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The Dysfunctional “Functional Equivalent” Standard: Regulations of Groundwater Discharges Since County of Maui v. Hawaii Wildlife Fund

Ellie Maltby†

ABSTRACT

The distinction between “groundwater” and “navigable waters” has long created legal disputes. The most recent Supreme Court decision to grapple with the boundary between groundwater and navigable waters is County of Maui v. Hawaii Wildlife Fund. Section 301(a) of the Clean Water Act (CWA) prohibits the discharge of any pollutant into navigable waters without a National Pollutant Discharge Elimination System (NPDES) permit. The question in County of Maui is whether the CWA applies to pollutants that travel from a point source through groundwater, before entering navigable waters. The Supreme Court held that the CWA requires a permit when the discharge is the “functional equivalent” of a direct discharge. However, the Court did not define “functional equivalent” and instead provided a list of seven factors for lower courts to evaluate on a case-by-case basis.

This Comment outlines lower courts’ applications of the functional equivalent standard and argues that the functional equivalent standard is inadministrable. Lower courts, endowed with too much discretion, are choosing to apply the functional equivalent standard as if it were a bright-line rule, in ways that are inconsistent and misaligned with the goal of the CWA: protecting our nation’s waters. This misalignment stems from the inconvenient fact that groundwater is hard to trace, and courts are not equipped with the expertise to track water particles through the hydrological system.

This Comment proposes that the functional equivalent standard be replaced with a model based on courts’ interpretations of the Federal Power Act (FPA) and Natural Gas Act (NGA). The FPA and the NGA provide models for how to regulate electricity transmission and natural gas pipelines, respectively, even though electrons and gas particles are hard to track and may cross state lines, much like groundwater. In both cases the default presumption is that the Federal Energy Regulatory Commission (FERC) retains legal jurisdiction to regulate electricity transmission and natural gas pipelines. Our treatment of water is anomalous—the default presumption is that the CWA does not apply to indirect discharges into

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groundwater. The functional equivalent standard should be replaced with a bright-line rule: all discharges into groundwater require an NPDES permit. This approach to groundwater discharges would provide clarity and stability, which are both essential for the success of the CWA.

I. INTRODUCTION

Our legal system maintains a border between “groundwater” and “navigable waters” that does not meaningfully exist. Groundwater is not stationary; it recharges surface waters and plays an important role in keeping our larger bodies of water healthy. This artificial delineation between groundwater and navigable waters hinders the federal government’s ability to effectively regulate the pollutants entering our nation’s navigable waters. Water moves, and pollution moves. These forces do not respect our artificial borders.

The most recent Supreme Court decision to grapple with the boundary between groundwater and navigable waters is County of Maui v. Hawaii Wildlife Fund. On April 23, 2020, the Supreme Court handed down its decision in Maui I, seeking to resolve a circuit split regarding the scope of the Clean Water Act (CWA). Section 301(a) of the CWA prohibits the discharge of any pollutant into navigable waters without a National Pollutant Discharge Elimination System (NPDES”) permit. The question in Maui I is whether the CWA applies to pollutants that travel from a point source, which is any “discernible, confined and discrete conveyance” (e.g., a smokestack or discharge pipe), through groundwater, before entering navigable waters. Prior to Maui I, the Ninth and Fourth Circuits adopted broad interpretations of the CWA, holding that indirect discharges that travel through groundwater before reaching navigable waters can fall within the scope of the CWA, and thus require NPDES permits. However, the Fifth and Sixth Circuits construed the CWA more narrowly, holding that the CWA did not apply to pollutants discharged into groundwater even if they subsequently reached navigable waters.

In Maui I the Court held that the CWA requires a permit when there is a direct discharge from a point source into navigable waters or

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2 140 S. Ct. 1462 (2020) [hereinafter Maui I].

3 See 33 U.S.C. § 1311(a).


“when there is the functional equivalent of a direct discharge.” 7 The Court, however, did not define “functional equivalent” and instead provided a list of seven factors for lower courts to evaluate on a case-by-case basis. The most important factors, according to the Court, are the time it takes for the discharge to reach the navigable waters, and the distance between the discharge and navigable water. 8 The functional equivalent standard is subjective and gives lower courts discretion to decide future cases on a case-by-case basis. 9 In the case of NPDES permitting, the subjectivity, and thus unpredictability, of the functional equivalent standard is more harmful than helpful.

This Comment explores how courts have applied the functional equivalent standard since Maui I. The first section provides background important to understanding the functional equivalent standard, including the history of the CWA and the circuit split predating the Maui I decision. The following section discusses the reasoning in Maui I, and the ways in which lower courts have applied Maui I’s holding. This Comment proceeds to make two arguments, (1) the functional equivalent standard is inadministrable, and (2) the standard should be overhauled.

The functional equivalent standard is inadministrable. Lower courts, endowed with too much discretion, are choosing to apply the functional equivalent standard as if it were a bright-line rule. Instead of balancing the seven-factors and making holistic decisions, lower courts are using extreme figures provided in the Maui I decision as dispositive cut-off points to resolve future cases. Moreover, the functional equivalent standard is not aligned with the goal of the CWA: protecting the nation’s waters. The misalignment between the functional equivalent standard and the CWA stems from the inconvenient fact that groundwater is hard to trace, and courts are not equipped with the expertise to track water particles through the hydrological system. Without accurate scientific data, it is impossible to determine the effects that a discharge into groundwater will have on a navigable water.

The functional equivalent standard should be overhauled and replaced with a model based on courts’ interpretations of the Federal Power Act (FPA) and Natural Gas Act (NGA). The FPA and the NGA provide models for how to regulate electricity transmission and natural gas pipelines, respectively, even though electrons and gas particles are hard to track and may cross state lines. 10 In both cases the default presumption is that the Federal Energy Regulatory Commission (FERC)

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7 Maui I, 140 S. Ct. at 1477.
8 See id. at 1476.
9 See id.
retains legal jurisdiction to regulate electricity transmission and natural gas pipelines. Our treatment of water is anomalous—the default presumption is that the CWA does not apply to indirect discharges into groundwater. Those seeking to extend CWA jurisdiction to discharges into groundwater must show that a pollutant reaches navigable waters and is the functional equivalent of a direct discharge. Given the interconnectedness of groundwater and navigable waters, the default presumption should instead be that the CWA reaches discharges into groundwater unless it is shown that a discharged pollutant into groundwater does not reach navigable waters.

In practice, this new default presumption would operate like a bright-line rule erring on the side of over-inclusivity: all discharges into groundwater require an NPDES permit. This approach to groundwater discharges would provide clarity and stability, which are both essential for the success of the CWA.

