



January 1995

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### Recommended Citation

Turner, Allyn G. (1995) "Federal Groundwater Regulation and Policy: Improvements Under the Horizon?," *Journal of Natural Resources & Environmental Law*. Vol. 10 : Iss. 2 , Article 10.  
Available at: <https://uknowledge.uky.edu/jnrel/vol10/iss2/10>

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# Federal Groundwater Regulation and Policy: Improvements Under the Horizon?

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Since the 1970's, lawmakers have been attempting to push the issue of groundwater protection to a higher level on the environmental priority ladder.<sup>1</sup> Over the past two decades, however, groundwater protection has lingered in the shadows of hot political issues such as toxic waste dumps, landfills, smog, and polluted rivers. It has never reached "top priority" status in the greater realm of environmental legislation and policy.<sup>2</sup> As a result, legislative efforts have failed to produce a comprehensive groundwater protection law, even though promoted by many commentators.<sup>3</sup> Instead, Congress has responded to the ongoing concerns by enacting a patchwork of federal statutes that protect groundwater.

Although current environmental laws provide significant protection for groundwater, efforts to enact additional groundwater protection laws have continued.<sup>4</sup> During the 103rd Congress,

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<sup>1</sup> Sarah E. Lewis, *The 1986 Amendments to the Safe Drinking Water Act and Their Effect on Groundwater*, 40 SYRACUSE L. REV. 893 (1989) [hereinafter Lewis] (citing J. Stephen Dycus, *Development of a National Groundwater Protection Policy*, 11 B.C. ENVTL. AFF. L. REV. 211 (1984); Wehn, *Congress Facing Pressures to Loosen, Tighten Federal Safe Drinking Water Statute*, 40 CONG. Q.W. REP. 973 (1982)).

<sup>2</sup> UNITED STATES GENERAL ACCOUNTING OFFICE, REPORT TO THE CHAIRMAN, ENVIRONMENT, ENERGY, AND NATURAL RESOURCES SUBCOMMITTEE, COMMITTEE ON GOVERNMENT OPERATIONS, HOUSE OF REPRESENTATIVES, WATER POLLUTION: MORE EMPHASIS NEEDED ON PREVENTION AND EPA'S EFFORTS TO PROTECT GROUNDWATER (1991) [hereinafter GAO REPORT].

<sup>3</sup> Linda A. Malone, *The Necessary Interrelationship Between Land Use and Preservation of Groundwater Resources*, 9 UCLA J. ENVTL. L. & POL'Y 1 (1990); Mary C. Wood, *Regulating Discharges Into Groundwater: The Crucial Link in Pollution Control Under the Clean Water Act*, 12 HARV. ENVTL. L. REV. 569 (1988).

<sup>4</sup> See *infra* notes 84-95 and accompanying text.

groundwater protection was a topic of many proposed bills.<sup>5</sup> Several legislative efforts addressed increased groundwater protection, including drinking water legislation proposed by both the House and the Senate.<sup>6</sup> As the 104th Congress got underway, groundwater protection was again considered by America's lawmakers. New proposals to amend the Clean Water Act are underway.<sup>7</sup> Legislation is also being considered which would amend the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the Solid Waste Disposal Act (SWDA), and other statutes as they relate to groundwater regulation.

These continued efforts, albeit well-intended, are misdirected. They make no attempt to address groundwater protection in a comprehensive manner. They simply expand upon the current environmental laws, an approach which has proven to be unsatisfactory. Worse still, given the Republican Congress' "Contract with America," these new efforts have little hope of succeeding. If federal protection of groundwater is to improve within the confines of our nation's current political climate and Congressional agenda, we must insist upon (1) significant support for state efforts to protect groundwater, and (2) consistency in implementing and enforcing existing groundwater protection laws.

## I. THE IMPORTANCE OF GROUNDWATER

Groundwater is subsurface water located in saturated soils, sands, permeable rocks, and other subsurface strata below the water table often referred to as aquifers. Groundwater is recharged by surface waters, runoff, precipitation which leaches through surface soils, and leachate from ponds or other impoundments. Likewise, groundwater discharges into surface waters and wetlands areas, and is important in sustaining aquatic ecosystems.<sup>8</sup> Surface water and groundwater are often hydrologically interconnected.<sup>9</sup>

The importance of groundwater is undisputable. Groundwater provides up to 50% of this country's drinking water,<sup>10</sup> and 95% of

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<sup>5</sup> CONGRESSIONAL RESEARCH SERVICE REPORT TO CONGRESS, ENVIRONMENTAL PROTECTION: FROM THE 103RD TO THE 104TH CONGRESS DATED JANUARY 3, 1995 (reprinted in 9 TOX. L. REP. (BNA) 878 (1995) [hereinafter REPORT TO CONGRESS].

<sup>6</sup> *Id.*

<sup>7</sup> See, e.g., H.R. 961, 104th Cong., 1st Sess. (1995).

<sup>8</sup> GAO REPORT, *supra* note 2, at 8.

