

Note

Is Groundwater that Is Hydrologically Connected to Navigable Waters Covered Under the CWA?: Three Theories of Coverage & Alternative Remedies for Groundwater Pollution

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The Clean Water Act (CWA) makes it illegal for facilities, like a mining operation, to discharge pollutants into traditional “navigable waters,” such as the Mississippi River, without a permit.¹ While it is undeniable that the CWA protects against this direct discharging of pollutants into navigable waters, the CWA’s jurisdiction becomes a little murkier when the dumping is less direct. For instance, if a mining operation instead created a large basin to dump its pollutants into, and those pollutants seeped through the soil into groundwater connected to and flowed into the river, would it be covered under the CWA? Since both of these circumstances achieve the same result—that the navigable water is polluted—it seems odd to say that the mining operation would need a permit to discharge its pollutants in the first circumstance, but not the second. Federal courts, however, are in disagreement on this issue.² Can the CWA cover discharges of pollutants to groundwater that is hydrologically connected to navigable waters?

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1. 33 U.S.C. § 1311(a) (2012); *id.* § 1362(12) (2012).

2. *See, e.g.*, cases cited *infra* note 10; discussion *infra* Part I.C.; cases cited *infra* Appendix A.

The CWA was enacted in 1972 in order to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”³ The CWA significantly revised and enhanced federal regulatory powers for controlling pollution to water; and given the difficulties in enforcing the 1948 Federal Water Pollution Control Act⁴ and the 1965 Water Quality Act,⁵ the CWA can be considered the first comprehensive national water pollution law that was passed and enacted in the United States.⁶ The U.S. Army Corps of Engineers (Corps) and the EPA share enforcement authority under the CWA.⁷ While it is certain that the CWA was intended to cover “navigable waters,”⁸ defined as “waters of the United States,” the CWA does not express its authority on groundwater. Although courts and the EPA agree that isolated groundwater⁹ is not covered by

3. 33 U.S.C. § 1251(a) (2012).

4. Pub. L. No. 80-845, 62 Stat. 1155 (1948) (allowing pollution abatement only after judicial consideration of practicality and economic feasibility).

5. Pub. L. No. 89-234, 79 Stat. 903 (1965) (lacking clear methods for determining violations of standards).

6. See Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng’rs (SWANCC), 531 U.S. 159, 179–80 (2001) (Stevens, J., dissenting) (laying out the CWA’s legislative history in which congress members routinely referred to their purpose to create a “comprehensive” water pollution bill).

7. The EPA is charged with administering the CWA as a whole. 33 U.S.C. § 1251(d). However, the U.S. Army Corps of Engineers has had primary jurisdiction to ensure the navigability of the nation’s waters since the Rivers and Harbors Appropriation Act of 1890. Act of Sept. 19, 1890, ch. 907, §§ 6,7,10, 26 Stat. 426, 453–54 (codified as amended at 33 U.S.C. §§ 401, 403, 407 (2012)). Both since and prior to passage of the CWA, the Corps has controlled man-made deposition of dredge or fill material into navigable waters through permit programs. 33 U.S.C. §§ 403, 407 (2012); see 33 U.S.C. § 1342(a)(4)–(5) (2012) (converting all 33 U.S.C. § 407 permits into NPDES permits); *id.* § 1344(a)–(t) (2012) (preserving authority to administer issuance of permits for dredge or fill material to the Secretary of the Army acting through the Chief of Engineers).

8. CWA jurisdiction exists over “navigable waters,” which is ambiguously defined as “the waters of the United States, including territorial seas.” 33 U.S.C. § 1362(7) (2012).

9. See Margaret “Peggy” Strand & Lowell M. Rothschild, *What Wetlands Are Regulated? Jurisdiction of the §404 Program*, 40 ENVTL. L. REP. NEWS & ANALYSIS 10,372, 10,388 (2010) (“There have been cases and commentary that seem to distinguish between so-called isolated groundwater, i.e., groundwater with no hydrological connection to surface waters that would otherwise fall within CWA jurisdiction, and ‘tributary groundwater,’ i.e., groundwater with a hydrological connection to surface waters that would otherwise fall within CWA jurisdiction.”); see also *Idaho Rural Council v. Bosma*, 143 F. Supp. 2d 1169, 1180 (D. Idaho 2001) (“[T]he CWA does not regulate

the CWA, the courts are in disagreement over whether the CWA's jurisdiction can reach groundwater that is hydrologically connected to navigable waters.¹⁰ The EPA's position generally is groundwater that has a direct hydrological connection to navigable waters of the United States is covered under the CWA, but only on a case-by-case basis.¹¹

'isolated/nontributary groundwater' which has no affect on surface water.") (citing *Wash. Wilderness Coal. v. Hecla Mining Co.*, 870 F. Supp. 983, 990 (E.D. Wash. 1994)).

10. *Compare* *Waterkeeper Alliance, Inc. v. U.S. Env'tl. Prot. Agency*, 399 F.3d 486, 514–15, 520 (2d Cir. 2005) (finding that CWA jurisdiction exists over discharges of pollutants to groundwater that is hydrologically connected to navigable waters), *and* *Haw. Wildlife Fund v. Cnty. of Maui*, 24 F. Supp. 3d 980, 996 (D. Haw. 2014) (same), *and* *Ass'n Concerned Over Res. & Nature, Inc. v. Tenn. Aluminum Processors, Inc.*, No. 10-00084, 2011 WL 1357690, at *18–19 (M.D. Tenn. Apr. 11, 2011) (same), *and* *Hernandez v. Esso Standard Oil Co.*, 599 F. Supp. 2d 175, 181 (D.P.R. 2009) (same), *and* *Nw. Env'tl. Def. Ctr. v. Grabhorn, Inc.*, No. 08-548, 2009 WL 3672895, at *11 (D. Or. Oct. 30, 2009) (same), *and* *Greater Yellowstone Coal. v. Larson*, 641 F. Supp. 2d 1120, 1138 (D. Idaho 2009) (same), *and* *Idaho Rural Council v. Bosma*, 143 F. Supp. 2d 1169, 1179 (D. Idaho 2001) (same), *and* *Williams Pipe Line Co. v. Bayer Corp.*, 964 F. Supp. 1300, 1319–20 (S.D. Iowa 1997) (same), *and* *Friends of Santa Fe Cnty. v. LAC Minerals, Inc.*, 892 F. Supp. 1333, 1357–58 (D.N.M. 1995) (same), *and* *Wash. Wilderness Coal. v. Hecla Mining Co.*, 870 F. Supp. 983, 990 (E.D. Wash. 1994) (same), *with* *Cape Fear River Watch, Inc. v. Duke Energy Progress, Inc.*, 25 F. Supp. 3d 798, 810 (E.D.N.C. 2014) (concluding regulatory authority under CWA does not extend to groundwater regardless of whether groundwater is eventually or somehow hydrologically connected to navigable surface water), *and* *Tri-Realty Co. v. Ursinus Coll.*, No. 11-5885, 2013 WL 6164092, at *8 (E.D. Penn. Nov. 21, 2013) (holding that pollution to groundwater that connects to navigable water is nonpoint source pollution and not subject to NPDES permitting), *and* *Patterson Farm, Inc. v. City of Britton*, 22 F. Supp. 2d 1085, 1091 (D.S.D. 1998) (holding CWA regulatory authority does not extend to groundwater regardless of whether groundwater eventually reaches surface water), *and* *United States v. ConAgra*, No. 96-0134, 1997 WL 33545777, at *7 (D. Idaho Dec. 31, 1997) (same), *and* *Umatilla Waterquality Protective Ass'n, v. Smith Frozen Foods, Inc.*, 962 F. Supp. 1312, 1320 (D. Or. 1997) (same), *and* *Kelley ex rel. Mich. v. United States*, 618 F. Supp. 1103, 1107 (W.D. Mich. 1985) (same); *see also infra* Appendix A.

11. *See* Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations in Response to Waterkeeper Decision, 73 Fed. Reg. 70,418, 70,420 (Nov. 20, 2008) ("[EPA] believe[s] that requirements limiting the discharge of pollutants to surface water via groundwater that has a direct hydrologic connection to surface water should be addressed on a site-specific basis."); *see also* National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 2960, 3015–17, 3061–62 (proposed Jan. 12, 2001) (to be codified at 40 C.F.R. pts. 122, 412) (proposing to require NPDES permits for Concentrated Animal Feeding

While it is the EPA's position that directly connected groundwater is covered under the CWA, it is unclear which theory of coverage the EPA relies on to assert jurisdiction.¹² The three theories that the EPA can potentially rely on are: the "point source" theory, the "tributary" groundwater theory, or the conduit theory. The "point source" theory offers protection to groundwater that discharges pollutants into navigable waters when that groundwater (1) receives the pollutants from a "point source"¹³ and (2) itself acts as a "discrete conveyance" of pollutants.¹⁴ Under this theory, the groundwater itself is

Operations discharging pollutants to groundwater on a case-by-case basis when there is a direct hydrological connection to surface waters); James W. Hayman, *Regulating Point-Source Discharges to Groundwater Hydrologically Connected to Navigable Waters: An Unresolved Question of Environmental Protection Agency Authority Under the Clean Water Act*, 5 BARRY L. REV. 95, 113-14 (2005) ("[I]n publishing and codifying the final rule, EPA omitted all references to requiring NPDES permits for discharges to groundwater; the term 'groundwater' simply does not appear in the rule as promulgated Regarding the apparent 'backing down' from its asserted groundwater authority under the CWA in response to public pressure, EPA still claims groundwater authority and intends on exercising it, but only on a case-by-case basis. . . . Nothing in this rule should be construed to expand, diminish or otherwise affect CWA authority to control discharges to surface water via groundwater with a direct hydrologic connection. . . . EPA has far from abandoned its assertion of authority over hydrologically connected groundwater In fact, EPA has expressly stated its intention to still regulate discharges to hydrologically connected groundwater on a case-by-case basis." (footnotes omitted)); *Nw. Env'tl. Def. Ctr. v. Grabhorn, Inc.*, No. 08-548, 2009 WL 3672895, at *9-11 (D. Or. Oct. 30, 2009) (recognizing that the EPA and most courts have recognized two exceptions to a legislative history against the inclusion of groundwater under the CWA: one for situations in which there is a "direct hydrological connection between groundwaters and surface waters" and the second for underground segments of surface waters).

12. See discussion *infra* Part II.A.3.

13. The CWA defines a "point source" as:

[A]ny discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges and return flows from irrigated agriculture.

33 U.S.C. § 1362(14) (2012).

14. Mary Christina Wood, *Regulating Discharges into Groundwater: The Crucial Link in Pollution Control Under the Clean Water Act*, 12 HARV. ENVTL. L. REV. 569, 575 (1988) ("A certain amount of groundwater travels in defined subterranean channels. As the following discussion suggests, these channels are very much akin to traditional 'point sources' and should be treated as such for the purposes of section 402. Under this interpretation, a discharge of pollutants into an underground channel that feeds surface water

considered a “point source.”¹⁵ The significant nexus theory treats groundwater in a way similar to how it would treat other surface waters—by upholding CWA jurisdiction over groundwater having a “significant nexus,”¹⁶ to navigable-in-fact waters.¹⁷ Finally, the conduit theory offers protection to groundwater that acts a conduit for pollutants travelling from a point source into navigable waters. Under this rationale, the momentary intermediation of groundwater is of no import because the fact remains that there is a discharge from a point source into navigable waters.¹⁸

The EPA’s interpretation that directly connected groundwater is within the scope of the CWA’s jurisdiction has been accepted with varying degrees of success among the federal district and circuit courts.¹⁹ Some courts have

would be subject to the NPDES permit system. Characterizing underground channels as point sources is fully justified by the statutory language and legislative history of the CWA as well as relevant case law.”). *Compare* *Raritan Baykeeper, Inc. v. NL Indus., Inc.*, No. 09-4117, 2013 WL 103880, at *15 (applying a motion to dismiss standard and deciding that the plaintiffs sufficiently pled that groundwater is a point source under the CWA because it is connected to a navigable water), *with* *Tri-Realty Co. v. Ursinus Coll.*, No. 11-5885, 2013 WL 6164092, at *8 (E.D. Penn. Nov. 21, 2013) (holding that pollution to groundwater that connects to navigable water is nonpoint source pollution and not subject to NPDES permitting).

15. *Id.*

16. *See* *Rapanos v. United States*, 547 U.S. 715, 782 (2006) (Kennedy, J., concurring).

17. *See* *Haw. Wildlife Fund*, 24 F. Supp. 3d at 998 (“An aquifer with a substantial nexus with navigable-in-fact water may itself be protected under the Clean Water Act even if it is not necessarily a conduit for pollutants. But when it is established that groundwater is a conduit for pollutants [L]iability may attach to a discharge into that groundwater even if the groundwater is not itself protected under the Act.”).

18. *Hawai`i Wildlife Fund* explained that the argument was not that “the groundwater requires protection for its own independent ecological value,” but that the concern is, “the County should not be allowed to pollute the ocean *through* that groundwater.” *Id.* at 997. The same decision elaborated that the CWA, “creates a strict liability scheme that ‘categorically prohibits any discharge of a pollutant from a point source without a permit,’ irrespective of whether that discharge affects the receiving water.” *Id.*

19. *Compare* *Hernandez v. Esso Standard Oil Co.*, 599 F. Supp. 2d 175, 179 (holding that groundwater is not categorically excluded from consideration as a “water of the United States,” but that a determination on groundwater’s status should be made by the EPA or Corps), *with* *United States v. ConAgra*, No. 96-0134, 1997 WL 33545777, at *6 (D. Idaho Dec. 31, 1997) (declining to give the EPA any deference on the issue due to the EPA’s lack of a formal policy).

concluded that jurisdiction over such connected groundwater is warranted because (1) the CWA's goal is to protect navigable waters, or (2) because the EPA is entitled to some level of deference on the issue.²⁰ Other courts have decided that the CWA was simply not meant to cover groundwater, citing pieces of legislative history²¹ to support that position.²² A majority of courts have concluded that the CWA does cover connected groundwater, but the Supreme Court has yet to rule on the issue.²³ This Note will explore the arguments that courts on both sides of the divide have accepted in concluding that groundwater hydrologically connected to navigable waters is or is not covered, the three potential theories for finding CWA jurisdiction over connected groundwater, what scientific factors courts have used in making case-specific determinations about whether hydrologically connected groundwater is covered, and alternative remedies that may be used to regulate or control pollution to groundwater under existing regulations.

20. *Williams Pipe Line Co. v. Bayer Corp.*, 964 F. Supp. 1300, 1319–20 (S.D. Iowa 1997) (deciding that because the CWA's goal is to protect the quality of surface waters, the Act regulates any pollutants that enter such waters either directly or through groundwater); *Greater Yellowstone Coal. v. Larson*, 641 F. Supp. 2d 1120, 1139 (D. Idaho 2009) (giving the EPA's interpretation *Skidmore* deference); *Umatilla Waterquality Protective Ass'n v. Smith Frozen Foods, Inc.*, 962 F. Supp. 1312, 1319 n.2 (D. Or. 1997) (explaining that *if* the EPA issued a formal policy on groundwater hydrologically connected to surface waters, that interpretation would be accorded *Chevron* deference).

21. *See, e.g.*, 118 CONG. REC. 10, 666–69 (1972) (showing Congress's rejection of Representative Aspin's proposed amendment to the CWA, which would have extended CWA's authority to even isolated groundwater).

22. *Umatilla Waterquality Protective Ass'n v. Smith Frozen Foods, Inc.*, 962 F. Supp. 1312, 1318–19 (D. Or. 1997) (quoting *Gulf Oil Corp. v. Copp Paving Co.*, 419 U.S. 186, 200 (1974)) (“The failure of a proposed amendment ‘strongly militates against a judgment that Congress intended a result that it expressly declined to enact.’”); *Exxon Corp. v. Train*, 554 F.2d 1310, 1327–30 (5th Cir. 1977) (“We think, however, that the legislative history [including the Aspin Amendment] demonstrates conclusively that Congress believed it was not granting the Administrator any power to control disposals into groundwater.”); *United States v. GAF Corp.*, 389 F. Supp. 1379, 1383–84 (S.D. Tex. 1975) (“This Court has neither the authority nor the inclination to act where the Congress has conferred no jurisdiction.”).

23. *Nw. Env'tl. Def. Ctr. v. Grabhorn, Inc.*, No. 08-548, 2009 WL 3672895, at *10 (D. Or. Oct. 30, 2009).

