offered on the Senate floor in a few minutes. The decision to grant them will not be made on the merits of one particular case, but on the persuasion of the particular industry involved. The industry interests are standing in line asking for special favors.

Mr. President, with the exception of the one provision I have mentioned, I think the bill as reported by the committee is sound, and I urge its adoption.

Id. at S. 13243 (remarks of Senator Chafee). Senator Chafee's remarks were prescient insofar as S. 1156, as passed on June 4, 1979, contained similar exemptions for geothermal energy industry wastes (which was included in language exempting wastes from oil and gas exploration, development, and production) and fly ash waste, bottom ash waste, slag waste, and flue gas emission control wastes generated primarily from the combustion of coal or other fossil fuels. The Senate Conference Report for the committee of conference on the disagreeing votes of the two houses of Congress on S. 1156 also contains exemptions for (1) wastes from the extraction, beneficiation, and processing of ores and minerals, including phosphate rock and overburden from the mining of uranium ore; and (2) cement kiln dust waste. *See* S. REP. NO. 1010, 96th Cong., 2d Sess. 4 (1980).

Senator Muskie of Minnesota also expressed concern over the exemption language for oil and gas wastes, but confidence in the study process for these wastes.

To a lesser degree, I remain concerned with the amendment passed by the Senate Committee on Environment and Public Works which exempts oil production muds and brines from stringent hazardous regulations. But I am confident the study called for in the amendment will provide definitive information determining whether or not these sub-

reauthorizing and amending RCRA.⁴⁸ EPA further noted that because of the apparent congressional intent to repeal or temporarily suspend the Agency's authority to regulate certain wastes, it temporarily excluded these wastes in its own regulations.⁴⁹ The specific exemption for oil and gas exploration, development, and production wastes is presently found at 40 C.F.R. section 261.4(b)(5). Under this section, "drilling fluids, produced waters and other wastes associated with the exploration, development or production of crude oil or natural gas or geothermal energy" are specifically exempt from RCRA Subtitle C regulation, insofar as these substances are considered to be solid, but not hazardous waste.⁵⁰

IV. ALASKA CENTER FOR THE ENVIRONMENT V. EPA

As a result of EPA's failure to conduct the required study of oil and gas exploration, development, and production wastes under section 8002(m), the Agency was sued in August 1985 by the citizen organization, Alaska Center for the Environment (ACE), in federal district court in Alaska.⁵¹ Settlement negotiations between the parties resulted in a consent order, modified on April 29, 1987, which obligates the Agency to conduct the required study in accordance with several milestone dates⁵² which include the issuance of a Report on Methodology by October 31, 1986; a Sampling and Analysis Technical Report by

stances are hazardous.

125 CONG. REC., *supra* note 43, at S. 13253 (remarks of Senator Muskie). Senator Bentsen of Texas also spoke in support of the oil and gas exemption. *See id.* at 13243-4 (remarks of Senator Bentsen).

⁴⁷ 45 Fed. Reg. 33,066 (May 19, 1980).

⁴⁸ *Id.* at 33,089.

⁴⁹ EPA noted:

The United States Senate and House of Representatives have each recently passed a bill to reauthorize and amend RCRA (S. 1156 and H.R. 3994). Both bills contain amendments to section 3001 which, if enacted, would repeal or temporarily suspend EPA's authority to regulate certain utility and energy development wastes under Subtitle C. These bills are now awaiting action by a conference committee. Because it appears likely that Congress will act before November 19, 1980 to exempt these wastes, EPA has temporarily excluded them from this regulation (see § 261.4(b)). This exclusion will be revised, if necessary, to conform to the legislation which is ultimately enacted.

Id.

⁵⁰ 40 C.F.R. § 261.4(b)(5).

⁵¹ Alaska Center for the Env't v. Thomas, No. A85-471, slip op. (D. Ala. Aug. 1985).

⁵² Motions to intervene in the case were filed on behalf of the American Petroleum Institute, as well as the West Virginia Oil and Natural Gas Association and the Independent Oil and Gas Association of West Virginia. These motions were denied when the parties to the action entered into a consent agreement settling the outstanding issues in the case. *See Alaska Center for the Env't*, minute order from Chambers (July 18, 1986). The original consent order was entered in the litigation on July 7, 1986. *See Alaska Center for the Env't*, consent order (July 7, 1986). This consent order was modified based on stipulation of the parties by a court order dated April 29, 1987. *See Alaska Center for the Env't*, order (April 29, 1987).

January 31, 1987; an Interim Report on April 30, 1987; a Draft Report to Congress by August 31, 1987; and a Final Report to Congress by December 31, 1987. Finally, the determination by the EPA Administrator whether to regulate the oil and gas wastes studied under section 8002(m) is to be made by June 30, 1988.

In the only other case bearing a direct relationship to the various exclusions and studies found in sections 3001 and 8002⁵³ of RCRA respectively, EPA was ordered by the Federal District Court for the District of Columbia to complete the statutorily mandated study and regulatory decisionmaking process relevant to mining wastes and wastes from the extraction, beneficiation, and processing of ores and minerals.⁵⁴ Plaintiff citizen organizations⁵⁵ sought injunctive relief to compel the Administrator of the Environmental Protection Agency:

to conduct comprehensive studies of the adverse effects on human health and the environment of solid waste from active and abandoned surface and underground mines and solid waste from the disposal and utilization of solid waste from the extraction, beneficiation, and processing of ores and minerals, and to relist and regulate as a hazardous waste spent potliners from primary aluminum production.⁵⁶

The suit was precipitated by alleged pollution emanating from an aluminum smelter owned by the Eastalco Aluminum Company which the plaintiffs contended was contaminating groundwater aquifers on which they relied for their drinking water. It is noteworthy that this suit was the first of its kind to test the mandatory nature of EPA's study obligations found in section 8002 of RCRA. The case also is significant because it raised the issue concerning the appropriate interpretation of the study obligation.⁵⁷

⁵³ There has been no litigation surrounding any of the other exclusions found in section 3001 or any of the studies found in section 8002 of RCRA, other than that related to mining wastes, ore and mineral extraction, beneficiation, and processing wastes, and oil and gas exploration, development, and production wastes.

⁵⁴ *Concerned Citizens v. Environmental Protection Agency*, No. 84-3042 (D.D.C. Sept. 28, 1984) (*Eastalco*).

⁵⁵ The plaintiffs included the Environmental Defense Fund, the Concerned Citizens of Adamstown, and the Carroll Manor Civic Association, all of whom alleged, in one form or another, an interest in seeing mining waste and wastes from the extraction, beneficiation, and processing of ores and minerals, studied by EPA and subsequently regulated under Subtitle C of RCRA. The studies of these materials are required by sections 8002(f) and (p) of RCRA respectively.

⁵⁶ Complaint of Plaintiff at 1, *Eastalco* No. 84-3041.

⁵⁷ On October 21, 1980, Congress enacted P.L. 96-482, which contained various amendments to the Resource Conservation and Recovery Act of 1976. Section 7 of those amendments, now more popularly known as the Bevill Amendment, excluded from the coverage of RCRA pending completion of studies called for in sections 8002(f) and (p) of RCRA, solid waste from the extraction, beneficiation, and processing of ores and minerals. EPA amended its regulations to provide for a substantially similar exemption on November 19, 1980. 45 Fed. Reg. 76,618 (1980). The

By the terms of the statute, EPA was required to complete the study and submit it to Congress by October 16, 1983. The *Eastalco* case was instituted by

Agency interpreted the ambit of the exclusion to include solid waste from the "exploration, mining, milling, smelting, and refining of ores and minerals." *Id.* at 76,619. Because of the interpretation of the Bevill Amendment, the listing of spent potliners from primary aluminum production as a hazardous waste, as well as certain other processing wastes, which heretofore had been proposed and finalized, was temporarily suspended.

Almost five years later, on August 21, 1985, in response to a suit filed by the Concerned Citizens of Adamstown, the Carroll Manor Civic Association, and the Environmental Defense Fund, the District Court for the District of Columbia entered an Order with attached Memorandum Opinion finding EPA in violation of its statutory obligation to study mining wastes under section 8002 of RCRA. The court ordered that such report be submitted to Congress by December 31, 1985, and that a rulemaking schedule regarding the wastes covered by the Bevill Amendment be commenced. Subsequently, on October 2, 1985, EPA gave notice of a proposed rulemaking which, if adopted, would have narrowed the mining waste exclusion drastically by severely limiting the scope of the term "processing." 50 Fed. Reg. 40,292, (1985). Additionally, the proposal would have relisted six smelting wastes, including spent potliners from primary aluminum production, which were previously listed as hazardous, but which were suspended because of the interpretation of the mining waste exclusion. *Id.* at 40,296.

