

# PLUGGING THE LEAK IN UNDERGROUND STORAGE TANKS: THE 1984 RCRA AMENDMENTS

## INTRODUCTION

Clean groundwater is one of this nation's most precious resources. Over half of our people depend on groundwater for their drinking water; among rural dwellers, the figure is over ninety percent.<sup>1</sup> Americans withdraw more than eighty billion gallons of groundwater per day,<sup>2</sup> including forty percent of all agricultural irrigation water.<sup>3</sup> This hidden resource is threatened by pollution with toxic chemicals from a variety of sources, including landfills, agricultural chemical use, waste injection wells, road salting, and leaking underground storage tanks (LUST).<sup>4</sup> The last-mentioned source of pollution is the focus of this note.

Until the passage of the 1984 Resource Conservation and Recovery Act (RCRA) amendments,<sup>5</sup> the Environmental Protection Agency (EPA) had no specific mandate to regulate nonwaste underground storage.<sup>6</sup> While the authority to regulate underground storage tanks was apparently implicit in previous statutes,<sup>7</sup> EPA had not demonstrated a willingness to test the limits of this au-

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1. Dycus, *Development of a National Groundwater Protection Policy*, 11 B.C. ENVTL. AFF. L. REV. 211 (1984); Tejada, *Underground Tanks Contaminate Groundwater*, EPA JOURNAL, Jan.-Feb. 1984, at 20.

2. N. SHIFRIN & M. NOLAN, *GROUNDWATER PROTECTION BY RECHARGE ZONE MANAGEMENT* 1 (1981).

3. *Id.*

4. *Id.* at 7-8. The LUST acronym is used almost universally, although recently there has been some adverse reaction to it. See *Rutland Herald*, Feb. 16, 1985, at 7, col. 1.

5. Hazardous and Solid Waste Amendments of 1984, Pub. L. No. 98-616, 42 U.S.C.A. §§ 6991-6991i (Supp. 1985). Title VI of the Amendments addresses underground storage tanks, adding Subtitle I to RCRA. This was codified as Subchapter IX of RCRA in the U.S.C.A. The section numbers, §§ 9001-9010 in the amendments, were changed to §§ 6991-6991i in the code. The numbers used in this note are from the code.

6. 14 ENV'T REP. (BNA) 1380 (Nov. 25, 1983).

7. *Id.* See also EPA JOURNAL, July-Aug. 1984, at 8. Even before the RCRA amendments, the EPA believed that it had authority under the Toxic Substances Control Act, 15 U.S.C. §§ 2601-2629 (1982), to regulate underground tanks. Although officials later experienced some doubt about this authority, the amendments rendered this doubt moot. Interview with Mark A. Greenwood, Assistant General Counsel—RCRA, U.S. Environmental Protection Agency (Feb. 11, 1985). Response to contamination incidents, or threats of contamination, is authorized by "imminent hazard" provisions of the Resource Conservation and Recovery Act, 42 U.S.C. § 6973 (1983).

thority.<sup>8</sup> Faced with serious episodes of pollution from leaking tanks, a number of state and local governments leapt into the regulatory breach.<sup>9</sup> Congress followed suit with the Hazardous and Solid Waste Amendments of 1984, which included Subtitle I dealing with underground storage tank.<sup>10</sup>

This note will first assess the extent of the problem and the shortcomings of common law remedies available for petroleum pollution of groundwater.<sup>11</sup> It will then analyze and evaluate the Congressional response to LUST—the new RCRA amendments—in terms of both existing pollution problems and prevention of future problems. The prospects for effective implementation of the new law will also be discussed.

## I. DIMENSIONS OF THE PROBLEM

Estimates of the number of underground tanks storing gasoline and other petroleum products range as high as ten million.<sup>12</sup> The great majority of these tanks are made of bare steel.<sup>13</sup> Although the life expectancy of such tanks varies considerably as a function of soil conditions,<sup>14</sup> the average is around fifteen years.<sup>15</sup>

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8. Dycus, *supra* note 1, at 228-29, 237.

9. 15 ENV'T REP. (BNA) 414 (July 13, 1984); MASSACHUSETTS PUBLIC INTEREST RESEARCH GROUP, PETRO POLLUTION: A STUDY OF LEAKS IN UNDERGROUND GASOLINE AND OIL STORAGE TANKS (1983) [hereinafter cited as MASS. PIRG]; Shaner, *Underground Tank Dilemma*, NAT'L PETROLEUM NEWS, Aug. 1984, at 36, 38; see, e.g., N.Y. ENVTL. CONSERV. LAW tit. 10 (McKinney 1984).

10. See *supra* note 5.

11. Petroleum is the substance most commonly stored in underground tanks, and the focus of this note is on petroleum storage. Much of what is said is more broadly applicable.

12. Leiter, *Underground Storage Tank Amendments to the Resource Conservation & Recovery Act*, in PRACTICING LAW INSTITUTE, AMENDMENTS TO THE RESOURCE CONSERVATION & RECOVERY ACT 132 (1985). The ten million estimate is attributed to the Steel Tank Institute. See also VERMONT AGENCY OF ENVIRONMENTAL CONSERVATION, AIR & LAND, Summer 1984, at 4 [hereinafter cited as Vt. AEC].

13. Vt. AEC, *supra* note 12, at 5.

14. Telephone interview with Jill Jones, Warren Rogers Associates, Newport, Rhode Island (Oct. 17, 1984). Warren Rogers Associates conducted tests on 10,000 tanks nationwide under contract with the American Petroleum Institute. Some tanks were found after 50 years, while others lasted only a few years. Corrosion correlated with four soil factors: moisture, pH (acidity), resistivity (resistance to electrical impulses), and sulphide content. *Id.*

15. *Id.* Tank leaks are caused mainly by corrosion, which can occur on inside or outside surfaces of the tank. Corrosion inside a tank may result from moisture in the product, or incompatibility of the product and tank liner or inside wall. Corrosion-caused leaks generally begin as tiny holes which enlarge over time. A tank at the end of its useful life may have several such holes. Pipes and fittings connecting the tank to pumps or fillholes may also be subject to corrosion. *Id.*

Many of these tanks were installed during the 1960's, when gasoline consumption was rising rapidly,<sup>16</sup> and thus are at or beyond the end of their useful lives. Some experts estimate the number of leaking tanks nationwide at between 75 and 100 thousand,<sup>17</sup> but projections go as high as 520 thousand.<sup>18</sup> About twenty-five to thirty-five percent of the tanks in use are owned by major oil companies; others are owned by retailers, factories, farms, governments, or individuals.<sup>19</sup> Ironically, oil and gasoline tanks are buried to protect the public from another hazard associated with their use: fires and explosions.<sup>20</sup> It is not unusual for states and localities to *require* burial of petroleum tanks.<sup>21</sup>

Contamination of groundwater by gasoline is a serious matter. A concentration as low as one part per million is sufficient to make water unpalatable, if not actually poisonous.<sup>22</sup> Although there may be no "average" leak, a report by a Maine agency assumed an average figure of one-half gallon per hour, or twelve gallons per day.<sup>23</sup> Multiplying this figure by the 100,000 tanks estimated to be leaking nationwide<sup>24</sup> suggests that 96.36 million gallons leak each year. These numbers are only rough estimates, but the potential magnitude of leakage is apparent.

Two other factors make such contamination even more fright-

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Another cause of leaks, which may be facilitated by corrosion, are ruptures. These may result from "dipsticking" for inventory control, which involves the insertion of a measuring rod into the tank to check the level of the contents. The repeated banging of the stick at the same spot on the bottom of the tank may eventually wear a sizable hole at that spot. Rapid draining may result: one gas station in Island Pond, Vermont, lost 4,000 gallons of gasoline in a few days. Modern tanks are equipped with a striker plate to reinforce the spot struck by the dipstick or with an alternate gauging device such as a float system. Vt. AEC, *supra* note 12 at 1, 8. A cause of leaks in fiberglass tanks is cracking from undue stress, caused by improper backfilling. See *infra* note 48.

16. Maine Dept. of Environmental Protection, Leaking Underground Storage Tanks: Status Report, at 1 (on file at Vermont Agency of Environmental Conservation) [hereinafter cited as Me. DEP].

17. Tejada, *supra* note 1, at 20.

18. Me. DEP, *supra* note 16, at 1.

19. Feliciano, Leaking Underground Storage Tanks: A Potential Environmental Problem (1984), at 9 (Congressional Research Service, 84-508 ENR).

20. See *Standard Oil Co. v. Marysville*, 279 U.S. 582, 584 (1928) (upholding tank burial ordinance).

21. See, e.g., MASS. ANN. LAWS ch. 148 § 37 (Michie/Law. Co-op. 1984).

22. Me. DEP, *supra* note 16, at 1.

23. *Id.* This size leak would probably not be detected by ordinary inventory control. See *infra* notes 38-40 and accompanying text. Hydrostatic tightness testing probably would detect such a leak. See *infra* note 41.

24. Tejada, *supra* note 1, at 20.

ening: gasoline's toxicity and its persistence in underground water. Gasoline contains over 200 chemical compounds, some of which are quite toxic.<sup>25</sup> These include benzene, a known human carcinogen;<sup>26</sup> ethylene dibromide (EDB);<sup>27</sup> and toluene and xylene, which produce mutations in bacteria.<sup>28</sup>

Because of the physical properties of gasoline<sup>29</sup> and the dynamics of groundwater movement,<sup>30</sup> gasoline pollution of groundwater is very difficult to correct.<sup>31</sup> Gasoline spills in surface water tend to evaporate, biodegrade, or at least become diluted. Because subsurface water is not exposed to air, moves very slowly, and is not turbulent enough to promote mixing, gasoline contamination of such water persists much longer.<sup>32</sup> Also, because subterranean water characteristically has a slow flow rate, an aquifer may be extensively polluted by the time petroleum is detected in someone's well or spring.<sup>33</sup> The techniques currently available for cleanup are very expensive and may take years to complete; the goal of restoring potability has not yet been attained at any pollution site.<sup>34</sup>

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25. Vt. AEC, *supra* note 12, at 6.

