

February 2005

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Timothy O. Schimpf, *Unleash RCRA! Letting Loose the Corrective Action Process of RCRA Can Change the World*, 29 Wm. & Mary Env'tl. L. & Pol'y Rev. 481 (2005),
<https://scholarship.law.wm.edu/wmelpr/vol29/iss2/6>

UNLEASH RCRA!

LETTING LOOSE THE CORRECTIVE ACTION PROCESS OF RCRA CAN CHANGE THE WORLD

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INTRODUCTION

The Resource Conservation and Recovery Act (“RCRA”),¹ one of the most radical environmental laws ever created, has the potential to rapidly clean every active facility that treats, stores, or disposes of hazardous waste. Yet it remains mired in procedure as these facilities continue to pollute the environment. Despite some recent success, corrective action has not achieved RCRA’s potential for expeditious cleanup as paperwork and procedure has continually bogged down the process.

This Note details RCRA corrective action procedure, its history, and how, after many years of ineffective proposal regulations, the Environmental Protection Agency (“EPA”) has finally made some cleanup progress. The proposed corrective action between Dow Chemical and the State of Michigan brings this system to light and shows how safeguards have prevented Dow from escaping cleanup. Finally, the Note presents a few recommendations on how to unleash RCRA to increase the efficiency of the system and to use RCRA to its full potential.

I. RCRA

A. RCRA Early History

Congress enacted RCRA as an amendment to the Solid Waste Disposal Act in 1976.² “RCRA generally focuses on the

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¹ 42 U.S.C. §§ 6901-6992k (2000).

² *Id.* RCRA only applies to “solid waste” but this term includes garbage, sludge, or air pollution in the form of a “solid, liquid, semisolid, or contained gaseous material.” *Id.* § 1004(27).

problems associated with handling and disposal of the billions of tons of discarded material generated in this country each year, from household trash, to sewage sludges, to highly complex chemical substances.”³ RCRA divides facilities⁴ that contain hazardous waste into three broad categories: (a) generator, (b) transporter, and (c) treater, storer, or disposer (“TSD”).⁵ Facilities can fit into one or more of these categories.⁶

RCRA did not have any effect until 1980, when EPA adopted regulations implementing its provisions.⁷ In order to execute RCRA, EPA created a “cradle-to-grave” tracking system for hazardous waste.⁸ Generators of hazardous wastes must ensure that their wastes are treated or disposed according to RCRA specifications and must follow paperwork and recordkeeping requirements.⁹ Transporters must ensure that their vehicles meet structural specifications and must also follow paperwork and recordkeeping requirements.¹⁰

TSD facilities have far more requirements than generators or transporters.¹¹ Each TSD facility may have a number of solid

³ Joseph F. Guida, *Corrective Action Under the Resource Conservation and Recovery Act*, 44 Sw. L.J. 1331, 1333 (1991).

⁴ EPA defines “facility” as the entire property site and “not limited to those portions of the owner’s property at which units for the management of solid or hazardous waste are located, but rather extends to all contiguous property under the owner or operator’s control.” 50 Fed. Reg. 28,702, 28,712 (1985). This definition was upheld in *United Techs. Corp. v. Env’tl. Prot. Agency*, 821 F.2d 714 (D.C. Cir. 1987).

⁵ 40 C.F.R. §§ 262-265 (2003).

⁶ *Id.*

⁷ *Id.* §§ 262-263.

⁸ Guida, *supra* note 3, at 1334. See Resource Conservation Recovery Act, § 42 U.S.C. § 6930 (2000) (notification of hazardous waste management activity); § 6922 (generator manifesting); § 6923 (transporter manifesting); § 6924 (treatment, storage, and disposal facility manifesting). EPA’s rules implementing the manifest system are set forth at 40 C.F.R. §§ 262.23 (2003) (generator), 263.20 (transporter), and 265.71 (treatment, storage, and disposal facilities).

⁹ 40 C.F.R. § 262 (2003).

¹⁰ *Id.* § 263.

¹¹ *Id.* §§ 124, 264-265.

waste management units (“SWMUs”), such as storage tanks, treatment units, or land disposal units.¹² All TSD facilities must obtain a permit through a process which, while time-consuming, is vital because the requirement of public notice and hearing can serve as a safeguard against corruption.¹³ Permits must be periodically reviewed and renewed.¹⁴ Once a TSD obtains a permit, it must go through the closure process to stop managing hazardous waste.¹⁵ Closure demands “arduous regulatory requirements.”¹⁶ Every TSD facility must be “clean closed” so no traces of hazardous constituents exist in the site groundwater or soil, a process that entails expensive and time-consuming cleaning.¹⁷

The early version of RCRA, as implemented by EPA, primarily prevented future hazardous waste problems.¹⁸ A corrective action procedure existed, but its scope was severely limited and its impact minimal.¹⁹ In 1984, Congress enacted the Hazardous and Solid Waste Amendments and revolutionized the effect and impact of RCRA.²⁰ Congress made “sweeping and ambiguous” changes to the corrective action process that vastly expanded the role of the corrective action to give EPA tremendous administrative power.²¹

¹² Resource Conservation Recovery Act § 1004(28), 42 U.S.C. § 6903(28) (2000) (stating that “solid waste management” means the systematic administration of activities which provide for the collection, source separation, storage, transportation, transfer, processing, treatment, and disposal of solid waste”).

¹³ 40 C.F.R. § 124 (2003).

¹⁴ *Id.* § 270.50.

¹⁵ *Id.* §§ 264.110-.120, .178, .197, .228, .258, .280, .310, .351.

¹⁶ Richard G. Stoll, *The New RCRA Cleanup Regime: Comparisons and Contrasts with CERCLA*, 44 Sw. L.J. 1299, 1303 (1991).

¹⁷ See *supra* note 15 and cited C.F.R. sections.

¹⁸ Stoll, *supra* note 16, at 1300.

¹⁹ See 40 C.F.R. §§ 264.90-.101 (2003).

²⁰ Resource Conservation Recovery Act §§ 3004(u)-(v), 42 U.S.C. §§ 6924(u)-(v) (2000).

²¹ Guida, *supra* note 3, at 1336.

B. The Corrective Action: Statutes and Regulations

RCRA established a corrective action procedure with a minimal amount of statutory language. The entire corrective action process is set forth in just three small statute sections.²² Congress intended EPA to implement sections 3004(u) and (v) through regulations, whereas section 3008(h) allows EPA to require corrective action through an administrative order.²³

Section 3004(u) of RCRA requires "corrective action for all releases of hazardous waste or constituents from any solid waste management unit at a treatment, storage, or disposal facility seeking a permit . . . regardless of the time at which waste was placed in such unit."²⁴ The permits must include "schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit) and assurances of financial responsibility for completing such corrective action."²⁵

Not only does RCRA require corrective action on TSD facility sites, but its section 3004(v) also requires corrective action "beyond the facility boundary where necessary to protect human health and the environment."²⁶ TSD facility owners do not need corrective action beyond the facility if the owner "demonstrates to the satisfaction of the Administrator that, despite the owner or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such action" on land beyond the facility.²⁷

If EPA "determines that there is or has been a release of hazardous waste into the environment from a facility . . . the Administrator may issue an order requiring corrective action or such other response measure as he deems necessary to protect

²² §§ 3004(u)-(v); § 3008(h).

²³ *Id.*

²⁴ *Id.* § 3004(u).

²⁵ *Id.*

²⁶ *Id.* § 3004(v).

²⁷ *Id.*

human health or the environment”²⁸ EPA can also “commence a civil action in the United States district court in the district in which the facility is located for appropriate relief, including a temporary or permanent injunction.”²⁹

Despite the fact that Congress ordered EPA to implement the corrective action process through regulations, over twenty years later the agency has still not codified any formal corrective action regulations except for a few minor codifications.³⁰ EPA issued proposed regulations in 1990 that would have established requirements for conducting remedial investigations, evaluating potential remedies, and selecting and implementing remedies at facilities that required corrective action for hazardous waste releases.³¹ States and environmental groups criticized these regulations as overemphasizing procedure and reports rather than actual progress of cleanup.³² In 1996, EPA issued an advance

²⁸ Resource Conservation Recovery Act § 3008(h)(1), 42 U.S.C. § 6928(h)(1) (2000).

²⁹ *Id.*

³⁰ *Id.* § 2924(u). EPA did adopt two minor codification rules. On July 15, 1985, EPA reiterated the statutory language of section 3004(u) in 50 Fed. Reg. 28,702, 40 C.F.R. §§ 264.90(a)(2) and 264.101. On December 1, 1987, EPA issued a companion rule to its previous codification rule in 52 Fed. Reg. 45,788, 40 C.F.R. pts. 144, 264, 265, 270, and 271. EPA has also issued rules establishing procedures for agency hearings on the issuance of unilateral corrective action order. 40 C.F.R. pts. 22, 24 (2003). The D.C. Circuit upheld these rules in the face of a constitutional due process challenge. *See generally* Chem. Waste Mgmt. v. U.S. Env'tl. Prot. Agency, 873 F.2d 1477 (D.C. Cir. 1989).