EPA submitted its Report to Congress on mining waste on December 31, 1985. On July 3, 1986, pursuant to the court order in *Eastalco*, EPA announced its regulatory determination for the wastes covered by its Report to Congress, *i.e.*, wastes from the extraction and beneficiation of ores and minerals. *See* 51 Fed. Reg. 24,496 (1986). For these wastes, EPA made the following determination:

After completing these activities and reviewing the information available, the Agency has determined that regulation of the wastes studied in the Report to Congress, *i.e.*, wastes from the extraction and beneficiation of ores and minerals, under Subtitle C is not warranted at this time.

. . .

The Agency, however, is concerned about certain actual and potential mining waste problems, and therefore plans to develop a program for mining waste under Subtitle D of RCRA.

Id.

On October 9, 1986, (*see* 51 Fed. Reg. 36,233 (1986)) EPA, pursuant to the court order obligating the Agency to take final action regarding its proposed reinterpretation of the Bevill Amendment, *see* 50 Fed. Reg., *supra* note 57, at 40,292, announced its withdrawal of the proposed rule on reinterpretation. The Agency noted the following:

At this time, the comments [on the proposed reinterpretation] as well as the Agency's own analyses, have convinced us that the proposed reinterpretation cannot be finalized because it did not set out practically applicable criteria for distinguishing processing from non-processing wastes. Moreover, we are unsure whether such criteria could be developed, given the complexity of these issues. Therefore, the Agency is withdrawing the proposal. As a consequence, EPA's current interpretation of the mining waste exclusion, as set out in the November 19, 1980 rulemaking notice, remains in place. . . . A second consequence of this action is that the Agency is also withdrawing the proposed relistings of the six individuals [sic] waste streams. These wastes, under the current interpretation, are deemed to be derived from processing of ores and minerals and so are excluded from regulation under Subtitle C until the requisite section 8002 studies are completed.

51 Fed. Reg., at 36,235.

suit filed on September 28, 1984. The District Court for the District of Columbia ordered EPA to complete the study by December 31, 1985. Almost three months before the deadline for completion of its study, EPA proposed a reinterpretation of the scope of the Bevill exemption for ore and mineral extraction, beneficiation, and processing wastes which, if adopted, would have drastically narrowed the scope of the term "processing" to include only phosphogypsum, bauxite refining muds, primary metal smelting slags, and slag from elemental phosphorus reduction.⁵⁸ Because the terms used in the Bevill exemption under section 3001 of RCRA were the same as those used to define the scope of the study obligation found in section 8002, by reinterpreting the meaning of the exclusion, the Agency was able to effectively reduce the scope of its study obligation. Two important effects which resulted were that (1) the "reinterpreted" wastes were subject to immediate regulation under Subtitle C if the regulation was finally promulgated; and (2) the "reinterpreted" wastes were not studied in the Mining Waste Report to Congress.⁵⁹

V. INTERPRETATION OF THE EXCLUSION AND STUDY

The importance of correctly interpreting the ambit of the exclusion and corresponding study obligation for crude oil and natural gas drilling and production wastes is obvious. The wastes from the industry that are interpreted as not within the statutory exclusion will not be studied under section 8002(m) and may be subject to immediate classification as hazardous waste by being a characteristic hazardous waste⁶⁰ or by being listed.⁶¹ This categorization will bring about concomitant costs associated with permitting and implementation of technology-forcing performance standards mandated by RCRA. There are several sources in existence which provide an interpretation of the scope of the exemption and therefore, the study obligation for oil and gas wastes. These inter-

⁵⁸ See 50 Fed. Reg., *supra* note 57, at 40,292.

⁵⁹ See 51 Fed. Reg. at 22,497. EPA later announced the withdrawal of its proposed reinterpretation. See 51 Fed. Reg. at 36,233. Thus, EPA's previous interpretation of the mining waste exclusion as set forth in 45 Fed. Reg., *supra* note 57, at 76,619, remains in effect. *Id.* at 36,235. Additionally, the Agency withdrew its proposed relisting of six individual waste streams which are derived from the processing of ores and minerals. *Id.* The relisting had originally been proposed on October 2, 1985. 50 Fed. Reg., *supra* note 57, at 40,292. Wastes not included in EPA's mining waste Report to Congress of December 31, 1985, are now proposed to be studied by the Agency in additional studies under section 8002 of RCRA. 51 Fed. Reg. at 36,235.

⁶⁰ A solid waste which is not excluded from regulation as a hazardous waste is a hazardous waste if it exhibits any of the characteristics set forth in 40 C.F.R. part 261, subpart C. See 40 C.F.R. § 261.20(a). These characteristics are ignitability, corrosivity, reactivity, and EP toxicity. *Id.* at §§ 261-21 to .24.

⁶¹ A solid waste is a hazardous waste if it is contained on any of the lists contained in 40 C.F.R. Part 261, subpart D, unless it has otherwise been excluded. See *id.* at § 261.30(a). The Administrator of EPA may list a solid waste as a hazardous waste based on that waste's ignitability, corrosivity, reactivity, EP toxicity, acute hazardness, or toxicity. See *id.* at § 261.30(b).

pretations are discussed below and analyzed in the context of the practical realities of oil and gas drilling and production operations.

A. *Legislative History*

The paucity of legislative history surrounding the development and implementation of the statutory exemption and study obligation imposed on crude oil and natural gas drilling and production wastes makes it difficult, as an initial matter, to arrive at a uniform interpretation of the language. Early floor commentary on the exemption suggests that included within its scope were oil and gas drilling fluids, muds, brines, and other wastes associated with the production of oil and gas.⁶² EPA referenced the scope of the exemption in its early rule-making on oil and gas wastes to be "gas and oil drilling muds and oil production brines."⁶³

The Conference Report submitted by the House of Representatives on the Solid Waste Disposal Act Amendments of 1980 is perhaps the best indicator of the meaning of the exemption and corresponding study obligation.⁶⁴ This report can best be characterized as a summary of the Senate and House versions of the Solid Waste Disposal Act Amendments of 1980, along with the summary of the conference substitute, which eventually passed as the final legislation. The House Conference Report is illuminating for its discussion of the term found in the exemption, "other wastes associated":

The term "other wastes associated" is specifically included to designate waste material *intrinsically derived from the primary field operations* associated with the exploration, development, or production of crude oil, natural gas, or geothermal energy. It should cover such substances as: Hydrocarbon bearing soil in and around the related facilities; drill cuttings; materials (such as hydrocarbon, water, sand, and emulsion) produced from a well in conjunction with crude oil, natural gas, or geothermal energy; and the accumulated material (such as hydrocarbon, water, sand, and emulsion) from production separators, fluid treating vessels, storage vessels and production impoundments.

The phrase 'intrinsically derived from the primary field operations . . .' is intended to differentiate exploration, development, and production operations from transportation (from the point of custody transfer or of production separation and dehydration) and manufacturing operations.⁶⁵

Thus, drilling fluids and produced waters appear to be the subject of the study whenever they occur in the oil and gas drilling and production process. Other

⁶² See note 43 and accompanying text for explanation.

⁶³ See note 42 and accompanying text for explanation.

⁶⁴ H. CONF. REP. No. 1444, 96th Cong., 2d Sess. *reprinted* in 1980 U.S. CONG. & AD. NEWS 5019 (House Conference Report). (emphasis added).

⁶⁵ *Id.* at 32.

wastes associated with oil and gas drilling and production must meet stricter criteria.

B. *EPA Interpretations of Language*

1. Regulatory Interpretive Memoranda—Regulatory Interpretive Letters

On several occasions in the recent past, EPA addressed the issue of the scope of the RCRA exclusion for oil and gas exploration, development, and production wastes through Regulatory Interpretive Memoranda (RIMs) or Regulatory Interpretive Letters (RILs). These documents constitute the official Agency position on the applicability of the exemption to specific waste streams from the industry. Generally, these letters are addressed to inquiries from members of the regulated community or to staff within the Agency in Washington, D.C. or in the various regions.

An early 1983 RIM took the position that wastes which are not “uniquely associated with” the exploration, development, or production of crude oil, natural gas, or geothermal energy are not eligible for the RCRA exclusion.⁶⁶ Thus, according to the memorandum, wastes such as spent solvents, pesticide wastes, and discarded commercial chemical products that are not uniquely associated with the exploration, development, or production of crude oil or natural gas or geothermal energy are not eligible for the exclusion. EPA further recognized in this memorandum that some judgement is required to make the determination about those wastes that are “unique” and those that are not.

In July 1984, EPA issued an opinion letter in response to an inquiry about the regulatory status of waste gypsum as a by-product of the processing of phosphate rock. It seemingly ignored the existence of the exemption of gas processing wastes from RCRA. The agency noted in its letter that:

wastes from the gas processing industry are frequently hazardous under EPA's hazardous waste characteristics (40 C.F.R. 261). If wastes fail a characteristic or are listed as hazardous, the full standards for hazardous waste treatment, storage, or disposal facilities (40 C.F.R. 264-265) apply. There are no special requirements for gas processing wastes.⁶⁷

The applicability of the oil and gas exemption to “spent iron sponge” from natural gas processing was addressed by EPA in a memorandum dated May 25,

⁶⁶ See *Memorandum from John H. Skinner, Director, Office of Solid Waste to Kenneth D. Feigner, Chief, Waste Management Branch, USEPA Region X* (Apr. 19, 1983).