26. Me. DEP, *supra* note 16.

27. Vt. AEC, *supra* note 12, at 6. EDB is a potent animal carcinogen. See J. LASH, A SEASON OF SPOILS 169 (1984).

28. Tejada, *supra* note 1, at 20. Mutagenesis in bacteria indicates that a chemical may be carcinogenic.

29. Gasoline floats on water and coats oil and rock particles at the top of an aquifer. This coating effect makes complete removal of the gasoline very difficult. Only 40 to 60% of the gasoline is considered recoverable by pumping. Telephone interview with Dr. Rudy White of the American Petroleum Institute (Jan. 3, 1985). Also, benzene, toluene and xylene are soluble in water. Tejada, *supra* note 1, at 20.

30. Groundwater movement varies widely but is generally quite slow, on the order of a few feet per year. (*But see* Ozark Indus., Inc. v. Stubbs Transp., Inc., 351 F. Supp. 351, 354 (W.D. Ark. 1972) (oil spill from tank truck reached trout farm's spring, 2.9 miles away, the next day)). The rate and direction of flow depend primarily on the geologic character of an area, but are influenced by human activities such as building and paving in recharge areas, diversion of surface waters, and pumping from wells. See generally, L. LEOPOLD, WATER: A PRIMER 26-31 (1960).

This slow movement has important ramifications for detection and cleanup of gasoline leaks. First, contamination is usually not discovered until it reaches someone's water supply; by that time the aquifer may be extensively polluted. Second, once the problem is discovered, removing the gasoline by means of recovery wells is also slow. Third, the specific source of the pollution may be difficult to ascertain: a heavily pumped well may draw in water from many directions, multiplying the number of possible pollution sources. See generally, N. SHIFRIN & M. NOLAN, *supra* note 2.

31. Vt. AEC, *supra* note 12, at 7.

32. *Id.*

33. N. SHIFRIN & M. NOLAN, *supra* note 2, at 1.

34. The current technology for separating gasoline and water is air stripping. In this process, contaminated water is sprayed into the top of a tower and flows downward over

There are several methods of detecting leaks at their source. The simplest, and probably the most cost effective for existing tanks, is inventory control.<sup>35</sup> This involves daily measurements of the level of fuel in the tank, usually with a dipstick. These measurements are periodically compared and reconciled with records of deliveries and sales.<sup>36</sup> However, there are drawbacks to this method: (1) reconciliation of dipstick readings and inventory records is very tedious;<sup>37</sup> (2) if reconciliation is done by hand, small but significant leaks may go undetected;<sup>38</sup> and (3) many retailers, especially small ones, simply will not take daily readings in the absence of an enforced requirement to do so.<sup>39</sup> The first two drawbacks have been virtually overcome by the application of computer technology; records can be analyzed by computer to detect leaks as small as one-and-a-half to two gallons per day.<sup>40</sup>

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baffles, while air is blown upward from the bottom of the tower. This results in evaporation of the volatile components of the gasoline (and, incidentally, in air pollution, 16 ENV'T REP. (BNA) 1144 (Nov. 1, 1985)). After this treatment, water is usually returned to the soil, although it is still not potable. Telephone interview with Dr. Rudy White of the American Petroleum Institute (Jan. 3, 1985).

Cleaning of the aquifer itself depends on biodegradation of the 40 to 60% of the gasoline that adheres to soil particles and is not recovered. This occurs naturally at widely varying rates, but can be accelerated by introducing additional oxygen and microorganisms into the groundwater. Again, the cost of such treatment generally precludes its voluntary use. Although drinking water standards for benzene (a soluble component of gasoline) have not been met to date, it is anticipated that safe levels will be achieved soon in the course of ongoing cleanup efforts using accelerated biodegradation *in situ*. Of course, "safe levels" vary with location, since different states have different standards for contaminants in drinking water. Telephone interview with David Dike of Groundwater Technology, Inc., Chad's Ford, Pennsylvania (Jan. 7, 1985).

35. Telephone interview with Jill Jones, *supra* note 14.

36. *Id.*

37. *Id.*

38. Dipsticking is at best inexact; a mistake of even one-eighth of an inch in a 10,000 gallon tank makes a significant difference. Also, gasoline's volume changes with temperature: an increase of 1°F in 10,000 gallons of gasoline "adds" about 6 gallons. Underground temperature is fairly constant, but temperature change is likely to occur between the delivery truck and the tank. Telephone interview with David Partridge, Vice-President of Wyman's Meter & Tank Equipment Co., Inc. of Montpelier, Vermont (Jan. 7, 1985). Random errors from dipstick readings, under and overdeliveries (actual amount delivered different from meter reading on tank truck), temperature changes, bulging of the tank, etc. combine to reduce the accuracy of inventory control done by hand as well as to make reconciliation more difficult. The chances of detecting a leak of less than 15 gallons per day by this method are slim. Telephone interview with Jill Jones, *supra* note 14.

39. MASS. PIRG, *supra* note 9, at 9. See also *Moore v. Mobil Oil Co.*, 331 Pa. Super. 241, \_\_\_, 480 A.2d 1012, 1015 (1984) (discussed *infra* at notes 103-26 and accompanying text).

40. Sophisticated statistical analysis, done by computer, can increase the leak-detecting potential of inventory control dramatically. Random errors and one-time mistakes from inaccurate deliveries, theft, etc. can be distinguished from a consistent downward trend that

Hydrostatic tightness tests are another leak detection method. They can measure leaks of 1.2 gallons per day; however, like the inventory control method, they have no predictive value and are quite expensive.<sup>41</sup> Monitoring wells sunk near the tanks may detect leaks, but the presence of fuel in the soil from minor spills and overfilling of tanks may render these ineffective.<sup>42</sup>

Predicting the probable useful life of a tank already in use is also possible. This requires soil sampling and analysis for four corrosion-facilitating factors: moisture, pH, resistivity, and sulphides.<sup>43</sup> Data from these samplings are fed into a computer program that generates probabilities of a leak in any given year.<sup>44</sup> This information is especially useful for owners of many tanks who are planning a tank replacement program.<sup>45</sup>

New tank technology has progressed considerably, although the cost of modern tanks has precluded their universal use in new installations.<sup>46</sup> Fiberglass, steel coated with fiberglass, and cathodically protected tanks<sup>47</sup> are now available that can minimize the

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indicates a leak. Leaks as small as one-and-a-half to two gallons per day can be detected at a fraction of the cost of tightness testing. Interview with Jill Jones of Warren Rogers Associates, Newport, Rhode Island (Nov. 21, 1984).

41. Telephone interview with David Partridge, Vice-President, Wyman's Meter & Tank Equipment Co., Inc., of Montpelier, Vermont (Jan. 7, 1985). This firm installs and tests underground storage tanks. Hydrostatic testing is done by attaching to the tank a "stand pipe" that extends above ground level. The tank is then filled with gasoline or water until the fluid level can be measured in the stand pipe. (A circulator is used to mix the fluid and keep the temperature even.) A drop in the fluid level indicates a leak. The test is usually conducted over a 24-hour period.

The test costs between \$300 and \$500 per tank, plus the business loss from shutting down while the test is run. Most gas stations have three or four tanks. *Id.*

42. Environmental Protection Agency, Region I Water Supply Branch, Summary of New England Interstate Water Pollution Control Commission/EPA Meeting on Underground Storage Tanks, at 6 [hereinafter cited as EPA Region I Summary] (on file at Vermont Agency of Environmental Conservation).

43. *Id.* See also Warren Rogers Associates, Tank Integrity Program (available from Warren Rogers Assoc., 65 Bellevue Ave., Newport, RI 02840). Resistivity is a measure of resistance to the transmission of electrical impulses, in this case, how well the soil in question conducts electricity.

44. Telephone interview with Jill Jones, *supra* note 14.

45. *Id.*

46. EPA Region I Summary, *supra* note 42, at 4.

47. Fiberglass tanks have the longest life expectancy, but are most expensive; special backfilling materials and installation practices are necessary, which may increase their cost to double that of a steel tank. Telephone interview with David Partridge, *supra* note 41.

Cathodic protection works by changing the direction of the corrosion process. A buried steel tank normally acts as an anode, which means that it gives up metal ions to a nearby cathode such as piping or materials in the soil. This loss of metal leads to pits and holes in the tank. A cathodically protected tank is connected to a chunk of a reactive metal such as

risk of leakage if properly installed.<sup>48</sup> Secondary containment of new tanks is another option,<sup>49</sup> which is recommended when tanks are located near drinking water supplies.<sup>50</sup>

If all gasoline retailers and other tank owners could afford to replace their aging tanks with the latest models, and if the many abandoned tanks could be located and removed, the problem of LUST would be solved virtually overnight. The reality is that complete replacement is not economically possible; tanks are leaking now and will continue to leak in the foreseeable future. Like those injured by contamination from these leaking tanks, we turn to the relief available at common law.

## II. LUST AT COMMON LAW

Once a property owner determines that an underground storage tank is responsible for the pollution of his or her well or basement,<sup>51</sup> and assuming that the tank owner will not voluntarily do more than replace the leaky tank,<sup>52</sup> litigation may provide a rem-

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zinc or magnesium, which becomes a "sacrificial anode"—it gives up metal ions to the soil more readily than the tank does, so the tank itself does not lose metal. The rate of this electrochemical corrosion process is influenced by the acidity and resistivity (resistance to electric current) of the soil and by the presence of electrical currents near the tank. Electrical currents may occur near high-voltage power lines, trolley systems, etc. Telephone interview with Dr. Rudy White, *supra* note 34.

48. Nicks and scratches occurring during installations of steel and coated-steel tanks can speed up corrosion by exposing new metal. Installers should also be alert to the presence of corrosion-facilitating factors such as a high water table or nearby high-voltage electrical systems. Soil analysis may be an appropriate preliminary to tank selection; in a few areas with low risk of corrosion, a bare steel tank may be acceptable. Interview with Jill Jones of Warren Rogers Assoc., *supra* note 14.

Special care must be taken when fiberglass tanks are installed; undue stress caused by improper backfilling can lead to cracking. Telephone interview with David Partridge, *supra* note 41.

49. Secondary containment is simply placement of the tank or tanks in a vault of impervious material, such as concrete, large enough to contain the tank's contents in the event of a leak. Considering the improved reliability of modern tanks, the additional expense of secondary containment is probably justified only in sensitive areas such as aquifer recharge zones. See generally, N. SHIFRIN & M. NOLAN, *supra* note 2.

