



January 30, 2015

Via Letter and E-Mail

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NYSDEC
625 Broadway, 4th floor
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Via e-mail to DEPPermitting@dec.ny.gov

Re: Proposed Renewal of SPDES Permit NY0001333 - Cayuga Generating Station (Cayuga Operating Company)

Dear Ms. Czubernat:

Please accept the following comments of the Sierra Club and Earthjustice regarding the New York Department of Environmental Conservation's ("DEC") proposed administrative renewal of the State Pollutant Discharge Elimination System ("SPDES") permit for the AES Cayuga LLC Generating Station ("Cayuga Plant"). Pursuant to the notice provided on DEC's website, these comments are timely filed by the January 30, 2015 comment deadline.

As detailed below, the proposed administrative renewal of the SPDES permit fails to satisfy the requirements of the Clean Water Act and New York regulations implementing that Act for at least the following reasons:

- DEC has not undertaken a five year review of the permit for conformance with federal and state standards as required under 6 NYCRR 750-1.19(a);
- DEC has not conducted a full technical review of the permit within the meaning of ECL 17-0817(4) in the past five years, in violation of federal law and in violation of DEC's past acknowledgment of the need for a full technical review not later than 2014; and
- DEC has not explained or justified the priority ranking assigned to Cayuga, which is most assuredly incorrect.
- The SPDES permit fails to require Cayuga to terminate all discharges through leaks, seeps, and unpermitted outfalls from the coal ash landfill and the coal pile;

- The SPDES permit fails to include the technology-based effluent limitations required by the Clean Water Act for a number of waste streams;
- The SPDES permit fails to conform to EPA’s new coal ash landfill regulations;
- The SPDES permit does not set a compliance schedule to abate ongoing violations of effluent limitations at permitted outfalls, including the flue gas desulfurization (“FGD”) wastewater outflow (01F);
- The SPDES permit fails to satisfy the requirements of DEC’s Cooling Water Intake Structure Best Technology Available (“BTA”) Policy and Section 316(a) and (b) of the Clean Water Act;
- The SPDES permit fails to require that the Cayuga plant convert to dry handling as the best available technology for bottom ash;

In light of the permit’s patent deficiencies and failures to comply with the technology and water-quality based requirements of the Clean Water Act, it is arbitrary, capricious and an abuse of discretion for DEC’s regional water engineer to authorize renewal of this SPDES permit without a full technical review.¹ In order to remedy these deficiencies and comply with the applicable regulatory requirements, DEC must conduct a full technical review, modify the SPDES permit to address each of the issues summarized above and discussed below, and issue a draft revised SPDES permit for public review and comment.

Based on our review of applicable regulatory standards, current permit requirements, discharge monitoring reports, and other available information, it is clear that the Cayuga Plant must significantly upgrade its existing water pollution controls in order to comply with the Clean Water Act and New York regulations. Specific upgrades that need to be made if the plant is to continue operating² include:

- upgraded treatment for FGD wastewaters and other wastewaters to reach zero or near-zero levels of toxic metals in discharge, including mercury and dissolved metals such as selenium;

¹ See 6 NYCRR 750-1.16(f) (“If the Regional water engineer determines that full technical review of a SPDES permit is necessary to include provisions in or make changes to the permit necessary to comply with the Clean Water Act, such renewal shall require full technical review.”).

² In 2012, AES Cayuga LLC notified the New York Public Service Commission of its intent to retire the Cayuga Plant because it is uneconomic to operate. The operation of the plant is currently subsidized by ratepayers under a Reliability Support Services Agreement (“RSSA”) that is intended to keep the plant in service only until transmission grid reliability issues that could result from the retirement of the plant are addressed. Assuming that the Cayuga Plant is going to retire at the end of the term of the RSSA, which is scheduled to end in July 2017, it would be unreasonable to require ratepayers to fund further capital investments in the plant. As such, a legally binding commitment to retire the Cayuga Plant in July 2017 would be another way to achieve compliance with the relevant regulatory standards so long as unpermitted discharges from the coal ash landfill are ended and remediated.

- dry handling system for bottom ash;
- upgraded treatment of landfill leachate prior to discharge to Cayuga Lake;
- closed-cycle cooling systems to reduce impingement, entrainment, and thermal impacts; and
- remedial action to address ongoing releases of toxic pollutants from the coal ash landfill to groundwater that is directly hydrologically connected to Milliken Creek and Cayuga Lake.

The Cayuga Plant has been allowed to freely pollute Cayuga Lake, Milliken Creek, and surrounding groundwater for far too long. Both the law and the public's interest in a clean and healthy environment require that DEC take action now to minimize this pollution by engaging in a full technical review and modification of the SPDES Permit for the Cayuga Plant, rather than delaying resolution of these issues through administrative renewal of a legally and factually inadequate permit.

I. THE CAYUGA PLANT AND ITS SPDES PERMIT

The Cayuga Plant is a 305 megawatt two-unit coal-fired electric generating plant built in the 1950s. At present, it is owned and operated by Cayuga Operating Company, LLC. The Cayuga Plant is located at 228 Cayuga Drive in Lansing, New York, along the eastern shore of Cayuga Lake, approximately 12.5 miles from the southern end of the lake. DEC authorized the discharge of water pollution from the Cayuga Plant pursuant to the conditions of SPDES permit number NY-0001333.³ DEC last renewed that SPDES permit in 2009, with an effective date of January 1, 2010, and an expiration date of December 31, 2014. On December 2, 2014, DEC finalized a department initiated modification (“DIM”) to add provisions regarding cooling water intake structures to the SPDES permit. In modifying the permit, DEC did not substantively review or modify any other aspect of the permit outside of the provisions pertaining to the plant's cooling water intake structures.

