

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA**

LOWER SUSQUEHANNA RIVERKEEPER ASSOCIATION,	:	Civil No. 1:23-CV-00044
	:	
	:	
Plaintiff,	:	
	:	
v.	:	
	:	
REPUBLIC SERVICES OF PENNSYLVANIA LLC,	:	
	:	
	:	
Defendant.	:	Judge Jennifer P. Wilson

MEMORANDUM

Republic Services of Pennsylvania LLC (“Republic”) polluted Kreutz Creek—a tributary of the Susquehanna River—and thereby violated the Clean Water Act (“CWA”). The court convened a three-day bench trial to hear evidence as to the appropriate sanction for Republic’s unlawful behavior. Upon consideration of the evidence and the law, the appropriate sanction is a civil penalty of \$9,200,000. Findings of fact and conclusions of law follow.¹

FINDINGS OF FACT

A. Modern Landfill and Kreutz Creek

Republic and its affiliates operate landfills throughout the country. (Trial Tr. 424:21–25.)² The events giving rise to this lawsuit occurred at one of these

¹ The court makes these findings and conclusions pursuant to Federal Rule of Civil Procedure 52(a).

² The trial transcript is filed at docket numbers 108, 109, and 110.

facilities, Modern Landfill in York, Pennsylvania (“Modern”). Republic has owned and operated Modern as a solid-waste disposal facility since 1999. (Trial Tr. 341:6–16.) Like all landfills, Modern generates wastewater in the course of its operation. (PFF ¶ 104.)³ The technical term for this wastewater is “leachate.” (Trial Tr. 156:7–8.) Leachate is predominantly generated as rainwater infiltrating from the landfill’s surfaces mixes with decomposing trash, PFF ¶ 241, though it can also be the byproduct of other processes, such as landfill bacteria consuming water, Trial Tr. 343:10–13. The problem with leachate is that it, as the name suggests, leaches pollutants from the waste it passes through. (Trial Tr. 156:8–9.)

To deal with this issue, Modern operates an on-site wastewater treatment facility. (PFF ¶ 103.) The byproducts of that treatment facility discharge into Kreutz Creek—an 18-mile long tributary of the Susquehanna River in York County, Pennsylvania—at a location known as Outfall 001. (PFF ¶ 107.) Republic’s discharge from Outfall 001 is governed by a National Pollutant Discharge Elimination System (“NPDES”) permit issued by the Pennsylvania Department of Environmental Protection (“PADEP”) pursuant to its authority under the CWA and the Pennsylvania Clean Streams Law. (*See* PFF ¶ 106.)

³ Citations to “PFF” refer to the parties’ proposed findings of facts. (Docs. 112, 114, 116.) Pursuant to the court’s order dated February 27, 2026, Doc. 107, those filings contain consecutively numbered paragraphs and the parties’ responses to each other’s proposals. The court cites to “PFF” when a fact is undisputed. The absence of a citation to “PFF” does not necessarily indicate that a fact is disputed.

Republic's inability to comply with the effluent limits in its permit for two constituents, boron and osmotic pressure, is what gives rise to this CWA citizen suit.⁴

B. Republic's 2017 Permit

NPDES permits have governed the facility at Modern since the 1980s. (Def. Ex. 56.003.)⁵ In November 2016, PADEP issued a draft NPDES permit to Republic, which included two proposals. (PFF ¶ 1.) The first was to set effluent limits for osmotic pressure. (*Id.*) Republic had been, pursuant to a previous NPDES permit, monitoring and reporting osmotic pressure levels since 2015.⁶ (PFF ¶ 3.) Republic claimed to have no concerns about the proposed osmotic pressure limits in the draft permit. Indeed, Republic told PADEP, "[t]he historic data for Osmotic Pressure demonstrates that the effluent discharge has been well below the limit proposed in the draft permit." (Def. Ex. 8.002.) This statement was nothing more than an attempt to convince PADEP not to impose more

⁴ Boron is a common, naturally occurring element. (PFF ¶ 113.) Osmotic pressure is not a specific substance, but rather a measure of how much "force or energy [is] required to push a solution through a semipermeable membrane." (PFF ¶ 112.) High enough levels of both of these constituents have the potential to cause harm to aquatic environments. (Trial Tr. 353:17–21.)

⁵ Citations to Republic's exhibits reference the Bates number on the cited page. The number before the decimal is the exhibit number, and the number after the decimal is the page number. The court uses this same convention when citing Plaintiff's exhibits, even though they do not have Bates numbers.

⁶ Despite this monitoring-and-reporting requirement, Republic did not know what the final effluent limits would be when that requirement went into effect. (Trial Tr. 433:6–20.)

frequent osmotic pressure sampling requirements. (*See id.*) In reality, Republic knew immediately that it would not be able to meet the proposed limits. (PFF ¶ 14.)⁷

The second proposal was to impose a three-year reporting requirement for Boron. (PFF ¶ 1.) Specific boron effluent limits would then take effect following this three-year period. (Pl. Ex. 1.009.) Republic took no exception with either the reporting requirement or the final limits. It stated to PADEP that it “agrees with the Total Boron 3-year interim monitoring / reporting requirements and the final limits . . . in the draft NPDES permit.” (Def. Ex. 8.001.) Like with the osmotic pressure limits, Republic knew immediately that it was not going to be able to meet the boron limits.⁸ (*See* PFF ¶ 14.)

On January 23, 2017, PADEP issued a final NPDES permit governing waste discharge at Outfall 001 from February 1, 2017, through January 31, 2022 (“2017 Permit”). (PFF ¶ 5; Def. Ex. 9.) The 2017 Permit implemented the osmotic pressure and boron proposals from the 2016 draft permit. (PFF ¶ 120.) The

⁷ Republic admitted the truth of paragraph 14 of the proposed findings of fact. That paragraph states Republic “definitively became aware” its wastewater treatment facility was incapable of meeting the effluent standards for osmotic pressure and boron on January 23, 2017, since the facility was not designed to treat for those constituents. If this is the rationale for how it knew, then surely Republic would have known in November 2016 that it was not going to meet the proposed limits, which were the same as those in the final permit. (PFF ¶ 120.)

⁸ It knew immediately for the same reason it knew immediately with respect to the osmotic pressure limits. *See* footnote 7, *supra*.

osmotic pressure limits—which took effect immediately—included three concentration limits: (1) a monthly average limit (129 mOs/kg⁹); (2) a daily maximum limit (183 mOs/kg); and (3) an instantaneous maximum limit (322 mOs/kg). (Def. Ex. 9.003)

The boron limits did not take effect until February 1, 2020. (Def. Ex. 9.005.) Prior to then, the 2017 Permit required Republic to monitor boron levels from Outfall 001 and report them in monthly discharge monitoring reports. (PFF ¶ 9; Def. Ex. 9.003.) The boron limits, once they became effective, placed restrictions on both the mass and concentration of boron discharges. The mass limits included a monthly average maximum (17.2 pounds per day) and a daily maximum (23.0 pounds per day). (Def. Ex. 9.005.) The boron concentration limits included three specifications: (1) a monthly average limit (4.12 mg/L); (2) a daily maximum limit (5.52 mg/L); and (3) an instantaneous maximum limit (10.3 mg/L). (*Id.*)

C. Republic’s Early Violations and Preliminary Steps Towards Remediation

Republic first violated the osmotic pressure daily maximum limit in October 2017. (PFF ¶ 21.) Republic became aware of this exceedance during routine

⁹ The unit of measure “mOs” stands for milliosmole, *i.e.*, one one-thousandth of an osmole. (Doc. 62, ¶ 20.) An osmole is the “amount of a substance that contributes to the osmotic pressure of a solution.” (*Id.*)

sampling and self-reported it to PADEP in a discharge monitoring report. (Def. Ex. 10.002.) PADEP, in turn, issued a notice of violation to Republic in January 2018. (Pl. Ex. 5.) This did not prevent Republic from continuing to exceed the osmotic pressure limits. Indeed, Republic exceeded both the monthly average and daily maximum limits in January 2018 and the daily maximum limit on one occasion each in October 2017, February 2018, and March 2018. (Pl. Ex. 7.009.) For these five violations, Republic agreed to pay a civil penalty of \$11,176 to PADEP pursuant to a consent agreement dated June 7, 2018. (Pl. Ex. 7.005.)

The reason Republic continued to violate the osmotic pressure limits was because Republic's wastewater treatment facility simply did not have the capability to treat osmotic pressure in wastewater. (Def. Ex. 15.002.) Republic personnel discussed the implications of its facility's shortcomings around the time it entered the 2018 consent agreement. During a July 2018 meeting, a group of Republic's environmental managers and external consultants agreed that "continued system optimization" of the wastewater treatment facility "cannot achieve the [osmotic pressure] permit limits." (Pl. Ex. 9.002.) Republic's concerns at that time equally applied to the facility's ability to meet the soon-to-be-effective boron limits. (Pl. Ex. 8A.001.) The officials at the July meeting all concurred that "the only long-term remedy" to ensure Modern met the osmotic pressure and boron limits was to install a reverse osmosis system. (Pl. Ex. 9.0002.)