II. THE CLEAN WATER ACT AND THE ENSUING CIRCUIT SPLIT

A. The History of the CWA

The Federal Water Pollution Control Act of 1948 was the first major United States law to address water pollution. In 1972, two years after the establishment of the Environmental Protection Agency (EPA), Congress passed extensive amendments, and as amended, the law became commonly known as the Clean Water Act (CWA). The CWA is the principal federal law governing water pollution. Its goal is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Much of the CWA’s success in reducing releases of pollutants into surface waters can be attributed to § 301(a) of the Act, which established the NPDES permitting program. NPDES permits place technology-based limits on the type and quantity of pollutants that polluters can discharge and require water monitoring and reporting.

An NPDES permit, issued by the EPA and state regulatory agencies, is required for the “discharge of any pollutant by any person” into navigable waters. The “discharge of any pollutant” is further defined

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12 See id.
15 See Lee, supra note 14 at 2778.
16 Id. at 2777.
as “any addition of any pollutant to navigable waters from any point source.” Courts and federal agencies have long disputed what exactly encompasses the “nation’s waters.” The CWA undoubtedly gives the federal government the ability regulate discharges into navigable waters, but the line between navigable waters and non-navigable waters is blurry.

The CWA defines navigable waters as “the waters of the United States, including the territorial seas,” which creates a general understanding that “navigable waters” encompasses more than merely “navigable-in-fact water.” For instance, courts and federal agencies have considered wetlands and non-navigable tributaries to be “waters of the United States” in various instances. Most recently, in Sackett v. Env’t Prot. Agency, the Supreme Court held that only wetlands with a continuous surface connection to traditionally navigable waters are considered navigable waters for the purposes of the CWA. Prior to Sackett, however, the scope of the CWA as it applied to wetlands was ambiguous. In Rapanos v. United States, decided in 2006, the Supreme Court held that “waters of the United States” included a wetland that occasionally empties into a tributary of a navigable water. Justice Scalia’s plurality opinion articulated the continuous surface connection theory adopted in Sackett. However, Justice Kennedy’s concurring opinion espoused a broader “significant nexus” test. Under this test, CWA jurisdiction for wetlands is determined on case-by-case basis based on whether the wetland “significantly affects the chemical, physical, and biological integrity” of navigable waters.

Rapanos caused uncertainty in lower courts and in legal scholarship as it was unclear which opinion, Justice Kennedy’s or Justice Scalia’s, would be controlling precedent. In 2015, the EPA published the “Clean Water Rule: Definition of Waters of the United States” adopting

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17 33 U.S.C. § 1362(12)
18 See Lee, supra note 14 at 2779; see also Rapanos, 547 U.S. at 715 (2006).
22 143 S. Ct. 1322 (2023).
23 See id. at 1344.
25 Id. at 757.
26 Id. at 759 (Kennedy, J., concurring).
Justice Kennedy’s “significant nexus” test.\textsuperscript{27} However, shortly after, President Donald J. Trump issued an executive order sending the rule back to the agencies and directing them to reconsider their interpretation of “navigable waters” in a manner consistent with Justice Scalia’s opinion.\textsuperscript{28} Two days before the \textit{Maui I} decision, the EPA released its revised rule stating that groundwater is categorically excluded from the “waters of the United States.”\textsuperscript{29}

Despite the controversy regarding the definition of “waters of the United States,” courts and federal agencies agree that the CWA does not apply directly to groundwater.\textsuperscript{30} The CWA explicitly notes that Congress intended to “recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution” and gave states wide discretion to regulate their own land and water resources.\textsuperscript{31} Given that no agency or court has questioned whether states have the authority to regulate their groundwater, the remaining ambiguity is whether the CWA applies to the discharge of pollutants into groundwater that subsequently flow into navigable waters.\textsuperscript{32}

\subsection*{B. The Circuit Split Pre-County of Maui v. Hawaii Wildlife Fund}

Prior to the Supreme Court’s decision in \textit{Maui I}, the Ninth and Fourth Circuits disagreed with the Sixth Circuit over whether groundwater interrupts the discharge of a point source into navigable water.\textsuperscript{33} In two cases involving pollution from coal ash ponds that leaked into groundwater and ultimately ended up in navigable water, the Sixth Circuit held that the CWA did not apply and that the facilities did not need a permit to discharge pollutants into groundwater.\textsuperscript{34} The court reasoned that “groundwater is not a point source” and therefore, when pollutants come “from” groundwater into navigable waters, this discharge falls

\begin{itemize}
\item \textsuperscript{28} Exec. Order No. 13,778, 33 C.F.R. 328 (2017).
\item \textsuperscript{30} See \textit{Maui I}, 140 S. Ct. 1462, 1471 (2020).
\item \textsuperscript{31} 33 U.S.C. § 1251.
\item \textsuperscript{33} See Hawaii Wildlife Fund, 886 F.3d at 749; \textit{but see} Ky. Waterways All., 905 F.3d at 927.
\item \textsuperscript{34} See Ky. Waterways All., 905 F.3d 925 at 927; Tenn. Clean Water Network v. Tenn. Valley Auth., 905 F.3d 436, 438 (6th Cir. 2018).
\end{itemize}
outside the scope of the CWA.\textsuperscript{35} Further, the court emphasized the importance of states’ rights, arguing that states have an important role under the CWA and that all nonpoint-source regulation should be left to the states.\textsuperscript{36}

Conversely, in \textit{Hawaii Wildlife Fund v. Cty. of Maui},\textsuperscript{37} the Ninth Circuit held that the county’s wastewater facility violated the CWA because it discharged pollutants into groundwater that eventually traveled into the Pacific Ocean. The Ninth Circuit relied on studies that showed the connection between underground wells and the Pacific Ocean, creating the “fairly traceable” test.\textsuperscript{38} Under this test, polluters are required to obtain a permit in cases where “pollutants are fairly traceable from the point source to a navigable water.”\textsuperscript{39} To the Ninth Circuit, pollutants travelling through groundwater before reaching navigable waters are not functionally different than pollutants discharged directly into navigable waters.\textsuperscript{40} The opinion also relied on Justice Scalia’s note in \textit{Rapanos} that “the [CWA] does not forbid the ‘addition of any pollutant directly to navigable waters from any point source,’ but rather the ‘addition of any pollutant to navigable waters,’” implying that indirect discharges fall within CWA jurisdiction.\textsuperscript{41}