⁶⁷ See *Letter from John H. Skinner, Director, Office of Solid Waste to Mr. P. H. Conlin, Komex Consultants Ltd.* (July 5, 1983).

1983.⁶⁸ Spent iron sponge, a material produced during natural gas processing operations, consists of hydrated iron oxide which is uniformly impregnated upon a substrate material, most commonly wood chips. The material is used to remove hydrogen sulfide and mercaptans from "sour," (*i.e.* impure, natural gas, and liquid streams). Hydrogen sulfide removal produces iron sulfides and water. Mercaptan removal produces iron mercaptides and water.⁶⁹ Both iron sulfides and iron mercaptans are materials which can be dangerous if not properly handled. Both materials can be pyrophoric and can release hydrogen sulfide or sulfuric acid gas when contacted by acidic compounds.⁷⁰ Proper precautions, including keeping the spent iron sponge wet, can be taken which will prevent spontaneous self-ignition and release of dangerous gases.⁷¹

In offering its opinion as to the applicability of the statutory exemption for oil and gas exploration, development and production wastes, to the "spent iron sponge" waste, EPA first discussed the relevant statutory language and legislative history.⁷² From this foundation, the opinion letter reached the conclusion that spent iron sponge is *not* within the section 3001(a)(2)(A) [sic] exemption based on the proximity of the waste to the wellhead and the degree of hazard possessed by the waste.⁷³

The first factor EPA considered as determinative of its conclusion that spent iron sponge was outside the scope of the RCRA oil and gas waste exemption was the material's relative proximity to the drilling site. According to the statute, the words:

"exploration, development, or production," all relate to locating oil and gas deposits of commercial value and extracting the oil and gas from those deposits. The only wastes specifically listed in the statute are "drilling fluids" and "pro-

⁶⁸ See Memorandum from Lisa K. Friedman, Acting Associate General Counsel, Solid Waste and Emergency Response Division, USEPA to Richard J. Nolan, Regional Counsel, Region VIII, USEPA (May 25, 1983) (Iron Sponge Guidance). The Agency also has informally determined that spent iron sponge probably is hazardous within the meaning of RCRA due to the possibility of auto ignition and hydrogen sulfide release if the material is improperly managed, *i.e.* not water-soaked. However, in issuing this determination, EPA failed to mention the exact applicability of the oil and gas exemption, merely concluding that "headquarters will not be able, at this time to support their [EPA Regions] taking enforcement action against facilities who manage spent iron sponge and do not have a RCRA permit." Memorandum from David Friedman, Manager, Methods Program to Dov Weitman, Attorney, Office of General Counsel (Feb. 7, 1984).

⁶⁹ Davis, *Procedures Aid Iron Sponge Disposal*, THE AM. OIL AND GAS REP. (August 1986).

⁷⁰ *Id.*

⁷¹ *Id.* For a more complete discussion of the iron sponge process, including a discussion of the experiences of several jurisdictions in handling and disposal methods for the spent material, see B. DAVIS, *PROPER HANDLING AND DISPOSAL OF SPENT IRON SPONGE* (1986) (available as a reprint from Physichem Technologies, P.O. Box 15484, Austin, Tex. 78761) (*PROPER HANDLING AND DISPOSAL*).

⁷² Iron Sponge Guidance, *supra* note 68, at 9-5.

⁷³ *Id.* at 5-6.

duced water." These are substances that were originally extracted from the ground together with the desired oil or gas or that were injected into the ground to enhance extraction of the oil or gas. They do not result from any process other than physical separation from the product. It is therefore reasonable to conclude that "other wastes" should similarly be materials extracted from the ground or injected into the ground to enhance oil or gas recovery and not wastes resulting from subsequent processing and manufacturing.⁷⁴

The opinion letter concluded that the iron sponge process goes beyond the separation of gas from other produced materials or drilling fluids to processing the gas through chemical treatment. EPA considered this processing operation to be downstream and therefore outside the scope of the extraction, development, and production exemption.

The second basis for EPA's conclusion was based on the degree of hazard possessed by spent iron sponge relative to that exhibited by drilling fluids and produced waters:

The difference between the spent iron sponge and the drilling fluids and produced waters manifest itself in the differing hazards presented by these wastes. The reactive nature of spent iron sponge is not shared by drilling fluids and produced waters. It is unlikely that Congress had this type of waste in mind when it exempted "drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas" from hazardous waste regulatory requirements.⁷⁵

Finally, as recently as July 1984, EPA issued its interpretation as to whether a particular use of methanol in gas well drilling operations was considered within

⁷⁴ *Id.* at 5.

⁷⁵ *Id.* at 6. EPA additionally discounted two alternative arguments which the Agency characterized might be used to advance the concept that Congress intended to include spent iron sponge in the exemption. The first argument which might be made is that the language "accumulated material from. . . fluid treating vessels" contained in the discussion of the exemption in the House Conference Report includes iron sponge used to treat sour gas. EPA stated that the more reasonable interpretation was that the language in question refers to wastes from the treatment of drilling fluids prior to their disposal or reintroduction into the well. So construed, this language would not encompass spent iron sponge. *Id.* at 5, fn. 2. The second argument advanced and subsequently discounted by the opinion letter relies on the language of the last sentence of the House Conference Report discussing the phrase "intrinsicly derived from the primary field operation. . . ." That sentence provides: "The phrase 'intrinsicly derived from the primary field operation. . . .' is intended to differentiate exploration, development and production operations from transportation (from the point of custody transfer or of production separation and dehydration) and manufacturing operations." H. CONF. REP. NO. 1444, *supra* note 64, at 32.

EPA noted that it would be incorrect to argue that Congress intended to exempt all wastes generated prior to the transportation of the natural gas because this would result in the exemption of all petroleum refining and chemical manufacturing wastes when such operations take place near the wellhead. EPA concluded that wastes resulting from manufacturing, whether they precede or follow transportation, are not exempt. *See* Iron Sponge Guidance *supra* note 68, at 6.

the scope of the oil and gas waste exemption.⁷⁶ EPA concluded that a methanol/water waste stream resulting from the injection of methanol by a natural gas production company into wellheads to keep them from freezing during the winter months was properly included within the scope of the exemption and the corresponding study directed by section 8002(m) of RCRA.

2. EPA's Draft Sampling Strategy

Pursuant to the mandates imposed by RCRA under the exemption and study obligation, the court order in *Alaska Center for the Environment*, and the Agency's continuing work on the zero discharge effluent guidelines for onshore oil and gas facilities under the Federal Clean Water Act,⁷⁷ EPA's Office of Water Regulations and Standards developed a Draft Sampling Strategy in May 1986 for the analysis of the physical and chemical characteristics of various constituents associated with oil and gas exploration, development, and production wastes.⁷⁸ The professed purpose of the Draft Sampling Strategy was the development of parameters for a screening field sampling program which would be used by the EPA contractors to obtain information to fulfill certain requirements mandated by RCRA and the Clean Water Act relevant to these wastes. Specifically, the program was designed to produce data on the sources, volumes, and characteristics of wastes from exploration, development, and production of crude oil and natural gas.⁷⁹

In developing the programs parameters, EPA was necessarily forced to make an initial interpretation of the exemption and corresponding study obligation for oil and gas drilling and production wastes. The legislative history reflects that:

Congress intended to exempt only those waste streams associated with exploration, development and production activities for oil and gas, and for geothermal resources. Wastes generated from transportation of oil, gas, or geothermal fluids, from natural gas processing, or from oil refining could not be considered to be within the scope of the exemption. Based on the legislative history, EPA interprets the exemption to include only those wastes streams generated from exploration, development, and production of oil and gas and geothermal resources.

⁷⁶ See Memorandum from Carolyn Barley, Project Officer, Office of Solid Waste, and Barbara Hostage, Project Officer, Office of Emergency and Remedial Response to Addressees (Aug. 20, 1986) (discussing, among other things, significant questions and resolved issues presented to the Agency's RCRA/Superfund Hotline).

⁷⁷ 33 U.S.C. §§ 1251-1376 (1982 & Supp. III 1985).

⁷⁸ UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF WATER REGULATIONS AND STANDARDS, OIL AND GAS EXPLORATION, DEVELOPMENT AND PRODUCTION SAMPLING STRATEGY DRAFT (May 1986) (DRAFT SAMPLING STRATEGY.).

⁷⁹ *Id.* at 2.