More on that system later. The officials also agreed that Republic should budget the cost to “design[,] purchase[,] and install” a reverse osmosis system for calendar year 2019. (Pl. Ex. 9.002.) Republic recognized that this would be a costly endeavor. As one Republic official noted, “we will likely have to invest several million in the existing plant to meet permit conditions.” (Pl. Ex. 8A.001.)

Republic continued evaluating the possibility of installing a reverse osmosis system into the fall of 2018. An October 2018 presentation to Republic’s upper management discussed the necessity of such a system. (Trial Tr. 162:14–21; Def. Ex. 12.) Specifically, upper management was told that “[c]apital has been budgeted in 2019 for the installation of a Reverse Osmosis system to address new limits for Boron and treat . . . Osmotic Pressure.” (Def. Ex. 12.003.) Management was also told that Republic “commissioned” wastewater technical experts at O’Brien & Gere to “complete an evaluation of the entire L[eachate] T[reatment] P[lant].” (PFF ¶ 133.) Nothing in the record indicates what resulted from this evaluation.

In November 2018, Republic engaged Civil & Environmental Consultants, Inc. (“CEC”), PFF ¶ 138, a technical consulting firm that Republic heavily relies upon for, *inter alia*, wastewater treatment design and permitting, Trial Tr. 377:3–6. For this particular engagement, CEC sent Republic a proposal for reverse osmosis design services, which was comprised of two “very preliminary” tasks. (PFF ¶

30.) The first task was a site inspection during which CEC evaluated available space, Republic's existing technologies, and the treatment facility's key operating metrics. (Trial Tr. 377:14–19; Pl. Ex 15.003.) The second task was creating a preliminary design for a reverse osmosis system using data collected during the first task. (Trial Tr. 377:19–22; Pl. Ex. 15.003.) The cost for these services totaled \$8,700. (PFF ¶ 30.)

D. Republic's Evaluation of Remedial Measures and Actions Taken to Implement Them

1. The Process

In addition to these preliminary actions, Republic was examining ways it could come into compliance with its effluent limits. When Republic receives a new NPDES permit—like the 2017 Permit—or needs to remedy non-compliance with a permit, it follows a mandatory evaluation procedure. (PFF ¶ 134; Def. Ex. 9.032.) That procedure typically starts with the submission of Toxic Reduction Evaluation (“TRE”) reports in two phases. (Def. Ex. 9.032.)

Republic had to submit its Phase I TRE report within 18 months of the 2017 Permit's effective date. (Def. Ex. 9.032.) That report had to include: (1) an “[i]nfluent and effluent quality review”; (2) a “[s]ource inventory and evaluation”; (3) a “[s]ource reduction evaluation”; and (4) an analysis of the possible “[i]mplementation of pollution prevention, sound housekeeping practices, and other management practices.” (Def. Ex. 9.032–33.) In less technical terms, the

Phase I TRE report’s purpose was to “assess[] what potential influences, . . . operational changes, [and] best management practices may be employed to . . . start on the process of remediating a noncompliance situation.” (Trial Tr. 378:20–24.) PADEP then had to approve the Phase I TRE report following its review. (*See* Def. Ex. 9.032.) Once approved, PADEP had to notify Republic when to proceed to Phase II. (*See id.*)

Republic needed to submit its Phase II TRE report within 180 days of receiving PADEP’s notice to proceed. (*Id.*) The report had to include the same information as the Phase I report along with two additional elements. (Def. Ex. 9.034.) It had to analyze whether any low-cost, non-structural alternatives—such as “recycle[ing], reus[ing], or process/chemical substitution[s]”— could reduce the pollutants being discharged. (*Id.*) It also had to select “a specific pollution control option that will achieve the applicable [water quality-based effluent limitations (“WQBELs”)] and specify a schedule for the implementation of this option.” (*Id.*) To facilitate a reasoned selection, Republic’s Phase II TRE report had to “assess[] . . . all available pollution control options . . . and their ability to comply with the final WQBELs.” (*Id.*) The Phase II TRE report may also include a request for an extension of time to achieve compliance with WQBELs pursuant to 25 Pa. Code § 95.4. (*Id.*) The 2017 Permit notes that such a request is appropriate if “the final

WQBEL [is] not . . . technologically achievable using any combination of control options.” (*Id.*)

Following the TRE process, a permittee should have identified how it will achieve compliance with an NPDES permit. (Trial Tr. 379:13–17.) The next step towards compliance ordinarily is obtaining a water quality management (“WQM”) permit. (*Id.*) Nothing prevents a permittee, however, from seeking and obtaining a WQM permit before completing its TRE reports. (PFF ¶ 151.) Whenever it is submitted, the permit application explains what specific technologies the permittee intends to implement, including a description of its capabilities and ancillary components. (Trial Tr. 379:17–20.) Construction of the design can proceed only after PADEP issues the WQM permit. (PFF ¶ 40.)

2. Pre-Phase I Correspondence between PADEP and Republic

On January 18, 2019, PADEP sent another notice of violation to Republic. (PFF ¶ 31.) The notice stated that Republic had six violations each of the monthly average and daily maximum limits for osmotic pressure between June 2018 and November 2018. (Pl. Ex. 17.001.) The notice required Republic within 15 days to submit a report explaining the causes of the violations, a timeline of future remediation actions, and measures taken to prevent future violations. (*Id.*) Republic timely filed a responsive letter. (Pl. Ex. 22.) Therein, Republic reported that its wastewater treatment facility “was not designed to treat [osmotic

pressure].” (Pl. Ex. 22.002.) Republic also shared its belief that “[r]everse [o]smosis . . . appears to be the best treatment option for meeting the [osmotic pressure] permit levels.” (*Id.*) The letter then made a request. Republic expressed a desire to discuss the possibility of entering a consent order that would “set forth milestones and timelines for the plant upgrade project.” (*Id.*) To Republic, who knew it would continue to violate the osmotic pressure limits, this option was preferable to continuing to receive notices of violation. (*Id.*) Despite these discussions, Republic had not definitively decided to install a reverse osmosis system at this time. (PFF ¶ 33.)

3. Republic’s Phase I TRE Report

CEC prepared Republic’s Phase I TRE report, which Republic submitted to PADEP on February 18, 2019, about six-and-one-half months late. (PFF ¶ 34.) The report solely focuses on Republic’s compliance with respect to boron limits, *see* Def. Ex. 16.004, which it seems was all the 2017 Permit required. (*See* Def. Ex. 9.0031–32.)

The report first evaluated Modern’s wastewater treatment facility’s historical influent and effluent data from between January 1, 2017, and December 4, 2018. (Def. Ex. 16.009.) The report considered influent data concerning leachate and groundwater, since those two sources contributed nearly everything flowing into the wastewater treatment facility. (*Id.*) Specifically, leachate and groundwater

made up about 35–40% and 60–65%, respectively, of the influent stream. (*Id.*)

The total amount of those two liquids entering the wastewater treatment facility daily typically averaged between 40,000 and 250,000 gallons per day. (*Id.*)

Output from the facility mostly totaled between 100,000 and 250,000 gallons per day. (*Id.*)

The report also evaluated historical discharge levels for boron and total dissolved solids (“TDS”) from Modern’s wastewater treatment facility. (Def. Ex. 16.011–14.) The boron data included both concentration data between January 2012 and October 2018, as well as total-discharge data between February 1, 2017, and October 1, 2018. (Def. Ex. 16.012.)

Republic’s boron concentration levels between 2012 and 2017 generally stayed below the 2017 Permit’s limit of 5.52 mg/L. (*Id.*) Levels exceeded the 5.52 mg/L limit a handful of times in that five-year period, mostly in 2013 and 2014. (*Id.*) Exceedances of the 5.52 mg/L limit became prevalent and significant, however, beginning in 2017. (*Id.*) CEC could not identify any explanation for this sudden increase in 2017. (Def. Ex. 16.011.)

Total boron discharge at Modern’s facility generally remained below the 2017 Permit’s limit of 23 pounds per day between February 2017 and June 2018. (Def. Ex. 16.012.) Although, exceedances of that limit occurred with some regularity between June 1 and August 1, 2018. (*Id.*)

The TDS data in the Phase I report was more limited. CEC plotted annual TDS readings that Republic conducted between 2010 to 2018 against boron concentration from the same period. (Def. Ex. 16.014.) Republic internally monitored TDS levels as a metric for effective plant operation. (Trial Tr. 435:1–5.) CEC included TDS data in the report to form an opinion as to the form in which Modern was discharging boron. (*See* Def. Ex. 16.013.) The positive correlation between boron and TDS made CEC think that Modern was mostly discharging boron in a dissolved form, rather a particulate form. (*Id.*)

More important to this case, however, is what the TDS data says about Republic's history of osmotic pressure discharge. A direct correlation exists between TDS and osmotic pressure, which is equal to a 60:1 ratio. (Trial Tr. 412:3–12; Def. Ex. 29.019.) So, for instance, the 2017 Permit's osmotic pressure monthly average limit—which was set at 129 mOs/kg—equates to a TDS level of 7,740 mg/L. (PFF ¶ 17.) When TDS levels exceed 7,740 mg/L, osmotic pressure levels exceed 129 mOs/kg. (*See* Trial Tr. 413:18–414:4.) The historical data in the Phase I TRE report reveal that Republic's TDS levels were consistently above 7,740 mg/L. (Def. Ex. 16.014.) Between 2010 and 2018, in fact, the only samples that yielded TDS levels below 7,740 mg/L were those in 2010 and 2012. (*Id.*) In 2014, 2016, and 2018, the levels were higher than 14,000 mg/L and as high as 16,000 mg/L. (*Id.*) It is implausible that Republic would have been

contemporaneously unaware of either these readings—since it used them to ensure effective plant operation, Trial Tr. 435:1–5—or their significance vis-à-vis osmotic pressure—since the 60:1 ratio is generally known by those in the landfill industry, Trial Tr. 434:3–8.