50. AMERICAN PETROLEUM INSTITUTE, RECOMMENDED PRACTICE FOR UNDERGROUND PETROLEUM PRODUCT STORAGE SYSTEMS AT MARKETING AND DISTRIBUTION FACILITIES § 4-4 (on file at Vermont Agency of Environmental Conservation).

51. This may be no mean feat. Unless there are known tanks in the immediate area that can be tested, the victim of pollution will probably need to seek help from someone knowledgeable about local groundwater conditions. See *supra* note 30; see Burlington Free Press, Jan. 6, 1985, at 1B, col. 4.

52. Once made aware of the leak, most tank owners would replace the tank as a matter of good business practice; the cost of gasoline deters most people from knowingly dumping

edy. The traditional theories of liability for invasion of a property right are trespass and nuisance.<sup>53</sup> Absent an intent to allow leakage, the Restatement of Tort's position is that liability under either theory attaches only if the defendant was negligent, reckless, or conducting an abnormally dangerous activity.<sup>54</sup> When courts have refused to characterize gasoline storage as abnormally dangerous, plaintiffs have often had difficulty proving the defendant negligent for allowing an unknown leak to occur.<sup>55</sup>

One difficulty with showing negligence or recklessness in the usual LUST situation is that there is no readily applicable standard of care.<sup>56</sup> The location of a tank underground precludes visual inspection. Failure to take daily inventory measurements may be evidence of carelessness,<sup>57</sup> but even conscientious inventory control, as traditionally practiced, may fail to detect significant leaks.<sup>58</sup> Hydrostatic testing is relatively effective at detecting leaks, but is expensive and usually requires a cessation of business for one or more days.<sup>59</sup> Also, such testing has no predictive value—a tank declared sound today may develop a leak tomorrow.<sup>60</sup> Courts may be justifiably reluctant to impose frequent repetitions of this cumbersome and expensive procedure as a legal duty.

Some judges have circumvented the problems of proving negligence by finding, as a matter of law, that underground gasoline storage is an abnormally dangerous activity.<sup>61</sup> This determination

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it into the ground. Also, failure to abate the leakage after notice exposes the owner to liability for an intentional tort, with the possibility of punitive damages. See RESTATEMENT (SECOND) OF TORTS § 839 (1977).

53. RESTATEMENT (SECOND) OF TORTS §§ 158, 159, 165 (trespass); § 822 (general rule of nuisance); § 832 (pollution of waters as nuisance).

54. RESTATEMENT (SECOND) OF TORTS §§ 165, 166, 822 (1977).

55. *Hudson v. Peavy Oil Co.*, 279 Or. 3, 566 P.2d 175 (1977) (discussed *infra* at text accompanying notes 78-89).

56. In some cases it may be possible to show that tanks were negligently installed, *Monroe "66" Oil Co. v. Hightower*, 180 So.2d 8 (La. Ct. App. 1965); or that inadequate materials were used, *Kostyal v. Cass*, 163 Conn. 92, 302 A.2d 121 (1972). Most leaks, however, are due to corrosion over a period of years.

57. See, e.g., 37 PA. ADMIN. CODE § 11.21 (Shepard's 1984), requiring daily dipstick measurements. This regulation was violated by the defendant service station operators in *Moore v. Mobil Oil Co.*, 480 A.2d 1012 (Pa. Super. Ct. 1984), who were unaware of the law. They took weekly dipstick readings which never did reveal the leak. *Id.* at 1015.

58. See *supra* notes 38-40 and accompanying text. See also *Hudson v. Peavy Oil Co.*, 279 Or. 3, 566 P.2d 175, 176 (1977) (discussed *infra* in text accompanying notes 78-89).

59. Telephone interview with David Partridge, *supra* note 41.

60. See *supra* note 42.

61. See, e.g., *Yommer v. McKenzie*, 255 Md. 220, 257 A.2d 138 (1969); *City of Northglenn, Colo. v. Chevron U.S.A., Inc.*, 519 F. Supp. 515 (D. Colo. 1981). See also *infra* text

is the basis for applying a standard of strict liability.<sup>62</sup> Another doctrine that could be used to achieve the same end is *res ipsa loquitur*; however, this approach is conspicuous mainly by its absence.<sup>63</sup>

Relying on a trespass theory proved fatal to the plaintiff's action in *Phillips v. Sun Oil Co.*<sup>64</sup> The taste and odor of gasoline in his well water prompted chemical tests, which showed the gasoline to be the brand dispensed by a neighboring service station.<sup>65</sup> The defendant later reported to the town's board of health that the tanks, located seventy-five feet from plaintiff's well, were indeed leaking.<sup>66</sup> The complaint pled separate counts of nuisance, negligence, and trespass; however, the nuisance and negligence charges were withdrawn in the face of defendant's motion to dismiss at the end of the plaintiff's evidence.<sup>67</sup> The trial court then dismissed the trespass charge for failure of proof.<sup>68</sup>

The judgment was subsequently affirmed by the New York Court of Appeals, which rested its decision on the nature of trespass as an intentional harm.<sup>69</sup> While the defendant need not intend the

damaging consequence of his intrusion, he must intend the act which . . . produces the unlawful invasion, and the intrusion must at least be the immediate or inevitable consequence of what he willfully does, or which he does so negligently as to amount to willfulness. [citations omitted]. To constitute such a trespass, the act done must be such as "will to a substantial certainty result in the entry of the foreign matter" (Restatement, Torts, *supra*, § 158, comment h).<sup>70</sup>

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accompanying notes 90-102.

62. RESTATEMENT (SECOND) OF TORTS §§ 519, 520 (1977).

63. *Res ipsa loquitur* allows negligence to be inferred from the fact of the accident itself. The threshold for its application is met if (1) the instrumentality causing the injury was in the defendant's exclusive control and (2) the accident was one that does not ordinarily happen in the absence of negligence. BLACK'S LAW DICTIONARY 1173 (5th ed. 1979). The first requirement should be satisfied as long as the owner and the operator of the tank are joined as defendants (if they are not the same person). The second requirement should be satisfied in most instances by the foreseeability of a buried steel article corroding and the failure of the defendant(s) to take the necessary precautions, whatever they might be.

64. 307 N.Y. 328, 121 N.E.2d 249 (1954).

65. *Id.* at 330, 121 N.E.2d at 250.

66. *Id.*

67. *Id.*

68. *Id.*

69. 307 N.Y. 328, 121 N.E. 2d 249 (1954).

70. *Id.* at 331, 121 N.E.2d at 250-51. Restatement § 158, cited by the court in *Phillips*,

In the leading case cited for this result, *Dillon v. Acme Oil Co.*,<sup>71</sup> an oil refinery was held not liable for deliberately discharging onto its land chemical wastes that "somehow soaked down into and through the soil" and polluted a neighboring well.<sup>72</sup>

In contrast to the approach of the *Phillips* court, a Georgia appellate court held that a tank owner was negligent "in providing and installing gasoline storage tanks, and in failing to discover and remedy a defect as a result of which gasoline seep[ed] into the underground water table and contaminate[d] wells of an adjoining landowner."<sup>73</sup> This holding, in *North Georgia Petroleum Co. v. Lewis*,<sup>74</sup> might be attributed in part to advances in hydrogeology in the two decades between the *North Georgia Petroleum* and *Phillips* decisions. There was also evidence in the *North Georgia Petroleum* case that the station owner had reported gasoline losses to the oil company shortly after the tank's installation in 1967 and that a test by the oil company had failed to reveal the leak.<sup>75</sup> The amount of the damage award was affirmed but not stated.<sup>76</sup> The basis for the award was the "difference in market value of the property with and without water," since there was expert testimony that "this pollutant in the soil is never destroyed but remains in the ground until something moves it out."<sup>77</sup> The award of damages, of course, did nothing about the polluted groundwater.

In *Hudson v. Peavy Oil Co.*<sup>78</sup> the Oregon Supreme Court held that a finding of negligence was necessary to impose liability for an

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dealt with liability for *intentional* intrusions; § 165, of both the first and second Restatement of Torts, countenances liability for negligent or reckless trespass, or intrusions resulting from abnormally dangerous activities. The *Phillips* approach would result in liability only if the defendant (a) knew the tank was leaking and (b) had "good reason to know or expect that subterranean and other conditions were such that there would be passage from defendant's to plaintiff's land." 307 N.Y. 331, 121 N.E.2d 251. The practical result of this test is no liability, and no duty of care, at all.

71. 56 N.Y. Sup. Ct. 565 (1888), cited 307 N.Y. at 331, 121 N.E.2d at 251.

72. 307 N.Y. at 331, 121 N.E.2d at 251. The mystery of groundwater's movement, evident in this opinion, was only slowly dispelled from the judicial mind. It persisted in Vermont as late as 1973. *Drinkwine v. State*, 131 Vt. 127, 300 A.2d 616; see *Development, Vermont's New Groundwater Law*, 10 VT. L. REV. 479 (1985); VT. STAT. ANN. tit. 10, § 1410 (Supp. 1985).

73. *North Georgia Petroleum Co. v. Lewis*, 128 Ga. App. 653, \_\_\_, 197 S.E.2d 437, 438 (emphasis added).

74. 128 Ga. App. 653, 197 S.E.2d 437 (1973).

75. *Id.* at \_\_\_, 197 S.E.2d at 439.

76. *Id.* at \_\_\_, 197 S.E.2d at 440.

77. *Id.*

78. 279 Or. 3, 566 P.2d 175 (1977).

unintentional trespass by leaking gasoline;<sup>79</sup> it considered and rejected the trial court's application of strict liability for unusually dangerous activities.<sup>80</sup> The strict liability standard, reformulated in sections 519 and 520 of the second Restatement of Torts,<sup>81</sup> was seen as inappropriate to gasoline pollution from buried tanks.<sup>82</sup> The court found no evidence that the operation of the gas station was "'extraordinary, exceptional or unusual' in this location"<sup>83</sup> or that the risk could not be eliminated by the exercise of reasonable care.<sup>84</sup>

Interestingly, the court refused to hold that the harm anticipated from the leaking gasoline was "'grave'"<sup>85</sup> or that the pollution of plaintiff's land, with resulting fumes, was the "kind of harm, the possibility of which makes the activity abnormally dangerous."<sup>86</sup> The risk of fire or explosion was thus distinguished from gasoline's toxic effects or the fumes on plaintiff's property.<sup>87</sup> The court held that the evidence was "ample to permit the jury to find

79. *Id.* at \_\_\_, 566 P.2d at 177-78.