At issue in the SPDES permitting for the Cayuga Plant are three categories of waters – cooling waters, process wastewaters, and coal ash landfill leachate and runoff. With regard to cooling water, the Cayuga Plant withdraws up to 245 million gallons of water per day from Cayuga Lake,⁴ which the plant chlorinates, uses for cooling, and then discharges back into the lake at elevated temperatures. In the process of withdrawing such water, the Cayuga Plant kills fish and other aquatic organisms that are sucked into the plant's cooling system (a process referred to as “entrainment”) or that are crushed

³ See DEC, State Pollutant Discharge Elimination System (SPDES) Discharge Permit # NY-0001333, (Dec. 29, 2009) (“Cayuga SPDES permit”).

⁴ See Cayuga SPDES Permit at 4 of 28.

against the plant's intake structure during the intake process (a process referred to as "impingement"). The Plant's discharge of heated and chemically treated water back into Cayuga Lake causes further stress to the lake's ecosystem. The December 2014 DIM requires Cayuga Operating Company to, among other things, install cylindrical wedge-wire screens ("CWWS") and variable speed pumps to reduce the entrainment and impingement of fish.

Second, the Cayuga Plant uses approximately two million gallons of water per day from Cayuga Lake for chemical and abrasive cleaning of equipment, the flue gas desulfurization ("FGD") process used to reduce air pollution emissions, transporting wastes, and other industrial purposes. The bulk of these process wastewaters are treated through sedimentation and chemical precipitation and then discharged back into Cayuga Lake. FGD wastewater is pre-treated in its own treatment apparatus before heading to the main treatment equipment to be treated and discharged with other process wastewaters. Before being discharged, these process wastewaters mix with coal pile runoff and other stormwater that has been contaminated by contacting materials and wastes at the site. The wastewaters that are ultimately discharged contain a variety of pollutants that damage the ecosystem of Cayuga Lake and can adversely impact public health, including toxic metals such as arsenic, cadmium, chromium, mercury, and selenium.

A third category of water at issue in this SPDES permit is contaminated leachate and runoff from the coal ash landfill for the Cayuga Plant. Such leachate and runoff are channeled to a pond west of the landfill and periodically discharged to Cayuga Lake via outfall 013. Aside from residence time in the pond (i.e. sedimentation), there is no treatment of the coal ash leachate that is discharged to Cayuga Lake via outfall 013. The SPDES permit does not authorize Cayuga Operating Company to discharge pollution from the coal ash landfill or the associated sedimentation pond into groundwater or to convey pollutants via groundwater into waters of the United States. As discussed in Section III below, however, there is strong evidence that the Cayuga Plant does so in contravention of the Clean Water Act.

II. DEC CANNOT ADMINISTRATIVELY RENEW THE SPDES PERMIT AS PROPOSED; THE PERMIT MUST BE SUBJECTED TO FULL TECHNICAL REVIEW AND MODIFIED TO SATISFY THE REQUIREMENTS OF THE CLEAN WATER ACT AND STATE LAW.

DEC cannot administratively renew the Cayuga SPDES permit in its current form. For all of the reasons discussed below, it is clear that the Cayuga SPDES permit fails in a number of critical ways to ensure compliance with the Clean Water Act's technology and water quality based standards, in violation of 33 U.S.C. § 1301, 40 C.F.R. § 122.44, and 6 NYCRR § 750-1.11. The permit's failure to address ongoing exceedances of effluent limitations and permit terms and conditions, the failure to acknowledge and regulate unpermitted discharges, the inadequate BTA determination for the cooling water intake structure, and the failure to set technology and water quality based effluent limitations

that control discharges of mercury, toxic metals from the coal ash landfill, and FGD scrubber discharge all make it arbitrary, capricious, an abuse of discretion, and contrary to law for DEC to administratively renew this unlawful permit.⁵

In addition, there are at least three other procedural legal problems with an administrative renewal. First, DEC has not undertaken a five year review of the permit for conformance with federal and state standards as required under 6 NYCRR 750-1.19(a). As explained in Section V below, such a review would require DEC to examine, at a minimum, whether the permit is consistent with and ensures compliance with the new federal RCRA regulations governing coal ash landfills. The five year review would thus lead inexorably to a full technical review.

Second, the Department also has not conducted a full technical review of the permit within the meaning of ECL 17-0817(4) in the past five years even after acknowledging the need for such a review not later than 2014. That in itself is arbitrary, capricious, and an abuse of discretion. In addition, DEC's practice of using the Environmental Benefit Permitting System ranks to administratively renew permits without a full technical review at least once every five years is a violation of federal law. ECL § 17-0817 authorizes DEC to separate the act of full technical review from the act of permit renewal. But it cannot and does not authorize DEC to void the requirements of the Clean Water Act, which requires that permits be issued for a term of not more than five years, after which the permit writer is to develop a new NPDES permit following the full suite of procedures for permit development set forth in the Act and its implementing regulations.⁶ The Act itself does not provide for administrative renewals or distinguish between the process for reissuing an existing NPDES permit and issuance of a new NPDES permit, and the state cannot short circuit that approach by simply administratively renewing permits without undertaking the requisite analysis at least every five years.