The Phase I TRE report also considered the potential sources of boron at Modern. (Def. Ex. 16.015.) Many types of waste can contain boron including, *e.g.*, fiberglass insulation, treated wood or paper, and detergents. (*Id.*) The problem CEC had with identifying a potential source from a type of waste is that Modern accepted all of the common boron-containing waste products and did not categorize incoming waste by potential constituents contained therein. (*Id.*) Thus, boron-containing waste could have been in any part of the landfill. (*See id.*) As CEC summarized the issue, it would have been “not possible to quantify or locate specific boron[-]containing waste within the landfill cells without considerable cost and time expenditure.” (*Id.*) CEC ultimately concluded on this issue that “a majority of the boron is in the leachate.” (Def. Ex. 16.018.)

CEC’s analysis led it to conclude that “[m]inimal boron removal within the [wastewater treatment plant] is occurring and additional treatment processes will need to be assessed to be able to meet proposed permitted discharge limits.” (*Id.*) Naturally, then, the Phase I TRE report identified the two best alternative treatment processes that could bring Modern into compliance with the 2017 Permit’s boron

limits. (Def. Ex. 16.017.) The first was ion exchange, which involves removing boron using a special “resin.” (*Id.*) The second was reverse osmosis. (*Id.*) The report noted that further assessment of these process would be necessary. (Def. Ex. 16.018.)

4. Post-Phase I Discussions Between Republic and PADEP

Discussions between PADEP and Republic continued. In a letter dated June 20, 2019, Republic wrote to PADEP that its wastewater treatment facility was not originally designed to treat for osmotic pressure or boron. (Def. Ex. 19.001.) It then explained that “Modern [was] actively pursuing [p]lant upgrades” to address the issue, including a reverse osmosis system. (*Id.*) Republic estimated that with PADEP’s approval, design of this work, procurement, bidding, construction, start-up, and testing could be completed in 2020. (Def. Ex. 19.002.) The letter closed with a request for a meeting with PADEP to discuss a mutually acceptable compliance timeline. (*Id.*)

Republic sent a similar but more detailed letter on September 18, 2019. (Def. Ex. 21.) Republic again noted that its facility was not capable of treating for osmotic pressure and boron. (Def. Ex. 21.001.) For this reason, Republic’s letter requested an extension of the deadline to comply with the 2017 Permit’s boron limits. (Def. Ex. 21.001) The letter reassured PADEP that Republic was “actively pursuing [p]lant upgrades to address boron [and] [osmotic pressure],” reiterating

reverse osmosis as a possible solution. (Def. Ex. 21.002.) Republic's estimated timeline, however, was different this time. (*Id.*) It now estimated facility upgrades could be completed and running by August 2021. (Def. Ex. 21.002.) In the interim, Republic insisted that it was taking steps to reduce exceedances, which were mostly focused on installing flow meters and controls. (*Id.*) Nothing in the record suggests that PADEP granted Republic's requested extension. To the contrary, Republic renewed its extension request in March 2020, Def. Ex. 23.001, which PADEP rejected, PFF ¶ 36.

Two other discussions occurred between PADEP and Republic around the fall of 2019. At an October 31 meeting, Republic described for PADEP its planned corrective actions and improvements to address osmotic pressure violations. (Def. Ex. 25.004.) Two weeks later, Republic sent PADEP a proposed schedule for the installation of a reverse osmosis system at its facility. (*Id.*) The record contains no other details of these conversations.

5. Republic's Initial Request to Amend its WQM Permit

PADEP approved Republic's Phase I TRE report and notified Republic to proceed to Phase II on July 3, 2019. (Def. Ex. 29.006.) Rather than move directly to preparing and submitting its Phase II TRE report, Republic submitted on February 18, 2020, an application to amend the WQM permit that governed its wastewater treatment facility. (PFF ¶ 150.) Among other systems, Republic

wanted to install a reverse osmosis treatment system. (Def. Ex. 37.002.) Republic took this step before completing its Phase II TRE report because it was confident that reverse osmosis was the process it was going to use to achieve compliance.¹⁰ (Trial Tr. 395:21–396:6.) Republic’s submission of its WQM permit application marks the point when Republic definitively decided to build a reverse osmosis system. (PFF ¶ 33.)

On May 19, 2020, Republic withdrew its application on PADEP’s recommendation in order to revise a “disinfection system design addressing fecal coliform.” (Def. Ex. 24.001.) Republic did not expect that this withdrawal would delay PADEP’s review of its application. (*Id.*)

6. 2020 Consent Order and Agreement

As it investigated remedial actions, Republic was continuing to violate the 2017 Permit’s effluent limits for osmotic pressure as well as those for boron once they became effective. (Def. Ex. 25.016–18.) Between April 2018 and June 2020, Republic violated the osmotic pressure monthly average limit 23 times and the daily maximum limit 20 times. (*Id.*) As to boron, Republic violated the monthly average limits collectively 8 times and the daily maximum limits collectively 11 times between February and June 2020. (*Id.*) The inevitability of continuing

¹⁰ Republic’s area environmental manager Jacob Schmidt testified that Republic acted quickly to amend the WQM permit in order to be a “good neighbor.” (Trial Tr. 380:9–12.) The court does not credit this testimony. Schmidt did not start working for Republic until August 2020, six months after Republic sought this amendment. (Trial Tr. 361:2–5.)

violations and a desire for compliance timelines caused Republic to seek out and enter into a consent order and agreement with PADEP dated August 25, 2020 (“COA”). (Def. Ex. 25; Trial Tr. 223:10–12.)

Neither the COA nor any consent agreement with PADEP was a prerequisite to Republic installing a reverse osmosis system or any other remedial measures. (PFF ¶ 40.) Nevertheless, the COA set forth a compliance schedule that Republic agreed to follow. (PFF ¶ 37.) Republic first had to submit a WQM permit application within 30 days of the COA’s effective date. (Def. Ex. 25.007.) Once PADEP approved the new WQM permit, Republic had 180 days to award contracts for construction of the wastewater-treatment-facility upgrades. (*Id.*) Construction had to begin 60 days after Republic awarded the construction contracts and completed 330 days thereafter. (*Id.*)

The COA also set forth stipulated civil penalties for past violations that occurred between April 2018 and June 2020, and for violations following the COA’s effective date. (Def. Ex. 25.008–09.) For the past violations, Republic agreed to pay \$31,300. (Def. Ex. 25.008.) For subsequent violations, Republic agreed to pay penalties in amounts based on, in relevant part, the degree to which a violation exceeded the permit limits. (Def. Ex. 25.009, 19.) These stipulated penalties were relatively modest, ranging from \$125 to \$250 for violations of daily limits and \$250 to \$400 for violations of monthly average limits. (Def. Ex.

25.019.) Republic continued violating the boron and osmotic pressure effluent limits until the upgrades to its wastewater treatment facility were complete in April 2023. (*See* Doc. 24.) In the end, Republic paid a total of \$77,800 in civil penalties under the COA. (PFF ¶ 160.)

7. Republic Resubmits WQM Permit Application and Completes Phase II TRE Report

Pursuant to the COA, Republic timely refiled its WQM permit application in late September 2020. (Def. Ex. 28.) This application, like the previous one, sought approval for the installation of a reverse osmosis system. (Def. Ex. 28.005.)

Republic submitted its Phase II TRE Report about one month later, on October 29, 2020. (Def. Ex. 30.001.) The due date for this report was December 31, 2019. (PFF ¶ 41.) The relevant conclusions of this report—which CEC once more prepared—were similar to those in Republic’s Phase I TRE report. (*Compare* Def. Ex. 16.018, *with* Def. Ex. 29.022.) The report determined that best management practices and non-structural alternatives would be insufficient to make Modern’s boron discharges compliant. (Def. Ex. 29.022.) It also concluded that reverse osmosis would be the “most cost effective and efficient” treatment option. (*Id.*)

E. Construction of Republic's Reverse Osmosis System

It took some time for Republic's WQM permit to get approved. The record is somewhat ambiguous as to why this is the case. About seven months after resubmitting its WQM permit application, Republic submitted an amended application on April 30, 2021. (Def. Ex. 32.) Nothing in the record explains why Republic submitted this amendment. Some back and forth then ensued between Republic and PADEP. For example, PADEP sent a technical deficiency letter regarding the application to Republic on July 9, 2021, and Republic responded ten days later. (Def. Ex. 33.001.) Other discussions involving the application's technical deficiencies occurred, but it is unclear how many. (*See* Def. Ex. 33.004 (referencing a previous deficiency letter).) Ultimately, PADEP approved Republic's application on September 27, 2021. (Dec. Ex. 34.001.)