80. *Id.*

81. RESTATEMENT (SECOND) OF TORTS § 519 (1977):

General Principle

(1) One who carries on an abnormally dangerous activity is subject to liability for harm to the person, land or chattels of another resulting from the activity, although he has exercised the utmost care to prevent such harm.

(2) This strict liability is limited to the kind of harm, the possibility of which makes the activity abnormally dangerous.

*Id.* at § 520:

Abnormally Dangerous Activities

In determining whether an activity is abnormally dangerous, the following factors are to be considered:

(a) existence of a high degree of risk of some harm to the person, land or chattels of others;

(b) likelihood that the harm that results from it will be great;

(c) inability to eliminate the risk by the exercise of reasonable care;

(d) extent to which the activity is not a matter of common usage;

(e) inappropriateness of the activity to the place where it is carried on; and

(f) extent to which its value to the community is outweighed by its dangerous attributes.

Compare RESTATEMENT OF TORTS §§ 519, 520 (1938).

82. 279 Or. at \_\_\_, 566 P.2d at 177-78.

83. *Id.* at \_\_\_, 566 P.2d at 178 (quoting in part *McLane v. Northwest Natural Gas*, 225 Or. 324, 327, 467 P.2d 635 (1970)).

84. *Id.* at \_\_\_, 566 P.2d at 178.

85. *Id.*

86. *Id.* n.3, quoting RESTATEMENT (SECOND) OF TORTS § 519(2).

87. 279 Or. at \_\_\_, 566 P.2d at 178.

that the injury . . . was 'permanent' in the sense that it could not be repaired . . . by any practical means [and] that it was likely to persist for an undetermined but significant period of time."<sup>88</sup> Damages were therefore to be measured by the diminution in the market value of the property.<sup>89</sup>

Eight years prior to *Hudson*, the strict liability provisions of Restatement sections 519 and 520 were applied to underground gasoline storage in a case<sup>90</sup> that has been recognized as a persuasive authority.<sup>91</sup> Following the contamination of their well with gasoline, the plaintiffs in *Yommer v. McKenzie*<sup>92</sup> filed a nuisance action and were awarded \$3500 damages.<sup>93</sup> On appeal the defendants argued that the plaintiffs had failed to show any negligence in the operation of the service station.<sup>94</sup> The Maryland Court of Appeals held that there was no need to prove negligence because the defendants' underground storage of gasoline within seventy feet of plaintiffs' well was abnormally dangerous.<sup>95</sup> After discussing the rule of *Rylands v. Fletcher*<sup>96</sup> and its application in Maryland,<sup>97</sup> the court considered the case before it in light of what at that time was the rule's most recent embodiment: a tentative draft of the second Restatement sections 519 and 520.<sup>98</sup> It is useful here to review the court's application of the section 520 criteria:

- (a) The operation of the service station itself was held not to involve a high degree of risk, but placing a gasoline tank so close to the plaintiffs' well did involve such a risk.

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88. *Id.* at \_\_\_, 566 P.2d at 179.

89. *Id.* While an award of damages is inadequate in terms of the lost resource, it should be borne in mind that the technology for cleaning groundwater is of fairly recent origin. See *supra* note 34 and *infra* text accompanying notes 103-33.

90. *Yommer v. McKenzie*, 255 Md. 220, 257 A.2d 138 (1969).

91. *City of Northglenn, Colo. v. Chevron U.S.A., Inc.*, 519 F.Supp. 515, 516 (D. Colo. 1981). Lacking a clear Colorado precedent, the federal court decided that *Yommer* and *Yukon Equipment, Inc. v. Firemen's Fund Insurance Co.*, 585 P.2d 1206 (Alaska 1978), would persuade the state supreme court to hold that storage of gasoline in a residential area was abnormally dangerous under the § 520 criteria. *Id.* (The *Yukon* case imposed strict liability for the storage of explosives in a populated area.)

92. 255 Md. 220, 257 A.2d 138 (1969).

93. *Id.* at \_\_\_, 257 A.2d 138-39.

94. *Id.*

95. *Id.* at \_\_\_, 257 A.2d at 141.

96. *Rylands v. Fletcher*, L.R. 3 H.L. (1868), cited at 257 A.2d 139 (holding defendant liable, regardless of negligence, for damage resulting from the escape of water from an artificial reservoir).

97. *Yommer*, 225 Md. at \_\_\_, 257 A.2d at 139-41.

98. *Id.* at \_\_\_, 257 A.2d at 140, citing RESTATEMENT (SECOND) OF TORTS §§ 519-20 (Tent. Draft No. 10, 1964) (See *supra* note 81).

- (b) The harm caused (gasoline in plaintiffs' well) was a serious one, with the potential for being even more serious.
- (c) The "risk cannot, or at least was not, eliminated by the exercise of reasonable care."
- (d) Bulk storage of gasoline is not a matter of common usage, according to the Restatement's comment on this clause.
- (e) The appropriateness *vel non* of the activity to its location was seen as a crucial factor; storage of gasoline adjacent to a source of drinking water was characterized as inappropriate. The reporter's notes were cited as support for the importance of location in the overall determination of liability.
- (f) The inappropriateness of placing the tank adjacent to a source of drinking water was not outweighed by the value of the activity (operating a service station).<sup>99</sup>

After considering and rejecting the defendants' contention that the proof of causation was insufficient,<sup>100</sup> the court affirmed the judgment for the plaintiffs.<sup>101</sup>

A recent case in the federal District Court for the District of Colorado adopted the reasoning and result of *Yommer*, restating its rationale thus:

The widespread use of gasoline in no way diminishes its inherently dangerous character. Those who store and dispense gasoline for profit, and who attempt to increase that profit by locating their filling stations and incidental storage facilities in or near residential areas, should be held liable for harm resulting to persons or property from gasoline stored at or leaking from those stations.<sup>102</sup>

The cases considered thus far have limited the remedy to a personal one—money damages for the particular plaintiff. That was apparently the only relief prayed for in those cases. A pair of interesting cases from Pennsylvania, however, illustrate the potential difference in remedies when a state agency takes the place of private litigants.

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99. 225 Md. at \_\_\_, 257 A.2d at 140-41.

100. *Id.* at \_\_\_, 257 A.2d at 141-42.

101. *Id.* at \_\_\_, 257 A.2d at 142.

102. *City of Northglenn, Colo. v. Chevron U.S.A., Inc.*, 519 F. Supp. 515, 516 (D. Colo. 1981).

In *Moore v. Mobil Oil Co.*,<sup>103</sup> a number of private property owners filed suit "in trespass and equity"<sup>104</sup> against the proprietors of a service station and the lessor of the station's storage tanks, Mobil Oil Company.<sup>105</sup> The plaintiffs sought compensatory and punitive damages as well as a mandatory injunction to abate and remove the nuisance.<sup>106</sup> The trial court (1) permanently enjoined the defendants from polluting the ground and water; (2) ordered the defendants "to take such measures as might be necessary to assure that the gasoline and other contaminants presently in the soil and ground water . . . would not pollute the [plaintiffs'] wells";<sup>107</sup> (3) ordered the defendants to submit a "comprehensive proposal"<sup>108</sup> to "mitigate the long term effects"<sup>109</sup> of the pollution; and (4) ordered the defendants to provide the plaintiffs with an interim supply of potable water.<sup>110</sup>

Although stating that remand was justified on purely procedural grounds, the superior court nonetheless addressed the substance of the case and invalidated the injunction.<sup>111</sup> Noting that "a mandatory preliminary injunction is an extraordinary judicial act,"<sup>112</sup> the majority began by characterizing the chancellor's conclusion that the defendants' tanks were responsible for the pollution as "clearly speculative."<sup>113</sup> The injunction against further pollution was seen as superfluous since the offending tanks had already been removed from the ground.<sup>114</sup> The court held that ordering the defendants to prevent gasoline already in the soil and groundwater from polluting plaintiffs' wells was improper because no "workable and scientifically proven solution to the problem" appeared in the record; the court concluded that the order was "impossible to accomplish."<sup>115</sup>

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103. 331 Pa. Super. 241, 480 A.2d 1012 (1984).

104. *Id.* at \_\_\_, 480 A.2d at 1016.

105. *Id.* at \_\_\_, 480 A.2d at 1014.

106. *Id.* at \_\_\_, 480 A.2d at 1016.

107. *Id.* at \_\_\_, 480 A.2d at 1018.

108. *Id.*

109. *Id.* at \_\_\_, 480 A.2d at 1028 (Popovich, J., dissenting).

110. *Id.*

111. *Id.* at \_\_\_, 480 A.2d at 1019.

112. *Id.* The superior court disagreed with the court below as to the finality of the injunction, holding that the chancellor had no authority to order, *sua sponte*, a final hearing on injunctive relief as he had done. *Id.* at \_\_\_, 480 A.2d at 1014, 1018.

113. *Id.* at \_\_\_, 480 A.2d at 1019. This label was severely criticized by the dissent. See *infra* notes 120-26 and accompanying text.

114. *Id.*

115. *Id.* at \_\_\_, 480 A.2d at 1019, 1020. The court relied for this conclusion on an illus-

The plaintiffs were relegated to an action at law for damages, which in the court's view would "fully remed[y]" the harm suffered.<sup>116</sup> Even the order to provide an interim supply of potable water was struck down on the ground that "most or all of the [plaintiffs] had already been procuring their own safe water supplies."<sup>117</sup> In light of several plaintiffs' testimony that they were financially unable to continue buying water,<sup>118</sup> the superior court's claim of being "troubled by the great inconvenience and significant harm . . . visited on the [plaintiffs]"<sup>119</sup> rang hollow. This decision highlights the sharp limits of judicial willingness to protect a common resource at the behest of private litigants.