³¹ Corrective Action for Solid Waste Management Units (SWMUs) at Hazardous Waste Management Facilities, 55 Fed. Reg. 30,798 (July, 27, 1990) (to be codified at 40 C.F.R. pts. 264-65, 270-71) [hereinafter 1990 Proposed Rule]. The proposed regulations would have created a new Subpart S in 40 C.F.R. Part 264. The Subpart S proposal intended to establish “a comprehensive regulatory framework” for corrective actions. *Id.* at 30,798-99 (1990).

³² The concerns of the states, environmental groups, and regulatory community included “slow progress in achieving cleanup or other environmental results; an emphasis on process and reports over actual work in the field; unrealistic, impractical or overly conservative cleanup goals; excessive and detailed oversight; reluctance to authorize or recognize the work of state cleanup programs; and, lack of meaningful public participation.” Corrective Action for Releases

notice of proposed rulemaking as part of an effort to re-evaluate RCRA corrective action program.³³ EPA indicated that it would seek to implement more corrective actions instead of pursuing final, comprehensive remedies at a few facilities.³⁴

from Solid Waste Management Units at Hazardous Waste Management Facilities, 61 Fed. Reg. 19,432, 19,435 (May 1, 1996) (to be codified at 40 C.F.R. ch.1) [hereinafter 1996 Proposed Rule].

³³ *Id.* at 19,432. EPA identified the following five objectives in reevaluating the proposed 1990 regulations:

- (1) Create a consistent, holistic approach to cleanups at RCRA facilities;
- (2) Establish protective, practical cleanup expectations;
- (3) Shift more of the responsibilities for achieving cleanup goals to the regulated community;
- (4) Focus on opportunities to streamline and reduce costs; and,
- (5) Enhance opportunities for timely, meaningful public participation.

Id. at 19,435.

³⁴ *Id.* at 19,436. The 1996 re-evaluation identified major corrective developments since the proposed regulations of 1990. (1) Stabilization Initiative: Early implementation of the corrective action process had focused on complete and final corrective actions at a small number of facilities. *Id.* EPA and the states soon realized that comprehensive, corrective action was time-consuming and diverted resources from even minimal, corrective action at other sites. *Id.* EPA implemented the Stabilization Initiative "to achieve an increased overall level of environmental protection by implementing a greater number of actions across many facilities rather than following the more traditional process of pursuing final, comprehensive remedies at a few facilities." 1996 Proposed Rule, *supra* note 32, at 19,436. (2) Environmental Indicators for Corrective Action: Instead of focusing on administrative process and paperwork to determine progress of a corrective action, EPA now focuses management of corrective action on two environmental indicators: Human Exposures Controlled Determination and Groundwater Releases Controlled Determination. *Id.* (3) Consistency of Corrective Action: Corrective Action is a remedy individual to each facility, but in order to promote consistency, EPA proposed a Corrective Action Plan that "provides an overall program implementation framework and model scopes of work for site characterizations, interim actions, evaluation of remedial alternatives and remedy implementation. Program implementors and facility owners/operators can use these model scopes of work when developing site-specific strategies, work plans, and schedules of compliance." *Id.* at 19,437.

In 1999, EPA formally withdrew its regulations proposal because it concluded that the current regulations gave it an adequate basis upon which to authorize state corrective action programs, that additional regulations might disrupt authorized state programs, and that new rules were not necessary to ensure that affected parties had an opportunity to influence its corrective action decisions.³⁵ EPA had difficulty trying to create a uniform regulatory system for all corrective actions because of the great differences between corrective actions at different facilities.³⁶ When the proposed guidelines were used, they were often “implemented prescriptively and the intended flexibility underused.”³⁷

The only portion of the 1990 proposed regulations that were finalized dealt with corrective action management units (“CAMUs”) and temporary units (“TUs”).³⁸ CAMUs and TUs manage wastes generated at a TSD facility, not from ongoing production processes, but during the course of corrective actions.³⁹ The rule, finalized in 1993, gave agencies “considerable flexibility . . . to tailor design, operating, closure and post-closure, and waste treatment requirements to site- and waste-specific conditions. This approach allowed a significantly broader range of cleanup options

³⁵ Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facilities, 64 Fed. Reg. 54,604 (Oct. 7, 1999) (to be codified at 40 C.F.R. pt. 264) [hereinafter Corrective Action].

We plan to withdraw most of the proposed rule because we have determined that such regulations are not necessary to carry out the Agency’s duties under sections 3004(u) and (v). Additionally, attempting to promulgate a comprehensive set of RCRA regulations at this time could unnecessarily disrupt the 33 State programs already authorized to carry out the Corrective Action Program in lieu of EPA, as well as the additional State programs currently undergoing review for authorization. This decision will end uncertainty related to this rulemaking for State regulators and owners and operators of hazardous waste management facilities.

Id.

³⁶ *Id.* at 54,606.

³⁷ *Id.*

³⁸ Corrective Action Management Units and Temporary Units; Corrective Action Provisions Under Subtitle C, 58 Fed. Reg. 8658 (Feb. 16, 1993) (to be codified at 40 C.F.R. pts. 260, 264-65, 268, 270-71).

³⁹ *Id.* at 8659.

at individual sites and has led, at individual sites, to prompt and more aggressive cleanup.”⁴⁰ In 2001, EPA amended CAMU rules to establish specific definitions of wastes eligible for placements in CAMUs,⁴¹ detailed minimum design and operation standards for CAMUs,⁴² and specific treatment standards for wastes put in CAMUs.⁴³

Without formal regulations, EPA has implemented the corrective action program largely through policy statements and technical guidance documents.⁴⁴ EPA believes that “by focusing [its] resources on developing guidance and training, rather than a final rule, [it] can provide sufficient guidelines for the areas of the program not governed by procedural regulations, but in a more flexible format.”⁴⁵ While providing flexibility, its approach does little for uniformity and “appears to leave much of the program to

⁴⁰ Amendments to the Corrective Action Management Unit Rule, 67 Fed. Reg. 2962, 2964 (Jan. 22, 2002) (to be codified at 40 C.F.R. pts. 260, 264, 271) [hereinafter Amendments].

⁴¹ “CAMU-eligible waste” means:

(i) All solid and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris, that are managed for implementing cleanup. As-generated wastes (either hazardous or non-hazardous) from ongoing industrial operations at a site are not CAMU-eligible wastes.

40 C.F.R. § 264.552(a)(1) (2003). The definition also distinguishes between as-generated and cleanup wastes, includes intact and substantially intact tanks, allows for nonhazardous, as-generated wastes to be placed in CAMUs if placement would help treatment, and allows the regional administrator to disallow the placement of certain types of waste in CAMUs. *Id.* § 264.552.

⁴² EPA added requirements that operators must meet minimum liner requirements for new or replacement CAMUs, minimum design criteria for CAMU caps, and “must notify and take corrective action, as necessary to protect human health and the environment, for any releases from CAMUs to ground water.” Amendments, *supra* note 40, at 2977. See 40 C.F.R. § 264.552(e) (2003).

⁴³ “[P]rincipal hazardous constituents,” under the amendments, “must meet either minimum national treatment standards adapted from the LDR Phase IV soil treatment standards or, in specific circumstances, site-specific treatment standards based on defined adjustment factors.” Amendments, *supra* note 40, at 2981. See 40 C.F.R. § 264.552(e)(4) (2003).

⁴⁴ Corrective Action, *supra* note 35, at 54,607.

⁴⁵ *Id.*

be developed on an *ad hoc* basis by regional and headquarters enforcement personnel.”⁴⁶

C. State Administration of RCRA

EPA has delegated its authority under RCRA to state governments and state cleanup programs, allowing them to operate under the auspices of the federal RCRA program.⁴⁷ Each state enacts legislation meeting RCRA requirements, which is approved by EPA.⁴⁸ For example, in 1986, EPA granted the State of Michigan the authority to administer a hazardous waste program in Michigan instead of the federal program.⁴⁹

Once EPA approves a state program, state laws apply to its administration, but EPA preserves authority to enforce waste permits issued under the state program and to take administrative, civil, or criminal actions against violators.⁵⁰ After approval, if EPA becomes dissatisfied with the state program or the state's enforcement activities, EPA can revoke the permit that granted authority for the state program because of the state's failure to meet specified standards.⁵¹ EPA can also overfile, which allows it to intervene in a state action.⁵²

⁴⁶ Guida, *supra* note 3, at 1337.

⁴⁷ Resource Conservation and Recovery Act § 3006(b), 42 U.S.C. § 6926(b) (2000).

Any State which seeks to administer and enforce a hazardous waste program . . . may develop and . . . submit to [EPA] an application . . . for authorization Such State is authorized to carry out such program in lieu of the Federal program . . . and to issue and enforce permits for the storage, treatment, or disposal of hazardous waste

Id.

⁴⁸ *Id.*

⁴⁹ See 40 C.F.R. § 272.1150-.1199 (2004).

⁵⁰ RCRA § 3008.