1. Republic's Decision to Approve Expenditures to Upgrade Wastewater Treatment Facility

Republic took no steps towards constructing the reverse osmosis system from the time PADEP approved its WQM permit to the beginning of March 2022. Around March 9, 2022, Republic personnel prepared a presentation for Republic leadership that made a business case for why it should make upgrades to its wastewater treatment facility. (PFF ¶ 178.) Specifically, it analyzed the financial sense of making the upgrades. (*See* Trial Tr. 401:6–9.) On the one hand, the upgrades would cost about \$23 million dollars. (PFF ¶ 179.) Only \$3.54 million

of this total cost was attributable to installing the reverse osmosis system and remediating violations of the boron and osmotic pressure limits. (Pl. Ex. 88.005.) The other \$20 million was attributable to other upgrades at the facility. (*See* Trial Tr. 243:19–244:6.) On the other hand, a reverse osmosis system would save Republic the cost of trucking and disposing (“T&D”) leachate offsite to other treatment facilities. (Def. Ex. 40.006.) Republic would have spent about 12 cents per gallon to treat leachate using the upgraded treatment facility; whereas it would have spent 23 cents per gallon to “T&D all liquids.” (*Id.*) This difference would yield Republic about \$4.4 million in annual savings.¹¹ (*Id.*) Republic approved the project to upgrade its wastewater treatment facility on March 14, 2022, a few days after this presentation. (Pl. Ex. 58.001.)

¹¹ Notwithstanding its own T&D analysis, Republic’s position at trial was that trucking—rather than dumping—all of its untreated leachate would have been impossible. (Trial Tr. 203:23–24.) This is because, according to Modern’s then-general manager, Tim O’Donnell (“O’Donnell”), “there wasn’t sufficient capacity in the market to take all that leachate.” (*Id.*) This belief seems to be a product more of assumption rather than thoughtful consideration. O’Donnell acknowledged that Republic neither (1) possessed documents that “address[ed] or discuss[ed] or concern[ed] the exhaustion of the ability to truck leachate” due to market capacity, Trial Tr. 204:21–205:14; nor (2) analyzed or did “any kind of thinking” about how much it would cost to truck leachate offsite rather than violate the 2017 Permit, Trial Tr. 247:5–10. Documentary evidence also disputes O’Donnell’s testimony. As noted above, Republic’s business-case presentation clearly contemplates the annual costs of T&D for “all liquids” despite “[d]isposal locations” being “limited.” (Def. Ex. 40.006.) Nothing in the presentation indicated that T&D of “all liquids” was impossible. (Trial Tr. 260:15–19.) Similarly, Republic’s project-approval form for the wastewater treatment facility’s upgrade listed two options Republic had if it did not complete the upgrade: Republic could either violate the COA or it could remove “*all* waste liquids . . . via T&D.” (Pl. Ex. 58.001 (emphasis added).) These documents strongly undermine the notion that market capacity posed a complete barrier to using T&D to mitigate the pollution of Kreutz Creek.

2. Contracting and Completing the Upgrades

Republic awarded the project contract to a contractor on March 25, 2022. (PFF ¶ 180.) Construction began on May 23, 2022. (PFF ¶ 181.) During construction, Republic’s contractor ran into some supply-chain issues caused by the COVID-19 pandemic.¹² (PFF ¶ 182.) As O’Donnell described them, the issues primarily involved longer wait times for equipment that the contractor was ordering. (Trial Tr. 255:4–13.) These supply-chain issues did not, however, cause any meaningful delays. (See Trial Tr. 255:22–265:2.) The system was still installed and operational by the COA-imposed deadline, April 25, 2023. (PFF ¶ 184; Trial Tr. 255:14–15.) From this point forward, Republic ceased violating the boron and osmotic pressure effluent limits in the 2017 Permit. (PFF ¶ 184.)

3. Republic’s Reverse Osmosis System and its Byproducts

Reverse osmosis is a “well accepted and known” wastewater treatment technology that existed long before the period relevant to this case. (Trial Tr. 417:20–22, 419:18–20.) Republic’s reverse osmosis system takes up an entire building at Modern and includes many components parts, including storage tanks, pH balancing systems, pumps, and valves. (Trial Tr. 370:1–6.) It can treat approximately 125 gallons per minute, *i.e.*, 175,000 gallons per day. (Trial Tr.

¹² O’Donnell initially testified that COVID-19 “slowed down the process” of being able to address exceedances. (Trial Tr. 165:14–167:7). When pressed to explain what he meant, he clarified that he was talking about construction-related delays, not pre-construction delays. (Trial Tr. 254:9–12.)

370:13–14.) At a most basic level, the system cleans water by forcing it through very fine mesh filters at high pressures. (PFF ¶ 132.) The process has two byproducts: clean water and the constituents that do not make it through the filters, known commonly as “RO reject.” (Trial Tr. 370:16–23.) RO reject is a wastewater that must be disposed of appropriately. (Trial Tr. 370:25–371:1.)

For the times relevant to this lawsuit, Republic utilized two RO-reject disposal options. For the first 464 days the reverse osmosis system was operational, Republic trucked the RO reject to publicly owned treatment works facilities. (PFF ¶ 46.) Republic then transitioned to solidification, which is the process of inducing a chemical reaction that transforms the RO reject into a solid mass that can be placed in the landfill. (PFF ¶ 175.)

F. PADEP’s Termination of the COA

In a letter dated March 19, 2024, PADEP notified Republic that it had (1) completed all corrective-action milestones listed in the COA; (2) demonstrated six consecutive months of compliance with its NPDES permit’s effluent limits; and (3) paid all stipulated penalties due under the COA. (Def. Ex. 74.002.) For these reasons, PADEP terminated Republic’s obligations under the COA as of the letter’s date. (*Id.*)

PROCEDURAL HISTORY

The Lower Susquehanna Riverkeeper Association (“LSRA”) sent a notice of intent to Republic, PADEP, and the United States Environmental Protection Agency (“EPA”), informing these entities of LSRA’s intent to file a citizen suit against Republic for its violations of the 2017 Permit. (Doc. 39-9, pp. 4–10.) After satisfying this jurisdictional prerequisite, LSRA filed the instant lawsuit.¹³ (Doc. 1.)

The complaint initially sought to hold Republic liable for its discharges of boron, osmotic pressure, and per- and polyfluoroalkyl substances (“PFAS”). (Doc. 1, pp. 6–7.)¹⁴ LSRA agreed, however, to dismiss its claims related to PFAS. (Docs. 45 & 46.) The complaint sought the following relief: (1) a declaration that Republic violated the CWA and the effluent limits of the 2017 Permit; (2) an order directing Republic to comply with the 2017 Permit; (3) an order directing “Republic to pay appropriate civil penalties for each violation of [the 2017 Permit]”; (5) attorneys’ fees and other reasonable expenses; and (6) other relief the court deems just and proper. (Doc. 1, p. 7.)

The parties stipulated that Republic was liable for 419 permit exceedances that occurred between July 2019 and April 2023. (Doc. 24.) Notwithstanding the

¹³ Before filing a citizen suit, a plaintiff must provide notice in the manner prescribed by 33 U.S.C. § 1365(b)(1) and 40 C.F.R. § 135.3(a).

¹⁴ For ease of reference, the court uses the page numbers from the CM/ECF header.

stipulation, both parties moved for summary judgment. (Docs. 38 & 56.) LSRA sought a ruling that Republic was liable for the aforementioned 419 permit exceedances as well as 30 exceedances that occurred between October 2017 and June 2019. (Doc. 38.) The court granted LSRA's motion with respect to the latter 419 exceedances but denied the motion with respect to the earlier 30 exceedances. (Doc. 66.) Republic sought summary judgment on the grounds that LSRA did not have standing, that the claims were statutorily precluded, and that a civil penalty was unwarranted as a matter of law. (Doc. 56.) The court rejected each argument and denied Republic's motion. (Doc. 66.)

The court then scheduled this matter for a bench trial. Prior to trial, Republic filed motions in limine. (Docs. 76, 87, 89.) One of those motions, Doc. 89, sought to preclude LSRA from seeking "injunctive relief requiring [Republic] to pay monies into a remedial fund to mitigate the harm caused to Kreutz Creek by its past violations of its water-quality based permit limits." (Doc. 90-2, p. 4.) The court denied that motion, Doc. 100, holding that LSRA was entitled to seek this relief, Doc. 99, pp. 4–10.

The bench trial occurred on February 23, 24, and 25, 2026. The court ordered the parties to file post-trial proposed findings of fact and conclusions of law. (Doc. 107.) Those documents having been filed and reviewed, the court is prepared to render judgment in this case.

JURISDICTION

This court has subject matter jurisdiction over this CWA citizen’s suit pursuant to 28 U.S.C. § 1331 and 33 U.S.C. § 1365. Venue is proper in this district as the place where Republic’s discharge source is located. 33 U.S.C. § 1365(c)(1).

