

In the Matter of the Chesapeake Bay Foundation, Inc., et al., Case No. 1434, Sept. Term 2023, Opinion filed on December 23, 2024, by Berger, J.

STATE OF MARYLAND GROUNDWATER DISCHARGE PERMIT – TREATED WASTEWATER – EFFLUENT LIMITATIONS – NET-ZERO DISCHARGE OF NUTRIENTS – FUNCTIONAL EQUIVALENT OF DISCHARGE TO SURFACE WATERS

Under the Clean Water Act, 33 U.S.C. § 1251 *et seq.*, a National Pollutant Discharge Elimination System (“NPDES”) permit is required when there is a direct discharge of effluent from a point source into navigable waters or when there is the functional equivalent of a direct discharge. The Clean Water Act authorizes the EPA to delegate NPDES permitting authority to the states. 33 U.S.C. § 1342(b). Although federal law only regulates point source discharges to surface water, Maryland law is more stringent and additionally regulates nonpoint source discharges, such as rainwater that may carry pollutants into groundwater.

The Maryland Department of the Environment is authorized to issue a discharge permit for the disposal of effluent into groundwater with conditions and limitations to meet water quality standards set by the state and approved by the EPA. An effluent that is collected and treated, sprayed onto crop fields according to a nutrient management plan that guarantees nutrient uptake resulting in zero nutrient discharge to groundwater is not the functional equivalent of a direct surface water discharge.

Circuit Court for Talbot County
Case No: C-20-CV-21-000006

REPORTED
IN THE APPELLATE COURT
OF MARYLAND

No. 1434

September Term, 2023

IN THE MATTER OF THE CHESAPEAKE
BAY FOUNDATION, INC., ET AL.

Berger,
Leahy,
Wright, Alexander Jr.
(Senior Judge, Specially Assigned),

JJ.

Opinion by Berger, J.

Filed: December 23, 2024

* Kehoe, Stephen, J., did not participate in the Court's decision to designate this opinion for publication pursuant to Md. Rule 8-605.1.

Pursuant to the Maryland Uniform Electronic Legal
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Government Article) this document is authentic.



Gregory Hilton, Clerk

This case emanates from a decision by the Maryland Department of the Environment (“the Department”) to issue a ground water discharge permit to the Council of Trappe (“the Town”) and the Trappe East Holdings Business Trust (“the Trust”). The Department, the Town, and the Trust are appellees, herein. The Chesapeake Bay Foundation, Inc. (“CBF”), Faye H. Nave, John W. Lambert, II, Dorri Gowe-Lambert, Steven Harris, and Lynne Harris, appellants, filed a petition for judicial review in the Circuit Court for Talbot County, and later filed an amended petition, challenging the Department’s decision to issue the permit. In a written decision entered on August 29, 2023, the circuit court affirmed the Department’s decision to issue the permit. This timely appeal followed.

The sole question presented for our consideration is whether the permit violated federal or state law by not ensuring compliance with water quality standards. For the reasons set forth below, we shall affirm.

BACKGROUND

A. Federal and State Regulatory Framework

Before addressing the issue at hand, we pause to review, briefly, the federal and state regulatory framework pertaining to water pollution. In 1972, the Federal Water Pollution Control Act of 1948 was significantly reorganized and expanded and became known as the Clean Water Act. 33 U.S.C. § 1251 *et seq.* The objective of the Clean Water Act (“CWA”) “is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a). The CWA provides that it is “the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of

States to prevent, reduce, and eliminate pollution,” and thereby retain the states’ traditional control over “the development and use” of “land and water resources.” 33 U.S.C. § 1251(b). In support of its policy, Congress established “a program of cooperative federalism” that “anticipates a partnership between the States and the Federal Government” to achieve clean water. *New York v. United States*, 505 U.S. 144, 167 (1992) (internal quotations and citations omitted).

The CWA prohibits the discharge of any pollutant into the waters of the United States except as authorized by a permit issued under the National Pollutant Discharge Elimination System (“NPDES”). 33 U.S.C. §§ 1251(a)(1), 1311(a), 1342(a)(1). The CWA’s permit requirements are triggered by the “discharge of a pollutant,” which is defined, in pertinent part, as “any addition of any pollutant to navigable waters” or to “the waters of the contiguous zone or the ocean” from “any point source.” 33 U.S.C. § 1362(12). The NPDES permitting program applies only to “navigable waters,” which are defined as “the waters of the United States, including the territorial seas.” 33 U.S.C. § 1362(7).

An NPDES permit is issued by the United States Environmental Protection Agency (“EPA”) or states, such as Maryland, that have been delegated such authority. COMAR 26.08.04.01 (the Department shall issue Maryland state discharge permits or NPDES permits). Maryland’s Supreme Court has explained the program established by the CWA, noting that:

The Clean Water Act authorizes the EPA to delegate its NPDES permitting authority to a state. 33 U.S.C. § 1342(b). This regulatory approach enables the federal and state water

pollution permitting laws to work in tandem with one another. 33 U.S.C. § 1342(b). State law must be at least as stringent as the provisions of the Clean Water Act; however, a state has the ability to impose more stringent pollution control laws as it desires. 40 C.F.R. §§ 122.44(d), 123.25(a).

Maryland Dep't of the Env't v. Assateague Coastal Trust, 484 Md. 399, 409-10 (2023).¹

An NPDES permit places limits, referred to as “effluent limitations,” on the type and quantity of pollutants that can be released into the Nation’s waters. 33 U.S.C. § 1362(11). The CWA “sorts all sources of pollution into two categories – point source and nonpoint source pollution.” *Maryland Small MS4 Coal. v. Maryland Dep't of the Env't*, 479 Md. 1, 7 (2022) (citing *Maryland Dep't of the Env't v. Cnty. Comm'rs of Carroll Cnty.*, 465 Md. 169, 184 (2019)). A “point source” is “any 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.” 33 U.S.C.

