Applying the Supreme Court's *County of Maui v. Hawaii Wildlife Fund* Decision in the Clean Water Act Section 402 National Pollutant Discharge Elimination System Permit Program to Discharges through Groundwater

In April 2020, the United States Supreme Court issued its opinion in *County of Maui v. Hawaii Wildlife Fund,* 140 S. Ct. 1462 (2020) (*Maui*). The specific issue before the Court was whether a wastewater treatment plant on the Island of Maui, Hawaii, needed a National Pollutant Discharge Elimination System (NPDES) permit for discharging pollutants into underground injection wells that then traveled through groundwater to the Pacific Ocean, a water of the United States. The Clean Water Act (CWA or Act) broadly prohibits "the discharge of any pollutant by any person" unless authorized under the Act. 33 U.S.C. § 1311(a). *See also id.* §§ 1342, 1344, and 1362. The phrase "discharge of a pollutant" is defined as "any addition of any pollutant to navigable waters from any point source."[1] *Id.* § 1362(12). Point sources are required under the CWA to seek authorization under the NPDES permitting program prior to discharging any pollutants to surface waters that are "waters of the United States." In *Maui*, the Supreme Court held that NPDES authorization is also required for certain discharges of pollutants from point sources that travel through groundwater to surface waters that are "waters of the United States."[2]

The U.S. Environmental Protection Agency (EPA or Agency) is providing this guidance to describe the *Maui* decision's functional equivalent standard, considerations for determining which discharges through groundwater may require coverage under an NPDES permit, and the types of information that may be useful to NPDES permitting authorities in developing appropriate permit conditions.[3] This guidance applies to discharges from point sources that reach waters of the United States via groundwater or other subsurface flow.[4] A prior guidance on implementing *Maui* dated January 14, 2021,[5] was rescinded on September 15, 2021.[6]

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[1] Central to the framework and protections provided by the CWA is the term "navigable waters," defined broadly in the Act as "the waters of the United States, including the territorial seas." 33 U.S.C. § 1362(7).

[2] The Agency recognizes that many NPDES authorized states use the term "state waters" or a similar term to designate which discharges must obtain permit coverage and that some states define state waters more broadly than "waters of the United States." This guidance is intended to apply to discharges of pollut
ants that travel through groundwater to surface waters that are waters of the United States. If the ultimate destination of the discharge is a state water that is not also a water of the United States, the discharger should evaluate state law to determine whether any requirements apply to that discharge.

[3] This document provides guidance on how EPA intends to exercise its discretion in implementing the statutory and regulatory provisions that concern discharges through groundwater to waters of the United States. The statements in this document are intended solely as guidance. This document is not intended, nor can it be relied upon, to create any rights enforceable by any party in litigation with the United States. The contents of this document do not have the force and effect of law and are not meant to bind parties in any way.

[4] Other subsurface flow includes flow through the unsaturated zone above the groundwater table.

[5] Guidance Memorandum from Anna Wildeman, Acting Assistant Adm'r, U.S. EPA, "Applying the Supreme Court's *County of Maui v. Hawaii Wildlife Fund* Decision in the Clean Water Act Section 402 National Pollutant Discharge Elimination System Permit Program" (Jan. 14, 2021), 86 FR 6321 (Jan. 21, 2021).

[6] Memorandum from Radhika Fox, Assistant Adm'r, U.S. EPA, to Water Div. Directors, U.S. EPA (Sept. 15, 2021), 86 FR 53653 (Sept. 28, 2021).

1. *Maui* affirmed that CWA Section 402 permitting requirements may apply to discharges to waters of the United States through groundwater and established the "functional equivalent" standard.

In *Maui*, the Supreme Court stated that "the statutory provisions at issue require a permit if the addition of the pollutants through groundwater is the *functional equivalent* of a direct discharge from the point source into navigable waters." *Maui* at 1468 (emphasis added). The Supreme Court did not establish a bright-line test for determining whether a discharge is the functional equivalent of a direct discharge and instead provided several factors that may be relevant in making this determination.