A strong dissent criticized every significant conclusion of the majority, quoting extensively from the record for support. The testimony of expert witnesses for both sides supported the chancellor's finding of the defendants' liability.<sup>120</sup> The damage remedy

tration appended to § 839 of the Restatement (Second) of Torts, which explained what was meant by "abatable physical condition":

f. Abatable physical condition. By an "abatable physical condition" is meant one that reasonable persons would regard as being susceptible of abatement by reasonable means. The law does not require the unreasonable or fantastic, and therefore even though it might conceivably be possible to abate a particular condition, it is not "abatable" within the meaning of this Section unless its abatement can be accomplished without unreasonable hardship or expense.

Illustrations:

1. A is in possession of land upon which is situated a tank for the storage of petroleum. B is in possession of land 500 yards from this tank. Without A's knowledge or negligence the tank develops an underground leak and a quantity of oil flows out, saturates A's land and drains into an unknown subterranean stream that carries it to B's land. As a result, B's well that supplies his drinking water is polluted and rendered unfit for use. When A learns of this he immediately removes all the remaining oil from the tank but the oil already in his land continues to pollute B's well for some time. It is found that A's maintenance of the oil tank was not abnormally dangerous. A is not liable to B for failing to take action to remove the oil already in his land, since it would not be practicable to do so.

*Moore*, 331 Pa. Super. at \_\_\_, 480 A.2d at 1020 n.4. This example was taken verbatim from the first Restatement of Torts, adopted in 1938. Aside from its debatable assumptions that the owner was not negligent and that the activity was not abnormally dangerous, the illustration no longer reflects reality. See *supra* note 34, also *infra* notes 127-33 and accompanying text.

116. 331 Pa. Super. 241 at \_\_\_, 480 A.2d at 1020.

117. *Id.*

118. *Id.* at \_\_\_, 480 A.2d at 1034.

119. *Id.* at \_\_\_, 480 A.2d at 1020.

120. *Id.* at \_\_\_, 480 A.2d at 1026-29 (Popovich, J., dissenting). In support of his conclusions the dissenting judge cited the case of *A.H. Grove & Sons, Inc. v. Commonwealth of Pa.*, Dept. of Env'tl. Resources, 70 Pa. Commw. 34, 452 A.2d 586 (1982). In that case, testi-

available at law was criticized as inadequate and unfair in that it put the burden on the injured party to finance a cleanup and then seek recoupment.<sup>121</sup> The uncertainty of method or time frame for cleanup made advance calculation of damages impractical.<sup>122</sup> Remedial actions by the plaintiffs could also expose them to claims that the course pursued was premature or ill advised.<sup>123</sup> The dissenting judge endorsed the chancellor's action in requiring the defendants to submit proposals for a physical solution, especially since the plaintiffs lacked the necessary financial resources to do so.<sup>124</sup> He was especially dismayed at the court's refusal to require the defendants to supply potable water in the interim, finding that such an order was ad hoc in nature and did not go beyond preserving the status quo.<sup>125</sup> Penalizing the innocent homeowners by requiring them to absorb this continuing expense was seen as a "gross injustice."<sup>126</sup>

The *Moore* decision by the Pennsylvania Superior Court is almost directly contrary to an earlier holding of that state's supreme court in *National Wood Preservers, Inc. v. Commonwealth of Pennsylvania, Department of Environmental Resources*.<sup>127</sup> At issue in *National Wood* was an order by the Department of Environmental Resources (DER) directing the owners and lessees of a parcel of land to remove subsurface oil and chemical pollution.<sup>128</sup> Although the pollution had been caused by the defendant/lessee's predecessor in interest, the court held that the defendants could nonetheless be required to correct the condition.<sup>129</sup> Citing numer-

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mony based on the defendant gas station owner's operating practices, the geology of the area, and the location of the contaminated wells was held sufficient for a finding by the Environmental Hearing Board that the defendant's station was the "most probable source of the contamination." Although "circumstantial in nature," the evidence was "nevertheless substantial and competent," justifying the imposition of testing and monitoring at defendant's expense. 70 Pa. Commw. at \_\_\_, 452 A.2d at 588-89. The *Moore* dissent also pointed out that the defendant's tanks had never been tested for leaks during their eighteen years of use. 331 Pa. Super. at \_\_\_, 480 A.2d at 1029 n.4.

121. *Id.* at \_\_\_, 480 A.2d at 1029 n.5.

122. *Id.* at \_\_\_, 480 A.2d at 1029-30.

123. *Id.* at \_\_\_, 480 A.2d at 1031.

124. *Id.* at \_\_\_, 480 A.2d at 1031, 1034.

125. *Id.* at \_\_\_, 480 A.2d at 1034.

126. *Id.*

127. 489 Pa. 221, 414 A.2d 37 (1980), *aff'g* Philadelphia Chewing Gum Corp. v. Commonwealth of Pa., Dept. of Envtl. Resources, 35 Pa. Commw. 443, 387 A.2d 142 (1978).

128. 489 Pa. at \_\_\_, 414 A.2d at 40. The pollution consisted of fuel oil mixed with pentachlorophenol, a toxic chemical. *Id.* at \_\_\_, 414 A.2d at 39.

129. *Id.* at \_\_\_, 414 A.2d at 45.

ous United States Supreme Court decisions,<sup>130</sup> the court found the police power broad enough to support the section of the state's Clean Streams Law<sup>131</sup> under which the DER had acted and to support the imposition of cleanup costs on owners and occupiers of polluted land.<sup>132</sup> Significantly for the *Moore* case, the *National Wood* court held that the "abatement orders were 'reasonably necessary' in light of the [Environmental Hearing] Board's well supported findings that pollution exists under the land of appellants, and that *removal of the pollutant is feasible.*"<sup>133</sup>

Injured property owners should be able to recoup the diminution in their land's value and their costs in obtaining a new domestic water source. This remedy, however, does not address the larger problem: the loss of a diminishing resource that has great value to society as a whole.

Courts are charged only with settling disputes between the parties before them; affirmatively acting to protect the public's interest in common resources such as water is the responsibility of executive agencies. Armed with expertise and delegated authority, they are not bound by the rules of damages<sup>134</sup> that limit judicial remedies in private litigation. As the contrast between *Moore* and *National Wood* illustrates, a motivated environmental agency can succeed in getting the resource cleaned up where injured property owners could not. The judicial recognition of the hazards of LUST

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130. *Id.* at \_\_\_, 414 A.2d at 42-5.

131. PA. STAT. ANN. tit. 35, § 691.316 (Purdon 1977), as amended, provides in pertinent part: Whenever the [DER] finds that pollution or a danger of pollution is resulting from a condition which exists on land in the Commonwealth the [Department] may order the landowner or occupier to correct the condition in a manner satisfactory to the [Department]. *National Wood*, 489 Pa. at \_\_\_, 414 A.2d at 38-9.

132. *Id.* at \_\_\_, 414 A.2d at 45.

133. *Id.* at \_\_\_, 414 A.2d at 44 (emphasis added).

134. If, however, the cost of replacing the land in its original condition is disproportionate to the diminution in the value of the land caused by the trespass, unless there is a reason personal to the owner for restoring the original condition, damages are measured only by the difference between the value of the land before and after the harm.

RESTATEMENT (SECOND) OF TORTS § 929, comment b (1977). Compare *Ewell v. Petro Processors of La., Inc.*, 364 So.2d 604 (La. Ct. App. 1978) (damages for pollution of swampland by leachate from chemical landfill limited to diminution in value of land rather than the \$170,000,000 cost of removing the polluted soil) with *Com. of P.R. v. SS Zoe Colocotroni*, 628 F.2d 652 (1st Cir. 1980), cert. denied, 450 U.S. 912 (1981) (damage award of \$6,000,000 for cleanup of oil slick that damaged estuarine ecosystem affirmed; environmental statutes of Puerto Rico and United States sanction refusal to apply diminution of value measure for damage to resources whose value could not always be measured by rules of the marketplace).

is persuasive authority for regulatory action; the limits of judicial remedies make such action imperative.

Given the numbers of leaking and potentially leaking tanks,<sup>135</sup> the high cost of cleanup,<sup>136</sup> the relentless diminution of the nation's clean water resources,<sup>137</sup> and the possibility of insolvent or absent tank owners,<sup>138</sup> the government must take a role in addressing LUST. Taking its cue from the rising tide of state legislation,<sup>139</sup> Congress has set the federal regulatory ball in motion.

### III. THE CONGRESSIONAL RESPONSE TO LUST

Title VI of the Solid and Hazardous Waste Amendments of 1984<sup>140</sup> amends the Solid Waste Act<sup>141</sup> (commonly known by the name of its successor, the Resource Conservation and Recovery Act (RCRA)) by adding Subchapter IX: Regulation of Underground Storage Tanks.<sup>142</sup> The basic question addressed in the following section is: Will the resource be cleaned up and protected to the greatest extent feasible?

#### A. *The Statute*

The Environmental Protection Agency's first task is to assess the extent of the problem by gathering basic data on tanks.<sup>143</sup> This is to be accomplished through state agencies designated by the governor of each state.<sup>144</sup> The owners of all operating tanks covered by subchapter IX<sup>145</sup> must notify the designated agency of the

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135. See *supra* notes 12-18 and accompanying text.

136. See *supra* notes 31-33 and accompanying text.

137. New York Times, Aug. 9, 1981, at 1, col. 3; New York Times, Aug. 13, 1981, at B6, col. 1. See also F. MOSS, *THE WATER CRISIS* (1967).

138. Burlington Free Press, Jan. 6, 1985, at 1B, col. 4.

139. Shaner, *Underground Tank Dilemma*, NAT'L PETROLEUM NEWS, Aug. 1984, at 36, 38.

140. Pub. L. 98-616, signed by President Reagan, Nov. 8, 1984.

141. 42 U.S.C.A. §§ 6901-6991i (1982 & Supp. 1985).

142. 42 U.S.C.A. §§ 6991-6991i (Supp. 1985).

143. EPA had already begun doing this in anticipation of regulating tanks under the Toxic Substances Control Act, 15 U.S.C. §§ 2601-2629 (1982). See 15 ENV'T REP. (BNA) 413 (July 13, 1984).

144. 42 U.S.C.A. § 6991a(b)(1).