I. BACKGROUND

A. CAN THE CWA'S JURISDICTION EXTEND TO GROUNDWATER HYDROLOGICALLY CONNECTED TO WATERS OF THE UNITED STATES?

This background section examines the important statutory language, legislative history, agency interpretations, and case law relevant to the decision of whether the CWA can cover groundwater that is hydrologically connected to navigable waters.

1. The Statutory Language of the CWA Is Unclear On Whether the NPDES Permitting Program Was Meant to Cover Hydrologically Connected Groundwater.

One of the CWA's main provisions is its National Pollution Discharges Elimination System (NPDES) permitting program. Under the CWA's NPDES program, the EPA has the authority to issue permits for facilities that have or plan to have "point sources" of pollution.²⁴ The NPDES program does not have authority over nonpoint sources of pollution, so in order for CWA jurisdiction to be found, the source of pollution must fall within the scope of the "point source" definition.²⁵ It is under the NPDES program that the EPA is asserting that directly connected groundwater should be covered, but only on a case-by-case basis.²⁶ The EPA's position is that such connected groundwater would only be jurisdictional if the pollution contaminating the groundwater originated from a point source.²⁷ In other words, if the pollution to groundwater originated from a nonpoint source it could not be turned into a point source by virtue of traveling through groundwater.

Courts that determine the CWA's NPDES program cannot extend jurisdiction over groundwater that is hydrologically connected to navigable waters rely on a few different statutory

24. For a good summary and background of the provisions of the CWA, see CLAUDIA COPELAND, CONG. RESEARCH SERV., RL 30030, CLEAN WATER ACT: A SUMMARY OF THE LAW (2010).

25. *Id.*

26. See National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 2960, 3015–17, 3061–62 (proposed Jan. 12, 2001) (to be codified at 40 C.F.R. pts. 122, 412).

27. See *id.*

interpretation arguments to arrive at this conclusion. First, some courts state that if Congress intended the CWA to cover groundwater under the NPDES program, it would have written the CWA to say this explicitly.²⁸ Next, these courts cite that Congress did explicitly include groundwater in other parts of the CWA, but not in the NPDES permitting scheme.²⁹ The argument is that the NPDES permit program seems to exclude groundwater from coverage because it only makes reference to “navigable waters,” which are defined and referred to separately from groundwaters.³⁰

Courts that decide to uphold CWA jurisdiction over groundwater that is hydrologically connected to “waters of the United States” argue that in excluding groundwater from the NPDES permitting program Congress did not mean to exclude groundwater in all circumstances.³¹ The argument is that Congress meant to include all waters that have an adverse impact on the waters that are expressly covered by the NPDES program—navigable waters.³² Courts finding CWA jurisdiction over groundwater hydrologically connected to “waters of the United States” also look to the express purpose of the statute for guidance.³³ These courts reason that because one purpose of the CWA is to protect the integrity of navigable waters, “any pollutant which enters such waters, whether directly or through groundwater, is subject to regulation by NPDES permit.”³⁴

2. The Legislative History of the CWA Is Inconclusive of Congress’s Intent to Regulate Groundwater Hydrologically Connected to “Waters of the United States.”

Most courts have considered the legislative history of the CWA before making a decision on the inclusion or exclusion of

28. *E.g.*, *Umatilla Waterquality Protective Ass’n v. Smith Frozen Foods, Inc.*, 962 F. Supp. 1312, 1318 (D. Or. 1997).

29. *Id.* (citing 33 U.S.C. § 1252(a) (1994)).

30. *See* 33 U.S.C. §§ 1342(a)(1), 1362(12) (2012); *see, e.g.*, 33 U.S.C § 1314(a)(2) (referring to groundwaters separately from navigable waters).

31. *E.g.*, *Wash. Wilderness Coal. v. Hecla Mining Co.*, 870 F. Supp. 983, 989–90 (E.D. Wash. 1994); *Sierra Club v. Colo. Ref. Co.*, 838 F. Supp. 1428, 1433–34 (D. Colo. 1993).

32. *See Idaho Rural Council v. Bosma*, 143 F. Supp. 2d 1169, 1180 (D. Idaho 2001).

33. *See, e.g., id.*

34. *Id.* (quoting *Wash. Wilderness Coal.*, 870 F. Supp. at 990).

groundwater from the scope of the CWA's statutory terms.³⁵ There are a few pieces of legislative history that could indicate that groundwater was not meant to be covered by the CWA's NPDES permitting program. One of the most frequently cited pieces of legislative history on the subject is Representative Leslie Aspin's proposed amendment to the CWA.³⁶ This amendment suggested that the CWA's jurisdiction be extended to include even isolated groundwater.³⁷ Some courts rely on the rejection of this amendment as a basis for also declining to recognize CWA coverage for groundwater that is hydrologically connected to waters of the United States.³⁸ This rejection of CWA coverage for connected groundwater may not be fair because the proposed amendment's scope was much broader than just connected groundwater; in these cases, courts have refused to make the distinction between connected groundwater and isolated groundwater.

The other piece of legislative history that is widely cited is the Senate Public Works Committee report, which states, "[b]ecause the jurisdiction regarding groundwaters is so complex and varied from State to State, the Committee did not adopt this recommendation [to add groundwater to the NPDES permitting program]."³⁹ Those that argue the CWA should cover hydrologically connected groundwater say this piece of legislative history only indicates there was never an intent of

35. See *infra* Appendix A.

36. See Anna Makowski, *Beneath the Surface of the Clean Water Act: Exploring the Depths of the Act's Jurisdictional Scope of Groundwater Pollution*, 91 OR. L. REV. 495, 514 (2012) ("The *Umatilla* court and others see the rejection of the amendment as an indication that Congress did not intend to regulate groundwater under the CWA."). Some of these courts that have considered the Aspin Amendment include: *Umatilla Waterquality Protective Ass'n, v. Smith Frozen Foods, Inc.*, 962 F. Supp. 1312, 1318–19 (D. Or. 1997) (quoting *Gulf Oil Corp. v. Copp Paving Co.*, 419 U.S. 186, 200 (1974)) ("The failure of a proposed amendment 'strongly militates against a judgment that Congress intended a result that it expressly declined to enact.'"); *Exxon Corp. v. Train*, 554 F.2d. 1310, 1327–30 (5th Cir. 1977) ("We think, however, that the legislative history [including the Aspin Amendment] demonstrates conclusively that Congress believed it was not granting the Administrator any power to control disposals into groundwater."); *United States v. GAF Corp.*, 389 F. Supp. 1379, 1383–84 (S.D. Tex. 1975) ("This Court has neither the authority nor the inclination to act where the Congress has conferred no jurisdiction.").

37. See 118 CONG. REC. 10,666–69 (1972).

38. *E.g.*, *Umatilla*, 962 F. Supp. at 1320.

39. See S. REP. NO. 92-414, at 73 (1971).

broad, comprehensive coverage of groundwater.⁴⁰ Since one of the goals of the CWA is to protect navigable waters, certainly Congress did not intend to foreclose the possibility of regulating groundwater if it is connected to those navigable waters. Such an outcome would defeat the purpose of the CWA.

There is also legislative history in a related statute that indicates it has been Congress's understanding that hydrologically connected groundwater is covered by the CWA. Legislative history from the Safe Drinking Water Act (SDWA) indicates that groundwater hydrologically connected to navigable waters is covered in the CWA. The legislative record from SDWA is less frequently cited by courts.⁴¹ A report from the House of Representatives explains that a primary reason for enacting SDWA was because, "it appears that the Federal Water Pollution Control Act may not authorize any regulation of deep well injection of wastes *which is not carried out in conjunction with a discharge into navigable waters.*"⁴² The inference that can be taken out of this report is that at the time SDWA was enacted, Congress understood the CWA to cover groundwater that does discharge into navigable waters.

Some courts have recognized that the legislative history does not support the inclusion of groundwater within the scope of the CWA. Some of these same opinions emphasize the goal of the CWA, which does support groundwater's inclusion, and have therefore included groundwater despite what they believe about the legislative record.⁴³ The District of Oregon, for example, changed its position on the CWA's coverage of connected groundwater. In *Umatilla Waterquality Protective Ass'n v. Smith Frozen Foods, Inc.*,⁴⁴ the court analyzed the legislative history of the CWA and concluded that Congress explicitly excluded groundwater from coverage under the CWA.⁴⁵ Later the same court decided in *Grabhorn* that the

40. *E.g.*, *Umatilla*, 962 F. Supp. 1318–19.

41. *See infra* Appendix A; *see also* *Exxon Corp. v. Train*, 554 F.2d 1310, 1329 n.33 (5th Cir. 1977) (discussing this part of SDWA's legislative history record and how it relates to the CWA).

42. H.R. REP. NO. 93-1185, at 6457 (1974) (emphasis added) (citing U.S. EPA, Opinion of Acting Deputy General Counsel, #590 (Dec. 13, 1973)).

43. *See, e.g.*, *Nw. Env'tl. Def. Ctr. v. Grabhorn, Inc.*, No. 08-548, 2009 WL 3672895, at *10–11 (D. Or. Oct. 30, 2009).

44. 962 F. Supp. 1312 (D. Or. 1997).

45. *Id.*

legislative history was against the regulation of groundwater, but that the EPA's position and the goal of the CWA both override any legislative history that suggests the CWA cannot cover groundwater.⁴⁶

Grabhorn sidestepped *Umatilla* by recognizing that the EPA and most courts have recognized two exceptions:⁴⁷ one for situations in which there is a "direct hydrological connection between groundwaters and surface waters" and the second for underground segments of surface waters.⁴⁸ In the first exception, groundwater is not considered "waters of the United States," but discharges from point sources to groundwater are regulated because such discharges are effectively discharges to the directly connected navigable waters.⁴⁹ The second exception is not as controversial; the legal definition of underground segments of surface waters requires the underground water to retain the characteristics it displays above ground.⁵⁰ Regardless of what conclusions might be made about Congress's intent with groundwater under the CWA's legislative history, the history alone should not be dispositive.

3. The EPA's Regulations on the Meaning of the Terms "Navigable" and "Waters of the United States" Offer Insight on How Far the CWA's Jurisdiction Extends

A core issue in the CWA is its use of the jurisdictional phrase "navigable waters."⁵¹ Since "navigable waters" is

46. See *Grabhorn*, 2009 WL 3672895 at *11.

47. See *id.* at *11.

48. *Id.*; Amendments to the Water Quality Standards Regulation that Pertain to Standards on Indian Reservations, Final Rule, 56 Fed. Reg. 64,876, 64,892 (Dec. 12, 1991).

49. Amendments to the Water Quality Standards Regulation that Pertain to Standards on Indian Reservations, Final Rule, 56 Fed. Reg. at 64,892 (codified as amended at 40 C.F.R. pt. 131 (2014)) ("[T]he affected groundwaters are not considered 'waters of the United States' but discharges to them are regulated because such discharges are effectively discharges to the directly connected surface waters.").

50. Underground segments of water are not considered groundwater and therefore are not discussed in this Note. *Id.* ("In such [underground] streams, the subterranean component must be sufficiently stream-like so as to possibly allow the passage of fish and other aquatic organisms from a surface segment of the stream into the underground segment.").

51. 33 U.S.C. § 1362(7) (2012); see *SWANCC*, 531 U.S. at 180–81 (Stevens, J., dissenting) (noting the jurisdictional term "navigable waters" was merely

ambiguously defined as “waters of the United States,” it is not clear what the term is meant to cover; from the time of the CWA’s creation it has been difficult for those enforcing the statute to interpret the meaning of this phrase. It is important to have a precise definition of “navigable waters” because a water body’s protection under the CWA hinges on its status of being included in this definition. While it might seem that the word “navigable” should be read to have its plain meaning—those waters that are navigable-in-fact—the CWA gives “navigable” a different definition. Section 502(7) of the CWA defines navigable waters as “the waters of the United States, including the territorial seas.”⁵²

The term “waters of the United States” includes more than just navigable-in-fact waters.⁵³ As defined in current

carried over from the earlier Rivers and Harbors Act and Federal Water Pollution Control Act).

52. 33 U.S.C. § 1362(7) (2012).

53. See 33 C.F.R. § 328.3 (2012). The current regulations define “waters of the United States” as:

- (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (2) All interstate waters including interstate wetlands;
- (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
 - (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 - (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - (iii) Which are used or could be used for industrial purpose by industries in interstate commerce;
- (4) All impoundments of waters otherwise defined as waters of the United States under the definition;
- (5) Tributaries of waters identified in paragraphs (a)(1) through (4) of this section;
- (6) The territorial seas;
- (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1) through (6) of this section.
- (8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area’s status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

regulations, the term “waters of the United States” includes not only actually navigable waters, but also tributaries of such waters, as well as adjacent wetlands.⁵⁴ The EPA has recently proposed new regulations defining “waters of the United States,” which will replace the current regulations if adopted.⁵⁵ This proposed rule will change the definition of “waters of the United States” by adopting the significant nexus test,⁵⁶ for making jurisdictional determinations about “other waters.”⁵⁷ The significant nexus test would evaluate the effect that the “other water” has on a navigable-in-fact water in order to determine whether jurisdiction exists over that water.⁵⁸

Significant to the question of whether hydrologically connected groundwater is covered by the CWA, in the EPA’s recently proposed “waters of the United States” rule, groundwater was listed as a water feature that does not fall within the definition of “waters of the United States.”⁵⁹ While it seems scientifically defensible for the EPA to say that groundwater falls within the class of “other waters,” which after having passed the significant nexus analysis receive protection from the CWA, the EPA chose not to take this approach.⁶⁰ While the EPA did not put groundwater in the list of “other waters,” it does not change the EPA’s longstanding

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

Id.

54. *Id.*; see also *Cape Fear River Watch, Inc. v. Duke Energy Progress, Inc.*, 25 F. Supp. 3d 798, 805 (E.D.N.C. 2014) (“Indeed, the term is defined by . . . regulations to include not only actually navigable waters but also tributaries of such waters as well as adjacent wetlands. The regulations specify that ‘adjacent’ means ‘bordering, contiguous, or neighboring,’ and that wetlands are ‘adjacent’ even if separated from other waters by man-made dikes or barriers, natural river berms, beach dunes and the like.” (footnotes omitted) (citations omitted)).

55. See Definition of “Waters of the United States” Under the Clean Water Act, 79 Fed. Reg. 22,188 (proposed Apr. 21, 2014) (to be codified at 33 C.F.R. pt. 328).

56. See *Rapanos v. United States*, 547 U.S. 715, 782 (2006) (Kennedy, J., concurring).

57. See Definition of “Waters of the United States” Under the Clean Water Act, 79 Fed. Reg. at 22,188–92.

58. *Id.*

59. *Id.* at 22,193.

60. See discussion, *infra* Part II.A.4.

position that the CWA does cover, on a case-by-case basis, point source discharges to groundwater that is directly connected to navigable waters.⁶¹

By adopting this approach, it seems the EPA is taking the position that groundwater itself cannot fall within the definition of “waters of the United States,” but it leaves open the possibility that groundwater is regulated either as a “conduit” for a “point source” or as a “point source” itself.⁶² In the rule, the EPA stated, “the magnitude and transit time of groundwater flow *from* an ‘other water’ *to* downstream waters depend on several factors, including the intervening distance and the properties of the rock or unconsolidated sediments between the water bodies (*i.e.*, the hydraulic conductivity of the material).”⁶³ The EPA’s language here indicates that a flow requirement for groundwater might also exist in order to receive CWA protection.⁶⁴

4. Background in CWA Case Law: The *Riverside Bayview* and *Rapanos* Decisions Can Also Be Helpful for Determining Whether CWA Jurisdiction Can Extend to Groundwater.

The meaning of the term “navigable” has been the focus of debate in several Supreme Court decisions. In the 1985 *Riverside Bayview* decision,⁶⁵ the Supreme Court recognized that by defining “navigable waters” as “the waters of the United States,” the term “navigable” as used in the Act is of “limited import.”⁶⁶ The Court concluded that in adopting the definition of “navigable waters,” Congress “evidently intended to repudiate limits that had been placed on federal regulation . . . and to exercise its powers under the Commerce Clause to regulate at least some waters that would not be deemed ‘navigable’ under the classical understanding of that term.”⁶⁷ In

61. See Hayman, *supra* note 11, at 114 (“EPA stated that it interprets the CWA to apply to point-source discharges of pollutants via hydrologically connected groundwater . . .”).