The Court stated that some of the factors that may prove relevant in determining whether a discharge of pollutants is the functional equivalent of a direct discharge and requires an NPDES permit include, for example: "(1) transit time; (2) distance traveled; (3) the nature of the material through which the pollutant travels; (4) the extent to which the pollutant is diluted or chemically changed as it travels; (5) the amount of pollutant entering the navigable waters relative to the amount of the pollutant that 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." *Id.* at 1476-77. The Court stated that time and distance will be the most important factors in most cases, but not necessarily every case. *Id*. at 1477. The Court also recognized that its list of suggested factors is illustrative and that there are "too many potentially relevant factors applicable to factually different cases for this Court now to use more specific language." *Id*. at 1476. The following discussion describes how operators of facilities with discharges to groundwater can evaluate whether such discharges are the functional equivalent to a direct discharge, and thus should apply for a permit.

2. Operators of facilities with discharges to groundwater should evaluate, in the first instance, whether those discharges reach waters of the United States and, if so, whether those discharges are the functional equivalent of direct discharges that require NPDES permits.

To comply with the NPDES program under the CWA, operators[7] of facilities with discharges to groundwater should analyze, in the first instance, whether any of those discharges reach waters of the United States and, if so, whether they require an NPDES permit. For background information on potential sources of pollutants to groundwater, *see* EPA's *Getting Up to Speed: Ground Water Contamination*.[8]

If the discharge is the functional equivalent of a direct discharge to a water of the United States, the operator must obtain permit coverage prior to discharging pollutants (unless the operator eliminates the discharge). If the operator does not seek permit coverage for a functional

[7] In the context of this guidance, operator means an operator or an owner, either of which may request NPDES permit coverage.

[8] U.S. EPA, Getting Up to Speed: Ground Water Contamination, *adapted from* U.S. EPA, Wellhead Protection: A Guide for Small Communities, *available at* https://www.epa.gov/sites/default/files/2015-08/documents/mgwc-gwc1.pdf.

equivalent discharge, the operator may be subject to administrative or judicial enforcement proceedings and associated liability under the CWA (including civil and criminal penalties).[9]

3. How to assess whether a discharge through groundwater is a functional equivalent of a direct discharge requiring authorization by an NPDES permit.

This section provides an overall approach for conducting a functional equivalent analysis, including specific considerations for evaluating the transit time and distance traveled from a point source through groundwater to a water of the United States.

a. Overall approach

There are several general principles that inform a functional equivalent analysis. First, whether a discharge of pollutants to surface water through groundwater is the functional equivalent of a direct discharge is highly dependent on site-specific features. These features may include distance traveled to surface water, depth to groundwater, soil type, subsurface permeability, hydraulic conductivity, and other features that effect the fate and transport of pollutants through the subsurface.[10] While the Supreme Court identified time and distance as the most important factors in most cases, the Court left to the Agency's discretion how to weigh the relevant factors. *Maui* at 1476-77. The weighing of the relevant factors is also highly dependent on site-specific considerations.

Second, the list of factors identified by the Supreme Court is illustrative and other factors may also be relevant. As the Supreme Court noted, the seven factors identified in its opinion were just some of the factors that may prove relevant to determining whether a discharge is the functional equivalent of a direct discharge. *Maui* at 1476.

Third, the analysis of whether a discharge is the functional equivalent of a direct discharge need not be complex. For example, depending on the circumstances, the functional equivalent analysis may not require consideration of all, or even several of, the factors laid out by the Court.

Finally, while the CWA prohibits the discharge of "pollutants" identified in the Act (e.g., sewage, industrial waste) and a functional equivalent analysis may be performed using those identified pollutants, evaluating constituents of those pollutants may be helpful in some situations. In those situations, the functional equivalent analysis may be based on an analysis of one constituent pollutant where that pollutant is a reasonable indicator for other constituent pollutants (i.e., it can be inferred that the pollutant would have similar characteristics as other pollutants in the effluent with regard to the relevant factors under *Maui*).[11] If the analysis indicates that the discharge of that indicator pollutant through groundwater is the functional equivalent of a direct discharge, the facility must submit a permit application to the NPDES

[9] *See* 40 U.S.C. §§ 309(c), (d), and (g).