¹ Similarly, in *Maryland Small MS4 Coal. v. Maryland Dep't of the Env't*, Maryland’s Supreme Court explained:

Congress entrusted administration of the NPDES permit program primarily to the EPA. 33 U.S.C. § 1319, 1342(a)(1). The EPA may delegate that authority to a state so long as the state’s law establishes a parallel permitting program consistent with the Act. 33 U.S.C. § 1342(b). EPA designation of a state permitting agency indeed is the rule rather than the exception. In Maryland, the Department is the NPDES permitting authority. See Maryland Code, Environment Article (“EN”) § 9-253; COMAR 26.08.04.01.

479 Md. 1, 8 (2022) (footnote omitted).

§ 1362(14). The term does not include “agricultural stormwater discharges and return flows from irrigated agriculture.” *Id.* Nonpoint sources are not defined by the CWA, but include diffuse sources of pollution, such as rainwater or snowmelt that sweeps over buildings, farms, and roadways and carries pollutants and pesticides into navigable waters, their tributaries, and groundwater. *Carroll Cnty.*, 465 Md. at 184. The CWA “regulates point sources of water pollution but does not directly regulate nonpoint sources.” *Id.* at 184.

Maryland’s water pollution control laws are set forth in Title 9, Subtitle 3 of the Environment Article (“EN”) of the Maryland Code.² The stated purpose of that subtitle “is to establish effective programs and to provide additional and cumulative remedies to prevent, abate, and control pollution of the waters of this State.” EN § 9-302(a). The phrase “Waters of this State” is defined to include:

- (1) Both surface and underground waters within the boundaries of this State subject to its jurisdiction, including that part of the Atlantic Ocean within the boundaries of this State, the Chesapeake Bay and its tributaries, and all ponds, lakes, rivers, streams, public ditches, tax ditches, and public drainage systems within this State, other than those designed and used to collect, convey, or dispose of sanitary sewage; and
- (2) The flood plain of free-flowing waters determined by the Department of Natural Resources on the basis of the 100-year flood frequency.

EN § 9-101(l).

² Unless otherwise noted, all references herein are to the Environment Article in effect in 2022, when the Permit was granted.

Recently, Maryland's Supreme Court noted that Maryland law is more stringent than federal law, stating:

Maryland law is more stringent than federal law because it regulates "nonpoint discharges," *i.e.*, discharges to groundwater and surface water, whereas federal law regulates only "point source" discharges to surface water. *Compare* 33 U.S.C. §§ 1311, 1342, 1362(12), 1362(14), *with* EN §§ 9-101(b), (l)(1), 9-322.

Assateague Coastal Trust, 484 Md. at 423 (internal footnotes omitted). Maryland law generally prohibits the discharge of pollutants to the waters of the state, but authorizes the Department to issue discharge permits. EN §§ 9-322 and 9-324. Subject to applicable provisions of law, the Department may issue a discharge permit if it finds that the discharge meets "[a]ll applicable State and federal water quality standards and effluent limitations" and "[a]ll other requirements of" Subtitle 3. EN § 9-324(a). The Department has established water quality standards for certain classes of aquifers, including groundwater. COMAR 26.08.02.09B. "Water quality standards" are targets set by the states and approved by the EPA. 33 U.S.C. § 1313. Among other things, water quality standards are based on designated uses for the state's bodies of water, such as "recreation" or "public drinking water supply." *See Carroll Cnty.*, 465 Md. at 186. Groundwater discharge permits must contain conditions and limitations to meet these water quality standards. COMAR 26.08.02.09A(1) and C. In *Maryland Small MS4 Coalition*, Maryland's Supreme Court explained:

Both point and nonpoint sources impact water quality, but the [CWA's] enforcement mechanism is through point source permits. Thus, if there is an excess of nonpoint source pollution impairing a body of water – despite the measures

taken to reduce nonpoint source pollution – point source permits must impose a “more stringent limitation” to counterbalance the nonpoint source pollution and protect the water quality. “Water quality standards are retained as a supplementary basis for effluent limitations, however, so that numerous point sources, despite individual compliance with effluent limitations, may be further regulated to prevent water quality from falling below acceptable levels.” *EPA v. California ex rel. State Water Res. Control Bd.*, 426 U.S. 200, 205 n.12, 96 S.Ct. 2022, 48 L.Ed.2d 578 (1976). Thus, water quality standards provide the link for how point source regulation under the [CWA] accounts for nonpoint source pollution. *See American Farm Bureau Federation v. EPA*, 792 F.3d 281, 299 (3d Cir. 2015); *Friends of the Earth, Inc. v. EPA*, 446 F.3d 140, 143 (D.C. Cir. 2006).

479 Md. at 9-10.

The Department administers both the federal and state water pollution permitting programs. EN § 9-323 (water pollution discharge permits are issued by the Department); COMAR 26.08.04.07A (the Department shall administer the NPDES program as part of its own discharge permit system). The process by which the Department issues discharge permits is set forth in EN § 1-601 *et seq.* The Department publishes notice of permit applications and, later, notice of its “tentative determination” on the permit application. EN §§ 1-602; 1-603, 1-604, and 1-606(d). If the tentative determination is to issue a permit, the Department’s published notice includes a draft permit, and other documents, available for public inspection and copying. EN §§ 1-604(a)(2), 1-606(d). Thereafter, the Department receives written comments on the draft permit and may hold a public hearing. EN § 1-604(a)(3)-(4). If the Department does not receive comments adverse to its tentative determination, it proceeds to issue a final determination. EN § 1-604(b).