62. See Definition of “Waters of the United States” Under the Clean Water Act, 79 Fed. Reg. at 22,193.

63. See *id.* at 22,248 (emphasis added).

64. A situation in which relatively stagnant groundwater could contaminate navigable waters through the diffusion of a large amount of pollution may not have been considered by the EPA.

65. *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121 (1985).

66. *Id.* at 133.

67. *Id.*

Riverside Bayview, the jurisdictional status of wetlands that “actually abutted” navigable-in-fact waters was at issue.⁶⁸ The Supreme Court noted that it was hard to distinguish when the wetland ended and the navigable water began, and concluded that the definition of “waters of the United States” included those wetlands that actually abut navigable waters.⁶⁹ Following the *Riverside Bayview* decision, the enforcing agencies adopted increasingly broad interpretations of what the term “waters of the United States” included.⁷⁰

The Supreme Court narrowed the Corps’ regulatory power in the 2001 *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers* Supreme Court decision (*SWANCC*).⁷¹ The Corps’ Migratory Bird Rule was invalidated as a result of the *SWANCC* decision.⁷² Before *SWANCC*, the Corps could claim that its authority under CWA § 404(a) extended to all waters that were or would be used by internationally protected migratory birds as a habitat.⁷³ In *SWANCC*, the Supreme Court “rejected the expansive jurisdiction over wetlands that the Corps had exercised for the prior twenty-five years, [and] recommend[ed] that the rules be rewritten.”⁷⁴ The *SWANCC* decision also was the first to use the term “significant nexus” in describing a required connection between navigable-in-fact waters and a body of water that the EPA asserted was under its jurisdiction.⁷⁵ The term significant nexus became important in the *Rapanos* decision, where it was used as the foundation of

68. *Id.* at 135.

69. *Id.*

70. *Cape Fear River Watch, Inc. v. Duke Energy Progress, Inc.*, 25 F. Supp. 3d 798, 806 (E.D.N.C. 2014).

71. *Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng’rs* (*SWANCC*), 531 U.S. 159, 167 (2001) (majority opinion).

72. *Id.* (“We conclude that the ‘Migratory Bird Rule’ is not fairly supported by the CWA.”).

73. *Id.* (“In 1986, the Corps attempted to clarify its jurisdiction, stating, in what has been dubbed the ‘Migratory Bird Rule,’ that § 404(a) extends to intrastate waters that, *inter alia*, provide habitat for migratory birds.”).

74. Gregory H. Morrison, Comment, *A Nexus of Confusion: Why the Agencies Responsible for Clean Water Act Enforcement Should Promulgate a New Set of Rules Governing the Act’s Jurisdiction*, 42 MCGEORGE L. REV. 398, 406 (2011).

75. *SWANCC*, 531 U.S. at 167 (“It was the significant nexus between the wetlands and ‘navigable waters’ that informed our reading of the CWA in *Riverside Bayview Homes*.”).

Justice Kennedy's concurring opinion.⁷⁶ Justice Kennedy's significant nexus test in *Rapanos* has become a standard test in the lower courts along with Scalia's plurality test.⁷⁷

The confusion over the Corps' jurisdiction under the CWA was manifested in the 2006 Supreme Court *Rapanos* opinions.⁷⁸ *Rapanos* was a plurality decision that included five different opinions.⁷⁹ None of these opinions questioned the jurisdiction of the government over wetlands adjacent to navigable-in-fact water bodies.⁸⁰ Instead, *Rapanos* questioned the authority over all other wetlands; wetlands that do not maintain either a "significant nexus" or continuous surface connection to a traditional navigable water body, or are so-called "geographically isolated," are outside of CWA jurisdiction due to the *Rapanos* decision.⁸¹ The reason for the exclusion of isolated wetlands from CWA jurisdiction is because they do not impact navigable waters.⁸² Since the goal of the CWA is to protect the Nation's waters, and one goal is specifically to limit discharges to navigable waters, those waters that do not affect "waters of the United States" are outside the goal of the CWA.

Justice Kennedy's concurrence in *Rapanos* contained criticism for both the plurality and dissenting opinions.⁸³ While Kennedy agreed with the plurality opinion in that Congress intended the Corps to regulate waters that are not contained in the traditional definition of "navigable waters," Kennedy's concurrence did not support all of the limitations the plurality placed on the Corps' jurisdiction.⁸⁴ Kennedy's concurrence also did not support the plurality's interpretation of "navigable waters" to only include relatively permanent water bodies, or that the CWA only intended to protect waters that have a

76. *Rapanos v. United States*, 547 U.S. 715, 782 (2006) (Kennedy, J., concurring).

77. ROBERT MELTZ & CLAUDIA COPELAND, CONG. RESEARCH SERV., RL 33263, THE WETLANDS COVERAGE OF THE CLEAN WATER ACT (CWA): *RAPANOS* AND BEYOND 7–8 (2014).

78. *Rapanos v. United States*, 547 U.S. 715 (2006).

79. *Id.* at 715 (plurality); *id.* at 757 (Roberts, J., concurring); *id.* at 759 (Kennedy, J., concurring); *id.* at 787 (Stevens, J., dissenting); *id.* at 811 (Breyer, J., dissenting).

80. *Id.* at 792 (Stevens, J., dissenting).

81. *See id.* at 755 (plurality opinion).

82. *Id.* at 776–77 (Kennedy, J., concurring).

83. *Id.* at 776, 778.

84. *Id.* at 768–78.

continuous surface connection to those navigable waters.⁸⁵ On the other hand, Justice Kennedy opposed the dissent's incredibly broad deference to the Corps' authority, and noted their lack of emphasis on the key term "navigable" from the CWA.⁸⁶

Instead, Kennedy introduced the significant nexus test, originating from the 2001 *SWANCC* decision, and argued that the test is the proper standard for determining federal jurisdiction over wetlands.⁸⁷ He also argued that this test would have to be carried out on a case-by-case basis, at least until the enforcing agencies promulgate new regulations.⁸⁸ Kennedy asserted that wetlands are "waters of the United States" and therefore protected under the CWA when, "the wetlands, either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable.'"⁸⁹ The test from *Rapanos* that is the most widely accepted by the lower courts is this significant nexus test.⁹⁰

Justice Scalia devised his own two-part test in order to determine a wetland's jurisdictional status. Scalia's test required that in order for a wetland to be jurisdictional, it must (1) be adjacent to a water of the United States, and (2) have a continuous surface connection to that adjacent water.⁹¹ While it is generally thought that Justice Kennedy's significant nexus test is the more inclusive one, each test includes at least one type of water feature or discharge that the other does not. For example, the significant nexus test is the only test that can support finding CWA jurisdiction over groundwater hydrologically connected to "waters of the United States."⁹² The plurality test would not support finding jurisdiction over groundwater because it requires a *surface* connection.⁹³ The plurality test may include very small, but continuous

85. *Id.*

86. *Id.* at 778–80.

87. *Id.* at 779–80.

88. *Id.* at 782.

89. *Id.* at 780.

90. MELTZ & COPELAND, *supra* note 77.

91. *Rapanos*, 547 U.S. at 717 (plurality opinion).

92. *Id.* at 780 (Kennedy, J., concurring).

93. *Id.* at 742 (plurality opinion).

discharges into non-navigable tributaries of “waters of the United States,” even if they did not significantly impact the “waters of the United States,” because a continuous surface connection would exist.⁹⁴ It is doubtful that the significant nexus test would cover such a circumstance because the significant nexus test focuses more on the nature of the impact rather than the nature of the connection. In other words, the significant nexus test is more goal-oriented with respect to the CWA than the plurality test.

Since the only *Rapanos* test that would support CWA jurisdiction over groundwater is Kennedy’s significant nexus test, it is important to know just how widely lower courts have accepted it. Not a single federal circuit court decision has adopted the plurality test without also adopting the significant nexus test.⁹⁵ So, not a single circuit court has declined to apply the significant nexus test. The wide acceptance of the significant nexus test means that there are fewer barriers to recognition of CWA jurisdiction over groundwater.

B. WHAT IS THE RELATIONSHIP BETWEEN HYDROLOGICALLY CONNECTED GROUNDWATER AND SURFACE WATER?

It is important to have a basic understanding of the hydrology between groundwater and surface water to fully understand the issues of whether groundwater can be considered a point source, whether groundwater is ever connected enough to have a significant nexus to surface waters, or even whether there is a scientific basis for distinguishing

94. See *id.* at 776–77 (Kennedy, J., concurring) (“[B]y saying the Act covers wetlands (however remote) possessing a surface-water connection with a continuously flowing stream (however small), the plurality’s reading would permit applications of the statute as far from traditional federal authority as are the waters it deems beyond the statute’s reach.”); *United States v. Johnson*, 467 F.3d 56, 64 (1st Cir. 2006) (“[I]n cases where there is a small surface water connection to a stream or brook, the plurality’s jurisdictional test would be satisfied, but Justice Kennedy’s balancing of interests might militate against finding a significant nexus.”).

95. See *United States v. Donovan*, 661 F.3d 174, 176 (3d Cir. 2011); *Precon Dev. Corp. v. U.S. Army Corps of Eng’rs*, 633 F.3d 278, 288 (4th Cir. 2011); *United States v. Cundiff*, 555 F.3d 200, 210 (6th Cir. 2009); *United States v. Bailey*, 571 F.3d 791, 799 (8th Cir. 2009); *United States v. Lucas*, 516 F.3d 316, 327 (5th Cir. 2008); *United States v. Robinson*, 521 F.3d 1319, 1327 (11th Cir. 2008); *N. Cal. River Watch v. City of Healdsburg*, 496 F.3d 993, 999–1000 (9th Cir. 2007); *United States v. Johnson*, 467 F.3d 56, 60 (1st Cir. 2006); *United States v. Gerke*, 464 F.3d 723, 724 (7th Cir. 2006).

groundwater and surface water in the CWA.⁹⁶ The term “point source” is defined in the CWA as “any discernible, confined and discrete conveyance.”⁹⁷ Under the EPA’s interpretation, the strength of a hydrological connection between groundwater and a navigable water is important in determining whether groundwater can fall within the scope of the CWA because the EPA requires a “direct connection.”⁹⁸

The strength of a connection varies widely based on a number of factors. Groundwater flows with gravity, and is influenced by the natural slopes in land.⁹⁹ It also often serves as the base flow of rivers, sometimes making it indistinguishable from surface waters, and it is incredibly important to the integrity of surface waters.¹⁰⁰ Groundwater is generally suspended in the soil and is constantly moving or “flowing,” but it does so at drastically different rates, depending on the type of soil that is present.¹⁰¹ The distance between groundwater and navigable waters and the time it takes that groundwater to travel (highly dependent on soil type and topography) could hugely impact whether that groundwater might be considered a “point source” of pollution to “waters of the United States” or whether that groundwater maintains a “significant nexus” to “waters of the United States.”

96. For a very helpful background on hydrology with explanatory diagrams, see THOMAS C. WINTER ET AL., U. S. GEOLOGICAL SURVEY, *GROUND WATER AND SURFACE WATER: A SINGLE RESOURCE, NATURAL PROCESSES OF GROUND-WATER AND SURFACE-WATER INTERACTION* (1998). Scientific factors and hydrology are less relevant to the conduit theory because under the conduit theory, the groundwater acting as a conduit need not also be “confined and discrete.” The key inquiry is whether there are pollutants actually ending up in navigable waters. *Haw. Wildlife Fund v. Cnty. of Maui*, 24 F. Supp. 3d 980, 994–96 (D. Haw. 2014).

97. 33 U.S.C. § 1362(14) (2012) (“[I]ncluding but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.”).

98. See sources cited *supra* note 11; see also *Waterkeeper Alliance, Inc. v. U.S. Evtl. Prot. Agency*, 399 F.3d 486, 514–15 & n.26 (2d Cir. 2005) (reviewing EPA’s interpretation that direct discharges to navigable water via hydrologically connected groundwater can be covered under the CWA on a case-by-case basis depending on the strength of site-specific factors).

99. Richard M. Iverson & Mark E. Reid, *Gravity-Driven Groundwater Flow and Slope Failure Potential*, 28 *WATER RESOURCES RES.* 925, 925 (1992).

100. See generally WINTER ET AL., *supra* note 96, at 6–17.

101. *Id.* Clay is one of the most movement-restrictive types of soil. *Id.* at 7, 12–13.

Factors that courts have looked at to make a case-specific determination of whether groundwater is a point source include distance to navigable waters, time it takes groundwater to travel, depth of the groundwater, flow (presumably direction and rate), climate, geology, soil type, topography, elevation, and slope.¹⁰² All of the court opinions that go into a more scientific analysis of the groundwater at issue identify a different set of factors.¹⁰³ One decision that adopted the conduit theory¹⁰⁴—*Hawai'i Wildlife Fund*—argues, however, that “[n]either logic nor case law supports distinguishing between ‘shallow’ and ‘deep’ groundwater. The key factor is not the depth [or distance] of the groundwater, but the existence of a pollutant that eventually reaches [a navigable water].”¹⁰⁵ Because the conduit theory focuses on the end result, that pollutants from a point source end up in navigable water, and not the intervening factors, scientific criteria are of more limited import under this theory. Though *Hawai'i Wildlife Fund* analyzed a tracer-dye study, which reported how quickly the pollutants were reaching the navigable waters,¹⁰⁶ this study was used to show that the pollutants were, in fact, reaching navigable waters.¹⁰⁷

With no specific set of scientific criteria identified for making decisions on whether groundwater has a strong enough connection to “waters of the United States,” each case that does

102. *Waterkeeper Alliance, Inc. v. U.S. Evtl. Prot. Agency*, 399 F.3d 486, 515 (2d Cir. 2005) (identifying topography, climate, distance to surface waters, and soil type as factors contributing to the strength of groundwater connections to surface water); *Greater Yellowstone Coal. v. Larson*, 641 F. Supp. 2d 1120, 1138 (D. Idaho 2009) (assessing the travel time, distance, geology, flow, and slope of the groundwater at issue).

103. See cases cited *supra* note 102.

104. *Haw. Wildlife Fund v. Cnty. of Maui*, 24 F. Supp. 3d 980, 999 (D. Haw. 2014) (“A point source is specifically defined in the Clean Water Act as a ‘confined and discrete conveyance.’ While any conduit that is a ‘confined and discrete conveyance’ is a point source, that does not mean that all conduits must be ‘confined and discrete conveyances.’ An injection well itself is a point source, and the groundwater acting as a conduit need not also be ‘confined and discrete.’ Courts have adopted ‘the indirect discharge rationale and the point source rationale *in the alternative*.” (citation omitted)).

105. *Id.*

106. *Haw. Wildlife Fund*, 24 F. Supp. 3d at 984 (“Dye from wells 1 and 2 did not emerge at the seeps, but the dye introduced into wells 3 and 4 was detected eighty-four days after being placed in the wells.”).

107. *Id.* (“As a result of that finding, the report also concluded that ‘64% of the treated wastewater injected into [the] wells currently discharges from the submarine spring areas’ and into the ocean.”).

define these criteria or offers reasoning on how to make a case-specific determination of groundwater coverage is important. These few cases that identify criteria offer helpful guidelines for determining whether groundwater is connected to navigable water in a way that provides CWA coverage under either the theory that groundwater can be treated as a point source, or the theory that the significant nexus test from *Rapanos* can be used to assert jurisdiction over groundwater that significantly affects navigable water.¹⁰⁸

C. AN OVERVIEW OF DECISIONS ON HYDROLOGICALLY CONNECTED GROUNDWATER

Decisions on the CWA's coverage of groundwater have had a variety of outcomes. In order to provide a detailed analysis of these decisions, Appendix A illustrates how courts have come down on both the issues of (1) whether groundwater that is hydrologically connected to navigable waters can ever be covered under the CWA, and (2) if yes, then whether the groundwater in the specific case is jurisdictional based on its connection to navigable waters. Appendix A also provides the reasoning each decision offered for arriving at its conclusions and the factual circumstances of the case.

Though the table in Appendix A analyzes a total of thirty-three decisions, only six of those decisions can be said to have definitively decided against *any* CWA jurisdiction over groundwater.¹⁰⁹ Twenty decisions have definitively said that

108. *See id.* at 998 (“An aquifer with a substantial nexus with navigable-in-fact water may itself be protected under the Clean Water Act even if it is not necessarily a conduit for pollutants. But when it is established that groundwater is a conduit for pollutants, liability may attach to a discharge into that groundwater even if the groundwater is not itself protected under the Act.”); *see also* *Rapanos v. United States*, 547 U.S. 715, 782 (2006) (Kennedy, J., concurring).