⁵¹ *Id.* § 3006(e). “Whenever the Administrator determines . . . that a State is not administering and enforcing a program . . . in accordance with requirements of this section, he shall so notify the State and, if appropriate corrective action is not taken within a reasonable time . . . the Administrator shall withdraw authorization of such program” *Id.*

⁵² See *id.* § 3008. Overfiling occurs “[w]hen the EPA exercises its authority to prosecute an alleged violator in an approved state that has already initiated its

Tension exists between EPA and the states. For many years, EPA quantitatively measured state success through paperwork, and not necessarily cleanup results, while states pushed for actual cleanup.⁵³ Although EPA has reformed its approach, states still believe they do a better job of handling enforcement and want to develop methods in response to their needs.⁵⁴ "EPA's perspective appears to be that they own the ranch and that we, the States, are the hired ranch hands."⁵⁵ States want more independence to conduct their programs and enforcement audits.⁵⁶

D. RCRA's Relationship With CERCLA

Facilities that release hazardous substances may be liable for cleanup under the more well-known, federal Comprehensive Environmental Response, Compensation, and Liability Act, ("CERCLA"), or "Superfund."⁵⁷ Any hazardous substance designated by EPA under the Clean Air Act,⁵⁸ the Clean Water Act,⁵⁹ the Toxic Substances Control Act,⁶⁰ or RCRA⁶¹ falls under CERCLA. EPA must also designate any additional substances,

own enforcement action for the same requirements against the same defendant." William Daniel Benton, *Application of Res Judicata and Collateral Estoppel to EPA Overfiling*, 16 B.C. ENVTL. AFF. REV. 199, 203-04 (1988).

⁵³ For a discussion of RCRA implementation, see *infra* Part II.B.

⁵⁴ See *Environmental Self Audits: Hearings Before the Subcomm. On Oversight and Investigators of the House Commerce Comm.*, 105th Cong. 48 (1998) (statement of Hon. Gale A. Norton, Attorney General, State of Colorado); *States Report Progress on Relationship with Federal Government on Enforcement*, 28 ENV'T REP. CURRENT DEV. 322 (BNA) (June 13, 1997).

⁵⁵ *The Relationship Between the Federal and State Governments in the Enforcement of Environmental Laws: Hearing Before the S. Comm. on Env't and Pub. Works*, 105th Cong. 198 (1997) (prepared statement of Patricia S. Bangert, Director of Legal Policy, Attorney General's Office, State of Colorado).

⁵⁶ *Id.*

⁵⁷ 42 U.S.C. §§ 9601-9675 (2000). For a general overview of CERCLA, see John C. Cruden, *CERCLA Overview*, ALI-ABA COURSE OF STUDY MATERIALS, June 2003.

⁵⁸ CERCLA § 101(14). See also 33 U.S.C. § 1317(a) (2000).

⁵⁹ CERCLA § 101(14). See also 15 U.S.C. § 2606 (2000).

⁶⁰ CERCLA § 101(14). See also 42 U.S.C. § 6921 (2000).

⁶¹ CERCLA § 101(14). See also 42 U.S.C. § 6921 (2000).

other than petroleum and natural gas,⁶² that are dangerous to human health or the environment.⁶³

CERCLA covers a broader range of hazardous substances than RCRA. For example, the substance must be a waste to trigger RCRA, whereas any substance falls under CERCLA.⁶⁴ In addition, CERCLA grants EPA jurisdiction over pollutants or contaminants,⁶⁵ which are substances that are not on CERCLA's hazardous substance list but "will or may reasonably be anticipated to cause" any type of adverse effects on human health or the environment.⁶⁶

EPA intended its corrective action program to have more flexibility than CERCLA's method, especially in sampling, analysis, and nature and extent of studies.⁶⁷ "RCRA cleanups will be less complex and less expensive than those under CERCLA, and less detailed study will be required before remedial action begins."⁶⁸ RCRA facilities are also supposed to have greater flexibility to select and implement remedies than CERCLA facilities.⁶⁹ For example, unlike CERCLA facilities,⁷⁰ RCRA facilities may frequently be able to propose a single remedial alternative.⁷¹

CERCLA handles the biggest cleanups, while RCRA is intended for smaller, individual facilities. "Most RCRA facilities pose significantly lower environmental and human health risks than Superfund sites, and therefore the need to pursue complete cleanup at such [RCRA] facilities will often be less urgent."⁷² Both CERCLA and RCRA may apply to a single facility, but EPA

⁶² CERCLA § 101(14), § 102(a).

⁶³ Comprehensive Environmental Response, Compensation and Liability Act § 101(14), 42 U.S.C. § 9601(14) (2000).

⁶⁴ 40 C.F.R. pt. 261 app. VIII (1989).

⁶⁵ CERCLA § 102(a).

⁶⁶ *Id.* § 101(33).

⁶⁷ 1990 Proposed Rule, *supra* note 31, at 30,802.

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ National Oil and Hazardous Substances Pollution Contingency Plan, 55 Fed. Reg. 8666, 8712 (Mar. 8, 1990) (to be codified at 40 C.F.R. pt. 300) [hereinafter Contingency Plan].

⁷¹ *Id.* at 30,805.

⁷² 1990 Proposed Rule, *supra* note 31, at 30,833.

generally prefers RCRA when there is a current owner onsite and RCRA corrective action is an option.⁷³

II. CORRECTIVE ACTION IN ACTION

More than 5000 facilities, three times the number of sites on the National Priorities List under CERCLA, are subject to corrective action under RCRA.⁷⁴ All TSD facilities seeking a permit for hazardous waste must go through the corrective action process.⁷⁵

A. Corrective Action Process

Once EPA determines the facility is subject to corrective action, the process consists of four main steps: assessment, investigation, remedy selection, and remedy implementation.

1. RCRA Facility Assessment

The process for identifying all of the known SWMUs and Areas of Concern at a facility is RCRA Facility Assessment ("RFA").⁷⁶ Because of the subjective nature of the investigation, the RFA report is prepared, not by the facility owner, but by the state, EPA, or a contractor to the agencies.⁷⁷ The RFA consists of a preliminary review, visual site inspection, and sampling visit.⁷⁸

The investigator begins the preliminary review by reviewing available, written information such as permit applications, inspection reports, and CERCLA notifications.⁷⁹ The investigator

⁷³ *Id.* at 30,853.

⁷⁴ 1996 Proposed Rule, *supra* note 32, at 19,440.

⁷⁵ 40 C.F.R. 124, 264-265 (2003).

⁷⁶ U.S. ENVTL. PROT. AGENCY, OFFICE OF SOLID WASTE, RCRA FACILITY ASSESSMENT GUIDANCE 1-2 NTIS, Document No. PB 87-107769 (1986) [hereinafter RFA GUIDANCE].

⁷⁷ *Id.* at 1-5.

⁷⁸ *Id.* at 1-2, 1-3.

⁷⁹ *Id.* at 2-1.

may also interview facility employees, agency officials, and local residents.⁸⁰ The investigator may request, from the facility owner, any additional information that the investigator deems necessary.⁸¹

One of the most important parts of RCRA process, the visual site inspection, determines whether, and to what extent, sampling data should be obtained.⁸² The investigator visually inspects the facility and, depending upon whether the investigator believes a release has occurred, recommends a sampling.⁸³

The investigator takes a sampling, if necessary, to determine whether hazardous materials have seeped into the earth or water by testing all potential waste pathways.⁸⁴ The investigator needs to select the proper sampling method, parameters, and location.⁸⁵ The investigator must follow EPA quality guidelines and disclose, to the facility owner upon his or her request, a duplicate sampling.⁸⁶

After completion of the RFA, the investigator may make a recommendation for further action for a specific SWMU or for the entire facility.⁸⁷ The investigator's four possible recommendations are: 1) no further investigation necessary; 2) RCRA facility investigation required; 3) interim measures necessary at facility; and 4) facility should be referred to another EPA office.⁸⁸

The investigator can recommend interim actions, or, if an imminent threat is found at any time during the process, the state

⁸⁰ *Id.* at 2-1, 2-5, 2-6.

⁸¹ Section 3007 of RCRA grants EPA extensive authority to gather information. See 42 U.S.C. § 6927 (2000).

⁸² RFA GUIDANCE, *supra* note 76, at 3-6.

⁸³ *Id.* at 3-1, 3-7.

⁸⁴ *Id.* at 4-1.

⁸⁵ *Id.* at 4-3.

⁸⁶ *Id.* at 4-6 to -8, 4-11.

⁸⁷ *Id.* at 4-14.

⁸⁸ RFA GUIDANCE, *supra* note 76, at 4-16 to -18. A recommendation of no further action means either that there is no evidence to indicate that there has been a release from the unit or that the unit is being addressed under the permit or under a closure plan, both of which have specific requirements for corrective action. *Id.*

or EPA can require the facility to promptly conduct interim corrective measures.⁸⁹ Interim measures are taken to prevent more extensive environmental damage while permanent measures are decided.⁹⁰ Interim measures include source controls, such as run-off controls and temporary covers, and exposure controls, such as fences and alternative drinking water.⁹¹

2. RCRA Facility Investigation

The second stage of the corrective action process is the RCRA Facility Investigation ("RFI"). "The purpose of the RFI is to obtain information to fully characterize the nature, extent and rate of migration of releases of hazardous waste or constituents and to interpret this information to determine whether interim corrective measures and/or a Corrective Measures Study may be necessary."⁹² The investigation can concentrate on only one SWMU or can involve complex testing of multiple medias.⁹³ The facility prepares and submits work plans to investigate SWMUs that require further action.⁹⁴ Upon state or EPA approval of the investigation and sampling plans, the facility conducts sampling and submits the results in a report detailing the type, amount, and migration of wastes.⁹⁵ Based upon the findings, the state then determines which units require actual cleanup.

⁸⁹ 1990 Proposed Rule, *supra* note 31, at 30,839.