The permit process is not a contested case proceeding for purposes of the Maryland Administrative Procedure Act. EN §§ 1-101(b), 1-601(b). Judicial review in the appropriate circuit court is based on the administrative record before the Department. EN §§ 1-601, 1-606(c) and Maryland Rule 7-201 *et seq.* (governing actions for judicial review authorized by a statute). Judicial review is limited to issues raised during the public comment process, unless the objections were not reasonably ascertainable during that process or arose afterward. EN § 1-601(d).

B. The Town and the Trust's Permit Application

In January 2019, the Town and the Trust submitted an application to the Department for a groundwater discharge permit for sanitary waste from the proposed Trappe East Wastewater Facility (“the Facility”) that they intended to own and operate. The Facility, which would employ enhanced nutrient removal, was to serve a new residential development in the Town. Facilities such as the one at issue here may be approved if, among other things, the system discharges:

- (i) To the surface waters of the State in accordance with a permit issued under [EN § 9-323];
- (ii) By way of land application under a nutrient management plan required under § 8-803.1 of the Agriculture Article that assures 100% of the nitrogen and phosphorus in the applied effluent will be taken up by vegetation; or
- (iii) By way of an on-site sewerage system.

EN § 9-1110(c)(2). The permit sought to allow the Facility to dispose of effluent by way of spray irrigation to land pursuant to a nutrient management plan (“NMP”).

Public notices of the draft permit were issued, a public hearing was held, and a response to public comments was issued. On December 25, 2020 and January 1, 2021, the Department published a notice of final determination in the Star Democrat newspaper giving a deadline of February 1, 2021 to file requests for judicial review. Appellants sought judicial review in the Circuit Court for Talbot County. In a companion case, an entity known as ShoreRivers, Inc. also sought judicial review. ShoreRivers, Inc. requested, without opposition, that the case be remanded to allow for public comment on the NMP required by the permit. After additional public notice and comment, the Department revised its prior decision and, ultimately, issued State Discharge Permit 19-DP-3460 (“the Permit”), which had an effective date of October 27, 2022.

The Permit authorized the Facility to discharge up to 100,000 gallons of treated wastewater per day with certain specified effluent limitations for nitrogen, phosphorus, fecal coliform, and other substances.³ The effluent was to be applied to land via spray irrigation and weekly monitoring was required to ensure that the effluent limitations were met. Among other things, the Permit contained restrictions on spray irrigation during certain periods of the year and during certain weather conditions, prohibited surface runoff and ponding, and prohibited spray irrigation on unvegetated soils or areas with a ground water table depth less than 2 feet from the ground surface. It also required buffers between the spray irrigation area and surface waters, potable wells, schools, playgrounds, and

³ This was a significant reduction from the prior version of the Permit that would have permitted a yearly average flow from the Facility of 540,000 gallons per day. Other changes were also made including that the effluent limitations for nitrogen and phosphorus were reduced and the wastewater storage requirement was increased from 60 to 75 days.

residential property lines and a storage facility capable of holding wastewater for no less than 75 days. The permittees were required to have a nutrient management plan prepared by a nutrient management consultant licensed by the State of Maryland that would ensure the recycling of “the entire effluent nitrogen and phosphorus loads into the vegetation grown on the spray field.”

C. Judicial Review in the Circuit Court

Appellants amended their initial petition for judicial review to challenge the Department’s revised Permit. On judicial review in the circuit court, appellants argued, among other things, that the Department failed to comply with state and federal laws pertaining to water quality and failed to provide substantial evidence that the vegetative cover in the spray fields would take up one hundred percent of the nitrogen and phosphorus in the effluent so that there would be a net-zero discharge of those nutrients. The Department countered that the Permit sought to authorize discharge into state groundwaters and that, therefore, the regulated discharge would not constitute the “functional equivalent” of a discharge to surface waters which would fall under the jurisdiction of the CWA. The Department asserted that the Permit’s strict effluent limitations and the incorporated nutrient management plan were designed to ensure complete uptake of nutrients, that the nutrient management plan complied with Maryland law, that groundwater quality standards were met, and that the decision to issue the Permit was supported by substantial evidence.

The Trust argued that the Facility was “state-of-the-art” and meant to comply with enhanced nutrient removal standards. The spray irrigation system proposed was a means

to prevent any direct discharge into state waterways. According to the Trust, the proposed use of reclaimed waters was consistent with Maryland's policy objective, as set forth in EN § 9-302(b)(5), which provides that it is the policy of the State:

To promote and encourage the use of reclaimed water in order to conserve water supplies, facilitate the indirect recharge of groundwater, and develop an alternative to discharging wastewater effluent to surface waters, thus pursuing the goal of the Clean Water Act to end the discharge of pollutants and meet the nutrient reduction goals of the Chesapeake Bay Agreement.

The Trust further argued that the proposed spray irrigation system was consistent with EN § 9-303.1(a), which requires the Department to "encourage the use of reclaimed water as an alternative to discharging wastewater effluent into the surface waters of the State." The Trust also pointed out that the fields that would be sprayed with the effluent were to be planted with a permanent vegetative cover, such as orchard grass, and that the nitrogen and phosphorus demands of the orchard grass would exceed the nutrients from the treated water so that there would be a net-zero discharge of those nutrients. The Town adopted the arguments made by the Department and the Trust.