109. Those decisions are: *Cape Fear River Watch, Inc. v. Duke Energy Progress, Inc.*, 25 F. Supp. 3d 798, 810 (E.D.N.C. 2014); *Tri-Realty Co. v. Ursinus Coll.*, No. 11-5885, 2013 WL 6164092, at *8 (E.D. Penn. Nov. 21, 2013); *Patterson Farm, Inc. v. City of Britton*, 22 F. Supp. 2d 1085, 1091 (D.S.D. 1998); *United States v. ConAgra*, No. 96-0134, 1997 WL 33545777, at *7 (D. Idaho Dec. 31, 1997); *Umatilla Waterquality Protective Ass’n, v. Smith Frozen Foods, Inc.*, 962 F.Supp. 1312, 1320 (D. Or. 1997); *Kelley ex rel. Mich. v. United States*, 618 F. Supp. 1103, 1107 (W.D. Mich. 1985). Two of these decisions had subsequent cases in the same district that decided the issue the opposite way. *See Greater Yellowstone Coal. v. Larson*, 641 F. Supp. 2d 1120, 1138 (D. Idaho 2009); *Nw. Env’tl. Def. Ctr. v. Grabhorn, Inc.*, No. 08-548, 2009

the CWA does cover groundwater that is hydrologically connected to “waters of the United States.”¹¹⁰ Furthermore, many of those decisions that have definitively decided that groundwater is not covered rely on cases that do not also conclude that groundwater hydrologically connected to navigable waters cannot be under the jurisdiction of the CWA. Some of those cases finding CWA jurisdiction over connected groundwater have also held that the groundwater need not discharge into navigable-in-fact waters; discharges into “waters of the United States” are sufficient to confer jurisdiction.¹¹¹ The decisions upholding CWA jurisdiction also differ on whether

WL 3672895, at *11 (D. Or. Oct. 30, 2009); *Idaho Rural Council v. Bosma*, 143 F. Supp. 2d 1169, 1180 (D. Idaho 2001).

110. Those decisions are: *Waterkeeper Alliance, Inc. v. U.S. Envtl. Prot. Agency*, 399 F.3d 486, 514–15 (2d Cir. 2005); *Quivira Mining Co. v. U.S. Envtl. Prot. Agency*, 765 F.2d 126, 130 (10th Cir. 1985); *Haw. Wildlife Fund v. Cnty. of Maui*, 24 F. Supp. 3d 980, 996 (D. Haw. 2014); *Raritan Baykeeper, Inc. v. NL Indus., Inc.*, No. 09-4117, 2013 WL 103880, at *15 (D.N.J. Jan. 8, 2013); *Ass’n Concerned Over Res. & Nature, Inc. v. Tenn. Aluminum Processors, Inc.*, No. 10-00084, 2011 WL 1357690, at *18–19 (M.D. Tenn. Apr. 11, 2011); *Hernandez v. Esso Standard Oil Co.*, 599 F. Supp. 2d 175, 181 (D.P.R. 2009); *Greater Yellowstone Coal v. Larson*, 641 F. Supp. 2d 1120, 1138 (D. Idaho 2009); *Nw. Envtl. Def. Ctr. v. Grabhorn, Inc.*, No. 08-548, 2009 WL 3672895, at *11 (D. Or. Oct. 30, 2009); *Coldani v. Hamm*, No. 07-660, 2007 WL 2345016, at *7–8 (E.D. Cal. Aug. 16, 2007); *N. Cal. River Watch v. Mercer Fraser Co.*, No. 04-4620, 2005 WL 2122052, at *2–3 (N.D. Cal. Sept. 1, 2005); *N. Cal. River Watch v. City of Healdsburg*, No. 01-04686, 2004 WL 201502, at *35 (N.D. Cal. Jan. 23, 2004); *Sierra Club v. El Paso Gold Mines, Inc.*, No. 01-2163, 2002 WL 33932715, at *13 (D. Colo. Nov. 15, 2002); *Idaho Rural Council v. Bosma*, 143 F. Supp. 2d 1169, 1180 (D. Idaho 2001); *Mut. Life Ins. Co. of N.Y. v. Mobil Corp.*, No. 96-1781, 1998 WL 160820, at *3 (N.D.N.Y. Mar. 31, 1998); *Williams Pipe Line Co. v. Bayer Corp.*, 964 F. Supp. 1300, 1319–20 (S.D. Iowa 1997); *Friends of Santa Fe Cnty. v. LAC Minerals, Inc.*, 892 F. Supp. 1333, 1357–58 (D.N.M. 1995); *Wash. Wilderness Coal. v. Hecla Mining Co.*, 870 F. Supp. 983, 990 (E.D. Wash. 1994); *Sierra Club v. Colo. Ref. Co.*, 838 F. Supp. 1428, 1432–34 (D. Colo. 1993); *New York v. United States*, 620 F. Supp. 374, 381 (E.D.N.Y. 1985); *Kelley v. United States*, No. 79-10199, 1980 U.S. Dist. LEXIS 17772, at *4 (E.D. Mich. Oct. 28, 1980).

111. See *Coldani v. Hamm*, No. 07-660, 2007 WL 2345016, at *7–8 (E.D. Cal. Aug. 16, 2007) (“In the instant case, Coldani alleges that animal waste from Lima Ranch’s dairy has infiltrated and polluted groundwater that discharges into the White Slough, which in turn empties into navigable waters, the San Joaquin River Delta System. In short, Coldani alleges that Lima Ranch has polluted groundwater that is hydrologically connected to navigable waters. Such pleading is sufficient to survive a motion to dismiss.” (citation omitted)); *Idaho Rural Council v. Bosma*, 143 F. Supp. 2d 1169, 1180 (D. Idaho 2001) (“[T]he Court finds that the CWA extends federal jurisdiction over groundwater that is hydrologically connected to surface waters that are themselves waters of the United States.”).

the connected groundwater is effectively considered (1) a “water of the United States,” after a significant nexus analysis, (2) a conduit for a point source, or (3) a point source itself.¹¹²

II. ANALYSIS

A. THE SUPREME COURT SHOULD UPHOLD CWA JURISDICTION OVER GROUNDWATER THAT IS HYDROLOGICALLY CONNECTED TO NAVIGABLE WATERS

This section offers a critique of the acceptance and rejection of a variety of arguments by courts when deciding the issue of whether the CWA’s jurisdiction covers groundwater. This section analyzes the merits of the legislative history and statutory interpretation arguments that are made in support of and against the inclusion of groundwater in the CWA’s jurisdiction, whether the EPA should get deference on its position, the treatment of groundwater as a point source, and the treatment of groundwater under the other two theories for finding CWA jurisdiction.

1. The Legislative History of the CWA Provides No Real Guide on How Courts Should Treat Groundwater that Is Hydrologically Connected.

All of the courts that decline to uphold CWA coverage over hydrologically connected groundwater cite the legislative history of the CWA as being unfavorable to the regulation of groundwater.¹¹³ On the issue of hydrologically connected groundwater, rather than isolated groundwater, legislative history arguments under the CWA are not persuasive. Those courts that determine coverage based on legislative history unfavorable to the regulation of groundwater say that it was Congress’s desire to exclude groundwater from coverage by declining to enact the Aspin Amendment.¹¹⁴ Congress had the opportunity to include groundwater in the regulatory scheme, contemplated it, and rejected it. The decision to reject the Aspin Amendment, however, only speaks to Congress’s intent to avoid enacting expansive groundwater regulations.

112. See *infra* Appendix A.

113. See *infra* Appendix A.

114. See 118 CONG. REC. 10,666–69 (1972) (rejecting the Aspin Amendment).

Congress's decision to reject the Aspin Amendment represents nothing more than a decision to not include all groundwater as *per se* jurisdictional, falling within the definition of "waters of the United States."

Though this evidence unfavorable to regulation exists, there are favorable legislative records from a related statute. The legislative history of SDWA indicates there was an understanding in Congress at the time SDWA was enacted that groundwater can be regulated under the CWA so long as it discharges into navigable waters.¹¹⁵ Even if a court concluded that the legislative history of the CWA is slanted against coverage of groundwater hydrologically connected to navigable waters, it is still inconclusive at best. In the face of an inconclusive legislative record, the explicit purpose of the CWA and the EPA's interpretation of the CWA's coverage of connected groundwater should control how the issue is treated.

2. The Explicit Purpose of the CWA Is to Protect "Waters of the United States," so Groundwater Connected to Those Waters Should Be Protected in Order to Achieve that Purpose.

The explicit language of the CWA proscribing its intent and goals is much more controlling than any sort of inference that is attempted from the CWA's legislative history. The strong language in the case, *Northern California River Watch v. Mercer Fraser Co.*, is quite convincing. The court pronounced,

it would hardly make sense for the CWA to encompass a polluter who discharges pollutants via a pipe running from the factory directly to the riverbank, but not a polluter who dumps the same pollutants into a man-made settling basin some distance short of the river and then allows the pollutants to seep into the river via the groundwater.¹¹⁶

As illustrated by this case, Congress likely did not intend to create a loophole in the CWA that allows polluters to escape responsibility for the pollution they cause to the very waters that the Act tries to protect.

Another theory advanced by those ultimately excluding groundwater from CWA coverage is the popular statutory

115. H.R. REP. NO. 93-1185, at 6457 (1974) ("[I]t appears that the Federal Water Pollution Control Act may not authorize any regulation of deep well injection of wastes *which is not carried out in conjunction with a discharge into navigable waters.*").

116. N. Cal. River Watch v. Mercer Fraser Co., No. 04-4620, 2005 WL 2122052, at *2 (N.D. Cal. Sept. 1, 2005).

interpretation argument maintaining that because groundwater is not included in the CWA's definition of "navigable waters," or in the EPA's regulatory definition of "waters of the United States," the CWA does not regulate groundwater.¹¹⁷ This argument is unpersuasive because the failure to list groundwater in the definition of "waters of the United States" does not necessarily preclude it from the scope of the CWA as a "water of the United States," and certainly does not preclude regulating discharges to groundwater that end up in "waters of the United States." The argument would go that the regulation of hydrologically connected groundwater argument is in line with the CWA's purpose, and actually the key link holding this entire system together. Without regulation of groundwater, which is often indistinguishable from surface water, how could the CWA effectively achieve its purpose?

Alternatively, if a court were unwilling to extend "waters of the United States" status to connected groundwater, then the argument would be that such groundwater is still jurisdictional by virtue of it discharging into navigable waters, not because it is jurisdictional in its own right. Under such an approach, the argument would be the CWA's purpose still allows for jurisdiction over connected groundwater under two different theories: the point source theory and the conduit theory. So, the hydrologically connected groundwater could still be treated as a point source, or a conduit for a point source. Under the point source theory, there is a burden to show that the groundwater was "confined and discrete," but under the conduit theory, there is no such burden.¹¹⁸ Either theory could provide protection for connected groundwater without having to address any legislative history or regulatory concerns about the exclusion of groundwater from the jurisdictional definitions "navigable" and "waters of the United States."

3. While the EPA's Interpretation that CWA Jurisdiction Should Extend to Cover Directly Connected Groundwater, It Is

117. See, e.g., *Nw. Env'tl. Def. Ctr. v. Grabhorn, Inc.*, No. 08-548, 2009 WL 3672895, at *10 (D. Or. Oct. 30, 2009).

118. See *Haw. Wildlife Fund v. Cnty. of Maui*, 24 F. Supp. 3d 980, 994–96 (D. Haw. 2014) (explaining that groundwater acting as a conduit need not be "confined and discrete").

Not Clear Which Theory the EPA Applies to Assert Jurisdiction.

Because the EPA's interpretation of the CWA's coverage of hydrologically connected groundwater has been promulgated in the preamble to a final rule¹¹⁹ and was made in 2008 after the guidance in both the *SWANCC* and *Rapanos* decisions, the EPA's interpretation should be entitled to some level of deference.¹²⁰ Because both the CWA and its legislative history are ambiguous on the subject of hydrologically connected groundwater and the EPA's interpretation is both reasonable and consistent with the purpose of the CWA, substantial deference should be applied to the EPA's interpretation.

A court may decide, however, that the goal of the CWA is enough to conclude that it was Congress's intent to include connected groundwater because holding otherwise would create a loophole that would defeat the purpose of the CWA. Even if a court did not conclude that the purpose of the CWA *dictated* the inclusion of connected groundwater, that court would be

119. See Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations in Response to Waterkeeper Decision, 73 Fed. Reg. 70,418, 70,420 (Nov. 20, 2008) (“[EPA] believe[s] that requirements limiting the discharge of pollutants to surface water via groundwater that has a direct hydrologic connection to surface water should be addressed on a site-specific basis.”).

120. See *Christensen v. Harris Cnty.*, 529 U.S. 576, 586–87 (2000) (“In *Chevron*, we held that a court must give effect to an agency's regulation containing a reasonable interpretation of an ambiguous statute. Here, however, we confront an interpretation contained in an opinion letter, not one arrived at after, for example, a formal adjudication or notice-and-comment rulemaking. Interpretations such as those in opinion letters—like interpretations contained in policy statements, agency manuals, and enforcement guidelines, all of which lack the force of law—do not warrant *Chevron*-style deference.”); *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 131 (1985) (“An agency's construction of a statute it is charged with enforcing is entitled to deference if it is reasonable and not in conflict with the expressed intent of Congress.”); *Chevron U.S.A. Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 842–45 (1984) (holding that if the relevant statute is silent or ambiguous on the question at issue, the reviewing court may not substitute its own construction of a statutory provision for a reasonable interpretation made by the administrator of the agency); *Bowles v. Seminole Rock & Sand Co.*, 325 U.S. 410, 413–14 (1945) (holding that when an agency interprets its own regulation, the Court defers to it unless that interpretation is plainly erroneous or inconsistent with the regulation); see also *Leslie Salt Co. v. United States*, 55 F.3d 1388, 1391–96 (9th Cir. 1995) (“This preamble material has never been subjected to notice-and-comment procedures and has not been promulgated as an official regulation.”).

forced to give the EPA at least some degree of deference on its interpretation.¹²¹ In order to find that groundwater is not regulated under the CWA at all, a court will have to find that the EPA's interpretation, despite being in line with most court's opinions on the issue and the express goals of the CWA, is an impermissible construction of the statute. Here, the fact that the EPA's interpretation avoids the defeat of the purpose of the CWA may necessitate that a court rules in its favor.

Even though the EPA's interpretation that groundwater connected to navigable waters can be covered by the CWA is consistent with the goal of the CWA, the EPA may still have problems with its interpretation. Where the EPA may run into some trouble is that its interpretation is unclear on which theory it uses to arrive at the conclusion that connected groundwater is within the scope of the CWA. Because the EPA failed to include groundwater in the definition of "other waters" in its proposed rule on the definition of the term "waters of the United States," it seems the EPA is expressly avoiding ever classifying groundwater as a "water of the United States." Though this much may be ascertained about the EPA's position, there are still two theories that the EPA will have to choose from. Based on the EPA's language that groundwater must be "directly" connected to navigable waters, it seems that the EPA's position is most in-line with the point source theory.¹²² Because the point source theory focuses on the nature of the connection, rather than the end result, the EPA's position requiring a "direct connection" looks like the EPA is requiring the groundwater to be a "point source" in order to fall within the scope of the CWA's jurisdiction, even though it does not explicitly say it.

121. See sources cited *supra* note 120.

122. See Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations in Response to Waterkeeper Decision, 73 Fed. Reg. 70,418, 70,420 (Nov. 20, 2008) ("[EPA] believe[s] that requirements limiting the discharge of pollutants to surface water via groundwater that has a direct hydrologic connection to surface water should be addressed on a site-specific basis.").

4. The EPA Could Assert Jurisdiction over Connected Groundwater in the Same Manner as It Does for Non-Navigable Surface Waters: With the Significant Nexus Test.