<sup>9</sup> *Id.*

<sup>10</sup> See *Hearing before the Subcommittee on Environment of the Committee on Sci-*

the drinking water in rural areas.<sup>11</sup> Since the 1950's, total groundwater withdrawals in the United States have increased by at least 150%<sup>12</sup> and the consumption of groundwater is now increasing at twice the rate of surface water consumption.<sup>13</sup> By 1985, groundwater withdrawals<sup>14</sup> equalled approximately ninety billion gallons per day.<sup>15</sup> In addition to drinking water, groundwater serves as a resource for agriculture and other industries. Approximately 30% of the water used for industrial activities in the eastern United States is groundwater.<sup>16</sup>

Groundwater contamination may be caused by a variety of activities,<sup>17</sup> including waste disposal onto land or into surface waters, salt spreading on roads, animal feedlots, agricultural land use practices, the use of pesticides and fertilizers, surface impoundments, spoil or tailings, leaking underground storage tanks, industrial operations, surface run-off, drainage canals or ditches, mining, well disposal of wastes, and particulates from the air.<sup>18</sup> Of these, the

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*ence, Space, and Technology*, 102nd Cong., 1st Sess., 4-5 (1991) (Testimony of Representative Morella).

<sup>11</sup> Lawrence Ng., *A Drastic Approach to Controlling Groundwater Pollution*, 98 YALE L.J. 773, 774 (1989) [hereinafter Ng].

<sup>12</sup> *Ground Water Contamination and Protection: Hearings Before the Subcomm. on Toxic Substances and Environmental Oversight of the Senate Comm. on Environment and Public Works, Part I*, 99th Cong., 1st Sess. 6 (1985) (statement of Sen. Dave Durenberger); see also Lawrence Ng, *supra* note 11, at 774.

<sup>13</sup> GAO REPORT, *supra* note 2, at 8.

<sup>14</sup> The one area not even contemplated by current federal statutes is the need for restrictions on groundwater use. The Clean Water Act (hereinafter CWA), in fact, specifically limits the Environmental Protection Agency's (hereinafter EPA) (or the federal government's) ability to abrogate or supersede rights to quantities of water established within a state, or states' authority to allocate water quantity. 33 U.S.C. § 1251(g) (1994). For a discussion of groundwater use issues, see Alison M. Gregory, *Groundwater and its Future: Interests and Burgeoning Markets*, 11 STAN. ENVTL. L.J. 229 (1992); David Todd, *Common Resources, Private Rights and Liabilities: A Case Study on Texas Groundwater Law*, 32 NAT. RESOURCES J. 233 (1992).

<sup>15</sup> GAO REPORT, *supra* note 2, at

<sup>16</sup> *Id.*

<sup>17</sup> With or without contamination caused by human activities, the physical, chemical, and biological quality of groundwater naturally varies from one location to another. It is influenced primarily by the specific environments through which the water passes as it travels through its natural hydrological cycle. EPA HANDBOOK, GROUND WATER VOLUME I: GROUND WATER AND CONTAMINATION 94 (September 1990) [hereinafter EPA HANDBOOK VOL. I]. Natural pollutants, for example, may be manifested in high levels of magnesium, iron, sulfur, nitrates, calcium, phosphorus, fluoride, or arsenic. U. S. WATER RESOURCES COUNCIL, THE NATION'S WATER RESOURCES 1975-2000, VOLUME 2: WATER QUANTITY, QUALITY, AND RELATED LAND CONSIDERATIONS, SECOND WATER ASSESSMENT 19 (1979) [hereinafter WATER RESOURCES].

<sup>18</sup> EPA HANDBOOK VOL. I, *supra* note 17, at 94-95.

most common sources of contamination are waste disposal and land uses.<sup>19</sup>

For decades, our utilization of water resources has been contradictory. We have continually used both surface water and groundwater for waste disposal, while at the same time relying upon these resources for drinking water.<sup>20</sup> As a result, both surface water and groundwater have been contaminated by toxins, carcinogens, and hazardous substances.<sup>21</sup> In fact, the presence of over 200 chemical constituents, 175 organic compounds, and 50 inorganic chemicals have been documented in groundwater.<sup>22</sup>

Once contaminated, an aquifer is typically difficult and expensive to remediate.<sup>23</sup> Groundwater is hard to reach for remediation, is almost always slow-moving, and thus can remain contaminated for decades, or, in some cases, centuries.<sup>24</sup>

## II. THE CURRENT FEDERAL "PATCHWORK"

Comprehensive federal groundwater protection laws have not come to pass. Concerns, however, over increasing contamination of groundwater and the rapidly increasing usage of groundwater for various purposes have not gone unanswered. In fact, since 1972, Congress has enacted at least six major federal environmental statutes have been enacted which include provisions for the prevention or remediation of groundwater pollution.<sup>25</sup> The four discussed here

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<sup>19</sup> *Id.*

<sup>20</sup> WATER RESOURCES, *supra* note 17, at 19.

<sup>21</sup> EPA HANDBOOK VOL. I, *supra* note 17, at 94.

<sup>22</sup> *Id.* See Ng, *supra* note 11, at 776. Groundwater contamination has been documented in every state, and has been linked to adverse health effects. *Id.*, (citing OFFICE OF TECHNOLOGY ASSESSMENT, PROTECTING THE NATION'S GROUNDWATER FROM CONTAMINATION, 5, 23 (1984).

<sup>23</sup> See Lewis, *supra* note 1, at 897 n. 42, 43.

<sup>24</sup> EPA HANDBOOK VOL. I, *supra* note 17, at 9.

<sup>25</sup> Only four of the primary federal statutes affecting groundwater regulation are addressed in this article. The two not addressed are the Toxic Substances Control Act and the Federal Insecticide, Fungicide and Rodenticide Act. The Toxic Substances Control Act (TSCA), 15 U.S.C. §§ 2601-2692 (1994), while not specifically addressed herein, does provide groundwater protections in that it addresses the manufacture and use of toxic substances which can pollute groundwater. In addition, the Surface Mining Control and Reclamation Act (SMCRA), 30 U.S.C. §§ 1201-1328 (1994), through its mining and reclamation provisions, protects against groundwater contamination.