The Fourth Circuit’s analysis, while not identical to the “fairly traceable” test, resulted in the same outcome.\textsuperscript{42} The court held that the plaintiff alleged a “direct hydrological connection” between the groundwater and navigable waters, and thus the CWA, applied to the indirect discharge and a NPDES permit was required.\textsuperscript{43} The Fourth Circuit noted that there was no functional difference between its test and the “fairly traceable” standard, and commented that its “hydrological connection concept” may be a more narrow application of the same principle.\textsuperscript{44}

\begin{footnotes}
\item \textsuperscript{35} Ky. Waterways All., 905 F.3d at 934.
\item \textsuperscript{36} See id. at 936–37.
\item \textsuperscript{37} See Hawaii Wildlife Fund v. Cty. of Maui, 886 F.3d 737, 749 (9th Cir. 2018) [hereinafter \textit{Maui II}].
\item \textsuperscript{38} See id. at 747.
\item \textsuperscript{39} Id. at 749.
\item \textsuperscript{40} See id.
\item \textsuperscript{41} Rapanos v. United States, 547 U.S. 715, 743 (2006).
\item \textsuperscript{43} See id. at 651.
\item \textsuperscript{44} See id. at 651 n.12.
\end{footnotes}
C. The County of Maui v. Hawaii Wildlife Fund Decision and the Creation of the “Functional Equivalent” Standard

The Ninth Circuit’s decision in *Maui II* was appealed to the Supreme Court. The Supreme Court neither endorsed the Ninth Circuit’s “fairly traceable” test nor rejected it in favor of the Sixth Circuit’s position that the CWA does not apply to groundwater under any circumstances. Instead, the Court took an intermediate position, holding that an NPDES permit is required when the discharge into groundwater is the “functional equivalent” of adding pollutants directly into navigable waters. The Court found that the Ninth Circuit’s “fairly traceable” test gave the EPA too much authority and was unworkable because the expansive reading would “require a [NPDES] permit in surprising, even bizarre, circumstances,” such as “the 100-year migration of pollutants through 250 miles of groundwater to a river.” Conversely, the Court reasoned that the Sixth Circuit’s narrow approach would create an obvious loophole where polluters could discharge water a few feet from navigable waters, defeating the CWA’s primary purpose of maintaining the chemical, physical, and biological integrity of the nation’s waters.

The Court was aware that the functional equivalent standard would result in uncertainty for lower courts. The Court explained that the functional equivalent standard helps categorize cases on extreme ends: a point source discharging pollutants five feet short of navigable waters violates the CWA, while a point-source 250 miles away from navigable waters where pollutants take hundreds of years to reach navigable waters does not. However, this standard provides less guidance for lower courts when faced with middle-ground cases in between these two extremes. The Court acknowledged this consequence, yet the majority determined the standard was preferable to a bright-line rule. The Court feared creating a bright line rule with explicit cutoff points, such as requiring NPDES permits for all groundwater discharges within one mile of a navigable water, because polluters could easily evade the law by moving their point sources back a few yards.

To mitigate the vagueness embedded in the functional equivalent standard, the Court constructed a list of seven factors for lower courts to consider when evaluating whether a discharge into groundwater is

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45 See *Maui I*, 140 S. Ct. 1462, 1468 (2020).
46 See *id.*
47 *Id.* at 1471.
48 See *id.* at 1473.
49 See *id.*
50 See *id.* at 1486 (Thomas, J., dissenting).
52 See *id.* at 1473.
the functional equivalent of a direct discharge: (1) transit time, (2) distance traveled, (3) the nature of the material through which the pollutants travels, (4) the extent to which the pollutant is diluted or chemically altered as it travels, (5) the amount of pollutant which enters the navigable waters relative to the amount of the pollutant which leaves the point source, (6) the manner by or area in which the pollutant enters the navigable waters, and (7) the degree to which the pollution (at that point) has maintained its specific identity. The Court further noted that the first two factors—the transit time and the distance from the point source to the navigable waters—are the most important. Even with this guidance and the list of factors to consider, the “functional equivalent” standard does not provide lower courts with analytical clarity for resolving middle-ground cases. These factors only help answer the cases on extreme ends, about which it is unlikely there would be disagreement regardless.

III. THE APPLICATION OF THE “FUNCTIONAL EQUIVALENT” STANDARD IN LOWER COURTS

Following the Supreme Court’s decision in Maui I, courts and commentators alike were confused, noting that this decision was hardly the final word. There was wide recognition that a “consensus on how the functional equivalent standard should be applied likely will not develop for some time.” Lower courts are already wrestling with the competing goals of the CWA: protecting America’s waters and preserving the role of the states in water regulation. This section describes four such cases that have grappled with the “functional equivalent” standard since Maui I.

A. Hawaii Wildlife Fund v. County of Maui

Maui I was remanded to the District Court for the District of Hawaii to determine whether the discharge at issue was the functional equivalent of a direct discharge. The district court granted the summary judgment motion filed by plaintiffs, a collection of environmental

53 See id.
54 See id. at 1477.
57 See Lee, supra note 14, at 2793.
organizations. The court concluded that the County must obtain a NPDES permit under the CWA for the Lahaina Wastewater Reclamation Facility’s (LWRF) discharge.\textsuperscript{59}

\textit{Hawaii Wildlife Fund v. County of Maui}\textsuperscript{60} represents a middle-ground between the extreme examples given by the Supreme Court. The LWRF’s injection wells\textsuperscript{61} are more than a few feet from the ocean, but closer than 250 miles and the pollutant does not take “many years” to reach the sea.\textsuperscript{62} The wastewater from the LWRF travels between 0.5 and 1.5 miles to reach the ocean and some of the water reaches the ocean in eighty-four days, while much of it reaches the ocean within 400 days.\textsuperscript{63} The parties agreed that millions of gallons of treated wastewater travel from the injection wells at the LWRF through groundwater, and that 100 percent of the wastewater eventually enters the ocean.\textsuperscript{64}

The district court analyzed these facts in light of the seven-factor test constructed by the Supreme Court. The court found that the time and distance it takes the wastewater to reach the ocean are relatively quick and short, and thus the first two factors weigh in favor of requiring a permit.\textsuperscript{65} The court, in its analysis of the transit time factor, utilized the Supreme Court’s extreme example of an indirect discharge that takes many years to reach navigable waters, as the relevant benchmark.\textsuperscript{66} In this case, the eighty-four day transit time is well below “many years.” Essentially, the pollution reaches the ocean in less time than the extreme example given by the Supreme Court in \textit{Maui I}, and therefore leans in favor of requiring a NPDES permit.