[10] Hydraulic conductivity is a measure of how easily water can pass through soil or rock.

[11] Note, however, that determining that the discharge of just one constituent pollutant is the functional equivalent of a direct discharge, would trigger the permitting requirement. Also, a finding of a lack of functional equivalence established for one constituent pollutant does not necessarily demonstrate that the functional equivalent of a direct discharge does not exist for the remaining constituent pollutants if the one analyzed pollutant is not a reasonable indicator for the other pollutants.

permitting authority (or eliminate the discharge) for that pollutant and the other pollutants with similar characteristics.

b. Transit time and distance traveled

While the Supreme Court did not provide bright lines for evaluating jurisdiction under the transit time and distance traveled factors in the functional equivalent analysis, it did discuss certain factual scenarios that may be helpful reference points for case-specific functional equivalent analyses. For example, the Supreme Court expressed doubt that a point source pollutant discharge ending 50 miles from a navigable water with a groundwater transit time of "many" years that first mixes with "much other material[s]" would qualify as a functional equivalent discharge under the Act. *Maui* at 1477. As to those "many years" and distance, the decision more firmly concluded that Congress did not intend to extend the "point source-permitting requirement to a 100-year migration of pollutants through 250 miles of groundwater to a river." *Maui* at 1471. In contrast, the Supreme Court expressed confidence that a discharge that only travels a few feet or a few yards through groundwater before reaching a water of the United States would require a NPDES permit. *Maui* at 1476, 1473. This discussion in the Court's opinion indicates that a discharge that is a long distance from a water of the United States and that takes a long time to reach a water of the United States might not be the functional equivalent of a direct discharge. Conversely, a discharge that is a short distance from a water of the United States and that takes a short time to reach a water of the United States is likely the functional equivalent of a direct discharge. While this general understanding of how the transit time and distance traveled factors inform the functional equivalent analysis is useful, there is no bright-line test for evaluating jurisdiction using these factors. Instead, these factors must be evaluated on a site-specific basis.

c. Other potentially relevant factors

While transit time and distance traveled will be the most important factors in most cases, and in many cases the only factors that need be considered, multiple other factors may also provide evidence to support the functional equivalent determination where time and distance are not dispositive. For example, a potentially relevant factor is the "the manner or area in which the pollutant enters the water of the US." The spread of pollutants from a source by groundwater movement often results in a contaminated zone referred to as a plume. If a plume has minimal dispersion before entering a water of the United States, that provides evidence that the discharge may be the functional equivalent of a direct discharge.

Other potentially relevant factors for identifying a functionally equivalent discharge under *Maui* are "the nature of the material through which the pollutant travels," "the amount of pollutant entering the navigable waters relative to the amount of the pollutant that leaves the point source," and "the extent to which the pollutant is diluted or chemically changed as it travels." A discharge through a subsurface comprised of porous material provides evidence that the discharge may be the functional equivalent of a direct discharge. A relatively higher mass of pollutant(s) reaching a water of the United States relative to the measured or estimated mass of pollutant(s) leaving the point source would also support the finding of a functional equivalent discharge. Likewise, a relatively higher concentration of pollutant(s) reaching a water of the United States relative to the

measured or estimated concentration of pollutant(s) leaving the point source would support the finding of a functional equivalent discharge.

4. Recommended information to be submitted with an NPDES permit application to request coverage for a discharge through groundwater that may be the functional equivalent of a direct discharge.