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² OFFICE OF SOLID WASTE, U.S. ENVTL. PROT. AGENCY, OSWER DIRECTIVE 9502.00-6D, INTERIM FINAL: RCRA FACILITY INVESTIGATION (RFI) GUIDANCE i (1989), *available at* <http://www.epa.gov/correctiveaction/resource/guidance/sitechar/rfi.htm>.

⁹³ *Id.* at 1-6.

⁹⁴ *Id.* at 1-7.

⁹⁵ *Id.* at 1-6. Characterization includes identification of the type and concentration of hazardous waste or hazardous constituents released, the rate and direction at which the releases are migrating, and the distance over which releases have migrated. *Id.*

3. Corrective Measures Study

The Corrective Measures Study ("CMS") "identif[ies] and evaluate[s] potential remedial alternatives for the releases that have been identified at a facility."⁹⁶ The owner of the facility submits the CMS report listing specific proposed cleanup options for those units determined to require actual cleanup and an assessment of the effectiveness and costs of each remedy.⁹⁷ The CMS report details how the proposed remedy would protect human health and the environment, the remedy's cleanup effectiveness, how the remedy would control sources of releases, how the remedy would comply with cleanup standards, and general factors, such as cost, short-term and long-term reliability, and implementation.⁹⁸ After a tentative decision is reached on how to clean up the units, the state and EPA require a public notice to solicit comments on the proposed remedy.⁹⁹

4. Corrective Measure Implementation

After public comments are considered, the Corrective Measures Study is given final approval.¹⁰⁰ The facility submits the Corrective Measures Implementation ("CMI") plan, the final detailed design for the cleanup. The purpose of the CMI is "to design, construct, operate, maintain and monitor the performance of the corrective measure."¹⁰¹ The CMI details a series of design plans: Conceptual Design, Operation and Maintenance, Construction, Health and Safety, Public Involvement, and Proposed Schedule.¹⁰²

⁹⁶ OFFICE OF WASTE PROGRAMS ENFORCEMENT, OFFICE OF SOLID WASTE, U.S. ENVTL. PROT. AGENCY, OSWER DIRECTIVE 9902.3-2A, RCRA CORRECTIVE ACTION PLAN (FINAL) 47 (1994), *available at* http://www.epa.gov/correctiveaction/resource/guidance/gen_ca/rcracap.pdf [hereinafter RCRA PLAN].

⁹⁷ *Id.* at 50-56.

⁹⁸ *Id.* at 52-54.

⁹⁹ *Id.* at 56-57.

¹⁰⁰ *Id.*

¹⁰¹ *Id.* at 59.

¹⁰² RCRA PLAN, *supra* note 96, at 61-62.

*B. The Long Road to Implementation***1. 1984 to 1997: Age of Regulatory Uncertainty Leads to Little Cleanup**

The road to implementation of corrective action at facilities has been rocky. In 1993, the U.S. General Accounting Office ("GAO") reported that EPA data showed that only about 1% of the 3700 permitted, contaminated facilities had undertaken cleanup actions.¹⁰³ By 1997, only 8% had completed cleanup, including only 5% of the highest priority sites.¹⁰⁴ Of those not completed, 17% had implemented cleanup remedies, 14% had taken some action to contain contamination so it did not threaten human health or the environment, and 14% had investigated contamination.¹⁰⁵ Fifty-six percent of the facilities, including 35% of the highest priority sites, had yet to begin the formal cleanup process.¹⁰⁶

EPA did little to implement RCRA in its initial years but, as it gradually began to do so, managed to create a procedure so burdensome that over half the facilities had not even begun cleaning up thirteen years after RCRA's creation.¹⁰⁷ Four key factors slowed implementation. First, the cumbersome nature of RCRA's early corrective action process proved costly and time-consuming due to multiple report and review requirements.¹⁰⁸ Facility owners complained that the rigid process caused EPA officials to focus on making the facility comply with every minute

¹⁰³ U.S. GEN. ACCOUNTING OFFICE, GAO/RCED-93-15, HAZARDOUS WASTE: MUCH WORK REMAINS TO ACCELERATE FACILITY CLEANUPS 1 (1993).

¹⁰⁴ U.S. GEN. ACCOUNTING OFFICE, GAO/RCED-98-3, HAZARDOUS WASTE: PROGRESS UNDER THE CORRECTIVE ACTION PROGRAM IS LIMITED BUT NEW INITIATIVES MAY ACCELERATE CLEANUPS 1 (1997) [hereinafter 1997 GAO REPORT].

¹⁰⁵ *Id.* at 2.

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.* at 9.

procedural detail of the cleanup rather than whether the facility met its cleanup goals and objectives.¹⁰⁹ The detailed CMS requirements created a costly paperwork burden that was largely unnecessary for many facilities.¹¹⁰ The rigidity of EPA procedures did not come from RCRA, but from EPA CERCLA procedures.¹¹¹ EPA officials admitted that instead of coming up with a flexible RCRA process, they had simply copied the detailed procedural steps of CERCLA.¹¹²

The disagreement between companies, states, and EPA over the appropriate remedies and cleanups caused numerous delays because of prolonged negotiations and further studies.¹¹³ Part of the disagreement arose over the RFA recommendations and the type of RFI and CMS required.¹¹⁴ EPA held facilities in different regions to different standards, even similar facilities of the same company in different regions.¹¹⁵ Even worse, regulators for EPA and the state, when both had oversight, often disagreed over facility cleanup standards and imposed duplicative requirements on facilities.¹¹⁶

Facilities' lack of desire to clean slowed and continues to slow implementation. EPA and states must guide facilities because if they do not order facilities to perform corrective actions, then a facility would only perform the corrective action if in its business interest.¹¹⁷ Some motivations, such as liability to the public, are enough to cause facilities to ensure that they are not a threat to human safety but are not enough to cause operators to extensively

¹⁰⁹ *Id.* One facility complained that it used most of the \$28 million it spent on cleanup investigation, not for actual cleanup, but instead to comply with EPA procedural requirements. 1997 GAO REPORT, *supra* note 104, at 9.

¹¹⁰ *Id.*

¹¹¹ *Id.* at 10.

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ *Id.* at 11.

¹¹⁵ 1997 GAO REPORT, *supra* note 104, at 11.

¹¹⁶ *Id.* At one facility, it took four years to resolve the differences between state and EPA requirements for closing a landfill. *Id.*

¹¹⁷ *Id.* at 12.

clean their facilities.¹¹⁸ Some facilities began cleanup investigations before EPA involvement in order to save money by avoiding EPA procedures, but the uncertainty of EPA requirements discouraged most from being proactive.¹¹⁹

Finally, the lack of federal and state resources to initiate or oversee cleanups has prevented facilities from even starting and prevents oversight of ongoing cleanups.¹²⁰ Facilities have complained that, although they have waited years for EPA to oversee their cleanups, EPA has been unable to provide assessments because of its massive work backlog.¹²¹ EPA did not assess lower priority facilities until the early 1990s.¹²² Its work backlog was the reason EPA authorized states to implement the corrective action program, and this authorization helped decrease backlog.¹²³ Despite the states' help, however, resources remained limited. For example, in fiscal year 1997, the Philadelphia region had the resources to start cleaning only four of sixty-nine high-priority facilities and none of eighty-six lower-priority facilities.¹²⁴

2. 1997 to 2003: RCRA Reforms Lead to Progress

New initiatives taken by EPA resulted in progress by 2000,¹²⁵ when GAO reported on 1112 high priority facilities it had first studied in 1997.¹²⁶ While the number of cleaned facilities had grown from fifty-seven to only seventy-two, the number of facilities that had not started cleanup had shrunk from 325 to 114, a drop in facilities from 29.2% to 10.3%.¹²⁷ As facilities had investigated

¹¹⁸ *Id.*

¹¹⁹ *Id.*

¹²⁰ 1997 GAO REPORT, *supra* note 104, at 13.

¹²¹ *Id.* at 14.

¹²² *Id.*

¹²³ *Id.* at 14-15.

¹²⁴ *Id.* at 15.

¹²⁵ See U.S. GEN. ACCOUNTING OFFICE, GAO/RCED-00-224, HAZARDOUS WASTE: EPA HAS REMOVED SOME BARRIERS TO CLEANUPS (2000) [hereinafter 2000 GAO REPORT].

¹²⁶ *Id.* at 15 n.8.

¹²⁷ *Id.* at 16.

and begun to implement remedies, the number of facilities with contamination under control had grown from 82 (7.4%) to 189 (17%).¹²⁸ The number of facilities implementing final remedies had grown from 142 (12.8%) to 231 (20.8%).¹²⁹

The primary reason for this progress was the decision to abandon the stringent 1990 proposed rules.¹³⁰ Focus had shifted from following procedural steps to achieving results.¹³¹ EPA was holding facilities accountable based not on the number of procedural steps they had completed, but instead on cleanup results.¹³² EPA was giving facilities flexibility to determine their cleanup based on projected future use of the land, greatly reducing procedures on future, industrial-use lands because facilities no longer had to meet stringent residential cleanup standards.¹³³

To measure cleanup results, EPA developed RCRA Corrective Action Environmental Indicators ("EI").¹³⁴ The two EIs, now the top priority of RCRA, evaluate and report acceptability of current site conditions.¹³⁵ The Current Human Exposures Under Control ("Human Exposure EI") is a qualitative assessment of the risk of human exposure.¹³⁶ Human exposure is under control "when there are no unacceptable risks to humans due to releases

¹²⁸ *Id.*

¹²⁹ *Id.*

¹³⁰ See Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facilities, 64 Fed. Reg. 54,604 (1999).