LEGAL STANDARD

Congress passed the CWA “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a). Generally, the CWA prohibits the discharge of pollutants, *id.* § 1311(a), although not for those who do so in accordance with an NPDES permit, *id.* § 1342(a)(1). Those who violate a “condition or limitation” of an NPDES permit “shall be subject to a civil penalty not to exceed \$[68,445] per day for each violation.”¹⁵ *Id.* § 1319(d).

As § 1319(d)’s mandatory language suggests, “court[s] [are] obliged to assess penalties” for proven violations of the CWA. *Nat. Res. Def. Council, Inc. v. Texaco Refining & Mktg., Inc.*, 2 F.3d 493, 503 (3d Cir. 1993). In doing so, courts must consider six statutory factors: (1) “the seriousness of the violation or violations”; (2) “the economic benefit (if any) resulting from the violation”; (3)

¹⁵ The CWA provides a maximum penalty of “25,000 per day for each violation.” 33 U.S.C. § 1319(d). But, “[t]he Federal Civil Penalties Inflation Adjustment Act of 1990 . . . as amended by the Debt Collection Improvement Act of 1996 . . . authorizes the EPA to adjust that maximum penalty for inflation.” *Sackett v. EPA*, 566 U.S. 120, 123 n.1 (2012) (citations omitted). Using that authority, EPA has set the maximum applicable in this case at \$68,445. 40 C.F.R. § 19.4.

“any history of such violations”; (4) “any good-faith efforts to comply with the applicable requirements”; (5) “the economic impact of the penalty on the violator”; and (6) “such other matters as justice may require.” *Pub. Interest Research Grp. of N.J., Inc. v. Powell Duffryn Terminals Inc.*, 913 F.2d 64, 79 (3d Cir. 1990) (quoting 33 U.S.C. § 1319(d)).

The Third Circuit has endorsed two approaches to calculating a civil penalty using the § 1319(d) factors. *United States v. Mun. Auth. of Union Twp.*, 150 F.3d 259, 265 (3d Cir. 1998). The first is the “top down” approach whereby a court calculates the statutory maximum penalty and reduces it based on its evaluation of the six factors. *Id.* The second is the “bottom up” approach whereby a court calculates the violator’s economic benefit of noncompliance and adjusts the penalty “upward or downward” based on the remaining five factors. *Id.* Ultimately, the court has “wide discretion” to calculate a CWA civil penalty. *Id.* at 264; *accord County of Maui v. Hawaii Wildlife Fund*, 590 U.S. 165, 186 (2020) (noting that § 1319(d) “vests courts with broad discretion to set a penalty”); *Tull v. United States*, 481 U.S. 412, 427 (1987) (acknowledging that setting a CWA civil penalty involves “highly discretionary calculations”).

CONCLUSIONS OF LAW

As the court previewed for the parties, it will employ the “bottom up” approach in this matter. Therefore, the court first calculates the economic benefit

that Republic obtained from its noncompliance with the 2017 Permit and then considers whether the other § 1319(d) factors warrant an increased or decreased penalty.

A. Republic's Economic Benefit

The parties each proffered one expert witness at trial to opine as to what economic benefit Republic derived from its unlawful conduct. The court qualified both as experts in calculating the economic benefit of environmental noncompliance. (PFF ¶ 55; Trial Tr. 274:20–25.)

The experts generally agreed about how the figure should be calculated. Republic's economic benefit is ultimately the difference between the costs it actually incurred to achieve and maintain compliance beginning in April 2023 and those it would have incurred to achieve and maintain compliance beginning in July 2019, adjusted for present value and tax deductibility.¹⁶ (PFF ¶ 58.) The relevant compliance costs fall into three categories: capital investments, one-time non-depreciable expenditures, and annually recurring costs. (PFF ¶ 62.)

¹⁶ Republic insists that it is “irrational” to think “that Republic enjoyed an economic benefit commencing in July 2019,” since it would mean that Republic should have started upgrading its wastewater treatment capabilities “prior to the new limits coming into effect and any exceedances occurring.” (Doc. 113, p. 13.) Of course, though, Republic for years prior to July 2019 exceeded limits that had been in-effect since early 2017. Once Republic did so rather than expend the resources necessary to be law-abiding, it realized an economic benefit. If anything, Republic's economic benefit is not fully captured by this lawsuit.

The first two categories make up a small percentage of Republic's realized economic benefit. Republic's capital costs are the investments it made in constructing the reverse osmosis system and the solidification system for the RO reject. (PFF ¶ 63.) These costs totaled about \$3,537,533 for construction of the reserve osmosis system and \$815,565 for the solidification system. (PFF ¶¶ 63–64.) As to the second category, Republic only incurred one non-depreciable expenditure totaling \$36,257, which was related to the solidification system. (PFF ¶ 66.) Both experts treated these costs as delayed, Trial Tr. 293:21–294:9, which is to say they are costs Republic was going to incur at some point, PFF ¶ 199. The total value of the economic benefit derived from delaying these costs as of the time of this opinion is about \$162,794.¹⁷ The experts agree about this value. (*See* PFF ¶ 86; Trial Tr. 302:23–25.)

They significantly disagree, however, as to what economic benefit Republic derived by not incurring the annually recurring costs beginning in July 2019. LSRA's expert opined that as of July 2024, Republic's total economic benefit for avoiding annually recurring costs was \$3,938,534. (Pl. Ex. 107.001.) Republic's

¹⁷ Plaintiff's expert calculated this number to be \$141,338 as of July 19, 2024 (*i.e.*, the date of his expert report). (Pl. Ex. 107.001.) Column (g) of Plaintiff's Exhibit 107 provides the amounts by which the value of economic benefit increases each month after July 2024 for the three categories of cost. (*Id.*) Since Republic never disputed the accuracy of column (g), the court relied on the appropriate values therein to arrive at the present value of \$162,794.

expert believes the number to be closer to approximately \$500,000.¹⁸ The experts came to these conclusions looking at the same three categories of annual costs. (*See* Trial Tr. 66:8–70:15, 294:3–20.) The first category was the cost to truck RO reject out of Modern for the first 464 days that the reverse osmosis system was operational. (PFF ¶¶ 69, 70.) The prorated annual cost of this trucking in 2023 was about \$921,203. (Trial Tr. 68:2–5.) The second category was the cost to operate and maintain the reverse osmosis system. (Trial Tr. 68:22–69:1.) This cost as of August 2023 was about \$63,047 per month, *i.e.*, \$756,564 per year. (PFF ¶ 73.) The third category was the cost to operate the solidification system. (Trial Tr. 69:19–70:3.) That cost was \$578,000 per year as of June 2024. (Trial Tr. 70:8–13.)

The difference between the experts' conclusions stems from a disagreement about whether the annual operating costs should be considered (1) delayed, *i.e.*, Republic will have incurred them at some point; or (2) avoided, *i.e.*, Republic never will incur them.¹⁹ (PFF ¶¶ 199, 200.)

¹⁸ Republic's expert did not explicitly opine what Republic's economic benefit was vis-à-vis annually recurring costs. The court infers what his opinion must be by approximating the difference between what he thought the total economic benefit was as of May 2024, Trial Tr. 295:23–296:3, and what he agreed was the economic benefit of delaying the other two categories of costs as of July 2024, Pl. Ex. 107.001; Trial Tr. 302:23–25.

¹⁹ The experts agreed that the RO-reject trucking costs should be considered delayed. (Trial Tr. 294:3–9.) As LSRA's expert rationalized it, Republic would have incurred those costs for the same fixed, discrete period of time regardless of when the reverse osmosis system became operational. (*See* PFF ¶ 81.)

LSRA's expert treated them as avoided. (PFF ¶ 81.) His rationale was that since Republic will incur those costs for an indefinite duration, a perpetual gap will exist between how long Republic actually paid the costs and how long it should have paid the costs. (*See* Trial Tr. 456:16–457:7.) Since Republic will never “catch[] up,” it will avoid the costs it should have incurred. (*Id.*) LSRA's expert would have considered the operating costs delayed if Republic had stored the untreated leachate on site so that it could be treated once the new systems began operating. (*See* Trial Tr. 80:12–25.) In that scenario, Republic would have incurred the costs to treat the same amount of leachate regardless of when it built the reverse osmosis and solidification systems. (*Id.*)

Republic's expert treated the operating costs as delayed on the basis that Republic is now actually incurring the costs and will continue to do so. (Trial Tr. 294:10–20.) In his view, what PADEP required Republic to do was a key consideration. (Trial Tr. 328:20–24.) He would have treated the costs as avoided if Republic ignored a regulatory obligation to store the leachate and treat it with the new systems once they became operational. (Trial Tr. 327:23–328:10.) Since PADEP never required such measures here, Republic's expert did not think Republic avoided the costs of having to treat the leachate it discharged. (*See* Trial Tr. 329:8–17.)

The opinion of LSRA’s expert is more persuasive; the annual operating costs of the reverse osmosis and solidification systems are avoided costs. This conclusion aligns with EPA’s guidance to ordinarily treat such costs as avoided.²⁰ (Pl. Ex. 120.015.) In any event, it makes especially good sense here to treat the costs as avoided. Between July 2019 and April 2023, Republic did not incur recurring costs to treat 156 million gallons of leachate at Modern. (PFF ¶ 20.) That leachate traveled down Kreutz Creek to the Susquehanna River and eventually into the Chesapeake Bay and Atlantic Ocean. Republic will never incur the costs of treating those 156 million gallons. As LSRA’s expert noted, Republic will never catch up on those costs. (Trial Tr. 457:5–7.)