The court’s analysis of the “distance traveled” factor uses identical logic. Hawaii Wildlife Fund’s expert found that the wastewater does not travel more than 1.5 miles, while the County’s expert found that the minimum distance traveled was 0.3 to 1.3 miles, and at a maximum, the water may flow “anywhere along the west-Maui coast.”\textsuperscript{67} Despite the vast disagreement on the maximum distance traveled, the court found that the minimum distance range “does not come close to the

\textsuperscript{59} See \textit{id.}.
\textsuperscript{60} 550 F. Supp. 3d 871 (D. Haw. 2021) [hereinafter \textit{Maui III}].
\textsuperscript{61} An injection well is a well used to place fluid (including water, wastewater, or water mixed with chemicals) underground into porous rock formations. These wells are commonly used to store Carbon Dioxide, dispose of waste, enhance oil production, for mining, and to prevent saltwater intrusion. See Env’t Prot. Agency, General Information About Injection Wells (2022).
\textsuperscript{62} \textit{Maui I}, 140 S. Ct. 1462, 1476 (2020).
\textsuperscript{63} \textit{Maui III}, 550 F. Supp. 3d at 873.
\textsuperscript{64} See \textit{id.}
\textsuperscript{65} See \textit{id.} at 888.
\textsuperscript{66} See \textit{id.} at 886.
\textsuperscript{67} \textit{Id.} at 888.
Supreme Court’s reference to the fifty-mile extreme.”68 The court substantiates this point by noting that even if the high end of the minimum were doubled or tripled, the average distance would still be far from the fifty-mile example. The suggestion of “doubling” or “tripling” these figures, however, is not rooted in any proffered data or reasoning. Instead, this reasoning seems to be nothing more than the court’s subjective “gut-check” on whether the water is traveling too far.

The court then analyzed the remaining factors, finding that some factors cut against requiring an NPDES permit, such as the nature of the material through which the pollutant travels and the extent to which the pollutant is diluted or chemically changed as it travels.69 The wastewater mixes with other waters, as it flows and combines with saline, brackish, and fresh groundwater. Accordingly, the wastewater is “significantly mixed, diluted, chemically altered, and geochemically transformed.”70 The County’s expert estimates that thirty-one pounds of nitrogen per day are released into the ocean, which is a significant reduction from what would be expected without the chemical transformation of the wastewater.71 These factors, which demonstrate the pollutants impact on the navigable waters, weigh against requiring a NPDES permit.

The district court, notably, added two novel factors to consider: the volume of wastewater reaching the navigable waters and the impact on the ecosystem.72 The court paid particular attention to the volume of water in its analysis. Monitors at locations along the Pacific Ocean shoreline were able to detect less than two percent of the wastewater from the wells, and there is no conclusive study establishing the path of the remaining ninety-eight percent of the wastewater.73 However, the court maintained that two percent of the water is still tens of thousands of gallons of pollutant-containing wastewater every day.74 Given the “enormous amount of pollutant being put into the ocean,” the court held that this discharge should require a permit.75 Further, the court noted that “the Clean Water Act requires an NPDES permit for the discharge of any pollutant to navigable waters from a point source. The permit requirement does not refer to some minimum amount.”76 This

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69 See id. at 889–892.
70 Id. at 882.
71 See id. at 889.
72 See id. at 892–893.
74 See id.
75 Id.
76 Id. at 891.
statement rebuts the notion that a permit is unnecessary because only two percent of the wastewater could be tracked precisely. Moreover, this statement reveals an underlying assumption that the CWA is broad and encapsulates any pollution from a point-source that travels to a navigable water.

This holding is noteworthy because it is the first application of the new “functional equivalent” standard and demonstrates the discretion that lower courts possess in deciding middle-ground cases. The District of Hawaii considered the Supreme Court’s seven factors in its analysis, and while the time and distance factors played a critical role in requiring a permit, other factors favored against permitting. The district court did not explain how it weighed these competing factors. The court commented that “balancing the factors,” the facility requires a permit; however, there is no further explanation on how the factors were balanced.77 The court commented that it would have reached the same conclusion even if it did not consider any factor beyond the seven identified by the Supreme Court, however, the sheer volume of water seemed to play a deciding role in the court’s analysis.78

B. United States v. Lucero

The Ninth Circuit Court of Appeals indicated it is willing to endorse a broad interpretation of the “functional equivalent” standard. In United States v. Lucero,79 James Lucero orchestrated a scheme, charging construction companies in exchange for providing open space on lands near the San Francisco Bay to dump fill material, including construction debris.80 These sites included wetlands and a tributary covered by the CWA.81 Lucero was convicted by a jury for violating the CWA.82 The Ninth Circuit reversed his conviction because the jury instructions failed clarify the CWA’s knowledge requirement: the government needed to prove Lucero knew he was discharging material into water.83

Although this decision did not hinge on the court’s interpretation of Maui I, dicta in the case indicated that the Ninth Circuit maintained its broad understanding of the functional equivalent standard. The court noted that when “seemingly innocuous substances are added from a point source to water—regardless whether it is navigable water—the
discharge creates water pollution” because “virtually all water, polluted or not, eventually makes its way to navigable water.”84 Further, the court commented that if the defendant knows he is dumping the substance into water from a point source, then he certainly knows that he is committing the crime of water pollution as expressly prohibited by Congress.85

The Ninth Circuit’s decision placed much more weight on Congress’ stated purpose of protecting the integrity and health of our nation’s waters than on the hazy lines between groundwater and navigable waters.86 The Maui I decision does not seem to have narrowed the Ninth Circuit’s interpretation of the CWA. Although, this language in Lucero is merely dicta, the explicit recognition of the connectedness of our nation’s waters strongly supports the argument that all discharges into ground water are the functional equivalent of direct discharges.

C. Conservation Law Foundation, Inc. v. Town of Barnstable

The broad interpretation of the CWA applied by the Ninth Circuit in Maui I is not consistent among all circuits. In Conservation Law Foundation, Inc. v. Town of Barnstable,87 the United States District Court for the District of Massachusetts faced a middle-ground case and held that the discharge into groundwater did not require a permit.88 Here, the Conservation Law Foundation (CLF) claimed that Barnstable violated the CWA by discharging nitrogen pollution into the surface water of the Lewis Bay Watershed without a permit.89 However, Barnstable argued that because the water travels 1.5 miles from the facility to the Lewis Bay Watershed system and this journey takes an estimated twenty-one years, he did not discharge pollutants into navigable waters.90 The court analyzed these facts through the functional equivalent standard and the seven-factor test.

The fact-specific analysis of this case is highly subjective as the two parties argued that the same timeframe for groundwater to reach navigable waters was both long and too short. Barnstable argued that in Maui I the Supreme Court cautioned that the CWA does not extend to pollutants that reach navigable waters “many years” after their release,

84 Id. at 1096 (citing Maui I, 140 S. Ct. 1462, 1470 (2020)).
85 United States v. Lucero, 989 F.3d 1088, 1097 (9th Cir. 2021).
86 See id. at 1096 (arguing that when Congress enacted the CWA it wanted to pass the broadest possible protections against water pollution and that the CWA is an “all-encompassing program of water pollution regulation.”).
88 See id.
89 See id.
90 See id. at *17.
and that twenty-one years is well above “many years.” Conversely, CLF argued that twenty-one years is well below the “100-year migration” the Supreme Court feared. In the alternative, CLF argued that even if the twenty-one year transit time was long, transit time was one of seven factors and need not be dispositive in this case. The Supreme Court agreed that transit time and distance would not always be the most important factors. Ultimately, however, the court found twenty-one years to be too extreme, and thus found this factor dispositive in not requiring a permit for discharge.