As “the cornerstone of the Clean Water Act’s pollution control scheme,”⁷ every element of the federal NPDES program – including the permit’s five year expiration and renewal requirement – is designed to achieve gradual, iterative, but continual progress towards restoring the Nation’s waters. The effluent limitations contained in a NPDES permit are based on EPA guidelines that are continually revisited and improved by law, and are designed to push existing industrial polluters like the Cayuga Plant into meeting ever more stringent standards of performance.⁸ As pollution control technologies improve, higher standards are incorporated into the NPDES permits of existing facilities upon renewal. This makes timely re-evaluation and renewal of NPDES permits a linchpin of the Clean Water Act.

The entire statutory design is thwarted when a permitting agency delays full technical review of major NPDES permits for over a decade, as DEC proposes to do here.

⁵ 6 NYCRR § 750-1.16(f).

⁶ 33 U.S.C. § 1342(b)(1)(B).

⁷ *NRDC v. EPA*, 822 F.2d 104, 108 (D.C. Cir. 1987).

⁸ 33 U.S.C. § 1314(b).

The U.S. Court of Appeals for the First Circuit has recently reaffirmed that “in regular intervals, the Act requires reevaluation of the relevant factors, and allows for the tightening of discharge conditions. The Act’s goal of ‘eliminat[ing]’ the discharge of pollutants by 1985 underscores the importance of making progress on the available data.”⁹ The importance of timely full technical reviews and the illegality of DEC’s administrative renewal process is made all the more clear in a situation like the one at the Cayuga Plant, where the permit fails to address obvious violations of the federal and state regulations that have themselves been updated and improved since the permit last underwent technical review seven years ago.

A third problem with the proposed administrative renewal is that DEC has not complied with the administrative renewal process set forth in 6 NYCRR § 750-1.16. In order to administratively renew a SPDES permit, the Department must make available to the public, among other things, the permit’s priority ranking score and the existing permit application, draft permit, fact sheet, priority ranking sheet and a description of the SPDES priority ranking system.¹⁰

DEC has not made the priority ranking sheet for the Cayuga Plant available despite three public requests for a copy.¹¹ Instead, DEC informed a requester that “[t]he renewal does not reference an updates Fact Sheet of Priory Ranking Score as the permit was just modified in the December 2014.”¹² We are unsure what this means, but the requirement to provide a priority ranking fact sheet is an absolute requirement of the Department’s regulations.

By not providing an explanation of the priority ranking for the Cayuga Plant, DEC is depriving the public of the opportunity to submit fully informed comments upon the permit’s priority ranking score.¹³ In light of DEC’s failure to explain Cayuga’s unaccountably low priority ranking score, we clarify that our request below for a public hearing on this permit application is also a request for a hearing on the permit’s priority ranking score.

There is no way for the public to know DEC’s reasons for the priority rank assigned to the Cayuga SPDES permit because the Department has not explained itself. Nonetheless, and apart from the reasons above that a full technical review is necessary as a matter of law, it is also readily apparent that the Cayuga Plant’s EBPS ranking should be significantly higher than the 35 points assigned in the 2014/2015 EBPS list, for which the plant was assigned a rank of 376th out of 858 facilities.

⁹ *Upper Blackstone Water Pollution Abatement Dist. v. United States EPA*, 690 F.3d 9, 22 (1st Cir. 2012).

¹⁰ 6 NYCRR § 750-1.16(c)(7)

¹¹ DEC received e-mail requests for the priority ranking fact sheet dated Dec. 18, 2014 and Jan. 13, 2015 from Edan Rotenberg, Super Law Group on behalf of Sierra Club and a request dated Jan. 23, 2015 from Brian Eden, Vice-Chair, Tompkins County Environmental Management Council. These three requests are attached as Exhibits 1, 2, and 3, respectively.

¹² DEC’s response is contained in the e-mail thread containing Brian Eden’s Jan. 23, 2015 request for a priority ranking fact sheet, which is attached as Exhibit 2.

¹³ 6 NYCRR § 750-1.16(c)(8).

It is arbitrary, capricious, and an abuse of discretion for DEC to rely on the Cayuga Plant's EBPS score of 35 in administratively renewing the permit as that score is obviously incorrect. The EBPS priority ranking procedures set forth in DEC's Program Policy document "DOW 1.2.2 Administrative Procedures and the Environmental Benefit Permit Strategy for Individual SPDES Permits" make it clear that Cayuga's rank should be significantly higher.

First, the permit's rank should be significantly higher based on longevity alone. DEC's policy document explains that "The Permit Longevity Score is based on the length of time that has elapsed since the last time the permitted facility was required to submit a Long Form SPDES permit application together with comprehensive effluent sampling. . . The Permit Longevity Score for Major Permits (Class 03 and 05) add 5 points per year for years 1 through 5, 10 points per year for years 6 through 10, and 15 points per year for years 11 and up."¹⁴ Cayuga last submitted a long form application with comprehensive sampling on November 7, 2006, more than 8 years ago. Thus, on longevity alone Cayuga's EBPS score should be at least 55 points, which would elevate its ranking to 200.