¹³¹ See Corrective Action for Releases From Solid Waste Management Units at Hazardous Waste Management Facilities, 61 Fed. Reg. 19,432 (May 1, 1986).

¹³² *Id.* at 19,435.

¹³³ *Id.* at 19,436.

¹³⁴ Hazardous Waste Management Facilities, 61 Fed. Reg. 19,432, 19,436-37 (1999). See SOLID WASTE AND EMERGENCY RESPONSE, U.S. ENVTL. PROT. AGENCY, HANDBOOK OF GROUNDWATER PROTECTION AND CLEANUP POLICIES FOR RCRA CORRECTIVE ACTION 2.1-7 (2004), available at <http://www.epa.gov/epaoswer/hazwaste/ca/resource/guidance/gw/gwhandbk/gwhb041404.pdf> [hereinafter EPA HANDBOOK]. The EI reform first began in response to the Government Performance and Results Act of 1993, Pub. L. No. 103-62, 107 Stat. 285 (1993) (codified in scattered sections of 31 U.S.C.).

¹³⁵ EPA HANDBOOK, *supra* note 134, at 2.1.

¹³⁶ Corrective Action for Releases from Solid Waste Management Units at Hazardous Waste Management Facilities, 61 Fed. Reg. 19,432, 19,436 (1999).

of contaminants at or from the facility.”¹³⁷ The Migration of Contaminated Groundwater Under Control (“Groundwater EI”) is an assessment of risk to environmental resources from contaminated groundwater.¹³⁸ Groundwater contamination is under control when facilities control “the migration of groundwater contamination at or from the facility across designated boundaries.”¹³⁹ State or EPA regulators use a simple EPA EI form to analyze basic conditions at each facility.¹⁴⁰ The result of the EI is: “YES,” meaning that the conditions are under control; “NO,” meaning that the conditions are not under control; or “IN,” meaning that there was insufficient data to determine if the conditions are under control.¹⁴¹

The purpose of the EI is to stabilize all RCRA facilities and begin cleanup, but it serves as an indicator of only current exposure at the facility and not of final cleanup.¹⁴² The EI does not address whether corrective action is complete at the site, whether remedial long-term goals are met, or the safety of the site for future land use.¹⁴³

EPA sets performance goals of conditions under control, at high priority facilities, for 95% of Human Exposure EI and for 70% of Groundwater EI.¹⁴⁴ As of February 2, 2005, 1167 of 1714 facilities, or 68%, had a “YES” on both Human Exposure EI and Groundwater EI.¹⁴⁵

Another reason for the progress in cleanup occurred in 1998, when EPA issued a guidance document on remediation waste management.¹⁴⁶ This document clearly explained several policies,

¹³⁷ *Id.*

¹³⁸ *Id.*

¹³⁹ *Id.*

¹⁴⁰ OFFICE OF SOLID WASTE, U.S. ENVTL. PROT. AGENCY, GUIDANCE FOR RCRA CORRECTIVE ACTION ENVIRONMENTAL INDICATORS 3 (1999).

¹⁴¹ *Id.*

¹⁴² EPA HANDBOOK, *supra* note 134, at 2.6.

¹⁴³ *Id.*

¹⁴⁴ *Id.* at 2.1.

¹⁴⁵ ENVTL. PROT. AGENCY, FACILITIES HAVING BOTH EIS (YES/YES), THAT ARE FACILITIES ON THE RCRA GPRA CLEANUP BASELINE 2 (2004), *available at* <http://www.epa.gov/correctiveaction/eis/verfd.pdf>.

¹⁴⁶ 2000 GAO REPORT, *supra* note 125, at 7.

previously unknown or unclear to state and regional administrators, which would allow some facilities, in certain circumstances, to manage remediation waste without corrective action.¹⁴⁷ With this added guidance, state administrators have reported great success in using alternative means, without corrective action, to properly handle waste.¹⁴⁸

In 1998, EPA also finalized a rule intended to ease procedural burdens of managing remediation waste and to allow easier, short-term storage for remediation waste.¹⁴⁹ This rule made a significant procedural change by allowing facilities that did not want RCRA permits, but still conducted cleanup actions, to manage cleanup in stages instead of requiring facility-wide cleanup.¹⁵⁰ EPA also adopted less stringent soil standards, which was a significant incentive for facility owners.¹⁵¹

3. 2003-2008: RCRA Reforms in the Future

EPA's strategic plan for 2003-2008 establishes a road map for EPA governance, including a RCRA goal of moving toward more final remedies.¹⁵² EPA will complete a new list of high priority facilities by the end of fiscal year 2004.¹⁵³ By the end of fiscal year 2008, EPA goals are to assess every new RCRA baseline facility,

¹⁴⁷ *Id.* For example, when a facility has made a good faith effort to determine if a substance is a hazardous waste, but the results are inconclusive, the facility operators may assume that the substance is not hazardous if it does not display hazardous material characteristics. *Id.* In another example, facilities can consolidate adjacent, different wastes. *Id.* In a further example, facilities can exclude remediation waste from RCRA requirements if the waste poses no threat to human health. *Id.* at 7-8.

¹⁴⁸ *Id.* at 7.

¹⁴⁹ The Hazardous Remediation Waste Management Requirements (HWIR-Media): Final Rule, 40 C.F.R. pt. 260 (1998).

¹⁵⁰ 2000 GAO REPORT, *supra* note 125, at 8.

¹⁵¹ *Id.*

¹⁵² U.S. ENVTL. PROT. AGENCY, 2003-2008 EPA STRATEGIC PLAN: DIRECTION FOR THE FUTURE 59 (2003), *available at* <http://www.epa.gov/ocfopage/plan/2003sp.pdf> [hereinafter 2008 STRATEGIC PLAN].

¹⁵³ *Id.* at 64.

to limit all human exposures from site contamination to health-based levels for current land and ground water use conditions at 95% of new RCRA baseline facilities, to control the migration of contaminated ground water at 80% of new RCRA baseline facilities, to select final remedies at 30% of new RCRA baseline facilities, and to complete construction of remedies at 20% of new RCRA baseline facilities.¹⁵⁴ Remedies must address the entire site and not just a partial remedy.¹⁵⁵

III. CASE STUDY: DOW AND MDEQ

Each facility deals with different requirements and procedures to formalize its corrective action, but, eventually, the facility and the government agree on a corrective action. One final step and safeguard, public scrutiny, remains for the corrective action. As the experiences of Dow Chemical prove, although corrective action entails expediency, it is not a way to circumvent environmental safety.

A. *Relevant Facts*

The Dow Chemical Company's headquarters have been on the banks of the Tittabawassee River in Midland, Michigan, since 1897.¹⁵⁶ In the past, it has manufactured chemicals like bleach, bromine, mustard gas, Agent Orange, chlorinated pesticides and chlorophenol.¹⁵⁷ Two byproducts of Dow's chemical manufacturing are highly toxic, hazardous wastes, polychlorinated dibenzo-p-dioxin ("CDDs") and chlorodibenzofurans ("CDFs") isomers,

¹⁵⁴ *Id.* at 64-65.

¹⁵⁵ *Id.*

¹⁵⁶ Sheila Schimpf, *More Samples Taken Near Dow Facility As Assessment of Dioxin Levels Continues*, 33 ENV'T REP. (BNA) No. 22, at A-7 (May 31, 2002) [hereinafter Schimpf, *More Samples*]. For a history of Dow Chemical, see generally E.N. BRANDT, GROWTH COMPANY: DOW CHEMICAL'S FIRST CENTURY (1997), DON WHITEHEAD, THE DOW STORY: THE HISTORY OF THE DOW CHEMICAL COMPANY (1968), and <http://www.dow.com>.

¹⁵⁷ Schimpf, *More Samples*, *supra* note 156, at A-7; Eric Pianin, *Mich. Weighs Lower Dioxin Standards: Engler's Critics Accuse Him of Giving Dow Chemical a 'Sweetheart Deal,'* WASH. POST, Dec. 6, 2002, at A02.

collectively called dioxin.¹⁵⁸ Dioxin causes cancer and numerous other health problems in humans and animals.¹⁵⁹

¹⁵⁸ U.S. DEP'T OF HEALTH AND HUMAN SERVS., PUB. HEALTH SERV., AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY, TOXICOLOGICAL PROFILE FOR CHLORINATED DIBENZO-P-DIOXINS 357 (1998) [hereinafter ATSDR FOR CDDs]; U.S. DEP'T OF HEALTH AND HUMAN SERVS., PUB. HEALTH SERV., AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY, TOXICOLOGICAL PROFILE FOR CHLORODIBENZOFURANS 111 (1994). Seventy-five different CDDs and 135 different CDFs, called "congener," have varying levels of toxicity, but only seven CDDs and ten CDFs have dioxin-like toxicity. *Id.* Dioxin is most commonly used in relation to 2,3,7,8-tetrachlorodibenzo-p-dioxin ("TCDD"), which is the most potent and well-studied of the dioxins. ATSDR FOR CDDs, *supra*, at 357. To demarcate the toxicity of dioxin compounds, each is assigned a toxic equivalency factor ("TEF") by rating each congener's toxicity relative to TCDD. NAT'L CTR. FOR ENVTL. ASSESSMENT, OFFICE OF RESEARCH AND DEV., U.S. ENVTL. PROT. AGENCY, EXPOSURE AND HUMAN HEALTH ASSESSMENT OF 2,3,7,8-TETRACHLORO-DIBENZO-P-DIOXIN (TCDD) AND RELATED COMPOUNDS 921 (2000), *available at* <http://www.epa.gov/ncea/pdfs/dioxin/part2/fm-chap9.pdf>. The health risk of each is measured in the congener's Toxic Equivalents ("TEQ"), determined by multiplying the concentration of a dioxin congener by its toxicity factor ("TEF"). *Id.* The total TEQ is then derived by adding all of the TEQ values for each congener. *Id.* A dioxin is frequently referred to in parts per trillion ("ppt") in reference to its TEQ. *Id.* The term "dioxin" is used here only in relation to those dioxins that are sufficiently toxic to have a TEF. *See also* Addition of Dioxin and Dioxin-Like Compounds; Modification of Polychlorinated Biphenyls ("PCBs") Listing; Toxic Chemical Release Reporting; Community Right-to-Know, 62 Fed. Reg. 24,887 (May 7, 1997) (to be codified at 40 C.F.R. pt. 372) (adding dioxin to the list of chemicals under the Emergency Planning and Community Right-to-Know Act of 1986).