The court’s analysis of the distance traveled is equally subjective. CLF argued that the distance at issue in this case, 1.5 miles, is much closer to the pollutants travelling a few feet through groundwater than to the pollutants travelling fifty miles, as referenced in *Maui I*. The court disagreed, finding that fifty miles was an extreme example, and the Supreme Court did not intend to set a minimum distance requirement for the CWA. Additionally, CLF noted that the 1.5-mile distance in this case is equivalent to the distance traveled in *Maui III*, where the district court found on remand that the distance was “sufficiently close.” The court rejected this comparison, asserting that CLF failed to recognize that the pollutant in *Maui III* travelled faster through the 1.5 miles of groundwater before reaching the ocean. While the court is correct, the disparity in transit time is not a relevant distinction when evaluating distance. The Supreme Court created transit time and distance travelled as independent factors with independent significance. By analyzing the “distance” factor based on how long it takes the water to travel, the court mooted the “distance” factor entirely.

The court continued to analyze the remaining five factors and found that several factors, mainly the pollutant’s volume and overall impact on the ecosystem, favor the application of the CWA to the indirect discharges. The court also noted that the nitrogen pollution that enters the groundwater is not chemically altered before reaching

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91 Id. at *19 (citing *Maui I*, 140 S. Ct. 1462, 1465 (2020)).
92 Id. at *20 (citing *Maui I*, 140 S. Ct. at 1471).
94 Id. (citing *Maui I*, 140 S. Ct. at 1476–77).
95 Id. at *19.
96 See id. at *22.
97 Id. at *22 (citing *Maui I*, 140 S. Ct. at 1471).
98 Id. at *23 (citing *Maui III*, 550 F. Supp. 3d 871, 888 (D. Haw. 2021)).
100 See id. at *25.
navigable waters. Ultimately, however, the court found that the transit time outweighed all the remaining factors, noting “[w]hile the aforementioned factors may well weigh in CLF’s favor, relying on these factors when the approximate transit time is so substantial (over twenty-one years) would undermine the Court’s deliberate focus on time and distance.” Thus, the court made its decision based on a judgement call regarding the transit time, instead of based on the pollution’s actual effect on a navigable water’s ecosystem.

D. Black Warrior River-Keeper, Inc. v. Drummond Co.

In Black Warrior River-Keeper, Inc. v. Drummond Co., Black Warrior River-Keeper (BWR) sued Drummond Company under the CWA and the Resource Conservation Recovery Act for discharging acid mine drainage and other pollutants into the Black Warrior River’s Locust Fork and its tributaries. The pollutants flow from the Maxine Mine site, an abandoned underground mine, formerly operated by Drummond. BWR asserted that the discharges occur continuously from “an enormous waste pile, located on Drummond’s property, on a ridge above the Locust Fork, via surface and groundwater connected to surface water.” One of the issues in this case is whether these discharges are the functional equivalent of a direct discharge into the Locust Fork and its tributaries. In its analysis, like other lower courts, the court went through each of the seven factors provided in Maui I, noting that time and distance will likely be the most important.

BWR argued that the groundwater flowing into the Locust Fork constitutes the functional equivalent of a direct discharge. BWR noted that the polluted groundwater flows only ten to thirty feet through the lower dam before discharging at surface seeps under the lower dam to the Locust Fork. BWR estimated that the groundwater flows at a rate of 6.9 feet per day and thus that groundwater at the lower dam enters the Locust Fork between 1.5 and 4.4 days. Regarding the bed seepage, BWR contended that the groundwater flows thirty to one hundred feet through and under the lower dam and onto riverbed

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101 See id.
102 Id.
104 See id. at 1312.
105 Id.
106 See id. at 1316–17.
107 See id. at 1315.
108 See id. at 1316.
sediments before entering the Locust Fork.\textsuperscript{110} Using the same velocity rate, the groundwater would enter the Locust Fork as bed seepage in approximately 4.4 to 14.6 days.\textsuperscript{111} Both the 1.5 to 4.4 day estimate, and the 4.4 to 14.6 day estimate are relatively short time frames. These short transit times cut in favor of BWR's argument that the discharge is the functional equivalent of a direct discharge.

In addition to its discussion of the time and distance factors, Anthony Brown, BWR's expert, created a report with sampling research about the movement of the pollutants. Brown noted that the toxic pollutants discharged into the Locust Fork via surface runoff or polluted groundwater were detected in samples of the surface water and in groundwater seeps that discharge to the Locust Fork below the lower dam.\textsuperscript{112} Additionally, Brown's sampling data showed the same “basic chemical characteristics and AMD [(acid mine drainage)] contamination” at multiple site locations.\textsuperscript{113} BWR argued that this data “demonstrates that groundwater only becomes more polluted, not diluted, as it travels to the Locust Fork.”\textsuperscript{114} Lastly, Brown noted that the refuse pile is permeable and “highly porous,” allowing the infiltration of rainwater and flow of groundwater. Therefore, groundwater travels through the acidic refuse pile and becomes polluted, before flowing into the Locust Fork, carrying AMD.\textsuperscript{115} This means, as Brown noted, “the groundwater both becomes polluted by the refuse waste and also furnishes the means by which AMD flows into the Locust Fork.”\textsuperscript{116}

The court found BWR met its initial burden of establishing that the groundwater discharges constitute the functional equivalent of a direct discharge. The court emphasized BWR's evidence of the physical proximity of the lower dam and spillway to the Locust Fork, and that the polluted water takes as little as 1.5 to 4.4 days to reach the Locust Fork.\textsuperscript{117} The court restated that “time and distance will be the most important factors in most cases.”\textsuperscript{118} While the court did not provide much explanation about why 1.5 days is a sufficiently short period of time for the “functional equivalent” standard, this figure is far below other cases. The determination that 1.5 days is sufficiently brief is still a

\begin{itemize}
\item \textsuperscript{110} Id.
\item \textsuperscript{111} Id.
\item \textsuperscript{112} See id. at 1315–16.
\item \textsuperscript{113} See id. at 1317.
\item \textsuperscript{114} Id. at 1317.
\item \textsuperscript{115} See Black Warrior River-Keeper, Inc. v. Drummond Co., 579 F. Supp. 3d 1310, 1317 (N.D. Ala. 2022).
\item \textsuperscript{116} Id.
\item \textsuperscript{117} See id. at 1316.
\item \textsuperscript{118} Id. at 1314.
\end{itemize}
subjective judgement call; however, it is judgement call with which most courts would likely agree.