In making determinations about whether groundwater can fall under the scope of the CWA's coverage, courts could apply the significant nexus test on a case-by-case basis to analyze the strength of the hydrologic connection between the groundwater and navigable waters.¹²³ Much like for surface water features, the test for groundwater could be whether the groundwater significantly affects the navigable waters. Such an approach would not conflict with the legislative history of the CWA or its statutory language because it would not impose *direct* federal control over all groundwater. Instead, only that groundwater found to have a sufficiently strong connection to the navigable waters would fall within the jurisdictional reach of the CWA. This approach would be very scientifically defensible.¹²⁴ Often it is impossible to distinguish between surface water and groundwater, for example when groundwater serves as the base flow for a river. The factors that a few courts have already identified for making scientific determinations about connectivity could serve as guidelines for courts in the future for applying the significant nexus test to groundwater. Factors already identified include distance to navigable waters, time it takes groundwater to travel, depth of the groundwater, flow (presumably direction and rate), diffusion, climate, geology, soil type, topography, elevation, and slope.¹²⁵

Though this set of scientific criteria offers guiding principles for future courts, none of the factors would itself be dispositive of CWA coverage under the significant nexus test.

123. *Rapanos v. United States*, 547 U.S. 715, 780 (2006) (Kennedy, J. concurring) (explaining that water features fall under CWA jurisdiction if they, "significantly *affect* the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable.'").

124. *Haw. Wildlife Fund v. Cnty. of Maui*, 24 F. Supp. 3d 980, 995 (D. Haw. 2014) ("There is nothing inherent about groundwater conveyances and surface water conveyances that requires distinguishing between these conduits under the Clean Water Act.").

125. *Waterkeeper Alliance, Inc. v. U.S. Env'tl. Prot. Agency*, 399 F.3d 486, 515 (2d Cir. 2005) (identifying topography, climate, distance to surface waters, and soil type as factors that help assess the strength of groundwater to surface water connections); *Haw. Wildlife Fund*, 24 F. Supp. 3d at 999-1000 (assessing the diffusion rate of the groundwater at issue); *Greater Yellowstone Coal. v. Larson*, 641 F. Supp. 2d 1120, 1138 (D. Idaho 2009) (assessing the travel time, distance, geology, flow, and slope of the groundwater at issue).

For example, no strict distance or depth requirement should be formed. Since Justice Kennedy's significant nexus test is very goal-oriented and impact-based, courts should assess the scientific criteria courts have already identified in a holistic manner with the end verdict being based on the purpose of the CWA to protect navigable water. Because the significant nexus test has been adopted by every federal circuit court that has ruled on the issue, there is no barrier for each circuit finding CWA jurisdiction over groundwater in this way.

Since the significant nexus test would permit the inclusion of groundwater under the CWA as a "water of the United States," the question remains: why did the EPA decide not to include groundwater in its list of "other waters"¹²⁶ in its proposed rule? One potential way the EPA may be able to defend its decision not to include groundwater in the definition of "waters of the United States" is by saying that their decision was not a scientific one, but a legal one. The EPA would argue that no matter how connected groundwater is, it is not jurisdictional under the CWA as a "water of the United States." If the EPA actually was intending to use the significant nexus test in order to find jurisdiction over hydrologically connected groundwater, such an argument would cause conflict between the EPA's interpretation and its failure to list groundwater within the class of "other waters."¹²⁷

Alternatively, the EPA could argue that groundwater is not covered under the definition of "waters of the United States," but it is covered as either a point source or conduit of a point source.¹²⁸ That argument, however, leaves unaddressed the questions: (1) what is the basis for making this distinction

126. Under the EPA's proposed rule, the definition of "waters of the United States" includes "other waters" on a case-by-case basis after they have first passed the significant nexus test. See Definition of "Waters of the United States" Under the Clean Water Act, 79 Fed. Reg. 22,188 (proposed Apr. 21, 2014) (to be codified at 33 C.F.R. pt. 328).

127. See *supra* note 11.

128. See *Haw. Wildlife Fund*, 24 F. Supp. 3d at 994–96, 999 (holding that the County's theory that groundwater cannot be considered a conduit because it is not "confined and discrete" would lead to the radical conclusion that all conveyances through groundwater into the ocean are permissible under the Act, even if 100% of the pollutants find their way into the ocean); see also *Raritan Baykeeper, Inc. v. NL Indus.*, No. 09-4117, 2013 WL 103880, at *15 (D.N.J. Jan. 8, 2013) (holding that under a motion to dismiss standard, plaintiffs sufficiently pled that groundwater is a point source under the CWA because it is connected to the river).

between groundwater and non-navigable surface water, and (2) if the EPA is making that distinction, why did the EPA choose not to address it in its rule?

5. The Point Source Theory for Finding Jurisdiction over Hydrologically Connected Groundwater Is Not the Most Scientifically Defensible Approach.

Courts have split on whether the rather diffuse nature of groundwater can permit it to be a “discrete conveyance” at all.¹²⁹ Contrasting even the most “confined and discrete” groundwater with traditional point sources such as pipes makes the contention that groundwater can be a point source look like a rather weak one. If it truly is the EPA’s position that connected groundwater is treated as a point source, it could potentially undermine the deference to which it is entitled for its interpretation that connected groundwater is within the scope of the CWA. A court may find the position that groundwater is too “diffuse” to fairly fall within the definition of a point source persuasive. Not all examples of point sources, however, have been as confined and discrete as one might think. For example, *Hudson River Fishermen’s Ass’n v. Arcuri* held that surface runoff erosion from a riverbank was actionable as a point source.¹³⁰ Since the goal of the CWA is to protect navigable waters, the EPA would argue the definition of point source should be interpreted broadly to include sufficiently strong groundwater connections on a case-by-case basis.

Besides the scientific objections to the point source theory, there are also other issues. The point source theory is also unnecessarily cumulative under the CWA: the circumstances in which the EPA is asserting CWA jurisdiction over groundwater necessarily already have pollution coming from a point source.¹³¹ Therefore, it seems odd to say that the CWA would

129. See, e.g., *Tri-Realty Co. v. Ursinus Coll.*, No. 11-5885, 2013 WL 6164092, at *8 (E.D. Penn. Nov. 21, 2013) (“This Court disagrees that, given its natural physical attributes, groundwater could fairly be described as a ‘discernible, confined and discrete conveyance.’”); see also cases cited *supra* note 128.

130. *Hudson River Fishermen’s Ass’n v. Arcuri*, 862 F. Supp. 73, 76 (S.D.N.Y. 1994).

131. See discussion *supra* Part I.A.1; see also Philip M. Quatrochi, *Groundwater Jurisdiction Under the Clean Water Act: The Tributary Dilemma*, 23 B.C. ENVTL. AFF. L. REV. 603, 611–12 (1996).

require that the groundwater also be a point source in order to confer jurisdiction. In essence, the assertion that pollutants from a point source are also going into another point source (groundwater) and then into navigable waters is needlessly cumulative and burdensome.

6. The Conduit Theory Is a Less Burdensome Way of Asserting CWA Jurisdiction over Hydrologically Connected Groundwater: In This Theory Groundwater Is Treated as a “Conduit” of a Point Source, Rather than a Point Source Itself.

The conduit theory offers a far less burdensome approach than the point source theory. Both the conduit and point source theories of jurisdiction avoid legislative history and regulatory language arguments against the inclusion of groundwater as a “waters of the United States.” Unlike the point source theory, however, the conduit theory also avoids the burden of proving that the groundwater at issue is “confined” and “discrete” enough to fall within the scope of the CWA. The conduit theory, developed in 2014 by *Hawai‘i Wildlife Fund*, argues instead to treat groundwater as a conduit of a point source.¹³² Under this approach, the EPA would not need to prove the groundwater meets the requirement that it is confined and discrete, which could substantially reduce the burdens to the agency if it chooses to assert jurisdiction over any particular groundwater resource. Instead the focus would be on whether the pollution was (1) from a point source before it entered the groundwater, and (2) is in fact ending up in the navigable water.¹³³ Support for such a theory can be found in other cases where courts have held that once pollution is channeled or collected it constitutes a discharge from a point source, even if there are intervening factors.¹³⁴ This approach does not require a determination that groundwater can be a “water of the United States,” just that the groundwater is receiving pollution from a point source and depositing that pollution into a navigable water.

132. See *Haw. Wildlife Fund v. Cnty. of Maui*, 24 F. Supp. 3d 980, 994–96 (D. Haw. 2014) (explaining that groundwater acting as a conduit need not be “confined and discrete”).

133. *Id.*

134. See *O’Leary v. Moyer’s Landfill, Inc.*, 523 F. Supp. 642, 655 (E.D. Pa. 1981) (“Notwithstanding that it may result from such natural phenomena as rainfall and gravity, the surface run-off of contaminated waters, once channeled or collected, constitutes discharge by a point source.”).

The conduit theory is also a less burdensome approach than the theory that groundwater is a “water of the United States” after having met the significant nexus test. Compared to this theory, the conduit theory would eliminate the need to prove the groundwater at issue significantly affects a navigable water.¹³⁵ If groundwater is merely acting as a conduit, then it is essentially an extension of the point source, and the court would treat the discharge as one essentially occurring into navigable waters. Even though the conduit theory would not require a demonstration that the groundwater “significantly affects” a navigable water, it is still in-line with the CWA’s goal and the *Rapanos* decision.¹³⁶ While the conduit theory does not have this built-in requirement of needing to show a significant nexus, it may need to be limited by *some* notion of proximate causation; it could become problematic if every discharge into a 100-mile wide aquifer was required to have an NPDES permit. The limiting principle, however, seems straightforward enough: if the discharge is from a point source and the pollutants enter and cause or contribute to pollution of the waters of the United States, then an NPDES permit is required.

B. UNDER THE POINT SOURCE AND SIGNIFICANT NEXUS THEORIES, COVERAGE OF CONNECTED GROUNDWATER SHOULD BE A FACTUAL INQUIRY AND THE SCIENTIFIC CIRCUMSTANCES OF THE CASE SHOULD DETERMINE THAT OUTCOME.

This section generally addresses how to proceed after a court holds that groundwater can be covered under the CWA under either the significant nexus test or point source theories. The section analyzes what scientific criteria should be used for

135. *Haw. Wildlife Fund*, 24 F. Supp. 3d at 997 (“Congress intended to bar all unpermitted discharges, without regard to their effects on protected waters; Congress did not intend a scheme whereby certain citizen suit plaintiffs were subject to entirely different proof requirements based solely on the manner in which pollutants reach the ocean. Drawing such a distinction is not only illogical, it runs counter to the structure and intent of the Act.”); *see also* *Sierra Club v. El Paso Gold Mines, Inc.*, No. 01-2163, 2002 WL 33932715, at *15 (D. Colo. Nov. 15, 2002) (“The Act prohibits ‘any addition of any pollutant.’ 33 U.S.C. § 1311(a), § 1362(12). Thus, the unpermitted discharge of *any amount* of pollutant into navigable waters from a point source violates the CWA.”).

136. *Id.* at 996 n.2 (recognizing that the *Rapanos* decision did not itself apply the conduit theory to groundwater, but that it is a logical way of regulating groundwater that is permissible under the goals of the CWA and current case law).

making case-specific determinations on groundwater jurisdiction and general guidelines courts have put forth for making these case-by-case decisions.

1. Under the Theory that Groundwater Can Be a “Water of the United States,” the Appropriate Standard Is the Significant Nexus Standard from *Rapanos*.

The standard that courts should use in making case-specific determinations about whether the CWA can cover groundwater as a “water of the United States” is the significant nexus standard that was announced in the *Rapanos* decision.¹³⁷ The significant nexus test from *Rapanos* is so dominant as to be effectively controlling on how to determine whether water features that are not navigable-in-fact fit under the jurisdiction of the CWA.¹³⁸ The plurality test from *Rapanos* is irrelevant in the context of groundwater coverage. The plurality test would not uphold jurisdiction over groundwater, but it also has not been exclusively adopted by any circuit court.¹³⁹

Justice Kennedy’s significant nexus test is the crucial element of the *Rapanos* decision. It provides a tool for courts to make these case-by-case decisions on whether a hydrologic connection between groundwater and navigable waters is strong enough. The significant nexus test allows courts to reach conclusions that respect the intent of the CWA: to protect navigable waters and, necessarily, those waters that impact

137. *Rapanos v. United States*, 547 U.S. 715, 780 (2006) (Kennedy, J., concurring).

138. See MELTZ & COPELAND, *supra* note 77.

139. See *United States v. Donovan*, 661 F.3d 174, 176 (3d Cir. 2011) (finding CWA jurisdiction when either the Kennedy or plurality is satisfied); *Precon Dev. Corp. v. U.S. Army Corps of Eng’rs*, 633 F.3d 278, 288 (4th Cir. 2011) (applying the Kennedy test but withholding judgment on the validity of the plurality test); *United States v. Cundiff*, 555 F.3d 200, 210 (6th Cir. 2009) (avoiding selection of one test or the other by finding both were satisfied); *United States v. Bailey*, 571 F.3d 791, 799 (8th Cir. 2009) (finding CWA jurisdiction when either the Kennedy or plurality is satisfied); *United States v. Lucas*, 516 F.3d 316, 327 (5th Cir. 2008) (avoiding selection of one test or the other by finding both were satisfied); *United States v. Robinson*, 521 F.3d 1319, 1327 (11th Cir. 2008) (holding the Kennedy test alone controls); *N. Cal. River Watch v. City of Healdsburg*, 496 F.3d 993, 999–1000 (9th Cir. 2007) (applying the Kennedy test but withholding judgment on the validity of the plurality test); *United States v. Johnson*, 467 F.3d 56, 60 (1st Cir. 2006) (finding CWA jurisdiction when either the Kennedy or plurality is satisfied); *United States v. Gerke*, 464 F.3d 723, 724 (7th Cir. 2006) (holding the Kennedy test alone controls).

navigable waters. Justice Kennedy's significant nexus test avoids drawing strict jurisdictional lines that could defeat the purpose of the CWA and produce inequitable results.

2. That Factual Inquiry Under the Significant Nexus Theory Should Rely on Geologic Factors Relevant to the Specific Case, but Bright Line Rules Concerning Geologic Factors Should Be Avoided.

Keeping the significant nexus test in mind, courts should be careful about making any bright line rules about scientific factors required to find CWA jurisdiction over groundwater. Though *Hawai'i Wildlife Fund* is a case that adopted the conduit theory, its reasoning, which avoids bright-line rules based on geologic factors, is consistent with the significant nexus test:

There is no support, therefore, for creating a categorical exclusion for "deep" groundwater. The core inquiry must be a case-by-case determination of whether pollutants are reaching navigable-in-fact water . . . liability under the Clean Water Act is triggered when pollutants reach navigable water, regardless of *how* they get there. As with a "deep" conduit, a diffused conduit is no less covered under the Act if it actually conveys pollutants to navigable-in-fact water . . . there is no support for a categorical rule that allows any discharge of pollutants through groundwater so long as the discharge originates a certain distance from the ocean.¹⁴⁰

Under the reasoning of *Hawai'i Wildlife Fund*, any holding of a court that allows discharges into navigable waters to occur simply because they go through groundwater first is invalid under the purpose of the CWA. While it is helpful to consider the distance, depth, and diffusion rate of the groundwater at issue, the courts need to keep in mind at the end of the day the question is still: is there a discharge of pollution to navigable waters, and is the groundwater sufficiently connected to navigable waters so as to uphold a determination that a significant nexus between the waters exists? The overall strength of the hydrologic connection between groundwater and navigable water, and whether that groundwater significantly affects the navigable water, are what determines whether the groundwater can be regulated under this theory, not any one factor alone. Under the point source theory, the inquiry would be whether pollution was actually reaching navigable waters

140. *Haw. Wildlife Fund*, 24 F. Supp. 3d at 999.

and whether the case-specific geologic factors allowed groundwater to fairly be termed confined and discrete enough to be a point source.

C. ALTERNATIVE REMEDIES FOR FINDING GROUNDWATER JURISDICTION UNDER THE CWA ARE NUMEROUS, BUT VERY LIMITED IN SCOPE.

In the United States, there are aspects of groundwater law existing at all jurisdictional levels: local, state, and federal.¹⁴¹ Alternative statutes and doctrines to the CWA for groundwater pollution remedies include state groundwater protection acts, state common law, remedies under state public trust doctrines, and provisions of the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the Safe Drinking Water Act (SDWA), and even the Endangered Species Act (ESA). While state groundwater protection acts do afford substantial protection for groundwater resources within their respective states, none of these options offer a comprehensive national regulatory scheme for groundwater protection. The limitations of these remedies for groundwater pollution solidifies the importance of recognizing and upholding the circumstances under which groundwater is protected under the CWA.¹⁴²

1. Groundwater Protection Under State Groundwater Quality Protection Statutes

State activities to protect groundwater have been fairly extensive.¹⁴³ Since there is not a federal groundwater protection scheme, fifty different state groundwater doctrines have evolved, though some are very similar.¹⁴⁴ States have adopted three different approaches to defining groundwater in

141. CHARLES A. JOB, *GROUNDWATER ECONOMICS* 140 (2010).

142. *Id.* at 137 (“U.S. federal law does not recognize the emerging understanding that groundwater can migrate across long distances over time and may be essential to streamflow in many areas of the country.”).