¹⁵⁹ Studies have looked at the effect of dioxin on humans from direct exposure, such as Vietnam veterans' exposure to Agent Orange and mass industrial pollution in Times Beach, Missouri; Love Canal, New York; and Seveso, Italy. ATSDR FOR CDDs, *supra* note 158, at 9. Results are mixed because of unknown variables and the difficulty of isolating the dioxin effect from exposure to other chemicals. *Id.* Dioxin causes severe Chloracne, a skin disease, and EPA has deemed dioxin a human carcinogen. *Id.* at 10. According to the International Agency for Research on Cancer, 2,3,7,8-TCDD can cause human cancer. *Id.* In animal studies, dioxin has been linked to endometriosis immune-system-impairment, diabetes, neurotoxicity, birth defects, miscarriages, decreased fertility, testicular atrophy, reduced production of sperm, reproductive dysfunction, and cancer. *Id.* at 11-12.

Soil and sediment testing in the middle 1980s, 1996, and 1998 revealed high levels of dioxin on the Dow plant site and decreasing levels of dioxin on samples farther away from the plant.¹⁶⁰ Health problems attributed to dioxin poisoning have lingered for years in Midland, including reports of abnormal headaches, nosebleeds, oral pus sacs, seizures, birth defects, and mutated wildlife.¹⁶¹ Through testing, in early 2002, the Michigan Department of Environmental Quality ("MDEQ") determined that Dow was the source of highly dangerous levels of dioxin in the Tittabawassee River and its flood plain, downstream from Dow's facilities.¹⁶²

Dioxin's health risk is measured in parts per trillion ("ppt"), and Michigan law deems a dioxin level over ninety ppt unsafe for humans and requires immediate cleanup if such a level is measured in residential areas.¹⁶³ During testing in 2001, MDEQ took thirty-six initial samples from downriver areas lying within the Tittabawassee River floodplain and found dioxin levels ranging from thirty-five ppt to 7261 ppt.¹⁶⁴ On Dow property, the highest

¹⁶⁰ Schimpf, *More Samples*, *supra* note 156, at A-7.

¹⁶¹ STEPHEN M. ROSOFF ET AL., *PROFIT WITHOUT HONOR: WHITE-COLLAR CRIME AND THE LOOTING OF AMERICA* 142-43 (1998). Midland residents reported green deer meat, three-legged chickens, bald cows, backward-winged geese, and squirrels with no tails. *Id.* Residents suffered a variety of physical maladies, an infant mortality rate sixty-seven percent above normal, and birth deformities, including a girl born with black, rabbit-ear-shaped teeth. *Id.* "Dow Country" had dioxin levels six times higher than those at the Love Canal site in New York. *Id.* MDEQ tests revealed high levels of dioxin in local farmers' eggs that the farmers had consumed for some time. Dave Scroppo, *A Plan for Cleaning Up Dioxins Sets Off Anxiety: Would It Be Enough? Officials to Discuss Dow Proposal Today*, DETROIT FREE PRESS, Dec. 20, 2002, at A5, available at http://www.freep.com/news/mich/diox20_20021220.htm.

¹⁶² Allan B. Taylor & John McCabe, *Baseline Chemical Characterization of Saginaw Bay Watershed Sediments: A Report to the Office of the Great Lakes Michigan Department of Environmental Quality* 16, Environmental Management Division, MDEQ, Aug. 29, 2002, available at <http://www.deq.state.mi.us/documents/deq-rrd-dioxin-FinalReport.pdf>.

¹⁶³ Natural Resources and Environmental Protection Act, MICH. COMP. LAWS § 324.20120a (2004).

¹⁶⁴ DEQ Env'tl. Response Div., Mich. Dep't of Env'tl. Quality, *INFORMATION BULLETIN: TITTABAWASSEE/SAGINAW RIVER FLOOD PLAIN* (2002), available at

measured dioxin level on the perimeter was 1068 ppt, and the highest measured dioxin level along the route used by Dow vehicles was 2663 ppt.¹⁶⁵ The highest measured dioxin level, outside Midland, was thirty-five ppt.¹⁶⁶ In short, significant areas of soils at and near the Dow facility and in residential and other areas around Midland are currently contaminated with dioxin levels in excess of ninety ppt.

Governor John Engler's twelfth and final year in office was 2002.¹⁶⁷ The Engler administration had few policies protecting the environment but many policies favoring big businesses, such as Dow Chemical.¹⁶⁸ The Engler administration greatly influenced MDEQ through its director, Russell Harding.¹⁶⁹

As a TSD facility, Dow sought to renew its hazardous waste permit under RCRA. MDEQ and Dow created a proposal to enter into a corrective action consent order, pursuant to which Dow would clean up toxic waste in exchange for its release from pollution liability.¹⁷⁰ Instead of requiring the state law mandated

[http://www.deq.state.mi.us/documents/deq-erd-trf-DEQ-dioxin-bulletin-\(FINAL\).pdf](http://www.deq.state.mi.us/documents/deq-erd-trf-DEQ-dioxin-bulletin-(FINAL).pdf).

¹⁶⁵ *Id.*

¹⁶⁶ *Id.*

¹⁶⁷ The 46th Governor of Michigan, John Engler, was first elected in 1990 and won reelection in 1994 and 1998. For a biography on Governor Engler, see <http://www.michigan.gov/engler/>.

¹⁶⁸ "Engler treated Michigan's natural resources as an exploitable commodity, and some businesses and developers gleefully jumped on for the ride." *Time to Take the Profit Out of Flaunting the Law*, TRAVERSE CITY RECORD EAGLE, Aug. 24, 2003, at A5, available at <http://www.record-eagle.com/2003/aug/082403.htm>. "To the chagrin of many ethical, hardworking DEQ employees, the governor and [MDEQ Director Russell] Harding transformed the agency into a body that looked for ways to excuse polluters . . ." *Id.*

¹⁶⁹ A 1998 survey of MDEQ employees found great resentment toward Harding and Engler. Public Employees for Environmental Responsibility, 1998 *PEER Survey of Michigan's Department of Environmental Quality*, available at http://www.peer.org/publications/srvy_mi_deq2.html (last visited Feb. 1, 2005). Harding is called Engler's lackey and "Führer Harding. If he ever shakes your hand, be sure afterwards to count your fingers and wash off the slime." *Id.*

¹⁷⁰ See *In re Dow Chemical Co.*, Michigan DEQ, No. 111-**-02, REMEDIATION & REDEVELOPMENT DIV., MICH. DEP'T OF ENVTL. QUALITY, PROPOSED DOW CORRECTIVE ACTION CONSENT ORDER (2002), available at <http://www.ecocenter.org/releases/20021108consent.shtml> [hereinafter CONSENT ORDER]; Sheila Schimpf,

dioxin level of ninety ppt,¹⁷¹ the consent order attempted to establish an "interim action level" of 831 ppt, nearly ten times higher.¹⁷² This threshold "interim action level" would trigger Dow's responsibility to perform corrective action under the consent order, while any lesser level would not require action.¹⁷³ The "interim action level" may have later been increased, based on health studies.¹⁷⁴

The proposed consent order was completed in late summer, 2002 and, as RCRA procedures dictate, was released for public comment on November 9, 2002.¹⁷⁵ The Michigan Attorney General's Office expressed its dissatisfaction by calling the consent order an "'11th hour' and 'sweetheart deal.'"¹⁷⁶ In an internal memo, the Office stated that it believed that the consent order was "illegal and that DEQ lack[ed] the legal authority to sign it."¹⁷⁷ The Attorney General believed that MDEQ had rushed into

State Agency Reaches Accord With Dow On Levels of Dioxins Near Midland Facility, 33 ENV'T REP. (BNA) No. 25, 2476 (Nov. 15, 2002) [hereinafter Schimpf, *Accord*].