Second, DEC's EBPS policy identifies other relevant factors at Cayuga that raise the permit's ranking:

- Factor 4: The permit needs to be modified to add industrial Best Management Practice (BMP), Pollutant Minimization Program (PMP), or storm water requirements.¹⁵ As noted above, the Cayuga SPDES permit must be modified to address recurrent and ongoing and stormwater violations at outfalls 005 and 009. This is a factor of primary importance because "the storm water discharges from the industry [are] known to contain toxics."¹⁶ Thus this condition is assigned a Factor Value of 10. The modifications to end Cayuga's discharge of excessive suspended solids and toxic metals to Cayuga Lake, including mercury at concentrations up to 35 ng/L, is entitled to a Water Quality Enhancement Multiplier of 5 because reducing the discharge of mercury to Cayuga Lake, which DEC has stated is impaired for mercury like every other surface water in New York, "will significantly reduce but not eliminate a . . . water use impairment."¹⁷ Accordingly, the Factor 4 Score for Cayuga should be 50 points for modifications to BMPs associated with outfall 005 and 50 points for modifications to BMPs associated with outfall 09, for a total score of 100.
- Factor 5a: Permit needs to be modified for at least one bioaccumulative toxic parameter: mercury.¹⁸ More stringent mercury limitations are required at outfalls 01F, 013 (not counting modifications to outfall 005, which also discharges

¹⁴ DEC, *DOW 1.2.2 Administrative Procedures and the Environmental Benefit Permit Strategy for Individual SPDES Permits*, revised January 2012.

¹⁵ *Id.* at 15, Table 1.

¹⁶ *Id.* at 36, Attachment 4: Guidance for Use of Permit Priority Ranking Factors.

¹⁷ *Id.* at 12.

¹⁸ *Id.* at 15, Table 1.

abnormally high levels of mercury but is addressed at Factor 4). The Factor Value for this modification is 10, and as above, the Water Quality Enhancement Multiplier is 5. Thus, the Factor 5a Score should be 50 points for a mercury limit modification at outfall 01F and 50 points for a modification at outfall 013, for a total Factor 5a score of 100.

- Factor 5b: “The permit is identified as needing to be modified to add or change an important effluent parameter because . . . a new substance has been identified in the effluent which is important to the achievement of best usage or a water quality standard in the receiving water body.”¹⁹ As noted, leakage from the coal ash landfill is causing exceedances of groundwater quality standards for arsenic and selenium, as well as a number of other parameters. Modification to cut off discharge of each of these parameters is assigned a Factor Value of 5,²⁰ and a Water Quality Enhancement Multiplier of 10 because “the modification will eliminate a water quality standards violation, water use impairment or correct other serious environmental problems.”²¹ Thus the Factor 5b score should be 50 points for modifications to address arsenic groundwater contamination at the landfill and 50 points for modifications to address selenium groundwater contamination at the landfill, for a total Factor 5b score of 100.
- Factor 5c: Permit needs to be modified for other parameters.²² At a minimum, as noted above, the permit must be modified to require inclusion of a technology-based effluent limit for boron. This modification carries a Factor Value of 2 and a multiplier of 1, for a total Factor 5c score of 2.
- Factor 6: Permit needs to be adjusted for a new wastewater treatment technology requirement, for a new EPA technology regulation, or a change in Best Professional Judgment (BPJ) evaluation.²³ As explained above, at a minimum the Cayuga SPDES permit must be adjusted for dry ash handling on a BPJ basis. This change merits a Factor Value of 2, and a Water Quality Enhancement Multiplier of 5 because it “will significantly reduce but not eliminate a . . . water use impairment.”²⁴ The total Factor 6 score should be 10 points.
- Factor 7: As noted above, the permit must be modified to address non-compliance with effluent limits and permit conditions at outfalls 005, 009 and 01F (TSS and other pollutant exceedances) and non-compliance with Additional Requirement 6 (operation of landfill in compliance with Part 360 and RCRA). Each of these four modifications merits a Factor Value of 10, for a total Factor 7 Score of 40.

¹⁹ *Id.* at 36, Attachment 4: Guidance for Use of Permit Priority Ranking Factors.

²⁰ *Id.* at 15, Table 1.

²¹ *Id.* at 12.

²² *Id.* at 36, Attachment 4: Guidance for Use of Permit Priority Ranking Factors.

²³ *Id.* at 36, Attachment 4: Guidance for Use of Permit Priority Ranking Factors.

²⁴ *Id.* at 12.

- Factor 12: The Department has received substantive (and substantial) public interest in the facility’s discharge.²⁵ This merits a Factor Value of 10, for a total Factor 12 Score of 10.
- Factor 13: This is a permit for a power plant and, for the reasons set forth above, it requires modification for fish impingement.²⁶ Cayuga is the largest cause of impingement, entrainment, and thermal discharge on Cayuga Lake and addressing those adverse environmental impacts would help correct serious environmental problems. Thus, the Factor Value of 10 should be enhanced by a Multiplier of 10,²⁷ for a total Factor 13 Score of 100.
- Factor 14: Longevity. As calculated above, the Factor Score should be 55 because the last long form application with sampling was submitted in 2006.

Sierra Club provides the following table score for DEC’s convenience.