The court relied on the time and distance factors in this case, even though other factors were more probative. The court mentioned the strong “dilution data” in reaching its conclusion, noting that polluted groundwater travels through “porous” waste that exacerbates the intensity of the AMD.\textsuperscript{119} However, this data was not the driving force of the court’s decision. This analysis is notable because the goal of the CWA is to protect the nation’s waters; therefore, the intensity of the pollutant entering the river seems to be highly probative. The fact that this dilution data was less important than the 1.5-day travel time indicates (1) that courts lack the expertise to properly weigh scientific evidence, and (2) because of this lack of expertise, courts are clinging onto the time and distance factors even when they are not the most probative factors.

IV. CHALLENGES TO THE ADMINISTRABILITY OF THE “FUNCTIONAL EQUIVALENT” STANDARD

A. The “Functional Equivalent” Standard is Being Applied as a Bright-Line Rule

The Supreme Court purposefully avoided a bright-line rule in Maui I to avoid obvious loopholes in water pollution cases, and instead created a standard.\textsuperscript{120} The Court feared that an underinclusive rule would allow people to discharge pollutants immediately adjacent to navigable waters to avoid the NPDES permitting requirements. In the legal system, rules are necessarily over- and under-inclusive but create stability due to their ease and uniformity of applicability. Standards, conversely, give judges more discretion, which creates more uncertainty, but should, in theory, lead to more “correct” outcomes in the sense of less over- and under-inclusion. Standards allow for more in-depth analysis of each situation on a case-by-case basis. The functional equivalent test, while conceived as a standard, is being applied like a rule based on the time and distance that polluted wastewater travels. The functional equivalent test therefore possesses none of the benefits of a standard. The lack of certainty coupled with outcomes that are not more “correct” is a lose-lose situation for water regulation.

The discussion above outlining the lower courts’ applications of the “functional equivalent” test illustrates that only two of the seven factors laid out by the Supreme Court are influential: transit time and distance

\textsuperscript{119} See id. at 1317.
\textsuperscript{120} See id. at 1318.
traveled. Although lower courts formalistically analyze all seven factors, the remaining five factors have not yet outweighed distance or time in a lower court decision. Given that the functional equivalent test gives lower courts little guidance in how to consider these factors, and that judges lack the technical expertise to evaluate scientific evidence, lower courts are interacting with the *Maui I* decision akin to the way a lower court would interact with a bright-line rule. Lower courts are analyzing the time and distance factors by comparing the facts of current cases to the extreme illustrative examples proposed in *Maui I*: pollutants that take one hundred years to reach navigable water after traveling 250 miles, and pollutants discharged five feet that reach navigable waters within minutes or days.  

These extreme examples provide lower courts little guidance when the facts fall somewhere between these extremities. Courts do not have a formula or a coherent way to resolve these disparities and are instead making judgment calls based on how close or far the current distance and/or transit time is from these examples. This subjective analysis creates inconsistencies; for example, two facilities, both 1.5 miles from navigable waters discharging pollutants into groundwater, where one requires a NPDES permit and the other does not, because one pollutant travels faster than the other.  

It is important to note that subjectivity and inconsistencies are often inevitable and may even be a benefit of creating a standard. For instance, it may be a benefit that courts are given discretion to analyze the facts of each case and decide that one facility that is 1.5 miles from navigable waters is the functional equivalent of a direct discharge while another is not. However, instead of engaging with the science involved in these cases to reach the “correct” outcome, courts are relying on the “distance” and “time” factors to produce outcomes that are inconsistent, but not necessarily more “correct.” Judges do not have sufficient expertise to evaluate the scientific evidence of each case and make holistic determinations, and the functional equivalent standard does not provide judges sufficient guidance to make up for this deficiency.  

Commenters after the *Maui I* decision feared that the standard was too hazy and noted that a uniform interpretation was essential to holding polluters accountable. These fears are proving well-founded, and the inconsistencies undermine the goals of the CWA, necessitating more clarity on the “functional equivalent” standard. In the absence of

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121 *See Maui I*, 140 S. Ct. 1462, 1471 (2020).
DYSFUNCTIONAL “FUNCTIONAL EQUIVALENT” STANDARD

clarity, lower courts are using the extreme numbers provided in the *Maui I* decision as cut-offs or using these figures as benchmarks for their analysis. This reasoning combines the instability of standards, while not resulting in holistic case-by-case analyses and outcomes that are more “correct.”

B. The “Functional Equivalent” Standard is Not Aligned with the Goals of the CWA

Lower courts’ interpretations of the “functional equivalent” standard as a rule are especially dangerous because they lead to outcomes incompatible with the goal of the CWA: protecting our nation’s waters. Courts cannot effectively evaluate the consequence of a pollutant on a navigable water’s ecosystem by examining solely the time and distance travelled.

This problem is evident in *Maui III* and in *Conservation Law Foundation*. In *Maui III*, the district court did not give much weight to fact that the polluted water was “significantly mixed, diluted, chemically altered, and geochemically transformed” before reaching the ocean.\(^{124}\) While this fact alone need not be dispositive, the chemical transformation of the discharge should be given more consideration and not disregarded solely because the water travels quickly. Similarly, in *Conservation Law Foundation*, the district court disregarded the fact that the nitrogen pollution entering the groundwater was not chemically altered before reaching navigable waters.\(^{125}\) Moreover, the overall impact to the navigable water’s ecosystem weighed in favor of applying the CWA.\(^ {126}\) However, regardless of this evidence, the district court held that the groundwater discharge was not the functional equivalent of a direct discharge and did not require the facility obtain a NPDES permit.\(^ {127}\) The court did not make a holistic evaluation based on the scientific evidence, and instead decided that the transit time surpassed the Supreme Court’s supposed limit. Moreover, because the Supreme Court intentionally did not create a “bright-line” the cutoffs being employed by lower courts were not contemplated or scrutinized by the Supreme Court.

These outcomes are inconsistent with the CWA’s stated goal of protecting the integrity of our nation’s waters. The seven-factor test, and more specifically, the time and distance travelled factors, should be evaluated in pursuit of determining the effect that a pollutant may have

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126 See *id.*
127 See *id.* at *29.*
on a navigable water’s ecosystem. The current standard allows for the nonsensical determination that a pollutant has a substantial effect on a navigable water’s ecosystem, but that this effect is outweighed by the distance the pollutant travelled.