¹⁷¹ On May 27, 2004, Michigan State Senator Tony Stamas and House Representative John Moolenaar introduced identical bills that would raise the dioxin level in Michigan from 90 ppt to 1000 ppt. H.R. 5963, 92nd Leg., Reg. Sess. (Mich. 2004); S. 1276, 92nd Leg., Reg. Sess. (Mich. 2004). On June 1, 2004, the House of Representatives referred H.R. 5963 to the Committee on Government Operations, and the Senate referred S. 1276 to the Committee on Natural Resources and Environmental Affairs. H.R. 92-49, Reg. Sess., at 1157 (Mich. 2004); S. 92-54, Reg. Sess., at 988 (Mich. 2004).

¹⁷² CONSENT ORDER, *supra* note 170. Dow claimed that "[t]he 831 ppt level is considered a safe level protective of public health." Schimpf, *Accord*, *supra* note 170, at 2476.

¹⁷³ CONSENT ORDER, *supra* note 170. See also Schimpf, *Accord*, *supra* note 170, at 2476.

¹⁷⁴ CONSENT ORDER, *supra* note 170.

¹⁷⁵ Sheila Schimpf, *Dow Cleanup Agreement Criticized By Michigan Attorney General's Office*, 26 CHEM. REG. REP. (BNA) No. 44, 1403 (Nov. 11, 2002) [hereinafter Schimpf, *Criticized*].

¹⁷⁶ *Id.* at 1404.

¹⁷⁷ E-mail from Robert Reichel, Assistant Attorney General, State of Michigan Attorney General's Office, to Art Nash, Deputy Director, Michigan Department of Environmental Quality (Oct. 11, 2002, 15:56 EDT), available at http://www.ecocenter.org/releases/october11_2002_agmemo.shtml.

the consent order and that MDEQ was acting arbitrarily and capriciously.¹⁷⁸

MDEQ was under a strict timetable to finish the consent order by the end of 2002.¹⁷⁹ On December 31, 2002, Governor Engler's term ended. The consent order needed to be finalized because a Democrat, Jennifer Granholm, was certain to be elected in November and had promised on the campaign trail not to enter into the consent order.¹⁸⁰

During the period of public comment, which lasted until December 9, 2002, any person or group could file a comment with MDEQ supporting or opposing the consent order.¹⁸¹ EPA filed a scathing comment that sharply criticized the consent order, stating that "[t]he Agency believes the conclusions used in the calculation used to determine this interim action level are inconsistent with Section 3004(u) and Section 3004(v) of RCRA, Section 324.20120a of NREPA and MI R299.9629 because they are not sufficiently protective of human health and the environment."¹⁸²

¹⁷⁸ *Id.*

¹⁷⁹ When asked if MDEQ wanted to complete the consent order by the end of 2002, Deputy Director Nash said, "[t]hat would certainly be our goal." Schimpf, *Criticized*, *supra* note 175, at 1404.

¹⁸⁰ See Nina A. Mendelson, *Agency Burrowing: Entrenching Policies and Personnel Before a New President Arrives*, 78 N.Y.U. L. REV. 557, 601-02 n.193 (2003); Pianin, *supra* note 157, at A02; Scroppo, *supra* note 161, at A5.

¹⁸¹ Sheila Schimpf, *Michigan Residents Seek to Intervene in Consent Order With Dow Chemical*, 26 CHEM. REG. REP. (BNA) No. 48, 1521 (Dec. 9, 2002) [hereinafter Schimpf, *Residents*].

¹⁸² U.S. ENVTL. PROT. AGENCY, COMMENTS ON THE DRAFT CORRECTIVE ACTION CONSENT ORDER BETWEEN THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY AND DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN 9 (2002), available at http://www.ecocenter.org/releases/EPA_CO_Comments.pdf. "U.S. EPA objects to the CACO to the extent that the Order in any way delegates any regulatory responsibilities assumed by the State of Michigan from U.S. EPA under RCRA, to Dow or any other third party." *Id.* at 3. The Ecology Center, an environmentalist group, said that they have never seen EPA's comments "so critical of an action by a state agency." Sheila Schimpf, *State Judge Allows Corrective Action Order Proposed Between Michigan, Dow Chemical*, 26 CHEM. REG. REP. 1548 (BNA) (Dec. 16, 2002).

Environmental groups were incensed over the consent order, particularly Ecology Center and Lone Tree Council.¹⁸³

On November 21, 2002, MDEQ held a public hearing on the consent order; MDEQ did not comply with the public hearing provisions of the Administrative Procedure Act because the meeting was very short and the public commentary was truncated.¹⁸⁴ On December 4, 2002, environmental groups and Midland citizens filed suit in Ingham County Circuit Court to enjoin the consent order's implementation.¹⁸⁵ The judge ruled against the plaintiffs, but agreed to a hearing on the consent order after its implementation.¹⁸⁶ The public comment period ended on December 9, 2002, with MDEQ poised to finalize the consent order.¹⁸⁷

As late as December 20, 2002, the consent order's finalization appeared assured, but, just before the New Year, the consent order fell apart.¹⁸⁸ In a December 27, 2002 statement, Dow announced that it was pulling out of the agreement.¹⁸⁹ At the last moment, MDEQ had changed the final consent order to include no numbers for an action level, and Dow objected.¹⁹⁰ Harding later admitted that the process was rushed.¹⁹¹ The reason for MDEQ's

¹⁸³ Schimpf, *Accord*, *supra* note 170, at 2476.

¹⁸⁴ Schimpf, *Residents*, *supra* note 181, at 1521. See MICH. COMP. LAWS § 299.9514(7) (2004).

¹⁸⁵ Ecology Ctr. v. Mich. Dep't of Env'tl. Quality, No. 02-1905-CE (Mich. Cir. filed Dec. 6, 2002).

¹⁸⁶ *Id.*

¹⁸⁷ *State, Dow Set to OK Dioxin Deal; Michigan*, DETROIT NEWS, Dec. 18, 2002, at E1.

¹⁸⁸ Scropo, *supra* note 161.

¹⁸⁹ Sheila Schimpf, *Michigan Refuses to Finalize Agreement With Dow on Allowable Contamination Limits*, ENV'T REP. (BNA) No. 250, at A-6 (Dec. 31, 2002) [hereinafter Schimpf, *Refuses*].

¹⁹⁰ Eric Pianin, *Michigan and Dow Drop Dioxin Pact; State Backs Away from Plan to Relax Pollution Standards*, WASH. POST, Dec. 31, 2002, at A02.

¹⁹¹ Harding stated:

While it continues to be my belief that a consent order to address the dioxin contamination in Midland is the appropriate solution, it has become impossible at this late date to prepare a final document that not only complies with the environmental statute, but also reflects the substantive comments received from all parties.

Schimpf, *Refuses*, *supra* note 189, at A-6.

last-minute change of heart was a bit of a mystery, but it likely stemmed from the sharp criticism that MDEQ received from EPA, the Michigan Attorney General's Office, DEQ employees, and environmental groups.

With a new governor and MDEQ leadership, cleanup negotiations progressed slowly through 2003 and 2004, but Dow did spend an estimated \$25 million cleaning parks along the Tittabawassee River.¹⁹² In January 2005, Dow and MDEQ agreed on interim cleanup actions that expanded Dow's cleaning to include priority areas along the river, areas flooded by the river in 2004, and individual homes.¹⁹³ Both Dow and MDEQ hoped to reach a final cleanup agreement with long term solutions to Midland's dioxin problems by the end of 2005.¹⁹⁴

B. Despite Flaws, Corrective Action Is Strong Enough to Withstand Political Collusion

The Dow case illustrates the corrective action process in action, its current flaws, and its strengths. MDEQ and Dow had avoided the high price of cleaning the Tittabawassee River for many years, until the corrective action process enabled the first real action toward that goal. The process works for Dow because it does not have to admit liability for a century of toxic pollution. The process works for MDEQ because Michigan is able to protect its citizens without having to prove Dow liable, and, more importantly, Michigan does not have to force Dow to clean against its will. Corrective action will create real progress to prevent some of the dioxin damage.

The Dow case demonstrates some of the flaws that hamper the corrective action process. The process still takes too much time to implement. Dow also demonstrates the unmotivated and evasive actions with which some facilities approach cleanup and suggests that many facilities may need the government to force

¹⁹² Sheila Schimpf, *Dow Reaches Agreement With Michigan On 'Framework' for Cleaning Up Dioxins*, DAILY ENV'T NEWS (BNA) No. 13, at A-12 (Jan. 21, 2004).

¹⁹³ *Id.*

¹⁹⁴ *Id.*

cleanup. MDEQ's actions illustrate the importance of the government agency in setting cleanup standards. If MDEQ bows to political or business pressures and does not follow reasonable environmental standards, then there is a great danger of ineffective cleanup unless the public intervenes.

The corrective action process may emphasize expediency, but it is strong enough to withstand even the most blatant political collusion. RCRA is not a tool for polluting facilities to circumvent cleanup, but a dynamic program that forces facilities to clean, regardless of their political or business strength.

IV. HOW TO UNLEASH RCRA

EPA reforms to RCRA in the late 1990s and early 2000s have finally allowed RCRA to have some of its intended effect¹⁹⁵ but more reforms are needed to fully realize RCRA's potential. EPA needs to focus not only on performance goals, but also on cutting more procedural red tape and on actual cleanup. Facilities need more incentives to complete cleanups and to adopt flexible solutions or participate in voluntary programs. Funding shortages require better efficiency or more funding. These reforms can unleash the potential of RCRA and clean every eligible facility.