The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) of 1988 7 U.S.C. §§ 136-136(y) (1994), initially enacted as a licensing statute that required pesticides and other substances to be registered and properly labelled, also provides groundwater protections. Under FIFRA, the EPA must weigh the environmental, economic, and social risks

are the Clean Water Act, the Safe Drinking Water Act, the Resource Conservation and Recovery Act, and the Comprehensive Response, Compensation and Liability Act.

#### A. The Clean Water Act

The Federal Water Pollution Control Act, commonly referred to as the Clean Water Act (CWA),<sup>26</sup> was enacted in 1972. The CWA focuses upon the restoration and maintenance of the integrity of the nation's waters through regulating point source discharges of pollutants into the surface waters of the United States.<sup>27</sup> The CWA, while establishing the primary statutory framework for controlling water pollution, is restricted for the most part to the regulation of "navigable waters." Thus, the Act's application to groundwater pollution is arguably limited.<sup>28</sup> The CWA, however, states as additional objectives the development and implementation of areawide waste treatment management planning "to assure adequate control of sources of pollutants"<sup>29</sup> and the development and implementation of programs to control nonpoint sources of pollution "in an expeditious manner."<sup>30</sup>

Section 208 of the CWA encourages states to control surface water pollution from sources other than point sources and dredge-and-fill activities.<sup>31</sup> It requires the EPA to publish guidelines for

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and benefits of a particular pesticide in determining whether the pesticide may be registered, and, if so, whether the pesticide poses risks which require additional restrictions by the EPA. 7 U.S.C. §§ 136a(c)(5) and 136(bb); see Cynthia A. Lewis and J. Daniel Barry, *EPA's Pesticides and Groundwater Strategy: Will it Work?*, 4 NAT. RESOURCES & ENV'T. 16, (1989). Logically, these restrictions can be imposed due to the product's unique or added risks to groundwater.

<sup>26</sup> 33 U.S.C. §§ 1251-1376 (1994).

<sup>27</sup> Section 101 of the CWA, 33 U.S.C. § 1251, sets forth the goals of the CWA. Among them is the elimination of discharges of pollutants into the navigable waters of the United States. 33 U.S.C. § 1251(a)(1). The National Pollutant Discharge Elimination System (NPDES) permit program, which regulates all point source discharges of pollutants into the nation's waters, is an integral part of the CWA.

<sup>28</sup> See *United States Steel Corp. v. Train*, 556 F.2d 822 (7th Cir. 1977), (addressing the issues of whether the CWA applies to groundwater). In that case, the Seventh Circuit stated that the CWA allowed regulation of groundwater "when the regulation was undertaken in conjunction with limitations on . . . discharges into surface waters." *Id.* at 852. In the same year, however, the EPA disclaimed any ability to regulate groundwater under the CWA because it is not part of "navigable waters." *Exxon Corp. v. Train*, 554 F.2d 1310 (5th Cir. 1977). More recently, a California district court considered the extent to which groundwater may be considered "waters of the United States." *McClellan Ecological Seepage Situation (MESS) v. Cheney*, 763 F. Supp. 431 (E.D. Cal. 1989).

<sup>29</sup> 33 U.S.C. § 1251(a)(5).

<sup>30</sup> 33 U.S.C. § 1251(a)(7).

<sup>31</sup> Section 201, the CWA's "congressional declaration of purpose" provision, re-

identifying areas having substantial water quality control problems.<sup>32</sup> Using these guidelines, section 208 requires states to identify water quality control problem areas within their jurisdiction and to develop areawide waste treatment management plans (AWTMPs) for each problem area.<sup>33</sup> Each state's AWTMPs should set forth procedures for identifying and controlling nonpoint sources of pollution affecting both surface waters and groundwater.<sup>34</sup> AWTMPs must include, among other things, a process to identify and control land or subsurface disposal of pollutants, to control construction pollution sources, to control surface and underground mining pollution sources, to identify and control agricultural and silvicultural nonpoint pollution sources, to control salt water intrusion caused by groundwater extraction, and to control the disposal of residual wastes which could affect water quality.<sup>35</sup> Although "requiring" these actions, section 208 lacks any enforcement mechanism.

In 1977, Congress enacted the Rural Clean Water Program.<sup>36</sup> Under that program, the Secretary of Agriculture can offer financial incentives to rural landowners to control nonpoint source pollution by implementing best management practices (BMPs) to "control nonpoint source pollution for improved water quality"<sup>37</sup> in states with approved AWTMPs.

In 1987, the CWA's groundwater pollution controls improved

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quires the development of waste treatment management plans, and provides that such plans, to the extent practicable, should "provide control or treatment of all point and nonpoint sources of pollution including in place or accumulated pollution sources." 33 U.S.C. § 1281.

<sup>32</sup> 33 U.S.C. § 1281(a)(b). See also, 33 U.S.C. § 1281 (underlying goals for the AWTMPs). Section 205 of the Act authorizes the appropriation of expenditures by the EPA "to carry out water quality management planning, including . . . identifying most cost effective . . . facility and non-point measures to meet and maintain water quality standards and . . . determining the nature, extent, and causes of water quality problems in various areas of the state." 33 U.S.C. § 1285(j).

<sup>33</sup> 33 U.S.C. § 1288(a)(2).

<sup>34</sup> Several commentators have discussed in more detail the federal laws regulating nonpoint source pollution. See Robert D. Fentress, *Nonpoint Source Pollution, Groundwater, and the 1987 Water Quality Act: Section 208 Revisited?* 19 ENVTL. L. 807 (1989).