Some of the waste streams include:

- drilling fluids
- well treatment fluids
- completion fluids
- workover fluids
- produced water
- produced sand
- tank bottom sludges

However, for the oil and gas extraction industry, the exemption is not interpreted to include those wastes produced from pipelines (for example, from hydrostatic testing or from pipeline operations). Nor does the exemption include waste streams from gas processing facilities (for example, spent iron sponge).⁸⁰

In its Draft Sampling Strategy, EPA further interpreted the phrase "exploration and development activities" as including work necessary to locate, drill, stimulate, or complete wells.⁸¹ "Production activities" were defined by EPA to include all post-completion work necessary to bring hydrocarbon reserves or geothermal fluids from the producing formations to the point of transmission. These activities include basic oil/water/sediment separation, separation of gas liquids from natural gas, gas dehydration, pumping, collection, storage, and other production practices.⁸²

3. EPA's Interim Report on Methodology

Pursuant to the court order in *Alaska Center for the Environment v. EPA*,⁸³ EPA submitted to the court and released for public comment in October, 1986, an Interim Report on Methodology.⁸⁴ EPA quite correctly pointed out in this document that the answer to the question of what the Agency must study lies in properly determining the scope of the exemption presently contained in RCRA section 3001(b)(2) which encompasses "drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas or geothermal energy."⁸⁵ The Agency tentatively identified four criteria for determining which wastes were included within this exemption.

First, only waste streams intrinsic to the exploration for, or development and production of, crude oil, natural gas, or geothermal energy are subject to

⁸⁰ *Id.* at 12.

⁸¹ *Id.* at 13.

⁸² *Id.* at 15.

⁸³ *Alaska Center for the Env't*, No. A85-471.

⁸⁴ UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, TECHNICAL REPORT, WASTES FROM THE EXPLORATION, DEVELOPMENT AND PRODUCTION OF CRUDE OIL, NATURAL GAS AND GEOTHERMAL ENERGY, AN INTERIM REPORT ON METHODOLOGY FOR DATE COLLECTION AND ANALYSES (Oct. 1986) (INTERIM REPORT ON METHODOLOGY).

⁸⁵ *Id.* at 3.

exemption. Waste streams generated at oil, gas, and geothermal energy facilities that are not uniquely associated with exploration, development, or production activities are not exempt. One example of wastes not exempt would be spent solvents from equipment cleanup.⁸⁶ Second, exempt wastes must be associated with "extraction" processes, which include measures (1) to remove oil, natural gas, or geothermal energy from the ground or (2) to remove impurities from such substances, provided that the purification process is an integral part of normal field operations. Extraction is defined to include exploration, development, and production activities for oil, gas, and geothermal energy. Wastes associated with processes such as oil refining, petrochemical-related manufacturing, or electricity generation from geothermal energy are not exempt.⁸⁷ Third, the proximity of waste streams to primary field operations is a factor in determining the scope of the exemption. Process operations that are distant from exploration, development, or production operations may not be subject to exemption.⁸⁸ Finally, wastes associated with transportation are not exempt. The point of custody transfer, or production, separation, or dehydration, may be used as evidence in making this determination.⁸⁹ EPA only tentatively designated these four factors as determinative of the exemption status in its Interim Report on Methodology.

C. Analysis

EPA, in its Interim Report on Methodology, correctly recognized the close interrelationship between the scope of the exemption afforded oil and gas wastes under section 3001(b)(2) of RCRA and the obligation to study those wastes under section 8002(m) of RCRA.⁹⁰ The exact identity of the wastes exempted clearly affects the scope of the study. Conversely, one may presume that those wastes not included within the ambit of EPA's section 8002(m) study are not to be considered exempt under section 3001(b)(2) and therefore may be subject to immediate regulation under the federal and state hazardous waste management programs. The views of EPA and state regulatory authorities responsible for the environmental regulation of the oil and gas industry regarding the scope of the exemption and corresponding study obligation are thus extremely critical in deciding the ultimate regulatory fate of oil and gas wastes under federal and state hazardous waste management programs.

As the most recent Agency pronouncement on the scope of the exemption, EPA's Interim Report on Methodology presumably represents the synthesis of

⁸⁶ *Id.*

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ INTERIM REPORT ON METHODOLOGY, *supra* note 84, at 3.

prior EPA thought on the subject which is evidenced by the previously discussed Regulatory Interpretive Letters—Regulatory Interpretive Memoranda,⁹¹ and the Draft Sampling Strategy.⁹²

A review of the four criteria advanced by EPA in its Interim Report on Methodology as determinative of the inclusion or exclusion of a particular waste in the exemption⁹³ suggests that EPA has relied too heavily on the legislative history which interprets that part of the exemption related to “other wastes associated”, and not enough on the primary terms “drilling fluids” and “produced waters.” To be included in the study and consequently considered exempt from regulation under Subtitle C of RCRA, drilling fluids and produced waters should only need to be related to the exploration, development, or production of crude oil and natural gas. The legislative history quoted in the Introduction to the Interim Report on Methodology is expressly applicable only to the term “other wastes associated” and is not applicable to either “drilling fluids” or “produced water.”⁹⁴ Thus, the study and exemption logically should include drilling fluids and produced water wherever it occurs in the exploration, development, or production of crude oil or natural gas.

Additionally, EPA’s proposal not to include within the study and exemption such materials as waste lubricants, waste hydraulic fluids, waste solvents, waste paints, sanitary wastes, refining wastes, and waste motor oil appears overly restrictive. The rationale for proposing not to study these wastes, in large part, is obviously derived from criteria 1, which notes that waste streams, such as spent solvents from equipment cleanup, generated at oil, gas, and geothermal energy facilities not uniquely associated with exploration, development, or production activities are not exempt. While it may be appropriate for the study and related exemption not to apply to waste solvents, lubricants, hydraulic fluids, paints, and similar materials that are separately contained, such a criteria does not address those circumstances when, during normal operations, such materials are necessarily brought into contact with wastes which are clearly exempt (such as drilling fluids and produced waters).

To the extent that such lubricants, hydraulic fluids, solvents, paints, and sewage are inseparably mixed with exempt material, for instance, in a drilling pit, the pit material in general also should be considered exempt. Such a situation was addressed by EPA in the previously discussed RCRA/Superfund Hotline Monthly Status Report for July 1984. In that document, EPA concluded that a methanol/water waste stream which resulted from a natural gas production

⁹¹ See *supra* notes 66-76 and accompanying text.

⁹² See *supra* notes 77-82 and accompanying text.

⁹³ See *supra* notes 84-89 and accompanying text.

⁹⁴ INTERIM REPORT ON METHODOLOGY, *supra* note 84, at 3.

company injecting methanol into wellheads to keep them from freezing during the winter months was properly included within the exemption and, therefore, this study.⁹⁵

While much of EPA's Interim Report on Methodology relates to primary production operations, EPA has extended the study and related exemption to secondary and tertiary production operations. This action is reflective of EPA's conclusion that these enhanced recovery operations are an integral part of the exploration, development, and production of crude oil and natural gas. EPA's Interim Report on Methodology, however, is silent with respect to wells which are drilled and operated for the storage of natural gas in geologic formations.

Many questions remain about the proper scope of the study and the exemption. In its final report to Congress, EPA will certainly need to address this point in an effort to resolve the apparent discrepancies between its current study and the intent of Congress.⁹⁶

VI. THE NATURE OF THE REQUIRED STUDY

A. *The Criteria to be Studied*

Congress mandated that EPA examine several carefully prescribed criteria in assessing waste production by the oil and gas industry.⁹⁷ In many ways, the oil and gas waste study is similar to the studies that EPA must conduct for coal mining waste,⁹⁸ fossil fuel combustion waste,⁹⁹ cement kiln dust waste,¹⁰⁰ and waste generated from the extraction, beneficiation, and processing of ores and minerals.¹⁰¹ However, the oil and gas study appears to have a different focus for both the assessment of the impact of alternatives¹⁰² to current disposal

⁹⁵ See Memorandum from Carolyn Barley, Project Officer, Office of Solid Waste, and Barbara Hostage, Project Officer, Office of Emergency and Remedial Response to Addressees (Aug. 20, 1986) (discussing, among other things, significant questions and resolved issues presented to the Agency's RCRA/Superfund Hotline)

⁹⁶ In the meantime, the lack of a clear interpretation of the scope of the related exemption raises serious questions about which waste streams currently are subject to hazardous waste regulation.

⁹⁷ 42 U.S.C. § 6982(m)(1)(1982).

⁹⁸ *Id.* at § 6982(f).

⁹⁹ *Id.* at § 6982(n).

¹⁰⁰ *Id.* at § 6982(o).

¹⁰¹ *Id.* at § 6982(p).