After oral argument and review of the parties' memoranda, pleadings, and an administrative record consisting of 4,403 pages, the circuit court affirmed the Department's decision to issue the Permit. In its memorandum opinion, the court found that the Department's decision to issue the Permit was the result of "a process that appears . . . to have been thorough and fair." The court further stated that although it was required to review the Department's "conclusions and assure that they are based upon substantial

evidence, further determining that the decision is reasonable and rationally based, it must be deferential to the Agency's exercise of discretion.”

STANDARD OF REVIEW

In an appeal of the circuit court's review of an agency action, such as this one, we review the Department's decision to issue the Permit against the administrative record before the Department and not the decision of the circuit court. EN §§ 1-601(d) and 1-606(c); *Carroll Cnty.*, 465 Md. at 201 (review is based on administrative record). In other words, we do not assess the merits of the circuit court's decision, but instead directly review the Permit in light of the issues raised by appellants and the Department in response thereto. *Assateague Coastal Trust*, 484 Md. at 446. Generally, judicial review is limited to objections raised during the public comment period. EN § 1-601(d)(1).

“The standards for judicial review of a discharge permit – and their corresponding levels of deference to the [Department] – vary depending on whether the court is reviewing [the Department's] fact findings, discretionary decisions, or legal conclusions.” *Carroll Cnty.*, 465 Md. at 201 (citing *Maryland Dep't of the Env't v. Anacostia Riverkeeper*, 447 Md. 88, 118-21 (2016)). When reviewing the factual findings of the Department we apply the substantial evidence standard, pursuant to which we ask “whether a reasoning mind reasonably could have reached the factual conclusion the [Department] reached.” *Anacostia Riverkeeper*, 447 Md. at 120 (quotations omitted). We defer “to the facts found and inferences drawn by the [Department] when the record supports those findings and inferences.” *Carroll Cnty.*, 465 Md. at 201 (citing *Anacostia Riverkeeper*, 447 Md. at 118-21). Moreover, we review the Department's decision in the light most favorable to it.

Anacostia Riverkeeper, 447 Md. at 120 (quotations omitted). The Department is entitled to “great deference” with respect to factual issues that involve scientific matters within its area of technical expertise. *Carroll Cnty.*, 465 Md. at 201-02. When reviewing matters committed to the Department’s discretion, we apply the “arbitrary and capricious” standard. *Id.* at 202. “This standard is highly contextual, but generally the question is whether the [Department] exercised its discretion ‘unreasonably or without a rational basis.’” *Id.* (citations omitted). Finally, when reviewing the Department’s legal conclusions, we accord the Department less deference than with respect to factual findings or discretionary decisions. *Id.* at 202-03. We will not uphold an action based on legal error, but we “give careful consideration to the [Department’s] interpretation” of laws it has been charged to administer. *Id.* at 202-03 (citing *Anacostia Riverkeeper*, 447 Md. at 122).

DISCUSSION

I.

Appellants contend that the Department erred in granting the permit because it does not ensure compliance with water quality standards. Specifically, they argue that (1) the discharge at issue is the functional equivalent of a direct discharge to surface waters and, therefore, requires an NPDES permit; and (2) the permit issued is legally deficient because there is no guarantee of zero net discharge of nutrients to surface waters.

A. Functional Equivalent of a Direct Discharge to Surface Waters

Appellants assert that the discharge of pollutants from the spray irrigation system qualifies as the functional equivalent of a point source into surface waters and, thereby,

falls under the authority of the CWA. In support of that contention, appellants point to *County of Maui, Hawaii v. Hawaii Wildlife Fund*, 590 U.S. 165 (2020). In that case, the County of Maui operated a wastewater reclamation facility on the island of Maui. *Cnty. of Maui*, 590 U.S. at 171. The facility collected “sewage from the surrounding area, partially treat[ed] it, and pump[ed] the treated water through four wells hundreds of feet underground.” *Id.* The effluent, which amounted to 4 million gallons each day, traveled a half mile or so through groundwater where, several environmental groups claimed, it was discharged into the Pacific Ocean. *Id.* The United States Supreme Court held that an NPDES permit was required “when there is a direct discharge from a point source into navigable waters or when there is the *functional equivalent of a direct discharge.*” *Id.* at 183. The Supreme Court set forth a non-exhaustive list of seven factors to determine whether an indirect discharge falls under the jurisdiction of the Clean Water Act:

Consider, for example, just some of the factors that may prove relevant (depending upon the circumstances of a particular case): (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, (7) the degree to which the pollution (at that point) has maintained its specific identity. Time and distance will be the most important factors in most cases, but not necessarily every case.

Id. at 184-85.

In the instant case, appellants contend that consideration of the factors set forth in *County of Maui* establish that the effluent discharged from the Facility requires an NPDES

permit.⁴ Specifically, they claim that the effluent discharged from the Facility would reach Miles Creek in about 12 days after travelling approximately 1,159 feet, and that “dilution and ‘changed condition’ of nutrients in question is immaterial because the remaining [n]itrogen will enter surface waters despite the form it travels in.” We are not persuaded.