<sup>35</sup> 33 U.S.C. § 1288(b)(2). In addition, whenever a state determines that its compliance with water quality standards so requires, the area-wide waste treatment management plan's language identifying processes to control disposal of pollutants which may affect groundwater must be developed and submitted to the EPA for approval "for application to a class or category of activity" throughout the state. 33 U.S.C. § 1288(b)(4)(A).

<sup>36</sup> 33 U.S.C. § 1288(j).

<sup>37</sup> *Id.*

the nonpoint source management program with the addition of section 319. Section 319 includes two significant elements: nonpoint source management programs and a federal grant program to encourage creative state groundwater protection initiatives. To fund those programs, Congress authorized the appropriation of up to \$400,000,000.<sup>38</sup> Section 319 requires states to prepare a management program for controlling nonpoint sources of pollution in a state's navigable waters and requires each management program to identify BMPs to reduce pollutants, "taking into account the impact of the practice on groundwater quality."<sup>39</sup> Moreover, section 319 introduces a grant program which includes grants for protecting groundwater quality.<sup>40</sup> Under section 319, the EPA must provide grant money to states for carrying out groundwater protection activities. In addition, section 319 requires the EPA, in making grants each year, to give priority to states proposing to implement management programs that will "carry out groundwater quality protection activities" as part of the state's nonpoint source pollution control program.<sup>41</sup>

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<sup>38</sup> 33 U.S.C. § 1329(j) (authorizing appropriations for fiscal years 1988-91). For a summary of monies authorized versus those requested and actually appropriated, see *Clean Water Act Research and Monitoring, Hearing Before the Subcommittee on Environment of the Committee on Science, Space, and Technology*, 102nd Cong., 1st Sess. 24-28 (1991).

<sup>39</sup> 33 U.S.C. § 1329(b)(2)(A).

<sup>40</sup> Section 319 requires, in pertinent part, that:

[u]pon application of a state for which a report submitted under subsection (a) of this section and a plan submitted under subsection (b) of this section is approved under this section, the Administrator shall make grants under this subsection to such State for the purpose of assisting such State in carrying out groundwater quality protection activities which the Administrator determines will advance the State toward implementation of a comprehensive nonpoint source pollution control program. Such activity shall include, but not be limited to, research, planning, groundwater assessments, demonstration programs, enforcement, technical assistance, education and training to protect the quality of groundwater and to prevent contamination of groundwater from nonpoint sources of pollution.

33 U.S.C. § 1329(i)(1).

<sup>41</sup> Under section 319's grant program, the EPA is required to give priority to those states planning groundwater quality protection activities. 33 U.S.C. § 1329(h)(5).

## B. The Safe Drinking Water Act

In 1974, the Safe Drinking Water Act (SDWA)<sup>42</sup> became the second significant environmental law to lend additional protections to groundwater. The SDWA, with a primary focus on protecting the quality of the nation's drinking water, regulates drinking water sources, including groundwater that may be used as drinking water.<sup>43</sup>

The SDWA protects groundwater which is or may be used for human consumption through: (1) controlling maximum contaminant levels (MCLs);<sup>44</sup> (2) establishing national drinking water quality standards;<sup>45</sup> (3) establishing a program to control waste disposal through underground injection; (4) establishing a program to protect sole source aquifers; and (5) creating a wellhead area protection program.

Primary drinking water standards<sup>46</sup> have been established to protect the public health. MCLs, with which primary drinking water regulations require compliance, reflect levels for contaminants that, if exceeded, could adversely affect public health.<sup>47</sup> The EPA delayed setting MCLs,<sup>48</sup> and many public water systems continue to fail to comply with the standards that have been set.<sup>49</sup> In response, the EPA amended the SDWA in 1986 to include deadlines for setting MCLs.<sup>50</sup>

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<sup>42</sup> Public Health Service (Safe Drinking Water) Act, 42 U.S.C. §§ 300f to 300j-26 (1994).

<sup>43</sup> One of the recognized weaknesses of SDWA with respect to the protection of groundwater is that it applies only to aquifers supplying public water systems. See Wood, *supra* note 3, at 570-71.

<sup>44</sup> 42 U.S.C. § 300f(3).

<sup>45</sup> 42 U.S.C. § 300g.

<sup>46</sup> EPA is required to regulate contaminants that "may have any adverse effect on the health of persons and which is known or anticipated to occur in public water systems." 42 U.S.C. § 300g-1(b)(3)(A).

<sup>47</sup> 42 U.S.C. § 300f(1). Although designed to protect public health, MCLs also take into account economic and technical feasibility. See 42 U.S.C. § 300g-1 (b)(4)-(5). MCLs are based upon maximum contaminant level goals (MCLGs) which are set based only upon health considerations. See 42 U.S.C. § 300g-1 (b)(4). See also Malone, *supra* note 3, (discussion on the SDWA and its amendments). In addition, the SDWA allows for the establishment of secondary drinking water standards designed to protect the appearance, taste, odor, or aesthetic standards for water.

<sup>48</sup> As of 1985, only 22 MCLs had been set even though over 200 contaminants had been found in drinking water sources. See Lewis, *supra* note 1.

<sup>49</sup> *Id.* "As many as . . . 7,600 community water system wells may contain pesticide residues at levels above current health standards," and as many as "1,130 community wells may have levels of nitrates above current health standards." GAO REPORT, *supra* note 2, at 10-11.