145. Section 6991 defines "underground storage tank" as any tank that has 10% or more of its volume (including associated piping) beneath ground level, except for tanks of less than 1,100 gallons storing motor fuel for noncommercial purposes; tanks storing heating oil for use on the premises; septic tanks; pipelines; storm and waste water systems; tanks in basements or other underground areas, etc. § 6991(1)(A)-(I). The inclusion of piping in the

existence of their tank(s) and of the age, size, type, location, and uses of each such tank, by May 8, 1985.<sup>146</sup> Owners of tanks taken out of operation after January 1, 1974, must provide the agency with similar information.<sup>147</sup> The notification process is facilitated by requiring anyone who "deposits regulated substances" in an underground tank to notify the owner of the tank of their duty under the new law;<sup>148</sup> sellers of new tanks are covered by a like provision, beginning thirty days after the issuance of new tank standards.<sup>149</sup>

Federal regulations applicable to all owners and operators of underground petroleum tanks must become effective no later than April 8, 1987.<sup>150</sup> These regulations must include, but are not limited to, requirements for (1) leak detection systems, which may be inventory control plus testing, or some other method of identifying releases; (2) maintenance of records relating to the leak detection

volume calculation could bring a tank suspended above the ground within the definition, if it is connected to sufficient buried piping.

Such underground tanks are covered if they hold "regulated substances," defined in § 6991(2) as (1) petroleum, crude oil, or any liquid fraction thereof and (2) substances defined in § 101(14) of the Comprehensive Act of 1980 (CERCLA), but not including substances regulated as hazardous wastes. § 101(14) provides:

"hazardous substance" means (A) any substance designated pursuant to section 1321(b)(2)(A) of title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title, (C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (42 U.S.C. 6921) (but not including any waste the regulation of which under the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.) has been suspended by Act of Congress), (D) any toxic pollutant listed under section 1317(a) of title 33, (E) any hazardous air pollutant listed under section 112 of the Clean Air Act (42 U.S.C. 7412), and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to section 2606 of title 15. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

42 U.S.C. § 9601(14) (1982).

146. § 6991a(a)(1).

147. § 6991a(a)(2).

148. § 6991a(a)(5). A stamped notice on an invoice is expected to suffice. Address by Jeffrey Leiter, Esq., lobbyist for the Ad Hoc Underground Storage Tank Coalition, at Practising Law Institute's Conference on the Amendments to the Resource Conservation and Recovery Act, Feb. 11-12, 1985.

149. § 6991a(a)(6).

150. § 6991b(f)(1). The regulations must be promulgated 90 days prior to the effective date for public comment. § 6991b(a). The required degree of regulation is that necessary to "protect human health and the environment." § 6991b(a).

system; (3) reporting of releases and corrective actions taken following a release; (4) corrective action;<sup>151</sup> (5) closure of tanks to prevent future leaks.<sup>152</sup> Performance standards for new petroleum tanks are mandated,<sup>153</sup> and will become effective by April 8, 1987.<sup>154</sup>

Prior to the implementation of the new tank performance standards, an interim prohibition applies. It forbids the installation of any tank unless it (1) will prevent releases over its operational life; (2) is either cathodically protected or constructed of or clad with noncorrosive material; and (3) has an interior surface or lining compatible with the substance to be stored.<sup>155</sup> However, if the soil at the tank site has a resistivity of 12,000 ohm/cm or more, an unprotected tank may be installed.<sup>156</sup>

States are encouraged to administer their own LUST programs.<sup>157</sup> Appropriations of \$25,000,000 per year for fiscal years

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151. The term "corrective action" is not defined. This is a source of some concern to the members of the Ad Hoc Underground Storage Tank Coalition. Address by Jeffrey Leiter, *supra* note 148.

152. § 6991b(c).

153. § 6991b(e).

154. § 6991b(f)(1). *See supra* note 150.

155. § 6991b(g)(1).

156. § 6991b(g)(2). Soil with this resistivity would be a relatively poor conductor of electricity.

157. The Vermont General Assembly authorized such a state program on May 20, 1985. The law, 1985 Vt. Acts 66, is to be codified at VT. STAT. ANN. tit. 10, Chapter 59, §§ 1921-1936 (Supp. 1985); it also amends VT. STAT. ANN. tit. 24, § 1154 to require recording of hazardous waste and underground storage information in local land records. The intent of the Vermont law is "to provide authority to the secretary [of the Agency of Environmental Conservation] . . . to operate a program consistent with or more stringent than that contained in Title VI of the Hazardous and Solid Waste Amendments of 1984." VT. STAT. ANN. tit. 10, § 1921. The following is a brief summary of the Vermont statute, emphasizing the differences between it and the federal law.

The Vermont definition of "underground storage tank" differs from the federal one in that it exempts *all* petroleum storage tanks under 1,100 gallons in size, as well as manure storage tanks. RCRA exempts petroleum tanks only if they are "farm or residential tank[s] of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes," or tanks storing heating oil for use on the premises. For purposes of regulation, the Vermont statute further distinguishes "Category 1 tanks," which are all underground storage tanks except (1) fuel oil tanks for on-premise heating and (2) motor fuel tanks for farm or residential use. (These are already exempted by definition if they are less than 1,100 gallons.) *Compare* VT. STAT. ANN. tit. 10 § 1922 (10) and (11) with 42 U.S.C.A. § 6991(1). Vermont's definition of "regulated substances" is identical to that in RCRA, but gives the secretary authority to designate additional substances by rule. VT. STAT. ANN. tit. 10 § 1922(6)(c).

All Vermont tank owners are required to notify the agency of the existence of their tanks by April 1, 1986 (as opposed to the May 8, 1986 RCRA deadline). Anyone who owned or used an underground storage tank after January 1, 1974 must also notify, unless they

1985 through 1988 are authorized to assist states in the development and implementation of underground storage tank programs.<sup>158</sup> State programs may be submitted for EPA approval after May 7, 1984;<sup>159</sup> the EPA Administrator must approve or reject such programs within six months of their submission.<sup>160</sup> State authority to regulate buried tanks more strictly than federal law is explicitly preserved,<sup>161</sup> but such regulations must be at least as stringent as their federal counterparts.<sup>162</sup> An exception to the general "equally stringent" rule is provided if state legislative and/or regulatory action is necessary to upgrade existing programs to meet federal standards.<sup>163</sup> Interim EPA approval, for a period of one to three years, may be granted to a state program that is less stringent than the federal program regarding leak detection systems, record keeping, reporting of releases, and closure of tanks.<sup>164</sup> However, in no case may the state standards be less stringent than federal ones for corrective action, financial responsibility, new tank performance standards, and notification.<sup>165</sup> States must also pro-

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know that the tank has been removed from the ground. VT. STAT. ANN. tit. 10 § 1923. Tanks out of use for a year or more must be removed or "closed" as prescribed by regulation. Responsibility for such tanks lies with the last person using them; however, if that person cannot be found the current landowner may be held responsible unless certain criteria are met. VT. STAT. ANN. tit. 10 § 1926.

After June 30, 1986, no Category 1 tank may be operated or maintained without a valid permit from the agency. These permits must specify the requirements for new tanks and installation, inventory control, leak detection and reporting, corrective action, financial responsibility, etc. New tanks must provide a level of protection "equivalent to that provided by double wall tanks which may be monitored from the surface." VT. STAT. ANN. tit. 10 § 1927.

The secretary may order a "tank integrity demonstration" to be performed by a tank inspector licensed under § 1936, when (1) there is a reason to suspect a release or (2) the age, operation or installation of the tank so warrants or (3) inventory records are not properly maintained. VT. STAT. ANN. tit. 10 §§ 1924, 1927(c). The secretary is authorized by § 1932 to issue appropriate orders to enforce the statute and regulations; should these fail to motivate compliance, the secretary may sue for injunctive or other relief under § 1934. Civil penalties up to \$10,000 per tank per day, and criminal penalties up to \$25,000 or six months imprisonment or both, are authorized by § 1935.

Finally, the legislature requires the secretary to make several reports by January 1, 1987. These are to include recommendations relating to tanks currently exempted from regulation and a report on the options available for assuring the financial responsibility of tank owners and operators in the event of leaks.

158. § 6991i(a).

159. § 6991c(a).

160. § 6991c(d).

161. § 6991g.

162. § 6991c(b)(1).

163. § 6991c(b)(2).

164. *Id.*

165. *Id.*

vide for adequate enforcement of their LUST regulations or relinquish their authority to the EPA.<sup>166</sup>

The Administrator of EPA is authorized to enforce tank regulations by administrative orders or civil suits in federal district court.<sup>167</sup> Noncompliance with an administrative order may lead to a fine of up to \$25,000 for each day of noncompliance.<sup>168</sup> Failure to comply with any EPA or state regulation, or with the interim prohibition on installation of unprotected tanks, is punishable by a \$10,000 per tank per day penalty.<sup>169</sup>

The statutory provisions discussed thus far envision a fairly comprehensive, potentially very effective, program to protect the nation's groundwater from LUST. The major points concerning information and technology have been addressed, and where balances have been struck they appear to be rational and fair.

For example, in defining underground tanks Congress has exempted tanks of less than 1,100 gallons capacity and on-site heating oil tanks; this exemption eases the regulatory burden on small businesses, farms, and homeowners, while a later section mandates further study to assess the extent of risk posed by these types of tanks.<sup>170</sup> On the other hand, underground tanks are defined broadly in the sense that any tank that is ten percent or more below ground level is regulated. This makes sense: a leak in a tank that was merely resting on the ground would probably be noticeable, but any appreciable burial of the tank or piping increases the risk of an undetected leak.

The provision for independent state programs provides another example of Congressional balancing. States that already have or are beginning to implement programs of regulation may receive interim authorization to continue, with a time allowance to meet the new federal standards as they are issued. In the critical areas of corrective action, financial responsibility, new tank standards, and notification, however, states must meet or exceed the federal minimum. This division rationally balances flexibility with necessary stringency. The statute appears to be a great stride toward preventing future LUST pollution—at least after April 1987 when

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166. § 6991c(e).

167. § 6991e(a).

168. § 6991e(a)(3).

169. § 6991e(d).

170. § 6991h(d).

leak detection and other regulations become effective. Until that time, of course, state legislatures and agencies must take up the slack with the enactment and tough enforcement of their own programs.