EPA's current permit application forms are not specific to discharges through groundwater. Absent EPA or state permit application forms specific to discharges through groundwater, EPA recommends that a permit applicant with a discharge through groundwater that is the functional equivalent of a direct discharge submit a permit application using the existing form(s) that the permitting authority requires for the facility.[12] Applicants for NPDES permits must provide information using the application form provided by the Director; furthermore, in addition to the information reported on the application form, existing manufacturing, commercial, mining and silvicultural dischargers applying for NPDES permits must provide to the Director, at his or her request, such other information as the Director may reasonably require to assess the discharges and determine whether to issue an NPDES permit. 40 CFR 122.21(f) and (g).[13]

The permit applicant may request to meet with the permitting authority early in the permitting process to identify the supplemental information the permitting authority may need so that the applicant may submit a permit application with sufficient site-specific information to inform permit development. NPDES regulations prohibit the permitting authority from issuing an individual permit until and unless a prospective discharger provides a "complete application which includes an application form and any supplemental information completed to their satisfaction." 40 CFR 122.21(e). The supplemental information described below is provided for consideration. This information is illustrative of the range of information that may be available from multiple sources. This list does not mean to suggest in any way that this information is needed in any particular case; the permitting authority will need to determine what information is relevant to the discharge in question and may determine if it needs this information in its entirety, just a subset of this information, none of the information, or any other additional written information:

- *Discharge locations.* Approximate location(s) of where the discharge through groundwater that is the functional equivalent of a direct discharge is predicted to reach water(s) of the United States.
- *Transit time.* Estimated travel time of discharge from the point source to the surface water(s). In addition to average estimates, minimum and maximum travel times may be useful for a well-developed assessment.
- *Distance travelled*. The distance from the point source through the groundwater to the water(s) of the United States.

[12] For example, a permit applicant to EPA for a discharge through groundwater that is the functional equivalent of a direct discharge at an existing industrial facility should submit EPA Form 2C.

[13] OMB has approved the paperwork burden for NPDES permit applications under ICR OMB Control No. 2040-0004; EPA ICR no. 0229.25

- *Flow characteristics*. Characteristics include the rate of flow(s), whether the flow(s) is/are continuous or intermittent, and the concentration and loading of the pollutant of concern that reaches the water(s) of the United States.
- *Shallow subsurface geology and hydrology characterization*. Measured, calculated, or estimated values of site-specific hydraulic conductivity, hydraulic gradient, groundwater flow velocity, soil type, and effective porosity, considered along the trajectory of groundwater flow from the point source to the surface water body. This characterization should account for groundwater flow temporal variability due to seasonal or other factors.
- *Description of pollutant-specific dynamics along the groundwater flow path*. A description of in-situ processes such as sorption, biological uptake, or microbial transformation that may reduce the pollutant mass that reaches water(s) of the United States. A permit applicant should provide the permitting authority with sufficient site-specific information to evaluate the in-situ pollutant reductions. Absent such information on the site-specific "fate and transport" of pollutants in groundwater, the permitting authority may reasonably conclude that no such transformation of the pollutant discharge is occurring.
- *Treatment technologies*. Any treatment technologies planning to be used and whether any chemicals or additives will be used in the treatment.
- *Effluent characteristics*. Measured or estimated mass and concentration of pollutant(s) leaving the point source and measured or estimated mass and concentration of those pollutant(s) measured or estimated to reach the water(s) of the United States from the point source.
- *An explanation of the permittee's functional equivalent of a direct discharge analysis.* An explanation of the relevant factors and information that the permittee used to determine that the discharge through groundwater is or will be the functional equivalent of a direct discharge.
- *Other information*. For example, any state or local permitting or approvals the permittee anticipates may be required for the project.

Providing the supplemental information that the permitting authority deems appropriate is necessary for the permitting authority's review of the permit application and potential permit issuance. For permit applicants that request NPDES permit authorization for discharges through groundwater, EPA recommends that the permit applicant provide the information requested by the permitting authority as soon as possible.[14]

5. Factors that should not be considered as part of the functional equivalent analysis.

a. Intent

As multiple courts have made clear, intent is not a relevant factor when assessing whether any discharge, including a discharge through groundwater that is the functional equivalent of a direct discharge, is subject to the CWA. The CWA is a strict liability statute and the intent of a

[14] A facility operator may, in its discretion, choose to submit a permit application for NPDES permit coverage for a discharge into groundwater in the absence of a functional equivalent analysis. In such cases, the permitting authority may proceed to process the application.