<sup>50</sup> Regulations have currently been promulgated for 84 contaminants. See REPORT

The SDWA addresses waste disposal through control of deep well injection of wastes by the Underground Injection Control (UIC) program.<sup>51</sup> The UIC program classifies underground injection wells<sup>52</sup> and, consistent with the underlying purposes of the SDWA, regulates underground injection practices which may endanger drinking water sources.<sup>53</sup>

The 1986 amendments to the SDWA included two important programs for groundwater protection: the wellhead protection program and the sole source aquifer demonstration program. A "wellhead protection area" is the surface and subsurface area surrounding a well or well field which supplies a public water system and which, geologically and hydrologically, is subject to contamination.<sup>54</sup> The wellhead protection program requires states to develop and submit to the EPA a wellhead protection area program specifying wellhead protection areas, relevant hydrologic information, the identity of sources of contaminants, and a description of financial assistance available to implement control measures.<sup>55</sup>

The sole source aquifer demonstration program is designed to identify and protect "critical aquifer protection areas" (CAPAs) or aquifers which serve as the sole or principal drinking water source for an area.<sup>56</sup> This program encourages states to draft management plans which map boundaries of the CAPAs, identify existing and potential sources (both point and nonpoint) of groundwater contamination, assess the relationship between land uses and groundwater quality, and identify the state's authority to implement the plan.<sup>57</sup> As with other federal laws that purport to protect groundwater, however, this program includes no real enforcement authority, but instead simply mirrors the ideas set forth years earlier in section 208 of the CWA.

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TO CONGRESS, *supra* note 5, at 883.

<sup>51</sup> 42 U.S.C. § 300h.

<sup>52</sup> For a description of the five classes of underground injection wells, see 40 C.F.R. § 146.5.

<sup>53</sup> 42 U.S.C. § 300h(b). In addition, the program allows for the establishment of a permitting program to control underground injection practices.

<sup>54</sup> 42 U.S.C. § 300h(7)(e).

<sup>55</sup> *See* 42 U.S.C. § 300h-7(a).

<sup>56</sup> 42 U.S.C. § 300h(6).

<sup>57</sup> *Id.*

### C. The Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA)<sup>58</sup> was enacted in 1976 as a "cradle to grave" regulation of the treatment, storage, and disposal of hazardous and solid wastes.<sup>59</sup> Generally designed to "protect the environment," RCRA was not conceived as a groundwater protection law. Nevertheless, many of its provisions control activities which would otherwise contribute to groundwater contamination.<sup>60</sup>

RCRA includes three subtitles which impact groundwater protection. Subtitle C of RCRA governs the treatment, storage, and disposal of hazardous wastes. Given the potential for these activities to cause significant groundwater contamination, the fact that they are now regulated benefits the nation's groundwater.<sup>61</sup> RCRA imposes groundwater monitoring requirements for treatment, storage, and disposal facilities<sup>62</sup> and, when monitoring wells indicate contamination has occurred, obligations for corrective action are imposed.

RCRA subtitle D governs the development of state or regional solid waste plans, and sets forth federal guidelines for "encouraging and facilitating" solid waste management.<sup>63</sup> In establishing guidelines for state solid waste management plans, the EPA is required to consider various factors which may impact upon "the reasonable protection of the quality of the ground and surface waters from leachate contamination."<sup>64</sup>

RCRA subtitle I regulates underground storage tanks (USTs). Subtitle I was added to address the contamination of groundwater by

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<sup>58</sup> 42 U.S.C. §§ 6901-6922k (1994).

<sup>59</sup> RCRA defines a "solid waste" as "any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities." 42 U.S.C. § 6903(27).

RCRA defines "hazardous waste" as "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may . . . [pose a substantial threat to human health]." 42 U.S.C. § 6903(5).

<sup>60</sup> See, e.g., 42 U.S.C. § 6924(d) (RCRA's "land ban" provisions which prohibit disposal of certain hazardous wastes).

<sup>61</sup> See Ng, *supra* note 11, at 783 (discussing RCRA as a tool "for the prospective control of an enormous threat to groundwater").

<sup>62</sup> 40 C.F.R. § 264.97-99 (1988).

<sup>63</sup> 42 U.S.C. § 6942(a).

<sup>64</sup> 42 U.S.C. § 6942(c)(1).

leaking underground tanks which were not previously regulated by RCRA. With the addition of subtitle I, underground storage tanks now have to be registered with an appropriate state or federal agency and meet certain design, construction, and leak detection requirements. In addition, USTs are subject to inspection and monitoring requirements, and to corrective action requirements if a release occurs.<sup>65</sup> The UST regulations add a significant groundwater protection element to the existing federal law.

#### D. The Comprehensive Environmental Response, Compensation and Liability Act

Enacted in 1980, the Comprehensive Environmental Response, Compensation and Liability Act<sup>66</sup> (CERCLA) was designed as a complement to the provisions of RCRA by regulating past treatment, storage, and disposal practices that resulted in a release or threatened release of hazardous substances into the environment. While RCRA focuses on the regulation of currently operating facilities, CERCLA directs the clean up of hazardous pollutants released into the environment as a result of past actions or operations.

CERCLA does little to prevent groundwater contamination. It does, however, contribute to the "post-contamination" regulation of groundwater, the significance of which should not be discounted. CERCLA requires potentially responsible parties to conduct, or reimburse the government for conducting, cleanup of hazardous waste sites, including the remediation of contaminated groundwater<sup>67</sup> when necessary and technologically feasible.<sup>68</sup> Where groundwater contamination is an element of a CERCLA removal or remedial action, MCLs are typically applied as the relevant and appropriate cleanup standard, although some confusion exists as to whether MCLGs should instead be applied.<sup>69</sup> In addition, EPA has

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<sup>65</sup> 42 U.S.C. §§ 6991-6991(i).