¹⁰² In mandating the oil and gas waste study, Congress placed a similar requirement on EPA to determine the cost of any alternatives to current disposal practices it may identify, but provided that the impact of those costs are to be assessed for oil and gas wastes using a somewhat different test. For the studies involving mine wastes, cement kiln dust wastes, fossil fuel combustion wastes and ores and minerals wastes, EPA must examine the impact of alternatives on the end-product or the use of the end-product. For oil and gas wastes, however, the focus appears not to be on the end-product, but rather, on the entire process of the exploration for, and development and production of, crude oil and natural gas.

practices, and the potential for the reuse of waste materials.¹⁰³ It also may be significant that, in the case of oil and gas wastes, EPA is required to make findings and recommendations for both "Federal and non-Federal actions" concerning the adverse effects of such wastes.¹⁰⁴ EPA is required to make recommendations for non-federal action in the case of only one other study.¹⁰⁵

The specific factors which Congress has directed EPA to consider in the oil and gas study are:

- (A) the sources and volumes of discarded material generated per year from such wastes;
- (B) present disposal practices;
- (C) potential danger to human health and the environment from surface runoff or leachate;
- (D) documented cases that prove or have caused danger to human health and the environment from surface runoff or leachate;
- (E) alternatives to current disposal methods;
- (F) the cost of such alternatives; and
- (G) the impact of those alternatives on the exploration for, and development and production of, crude oil and natural gas or geothermal energy.¹⁰⁶

More generally, EPA is directed to make a determination of the adequacy of existing state and federal regulatory programs and industry practices. The essence of this criteria is contained in RCRA section 8002(m)(1), in which EPA is directed not only to examine the adverse affects, if any, of these wastes on the environment, but also to assess "[t]he adequacy of means and measures currently employed by the oil and gas and geothermal drilling and production industry, Government agencies, and others to dispose and utilize such waste and to prevent or substantially mitigate such adverse effects."¹⁰⁷

No doubt, the threshold issue in the study of oil and gas wastes is a determination of the adequacy of existing state and federal regulatory programs and industry practices. The legislative history behind RCRA section 8002(m) makes it clear that exempt wastes can be regulated as hazardous waste only if such programs and practices are inadequate. The Senate Committee on Envi-

¹⁰³ In connection with the other studies, EPA is mandated to consider the potential for the waste material to be reused. For mining, the focus is on the use of discarded material as a secondary source of mine product. For others, the focus is on the current and potential utilization of such materials. No comparable provision appears anywhere in the oil and gas study requirement.

¹⁰⁴ 42 U.S.C. § 6982(m)(1) (1982).

¹⁰⁵ *Id.* at § 6982(f). In each of the cases involving fossil fuel combustion wastes, cement kiln wastes and ores and minerals wastes, EPA is instructed to *review* studies and actions of both federal and state agencies; however, there is no specific directive that EPA should make *recommendations* for either federal or non-federal actions.

¹⁰⁶ *Id.* at § 6982(m)(1)(A) to (G).

¹⁰⁷ *Id.* at § 6982(m)(1).

ronment and Public Works, in considering the enactment of the exemption and corresponding study obligation for oil and gas wastes, clearly considered this factor important. The language of the committee report provides, in relevant part, as follows:

The Committee considered recently proposed Environmental Protection Agency regulations for drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas implementing the Resource Conservation and Recovery Act. The Committee determined that the extensive regulatory program proposed by the Agency could have a significant economic impact on domestic oil and gas exploration and production activities. Therefore, regulations on these materials should not be promulgated until further information is developed to determine whether a sufficient degree of hazard exists to warrant additional regulations *and whether existing State or Federal programs adequately control such hazards.*

The Act is also amended to define the study that the Environmental Protection Agency is mandated to execute. *The thrust of the study is to determine the degree of hazard associated with these wastes, the adequacy of existing State and Federal regulatory programs to control and mitigate any hazards, potential changes to regulatory programs to improve control and mitigation of hazards; and the cost and impact of those changes on the exploration, development, and production of crude oil and natural gas. The Committee expects the Environmental Protection Agency to cooperate with and utilize the expertise of industry and State and Federal regulatory agencies . . . in executing this study. The Committee is requiring the study in order to assure that it will have an effective and sufficient factual basis upon which Congress can make any necessary decisions.*¹⁰⁸

In addition to requiring a careful examination of existing federal and state programs, Congress specifically directed EPA to make "appropriate findings and recommendations for Federal and non-Federal actions" concerning adverse effects from the wastes being studied.¹⁰⁹

The specific language of the Act itself and the discussion of this study in the Conference Report suggests that Congress may view the imposition of hazardous waste regulation on the oil and gas industry as a matter of last resort. If so, the following criteria may be appropriate for determining whether hazardous waste regulation is appropriate:

a. Is the disposal of exempt waste causing harm to human health or the environment?

¹⁰⁸ S. REP. NO. 172, 96th Cong., 2nd Sess., 1, 6-9, *reprinted in* 1980 U.S. CODE CONG. & AD. NEWS 5019, 5024-26 (emphasis added). The use of the legislative history as evidenced by this Senate Report is particularly appropriate because the Senate bill comprising the Solid Waste Disposal Act Amendments of 1980 was passed in favor of the bill proposed by the House of Representatives.

¹⁰⁹ 42 U.S.C. § 6982(m)(1).

- b. If so, is there currently adequate state or federal regulatory authority to address such objectionable disposal practices?
- c. If not, can state regulatory programs or industry practices be developed and implemented within existing statutory authority to address such objectionable disposal practices?
- d. If not, can EPA develop new regulatory requirements pursuant to its non-hazardous waste programs, *e.g.*, NPDES, UIC, or RCRA Subtitle D, to address such objectionable disposal practices?

The specific language of the relevant statutory sections and the legislative history of those provisions support this approach. Only if an objectionable disposal practice cannot be adequately addressed through one of the foregoing methods would it be appropriate for EPA to consider the practice for regulation under its hazardous waste regulatory program.¹¹⁰

B. *Characterization of Wastes*

One of the most difficult tasks to be accomplished by EPA in performing this study is satisfaction of the mandate that it must analyze the sources and volumes of discarded material generated each year.¹¹¹ EPA has approached this task in two principal ways. First, it has relied on sampling and analytical data generated specifically for this study.¹¹² Second, it has relied on data available from outside sources.¹¹³

EPA's task in studying the oil and gas industry is complicated by the fact that tens of thousands of new wells are drilled each year throughout the nation.¹¹⁴ Given this level of new activity and the limitations of time and budget imposed on the study, EPA has not undertaken a comprehensive sampling program of the industry but, instead, has chosen to conduct only a screening program.¹¹⁵ In doing so, EPA has divided the nation into geographic zones and

¹¹⁰ 42 U.S.C. §§ 6901-6991(i) (1982 & Supp. III 1986). Even if there were no other mechanism to regulate a particular waste disposal practice, these requirements could not be imposed until the impact of this alternative on the exploration for, and development and production of, crude oil and natural gas has been assessed and appropriate regulations authorized by an Act of Congress. *See* 42 U.S.C. § 6982(m).

¹¹¹ 42 U.S.C. § 6982(m)(1)(A) (1982).

¹¹² *See* DRAFTING SAMPLING STRATEGY, *supra* note 78, at 5. While this sampling effort is being undertaken to address the mandate of RCRA § 8002(m), it will also be used by EPA in its review of the appropriateness of the effluent guideline currently applicable to the onshore oil and gas industry pursuant to the Federal Water Pollution Control Act Amendments of 1972. *Id.* These effluent guidelines have been the subject of concern for many oil and gas operators because they prohibit any discharge of pollutants from many oil and gas well operations to surface streams.

¹¹³ *See* INTERIM REPORT ON METHODOLOGY, *supra* note 84, at I-1-28.

¹¹⁴ DRAFTING SAMPLING STRATEGY, *supra* note 78 at 13.

¹¹⁵ *Id.* at 5. EPA contemplated from the outset that its screening study would lay the foundation for a larger, more statistically significant survey of the nation's 24,000 oil and gas operators.

randomly sampled two sites within each zone which have oil or gas production.¹¹⁶ In addition, the Agency selected certain other sites which, in its judgment, were likely to generate wastes which were hazardous, as that term is presently defined by RCRA.¹¹⁷

Under the consent decree in *Alaska Center for the Environment*, the results of this sampling were ordered to be published by January 31, 1987.¹¹⁸ As a supplement to its own sampling results, EPA identified a methodology premised on other data bases to estimate the sources and volume of waste to be included within its study.¹¹⁹ Even though EPA identified inherent limitations to such a methodology,¹²⁰ the results became the underpinning for both the economic analysis and the risk assessment discussed below.¹²¹

C. Profile of Industry and Current Disposal Practice

If EPA's study of the oil and gas industry is made difficult by the task of characterizing the wastes produced by the industry, it is made even more difficult by the statutory requirements that current industry operating and disposal practices must be characterized.¹²² At the outset of its Interim Report on Methodology, EPA noted that "waste management practices are so varied (because of the influences of State and Federal regulations, operator preferences, etc.), that the terms 'current' and 'alternative' are often interchangeable depending on the context."¹²³ EPA also offered the following observation about the reaction of states to this variability:

Although the disposal practices generally used by the industry are not highly complicated, they are fraught with variabilities that influence their ability to

¹¹⁶ *Id.* at 31-36. Zone 2 was originally defined to include only the states of New York, Pennsylvania, West Virginia, Virginia, Kentucky, and Tennessee. *Id.* At the request of oil and gas operators, however, the State of Ohio has been added to this group to give zone 2 approximately the same geographic scope as the oil and gas region known as the "Appalachian Basin." See Transcript of the Public Meeting before the United States Environmental Protection Agency 83 (Dec. 3, 1986).