Factor & Description	Factor Value	Multiplier	Score
4 - permit needs to be modified to add BMP, PMP, or storm water requirements at outfall 005	10	5	50
4 - permit needs to be modified to add BMP, PMP, or storm water requirements at outfall 005	10	5	50
5a - Permit needs to be modified for mercury at outfall 01F	10	5	50
5a - Permit needs to be modified for mercury at outfall 013	10	5	50
5b - Permit needs to be modified for substance important to water quality – arsenic	5	10	50
5b - Permit needs to be modified for substance important to water quality – selenium	5	10	50
5c - Permit needs to be modified to include boron effluent limitation at outfall 013	2	1	2
6 - Permit needs to be adjusted for wastewater treatment technology – dry ash handling	2	5	10
7 - Permit needs to be adjusted due to noncompliance: outfall 005	10	1	10
7 - Permit needs to be adjusted due to noncompliance: outfall 009	10	1	10
7 - Permit needs to be adjusted due to noncompliance: outfall 01F	10	1	10
7 - Permit needs to be adjusted due to noncompliance: Additional Requirement 6	10	1	10

²⁵ *Id.* at 36, Attachment 4: Guidance for Use of Permit Priority Ranking Factors.

²⁶ *Id.* at 36, Attachment 4: Guidance for Use of Permit Priority Ranking Factors.

²⁷ *Id.* at 12.

12 - Substantial public interest	10	1	10
13 - modifications to BTA determination	10	10	100
14 – Longevity ((5 yrs x 5 pts) + (3 yrs x 10 pts))	55	1	55
Total EBPS Score			517

Summing all of the modifications necessary to address the facial deficiencies with the SPDES permit that are addressed in these comments leads to a priority ranking score of 517 points. This places Cayuga firmly at the top of the EBPS priority ranking. It is arbitrary, capricious, an abuse of discretion, and a violation of lawful procedure for DEC to determine that Cayuga’s priority ranking score is 35 points and to conduct an administrative renewal on that basis. The permit should be ranked among the highest priority sites in the EBPS and must undergo full technical review prior to reissuance.

III. DEC MUST REVISE THE SPDES PERMIT TO ADDRESS UNPERMITTED DISCHARGES FROM THE LANDFILL AND COAL PILE.

Cayuga Operating Company is violating the Clean Water Act by conveying pollutants from its leaking and partially unlined coal ash landfill to Cayuga Lake and to Milliken Creek, which is located immediately south of the ash disposal facility and flows into Cayuga Lake. Pollution exits the landfill via groundwater and emerges into Milliken Creek via seeps. Pollution enters Cayuga Lake through groundwater flow into the lake. The Cayuga Plant also is discharging pollutants from its coal pile and other areas of the plant via groundwater to an artesian pond/wetland south of the plant that drains to Cayuga Lake.

These discharges are not authorized under the current SPDES permit and, as such, constitute violations of Sections 301 and 402 of the Clean Water Act.²⁸ DEC cannot administratively renew a permit that does not address these unlawful discharges—the permit must undergo full technical review and address these unpermitted outfalls.

With respect to Cayuga’s unpermitted discharges of pollution from its leaking coal ash landfill and from the coal pile, Sierra Club joins in and incorporates by reference the comments of Mark Quarles, P.G., Global Environmental Consulting, which were submitted separately to DEC. In addition, Sierra Club notes that it has expressed its concerns about the leaking coal ash landfill at Cayuga to DEC in the past. In a letter dated May 3, 2012, Sierra Club wrote to DEC that:

²⁸ 33 U.S.C. §§ 1311(a) (“Except as in compliance with this section and sections 1312, 1316, 1317, 1328, 1342, and 1344 of this title, the discharge of any pollutant by any person shall be unlawful.”), 1342. *See also Dague v. City of Burlington*, 935 F.2d 1343, 1354-55 (2d Cir. 1991) (discharge of pollution into groundwater is subject to regulation under the Clean Water Act if the groundwater is “directly hydrologically connected” to waters of the United States), *rev’d in part on other grounds* (award of attorney’s fees), 505 U.S. 557); *New York v. United States*, 620 F. Supp. 374, 381 (E.D.N.Y.1985) (a citizen suit may be brought where a discharge to groundwater threatens to contaminate navigable waters).

Cayuga Operating Company conducts periodic monitoring of groundwater conditions from a series of wells at varying distances and directions from the Cayuga coal ash landfill. It provides quarterly and annual groundwater monitoring reports to DEC that include and summarize the observations from these wells. In those reports, Cayuga Operating Company discusses the presence of elevated concentrations of various inorganic substances – concentrations above New York’s groundwater quality standards – in monitoring wells around the landfill including those intended to detect leakage from parts of the landfill.²⁹ Cayuga Operating Company also has detected metals in the groundwater at the site that are commonly found in coal combustion wastes, such as cadmium and selenium.³⁰ And Cayuga Operating Company notes that:

Samples collected from several overburden and bedrock groundwater monitoring wells installed directly downgradient of Phase I have historically exhibited elevated concentrations of inorganic chemical constituents (e.g., sulfate, iron, magnesium, manganese, sodium). Various remedial measures were instituted by the previous Site owner to mitigate impacts to Site groundwater in this area”³¹

Cayuga Operating Company has implemented contingency monitoring in response to the elevated levels of contaminants in groundwater.³² In short, there is reason to suspect that the Cayuga landfill is leaking, and that it discharges coal combustion waste contaminants such as selenium and cadmium to groundwater.