<sup>66</sup> 42 U.S.C. §§ 9601-9675 (1994).

<sup>67</sup> See U.S. ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF EMERGENCY AND REMEDIAL RESPONSE, GUIDANCE ON REMEDIAL ACTIONS FOR CONTAMINATED GROUND WATER AT SUPERFUND SITES (December 1988).

<sup>68</sup> Groundwater remediation is not always technologically possible and is typically very expensive. "In some cases, cleaning up contaminated groundwater may be impossible. A September 1989, Department of Commerce study prepared for EPA evaluated groundwater extraction technology, which is the most commonly used technology for cleaning up contaminated groundwater, and found that complete and final restoration of groundwater was achieved at only one of 19 sites examined." GAO REPORT, *supra* note 2, at 1.

<sup>69</sup> In 1982, the EPA adopted MCLs as the cleanup standard for groundwater cor-

developed a groundwater classification system which is used in determining appropriate cleanup standards for a CERCLA removal or remedial action.<sup>70</sup>

### III. EPA'S EVOLVING GROUNDWATER POLICY

In 1984, the EPA adopted a strategy for addressing groundwater protection (1984 Strategy).<sup>71</sup> The 1984 Strategy was to be a guideline for the EPA's implementation of the current patchwork of laws. It focused on protecting groundwater both through contamination prevention and remediation, and, additionally, was designed to guide the states' groundwater protection activities.<sup>72</sup> The 1984 Strategy included four major elements: (1) the provision of monetary and technical support to states to encourage the development of state groundwater protection programs; (2) the assessment of sources of groundwater contamination not previously addressed; (3) the issuance of guidelines to be followed by the EPA in making decisions about groundwater; and (4) an additional emphasis on developing consistency among various EPA groundwater programs.<sup>73</sup>

Despite logical and admirable goals, the 1984 Strategy has been ineffective.<sup>74</sup> The EPA's financial and technical support have

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rective action under RCRA. In 1985, the EPA added the concept of compliance with "applicable or relevant and appropriate" requirements to CERCLA's attendant regulations (the National Contingency Plan) and included MCLs as one of those relevant and appropriate standards. Subsequently, Congress codified this reliance on the SDWA's standards in setting CERCLA groundwater cleanup standards in 42 U.S.C. section 9621. Section 121, however, seemed to adopt MCLGs, not MCLs, as the standard with which to comply where relevant and appropriate. Nevertheless, EPA continues to apply MCLs as the cleanup standard under RCRA and CERCLA based upon its theory that the MCLs are the legally enforceable standard under the SDWA, that MCLs are sufficient to protect public health, and that it would be inconsistent to require CERCLA groundwater cleanups to achieve a more stringent cleanup level. See Samuel I. Gutter, *SDWA Standards: A Framework for Groundwater Cleanup*, 4 NAT'L RESOURCES & ENV'T 3, 4-5 (1989).

<sup>70</sup> Office of Groundwater Protection, *Guidelines for Ground-Water Classification Under the EPA Ground-Water Protection Strategy* (April 1988).

<sup>71</sup> U.S. ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF GROUNDWATER PROTECTION, *A GROUNDWATER PROTECTION STRATEGY FOR THE ENVIRONMENTAL PROTECTION AGENCY* (August 1984) [hereinafter EPA 1984 STRATEGY].

<sup>72</sup> *Id.* See also GAO REPORT, *supra* note 2, at 1.

<sup>73</sup> GAO REPORT, *supra* note 2, at 2.

<sup>74</sup> *Clean Water Act Research and Monitoring, Hearing Before the Subcommittee on Environment of the Committee on Science, Space, and Technology*, U.S. House of Representatives, 102nd Cong., 1st Sess. (June 5, 1991) (Statement of Peter F. Guerrero, Associated Director, Environmental Protection Issues Resources, Community, and Economic Development Division, noting (1) a failure to provide states with adequate technology and funding, (2) EPA's failure to develop a "stronger partnership" with other agencies

been insufficient<sup>75</sup> and have played only a minor role in the states' progress in developing groundwater protection strategies and programs.<sup>76</sup> Without sufficient funding, states have been unable to properly develop federally mandated groundwater protection programs such as the wellhead protection program or the nonpoint source pollution management program. Poor coordination among the agency's groundwater programs continues to be a problem.<sup>77</sup> The EPA has, however, developed some guidelines to be followed in making decisions relating to groundwater. For instance, the EPA developed an aquifer classification system based upon the current or potential use and value of aquifers.<sup>78</sup> These guidelines, however, have not been used consistently at the federal level, and are not required to be used by the states. Thus, this element of the 1984 Strategy has not been particularly successful.

The failure of the 1984 Strategy to achieve significant improvements in groundwater protection has not gone unnoticed. In 1988, the EPA undertook efforts to improve the implementation of its 1984 Strategy<sup>79</sup> and, in 1989, a task force was established to study several of its main elements. The task force issued a final report in 1991 which recommended that the EPA take a more "aggressive approach" to groundwater protection, and that the EPA reflect this new approach "in its policies, programs, and resource allocations."<sup>80</sup>

As a result of the 1991 task force report, EPA revised its groundwater strategy. The new strategy includes plans to improve coord-

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with respect to nonpoint source control programs, and (3) that EPA's intergovernmental nonpoint pollution task force, designed specifically to "bring together numerous agency officials to discuss nonpoint source conflicts and opportunities for interagency cooperation," had not met since October 1988). See also GAO REPORT, *supra* note 2, at 2.