There is substantial evidence in the record to support the Department’s determination that the discharge was not the functional equivalent of a discharge to navigable waters. The Department prepared a response to public comments regarding the proposed permit for the Facility. Several public comments and responses by the Department related to the discharge and whether it constituted the functional equivalent of a discharge to navigable waters. Comment 67 concerned the need for an NPDES surface water discharge permit. The Department responded, in part, as follows:

In response to the comment we highlight the following facts. The permit has no surface water discharge of nutrients, and is not the functional equivalent of a surface water

⁴ States are required to identify waters within their respective boundaries where technology-based effluent limitations in NPDES permits are “not stringent enough to implement any water quality standard applicable to such waters.” 33 U.S.C. § 1313(d)(1)(A). For each impaired water, a state must establish a total maximum daily load (“TMDL”) for each pollutant preventing the water from meeting water quality standards. 33 U.S.C. § 1313(d)(1). In 2010, the EPA issued the Chesapeake Bay TMDL for nitrogen, phosphorus, and sediment. *See* U.S. Environmental Protection Agency, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (December 29, 2010), available at <https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-tmdl-document>. Appellants maintain that discharges to surface waters should be subject to the Chesapeake Bay TMDL and an NPDES permit through wasteload allocations, offsets, or both. They argue that “any and all uncertainty regarding the ultimate delivery of nutrients or other pollutants to adjacent surface waters ought to be . . . accounted for or resolved through required offsets.” In light of our decision to affirm the Department’s decision to issue the Permit, we need not address appellants’ arguments pertaining to the Chesapeake Bay TMDL and the need for an NPDES permit.

discharge; therefore an NPDES permit is not required and the Department may appropriately regulate the groundwater discharge under the terms and conditions of this Permit.

The effluent is essentially treated four times before any possible discharge to surface waters. The wastewater will first be treated by an Enhanced Nutrient Removal wastewater treatment plant. Then the treated effluent will be sprayed on crop fields according to the NMP. The NMP ensures that the nutrient uptake of the plants within the root zone will result in zero nutrient discharge to groundwater. The sprayed water is filtered and treated by its journey through the ground and further diluted as it mixes with ground water and travels with the 70 feet thick soil zone towards surface waters. The removed substances requirements in the proposed permit and implementation of the Nutrient Management Plan and related spray field management requirements will recycle the entire effluent nitrogen and phosphorus load into the vegetation grown on the spray field. This will result in no additional nutrient loads to surface or groundwater caused by application of the treated effluent.

Moreover, the Department also addressed whether the discharge constituted the functional equivalent of a discharge to navigable waters in response to Comment 85, which provided:

The proposed spray irrigation site presents the poster child for “the functional equivalent” of a federally-regulated Clean Water Act surface water discharge. Unless substantial changes are made to (1) ensure spray irrigated effluent is at all times (i.e., 100%) taken up by crops or evaporated and not allowed to percolate below the root zone and (2) contain, to the extent possible aerosolized effluent through buffers and barriers, we urge [the Department] to issue a standard surface water discharge permit in lieu of this groundwater discharge permit to reflect the fact that surface water pollution discharges will occur.

The Department issued a detailed response noting that “[t]he discharge authorized in the permit is not functionally equivalent to a direct surface water discharge.” The Department explained:

The groundwater discharge permit for Lakeside Trappe East has the enhanced nutrient removal wastewater treatment plant which produces an effluent that is 70% higher quality than the Groundwater Quality Standards. The effluent is pumped to a lagoon where it is stored until it may be applied to the land via the spray irrigation system. The spray irrigation is optimized to maximize crop uptake and to minimize the amount of effluent that will reach groundwater. Any effluent that travels through the vegetated zone into the subsurface soils will have a low potential delivery factor because it is greater than 1,000 feet to any surface waters. The unsaturated soil treatment zone further reduces the travel time and provides degradation by chemical and microbiological activity from the soil. In combination with the soil characteristics, dilution by precipitation, and dilution by other groundwater, the effluent will not retain its distinctive identity by the time it may enter any groundwater. We thus conclude that the discharge has no reasonable potential to impact surface waters and is thus not functionally equivalent to a direct surface water discharge.

The Department went on to explain that “groundwater discharge permits are designed to take into consideration the potential impact from any discharge of treated wastewater on any waters of the State including groundwater and surface water.” It stated that the wastewater from the Facility would produce “tertiary effluent quality significantly below groundwater quality standards” and provided a chart showing that the treated effluent limitations for certain matters, including total nitrogen and total phosphorus, were lower than the groundwater quality standards. The Department explained how the nutrients remaining in the wastewater would “be absorbed by the soil and held by capillary action in the rood and vadose zones and absorbed by plant roots.”

Notably, the Department also considered the factors set forth in *County of Maui*. It observed that the treated effluent would undergo “significant dilution both chemically and biologically after it is sprayed” and that both the NMP and the hydrogeological report showed “that the nutrients required by the orchard grass crop exceeds what will be present in the discharged effluent and will require additional nutrients to thrive.” In addition, the Department noted that “it is anticipated that rainfall will also dilute any sprayed effluent that does not leave the land through evapotranspiration as it seeps into the earth.”

As for transit time, the Department wrote:

The hydraulic conductivity of the aquifer and distance from the spray fields to the nearest navigable waters as presented in the hydrogeologic report was used by [the Department] to calculate estimated average transit time for the sprayed treated effluent to travel from the underlying aquifer to the nearest surface water. The results showed that it will take approximately 7.3 days on an average for the effluent to reach surface waters once it attenuates to the aquifer. The estimated transit time for the Northern field was calculated at approximately 12 days. The Southwest and Southeast field were estimated to be 5 days each.

The Department determined that the “average horizontal travel distance between the spray field’s surface and the nearest surface water stream” was “roughly 709.4 feet[,]” that “the average travel distances are 476 feet, 493 feet, and 1,159 feet, respectively, for the southwest, southeast, and northern sprayfields[,]” and that the Permit “requires that the primary northern sprayfields be used for spray irrigation of the development.”

As for the nature of the material through which the pollutant would travel, the Department stated that “[n]atural soil is the best medium to treat and recycle wastewater.” The Department explained the “soil’s ability to attenuate wastewater and remove pollutants

that cause disease,” referenced tests conducted to identify the soil properties at the pertinent site, which were summarized in the hydrogeologic report, and concluded that the “unconsolidated sediments offer options for filtration, nutrient absorption, and microbial consumption.” The Department noted that “[t]hese soils are suitable for ‘slow rate’ land discharge systems as is proposed for the site.” According to the Department, the soil at the pertinent site was different from other soil types that offer more direct conduits to surface waters.