Two critical and interrelated areas remain to be discussed. The first is money: money necessary to implement the new regulatory program, to clean up existing and future LUST pollution, and, perhaps, to finance the installation of new tanks that are needed to protect our clean water. The second issue concerns political will: the willingness of Congress to appropriate funds, of the EPA to issue and enforce appropriately stringent regulations, and of the petroleum industry to cooperate in this important initiative. It may be a sign of the gradual maturation of environmentalism that there is reason for cautious optimism on both counts.

### B. Money

Money is a key issue whenever competing values are addressed by government policy; nowhere is this issue more evident than in the environmental area, where costly cleanup and regulatory burdens must be weighed against the public interest in a safe and habitable environment.

The initial question, that of funding the regulatory program, does not seem much in doubt.<sup>171</sup> The felt need for the program, reflected in the provisions and timeliness of the law, will probably carry through to the appropriations process.<sup>172</sup> Congress appears to have answered any questions about its political willingness to see a tank program implemented and the ubiquity of the problem<sup>173</sup> will ensure the electoral expediency of finding the necessary funds.

Money for the cleanup of leaks is a more difficult problem. Ideally, tank owners and operators should carry insurance that would cover corrective action following a release. Congress has addressed this need in section 6991b, the first paragraph of which reads as follows:

*As he deems necessary or desirable, the Administrator shall promulgate regulations containing requirements for*

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171. Interview with Mark A. Greenwood, Assistant General Counsel—RCRA, U.S. Environmental Protection Agency (Feb. 11, 1985).

172. *Id.* See also 1984 U.S. CODE CONG. & AD. NEWS 5699.

173. See *supra* notes 12-14 and accompanying text.

maintaining evidence of financial responsibility as he deems necessary and desirable for taking corrective action and compensating third parties for bodily injury and property damage caused by sudden and nonsudden accidental releases arising from operating an underground storage tank. (emphasis added)

That this language gives the EPA Administrator discretion to require *or not require* financial responsibility on the part of tank owners and operators is supported by the Joint Explanatory Statement of the House and Senate Conference on the amendments. "The Senate amendment also provides the Administrator with the discretion to require that tank owners and operators maintain insurance or other proof of financial responsibility. . . ." <sup>174</sup>

This discretionary language stands in marked contrast to other sections of subchapter IX.<sup>175</sup> The reason for this change in tone is not that Congress is indifferent about requiring tank owners to be financially responsible. Rather, it is due to the uncertain availability, cost, and coverage of insurance for underground storage tanks.<sup>176</sup> Most tank facilities are covered by general liability insurance, which usually will not cover the gradual pollution typical of most LUST situations.<sup>177</sup> Special Environmental Impairment Liability (EIL) policies are available, but are typically expensive.<sup>178</sup> Even with EIL policies, the scope of coverage may be uncertain.<sup>179</sup> Given the age of America's tank population<sup>180</sup> and the number of tanks made of unprotected steel,<sup>181</sup> the insurance industry is justifiably nervous about insuring them against leaks.<sup>182</sup> Owners of

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174. 1984 U.S. CODE CONG. & AD. NEWS 5694.

175. Compare § 6991b(d)(1) with § 6991b(b), (c) and (g).

176. Interview with Claire Whitney, Special Assistant to the Assistant Attorney General for Land and Natural Resources, U.S. Department of Justice (formerly Associate Minority Counsel, Energy and Commerce Committee, U.S. House of Representatives) and Christopher Harris, formerly Counsel, Subcommittee on Commerce, Transportation and Tourism, Committee on Energy and Commerce, U.S. House of Representatives (Feb. 11, 1985). See generally Smith, *Environmental Damage Liability Insurance—A Primer*, 39 BUS. LAW. 333 (1983).

177. Smith, *supra* note 176, at 335, 343. See also Vt. AEC, *supra* note 12, at 8-9.

178. Vt. AEC, *supra* note 12, at 9.

179. *Id.*

180. See *supra* notes 14-17 and accompanying text.

181. *Id.*

182. Interview with Claire Whitney and Christopher Harris, *supra* note 176. See generally Feliciano, *Groundwater Contamination from Petroleum Underground Storage Tanks, and Associated Liability Issues* (1985) (Congressional Research Service, 85-1040 ENR).

older tanks may be unable to buy leak insurance.<sup>183</sup> If they also lack the capital to invest in new tanks,<sup>184</sup> then their only choice would be to stop dealing in petroleum products.

Given this context of uncertainty, Congress apparently felt it wise to give the EPA Administrator as much flexibility as possible in formulating financial responsibility requirements. Tank owners are a diverse group in financial and technical ability.<sup>185</sup> While major oil companies may qualify as self-insurers and are undertaking systematic tank replacement programs,<sup>186</sup> many other owners, such as "mom and pop" convenience stores and rural gas stations, cannot afford to either insure or replace their old tanks.<sup>187</sup> Moreover, the latter group of tank owners are equally unprepared to handle the cleanup costs and liability associated with a leak.<sup>188</sup>

A possible solution to this problem would be to bring petroleum tanks under the coverage of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund).<sup>189</sup> This idea has merit, but faces serious political and practical difficulties. The political difficulty is the stiff opposition of the petroleum industry to CERCLA's strict liability provisions.<sup>190</sup> The practical difficulty is that the Superfund is inadequate to deal with the costly problem it was intended to address: cleanup of hazardous waste dumps.<sup>191</sup> Given the extent and sever-

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183. *Id.*

184. See *supra* note 46 and accompanying text.

185. Congress's recognition of this is reflected in § 6991b(b) of Subchapter IX, which allows the Administrator of EPA to make distinctions in tank regulations based, *inter alia*, on the technical capability of tank owners and operators.

186. Vt. AEC, *supra* note 12, at 8.

187. *Id.* This was confirmed by Jeffrey Leiter, Esq., a representative of the Ad Hoc Underground Storage Tank Coalition. This coalition, formed in response to congressional proposals to regulate underground tanks, includes a broad range of organizations, such as the American Petroleum Institute, the National Association of Convenience Stores, the American Association of Nurserymen, and many others. For a complete list see PRACTICING LAW INSTITUTE, AMENDMENTS TO THE RESOURCE CONSERVATION AND RECOVERY ACT COURSE HANDBOOK No. 135, 125 (1984).

188. Vt. AEC, *supra* note 12, at 8.

189. 42 U.S.C. §§ 9601-9657 (1982). Petroleum is specifically excluded from CERCLA's definition of a "hazardous substance." 42 U.S.C. § 9601(14).

190. Address by Jeffrey Leiter at Practising Law Institute's Conference on the Amendments to the Resource Conservation and Recovery Act, Feb. 11-12, 1985. See also PRACTICING LAW INSTITUTE, *supra* note 187, at 146, 159. On the scope of CERCLA's liability provisions, see Note, *The Comprehensive Environmental Response, Compensation and Liability Act of 1980: Is Joint and Several Liability the Answer to Superfund?*, 18 NEW ENG. L. REV. 109, 131 (1982).

191. See Note, *supra* note 190, at 114-20.

ity of the toxic waste threat, it is unlikely that any leaking petroleum tank would make the National Priority List.<sup>192</sup> As far as emergency response and liability provisions, the EPA's powers under other statutes are equal to the task,<sup>193</sup> although sparingly used.<sup>194</sup>

The threat of a LUST amendment to CERCLA has been responsible, at least in part, for the creation of alternatives by the petroleum industry. At least two industry groups have proposed raising money for cleanup and tank replacement through a tax on gasoline.<sup>195</sup>

An examination of the draft proposal by the Society of Independent Gasoline Marketers of America (SIGMA) and other groups is illuminating. This proposal for legislation envisions the creation of a trust fund financed by an increase in the gasoline excise tax.<sup>196</sup> This fund would be placed in the U.S. Treasury,<sup>197</sup> to be disbursed to states that established state funds,<sup>198</sup> expenditures

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192. Telephone interview with Chris Dunsy, Office of Groundwater Protection, U.S. Environmental Protection Agency (Jan. 30, 1984). The National Priority List ranks hazardous waste sites according to the need for governmental cleanup action. 42 U.S.C. § 9605 (8)(B) (1982).

193. Interview with Mark A. Greenwood, *supra* note 171. Power to respond to "imminent hazards" is provided in RCRA, 42 U.S.C. § 7003 (1982), and, in the event of a threat to public water supplies, in the Safe Drinking Water Act at 42 U.S.C. § 300i(a) (1982).

194. Administrative orders were issued to compel cleanup of LUST pollution and provision of alternate water supplies to a subdivision in Wyoming, Rhode Island, in 1983. This is the only use of an imminent hazard provision in a LUST situation known to Mark A. Greenwood, *supra* note 171, or to Joel Blumstein, EPA Regional Counsel for Region I (telephone interview with Joel Blumstein, Feb. 6, 1985).

195. A draft proposal entitled *Outline of Legislation to Create Underground Petroleum Storage Tank Trust Fund* was provided by Jeffrey Leiter, *supra* note 187, and has been endorsed by the following trade associations: Society of Independent Gasoline Marketers of America (SIGMA); National Association of Convenience Stores (NACS); National Association of Truck Stop Operators; and the Petroleum Marketers Association of America. This proposal is on file at the Vermont Law Review. See *infra* text accompanying notes 196-207. A proposal by the American Petroleum Institute differs from the SIGMA proposal in that it envisions state response funds financed by registration and other fees on tank owners and operators. This type of collective financial responsibility was specifically endorsed by Congress in § 9004(c)(1). It has the advantage of being adaptable to local needs because states could evaluate the LUST problem in their own state and set the fees accordingly. If desired, the fees could be set high enough to provide financing arrangements for small businesses to replace their tanks. API feels that the SIGMA proposal would raise far more money than is necessary and that the adaptability of API's proposal to local needs and conditions makes it preferable. Telephone interview with Dr. Rudy White, American Petroleum Institute (Feb. 27, 1985). Compare with *infra* text accompanying notes 196-207.

196. SIGMA Draft proposal, *supra* note 195, at I(B), III and IV.

197. *Id.* at III.