¹¹⁷ DRAFT SAMPLING STRATEGY, *supra* note 78, at 37. EPA focused its sampling efforts on drilling sites, production sites, centralized pits, and centralized treatment facilities. *Id.*

¹¹⁸ Consent Decree, *Alaska Center for the Env't*, No. A85-471.

¹¹⁹ Interim Report on Methodology, *supra* note 84, at I-1-27 to -52.

¹²⁰ *Id.* at I-1-27. These limitations were identified by EPA to include:

Oversimplification;

Incomplete accounting of wastes generated (i.e., accounts for drilling media, but not other associated wastes such as well treatment/well completion fluids, deck drainage, sewage, etc.);

Lack of accounting for drilling media makeup water.

¹²¹ *Id.* at I-1-28.

¹²² 42 U.S.C. § 6982(m)(1)(B).

¹²³ INTERIM REPORT ON METHODOLOGY, *supra* note 84, at I-2-1.

protect the environment. State agencies can accommodate these differences to a large extent by evaluating waste management practices for each individual case within a general regulatory framework.

Thus, waste management practices (and the corresponding construction and monitoring requirements) are often tailored to the specific situation even within a particular State.¹²⁴

It is readily apparent that the variabilities of the industry from state to state have caused the states to take the lead in regulation of the oil and gas industry. Even within the Appalachian Basin, where similar geologies, geographies, and climatology prevail among states, individual states have taken a variety of approaches to the regulation of operating and waste disposal practices of the oil and gas industry.¹²⁵ Even states within the same region have geared their respective oil and gas regulatory programs to the specific environmental conditions of the state.

While EPA's study examines the statutes, regulations, permits, and practices which currently exist at the state level, there is no indication that inquiry has been made into developing regulatory concepts. The most significant of these concepts is the possibility of a revision to its effluent guideline applicable to the onshore oil and gas industry.¹²⁶

¹²⁴ *Id.* at I-2-2.

¹²⁵ Compare the regulatory requirements of these states:

Kentucky: 805 KY. ADMIN. REGS. 1 (1986) (regulations of the Public Protection & Regulation Cabinet, Department for Mines & Minerals, Division of Oil and Gas).

New York: N.Y. ADMIN. CODE tit. 6, §§ 550-559 (1986) (regulations of the Department of Environmental Conservation, Bureau of Mineral Resources).

Ohio: OHIO ADMIN. CODE Chapter 1501:9 (1984) (regulations of the Department of Natural Resources, Division of Oil and Gas).

Pennsylvania: The regulatory program governing oil and gas operators in Pennsylvania is derived from a myriad of statutes, regulations, and state agency recommended oil and gas management practices. A valuable source to understanding this extremely complex regulatory system is COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL RESOURCES, BUREAU OF OIL AND GAS MANAGEMENT, OIL AND GAS OPERATOR'S MANUAL (1986).

Tennessee: RULES OF THE TENNESSEE STATE OIL AND GAS BOARD, STATE-WIDE ORDER NO. 2 (1972) (general rules and regulations for oil and gas exploration and exploitation).

Virginia: VIRGINIA OIL AND GAS CONSERVATION COMMISSION, VIRGINIA WELL REVIEW BOARD, CHIEF OF THE DIVISION OF MINES AND QUARRIER, AND THE VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY, RULES AND REGULATIONS FOR CONSERVATION OF OIL AND GAS RESOURCES AND WELL SPACING, (1983).

West Virginia: DEPARTMENT OF ENERGY, DIVISION OF OIL AND GAS, WEST VIRGINIA LEGISLATIVE RULES SERIES 1-8 (1986).

Other state regulations not specifically mentioned, such as solid waste management or water regulations, may impact on specific aspects of the oil and gas industry.

¹²⁶ 40 C.F.R. § 435.1986. The possibility of a revision to this effluent guideline arises from several sources. First, the Fifth Circuit has ruled that the effluent guideline did not adequately

This guideline bears significantly on current disposal practices of the industry, because it prohibits all stream discharges of pollutants from onshore wells¹²⁷ except for stripper oil wells and agricultural and wildlife use.¹²⁸ EPA's sampling program related to this study recognized the need to gather data to allow it to complete its review of this effluent guideline.¹²⁹ However, there is a total lack of recognition of this possibility in its Interim Report on Methodology.¹³⁰

It is appropriate for EPA to examine its effluent guideline in connection with this study because EPA is obligated to examine alternatives to current disposal practices.¹³¹ One such alternative would result from a modification to the effluent guideline that would allow individual states to issue permits for the carefully controlled discharge of these materials to surface streams.

D. *Assessment of Environmental Harm*

EPA has characterized its obligation to assess environmental harm as follows:

Conduct a detailed and comprehensive study of the adverse effects, if any, of drilling fluids, produced waters, and other wastes associated with exploration, development, or production of crude oil, natural gas, or geothermal energy; and
Review the adequacy of means and measures currently employed by the oil,

address marginal gas wells and ordered EPA to reconsider the effluent guideline at least to that extent. *American Petroleum Inst. v. EPA*, 661 F.2d 340 (5th Cir. 1981). Second, in correspondence to the Independent Oil and Gas Association of West Virginia and the West Virginia Oil and Natural Gas Association dated June 5, 1985, the Acting Assistant Administrator for EPA's Office of Water acknowledged that EPA had the effluent guideline under consideration for revision. Third, in an apparent attempt to encourage EPA to review and revise its effluent guideline, the Conference Report which accompanied the Water Quality Act of 1986 (vetoed and subsequently overridden in 1987) offered the following comment clarifying a provision in that bill authorizing variances from effluent guideline requirements in certain cases:

In the case of guidelines for the oil and gas extraction industry . . . , the EPA may temporarily withdraw the applicable guideline at any time, issue a Best Practical (sic) Judgment permit to affected facilities, and then reissue the guideline with an appropriate subcategory.

H. CONF. REP. NO. 1004, 99th Cong., 2d Sess., 124 (1986).

The same conference report has now been adopted as part of the legislative history of the Water Quality Act of 1987, which has been passed by both houses of the 100th Congress.

¹²⁷ 40 C.F.R. § 435.32 (1986).

¹²⁸ 40 C.F.R. § 435.30 (1986).

¹²⁹ DRAFT SAMPLING STRATEGY, *supra* note 78, at 5.

¹³⁰ While the possibility of a revision to the effluent guideline was not mentioned in the INTERIM REPORT ON METHODOLOGY, it is a matter that has been raised in other contexts. *See generally, supra* note 127, at 125.

¹³¹ 42 U.S.C. § 6982(m)(1)(E).

gas, and geothermal drilling and production industry to prevent or substantially mitigate such adverse effects.¹³²

EPA has employed two methods to address these obligations: (1) an identification of documented damage cases,¹³³ and (2) the use of a risk assessment computer model.¹³⁴

1. Damage Case Assessment

Conspicuously absent from EPA's restatement of its obligation to assess environmental harm is the correlation of adverse effects from oil and gas exploration, development, and production wastes with responses by governmental agencies to those effects through enforcement action or the development of new programs. Section 8002(m) of RCRA obligates EPA to evaluate environmental harm by assessing:

the adequacy of means and measures currently employed by the oil and gas and geothermal drilling and production industry, *Government agencies*, and others to dispose of and utilize such wastes and to prevent or substantially mitigate such adverse effects. Such study shall include an analysis of

• • •

(C) potential danger to human health and the environment from the surface runoff or leachate;

(D) documented cases which prove or have caused danger to human health and the environment from surface runoff or leachate;¹³⁵

Obviously, Congress, by this language, intended for the adverse effects of waste disposal to be evaluated, not only in light of industry practice, but also agency regulation. It also seems clear that Congress was not concerned about all environmental harms associated with the oil and gas industry, but only adverse effects of *wastes* produced by the industry,¹³⁶ and only in those cases in which

¹³² INTERIM REPORT ON METHODOLOGY, *supra* note 84, at III-1-1.

¹³³ *Id.* The authority for a survey of documented damage cases is found in RCRA § 8002(m)(1)(D), at least with respect to cases involving "danger to human health and the environment from surface runoff or leachate."

¹³⁴ *Id.* There is no express authority in RCRA § 8002(m) for the use of risk assessment techniques by computer model or otherwise, although RCRA § 8002(m)(1)(C) does require EPA to assess the *potential* danger to human health or the environment from surface runoff or leachate. EPA made the following observation about this point: "Section 8002(m)(1)(C) does not stipulate that quantitative risk estimates be developed, nor does it require a site-specific assessment." *Id.* at IV-2-5.

¹³⁵ 42 U.S.C. § 6982(m)(1) (emphasis added).