Moving forward, courts applying the CWA must explicitly recognize the interconnectedness of groundwater and navigable waters. Although this argument has been proffered before, the continued inability of the courts to agree on an interpretation of the CWA provides a renewed urgency for Congress to step in. *Maui I* created a system in which lower courts must make arbitrary, nonexpert decisions based on whether a pollutant traveled a distance that they believe to be too long, for groundwater discharges to be considered the “functional equivalent” of a direct discharge into navigable waters. This application is both entirely inconsistent with and fails to achieve the goals of the CWA.

V. HOW TO REGULATE DISCHARGES INTO GROUNDWATER MOVING FORWARD

Moving forward, courts should adopt a bright-line rule that all discharges into groundwater require an NPDES permit. Given groundwater’s inseparability from the larger hydrological cycle our legal system should presume that groundwater will eventually enter navigable waters, and that indirect discharges require NPDES permits. Under this system, groundwater itself would still not be subject to federal regulation. Rather, courts would assume, unless proven otherwise, that discharges into groundwater will reach navigable waters, and thus, that these indirect discharges fall within the scope of the CWA.

This section will first outline the benefits of this approach. Then, this section will address the likely counterargument to this proposal: that this default presumption violates the CWA by usurping state jurisdiction of groundwater. The response to that counterargument draws heavily on parallels between the CWA, the Natural Gas Act (NGA), and Natural Power Act (NPA), analogizing to our nation’s regulation of gas and electricity to develop a model of water regulation.

A. Benefits of the Bright-Line Rule

A bright-line rule presuming federal jurisdiction of point-source discharges into groundwater is beneficial for three reasons: (1) the hydrological cycle of water is complicated and tracking water and pollutants is imprecise, (2) courts are poorly positioned to determine where pollutants travel, and (3) the consequences of under-inclusive and inconsistent applications of the CWA are harmful to our nation’s waters.

The water cycle is highly complex, and while groundwater may appear to be distinct from larger bodies of navigable waters, all forms of
water, including groundwater, soil moisture, atmospheric moisture, surface waters, marine waters, and ice are “dynamically linked in space and time via the hydrological cycle.” Although groundwater moves more slowly than the flowing rivers we can see with our naked eyes, it still moves. Groundwater is pulled by gravity to areas of lower elevation. Under natural conditions, groundwater follows the path of least resistance to discharge areas at springs, streams, lakes, wetlands, or seeps into bays or the ocean. Although it is hard to determine how much of a stream’s total water flow is made up of groundwater, hydrologists estimate that the average contribution of groundwater to large rivers in the United States may be as large as forty percent.

Although hydrologists can estimate the path of groundwater, these estimations require the use of either groundwater models or hydrological transport models. These mathematical and computer models that simulate the flow of groundwaters are complex, and courts are poorly equipped to understand and interpret these highly technical models because judges lack the necessary scientific background. Additionally, a thorough review of these models would be time and resource intensive for courts. A bright-line rule that presumes that the CWA applies to point-source discharges into groundwater remedies this problem by removing judicial discretion.

In addition to easing the burden on courts and judges, a bright-line rule provides certainty and predictability to the NPDES permitting program. This stability is essential to the effectiveness of NPDES permits because facilities must know that they need a permit, and likewise, the public-at-large and environmental groups must be able to identify facilities discharging without NPDES permits. While cases are tried and pending in courts, facilities continue to discharge water without the requisite permits and studies completed. While some may argue that this rule is over-inclusive, in the context of water pollution, the potential for over-inclusivity is much less harmful than under-inclusivity or instability. At worst, over-inclusivity provides “too much” protection of our waters’ ecosystems. Groundwater moves slowly and it can take years to reach navigable waters; therefore, understanding a point-source’s true impact on a navigable waters’ ecosystem may take much more time than courts are aware. Polluters evading regulation today may create

129 See id. at 44–45.
131 See id. at 7.
132 See id. at 71.
133 See id. at 33.
a negative impact on navigable waters fifty years from now. Therefore, this is an area of law where erring on the side of over-inclusivity is warranted.

Moreover, because this bright-line rule is the consequence of a flipped default presumption regarding the applicability of the CWA to indirect discharges, this rule is not over-inclusive at all. Instead, the rule recognizes that the pollutants discharged into groundwater will eventually enter our navigable water systems. While it may take many years, and the pollutant may reach the navigable water in a diluted state, the CWA does not require a specific volume or potency of a pollutant.134 Any discharge into a navigable water from a point-source is prohibited by the CWA.135

B. A Reconceptualized Default Rule Does Not Usurp State Jurisdiction

A reconceptualized default rule that presumes that the CWA applies to point-source discharges into groundwater does not usurp jurisdiction. The CWA aimed to “recognize, preserve, and protect the primary responsibilities and rights of States to prevent and eliminate pollution,” therefore preserving the regulation of groundwater to states.136 This bright-line rule proposal does not conflict with states’ reserved jurisdiction. A bright-line rule approach mimics well-established legal principles, paralleling the treatment of groundwater with the treatment of natural gas and electricity within the United States’ legal system. The NGA and NPA provide models for how to regulate particles that move across state lines in ways that are not always detectable. In both contexts the default presumption is that the particles are crossing state lines, and therefore, the federal government has jurisdiction. This same logic should be applied to water.

It is important to note that both the FPA and NGA rely on the commerce clause to assert federal jurisdiction.137 Electricity and gas are commodities being sold across state lines. The “sale” component of the FPA and NGA is distinct from the CWA, which instead hinges on the constitutional language of “navigable waters.”138 This distinction, while notable, is ultimately not consequential for the argument at issue. The underlying rationale for treating particles that are hard to track as if

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134 See 33 U.S.C. § 1311(a) (stating that “the discharge of any pollutant by any person shall be unlawful” without a permit).
135 See id.
137 See 15 U.S.C. § 717(a); see also 16 U.S.C. § 824(c).
they travel between states and across the nation stays constant regardless of the jurisdictional hook.

1. The Federal Power Act

The FPA grants the Federal Power Commission (FPC) jurisdiction over “the transmission of electric energy in interstate commerce and . . . the sale of electric energy at wholesale in interstate commerce, but . . . not (over) any other sale of electric energy . . . .”\(^\text{139}\) Energy transmitted in interstate commerce is defined in the Act as energy “transmitted from a State and consumer at any point outside thereof.”\(^\text{140}\) While this statute limits federal jurisdiction narrowly, the interconnectedness of the electricity grid ensures that the Federal Energy Regulatory Commission (FERC) (formerly the FPC) enjoys broad jurisdiction. In practice, once a utility company connects to an interconnected electricity grid, which connects utilities across state lines, the presumption is that the utility is now under FERC’s jurisdiction.\(^\text{141}\)

This interpretation of the scope of the FPA is justified because (1) it is hard to determine the path of electrons across transmission lines, and (2) courts are poorly equipped to make assessments about the paths of electrons.\(^\text{142}\) This assessment applies equally to the CWA: waters are interconnected, and the path of groundwater molecules cannot be perfectly tracked. Therefore, the federal regulation of groundwater discharge does not unlawfully restrict state power, because the pollutant may seep into navigable waters flowing across our nation.