The Cayuga coal ash landfill is located several hundred meters from the shore of Cayuga Lake, at an elevation of approximately 200 feet above the lake’s surface. By Cayuga Operating Company’s admission, “the dominant groundwater flow direction in bedrock and glacial overburden is to the west-southwest toward Cayuga Lake.”³³ Milliken Creek is directly south of the landfill, and flows westward into Cayuga Lake. Again, by Cayuga Operating Company’s admission, Milliken Creek is at a lower elevation than the landfill and

²⁹ See, e.g., AMEC Geomatrix, Inc., *Year 2010 Annual Groundwater Quality Monitoring Report* at 9, 11 available as Attachment 1 to AMEC Geomatrix, Inc., *Year 2010 Annual Solid Waste Operating Report – AES Cayuga* (March 2011).

³⁰ See *id.* at 12.

³¹ *Id.* at 12.

³² *Id.* at 12-13.

³³ AMEC Geomatrix, Inc., *Year 2009 Annual Groundwater Quality Monitoring Report* at 3, available as Attachment 1 to AMEC Geomatrix, Inc., *Year 2009 Annual Solid Waste Operating Report – AES Cayuga* (March 2010).

is incised into the area's bedrock.³⁴ The groundwater around the Cayuga coal ash landfill is directly hydrologically connected to Milliken Creek and Cayuga Lake. When contaminants from the Cayuga landfill reach groundwater, they are conveyed into Cayuga Lake, either directly or via Milliken Creek. There is nowhere else for the water to go. Because these discharges to groundwater are not authorized by the Cayuga SPDES permit, they constitute violations of the Clean Water Act.³⁵

Sierra Club and Earthjustice hereby repeat and incorporate by reference the Sierra Club May 3, 2012 Letter, which is included as Exhibit 4 to these comments.

On July 31, 2012, DEC responded to Sierra Club's letter and wrote:

AES replaced the clay cap at the Cayuga Ash Landfill with a geomembrane cap in 2009, which will substantially reduce if not eliminate stormwater infiltration onto the waste mass. The landfill also includes a groundwater suppression system. AES currently collects samples from Milliken Creek both upgradient and downgradient of the landfill and analyzes for sulfates, alkalinity, pH, total dissolved solids, turbidity and various metals. Sample results indicate there are no discernable differences between the upgradient and downgradient locations. Therefore, the results don't appear to show any impacts from the landfill on Milliken Creek. If future sample results do show any impacts the Department will take appropriate action.³⁶

We note that DEC's response does not respond to or deny the basic point made in the May 3, 2012 Letter: that the coal ash landfill is leaking and contaminating groundwater. DEC focuses instead on the question of whether that contamination is reaching Milliken Creek. The comments of Mark Quarles, P.G., Global Environmental Consulting, which are incorporated here by reference, make it clear that the contamination is reaching Milliken Creek, and that the upgradient/downgradient characterization of Cayuga Operating Company's sampling points on Milliken Creek are questionable—both sampling stations appear to be affected by coal ash contamination.

More fundamentally, once DEC concedes that the coal ash landfill is leaking, the conclusion that the contamination is reaching Milliken Creek and Cayuga Lake is inevitable. The landfill is steeply upgradient of the lake, is leaking, and is situated on top

³⁴ *Id.* at 11.

³⁵ Letter from Joshua Stebbins, Sierra Club to Commissioner Joseph Martens, dated May 3, 2012, regarding transfer of SPDES and Title V permits for the Cayuga and Somerset electric generating stations, at 12-14. ["Sierra Club May 3, 2012 Letter"].

³⁶ Letter from James M. Tierney, Assistant Commissioner of DEC to Joshua Stebbins, Sierra Club Managing Attorney, Eastern Region dated July 31, 2012 responding to Sierra Club's comments on the transfer of SPDES and Title V Permits for the Cayuga and Somerset Electric Generating Stations, at 3. ["Tierney Letter."]

of heavily fractured bedrock. There is nowhere for that pollution to go but down into Cayuga Lake.

Cayuga continues to violate the conditions of its SPDES permit and to discharge pollutants without a permit to groundwater that is directly hydrologically connected to Milliken Creek and Cayuga Lake. DEC cannot issue a SPDES permit that ignores these unlawful discharges.³⁷ The permit must be revised to address these problems and ensure that these violations will not recur. Necessary steps include taking remedial action to halt leakage at the coal ash landfill and investigating and abating the discharge of pollution from the coal pile to the artesian pond/wetland.

IV. DEC MUST MODIFY THE SPDES PERMIT TO INCLUDE TECHNOLOGY-BASED EFFLUENT LIMITS FOR A NUMBER OF WASTEWATER STREAMS.

Administrative renewal of the SPDES permit would be arbitrary, capricious, and contrary to law because the permit lacks the required technology-based effluent limits (“TBELs”) for: (1) FGD wastewater, (2) mercury discharges, and (3) discharges from the coal ash landfill sedimentation pond. DEC must undertake a full technical review and establish TBELs for each of these wastewater streams.