<sup>75</sup> One of the major factors contributing to the ineffectiveness of the 1984 Strategy is a continued lack of financial support for groundwater programs. See *Clean Water Act Research and Monitoring, Hearing before the Subcommittee on Environment of the Committee on Science, Space and Technology, U.S. House of Representatives, 102nd Cong., 1st Sess. (June 5, 1991) (Statement of Peter F. Guerrero, Associate Director, Environmental Protection Issues Resources Community and Economic Development Division). See also GAO REPORT, supra note 2, at 22-24.*

<sup>76</sup> GAO REPORT, *supra* note 2, at 2.

<sup>77</sup> *Id.* at 2.

<sup>78</sup> EPA 1984 STRATEGY, *supra* note 70, at 5-6. Class I aquifers are those deemed to be highly vulnerable to contamination and ecologically vital or irreplaceable. Class II aquifers include all other aquifers which are or may be used for drinking water or other uses. Class III aquifers are those which, due to salinity, contamination, or other characteristics are not potential drinking water sources.

<sup>79</sup> GAO REPORT, *supra* note 2, at 15-16.

<sup>80</sup> GAO REPORT, *supra* note 2, at 1.

dination between programs, to better integrate groundwater policy, and to improve the EPA's management and accountability systems relating to groundwater protection.<sup>81</sup> In addition, EPA's new strategy encourages states to report additional groundwater quality information and emphasizes increased financial and technical assistance for states.<sup>82</sup> Consistent with the 1984 Strategy, the EPA intends to continue its reliance upon the states to serve as the primary groundwater regulators,<sup>83</sup> and to encourage states to develop their own comprehensive groundwater programs.<sup>84</sup>

#### IV. THE POLITICAL CLIMATE

Armed since the late 1970's with evidence of increasing groundwater contamination<sup>85</sup>, Senator Daniel Moynihan finally introduced a comprehensive groundwater bill in 1987.<sup>86</sup> The legislation, Senate Bill 20, was designed much like other environmental statutes, requiring the EPA to develop standards to be implemented and enforced by the states.<sup>87</sup> In 1988, Senator Durenberger introduced his version of comprehensive groundwater legislation, the Groundwater Protection Act.<sup>88</sup> In addition, during the 100th and 101st Congresses, legislation was introduced to provide additional authority to control and conduct much-needed research relating to groundwa-

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<sup>81</sup> GAO REPORT, *supra* note 2, at 34. In addition, the EPA's new strategy includes "groundwater protection principles" aimed at preventing groundwater contamination. *Id.* at 35.

<sup>82</sup> In 1993, EPA issued a new guidance document for assisting states in developing state management plans for protecting groundwater from pesticide contamination. See 58 Fed. Reg. 65,593 (1993).

<sup>83</sup> At present, all 50 states have some type of groundwater protection strategy or program. GAO REPORT, *supra* note 2, at 2.

<sup>84</sup> To date, four states (Alabama, Connecticut, New Hampshire and Wisconsin) have obtained EPA endorsement of their comprehensive groundwater protection programs. 25 ENV'T. REP. (BNA) (Current Developments) 1519 (Dec. 2, 1994). State regulators agree, however, that federal funding is a necessity if states are to effectively implement groundwater protection programs. GAO REPORT, *supra* note 2, at 21-2.

<sup>85</sup> See *The Nation's Water Resources 1975-2000, Volume 1: Summary, Second National Water Assessment by the U. S. Water Resources Council* (1979).

<sup>86</sup> S. 20, 100th Cong., 1st Sess. (1987).

<sup>87</sup> Pamela King, *The Protection of Groundwater and Public Drinking Supplies: Recent Trends in Litigation and Legislation*, 42 VAND. L. REV. 1649 (1989) (providing a summary of groundwater legislation during the 100th and 101st Congresses).

<sup>88</sup> Durenberger's bill, S. 2091, was premised upon the prevention of groundwater contamination, the protection of all groundwater, the provision of high quality drinking water to all Americans, continued focus on prevention technology, and the need to provide states with federal guidance and technological expertise. *Id.* at 167.

ter.<sup>89</sup>

Attempting to improve the consistently low priority status of groundwater protection, many environmental bills were again introduced during the 103rd Congress, including several that would impact groundwater protection. Most notably, several SDWA bills were introduced,<sup>90</sup> some of which garnered broad bipartisan support.<sup>91</sup> House Resolution 3392 and Senate Bill 2019 both called for increased funding for state grants and technical assistance, a revolving loan fund for state public water system projects, and several cost-cutting measures, such as a reduction in the number of contaminants EPA must regulate and an increase in EPA's ability to be cost-conscious in setting standards.<sup>92</sup> No agreements were reached before the session concluded.

Now, for the first time in 40 years, the Republicans have regained control of Congress. The now popular "Contract with America" includes many promises for the 104th Congress relating to upcoming legislation, including "Risk Assessment and Cost/Benefit Analysis for New Regulation,"<sup>93</sup> "Private Property Rights Protections and Compensation,"<sup>94</sup> and "Federal Mandate Accountability and Reform."<sup>95</sup> These issues<sup>96</sup> will undoubtedly remain prominent in the 104th Congress.

Despite the strictures the Contract of America may impose upon new environmental legislation, bills proposing changes in groundwater regulation have already been introduced in the 104th Congress. Senate Bill 352 proposes to amend the CWA to establish a comprehensive wetlands management program, and will include

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<sup>89</sup> *Id.* at 1680-88.