143. OFFICE OF THE ADM’R, U.S. ENVTL. PROT. AGENCY, EPA 100-R-93-001, *FINAL COMPREHENSIVE STATE GROUND WATER PROTECTION PROGRAM GUIDANCE 1–5* (1992), available at <http://www.epa.gov/superfund/policy/remedy/pdfs/100r-93001-s.pdf>.

144. JOB, *supra* note 141.

their groundwater protection laws.¹⁴⁵ Some states define groundwater very broadly as all “non-surface” waters, others have a narrower definition rooted in hydrology (e.g., distinguishing groundwater from all underground water), and other states define groundwater as a part of their definitions of “waters of the state.”¹⁴⁶

Between 1985 and 1991, all fifty states enacted legislation with groundwater management provisions.¹⁴⁷ Such legislation included the establishment of groundwater classification systems, groundwater protection funds, statewide groundwater policies, definitions of groundwater quality standards, and other efforts to control sources of groundwater contamination.¹⁴⁸ In a 1992 report, the EPA provided that “the States developed and are implementing many regulatory and non-regulatory programs under State statutes to address sources of ground water contamination not addressed by the federal government, such as diffuse sources like septic tanks.”¹⁴⁹ It is important to note, however, that while all states have enacted some form of groundwater protection *policies*, not all states have adopted groundwater water quality

145. KENNETH A. MANASTER & DANIEL P. SELMI, 2 STATE ENVIRONMENTAL LAW § 20:4 (2014).

146. The term “waters of the state” is different from the term “waters of the United States.” States have independent legal authority to create their own definitions of “waters of the state,” and the vast majority of states’ definitions encompass more waters, and cannot include fewer waters, than the definition of “waters of the United States.” See Douglas T. Nelson et al., *Real Environmental Protections: Not a Paper Exercise*, 42 ENVTL L. REP. NEWS & ANALYSIS 10,116, 10,170 n.50 (2012) (“Waters of the state extend far beyond waters of the United States [for example, one state’s definition includes] ‘all streams, lakes, marshes, ponds, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or border upon this state or any portion of the state.’”); see also U.S. ENVTL. PROT. AGENCY, ECONOMIC ANALYSIS OF PROPOSED REVISED DEFINITION OF WATERS OF THE UNITED STATES 3 (2014), available at http://www2.epa.gov/sites/production/files/2014-03/documents/wus_proposed_rule_economic_analysis.pdf (“Although the extent of their CWA jurisdiction may not be smaller than the definition of waters of the U.S., states and tribes may elect to implement CWA programs more broadly according to a definition of ‘waters of the state’ or ‘waters of the tribe.’”).

147. OFFICE OF THE ADM’R, U.S. ENVTL. PROT. AGENCY, *supra* note 143.

148. *Id.*

149. *Id.* at 1-5–1-6.

standards.¹⁵⁰ At least fourteen states protect all groundwater in the state for drinking water use.¹⁵¹

2. Groundwater Protection Under State Common Laws

Landowners may bring actions against those who pollute and impair the quality and value of groundwater to which they have rights. Some of the traditional common law doctrines that provide remedies for landowners who have had their groundwater contaminated are: trespass,¹⁵² public nuisance,¹⁵³ private nuisance,¹⁵⁴ and strict liability for abnormally

150. See, e.g., MARGARET MYZSEWSKI ET AL., UNIV. OF GA., A COMPARISON OF GROUNDWATER LAWS AND REGULATIONS FROM SOUTHEASTERN STATES 35 (2005), available at <http://athenaeum.libs.uga.edu/bitstream/handle/10724/18945/groundwater.pdf> (displaying that Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee all have groundwater protection policies, but Alabama, Kentucky, and Mississippi do not have groundwater water quality standards). For a summary of which states have various kinds of groundwater protection programs, see JOB, *supra* note 141, at 149.

151. JOB, *supra* note 141, at 147.

152. G. Nelson Smith, III, *Nuisance and Trespass Claims in Environmental Litigation: Legislative Inaction and Common Law Confusion*, 36 SANTA CLARA L. REV. 39, 54 (1995) (“A claim of trespass contemplates actual physical entry or invasion [of pollution], whereas nuisance liability arises merely by virtue of an activity which falls short of tangible, concrete invasion but interferes with the use and enjoyment of land.”).

153. Michael C. Skotnicki, *Private Actions for Damages Resulting from an Environmental Public Nuisance: Overcoming the Barrier to Standing Posed by the “Special Injury” Rule*, 16 AM. J. TRIAL ADVOC. 591, 593 (1992) (“The tort of public nuisance involves an interference with a right that is common to the general public, as opposed to private nuisance, which is an interference with the use or enjoyment of a private property interest. . . . Historically, a private plaintiff did not have standing to bring an action either to enjoin a nuisance, or for damages caused as a result, unless he suffered a ‘special injury’ that caused him ‘special’ or ‘particular’ damage. The ‘special injury’ must somehow be distinct from that shared by the public at large.”).

154. RESTATEMENT (SECOND) OF TORTS § 822 (1979) (“One is subject to liability for a private nuisance if, but only if, his conduct is a legal cause of an invasion of another’s interest in the private use and enjoyment of land, and the invasion is either (a) intentional and unreasonable, or (b) unintentional and otherwise actionable under the rules controlling liability for negligent or reckless conduct, or for abnormally dangerous conditions or activities.”); Ronald G. Aronovsky, *Back from the Margins: An Environmental Nuisance Paradigm for Private Cleanup Cost Disputes*, 84 DENV. U. L. REV. 395, 428 (2006) (“An analysis of private nuisance law across the United States, however, reveals four significant doctrinal limitations that severely limit the effectiveness of nuisance as a rule of decision in private cleanup cost disputes: (1) most states limit private nuisance claims to disputes involving neighboring property uses; (2) in many states the doctrine of *caveat emptor* bars private

dangerous or ultrahazardous activity on the land.¹⁵⁵ One of the main problems with these remedies, however, is that they generally address harm after it has already occurred, assume simple bipolar adjudication, and place the rather large burden of proof on the plaintiff.¹⁵⁶ Furthermore, to even initiate a suit, all of these common law claims normally require a private party to be able to identify the source of groundwater pollution, which is not always clear.¹⁵⁷ It is important that landowners are able to recover damages to their resource rights, but these remedies are lacking in their ability to prevent future damages.¹⁵⁸

3. Groundwater Protection Under State Public Trust Doctrines

The core idea of the public trust doctrine is that the state is a trustee with a fiduciary duty to the public to manage the resources of the state for the benefit of the public generally.¹⁵⁹ Under *PPL Montana, LLC v. Montana*, “the States retain residual power to determine the scope of the public trust over waters within their borders, while federal law determines riverbed title under the equal footing doctrine.”¹⁶⁰ Some states have defined the scope of their public trust doctrines in either a broad way, such as “all waters,” that could provide protection depending on how that phrase is interpreted, or in a way that

nuisance claims against predecessor owners; (3) many states employ an anachronistic interpretation of the continuing nuisance doctrine to render time-barred private nuisance claims at older contamination sites; and (4) the misplacement of the burden of proof regarding whether a nuisance is permanent or continuing can extinguish claims for unabated contamination and create a series of perverse incentives against proactive site investigation and informal cleanup cost dispute resolution.”)

155. J.W. Looney, *Rylands v. Fletcher Revisited: A Comparison of English, Australian and American Approaches to Common Law Liability for Dangerous Agricultural Activities*, 1 *DRAKE J. AGRIC. L.* 149, 162–63 (1996) (“When the Restatement of Torts was revised, the idea of ‘abnormally dangerous’ activity replaced ‘ultrahazardous’ and [] six factors . . . were added as the basis for deciding whether to apply strict liability. . . . [T]he accepted view in modern American tort law is that foreseeability of harm, as used in the analysis of nuisance or negligence, is not an element in strict liability.”).

156. See generally Smith, *supra* note 152; Aronovsky, *supra* note 154.

157. See generally *id.*

158. See generally *id.*

159. Carol Necole Brown, *Drinking From a Deep Well: The Public Trust Doctrine and Western Water Law*, 34 *FLA. ST. U. L. REV.* 1, 6 (2006).

160. *PPL Montana, LLC v. Montana*, 132 S. Ct. 1215, 1235 (2012).

expressly provides coverage for groundwater.¹⁶¹ Other states do not include protection for groundwater in their public trust doctrines.¹⁶² While several states have protection for groundwater in their public trust doctrines, only a few states, notably Hawaii and California, have case law addressing the issue.¹⁶³

A comparison of Hawaii and California's respective public trust doctrines illuminates how coverage for groundwater under the doctrine can vary. Hawaii's protection of groundwater under its public trust doctrine is much more expansive than in California. In California, the public trust doctrine protects navigable waters from harm caused by the extraction of groundwater.¹⁶⁴ Hawaii's public trust doctrine extends a duty to the government to manage the resource in a responsible way for the public interest in a much broader sense. In Hawaii the public trust obligation is more substantive, not just mere "consideration" of the effect of the state's actions on groundwater.¹⁶⁵ Hawaii also has a clear basis for overruling the state legislature: in Hawaii, the public trust doctrine is of constitutional stature.¹⁶⁶

Because not all states have groundwater protection in their public trust doctrines, the remedy is somewhat limited. If a victim of groundwater pollution lived outside of Hawaii, California, or one of the other states with some public trust protections for groundwater, no remedy would be available to

161. See ALEXANDRA B. KLASS & LING-YEE HUANG, CTR. FOR PROGRESSIVE REFORM, RESTORING THE TRUST: WATER RESOURCES AND THE PUBLIC TRUST DOCTRINE, A MANUAL FOR ADVOCATES 7, 11, 21–24 (2009), available at http://www.progressivereform.org/articles/CPR_Public_Trust_Doctrine_Manual.pdf (listing Hawaii and Vermont as including groundwater in statutory or constitutional public trust provisions, and noting Montana, New Jersey, and other states have public trust principles and language inclusive of groundwater in constitutional and statutory provisions that could form a platform for judicial expression of public trust protection of groundwater).

162. *Id.*

163. See *Envtl. Law Found. v. State Water Res. Control Bd.*, No. 34-2010-80000583, 44 *Envtl. L. Rep.* (Envtl. Law Inst.) 20158, at *8 (Cal. Super. Ct. July 14, 2014) (“[T]he public trust doctrine protects navigable waters from harm caused by extraction of groundwater, where the groundwater is so connected to the navigable water that its extraction adversely affects public trust uses.”); *In re Water Use Permit Applications*, 9 P.3d 409, 447 (Haw. 2000).

164. *Envtl. Law Found.*, 44 *Envtl. L. Rep.* (Envtl. Law Inst.) 20158, at *14.

165. *In re Water Use Permit Applications*, 9 P.3d at 447, 455.

166. *Id.* at 455; HAW. CONST. art. XI, §§ 1, 7 (2005).

them. The public trust doctrine could become a more feasible nation-wide solution for handling groundwater contamination if more states expanded their public trust doctrine to include groundwater. Until then, only the residents of those states that currently provide protection for groundwater under their public trust doctrine will have a general remedy against the state for failing to protect its groundwater resources.¹⁶⁷

4. Groundwater Protection Under the Resource Conservation and Recovery Act (RCRA)

The Resource Conservation and Recovery Act (RCRA)¹⁶⁸ was enacted in 1976, and it manages solid and hazardous waste management activities.¹⁶⁹ RCRA provides comprehensive “cradle to grave” regulation of hazardous waste, in part to prevent groundwater contamination, and requires remedial action if groundwater becomes contaminated by hazardous waste.¹⁷⁰ RCRA’s few provisions that do provide protection for groundwater resources, however, are limited in scope.¹⁷¹ In

167. A good number of states, however, have general environmental citizen suit provisions, based loosely on Michigan’s landmark 1970 Michigan Environmental Protection Act (MEPA). The idea of the drafter, Professor Joseph Sax, was to create a statutory codification of the Public Trust Doctrine. Case law in these states is generally regarded as predicated upon statutes, and not the common law Public Trust Doctrine. *See* MANASTER & SELMI, *supra* note 145, at § 16:53 (“MEPA is built on several assumptions regarding the scope and legitimacy of environmental enforcement by private citizens. First, the Act recognizes the existence of a ‘public trust’ in the resources of the state, thereby extending the public trust doctrine by statute to resources not traditionally subject to that doctrine, and authorizing citizen enforcement of that extension. . . . A number of other states have enacted legislation modeled after MEPA, although some of them differ from the Michigan law.” (footnotes omitted)).

168. 42 U.S.C. §§ 6901–6992 (2012).

169. *History of RCRA*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/wastes/laws-regs/rcrahistory.htm> (last updated Nov. 1, 2013).

170. George W. Bilicic, Jr., Note, *An Analysis of the Land Disposal Ban in the 1984 Amendments to the Resource Conservation and Recovery Act*, 76 GEO. L.J. 1563, 1563–64 (1988).

171. RCRA’s “imminent and substantial endangerment” citizen suit provision under 42 U.S.C. 6972(a)(1)(B), however, is a powerful tool for private individuals seeking to enjoin an activity around the storage or use of any waste that is currently or *may present* a hazard to human health or environment. *See generally* Raymond K. Hoxsie Real Estate Trust v. Exxon Educ. Found., 81 F. Supp. 2d 359, 367 (D.R.I. 2000) (upholding endangerment to non-potable groundwater because the statute provides coverage when

order to protect groundwater, the 1984 RCRA Amendments ban the, “placement of various hazardous wastes into landfills and other types of land disposal facilities unless certain specified conditions are met. The wastes have to be treated so that [] danger is minimized, or the disposal facility must be able to contain the wastes for as long as they remain hazardous.”¹⁷² A summary of the difficulties in RCRA’s remedies illustrates the limited scope of RCRA and its shortcomings with regard to groundwater contamination:

The environmental problems posed by land disposal of hazardous waste are difficult to solve because the connection between a particular land disposal site and groundwater contamination is often unclear. It make take years for land-disposed hazardous waste constituents to contaminate groundwater. A further substantial period of time may also pass before human injury from contaminated groundwater manifests itself, because there is often a long latency period between exposure and the signs of illness.¹⁷³

While RCRA also requires groundwater monitoring, the statute is more reactive than proactive. Under RCRA, a groundwater protection standard (GWPS) is established and included in a facility’s permit after a statistically significant release is detected at the waste management unit boundary under a detection monitoring program,¹⁷⁴ and the determination of whether a GWPS has been exceeded is established through a compliance monitoring program.¹⁷⁵ While this step of requiring monitoring to protect groundwater is not trivial, monitoring is quite limited because it only applies to certain facilities that handle hazardous waste, and only a certain list of pollutants are monitored.¹⁷⁶

5. Groundwater Protection Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)¹⁷⁷ contains

substances may endanger the environment, and groundwater, whether potable or not, is a part of the environment).

172. *Id.* at 1564.

173. *Id.* at 1570.

174. 40 C.F.R. 264.92 (2011).

175. 40 C.F.R. 264.99(a) (2011).

176. Bilicic, *supra* note 170, at 1574.

177. 42 U.S.C. §§ 9601–9675 (2000).

provisions that supplement provisions in RCRA.¹⁷⁸ CERCLA does not provide any forward-looking protection for groundwater, but it does assist in cleaning up hazardous pollutants that were released into the environment from past actions or operations.¹⁷⁹ The EPA has specifically established a groundwater classification system for determining appropriate cleanup standards for a CERCLA removal or remedial action.¹⁸⁰ Such actions require “potentially responsible parties to conduct, or reimburse the government for conducting, cleanup of hazardous waste sites, including the remediation of contaminated groundwater when necessary and technologically feasible.”¹⁸¹ Essentially, CERCLA’s provisions are quite limited with respect to groundwater quality protection because they apply only retroactively to specific sites with hazardous pollutants.