A. The Clean Water Act Requires the Establishment of Technology-Based Effluent Limits For Wastewater Discharges.

SPDES permits must include TBELs – effluent limits based on the performance achievable through the use of statutorily-prescribed levels of technology – that “will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants.”³⁸ TBELs constitute a minimum level of controls that must be included in a SPDES permit “regardless of a discharge’s effect on water quality standards.”³⁹

The requirement to establish TBELs comes straight from the text of the Clean Water Act, which prohibits the discharge of a pollutant to waters of the United States except pursuant to a National Pollutant Discharge Elimination System (“NPDES”) permit.⁴⁰ A NPDES permit may be issued only “upon condition that” it ensures, *inter*

³⁷ See Memorandum from James A. Hanlon, Director, EPA Office of Wastewater Management to Water Division Directors, EPA Regions 1-10 regarding National Pollutant Discharge Elimination System (SPDES) Permitting of Wastewater Discharges from Flue Gas Desulfurization (FGD) and Coal Combustion Residuals (CCR) Impoundments at Steam Electric Power Plants, Appendix B, page 2 (June 7, 2010) (“Hanlon Memo”) (“If seepage [from a coal ash impoundment] is discharged directly via a point source to a water of the U.S., the discharge must be addressed under the NPDES permit for the facility.”). The memorandum is available at <http://www.epa.gov/SPDES/pubs/hanlonccrmemo.pdf>. Attachment B is available at <http://www.epa.gov/npdes/pubs/wqp-coalcombustionwasteimpoundments.pdf>.

³⁸ 33 U.S.C. § 1311(b)(2)(A)(i); see also *id.* §§ 1311(b)(1)(A), 1311(b)(2)(A).

³⁹ *American Petroleum Inst. v. EPA*, 661 F.2d 340, 344 (5th Cir. 1981).

⁴⁰ 33 U.S.C. § 1311(a). In New York, NPDES permits within the meaning of Section 402 of the Clean Water Act are issued by DEC and are called SPDES permits.

alia, that the requirements in 33 U.S.C. § 1311 are met.⁴¹ Section 1311, in turn, specifies increasingly stringent levels of TBELs that must be included in NPDES permits pursuant to section 1342(a)(1).⁴² All sources and all pollutants must be subject to TBELs, and while more stringent limits may also be necessary to avoid exceedances of water quality standards, discharges must still reduce their pollutant loading in accordance with TBELs even if in-stream water quality criteria would be met without technology-based limits.⁴³

Of particular relevance to this permit is section 1311(b)(2)(A), which for certain pollutants mandates the achievement of effluent limitations that shall require the application of the best available technology economically achievable, as determined according to the effluent limitations guidelines EPA issues pursuant to section 1314(b)(2)(B). Where no such effluent limitations guidelines exist, TBELs, including BAT limits, must be developed on a case-by-case basis through the use of Best Professional Judgment (“BPJ”) and included in the SPDES permits.⁴⁴ In short, the Clean Water Act not only authorizes, it also requires, DEC to use BPJ to determine what constitutes BAT for discharges of various wastewaters from the Cayuga Plant and to include in the SPDES permit TBELs that ensure that BAT-level control of discharges are required at the plant.

In using BPJ to determine BAT, DEC should keep in mind that BAT is a stringent treatment standard that is supposed to represent “a commitment of the maximum resources economically possible to the ultimate goal of eliminating all polluting discharges.”⁴⁵ The Clean Water Act and case law are clear that TBELs based on BAT are to be “technology-forcing” in order to further the statute’s goal of eliminating all discharges of pollutants as soon as possible.⁴⁶ As the U.S. Court of Appeals for the Fourth Circuit has explained:

⁴¹ 33 U.S.C. § 1342(a)(1).

⁴² 33 U.S.C. § 1311(b)(1)(A) (effluent limitations requiring best practicable control technology shall be achieved); 33 U.S.C. § 1311(b)(2)(A) (effluent limitations requiring best available technology economically achievable shall be achieved).

⁴³ 33 U.S.C. §§ 1311(b)(2)(A), 1312(a); 40 C.F.R. § 125.3(a); *see also PUD No. 1 Jefferson County v. Wash. Dep’t of Ecology*, 511 U.S. 700, 704 (1994) (state water quality standards are “supplementary” to required plant-by-plant TBELs) (citing *EPA v. Calif. ex. rel. Water Res. Control Bd.*, 426 U.S. 200, 205 n.12 (1976)); *Am. Petroleum Inst.*, 661 F.2d at 344; *Hooker Chem. & Plastics Corp. v. Train*, 537 F.2d 620, 623 (2d Cir. 1976) (CWA “predicate[s] pollution control on the application of control technology on the plants themselves rather than on the measurement of water quality”).

⁴⁴ 40 C.F.R. § 125.3(a), (c)(3); 6 NYCRR § 750-1.11(a)(7); *see generally Tex. Oil & Gas Ass’n v. EPA*, 161 F.3d 923, 929 (5th Cir. 1998) (“Individual judgments thus take the place of uniform national guidelines, but the technology-based standard remains the same.”); *NRDC v. EPA*, 859 F.2d 156, 199 (D.C. Cir. 1988) (noting that the factors considered in setting the technology-based limits in a BPJ determination “are the same factors used in establishing effluent guidelines”).

⁴⁵ *EPA v. Nat’l Crushed Stone Ass’n*, 449 U.S. 64, 74 (1980); *see also BP Exploration & Oil, Inc. v. U.S. EPA*, 66 F.3d 784, 790 (6th Cir. 1995) (“BAT represents, at a minimum, the best economically achievable performance in the industrial category or subcategory.”) (citing *NRDC v. EPA*, 863 F.2d 1420, 1426 (9th Cir. 1988)).

⁴⁶ *NRDC v. EPA*, 822 F.2d 104, 123 (D.C. Cir. 1987); *see also NRDC v. EPA*, 863 F.2d 1420, 1431 (9th Cir. 1988) (“The BAT standard must establish effluent limitations that utilize the latest technology.”).