The seminal case establishing this broad scope of the FPA is *Federal Power Commission v. Florida Power & Light Company*.\(^\text{143}\) In this case, the FPC asserted jurisdiction over Florida Power & Light (FPL) Company’s wholesale sale of electric energy.\(^\text{144}\) All of FPL’s transmission lines were confined inside Florida’s boundaries, and the company argued that none of its power had flowed in interstate commerce.\(^\text{145}\) The Federal Energy Regulatory Commission, however, argued that FPL generates energy that is transmitted in interstate commerce because it is a member of the Interconnected Systems Group (ISG).\(^\text{146}\) As a member of the ISG, FPL is connected via transmission lines with other

\(^{139}\) 16 U.S.C. § 824(b).

\(^{140}\) 16 U.S.C. § 824(c).


\(^{142}\) See *id.* at 456 (noting that a court should not put itself in the “absurd” position of questioning the judgement of experts on matters of hydraulic engineering.)

\(^{143}\) 404 U.S. 453 (1972).

\(^{144}\) See *id.* at 454.

\(^{145}\) See *id.* at 456.

\(^{146}\) See *id.* at 457.
Florida utility companies, and these transmission lines regularly exchange power with Georgia. The Supreme Court held that, even though FPL did not engage in any interstate sales, the commission had jurisdiction to regulate its wholesale sales of power.

The Court reasoned that FPL’s energy commingled with other sources of power, “just as molecules of water from different sources would be commingled in a reservoir,” and it was therefore likely that some of FPL’s power went out of state. The dissent in this case noted that this decision will now mean that “every privately owned interconnected facility in the United States is within the FPC’s jurisdiction.”

This prediction came true. Every state, except Texas, is part of a larger electrical grid, and therefore under federal jurisdiction.

2. The Natural Gas Act

The same logic guides the interpretation of the NGA. The NGA grants FERC jurisdiction over the “transportation of natural gas in interstate commerce” and the “sale in interstate commerce of natural gas for resale for ultimate public consumption.” The NGA explicitly states that the act does not apply to “any other transportation or sale of natural gas or to the local distribution of natural gas.” The NGA defines interstate commerce as “commerce between any point in a State and any point outside thereof, or between points within the same State but through any place outside thereof.” In California v. Lo-Vaca Gathering Co., the Supreme Court stated that their decisions make “the sale of gas which crosses a state line at any stage of its movement from wellhead to ultimate consumer ‘in interstate commerce’ within the meaning of the Act.”

Much like electricity transmission and groundwater, the flow of natural gas is sometimes difficult to track, and there are many jurisdictional disputes over the distinction between inter- and intra-state pipelines. Jurisdictional issues are especially salient when gas being sold

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147 See id.
148 See id. at 469.
150 Id. at 648 (Douglas, J., dissenting).
151 See id.
156 See id. at 369.
157 See, e.g., Consumers Energy Co. v. FERC, 226 F.3d 777, 779 (6th Cir. 2000) (holding that FERC went beyond its statutory authority by decreasing the rates of a certain Hinshaw pipeline, a pipeline that receives all of its out-of-state gas from persons within the boundary of a state); City
in both intrastate and interstate commerce “commingles” in a gathering facility before being sold.\textsuperscript{158} In \textit{Lo-Vaca}, an intrastate gathering company sold gas to an interstate pipeline under contracts that restricted the gas to intrastate use.\textsuperscript{159} The pipeline, however, commingled Lo-Vaca’s gas with other gas that was eventually sold out-of-state.\textsuperscript{160} The Court held that the NGA applied to the sale of the natural gas.\textsuperscript{161} This holding highlights the principle that jurisdiction is to “follow the flow of electric energy, an engineering and scientific, rather than a legalistic or governmental test.”\textsuperscript{162} The commingling of the gas, and the recognition that some of Lo-Vaca’s gas would flow out of state, trumped the legal contract restricting its sale.\textsuperscript{163} As such, FERC has jurisdiction where gas is commingled, and the character of the commerce is interstate.\textsuperscript{164} \textit{Lo-Vaca} demonstrates that when determining the scope of the NGA the Court draws heavily from the FPA and the recognition that both pipelines and transmission lines are highly interconnected, and thus that the FERC has broad jurisdiction to regulate commerce.\textsuperscript{165}

In creating a viable solution to regulating groundwater discharges moving forward, courts should look to the FPA and NGA as models. Electricity and gas, like water, blur state lines, and flow toward the path of least resistance. The behavior of electrons as they flow through the grid, and the way that gas flows through pipelines, parallel the flow of groundwater into navigable waters. The understanding that groundwater connects to navigable waters is not new; in \textit{Maui I} the court even commented that “virtually all water . . . eventually makes its way to navigable water.”\textsuperscript{166} In gas and electricity, the default presumption establishes federal jurisdiction, and this logic should be extended to water.

\section*{VI. CONCLUSION}

The “functional equivalent” standard created by the Court in \textit{Maui I} was intended to resolve the ambiguity of the scope of the CWA
regarding point-source discharges into groundwater. However, the decision gave lower courts too much discretion, and not enough guidance. Lower courts have been left with the extreme figures from *Maui I*: pollutants taking either years or seconds to reach ground water. Courts have used these figures as benchmarks to come to subjective decisions about the scope of the CWA. While the Supreme Court’s created a standard in an attempt to avoid a bright-line rule, the standard has nevertheless functionally turned into a rule, and one that is being applied inconsistently.

Given that the current standard is unworkable, courts should create a bright-line rule, requiring a permit for *all* point-source discharges into groundwater. This rule reflects a default presumption that the federal government enjoys the ability to regulate discharges into groundwater. This rule more accurately reflects the scientific reality that water particles are hard to track and acknowledges that courts are not well positioned to evaluate the scientific models. Our legal system already deploys two proven models to regulate hard to track particles, the FPA and NGA, and the scope CWA should not be anomalous to these statutes.

In order for the NPDES permitting system to be effective, polluters need to be aware of their responsibilities, which can only occur with clear guidance. Courts are unable to predictably enforce a standard, and thus it is time to switch strategies. Water particles do not adhere to our artificial boundary between ground and navigable waters. It is time for our laws to adapt to the movement of water because the water particles cannot adapt to the CWA.