The court recognizes, as EPA does, that annually recurring costs can sometimes be delayed rather than avoided.²¹ (Pl. Ex. 120.015.) Yet, Republic’s expert simply offers no credible explanation for why a departure from the ordinary treatment of these costs is warranted. For one, his primary rationale—that the costs are delayed because Republic now incurs them—flips the ordinary presumption on its head. Under this logic, the only way any annually recurring cost would be considered avoided is if the violator never came into compliance.

²⁰ This guidance is located in the EPA’s BEN Help System. (Pl. Ex. 120.) BEN is a computer model developed by EPA used “to calculate the economic benefit a violator derives from delaying and/or avoiding compliance with environmental statutes.” (Pl. Ex. 120.003.)

²¹ The BEN Help System offers no examples of when annually recurring costs should be treated as delayed versus avoided or vice versa. (See PFF ¶ 92; Pl. Ex. 120.)

Moreover, the court does not credit the opinion that the annual operating costs would have been avoided only if Republic had disobeyed a PADEP directive to store and treat the 156 million gallons of leachate using the new systems. (Trial Tr. 327:23–328:10.) Republic was under a PADEP directive not to exceed its effluent limits. It could have satisfied this directive by installing a reverse osmosis system. Instead of doing so, it ignored its regulatory obligations and discharged noncompliant leachate into Kreutz Creek. There is no principled distinction between saying that costs are avoided because Republic ignored a regulatory directive to store and treat the leachate versus saying that costs are avoided because Republic ignored a directive to treat the leachate in the first instance. If Republic’s expert is right that the the former is true, then the latter would also be true.

Given these conclusions, Republic’s economic benefit from avoiding annually recurring costs of compliance equals \$4,536,326.²² Adding this amount to the economic benefit of delaying capital costs and one-time non-depreciable expenditures provides a subtotal of \$4,699,120. Both parties agree that Republic’s economic benefit should be decreased by the cost of Republic’s stipulated penalties. (*See* PFF ¶ 88; Trial Tr. 41:24–42:3.) This makes sense; Republic would not have paid those penalties had it been in compliance with the 2017

²² Plaintiff’s expert calculated this number to be \$3,938,534 as of July 19, 2024. (Pl. Ex. 107.001.) The court calculated present value as of July 2026 the same way it did for the other costs. *See* footnote 17, *supra*.

Permit. The present value of those penalties is approximately \$100,000.²³ In total, then, the economic benefit Republic derived from its unlawful conduct is approximately \$4,599,120.

B. Other § 1319(d) Factors

1. Seriousness of Republic's Violations

Courts tend to consider the following metrics in evaluating the seriousness of CWA violations: (1) the number and frequency of violations; (2) the degree of the violations; and (3) the actual or potential harm caused to the environment and the toxicity of pollutants. *See Powell Duffryn*, 913 F.2d at 79; *United States v. Righter*, No. 08-cv-0670, 2010 WL 4977046, at *3 n.3 (M.D. Pa. Dec. 2, 2010); *United States v. Mun. Auth. of Union Twp.*, 929 F. Supp. 800, 807 (M.D. Pa. 1996), *aff'd*, 150 F.3d 259 (3d Cir. 1998). Each of these metrics reveal that Republic's violations were severe.

Start with the number and frequency of violations. Republic violated its NPDES permit 419 times between July 2019 and April 2023. That is a substantial number of violations. *See Powell Duffryn*, 913 F.2d at 79 (agreeing with district court that 386 violations were “a very large number of violations”). These

²³ LSRA's expert estimated that the present value of the stipulated penalties was a little over \$100,000 as of February 2026. (Trial Tr. 79:10–13.) The court uses \$100,000 as a reasonable estimate of the stipulated penalties' current present value. *See Sierra Club, Lone Star Chapter v. Cedar Point Oil Co.*, 73 F.3d 546, 576 (5th Cir. 1996) (explaining a court need only make a “reasonable approximation” of economic benefit); *Powell Duffryn*, 913 F.2d at 80 (same).

violations occurred regularly and consistently. Between July 2019 and April 2023, Republic violated its osmotic pressure monthly limit in 42 of 46 possible months, *i.e.*, 91% of months. (PFF ¶ 49.) It violated the boron monthly average concentration limit in all 39 possible months and its boron average mass limit in 31 of those months, *i.e.*, 79% of months. (*Id.*) Indeed, the evidence demonstrates a troubling pattern of unlawful conduct. *See United States v. Smithfield Foods, Inc.*, 972 F. Supp. 338, 343 (E.D. Va. 1997), *aff'd in relevant part and vacated on other grounds*, 191 F.3d 516 (4th Cir. 1999) (describing violations in 69% of months at one outfall and 76% at another as “very frequent”).

This pattern is made worse by the fact that Republic violated its effluent limits to a considerable degree. For 50.5% of its daily maximum violations, Republic exceeded the effluent limits by over 100%. (*See* PFF ¶ 50.) For 34.5% of those violations, Republic exceeded the limits by between 200 and 600%. (*See id.*) Republic’s violations of its monthly average limits were no better. For about 51% of those violations, Republic exceeded the limits by over 100%. (*See id.*) For about 19.6% of those violations, Republic exceeded the limits by over 300%. (*See id.*) Clearly, a substantial percentage of Republic’s violations were egregious. *See PIRG v. Powell Duffryn Terminals, Inc.*, 720 F. Supp. 1158, 1161 (D.N.J. 1989), *aff'd in relevant part and vacated on other grounds*, 913 F.2d 64 (3d Cir. 1990) (describing violations as “very serious in nature” when 67% of them exceed limits

by 100% and 50.5% of them exceeded limits by 200%). Republic's average exceedances also demonstrate the severity of Republic's violations. On average, Republic violated its boron concentration average limit by 339%, its boron concentration maximum limit by 236%, its boron mass average limit by 44%, its boron mass maximum limit by 33%, its osmotic pressure average limit by 82%, and its osmotic pressure daily limit by 52%. (PFF ¶ 51.) Republic was not narrowly violating its effluent limits. In many instances, it was significantly violating them.

This unlawful conduct posed a serious risk of harm to the environment. Republic posits that this §1319(d) factor “weighs heavily against the imposition of a significant civil penalty because” LSRA failed to prove actual or potential harm to the environment. (Doc. 113, p. 21.) Republic is correct that LSRA failed to prove any actual, quantifiable harm to Kreutz Creek. But “actual harm to the environment . . . need not be proven to establish that substantial penalties are appropriate.” *Union Twp.*, 929 F. Supp. at 807.

Republic's conduct posed a significant threat of harm, and its argument to the contrary ignores reality. For one, Pennsylvania has deemed boron a toxic substance, 25 Pa. Code § 93.8c, which means it is or may “in sufficient quantity or concentration . . . become[] harmful to human, animal or plant life,” *id.* § 93.1. Given the potential dangers of toxic substances, “it is appropriate to consider the

toxic/conventional pollutant distinction when weighing the seriousness of a permit violation.” *Union Twp.*, 929 F. Supp. at 808; *accord Powell Duffryn*, 913 F.2d at 79. The court cannot ignore that Republic’s most egregious exceedances, on average, involved its boron limits.

Moreover, Republic specifically violated WQBELs. (*See* PFF ¶ 8.) These limits are designed “to ultimately protect the receiving water body so that [it] meet[s] state water quality standards.” (Trial Tr. 114:11–19.) Indeed, their aim is to promote a water quality that “assure[s] protection of public health, public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow[s] recreational activities in and on the water.” 33 U.S.C. § 1312(a). Or, as Pennsylvania defines its water-quality criteria, “water may not contain substances attributable to . . . discharges in concentration or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life.” 25 Pa. Code § 93.6(a). The effluent limits for osmotic pressure and boron, as WQBELs, are by definition intended to protect human and environmental health. Violating WQBELs, like Republic did, will necessarily create the potential for harm to human and environmental health.

In sum, the seriousness of Republic’s violations is unmistakable. They were numerous, frequent, severe, involved toxic substances, and created a real threat of

harm to Kreutz Creek and those who use it. A meaningful penalty is warranted under these circumstances.

2. Republic's History of Violations

Republic insists that this is a mitigating factor, because it has no history of violations involving boron or osmotic. (Doc. 113, p. 24.) It also contends that “[t]he purpose of this factor is to prevent recidivism and penalize repeat violators.” (*Id.*) The court agrees that this factor is intended, in part, to penalize repeat violators of the CWA. To its credit, no evidence suggests Republic has violated the CWA before the events giving rise to this case. *See United States v. Andrews*, No. 3:20-cv-1300, 2024 WL 6972657, at *15 (D. Conn. Mar. 27, 2024) (“The absence of any past violation of environmental laws can help mitigate the penalty.”).