6. Groundwater Protection Under the Endangered Species Act (ESA)

Groundwater protection under the Endangered Species Act (ESA) is probably the most limited of all the available alternative remedies. Groundwater might be protected from pollution under the ESA if an endangered species lives in a water body that is being polluted from connected groundwater. In order for this remedy to work, however, one would have to know where the pollution is coming from and be able to trace it from its source into the endangered species’ habitat. Then the groundwater contamination would have to impact the habitat so much that it constituted a “taking”¹⁸² either of the endangered species itself, if the species is dying, or a taking of the habitat of an endangered species if the habitat is getting destroyed to the point where it cannot support the endangered species.¹⁸³ For a court to hold that the pollution constituted a

178. See Allyn G. Turner, *Federal Groundwater Regulation and Policy: Improvements Under the Horizon?*, 10 J. NAT. RESOURCES & ENVTL. L. 323, 333 (1995).

179. *Id.*

180. *Id.* at 333–34 (footnotes omitted).

181. *Id.* (footnotes omitted).

182. “Take” means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” 16 U.S.C. § 1532(18) (2012).

183. See *Babbitt v. Sweet Home Chapter of Cmty. for a Great Or.*, 515 U.S. 687, 706–08 (1995) (upholding regulation defining “take” to include any

taking of habitat it would have to be proven that the habitat was critical or that it was causing habitat to be unsuitable for the species.¹⁸⁴ Although the potential protection of groundwater under the ESA is incredibly narrow and limited, if everything could be proven, the ESA would provide powerful remedies to protect the species.

7. Groundwater Protection Under the Safe Drinking Water Act (SDWA)

Groundwater protection under the Safe Drinking Water Act (SDWA) might be the most extensive of the alternative remedies examined, however, it is still quite limited. SDWA groundwater provisions only extend to groundwater that is “the sole or principal drinking water source” for a region.¹⁸⁵ By 1984 only ten aquifers nationwide received “sole source” designation.¹⁸⁶ Another way that SDWA can be used to protect groundwater resources is through its “imminent and substantial endangerment” enforcement provision.¹⁸⁷ This provision reaches any contaminant (whether or not it has been previously regulated) threatening public water supplies.¹⁸⁸ Even with this additional, more expansive remedy under SDWA, SDWA’s protection is only aimed at protecting groundwater serving as a public water supply. The “imminent and substantial endangerment” provision is also lacking because it is really more of a retroactive remedy than a forward-looking preventative measure. Since SDWA has this relatively limited reach, it still leaves most groundwater resources unprotected.

act that modifies or degrades an endangered species habitat to an extent that actually kills or injures wildlife by impairing essential behaviors); *see also* 16 U.S.C. § 1538 (2012) (making it unlawful for any person to “take” any endangered species).

184. *Babbitt*, 515 U.S. at 703–05.

185. 42 U.S.C. § 300h-3(e) (2012).

186. J. Stephen Dycus, *Development of a National Groundwater Protection Policy*, 11 B.C. ENVTL. AFF. L. REV. 211, 253 (1984).

187. 42 U.S.C. § 300i(a) (2012).

188. 2 WILLIAM H. RODGERS, JR., *RODGERS’ ENVIRONMENTAL LAW* § 4:8 (2014) (“Endangerment may be ‘imminent’ even though the pollution is recurring and chronic, the harm not immediately in sight, the source of the problem inactive, and the offending behavior committed before the passage of the Act.”).

CONCLUSION

With no national scheme to prevent groundwater pollution, and a very limited supply of freshwater, it is paramount that we protect the groundwater that we can under the CWA. We are at an important moment in CWA history: will the CWA's jurisdiction over groundwater connected to navigable waters be upheld, or will courts limit the CWA's jurisdiction yet again? If the CWA is limited, how effective will the CWA actually be in the future in achieving its goal—the protection of navigable waters? If jurisdiction is upheld over hydrologically connected groundwater, which theory will govern jurisdictional determinations?

It is critical that the Supreme Court decide in the affirmative that the CWA does cover groundwater that is hydrologically connected to navigable waters. While most courts currently have taken the view that such groundwater is protected under the CWA, not all navigable waters and groundwater have the benefit of being in those jurisdictions. A ruling from the Supreme Court affirming the CWA's coverage of connected groundwater will ensure more consistent and predictable protection of navigable waters and allow the EPA to administer the CWA more efficiently. To rule in any other way would be to undermine the purpose of the CWA. In making a decision on the issue, the Supreme Court should analyze the benefits and legal merits of the three theories: coverage by applying the significant nexus test to groundwater, coverage of groundwater as a point source, and coverage of groundwater under the conduit theory. While each theory of groundwater coverage has its own merits, the conduit theory offers the least burdensome and most straightforward approach while also being in-line with the CWA's goal. The further development and adoption of this theory could provide the EPA with a more efficient tool to assert jurisdiction, and this increased efficiency could lead to the greater protection of our nation's navigable waters.

Appendix A. Decisions on CWA Jurisdiction over Groundwater that Is Hydrologically Connected to Navigable Waters					
Case	Court Year	Connected GW regulated under CWA?	Connected GW regulated under facts?	Factual Circumstances	Reasoning
1st Cir.					
Hernandez v. Esso Standard Oil Co., 599 F. Supp. 2d 175	D. P.R. 2009	Yes, and deference should be given to the EPA	Yes ¹⁸⁹	Wastes from underground storage tanks under a gas station reached navigable waters through groundwater hydrologically connected to an adjacent river. The tanks were removed eleven years before the suit but continued to contaminate. ¹⁹⁰	The court held not that groundwater is categorically excluded from consideration as waters of the United States, but that such a determination requires ecological judgment according to characteristics of each site, which should be left to EPA and the Corps.
Town of Norfolk v. U.S. Army Corps of Eng'rs, 968 F.2d 1438	1st Cir. 1992	The decision should be left to EPA and the Corps	N/A	The town of Norfolk challenged the decision of the Corps to issue a permit under the CWA and argued that groundwater resources are waters of the U.S., despite the determination of the Corps that groundwater was not covered under this definition	The court deferred to the Corps' interpretation of navigable waters, which excluded groundwater. The court held that whether groundwater is covered involves ecological judgment about the relationship of surface and groundwaters that should be left to EPA and the Corps.
2d Cir.					
Cordiano v. Metacon Gun Club, Inc., 575 F.3d 199	2d Cir. 2009	Not decided ¹⁹¹	N/A	Neighboring homeowners brought action alleging that gun club was violating the CWA by discharging lead munitions on its property. Plaintiffs alleged that jurisdictional wetlands were being contaminated by the lead pollution.	The contamination was not from a point source. In a footnote, the court said it did not need to address whether the CWA applies to groundwater contamination, but there is authority that the CWA does not apply to groundwater, citing both <i>Rice v. Harken</i> and <i>Vill. of Oconomowoc Lake</i> . ¹⁹²

189. Hernandez v. Esso Standard Oil Co., No. 03-1485, 2009 WL 1586928, at *1 (D.P.R. June 2, 2009).

190. Hernandez v. Esso Standard Oil Co., 571 F. Supp. 2d 305, 307 (D.P.R. 2008).

191. The court did not rule on the issue of whether groundwater *that is hydrologically connected to protected surface waters* is covered under the CWA or provide any reasoning or analysis on either of the cases it cited, on any legislative history of the CWA, or on the CWA's goals. It is unclear if the court attempted to put forward any sort of decision on the issue since the issue is given little attention.

192. Rice v. Harken Exploration Co., 250 F.3d 264, 269 (5th Cir.2001); Vill. of Oconomowoc Lake v. Dayton Hudson Corp., 24 F.3d 962, 965 (7th Cir.1994).

Waterkeeper Alliance, Inc. v. U.S. Evtl. Prot. Agency, 399 F.3d 486	2d Cir. 2005	Yes	N/A	Plaintiffs, CAFO farmers, brought a challenge to the EPA's CAFO rule, alleging that EPA's rule was invalid because EPA cannot regulate groundwater.	The court upheld EPA's case-by-case method of assessing jurisdiction for groundwater. EPA agreed it did not have jurisdiction over all groundwater, just groundwater connected to navigable waters.
Aiello v. Town of Brookhaven, 136 F. Supp. 2d 81	E.D. N.Y. 2001	Implicitly accepted that it can be covered ¹⁹³	Not decided ¹⁹⁴	Brookhaven allegedly violated the CWA by failing to obtain a permit for a closed landfill. Plaintiffs alleged the landfill was a point source with ongoing discharge of pollutants due to the migrating plume of leachate.	Past discharges into groundwater that continued to migrate to navigable waters is not ongoing and not covered under the CWA. There is no remedy in the CWA for failing to obtain a permit in contemplation of a landfill leak in the future.
Mut. Life Ins. Co. of N.Y. v. Mobil Corp., No. 96-1781, 1998 WL 160820	N.D.N.Y. 1998	Yes	Not decided	A Mobil truck driver accidentally released at least 750 gallons of gas into a vapor monitoring well instead of an underground tank. Plaintiffs alleged that this incident caused groundwater contamination on their property and the groundwater was hydrologically connected to wetlands and Bear Trap Creek, both navigable.	The broad "navigable waters" in the CWA and its policy to protect surface waters meant that plaintiffs sufficiently pled a cause of action by alleging contamination via groundwater. General hydrological connection among all waters is insufficient; plaintiffs must trace pollutants from their source to surface waters.
New York v. United States, 620 F. Supp. 374	E.D. N.Y. 1985	Yes ¹⁹⁵	Not decided	Plaintiffs alleged that the defendants contaminated groundwater underlying former Suffolk County Air Force Base and the surrounding area with jet fuel and hydrocarbons. The plaintiffs alleged the contamination of the groundwater posed a threat to surface waters.	The court declined to reach the defendants' legislative history arguments that the scope of the CWA does not cover groundwater. The court declined because, "it is clear that plaintiff has alleged that the pollutants threaten to contaminate [several] undisputably [sic] navigable waters."

193. While the court did not discuss the issue of whether groundwater can be covered under the CWA if it is hydrologically connected to navigable waters, it accepted that connected groundwater was covered as a background condition to arrive at the issue of whether a *past discharge* into groundwater is covered under the CWA (rather than whether groundwater can be considered at all in the first place).

194. Since the landfill was closed and the court did not accept that there was an ongoing discharge, the issue of the strength of the groundwater's connection to navigable waters was not reached.

195. The court does not thoroughly analyze the issue, but seems to be saying that of course the CWA covers groundwater when it is connected to navigable waters.

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3d Cir.					
Raritan Baykeeper, Inc. v. NL Indus., Inc., No. 09-4117, 2013 WL 103880	D. N.J. 2013	Yes	Not decided	The site at issue was surrounded by the Raritan River. NL Industries allegedly violated the CWA by discharging arsenic, copper, lead, nickel, and zinc into the river through groundwater. Concentrations were higher where groundwater discharged into the river.	With a motion to dismiss standard, plaintiffs sufficiently pled that groundwater is a point source under the CWA if connected to the river. Because plaintiffs alleged the groundwater is hydrologically connected to surface water, discharges are regulated by CWA.
Tri-Realty Co. v. Ursinus Coll., No. 11-5885, 2013 WL 6164092	E.D. Penn. 2013	No ¹⁹⁶	N/A	Pollution from underground storage tanks took approximately five to six years to travel from groundwater into navigable surface waters.	Discharge into navigable waters by migration and soil runoff is nonpoint pollution. Groundwater is not a “discernible, confined and discrete conveyance.”
4th Cir.					
Cape Fear River Watch, Inc. v. Duke Energy Progress, Inc., 25 F. Supp. 3d 798	E.D. N.C. 2014	No ¹⁹⁷	N/A	Plaintiffs alleged Duke’s coal ash escaped from its lagoons into a water of the United States. The lagoons had no liner. A sinkhole opened in the larger lagoon in 2000, and a partial collapse caused another spill in 2010.	Relying on <i>Oconomowoc Lake</i> , ¹⁹⁸ the court held the CWA did not extend federal authority over groundwater, even if connected to navigable waters. The court also said <i>Rapanos</i> does not endorse a broad meaning of navigable waters.
5th Cir.					
Rice v. Harken Exploration Co., 250 F.3d 264	5th Cir. 2001	Not decided ¹⁹⁹	N/A	Plaintiffs alleged damage to their land. Plaintiffs own surface rights to Big Creek Ranch. Harken operates oil and gas properties pursuant to leases on Big Creek Ranch. Big Creek is a small creek on the Rice’s property and runs to the Canadian River, a navigable water.	Plaintiffs urged the court to apply the CWA definition of “navigable water” to the Oil Pollution Act. The court said even that does not cover groundwater. The court said <i>Exxon</i> ²⁰⁰ held legislative history belied any intent to impose <i>direct</i> federal control over subsurface waters.

196. This court improperly relies on *Rice v. Harken Exploration Co.*, which never discussed hydrologically connected groundwater. 250 F.3d 264 (5th Cir. 2001).

197. This court also improperly relies on *Rice v. Harken Exploration Co.*, which never discussed hydrologically connected groundwater. 250 F.3d at 264.

198. *Vill. of Oconomowoc Lake v. Dayton Hudson Corp.*, 24 F.3d 962 (7th Cir. 1994).

199. *Rice* held groundwater is not regulated *per se* by the CWA. The court gave no opinion on CWA coverage of hydrologically connected groundwater. Some courts, however, have relied *Rice* to say that groundwater can never be covered by the CWA. *See* *Tri-Realty Co. v. Ursinus Coll.*, No. 11-5885, 2013 WL 6164092, at *9 (E.D. Penn. Nov. 21, 2013); *Cape Fear River Watch, Inc. v. Duke Energy Progress, Inc.*, 25 F. Supp. 3d 798, 809 (E.D.N.C. 2014).

200. *Exxon Corp. v. Train*, 554 F.2d 1310, 1322 (5th Cir. 1977).

Exxon Corp. v. Train, 554 F.2d 1310, 1322	5th Cir. 1977	Not decided ²⁰¹	N/A	In designing the Flomaton natural gas facility, Exxon initially planned to dispose of waste water by discharging part of it into surface holding pits from which it eventually would enter the Escambia River system and by injecting the remainder into a formerly producing oil well about 5,000 feet deep. EPA argued it has the power to place conditions in such permits that limit the "associated" disposal of wastes into wells.	The court decided Congress did not mean to substitute federal authority for state authority over groundwater. It found a pattern of federal encouragement of states to control groundwater pollution, but no <i>direct</i> control. The court said EPA did not argue the wastes here do, or might, migrate from groundwater back to surface waters within its jurisdiction. "We mean to express no opinion on what the result would be if that were the state of facts."
United States v. GAF Corp., 389 F. Supp. 1379	S.D. Tex. 1975	Not decided ²⁰²	N/A	The federal government sought relief against the drilling of deep wells and injecting organic chemical wastes (subsurface disposal) in them without the approval of the EPA.	The court said disposal of waste into groundwater <i>not alleged to flow into or affect surface water</i> is not a discharge under the CWA. From legislative history, the court concluded Congress did not mean to include groundwater because it did not establish federal standards for groundwaters.
6th Cir.					
Ass'n Concerned Over Res. & Nature, Inc. v. Tenn. Aluminum Processors, Inc., No. 10-00084, 2011 WL 1357690	M.D. Tenn. 2011	Yes	Not decided	Plaintiff alleged Tennessee Aluminum Processors (TAP) operated a dump that discharged via groundwater into a tributary of Quality Creek, waters of the United States, and a sewage system. The waste in the contained aluminum, ammonia, chlorides, lead, and manganese. Samples of groundwater taken outside the TAP property had high levels of ammonia. Plaintiffs alleged TAP violated the CWA's wastewater pretreatment requirements by discharging contaminated groundwater into city treatment works.	Because environmental statutes are meant to be read broadly, the court held groundwater is subject to the CWA if it impacts federal waters. The court recognized that courts that find that the CWA applies to groundwater held that it must be directly connected to surface waters that are waters of the United States. The court concluded the plaintiff must prove a link between contaminated groundwater and navigable waters, and that a general hydrological connection among all waters will be insufficient; plaintiff must trace pollutants from the source to surface waters.

201. This decision held that groundwater is not regulated *per se* by the CWA. The court expressly said that it gave no opinion on whether groundwater is covered if it migrates to surface waters.

202. At the very least, this decision suggests different treatment for groundwater that is hydrologically connected than isolated groundwater.