¹³⁶ Adverse effects from the production aspects of oil and gas well operations which do not involve wastes are apparently not to be included in the study. Some notable examples of these adverse effects which should not be studied may be groundwater contamination from material injected into the ground for the recovery of oil, safety problems related to the mere presence of the well location or related pits, and groundwater contamination caused by faulty well construction. Each of these adverse effects are generally regulated under nonenvironmental programs.

human health or the environment was impacted through surface runoff or leachate. In addition, Congress appears to have required EPA to focus on current disposal practices and not so much on those disposal practices no longer in use by the industry.

In short, a careful review of the study requirement in RCRA section 8002(m) in light of the specific circumstances surrounding the oil and gas industry suggests the appropriateness of the following criteria in assessing environmental harm:

1. The study must focus on waste handling and disposal and not production operations.
2. The study must focus on adverse effects of wastes which enter the environment through surface runoff or leachate.
3. The study must focus on current practices and not those of the past which have been changed to respond to the adverse effects of such past practices.
4. The study must identify the extent to which governmental agencies have responded to such adverse effects through enforcement, remedial action, or refinements to regulatory programs.

2. Risk Assessment

EPA's risk assessment computer modeling is apparently a response to the mandate to evaluate the *potential* danger to human health and the environment from surface runoff or leachate resulting from drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas, or geothermal energy under RCRA section 8002(m)(1)(C). According to EPA, the objectives of the risk assessment are to (1) characterize and classify the major risk influencing factors associated with current waste management practices of oil, gas, or geothermal energy facilities; (2) estimate distributions of risk influencing factors across the population of facilities; (3) rank these factors in terms of their relative risk; and (4) develop initial quantitative estimates of the range of base line health and environmental risks for the variety of wastes sites, management practices, and environmental settings that exist.¹³⁷

In the Interim Report on Methodology, EPA recognized a number of inherent flaws in performing this type of risk assessment.¹³⁸ Beyond the general

¹³⁷ INTERIM REPORT ON METHODOLOGY, *supra* note 84, at IV-1-1 to 2.

¹³⁸ EPA described these flaws as follows:

As with any National assessment of risk from waste generating activities, whether based on specific real facilities or model facility scenarios, *many assumptions will be necessary for this analysis*. Assumptions are necessary for at least three reasons: (1) lack of important data about waste generating and management practices and environmental

concerns cited by EPA, this risk assessment study is further complicated by the lack of waste characterization and exposure data to be used as input to any risk assessment model. EPA has utilized in its risk assessment model the sample results taken pursuant to its Draft Sampling Strategy discussed previously in this Article. However, that sampling was never intended to be more than a "screening" program,¹³⁹ and the foundation "for a larger, more comprehensive sample survey of a statistically significant subset of the approximately 24,000 oil and gas industry operators."¹⁴⁰

E. *Assessment of Alternatives*

The final aspect of EPA's study is the identification of alternatives to current disposal practices and a determination of the cost and impact of those alternatives.¹⁴¹

To determine alternatives to current waste management practices, EPA has identified both standard practices commonly employed in the various oil and gas producing regions, as well as more advanced or sophisticated methods that are potentially applicable, but which may be used less frequently or not at all in certain regions of the country at the present time.¹⁴² The cost of each of these alternatives will be identified and compared to the baseline costs of typical oil and gas wells to determine the cost impact of the various management alternatives.¹⁴³

EPA has narrowly interpreted the mandate of RCRA section 8002(m) to require it to assess only the impact of the *cost* of alternatives.¹⁴⁴ However, the study obligation is drafted in broader terms and appears to extend to the total impact of alternatives.¹⁴⁵

EPA also has narrowly interpreted its obligation in this phase of the study by examining the impact of alternatives only on those persons who own or

conditions, coupled with the expense of obtaining such data; (2) significant limitations of available methods for modeling chemical release, transport, fate, and effects; and (3) modeling feasibility and practicality, which are essential considerations to any National risk analysis with a broad scope. Any assumptions in the analysis will be explicit, and EPA will document them carefully in written reports.

Id. at IV-1-2 to -3.

¹³⁹ DRAFT SAMPLING STRATEGY, *supra* note 78, at 1, 2 and 5.

¹⁴⁰ *Id.* at 5.

¹⁴¹ 42 U.S.C. § 6928(m)(1)(E) to (G).

¹⁴² INTERIM REPORT ON METHODOLOGY, *supra* note 84, at I-3-1 to -2.

¹⁴³ *Id.* at I-4-1.

¹⁴⁴ *Id.*

¹⁴⁵ 42 U.S.C. § 6982(m)(1)(G). Beyond mere cost impact on the industry, EPA may be obligated by this provision to consider such matters as the impact on economic dislocation and the impact on national balance of payments.

operate oil or gas wells.¹⁴⁶ This would presumably include both the driller and operator of the wells¹⁴⁷ and the investors in such wells.¹⁴⁸ This aspect of the study obligation appears to go much further, however, than just owners and operators of wells. The language of the applicable provisions mandates that the study include an analysis of "the impact of those alternatives on the exploration for, and development and production of, crude oil and natural gas or geothermal energy."¹⁴⁹

This provision is significant, in the first instance, because of the breadth of the language on its face. It also is significant in comparison with the study obligations imposed on EPA to assess coal mine wastes,¹⁵⁰ fossil fuel combustion wastes,¹⁵¹ kiln dust wastes,¹⁵² and mining wastes.¹⁵³ In mandating the study obligations for all other RCRA section 8002 wastes, Congress required an analysis of the *use* of a product or natural resource. In the case of oil and gas wastes, the obligation imposed by Congress is much broader and apparently extends to all facets of the industry.

In addition to those who own or operate oil and gas wells, the extraction, development, and production of crude oil and natural gas is characterized by the following interests, among others:

- (a) Owners of royalty interests;¹⁵⁴
- (b) Companies and individuals providing support services to the industry;
- (c) Consumers of oil and gas products, including refineries dedicated to processing crude oil produced by a particular region;
- (d) Government services that would be adversely affected by a reduction in tax revenue; and
- (e) Regulatory agency resources that would need to be increased to respond to any new regulatory programs.

The failure by EPA to examine the impact of its actions on these interests will leave Congress without the information necessary to discharge the extraor-

¹⁴⁶ INTERIM REPORT ON METHODOLOGY, *supra* note 84, at I-4-2.

¹⁴⁷ *Id.* at I-4-15.

¹⁴⁸ *Id.*

¹⁴⁹ 42 U.S.C. § 6982(m)(1)(G).

¹⁵⁰ *Id.* at 6982(f). In this study, EPA need only include an analysis of "the cost of those alternatives in terms of the impact on mine product costs." *Id.*

¹⁵¹ *Id.* at § 6982(n). In this study, EPA need only include an analysis of "the impact of those alternatives on the use of coal and other natural resources." *Id.*

¹⁵² *Id.* at § 6982(o). In this study, EPA need only include an analysis of "the impact of those alternatives on the use of natural resources." *Id.*

¹⁵³ *Id.* at § 6982(p). In this study, EPA need only include an analysis of "the impact of those alternatives on the use of phosphate rock and uranium ore, and other natural resources." *Id.*

¹⁵⁴ Failure to account for adverse impacts on royalty interests was the basis for action by the Circuit Court of Johnson County, Kentucky, in enjoining the implementation of revised water quality standards in the Commonwealth of Kentucky. *See Adams v. Cabinet for Natural Resources and Env'tl Protection*, No. 85-CI-129 (Johnson Co. Cir. Ct., Div. 1, Apr. 5, 1985).

dinary role it has reserved to itself with respect to the study of oil and gas wastes.¹⁵⁵

VII. REGULATORY OPTIONS AVAILABLE TO EPA

As discussed earlier in this Article, drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil and natural gas are currently exempt from RCRA Subtitle C (hazardous waste) regulation. This exemption will continue in effect until such time as the following statutorily specified review procedure is undertaken to determine whether to regulate certain oil and gas wastes as hazardous waste.

First, these wastes are exempt until at least two years from the date of enactment of the Solid Waste Amendments of 1980 (October 21, 1980), and until regulations have been promulgated by the Environmental Protection Agency.¹⁵⁶ Second, the promulgation of regulations with respect to these oil and gas wastes is conditioned on the completion of a study of these wastes under RCRA section 8002(m).¹⁵⁷ Third, after completion of the requisite study, the EPA Administrator must make a decision, determining either to promulgate regulations under subtitle C for drilling fluids, produced waters, and other wastes associated with the exploration, development, and production of crude oil or natural gas or that such regulations are unwarranted. The Administrator's decision must be made not later than six months after completion and submission of the study to Congress based on the information developed or accumulated pursuant to the study. The Administrator's decision on the propriety of subtitle C regulation, along with an explanation and supporting justification, are to be published in the *Federal Register*.¹⁵⁸ Finally, the Administrator must transmit his decision, along with any regulations, if regulations are deemed necessary, to both the United States Senate and the United States House of Representatives. Such regulations shall take effect only when authorized pursuant to an act of Congress.¹⁵⁹

It must always be borne in mind that, as a result of this study, EPA has no obligation to regulate oil and gas wastes as hazardous waste if it finds that the material is being adequately handled under other existing state and federal

¹⁵⁵ See H. CONF. REP. NO. 1444, *supra* note 64. As previously discussed, Congress has precluded EPA from implementing any hazardous waste regulations with respect to non-exempt oil and gas wastes until such has been authorized by an Act of Congress, 42 U.S.C. § 6921(b)(2) (1982).