But, this factor focuses on more than just recidivism. It takes into account “the duration of defendants' current violations, whether defendants have committed similar violations in the past, and the duration and nature of all of the violations, including whether the violations are perpetual or sporadic.” *Smithfield Foods*, 972 F. Supp. at 349; *accord City of Mountain Park v. Lakeside at Ansley, LLC*, No. 05-cv-2775, 2011 WL 13167917, at *3 (N.D. Ga. July 21, 2011); *Catskill Mountains Chapter of Trout Unlimited, Inc. v. City of New York*, 244 F. Supp. 2d 41, 52 (N.D.N.Y. 2003), *aff'd in relevant part and remanded on other grounds*, 451 F.3d

77 (2d Cir. 2006); *United States v. Gulf Park Water Co.*, 14 F. Supp. 2d 854, 864 (S.D. Miss. 1998). In other words, what is relevant under this factor is Republic’s “*entire* history of violations,” not its history of violations excluding the conduct giving rise to this case. *Pub. Interest Research Grp. of N.J., Inc. v. Magnesium Elektron, Inc.*, No. 89-cv-3139 1995 WL 461252, at *7 n.3 (D.N.J. Mar. 9, 1995) (emphasis added).

Republic’s violations of the 2017 Permit spanned nearly six uninterrupted years, between October 2017 and April 2023. This is a duration that courts have called “lengthy,” *Union Twp.*, 929 F. Supp. at 807, and “significant,” *Smithfield Foods*, 972 F. Supp. at 349. In fact, violations lasting half the length of Republic’s have been found to be “serious” enough to justify “a significant upward adjustment of the total penalty.” *Idaho Conservation League v. Atlanta Gold Corp.*, 879 F. Supp. 2d 1148, 1168 (D. Idaho 2012). This court comes to a similar conclusion. While nothing in the record suggests that Republic violated the CWA before 2017, its violations in this case were not limited in duration. They lasted for a prolonged period of time, and the court cannot ignore this when imposing a penalty. On balance, Republic’s history of violations weighs in favor of increasing the penalty.

3. Republic’s Good-Faith Efforts to Comply with 2017 Permit

Two primary considerations drive the analysis under this factor. The first is the swiftness with which Republic attempted to come into compliance with the

2017 Permit. *See, e.g., Union Twp.*, 929 F. Supp. at 808 (contemplating “delay in meaningfully confronting . . . permit violations”). The second is whether Republic took steps “to decrease [its] number of violations” or “to mitigate the impact of [its] violations on the environment.” *Smithfield Foods*, 972 F. Supp. at 349–50.

As to the swiftness of its remediation efforts, Republic was slow to respond meaningfully. Republic had data going back to 2010 suggesting its actual historical discharges often exceed the limits that the 2017 Permit would eventually place on boron and osmotic pressure. (Def. Ex. 16.012, 14.) Republic also knew as soon as it saw the draft NPDES permit in November 2016 that its wastewater treatment facility was unable to satisfy the effluent limits for osmotic pressure and boron. *See* footnotes 7 & 8, *supra*. Nevertheless, Republic did not even have conversations about remediation until July 2018. (Pl. Ex. 9.002.) From those July 2018 conversations, Republic concluded that “the *only* long-term remedy” for this noncompliance was installing a reverse osmosis system. (*Id.* (emphasis added).) Despite this knowledge, Republic did not definitively decide to install such a system until over one-and-one-half years later, in February 2020. (PFF ¶ 33.) Republic then took still another nearly two years before it actually approved the installation of the reverse osmosis system. (Pl. Ex. 58.001.) In all, Republic dragged its heels on the path towards compliance for about six years. This level of indifference “do[es] not speak highly of [Republic’s] good faith in this matter.”

Union Twp., 929 F. Supp. at 808 (faulting defendant for waiting about two years to take any remedial actions).

As for interim mitigation steps, Republic took none. Republic just kept discharging untreated leachate into Kreutz Creek. It is not clear that there was no interim mitigation possible. At least two internal documents suggest that Republic could have trucked the leachate offsite. (Def. Ex. 40.006; Pl. Ex. 58.001.) At the very least, Republic did not rule out the possibility of using trucking as a way to minimize its pollution. It could have analyzed the market capacity for trucked leachate, but it did not. (Trial Tr. 204:21–205:14.) Instead, Republic simply assumed that mitigating steps were impossible and decided that the expedient option would be to keep polluting Kreutz Creek. That was certainly far less expensive for Republic at the time.

Republic contends that several of its actions demonstrate good faith. These include their: (1) self-reporting; (2) investigation of improving controls and best management practices; (3) compliance with the TRE process; (4) compliance with the COA; (5) financial commitment to install the reverse osmosis system; and (6) on-time installation of the reverse osmosis system in the face of COVID-19-related issues with supply chain. (Doc. 113, pp. 15–21.) Looking at each of these actions, however, reveals that any good faith they do demonstrate does not outweigh the years of disregard that Republic exhibited.

First, Republic did timely notify PADEP of its compliance issues. (*See, e.g.*, Def. Ex. 10.002 (discharge monitoring report notifying PADEP of Republic first osmotic pressure violation).) In this way, Republic complied with its regulatory obligation under the 2017 Permit to submit reports of its compliance monitoring activities. (*See* Def. Ex. 9.017.) Yet, complying with reporting requirements hardly mitigates the fact that Republic took so long to address severe discharge violations. *Cf. Pub. Interest Research Grp. of N.J., Inc. v. Elf Atochem N. Am., Inc.*, 817 F. Supp. 1164, 1180 (D.N.J. 1993) (“As a general matter, discharge violations will be considered more ‘serious’ than monitoring violations.”).

Second, Republic offered testimony that it conformed with its general practice of investigating control and best management practices. (Trial Tr. 359:19–360:4.) Yet, the record is devoid of specific instances where Republic implemented controls or practices to mitigate its pollution. This is likely because it did nothing of the sort. Republic knew by July 2018 that such measures were going to be ineffective and that only a reverse osmosis system would achieve compliance. (Pl. Ex. 9.002.) It then took four years to finally install that system and did not actually consider interim mitigation measures in the meantime. The fact that Republic might have briefly pondered potential controls or best management practices does not lessen the significance of this delay.

Third, Republic's supposed compliance with the 2017 Permit's TRE process hardly evidences good faith. To start, the TRE process—which is designed, in short, to determine how a permittee can achieve compliance—was mostly unnecessary here. Republic knew early on that a reverse osmosis system was “the only long-term” way to become complaint. (Pl. Ex. 9.002.) As Republic's own actions demonstrate, it could have immediately sought a new WQM Permit to install the system, rather than wait for the TRE reports to tell them what they already knew. (Trial Tr. 395:8–12.) This is not to say that TRE reports are meaningless (they are not) or are not required by the 2017 Permit (they are). It is to say, however, that Republic could have moved quicker than it did. Even putting this aside, Republic was dilatory in completing the TRE process. It submitted its Phase I and II reports beyond their deadlines by about six-and-one-half months and eleven-and-one-half months, respectively. (PFF ¶¶ 34, 41.) If anything, Republic's conduct during the TRE process demonstrates nonchalance rather than good faith.

Fourth, Republic commendably did not violate the COA-imposed deadlines for achieving compliance. But this showing of good faith only takes Republic so far. The COA was not a prerequisite to Republic's achieving compliance with the 2017 Permit. (PFF ¶ 40.) Republic could have, and should have, moved towards installing a reverse osmosis system before it entered into the COA in August 2020,

i.e., two years after it knew it had to install such a system and four years after it knew compliance would be impossible. Given this gap, it is difficult to see how the COA, in Republic's words, "expedite[d] . . . the response to the exceedances." (Doc. 113, p. 19.)

Fifth, Republic applauds itself for spending \$23 million to upgrade its wastewater treatment facility. But this argument ignores that Republic spent a fraction of that sum (about \$3.5 million) to come into compliance with the boron and osmotic pressure limits. It also misses the point. By waiting to expend that money until after polluting for years, Republic realized a substantial economic benefit.²⁴ The fact that Republic eventually expended the money necessary to be in compliance with the law does not itself speak to its good-faith efforts to avoid exceedances.

Finally, Republic insists it deserves credit for completing the upgrades to its wastewater treatment facility on-time in the face of global supply-chain issues caused by the COVID-19 pandemic. Maybe so. But the court cannot ignore Republic's pre-construction efforts, which were not at all impacted by COVID-19. (*See* Trial Tr. 254:9–12.) Republic knew that it was going to be non-compliant in November 2016, did not decide to install a reverse osmosis system until February

²⁴ LSRA correctly points out that Republic's economic benefit would be greater if Republic would have had to spend \$23 million to install the reverse osmosis system. (Doc. 115, p. 10.) For this reason, too, Republic's boast about its \$23-million investment rings hollow.

2020, and did not begin installing the system until mid-2022. This timeline of events was not the unavoidable result of COVID-19, but rather a product of Republic’s own decisions. Indeed, the fact that Republic was capable of constructing and getting the improved system online so quickly in 2022-2023 underscores the impact of their delay in implementing this known solution.

In sum, Republic worked towards compliance—but not with the haste it should have. The court, therefore, will increase Republic’s penalty accordingly.