The Department explained that “[a]ny nutrients still present in the irrigated water are absorbed by the vegetative cover crop as the irrigated water percolates through the soil treatment zone.” It wrote:

The unconfined aquifer that exists beneath the site will be recharged by any irrigation water that is not lost to evapotranspiration. (Hydrogeologic Report, p. 6) In this aquifer, irrigation water will mix with already-existing groundwater and rainwater that has seeped into the earth. This mixture will then possibly slowly migrate through the subsurface soils by diffused lateral movement, feeding surface stream flows to navigable water.

The Department concluded that the treated effluent that would be sprayed at the site would “not retain its distinctive identity at the point of entering navigable waters” because plant absorption, evapotranspiration, aerobic and anaerobic microbe digestion, soil filtering, and groundwater and rainfall dilution will have worked, individually and collectively, to alter the specific identity of any pollutant.

The Department provided the following lengthy summary of the basis for its conclusion that the discharge of pollutants from the spray irrigation system did not qualify as the “functional equivalent” of a point source into surface waters:

The results of various studies conducted indicate that land application is a proven, feasible and effective method of renovating and recycling wastewater and especially beneficial for aquifer recharge. This method is widely accepted; consequently, the Environmental Protection Agency, through amendments PL 92-500 and PL 95-217 to the Federal Water Pollution Control Act, has required that land applications be evaluated during the waste treatment facilities planning state.

On October 1, 2002, Section 9-303.1 of the Annotated Code of Maryland became effective. It stipulates that the Department shall encourage the use of reclaimed water as an alternative to discharging wastewater effluent into surface waters as a pollution control measure and authorizes the Department to establish buffer and setback requirements for the use of reclaimed water. The Trappe East permit authorizes the reuse of wastewater through a discharge to groundwater via spray irrigation in line with the Department’s land application guidelines. The provisions set forth in the permit meet or exceed the requirements for land application.

[The Department] has to address the requirements set out in the U.S. Supreme Court decided *Maui County v. Hawaii Wildlife Fund*, which holds that in some instances a discharge to surface water that requires an NPDES permit according to the Clean Water Act

These goals regarding water reuse are supported by this permit which is structured so as to not allow the discharge of nutrients to surface waters via groundwaters of the state. An NPDES permit is therefore not required or applicable.... In this case, if any minute pollutant is transported to groundwater, its composition or concentration will be changed significantly from how it was initially discharged when the groundwater eventually reaches navigable waters. The change will occur as a result of numerous safety checks put in place that collectively protect groundwater. This is in contrast to the Maui case where

millions of gallons of partially treated wastewater was being discharged through injection wells directly into the ground with no plant uptake, storage or haling [sic] provisions and was traceable to navigable waters.

These safety factors are reiterated here and include nutrient pollutant levels meeting or less than drinking water standards, the prevention of the hydraulic overload of the drain fields by approving an application rate for a spray irrigation system that was determined based on the soil infiltration rate with the application of a safety factor. The maximum hydraulic loading rates of the Trappe East spray irrigation area is limited at 2 inches/week (annual average) and each spray area will be divided into two or three zones. Each zone will be sprayed one day per week. This schedule will allow 4 to 5 days per week for rain, saturated soil conditions and maintenance. The zones will be set up to be sprayed at approximately ¼ inch per hour for 8 hours each. The vegetation consumption rate in Maryland ranges from 0.26"/wk to 0.45"/wk based on the golf course irrigation rates. Since the application rate is based on the soil infiltration rate alone, the application rate is always less than the sum of the soil infiltration rate and the consumptive use. Therefore, the application rate is a conservative number to ensure the treated effluent is not over applied and any nutrients are absorbed by plant uptake.

In addition to any nutrients in the irrigated water being taken up by plants via their root zones, any pollutant remaining will be altered by chemical or biological interactions with soils, microbes, rainwater and groundwater dilution, or just through natural processes. Where the irrigated water makes it to the groundwater table, the average travel distances to the nearest navigable waters are 476 feet, 493 feet, and 1,159 feet, which takes a travel time of five to seven to 12 days based on the aquifer transmissivity respectively, for the southwest, southeast, and northern spray fields. It is therefore plausible to infer that the reuse of ENR-treated water for spray irrigation in this case is not the "functional equivalent" of a direct discharge of pollutants to a US water body due to physical attenuation, dilution and distance to navigable waters.

Applying the *County of Maui* factors is a fact-intensive exercise, which the United States Supreme Court warned “should not create serious risks . . . of undermining state regulation of groundwater” *Cnty. of Maui*, 590 U.S. at 185. In evaluating the Department’s determination under the substantial evidence standard, we accord deference to the Department’s fact finding and drawing of inferences when the record supports them. *Assateague Coastal Trust*, 484 Md. at 449. We may not substitute our judgment as to whether an inference drawn is the right one or whether a different inference would be better supported. *Id.* (citing *Mayor & Aldermen of City of Annapolis v. Annapolis Waterfront Co.*, 284 Md. 383, 399 (1979)). “The test is reasonableness, not rightness.” *Assateague Coastal Trust*, 484 Md. at 449 (quoting *Annapolis Waterfront Co.*, 284 Md. at 399).