discharger is not relevant to assessing compliance with the Act. *United States v. Earth Sciences, Inc.*, 599 F.2d 368, 374 (10th Cir. 1979) ("The regulatory provisions of the [CWA] were written without regard to intentionality, however, making the person responsible for the discharge of any pollutant strictly liable . . . The Act would be severely weakened if only intentional acts were proscribed. We will not interpret it that narrowly, particularly when the legislative history is clear Congress intended strong regulatory enforcement."); *American Canoe Ass'n. v. Murphy Farms, Inc.*, 412 F.3d 536, 540 (4th Cir. 2005) ("the CWA creates a regime of strict liability for violations of its standards"); *Stoddard v. W. Carolina Reg'l Sewer Auth.*, 784 F.2d 1200, 1208 (4th Cir. 1986) ("[l]iability under the Clean Water Act is a form of strict liability").

b. State groundwater protection program

The existence, or lack, of a state groundwater protection program is not relevant to whether the functional equivalent of a direct discharge analysis applies, and the existence of a state groundwater protection program does not obviate the need for an NPDES permit.

The Court's holding in *Maui* makes clear that the existence of a state groundwater protection program does not preclude CWA liability for point source discharges through groundwater that are the functional equivalent of direct discharges to waters of the United States. The Court in *Maui* recognized that Congress intended to leave general groundwater regulatory authority to states; however, the Court also recognized that certain discharges through groundwater that reach surface waters are subject to federal jurisdiction. The Court adopted the functional equivalent analysis to identify those discharges through groundwater that are subject to federal jurisdiction and those discharges through groundwater that are subject solely to state jurisdiction. In other words, the functional equivalent analysis effectuates the line Congress intended to draw between federal and state jurisdiction over discharges through groundwater. The Court in *Maui* describes the functional equivalent analysis and identifies seven factors that may prove relevant to that analysis. *Maui* at 1476-77. The seven factors the Court identified do not include the existence of a state groundwater protection program. *Id*. Likewise, while the Court explained that the seven factors it identified were just some of the relevant factors in the functional equivalent analysis, and thus other factors may also be relevant, the existence of a state groundwater program is of an entirely different nature than the seven factors the Court identified. The seven factors the Court identified all relate to how much the discharge through groundwater resembles a direct discharge. The existence of a state groundwater protection program is distinct from this question. It would therefore be inconsistent with *Maui* to consider the existence of a state groundwater protection program when determining whether a discharge through groundwater is subject to the CWA.

The Court's clearly stated intent in *Maui* to avoid creating loopholes in the CWA confirms that the existence of a state groundwater protection program is not relevant to whether a discharge through groundwater is subject to the CWA. The Court in *Maui* emphatically rejected an argument that the CWA did not regulate *any* discharges through groundwater. *Id*. at 1474 ("[s]uch an interpretation is neither persuasive nor reasonable.") In considering this argument, the Court explained that if this were the correct interpretation of the Act, "then why could not the pipe's owner, seeking to avoid the permit requirement, simply move the pipe back, perhaps only a few yards, so that the pollution must travel through at least some groundwater before reaching

the sea?" *Id*. at 1473. The Court explained that Congress could not have intended to create "such a large and obvious loophole" in one of the key regulatory programs under the Act. *Id*. at 1473. Finding that the existence of a state groundwater protection program precludes application of the CWA to discharges through groundwater would create the same "large and obvious loophole" that the Court sought to avoid.

In addition, the distinct purposes of groundwater protection programs and the CWA further confirm that the existence of a state groundwater protection program is not relevant to whether a discharge through groundwater is subject to the CWA. Groundwater protection programs aim to protect the quality of groundwater, often for drinking water uses, while the CWA aims to protect the quality of surface water for a wide variety of uses. While in some cases groundwater protection requirements and surface water protection requirements may overlap, there are often significant differences in the two sets of requirements. Applying only groundwater protection requirements to discharges that reach surface waters would not be consistent with the Act's prohibition of discharges to waters of the United States except when authorized, CWA Section 301(a), nor would it achieve the objective of the Act.