4. Economic Impact on Republic

The economic-impact factor can justify a reduced penalty to avoid “a ruinous effect” on a defendant. *Gulf Park Water*, 14 F. Supp. 2d at 868 (citing, *inter alia*, *Powell Duffryn*, 720 F. Supp. at 1165); *accord Andrews*, 2024 WL 6972657, at *16. Conversely, this factor can justify a heightened penalty when it is necessary to achieve “deterrence and/or punishment.” *In re Oil Spill by the Oil Rig “Deepwater Horizon” in the Gulf of Mexico, on April 20, 2010*, 148 F. Supp. 3d 563, 575 (E.D. La. 2015).

Neither party introduced evidence at trial concerning the economic impact a civil penalty would have on Republic. In their briefing, the parties agreed that this factor should have no effect on the court’s analysis. (Doc. 111, p. 19; Doc. 113, p. 23.) Accordingly, this factor does not weigh in favor of increasing or reducing Republic’s penalty.

5. Other Matters Justice May Require

Republic proffers two additional considerations that it contends warrant imposing a reduced penalty. It first argues that “the underlying goals of CWA civil penalties—present compliance and future deterrence—have already been accomplished here.” (Doc. 113, p. 25.) Republic’s premise is mostly correct. CWA civil penalties are meant to promote immediate compliance with the law and deter future violations. *Friends of the Earth, Inc. v. Laidlaw Envtl. Servs. (TOC), Inc.*, 528 U.S. 167, 185 (2000). This deterrent effect is aimed at both the particular defendant in a case (specific deterrence) and regulated entities at large (general deterrence). *Andrews*, 2024 WL 6972657, at *12; *United States v. Bunn*, No. 20-cv-107, 2021 WL 4865261, at *3 (D. Mont. Aug. 31, 2021); *United States v. Brace*, No. 17-cv-00006, 2020 WL 956460, at *4 (W.D. Pa. Feb. 27, 2020); *Trout Unlimited*, 244 F. Supp. 2d at 48; *Union Twp.*, 929 F. Supp. at 806; *Elf Atochem*, 817 F. Supp. at 1172.

Republic’s conclusion, however, is mostly wrong. Civil penalties may not be necessary to ensure Republic’s immediate compliance with the law, since it has gone without a violation since April 2023. But that does not mean civil penalties achieve no deterrent effect. To achieve specific and general deterrence, a civil penalty must do two things:

First, it must encompass the economic benefit of noncompliance to ensure that the violator does not profit from its violation of the law.

Second, [it] must include a punitive component in the form of a sum in addition to economic benefit which accounts for the degree of seriousness and/or willfulness of the violations. Without the second component, those regulated by the Clean Water Act would understand that they have nothing to lose by violating it.

Union Twp., 929 F. Supp. at 806. Republic’s request that the court not impose any additional penalty would significantly undermine § 1319(d)’s deterrence objective. Such an outcome would allow Republic to keep millions of dollars in economic benefit—resulting in no specific deterrence—and send the message to other regulated entities that serious violations of the CWA will be met with no consequences—resulting in no general deterrence. Neither of those scenarios is acceptable.

Republic next argues that imposing a civil penalty here “would amount to a usurpation of PADEP’s regulatory authority.” (Doc. 113, p. 25.) It contends that PADEP determined an appropriate penalty for Republic and this court should not second guess PADEP’s “well-founded regulatory actions.” (*Id.* at 26.) This argument is unavailing.

To be sure, Congress envisioned that primarily states would bring CWA enforcement actions and did not want citizen suits impeding the states’ efforts. *Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found., Inc.*, 484 U.S. 49, 60 (1987). This is why such suits generally “are proper only ‘if the Federal, State, and local agencies fail to exercise their enforcement responsibility.’” *Id.* (quoting S.

Rep. No. 92-414, at 62 (1971)). Otherwise, citizens suits could “curtail[] considerably” a state agency’s “discretion to enforce the [CWA] in the public interest.” *Id.* To avoid this, the CWA bars citizen suits when “a State has commenced and is diligently prosecuting an action under a State law comparable to [§ 1319(g)].” 33 U.S.C. § 1319(g)(1)(A). This is the standard Congress decided was the proper balance between permitting citizen suits and not usurping state enforcement authority.

The court already held that § 1319(g)(1)(A) did not bar this case, since the Clean Streams Law—under which PADEP issued the COA—was not “comparable” to the CWA. (Doc. 65, pp. 16–20.) Implicit in this holding is a determination that LSRA’s citizen suit would not usurp PADEP’s enforcement authority. Given this holding, letting Republic off the hook would be, if anything, a usurpation of Congress’s authority to determine when a citizen suit and resulting civil penalties are appropriate and necessary.

6. Total Penalty

A substantial penalty that is greater than the value of Republic’s economic benefit is warranted. LSRA argues that the penalty here should be substantially identical to that of *Union Township*. (Doc. 111, pp. 20–22.) Specifically, LSRA calculated the *Union Township* defendant’s penalty to be equal to \$854 per day of violations, not including economic benefit. (*Id.* at 21.) LSRA wants the court to

impose the same \$854 penalty for every day Republic violated the 2017 Permit, which LSRA claims totals 3,711 days. (*Id.* at 5.) LSRA arrives at that number of days by adding the number of Republic’s daily violations (307) and the number of days in each month that Republic tallied a monthly violations (3,404). (*Id.*) In total, LSRA would have Republic pay a penalty equal to its economic benefit plus the product of \$854 and 3,711, which equals about \$7.5 million. (*Id.* at 21.)

The court agrees that *Union Township* is a helpful comparator but disagrees with LSRA’s methodology for calculating an appropriate penalty. In short, the court is hesitant to make Republic’s penalty a function of violations days, because LSRA has failed to explain why all of Republic’s monthly average violations warrant the maximum number of violations days. This court must exercise the discretion to assess more than one violation day for a monthly average violation “based on whether [those] violations are already sufficiently sanctioned as violations of a daily maximum limit.” *United States v. Allegheny Ludlum Corp.*, 366 F.3d 164, 169 (3d Cir. 2004). LSRA makes no argument on this point.

Rather than adopt LSRA’s methodology, the court will impose a penalty relative to Republic’s economic benefit. This approach better aligns with the logic of the “bottom up” approach and equally serves the twin goals of specific and general deterrence. Analogous cases reveal that courts have imposed penalties equal to between about 1.5 times and 3 times a defendant’s economic benefit. *See*

Atlanta Gold, 879 F. Supp. 2d at 1167, 1169 (approximately 1.43 times); *Smithfield Foods*, 972 F. Supp. at 349, 354 (3 times); *Union Twp.*, 929 F. Supp. at 806, 809 (approximately 2 times). Upon review of these cases and the § 1319(d) factors, a civil penalty worth roughly double Republic’s economic benefit is warranted here. Accordingly, the court will impose a penalty in the amount of \$9,200,000.

C. Form of Relief

One final issue is left to be addressed. LSRA asks that the court order Republic to establish a remedial fund to alleviate harm to Kreutz Creek rather than pay a civil penalty to the United States Treasury.²⁵ (Doc. 111, pp. 23–25.) This fund would, if LSRA had its way, sponsor projects supervised by the Watershed Alliance of York (“WAY”).

The court has the power to order the creation of such a fund “through its equitable jurisdiction.” *Powell Duffryn* 913 F.2d at 82. But it may not do so unless “there is a nexus between the harm and the remedy.” *Id.*

LSRA has failed to establish this nexus. At trial, the Lower Susquehanna Riverkeeper and LSRA’s executive director, Ted Evgeniadis (“Riverkeeper”), vaguely described WAY’s projects. (See Trial Tr. 116:6–11, 118:18–119:12.) He

²⁵ A “civil penalty” under § 1319(d) is payable only to the Treasury. *Powell Duffryn*, 913 F.2d at 82.

noted that the projects include “stream[-]channel and habitat[-]restoration projects,” “infrastructure upgrade[s]”, and flood-mitigation projects. (Trial Tr. 116:6–11.) The Riverkeeper did not elucidate how any of these projects are in any way designed to treat the harm caused by high levels of osmotic pressure or boron. (See Trial Tr. 116:6–11.) Instead, he opaquely explained that the projects have “different goals,” including “stream bank and habitat restoration,” reducing stream velocity and energy, “improv[ing] aquatic life,” “creating wetland environments,” and other things meant to “enhance water quality.” (Trial Tr. 118:21–119:12.)

LSRA’s position seemingly is that a sufficient nexus exists here because Republic violated standards meant to maintain water quality and the projects that the remedial fund would sponsor will address water-quality issues in Kreutz Creek. (Doc. 115, p. 14.) That is too high a level of generality at which to establish a nexus. Surely, there are myriad water-quality issues the projects could address that have nothing to do with increased boron and osmotic pressure levels. To satisfy *Powell Duffryn*’s nexus requirement standard, LSRA had to establish that WAY’s projects would address the harms posed by high levels of boron or osmotic pressure. It did not, so it is not entitled to the equitable relief it seeks.

CONCLUSION

For the foregoing reasons, the court will impose a civil penalty, pursuant to 33 U.S.C. § 1319(d), against Republic in the amount of \$9,200,000. An appropriate order and judgment will issue accordingly.

s/Jennifer P. Wilson
JENNIFER P. WILSON
United States District Court Judge
Middle District of Pennsylvania

Dated: July 27, 2026