A. Long-Term Cleanup, Not Only Short-Term Containment

EPA has made real progress in cutting procedural burdens in RCRA process,¹⁹⁶ but burdens remain. The CMS and CMI revel in minutia and require too much time and resources to complete, while hazardous wastes fester.¹⁹⁷ Paperwork modeled after CERCLA needs an overhaul addressing RCRA issues and needs.¹⁹⁸ The EI focus has removed procedural paperwork, but some facilities believe EI paperwork has simply replaced it and could

¹⁹⁵ 2000 GAO REPORT, *supra* note 125, at 16.

¹⁹⁶ See discussion *supra* Part II.B.2.

¹⁹⁷ 1997 GAO REPORT, *supra* note 104, at 9.

¹⁹⁸ *Id.*

bog down the system.¹⁹⁹ Streamlining the process will save resources and let real cleanups begin.

While adjusting the performance goal of RCRA to have high-priority facilities begin cleanup and meet EI standards has created progress, EPA must be mindful that its refocus only begins cleanup and does not force facilities to complete cleanup.²⁰⁰ Potentially, this refocus might indicate false progress, as facilities meet EI standards but do not actually clean anything.²⁰¹ Many facilities had already controlled human exposure prior to the EPA goals and the new standards allow many facilities to proclaim compliance with EPA without taking any cleanup action.²⁰² Facilities that need long-term cleanup, yet comply with short-term EIs, do not have to take any affirmative action. EI is a good start, but EPA cannot stop there and must stay diligent to accomplish real progress by completing cleanup.

EPA has made great short-term progress but cannot, as a result, sacrifice long-term cleanup. In 1997, GAO reported that facilities had no incentives to endure final cleanup, unless in their business interest, and by 2000 nothing had changed.²⁰³ EPA's focus on restricting containment, and not on giving facilities reasons to implement final cleanups, could significantly postpone such final cleanups.²⁰⁴ "At the current rate of 30 facilities implementing final cleanups per year, it will take about 27 years for the remaining 809 facilities that we analyzed to at least begin to implement final cleanups, and years more before they are completed."²⁰⁵ In its 2003-08 strategic plan, EPA intends to move toward more final

¹⁹⁹ 2000 GAO REPORT, *supra* note 125, at 17 (stating that "[s]everal state managers questioned the usefulness of the goals in achieving cleanup progress and also considered them to be more of a paperwork exercise for the agency").

²⁰⁰ Facilities believe "that the emphasis on meeting the goals to date may have been more of a paperwork exercise to document that the facilities are meeting the goals rather than an effort to bring about additional cleanup actions." *Id.*

²⁰¹ *Id.*

²⁰² *Id.*

²⁰³ *See id.*; 1997 GAO REPORT, *supra* note 104, at 12.

²⁰⁴ 2000 GAO REPORT, *supra* note 125, at 18.

²⁰⁵ *Id.*

cleanups, but the plan it outlines remains rooted in EI performance goals.²⁰⁶ EPA must continue to push facilities to complete final cleanups as such pushes are the facility's only incentive.

B. Motivating RCRA Facilities and Voluntary Cleanup Programs

EPA can help address long-term cleanup by working with states to create different cleanup options and flexible opportunities. In order to accomplish this goal, EPA will have to give states more autonomy to work directly with these facilities to create the options. As the Dow case demonstrates, safeguards prevent corruption in state programs, even with only minimal EPA guidance.²⁰⁷

Voluntary cleanup programs have shown promise in some states,²⁰⁸ but EPA has resisted creating nationwide voluntary programs.²⁰⁹ Private facilities do not initiate private cleanups for fear of state or federal action under RCRA.²¹⁰ Facilities also do not want to spend millions of dollars on a private cleanup only to

²⁰⁶ 2008 STRATEGIC PLAN, *supra* note 152, at 59.

²⁰⁷ See discussion *supra* Part III.

²⁰⁸ William W. Buzbee, *Remembering Repose: Voluntary Contamination Cleanup Approvals, Incentives, and the Costs of Interminable Liability*, 80 MINN. L. REV. 35, 107-10 (1995).

²⁰⁹ *Id.* at 38. EPA has resisted because of a complex web of "bureaucratic preferences and incentives," which Buzbee has described in depth, but which are beyond the scope of this Note. See *id.* at 55-100, 116. Buzbee has summarized his theory of why EPA has failed to create a national voluntary cleanup program as follows:

The explanation for this failure is found both in relevant statutory instructions and in bureaucratic preferences and incentives. Congress failed to anticipate the preferences and incentives of agency officials and of regulated entities and to modify the statutory schemes accordingly. Contrary to the common hypothesis that agencies will seize opportunities to expand, however, EPA resisted expanding its activities to provide guidance to cleanup volunteers. Other factors particular to the adjudicatory task of reviewing cleanup proposals overcame any possible general bureaucratic propensities to expand an agency's budget and regulatory domain.

Id. at 116.

²¹⁰ *Id.* at 38.

discover that it did not meet federal or state standards.²¹¹ The few state voluntary programs only handle small and low-priority sites, with varying success, depending on facility liability.²¹² As a result, “only a federally enacted or approved . . . program would facilitate voluntary cleanups of the more highly contaminated sites.”²¹³ A national voluntary cleanup program, specifically detailing how a facility could conduct a private cleanup, would give facilities an opportunity to clean without fear of non-conformance with federal standards. It would also give responsible facilities the ability to bypass RCRA process.

C. Address Funding Shortages

Funding RCRA has proven to be a consistent problem and will continue to plague RCRA without EPA reform.²¹⁴ Despite GAO labeling of funding shortages as the “material weakness for EPA” handling of RCRA, prior to 1997 EPA requests for RCRA funding decreased.²¹⁵ EPA requested \$45 million in fiscal year 1997, \$42 million in 1998, and \$39 million in 2000.²¹⁶ In fiscal year 1999, EPA took \$10 million from RCRA to pay for other, unanticipated projects, leaving RCRA with only \$30 million.²¹⁷ Congress wisely prevented EPA from borrowing from RCRA in fiscal year 2001.²¹⁸ The new, performance-goal necessities spurred EPA to request \$50 million in fiscal year 2001, and even more

²¹¹ *Id.*

²¹² Buzbee, *supra* note 208, at 107-10.

²¹³ Michaela S. Moore, *Thinking Outside the Box: A Negotiated Settlement Agreement for the Remediation of the General Electric/Housatonic River Site Ensures Environmental Health and Economic Prosperity for Pittsfield, Massachusetts*, 26 B.C. ENVTL. AFF. L. REV. 577, 607 (1999). See Buzbee, *supra* note 208, at 116.

²¹⁴ See 1997 GAO REPORT, *supra* note 104, at 14-16; 2000 GAO REPORT, *supra* note 125, at 18-19.

²¹⁵ 2000 GAO REPORT, *supra* note 125, at 18.

²¹⁶ *Id.*

²¹⁷ *Id.*

²¹⁸ *Id.*

funding will be necessary to handle cleaning of final, complex facilities before the 2005 deadline.²¹⁹

State programs also suffer from funding shortages. EPA authorized these programs to receive grants from EPA, but states have seen little increase in these grants despite increasing labor costs.²²⁰ State cleanup managers were already overburdened, but EPA wanted them to manage even more to meet 2005 goals.²²¹

The simple solution to funding shortages is for EPA to request more money for RCRA. With increased resources, EPA could ensure meeting its performance goals and starting final cleanup. Congress might slightly increase RCRA funding, but the amount necessary to realize RCRA's potential would require more than an incremental increase.²²² With economic uncertainties and budget deficits restricting federal funds, EPA can only hope for more of such funding.

Without a real increase in RCRA funding, EPA must increase efficiency with current funding. EPA can achieve this by creating a voluntary cleanup program.²²³ With facilities following the program guidelines on their own, only minimal EPA and state resources would be necessary to monitor the facilities. EPA could also increase efficiency by eliminating some facilities from RCRA, such as those facilities that continuously reuse land for hazardous waste TSD and do not need final cleanup, provided that the facility meets EI standards.²²⁴ Finally, cutting any remaining, unnecessary procedures descended from CERCLA could reduce inefficiency and cut costs.²²⁵ With an increase of funding and efficiency, RCRA could finally fulfill its potential.

²¹⁹ *Id.* at 19.

²²⁰ *Id.*

²²¹ 2000 GAO REPORT, *supra* note 125, at 18.

²²² *Id.* at 19-20.

²²³ See discussion *supra* Part II.C.2.

²²⁴ 2000 GAO REPORT, *supra* note 125, at 18.

²²⁵ See discussion *supra* Part II.B.1.

CONCLUSION

RCRA has the potential to clean up every active treatment, storage, and disposal facility rapidly only if the government unleashes the corrective action procedures. In its early years, EPA failed to establish a working process and, once it did so, the burdensome procedures led to little cleanup. By refocusing its goals on implementing and controlling hazardous wastes, EPA finally showed the promise of RCRA. The corrective action process will not only clean major facilities like Dow but also minor facilities. EPA must not lose sight of long-term cleanup, should implement a national, voluntary, corrective action program, and must efficiently use resources allocated to RCRA. Recent progress has demonstrated the potential of corrective action, and, by fully unleashing it, EPA can change the world by cleaning up all TSD waste facilities.