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Kelley <i>ex rel.</i> Mich. v. United States, 618 F. Supp. 1103	W.D. Mich. 1985	No	N/A	Plaintiffs alleged the Coast Guard released chemicals into the ground at a U.S. Coast Guard Air Station. The plaintiffs alleged the chemicals contaminated the groundwater below the station and that the contamination was migrating and discharging into a navigable water.	The court found legislative history “unmistakably clear” in demonstrating that Congress did not intend the CWA to extend to groundwater contamination. The court cited both the Senate Committee on Public Works report and the rejection of Representative Aspin’s amendment. ²⁰³
Kelley v. United States, No. 79-10199, 1980 U.S. Dist. LEXIS 17772	E.D. Mich. 1980	Yes	Not decided	Plaintiff alleged that the State’s waters were being contaminated through the leakage of a toxic chemical, trichloroethylene, into groundwater below the Wurtsmith Air Force Base.	The court rejected defendant’s summary judgment motion and said the alleged pollution into navigable waters is covered by the CWA. The court examined <i>Exxon</i> , ²⁰⁴ and concluded that wastes that migrate from groundwater back into surface waters are in the EPA’s jurisdiction.
7th Cir.					
Vill. of Oconomowoc Lake v. Dayton Hudson Corp., 24 F.3d 962	7th Cir. 1994	Maybe ²⁰⁵	N/A	In this case, Target Stores was sued by a nearby municipality. The Target location collected rainwater runoff from the 110-acre site (including twenty acres of paved parking) in a six-acre artificial pond, which was supposed to “retain oil, grease, and other pollutants while exfiltrating the water to the ground below.”	The court held neither the CWA nor EPA asserts authority over groundwater just because it <i>may</i> be hydrologically connected to surface waters. The court concluded that omission of groundwater from the CWA was not oversight, referencing rejected proposals to add groundwater to the CWA. The court also noted EPA did not weigh in on its own.
8th Cir.					
Patterson Farm, Inc. v. City of Britton, 22 F. Supp. 2d 1085	D. S.D. 1998	No ²⁰⁶	N/A	The plaintiff claims the City violated the CWA by operating an industrial lagoon facility without a NPDES permit, allowing unauthorized discharges of sewage and pollutants into navigable waters. The city	The court held the City was exempt from NPDES permitting. Citing both <i>Oconomowoc Lake</i> and <i>Washington Wilderness Coal</i> , the court held the CWA was not meant to regulate groundwater. ²⁰⁷

203. See S. REP. NO. 92-414, at 73 (1971); 118 CONG. REC. 10,666–69 (1972).

204. Exxon Corp. v. Train, 554 F.2d 1310 (5th Cir. 1977).

205. The court held that the *possibility* of a hydrological connection is not a sufficient ground for regulation.

206. There is a problem with the holding in *Patterson Farm*: the decision cites a case to support its conclusion that has the opposite outcome.

207. Vill. of Oconomowoc Lake v. Dayton Hudson Corp., 24 F.3d 962 (7th Cir. 1994); Wash. Wilderness Coal. v. Hecla Mining Co., 870 F. Supp. 983, 990

				argued it did not need a permit and only obtained one to expedite authorization for irrigation in the future if necessary.	The court referred to its analysis as deciding that groundwaters are not part of the definition of “navigable waters.”
Williams Pipe Line Co. v. Bayer Corp., 964 F. Supp. 1300	S.D. Iowa 1997	Yes	Yes	Plaintiffs alleged pollutants from the Williams site discharged into the Des Moines River without a permit, as Williams’ permit did not address pollutant seepage into groundwater reaching the river. The groundwater under the Williams site moved toward the river.	The court decided that that because the CWA’s goal is to protect the quality of surface waters, the Act regulates any pollutants that enter such waters either directly or through groundwater. The court cited the <i>Hecla Mining</i> case to support its decision. ²⁰⁸
9th Cir.					
Haw. Wildlife Fund v. Cnty. of Maui, 24 F. Supp. 3d 980	D. Haw. 2014	Yes	Yes	Plaintiffs sued the County for discharges at four injection wells without a NPDES permit. To prove connection between well groundwater and coastal waters, plaintiff conducted a tracer dye study, finding that 64% of wastewater injected into two of the wells discharged from the submarine spring into the ocean. Because 80% of the effluent discharged into those wells, it appeared that over 50% of the wastewater discharged at the LWRF emerged into the ocean only eighty-four days later.	The court used conduit theory to hold that, unlike point source theory, groundwater need not be “confined and discrete.” If groundwater is a conduit for pollutants, liability may exist even if the groundwater is not protected. The court declined to distinguish shallow from deep groundwater. The key was if pollutant reached the ocean. The court also held, under a significant nexus test, that groundwater with a nexus to navigable water may be protected, even if not a conduit for pollutants.
Nw. Env’tl. Def. Ctr. v. Grabhorn, Inc., No. 08-548, 2009 WL 3672895	D. Or. 2009	Yes	Not decided	Plaintiff asserted Grabhorn discharged pollutants into waters of the United States without a NPDES permit. Plaintiff alleged Grabhorn Pond is itself a water of the United States, into which Grabhorn is discharging pollutants from three point sources in violation of the CWA. Another claim alleged	The court sidestepped its <i>Umatilla</i> decision, ²⁰⁹ which concluded Congress excluded groundwater from the CWA. The court found no legislative history to suggest Congress meant to exclude discharges into hydrologically connected groundwater which affects surface water. The court

(E.D. Wash. 1994). Contrary to what the court seems to understand, *Hecla Mining* found the CWA *does* cover groundwater hydrologically connected to navigable waters.

208. *Wash. Wilderness Coal*, 870 F. Supp. at 983.

209. *Umatilla Waterquality Protective Ass’n v. Smith Frozen Foods, Inc.*, 962 F. Supp. 1312, 1320 (D. Or. 1997).

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				that Grabhorn Pond itself is a point source of pollution discharging into the unnamed creek and the Tualatin River through groundwater.	also cited EPA's regulatory pronouncements ²¹⁰ and found the CWA covers discharges to navigable waters via hydrologically connected groundwater.
Greater Yellowstone Coal. v. Larson, 641 F. Supp. 2d 1120	D. Idaho 2009	Yes	No. Deferred to agency decision that a direct hydrological connection did not exist.	The plaintiffs challenged the decision of federal agencies to approve a mine expansion, alleging the agencies failed to address selenium contamination that could occur. Plaintiffs were concerned with precipitation falling on seleniferous waste and infiltrating the groundwater. There was dispute over whether a "direct" hydrological connection existed between the new mining pits and the springs feeding Sage Creek.	The court found the groundwater was hydrologically connected to surface water, subject to 401 certification, and recognized EPA's interpretation. To require an NPDES permit, there must be "direct hydrological connection." The court explained a direct hydrological connection is factual, and explained that time and distance by which a point source discharge is connected to surface waters is affected by many factors, like geology, flow, and slope.
Coldani v. Hamm, No. 07-660, 2007 WL 2345016	E.D. Cal. 2007	Yes	Not reached. Plaintiff later moved to dismiss his CWA claim. ²¹¹	Coldani sued the Hamms for polluting groundwater connected to navigable waters from waste storage ponds and irrigation water. The polluted groundwater migrated onto Coldani's property and the White Slough, connected to the Sacramento-San Joaquin River Delta system—a navigable water.	Plaintiff's allegations were sufficient to survive a motion to dismiss. The court held that both the declared objectives of the CWA and the broad definition Congress intended of waters within the purview of the CWA demonstrate that groundwater hydrologically connected to surface waters is covered under the CWA.
N. Cal. River Watch v. City of Healdsburg, No. 01-04686, 2004 WL 201502	N.D. Cal. 2004	Yes ²¹²	N/A	The city discharged sewage without an NPDES permit into a pond. The pond drains into the nearby Russian River (RR). The RR rests on top of a porous gravel bed extending sixty feet into the earth, and saturated with water. The pond covers fifty-eight acres alongside and west of the RR, separated by a levee. The court held the pond was	The court found it unnecessary to reach the issue of whether hydrologically connected groundwater is covered under the CWA, but was persuaded by <i>Idaho Rural Council</i> , ²¹³ holding that the CWA extends federal jurisdiction over groundwaters hydrologically connected to navigable surface waters. The court

210. The court cites EPA's regulatory interpretations in 56 Fed. Reg. 64,876, 64,892 (Dec. 12, 1991, effective Jan. 13, 1992), 66 Fed. Reg. 2960, 3015 (Jan. 12, 2001), and in 73 Fed. Reg. 70,418, 70,420 (Nov. 20, 2008).

211. *Coldani v. Hamm*, No. 07-0660, 2011 WL 2160929, at *1 (E.D. Cal. June 1, 2011).

212. The decision on the issue in this case is in dicta.

213. *Idaho Rural Council v. Bosma*, 143 F. Supp. 2d 1169, 1178-80 (D. Idaho 2001).

				small enough to be inseparable from wetlands surrounding it and that the pond's adjacent wetlands were "adjacent" to river.	held the pond and subterranean groundwater were "tributaries" within the meaning of the NPDES permit requirement.
Idaho Rural Council v. Bosma, 143 F.Supp.2d 1169	D. Idaho 2001	Yes	Not decided	Plaintiff alleged unlined wastewater ponds discharged into groundwater hydrologically connected to Walker and Butler Springs. The court held Butler and Walker Springs are connected through surface water to Clover Creek, a water of the United States, to fall within the definition of waters of the United States.	The CWA protects groundwater connected to waters of the United States. Congress did not exempt groundwater from regulation if pollutants affect protected waters. Legislative history only reveals the CWA should not cover isolated groundwater. Plaintiffs must trace pollution from its source to the springs.
Umatilla Waterquality Protective Ass'n, v. Smith Frozen Foods, Inc., 962 F.Supp. 1312	D. Or. 1997	No, but the same court has since declined to follow this decision ²¹⁴	N/A	Umatilla alleged that the defendant was discharging sodium and chloride from its old brine lagoon into groundwater that is then traveling to Pine Creek without an NPDES permit.	Groundwaters <i>should</i> be within the NPDES program, but it is not because Congress did not intend it to be included. The court cited legislative history to conclude EPA is entitled to deference in a formal interpretation, but it has not made one, and nothing in the CWA suggests the NPDES program extends to groundwater.
United States v. ConAgra, No. 96-0134, 1997 WL 33545777	D. Idaho 1997	No ²¹⁵	N/A	Defendant operated a slaughterhouse. Wastewater was treated and discharged into Indian Creek, allegedly in violation of its permit. The plaintiff alleged additional CWA violations, including unauthorized discharge of pollutants via groundwater from ConAgra's wastewater land application site.	The court noted the lack of Ninth Circuit precedent on the issue, then proceeded to adopt the reasoning of <i>Umatilla</i> . ²¹⁶ The court relied on <i>Umatilla's</i> legislative history analysis and lack of EPA interpretation to determine that CWA's permitting provisions do not apply to any groundwater.
Wash. Wilderness	E.D. Wash	Yes	Not decided	The plaintiff claimed that large volumes of discharge	The court held the CWA encompasses discharge via

214. In 2009, the District of Oregon later explicitly declined to follow *Umatilla* in an unreported decision, *Nw. Env'tl. Def. Ctr. v. Grabhorn, Inc.*, No. 08-548, 2009 WL 3672895, at *11 (D. Or. Oct. 30, 2009), also included in this chart.

215. This decision, however, was abrogated by *Idaho Rural Council v. Bosma*, 143 F.Supp.2d 1169, 1179–80 (D. Idaho 2001), when the District of Idaho decided the issue the other way in a reported case without mentioning *ConAgra*.

216. *Umatilla Water Quality Protective Ass'n, Inc. v. Smith Frozen Foods, Inc.*, 962 F. Supp. 1312, 1320 (D. Or. 1997).

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Coal. v. Hecla Mining Co., 870 F. Supp. 983	1994			were seeping and leaking from Hecla Mining's unlined tailing ponds into the soil and groundwater, and thereafter into waters of the United States. The plaintiff's complaint alleged a hydrological connection between seepage into groundwater and the nearby surface waters of Eureka creek and Mud lake.	groundwater. The court held connected groundwater is regulated under the CWA and NPDES program, citing the goal to protect surface waters, and held discharges from ponds into groundwater hydrologically connected to surface water require an NPDES permit. It is not enough to assert general hydrological connection; pollutants must be traced from their source to surface waters.
10th Cir.					
Sierra Club. v. El Paso Gold Mines, Inc., No. 01-2163, 2002 WL 33932715	D. Colo. 2002	Yes	Yes	The defendant owns a gold mine shaft and related mineral rights. The mine is connected to the Roosevelt Tunnel, which is a six-mile man-made underground tunnel that was constructed to drain water from mines in that district. The tunnel's portal discharges water into Cripple Creek, which is a tributary of Fourmile Creek (a tributary of the Arkansas River). Samples from the discharge contained zinc and manganese.	The court reasoned shaft and mining workings are man-made conveyances that carry pollutants to the Roosevelt Tunnel, defined as a "point source." The court relied on EPA policy statements that "discharges from mine adits at historic or active mines [including seeps and groundwater discharges hydrologically connected to surface water from mines] are point sources." The court also said without a permit, <i>any</i> discharge is impermissible.
Friends of Santa Fe Cnty. v. LAC Minerals, Inc., 892 F. Supp. 1333	D. N.M. 1995	Yes	Not decided	Plaintiffs alleged that a gold mine's overburden pile was source of acid mine drainage. The plaintiff alleged that deep bedrock groundwater underneath the overburden pile has a hydrologic connection to surface waters.	The court found the CWA protects groundwater connected to surface water and any arguments against this are foreclosed by the expansive construction of the CWA's jurisdictional reach. The court found most other courts held that hydrologically connected groundwaters are regulated waters of the United States.
Sierra Club v. Colo. Ref. Co., 838 F. Supp. 1428	D. Colo. 1993	Yes	Yes	Sierra Club sued Colorado Refining Co. (CRC) for discharges into Sand Creek under the CWA and NPDES program. Sierra Club alleged, "[a]s a result of oilspills [sic], pipeline and tank leaks, and other releases at the refinery site, large quantities of petroleum and related compounds have entered, and continue to enter, the soils and groundwater," and that pollutants were	The court examined the split in courts. The court highlighted the distinction between nontributary and tributary groundwater, the CWA covering the latter. The court cites Congress's intent to "regulate discharge into every creek, stream, river or body of water that in any way may affect interstate commerce." Furthermore, the court relies on a series of cases that demonstrate that the

				discharged via groundwater to a tributary of a river.	Clean Water Act should be given a broad effect.
Quivira Mining Co. v. U.S. Evtl. Prot. Agency, 765 F.2d 126	10th Cir. 1985	Yes ²¹⁷	N/A	Plaintiffs challenge the authority of the EPA under the CWA to regulate the discharge of pollutants from uranium mining and milling facilities into gullies or "arroyos." The companies contend that Arroyo del Puerto and San Mateo Creek are not "waters of the United States," and therefore the EPA has no jurisdiction under the Clean Water Act to require permits authorizing discharges into these waters.	EPA had authority to issue NPDES permits regulating discharges into arroyos. The court held that, although the arroyos were not navigable in fact, "flow occasionally occurs, . . . providing a surface connection with navigable waters independent of the underground flow." Further, water in arroyos "soak into the earth's surface, become part of the underground aquifers, and . . . the underground water moves toward eventual discharge at Horace Springs or the Rio San Jose." The court stressed it was the "clear intent of Congress" to regulate waters of the United States to the fullest extent.
11th Cir.					
None. ²¹⁸					
D.C. Cir.					
None.					

217. The *Rapanos* decision called *Quivira* into question. See *Rapanos v. United States*, 547 U.S. 715, 725–26, (2006) (plurality opinion) ("Prior to our decision in *SWANCC*, lower courts upheld the application of this expansive definition of 'tributaries' to such entities as storm sewers that contained flow to covered waters during heavy rainfall, *United States v. Eidson*, 108 F.3d 1336, 1340–42 (C.A. 1997), and dry arroyos connected to remote waters through the flow of groundwater over 'centuries,' *Quivira Mining Co. v. EPA*, 765 F.2d 126, 129 (C.A. 1985).").

218. In June 2014, a complaint was filed in the Eleventh Circuit to decide the issue. Plaintiffs allege that a coal ash waste impoundment is leaching contamination into groundwater and the Apalachicola River. Complaint for Declaratory and Injunctive Relief at 9, *Apalachicola Bay & Riverkeeper, Inc. v. Gulf Power Co.*, No. 2-00268, 2014 WL 2535240 (N.D. Fla. June 4, 2014).