In the case at hand, the Department’s determination was supported by substantial evidence. The Department considered the comments submitted during the public comment period and in responding to them explained the basis for its conclusion that the discharge was to state groundwater and was not the functional equivalent of a direct discharge to surface waters requiring an NPDES permit. The Department’s responses, and the summary of its response to Comment 85, make clear the factual basis for its determination that the NMP and related permit conditions are sufficient to prevent discharges into surface waters and, therefore, an NPDES permit is not required. The Department’s findings and conclusions were set forth in sufficient detail to allow us to discern its reasoning. The Department clearly considered the factors set forth in the United States Supreme Court’s decision in *County of Maui* and its findings and conclusions are supported by the record. We conclude that the Department’s determination that the discharge was not the functional

equivalent of a direct discharge to surface waters and, therefore, an NPDES permit was not required, was reasonable and supported by substantial evidence.

B. No Guarantee of Zero Net Discharge of Nutrients to Surface Waters

Appellants further contend that the Department cannot establish that the operation of the Facility and the execution of the NMP will result in zero nutrient discharge to groundwater. In support of that contention, appellants point to EN § 9-1110, which requires an NMP for the Facility that “assures” one hundred percent uptake of nitrogen and phosphorus in the effluent. EN § 9-1110(c)(2)(ii).⁵ Appellants argue that the Department

⁵ EN § 9-1110(c) provides:

(c) A shared facility or community sewerage system may be approved only if the system:

(1) is managed, operated, and maintained by:

(i) A controlling authority; or

(ii) A third party under contract with the controlling authority; and

(2) Discharges:

(i) To the surface waters of the State in accordance with a permit issued under § 9-323 of this title;

(ii) By way of land application under a nutrient management plan required under § 8-803.1 of the Agriculture Article that assures 100% of the nitrogen and phosphorus in the applied effluent will be taken up by vegetation; or

(iii) By way of an on-site sewerage system.

failed to provide substantial evidence that there will be one hundred percent vegetative uptake or zero net discharge of nutrients to adjacent surface waters.

In support of their argument, appellants claim that the NMP is based on crop selection and nutrient recommendations set forth in the EPA Process Design Manual – Land Treatment of Municipal Wastewater. They argue that the Permit “oversimplifies” the crop selection and nutrient recommendations in the EPA manual, resulting in a flawed system design that cannot ensure zero discharge. They note that none of the land treatment systems discussed in the manual, each of which was similar to that at issue here, reported soil water drainage with zero discharge of nitrogen. In addition, although appellants acknowledge that orchard grass was chosen as a vegetative cover for the spray field for “a handful of characteristics, including nutrient demand exceeding the nutrient contribution from the treated wastewater[,]” they contend that a mixture of grasses is generally preferred and that the approach taken wrongly assumes that the entire crop is receiving adequate nutrients to grow at a maximum rate.

Our review of the record reveals that the NMP was not based on the EPA manual as a whole, but instead the Department relied on specific rates of nutrient uptake that were addressed in it. The record, specifically the Department’s responses to Comments 9, 10, 11, 13, 14, and 31, demonstrates that the Department evaluated the NMP according to its own land application guidelines and a 2019 hydrogeological report prepared by John D. Hynes & Associates, Inc. before determining that the plan assured 100% uptake of nutrients. In response to Comment 13, the Department specifically noted that “[t]he proposed plan is consistent with [the Department’s] Land Application Guidelines” and that

the treated wastewater would produce “effluent quality consistent with groundwater quality standards.”

Appellants assert that, with the exception of a 75-day period during winter months, the treated wastewater will be applied to the spray field in consistent increments year round, even though nutrient uptake by the vegetation is slow to start and is variable depending on environmental factors. They argue that the NMP relies on faulty assumptions about the amount of nutrient uptake during various parts of the life of the plant used in the spray field such as during the initial growth of the plant and throughout seasonal changes. Preliminarily, we note that the Facility, which is an advanced nutrient removal wastewater treatment plant, must treat the wastewater to a quality specified in the Permit before it is discharged. The resulting effluent will be of higher quality than the State Groundwater Quality Standards. That effluent is then discharged through spray irrigation to the fields containing a vegetative cover. With respect to the initial growth of the plant, neither the NMP nor the Permit prevents the spray irrigation fields from being planted and established before the effluent is applied to the land. At oral argument, counsel for the Department advised the Court that the spray field had already been planted with orchard grass and that it was an established vegetative cover, although spraying had not begun.

The Department clearly considered nutrient uptake rates in designing the Permit conditions. In response to Comments 9, 11, 14, and 31, the Department noted that the uptake rates of orchard grass for phosphorus and nitrogen were greater than the loading rate from the spray irrigation. In response to Comments 9, 11, and 14, the Department concluded that evaluation of input values from the 2019 Hynes hydrogeologic report and

the NMP “to calculate potential nitrogen loading at the northern spray field confirms the estimated percolate entering the groundwater from orchard grass or loblolly (southern) pine results are negative and demonstrate no net nitrogen increase on a month-to-month basis.” In response to Comment 31, the Department concluded that the proposed permit and NMP would “result in no additional nutrient loads to surface or groundwater caused by application of the treated effluent.”

The Department acknowledges that the NMP relied on yearly average rates of nutrient uptake, but the NMP also allowed for a variety of options with regard to the vegetation to be used in the spray field. The NMP identified a range of crops and tree species that could be considered for the vegetative cover in the spray field. In response to Comment 10, the Department noted that the “NMP allows for the use of a variety of plants to be used as a cover crop for the spray fields” and that a “variety of grasses, crop and forest compositions may be utilized as appropriate spray field land covers to address observed conditions and shall be considered through routine nutrient management plan updates.”