¹⁵⁶ *Id.* at § 6921(b)(2)(A). This date has now been extended by consent decree entered in *Alaska Center for the Env't*, No. A85-471.

¹⁵⁷ 42 U.S.C. § 6921(b)(2)(B).

¹⁵⁸ *Id.*

¹⁵⁹ *Id.* at § 6921(b)(2)(C) The authors do not herein express an opinion of the constitutional validity *vel non* of this requirement.

regulatory programs.¹⁶⁰ Moreover, the clear congressional intent behind the study and exemption is that if existing programs are adequate, EPA should *not* impose further hazardous waste regulatory controls on the industry.¹⁶¹

The ultimate issue to be addressed by EPA is whether it should impose hazardous waste regulatory requirements on the generation, treatment, storage, disposal, and transportation of wastes generated by the oil and gas industry.¹⁶² If EPA concludes that the same hazardous waste regulatory requirements should be imposed on the oil and gas industry as have been imposed on other industries, a broad spectrum of onerous permitting and regulatory requirements would be invoked, including the following: manifesting of all waste material shipped from the point of generation;¹⁶³ shipping all wastes designated as hazardous waste to treatment, storage and disposal facilities that are permitted for the handling of hazardous waste;¹⁶⁴ re-permitting Class II (enhanced recovery) UIC wells as Class I (hazardous waste) UIC wells;¹⁶⁵ permitting pits and tanks as hazardous waste treatment, storage, or disposal facilities;¹⁶⁶ and constructing drilling pits to meet EPA's performance standards which generally require double liners, leachate detection, collection and removal of wastes, and groundwater monitoring.¹⁶⁷

In performing its statutorily mandated study of materials generated from the mining of ores and minerals,¹⁶⁸ EPA determined that such materials should *not* be subject to regulation as hazardous waste pursuant to RCRA, Subtitle C. In doing so, EPA offered several observations about the importance of various factors which Congress mandated it to consider in the study of such wastes:

In reviewing the factors to be studied which are listed in sections 8002(f) and (p), and the legislative history of these and other mining waste provisions, EPA has concluded that Congress believed that certain factors are particularly important to consider in making the Subtitle C regulatory determination. First, Congress instructed EPA to study the potential dangers to human health and the environment from mining waste, indicating that the decision to regulate under Subtitle C must be based on a finding of such a danger. Second, section 8002(p) required EPA to review the actions of other Federal and State agencies which deal with mining wastes "with a view toward avoiding duplication of effort." From this provision, EPA concludes that Congress believed Subtitle C regulation might not be necessary if other Federal and State programs control any risk associated with mining waste. Third, Congress expected EPA to analyze

¹⁶⁰ *Id.* at § 6921(b)(2)(B).

¹⁶¹ H. CONF. REP. No. 1444, *supra* note 64, at 5025.

¹⁶² 42 U.S.C. § 6921(b)(2)(B).

¹⁶³ *See generally* 40 C.F.R. §§ 262.20 to .23.

¹⁶⁴ 42 U.S.C. § 6928(d)(1) (1982).

¹⁶⁵ 40 C.F.R. § 144.6 (1986).

¹⁶⁶ *Id.* at §§ 264.1 to .999.

¹⁶⁷ *Id.*

¹⁶⁸ 42 U.S.C. §§ 6982(f) and (p).

fully the disposal practices of the mining industry which when read in conjunction with the legislative history of this provision, indicates concern about the feasibility of Subtitle C controls for mining waste. Finally, Congress instructed EPA to look at the costs of various alternative methods for mining waste management, as well as the impact of those alternatives on the use of natural resources. Therefore, EPA must consider both the cost and impact of any Subtitle C regulations in deciding whether they are warranted. Clearly, Congress believes it was important to maintain a viable mining industry. Therefore, any subtitle C regulations which would cause widespread closures in the industry would be unwarranted.¹⁶⁹

EPA's decision with respect to mining waste is also significant because of EPA's recognition of its alternatives to the imposition of full RCRA Subtitle C (hazardous waste) regulation. EPA offered the following comments with respect to mining wastes as an explanation of its alternatives to imposing Subtitle C regulation:

EPA does not intend to impose Subtitle C controls on mining waste at this time.

The Agency however, is concerned about certain actual and potential mining waste problems, and therefore plans to develop a program for mining waste under Subtitle D of RCRA.

. . .

As noted below in section VI, EPA will be working with the States to determine the specific nature of their current mining waste activities and their future plans to administer such programs.

. . .

If EPA is unable to develop an effective mining waste program under Subtitle D, the agency may find it necessary to use Subtitle C authority in the future.¹⁷⁰

The next year will undoubtedly decide the regulatory fate of wastes from the exploration, development, and production of crude oil and natural gases.

VIII. CONCLUSION

EPA's study of oil and gas wastes pursuant to RCRA section 8002(m) is one of considerable factual and legal complexity. Certainly, any decision to subject the industry to full subtitle C regulation will have a significant adverse effect on the industry both in compliance costs and permitting delays.

Congress was obviously very aware of the sensitivity of operators in this industry to the imposition of hazardous waste regulation and, as a result, has

¹⁶⁹ 51 Fed. Reg. 24,497 (1986) (emphasis added).

¹⁷⁰ *Id.* at 24,496.

established a procedure for the review of these wastes that is markedly different from the procedure mandated for other exempt wastes.

Ultimately, Congress has reserved to itself the final decision as to whether the imposition of RCRA subtitle C regulation is warranted. While Congress will be free to state the public policy of the nation on the issue at the proper time, it has prepared itself well for that decision through the administrative process mandated of EPA pursuant to RCRA section 8002(m).¹⁷¹

¹⁷¹ EPA has continued its examination of oil and gas industry wastes in the face of the court-ordered compliance schedule. On January 31, 1987, the Agency issued its Sampling and Analysis Technical Report which consisted of nine volumes and well over two thousand pages of raw data. The document presents the findings of the field sampling and analysis project conducted on oil and gas exploration, drilling, and production waste. Appendices to the report discuss analytical results, sampling strategy, sampling reports, analytical methods, role and function of the centralized Sample Control Center, list of analytes, and the sampling plan and sampling quality assurance/quality control plan. *See generally* EPA TECHNICAL REP., Exploration, Development, and Production of Crude Oil and Natural Gas, Field Sampling and Analytical Results (January 31, 1987); EPA TECHNICAL REP., Appendix A, Exploration, Development, and Production of Crude Oil and Natural Gas, Analytical Results (January 31, 1987); EPA TECHNICAL REP., Appendix B, Exploration, Development, and Production of Crude Oil and Natural Gas, Sampling Strategy (January 31, 1987); EPA TECHNICAL REP., Appendix C, Exploration, Development, and Production of Crude Oil and Natural Gas, Sampling Reports, Vol. 1 and 2, (January 31, 1987); EPA TECHNICAL REP., Appendix C, Exploration, Development, and Production of Crude Oil and Natural Gas, Sampling Reports, Vol. 2 (January 31, 1987); EPA TECHNICAL REP., Appendix D, Exploration, Development, and Production of Crude Oil and Natural Gas, Analytical Methods (January 31, 1987); EPA TECHNICAL REP., Appendix E, Exploration, Development, and Production of Crude Oil and Natural Gas, Role and Function of EPA's Sample Control Center (January 31, 1987); EPA TECHNICAL REP., Appendix F, Exploration, Development, and Production of Crude Oil and Natural Gas, List of Analytes (January 31, 1987); EPA TECHNICAL REP., Appendix G, Exploration, Development, and Production of Crude Oil and Natural Gas, Sampling Plan and Sampling Quality Assurance/Quality Control (January 31, 1987).

EPA also pursuant to court order, released on April 30, 1987, its Interim Report, a compilation of documents prepared by contractors for the Office of Solid Waste, U.S. Environmental Protection Agency. *See* OFFICE OF SOLID WASTE, EPA INTERIM REP., Waste from the Exploration, Development, and Production of Crude Oil, Natural Gas and Geothermal Energy (April 30, 1987). The Interim Report provides an overview of the oil and gas industry, discussing current and alternative waste disposal practices in oil and gas damage cases; human health and environmental risk assessment; current waste management practices and the economic impact of alternative waste management practices as well as current waste management practices in the oil and gas industry. The report also analyzes existing state and federal regulatory programs impacting on oil and gas operations.