<sup>90</sup> S. 2019, 103rd Cong. 2nd Sess. (1994); H.R. 3392, 103rd Cong., 2nd Sess. (1994); H.R. 1865, 103rd Cong., 1st Sess. (1993); H.R. 1701, 103rd Cong., 1st Sess. (1993).

<sup>91</sup> REPORT TO CONGRESS, *supra* note 5, at 888.

<sup>92</sup> REPORT TO CONGRESS, *supra* note 5, at 883.

<sup>93</sup> This element of the Contract addresses the need for cost/benefit analyses of all new legislation to avoid the unnecessary imposition of new costs.

<sup>94</sup> This element of the Contract addresses whether proposed legislation would result in uncompensated "takings" in violation of private property rights. The takings issue is not new in the realm of environmental regulation. What is new about the takings issue is its successful assertion by property owners. *See, e.g., Dolan v. City of Tigard*, 114 S.Ct. 2309 (1994).

<sup>95</sup> *See, e.g. May, The Future Course of Environmental Regulation*, 9 NAT'L. RESOURCES & ENV'T. 77 (Winter 1995).

<sup>96</sup> Environmental laws have been used as an example of the now disfavored unfunded mandates. *See e.g. May, The Future Course of Environmental Regulation*, 9 NAT'L RESOURCES & ENV'T 77, 77-79 (Winter 1995). *See e.g., id* at 77-79.

provisions relating to groundwater. House Resolution 228, designed to amend CERCLA, seeks to restore all groundwater that can be used for drinking water based upon MCLs or non-zero MCLGs, and to remediate other groundwater to levels appropriate for its current or anticipated use.<sup>97</sup> House Resolution 961, introduced in February 1995, amends the CWA by increasing the federal contribution percentage for nonpoint source program grants and the amount of grant funds available for protecting groundwater quality.<sup>98</sup> Also likely is legislation expected to amend the SDWA including appropriations for grants to develop source protection programs.<sup>99</sup>

Although environmental protection is still at the top of the agenda for the American public, the costs associated with additional environmental laws are expressly *unpopular* with the new Republican Congress. Comprehensive groundwater laws suggested in past years<sup>100</sup> run directly counter to the Republican "Contract with America." New attempts to enact comprehensive groundwater legislation in the 104th Congress will undoubtedly fall prey to this unyielding political climate. Moreover, elements such as authorizations for increased funding for state administration and technical assistance may not be viewed favorably. Indeed, during the 104th Congress, proposals can be expected to restrict or eliminate funding for environmental programs.<sup>101</sup> The new 104th Congress, still wed to its "Contract with America," will be reluctant to enact or fund any environmental legislation it perceives as imposing unnecessary costs upon the federal government or unnecessary burdens on states, local governments, and businesses. These legislative trends, of course, will impede the enactment of new groundwater legislation.

Given the current political climate, it is reasonable to conclude that the patchwork approach to regulating groundwater will continue. The important trap to avoid, then, is the temptation to enact narrowly-focused or unenforceable additions to the myriad of groundwater provisions now in force. In its zeal to increase groundwater protections, Congress should not settle for additional piecemeal protections merely because they are the only "politically avail-

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<sup>97</sup> H.R. 228, 104th Cong. 1st Sess. (1995). See also H.R. 714, S. 274, H.R. 556, S. 167, H.R. 357, and H.R. 227 (all proposed to have some impact upon groundwater protection).

<sup>98</sup> H.R. 961, 104th Cong., 1st Sess. (1995).

<sup>99</sup> See 11 Ground Water Monitor (No. 3) (Feb. 9, 1995); 11 Ground Water Monitor (No. 1) (Jan. 12, 1995).

<sup>100</sup> See, e.g., S. 20, 100th Cong., 1st Sess. (1987).

<sup>101</sup> REPORT TO CONGRESS, *supra* note 5, at 87.

able" substitute for comprehensive federal groundwater regulation. Certainly, neither the regulated community nor the states should be put to the expense of implementing and complying with new laws until the current scheme, including EPA policy, has been fully utilized. If we have learned anything from the past, it is that merely expanding upon this patchwork approach is short-sighted.

Instead of wasting time and resources travelling down the same legislative path, Congress and the EPA must re-focus their efforts. Significant improvements could be made by doing two things: (1) actually adhering to EPA's decade-old groundwater protection policy and (2) giving states sufficient monetary and technical assistance to encourage their efforts to protect groundwater on the state level.

In the past, federal laws have been ineffective and EPA's "strategies" have not been fully implemented due, for the most part, to a lack of resources.<sup>102</sup> With a renewed commitment to funding and otherwise supporting current federal and state programs, we can improve groundwater protection. Concomitantly, without a real commitment to funding and support for federal and state programs, new laws will be no more effective than the current patchwork. Given that no comprehensive groundwater protection laws are on the horizon, adherence to EPA's current policies, coupled with the enforcement of current laws, is the most efficient and effective way to improve the protection of groundwater on the federal level.

#### CONCLUSION

Despite extensive lobbying, Congress has never been willing to regulate groundwater comprehensively, a fact unlikely to change during the 104th Congress. Continued efforts to expand upon the current patchwork of federal laws are poor substitutes for comprehensive legislation. If federal protections are to improve within the confines the current political climate and Congressional agenda, we must insist upon (1) significant federal support for state efforts to protect groundwater, and (2) consistency in implementing and enforcing groundwater protections. With these changes, the federal laws in place today, while not comprehensive, can provide improved groundwater protection on a federal level.

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<sup>102</sup> GAO REPORT, *supra* note 2, at 44-46 (explaining problems of inadequate funding for programs, and, in some instances, inaccessibility to "available" funds).