Irrespective of the vegetation selected, the Permit requires complete uptake of nutrients. To that end, the NMP is to be updated regularly, annual reporting to the Department is required, and the Department may modify the Permit to adjust to changing conditions or if the Facility’s discharge exceeds limitations. Monitoring and reporting of groundwater and surface water as well as soil nutrient conditions are also required to verify the NMP’s effectiveness. In addition, the NMP requires periodic harvesting and removal of all existing orchard grass and the Permit requires the removal of “[g]rass clippings from

cutting vegetation planted on the spray site” in order “to eliminate onsite accumulation of nutrients from the clippings.” The monitoring and reporting requirements and the restrictions serve to ensure that there is adequate nutrient uptake to comply with water quality standards.

Appellants maintain that the Permit does not account for “background concentrations of nutrients in local soil and groundwater or precipitation increases as a consequence of climate change.” With respect to “background” or baseline levels of nutrients, the Permit contains special condition D.2.b that requires monitoring wells to be installed “in the irrigation area at least twelve (12) months prior to the use of the spray fields to determine the background quality of the groundwater.” On that issue, the 2019 Hyne’s hydrogeological report noted that groundwater samples will be taken “prior to system installation ... to evaluate background water quality in the area of the proposed spray fields.” At oral argument, counsel acknowledged that baseline monitoring had not been done at the time the Permit was submitted, but it has since been completed. The record also makes clear that the NMP must be updated regularly including, among other things, testing of soil phosphorus adsorption capacity, and must be modified when necessary to ensure continued compliance with the zero-discharge standard.

As for increased precipitation due to climate change, leading to increased precipitation when orchard grass is least productive, Comment 3 provided:

Given how dramatically the climate conditions are now and are projected to be during the life span of the proposed wastewater system, it is critical for [the Department] to reanalyze the suitability of this spray field to receive a massive increase in naturally occurring precipitation plus an even

greater volume of spray irrigation. This analysis should be conducted in conjunction with [the Maryland Department of Agriculture] or an experienced nutrient management planning professional. We urge [the Department] to re-calculate potential evapotranspiration utilizing one of the recommended methodologies described in the Antea report, such as the Penman-Monteith method.

The Department provided the following response:

To address the concern addressed in the comment, additional valuation was conducted utilizing the Penman-Monteith method to determine potential evapotranspiration (PET). This evaluation used the Eto calculator (Version 3.2) provided by the United Nations Food and Agriculture Organization (2012) as described by Allen et al. (1998). For input climatic data, the software CLIMWAT 2.0 (Grieser, 2006) was used, which is also provided by the FAO and selected the closest weather station, WASHINGTON-NAT-VA. Eto was then multiplied by the crop use coefficient (Kc) to determine PET based on Table 17 (Allen et al., 1998) the Kc of 0.95 was selected for both orchard grass (the average Kc for Bermuda and ryegrass hay crops before and following cuttings) and loblolly pine (the Kc for conifer trees). The results had similar outcomes to those using Hynes (2019) and NPM [sic] (2020) inputs with the Blaney-Criddle PET estimation method.

The Department clearly considered climate issues, including precipitation, and made no changes to the final permit as a result of Comment 3. Recently, in *Matter of Blue Water Baltimore, Inc.*, 260 Md. App. 246 (2024), we addressed a similar argument. In that case, the appellants argued that certain MS4 discharge permits⁶ were “ineffective because the Department failed to include ‘climate change related conditions.’” 260 Md. App. at

⁶ MS4 permits are a type of NPDES permit. 33 U.S.C. §§ 1311(a) and 1342. The *Blue Water Baltimore* case involved stormwater pollutants that pass through municipal separate storm sewer systems, known colloquially as MS4s. *Blue Water Balt.*, 260 Md. App. at 259.

285. The Department responded that “adequate supporting data simply did not exist” in the administrative record at the time the permits were issued and stated that the State would update an applicable design manual and practices to account for increased precipitation when more data was reported. *Id.* at 285-86. We noted that the permits contained “reopener clause[s]” that would allow for modification based on new information. *Id.* at 286. We concluded that the “flexible, iterative approach complies with the MS4 legal framework.” *Id.*

Although the instant case does not involve MS4 permits, the subject Permit included conditions to address climate related issues. The Permit contained a prohibition on spray irrigation during certain winter months, conditions of elevated ground water, periods of high wind or precipitation, on bare ground, or in any manner that would cause the irrigation water to pond or run off the spray field. Moreover, the NMP is subject to reevaluation every three years and can be adapted to account for any increases in rainfall.

CONCLUSION

Maryland law requires the Department to “encourage the use of reclaimed water as an alternative to discharging wastewater effluent into the surface waters of the State.” EN § 9-303.1. Under EN § 9-1110, the Facility’s NMP must assure 100% uptake of nitrogen and phosphorus in the effluent. The Department’s comprehensive response to public comments explains in detail the deliberations and conclusions reached by the Department in issuing the Permit. The record reflects that the Facility will employ enhanced nutrient removal that will produce a treated effluent with total nitrogen and phosphorus below the state’s groundwater quality standards. The Permit incorporates a plan that employs

vegetation to obtain a nutrient uptake rate that would exceed the amount of nutrients in the effluent. Discharge limitations and monitoring are required to ensure the protection of groundwater. The Department determined that the measures included in the Permit and NMP would achieve the assurance of complete uptake of nitrogen and phosphorus from the effluent as required by EN § 9-1110. That determination was supported by substantial evidence and the decision to issue the Permit was well within the Department's discretion. We, therefore, affirm.

**JUDGMENTS OF THE CIRCUIT COURT
FOR TALBOT COUNTY AFFIRMED.
COSTS TO BE PAID BY APPELLANTS.**