198. *Id.* at V.

from these funds would be administered at the state level. This money would be made available to

- (1) investigate petroleum releases from underground tanks to identify the responsible parties and, if necessary, take enforcement actions against them;<sup>199</sup>
- (2) finance cleanup and third-party compensation if either (a) no responsible party can be identified<sup>200</sup> or (b) the aggregate costs of cleanup and liability exceed the financial resources of the responsible party;<sup>201</sup> and
- (3) provide low-interest loans to small-business owners of underground tanks for the purpose of upgrading or replacing underground tank systems.<sup>202</sup>

Other provisions of the proposed law would delete the words "necessary or desirable" from section 6991b(d)(1);<sup>203</sup> direct the EPA Administrator to delineate owner and operator responsibility for tanks<sup>204</sup> and set coverage limits for financial responsibility;<sup>205</sup> and define corrective action and personal injuries for which a tank owner or operator would be financially responsible.<sup>206</sup>

Because it represents a genuine effort by the regulated community to help alleviate a pressing environmental problem, this proposal is commendable. It naturally reflects the interests of the regulated community (the petroleum industry) in avoiding inclusion in CERCLA and in limiting direct government regulation;<sup>207</sup> but it is encouraging to see that the interests of victims of pollution are being internalized to some degree in industry's calculation of its own interests. The most beneficial effect of environmental regulation is to foster (or force) just such a change of attitude that will render the regulation superfluous. Self-regulation that adequately accounts for the interests of the public is an unrealizable ideal, but the existence of a cooperative effort, by regulators and regulated, toward the worthwhile goal of a clean environment, is most likely to achieve that goal at the most reasonable social cost.

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199. *Id.* at VI (A)(1) and (4).

200. *Id.* at VI (A)(2) and (3).

201. *Id.* at I (B)(1)(c).

202. *Id.* at I (B)(1)(d) and VIII.

203. *Id.* at VII (A). § 6991b(d)(1) is quoted *supra* in text preceding note 175.

204. *Id.* at VII (B)(2).

205. *Id.* at VII (B)(1).

206. *Id.* at VII (4).

207. The position of the Ad Hoc Underground Storage Tank Coalition was that requiring daily inventory control and financial responsibility provided sufficient protection from LUST. Interview with Jeffrey Leiter, Esq. (Feb. 11, 1985).

### C. Implementation and Enforcement

A great deal can be inferred from the preceding section about the willingness of the interested parties to carry out the provisions of subchapter IX. However, other factors bear on the implementation and enforcement of the underground tank program.

The first such consideration is the Reagan administration's general environmental approach, which cannot be characterized as a zealous defense of ecological integrity.<sup>208</sup> Certain provisions of the Hazardous and Solid Waste Amendments of 1984 reflect the frustration of Congress with the halting pace of implementation of environmental statutes.<sup>209</sup> For example, some sections of the amendments (other than the underground tank title) contain "hammer clauses," which specify relatively harsh statutory consequences should the EPA fail to issue certain regulations within the stated deadlines.<sup>210</sup> In the tank regulation section, Congress was painstakingly specific about how it expected the EPA to regulate underground tanks.<sup>211</sup> Fortunately, the clarity and specificity of Congress's intent,<sup>212</sup> as well as public awareness of the LUST problem<sup>213</sup> and the generally cooperative attitude of the petroleum industry,<sup>214</sup> should negate the possibility of political stumbling blocks. This program is seen by some as an opportunity for the Reagan administration to demonstrate its "market-oriented philos-

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208. See generally J. LASH, *A SEASON OF SPOILS* (1984).

209. Address by Michael A. Brown, former Deputy General Counsel and Enforcement Counsel, U.S. Environmental Protection Agency, at Practising Law Institute's Conference on the Amendments to the Resource Conservation and Recovery Act, Feb. 11-12, 1985.

210. Congress deliberately took a 'regulatory' approach in directing the [EPA] to take specific action within definite time frames. If EPA fails to meet these deadlines, 'hammer provisions' ensure that stringent restrictions explicitly set forth in the statute, which in many instances are more strict than EPA would impose, will automatically take effect.

PRACTICING LAW INSTITUTE, *supra* note 187, at 15. One pragmatic effect of these "hammers" is to motivate industry to work with EPA, rather than against it, in formulating reasonable regulations within the deadlines. This should greatly facilitate implementation of the statute. Address by Michael A. Brown, *supra* note 209. Some examples of these "hammer provisions" are found in the provisions of the Hazardous and Solid Waste Amendments (HSWA) dealing with small-quantity generators of hazardous wastes (§ 6921(d)(8)); liquids in landfills (§ 6924(c)(3)); land disposal of solvents and dioxins (§ 6924(e)); deep well injection of hazardous wastes (§ 6924(f)(3)); and others. There are no "hammers" in Subchapter IX (the underground storage tank provisions) (§§ 6991-6991i).

211. See, e.g., § 6991b(b), (c) and (g).

212. Interview with Mark A. Greenwood, *supra* note 171.

213. PRACTICING LAW INSTITUTE, *supra* note 187, at 130 (citing reports of leaks on the nationally broadcast television shows "60 Minutes" and "Good Morning, America").

214. See *supra* notes 195-207 and accompanying text.

ophy on environmental regulation."<sup>215</sup>

A practical consideration that bears on the effectiveness of the new program is the sheer ambitiousness of the undertaking. Subchapter IX requires the EPA to regulate a larger universe of facilities than has ever been attempted in the environmental field.<sup>216</sup> The relatively low technical capabilities of many owner/operators,<sup>217</sup> problems of notification and information gathering,<sup>218</sup> and statutory deadlines<sup>219</sup> are parts of this problem.

Again, however, things are not as bad as they might seem. The use of the petroleum distribution network to aid in reaching tank owners and operators<sup>220</sup> should facilitate the crucial information-gathering phase of regulation. The limitations imposed by the marginal technical and financial capabilities of many tank owners should be significantly ameliorated if one of the plans<sup>221</sup> proposed by the petroleum industry is adopted by Congress. There is some feeling at the EPA that the deadlines in the new law are achievable,<sup>222</sup> in part because of accumulated agency experience with RCRA regulation<sup>223</sup> and in part because of the specificity with which Congress has expressed the new program's goals and mechanisms.<sup>224</sup>

### CONCLUSION

The United States' vast dependence on petroleum power and the private automobile has resulted in a multitude of underground tanks storing the highly toxic and flammable fuel at convenient locations. This method of storage eliminates one threat, that of fire, but creates the danger of hidden leaks that can poison our land and water.

Increasing knowledge of subterranean phenomena, and a growing awareness of the widespread threat to the environment posed

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215. PRACTICING LAW INSTITUTE, *supra* note 187, at 133.

216. *Id.* at 132.

217. VT. AEC, *supra* note 12, at 8-9. Congress recognized this variation in capabilities in § 6991b(b).

218. PRACTICING LAW INSTITUTE, *supra* note 187, at 132.

219. § 6991b(f).

220. Leiter, *supra* note 190. See § 6991a(a)(5).

221. Notes 195-207 *supra* and accompanying text.

222. Interview with Mark A. Greenwood, *supra* note 171.

223. *Id.*

224. *Id.*

by toxic chemicals of all sorts, contributed to a judicial move away from requirements of intent or negligence toward the imposition of strict liability for gasoline leaks. While this change eased the burden on plaintiffs seeking monetary awards for the loss of their water supplies and damage to their property, it did little to prevent or remedy the nearly irreversible harm to the resource. The task of forcing cleanup fell to environmental agencies charged with protecting the public's interest in a clean environment. As the number of leaks multiplied, state legislatures responded by authorizing affirmative regulation of underground storage tanks in an effort to prevent future pollution.

Prompted by the spread of state legislation and the nationwide scope of the problem, Congress included in its amendments to the Resource Conservation and Recovery Act a mandate to the EPA to regulate underground storage tanks. This legislation envisions a comprehensive program for the prevention of leaks and for corrective action should leaks occur. As far as it goes, the new law appears to be sound and balanced. However, it does not address the sensitive area of money—the large amounts of money needed to clean up the worst leaks, and perhaps most important, to replace the nation's aging steel tanks with more modern systems.

Faced with possible inclusion under the strict, joint, and several liability standard of the CERCLA, the petroleum trade associations managed to come up with more palatable alternatives, namely, schemes for response funds earmarked for petroleum leaks from buried tanks. The most ambitious of these would raise large sums of money through an excise tax; these sums would also be available to help finance tank replacement by small businesses. This plan demonstrates industry's adaptation to the modern fact of serious environmental regulation.

As industry and government grapple with the problems of LUST, the cause of this costly problem is worth remembering. The eventual failure of tanks buried in the 1950's and 1960's was foreseeable, yet apparently ignored by those responsible for the safe handling of toxic chemicals and by the nation's risk managers, the insurance industry. Changing economic and political conditions caused the major oil companies to reduce their involvement in re-tailing;<sup>225</sup> many of the tank failures and regulatory costs of the

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225. Telephone interview with Fred Cook, Executive Director of the Vermont Petroleum Assoc. (Feb. 6, 1986).

1980's fell in the lap of small business (which lacks essential capital and expertise) and consumers. The insurance companies that happily collected premiums for twenty years have announced their reluctance to cover the costs of cleanups or to continue insuring underground tanks.<sup>226</sup> The institutional incompetence that culminated in the emergence of LUST as a major issue should give pause to advocates of technology as the answer to humankind's needs and problems. Industrial America has given us a multitude of powerful agents that serve us; technological hubris permits us to believe that these genies are properly bottled when in fact they often are not. The environmental debacles that result undermine public confidence in industry's ability to handle toxic chemicals safely.<sup>227</sup>

Nonetheless, the reaction to LUST probably represents as satisfactory a response to a grave environmental problem as can realistically be expected. This response was made possible in large part by the relatively clear-cut nature of the problem, the availability of feasible solutions, and the reconciliation of the regulated community to the inevitability of environmental regulation. The costs of storing gasoline safely will have pervasive economic impacts, but clean water is worth the price. Gasoline may power much of our industrial society, but water sustains our life.

*Geoffrey Commons*

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226. Feliciano, *Groundwater Contamination from Petroleum Underground Storage Tanks, and Associated Liability Issues* (1985), at 13 (Congressional Research Service, 85-1040 ENR).

227. 16 ENV'T REP. (BNA) 1237 (Nov. 8, 1985) (76% of those polled believe that a major chemical accident in the United States is "likely").