The BAT standard reflects the intention of Congress to use the latest scientific research and technology in setting effluent limits, pushing industries toward the goal of zero discharge as quickly as possible. In setting BAT, EPA uses not the average plant, but the optimally operating plant, the pilot plant which acts as a beacon to show what is possible.⁴⁷

Numerous courts have also held that while an agency should ensure that the costs of BAT controls are reasonable, there is no requirement that the costs of such controls be weighed against their benefits.⁴⁸

B. The SPDES Permit Must Be Modified to Include Limits for FGD Wastewater That Reflect BAT.

The current federal effluent limitation guidelines (“ELGs”) for power plants, which were established in 1982, do not apply to the discharge of FGD wastewaters, as EPA specifically made clear in promulgating the 1982 ELGs.⁴⁹ Thus, when setting permit limits on discharges from the FGD systems at the Cayuga Plant, DEC permit writers must use BPJ to set effluent limits that achieve the BAT standards for all of the pollutants found in these waste streams. The agency, however, has not done so.

While DEC purports to have included BPJ derived limits on FGD wastewaters in the SPDES permit for the Cayuga Plant, those limits do not meet the BAT standard required by law. In particular, the current FGD wastewater effluent limits in the SPDES permit are based on the degree of reduction achievable by the treatment system currently in place at the Cayuga Plant – a chemical precipitation system.⁵⁰ These limits do not reflect the reductions achievable with affordable, advanced technologies already in use in the industry that can greatly reduce or even eliminate FGD wastewater discharges.

⁴⁷ *Kennecott v. EPA*, 780 F.2d 445, 448 (4th Cir. 1985), citing 1 *Legislative History of the Federal Water Pollution Control Act of 1972*, 798 (Committee Print compiled for the Senate Committee on Public Works by the Library of Congress), Ser. No. 93-1 (1973).

⁴⁸ See, e.g., *BP Exploration & Oil*, 66 F.3d at 799-800 (rejecting industry demand for cost-benefit analysis because BAT “does not require cost-benefit analysis” and “EPA need only find . . . that the cost of the technology is reasonable”); *Rybachek v. EPA*, 904 F.2d at 1290-91 (EPA “need not compare [control] cost with the benefits of effluent reduction”); *Reynolds Metals Co v. EPA*, 760 F.2d 549, 565 (4th Cir. 1985) (“no balancing is required” for BAT); *CPC Int’l Inc. v. Train*, 540 F.3d 1329, 1341-42 (8th Cir. 1976) (BAT guidelines are “governed by a standard of reasonableness without the necessity of a thorough cost-benefit analysis”); *Am. Iron & Steel Inst. v. EPA*, 526 F.2d 1027, 1051-52 (3rd Cir. 1975) (“With respect to the [BAT] standards,” Congress intended “that there should be no cost-benefit analysis.”)

⁴⁹ See Steam Electric ELGs, 47 Fed. Reg. at 52,291 (“EPA is reserving effluent limitations for four types of wastewaters for future rulemaking. These four waste streams are: (1) Non-chemical metal cleaning wastes[;] (2) Flue gas desulfurization waters . . .”).

⁵⁰ DEC, *SPDES Permit Fact Sheet* (Apr. 14, 2009), at 9 (hereinafter “Cayuga Fact Sheet”), available at http://www.dec.ny.gov/docs/permits_ej_operations_pdf/cayugafactsht.pdf (indicating that technology-based effluent limits were set on a BPJ Basis). See also DEC, *Technical and Operational Guidance Series 1.2.1, Industrial Permit Writing*, Attachment C, column D (Feb. 26, 1998) (providing model BPJ effluent limits for chemical precipitation systems that are copied exactly into the Cayuga SPDES Permit, outfall 01F, for aluminum, arsenic, barium, and cadmium) (“TOGS 1.2.1”), available at <http://www.dec.ny.gov/regulations/2652.html> (last visited January 30, 2015).

The most effective control option is to eliminate FGD wastewater discharges by using a zero liquid discharge (“ZLD”) system. ZLD is a technologically and economically feasible control option, as shown by the fact that at least twenty-eight coal plants with FGD controls have zero FGD wastewater discharge.⁵¹ In addition, in April 2014, EPA Region 1, exercising its BPJ to establish BAT, reissued a draft NPDES permit for the Merrimack coal plant in New Hampshire after learning that the plant owner had installed a secondary wastewater treatment system that could operate as a ZLD system.⁵² In the reissued draft NPDES permit, EPA Region 1 concluded that such ZLD system is BAT for the Merrimack plant, and the agency has proposed technology-based effluent limitations that reflect such BAT.⁵³

Further evidence supporting the availability and feasibility of a zero liquid discharge system for FGD wastewater is a study recently submitted by Indianapolis Power & Light (“IPL”) to the Indiana Utility Regulatory Commission (“IURC”). IPL has petitioned the IURC for approval to install new treatment for FGD wastewater and other waste streams at IPL’s Petersburg and Harding Street coal plants.⁵⁴ In support of its petition, IPL submitted a study authored by CH2M Hill that evaluated IPL’s “best overall approach” to comply with those power plants’ current NPDES permits along with future Clean Water Act requirements.⁵⁵ CH2M Hill evaluated different treatment options according to a range of criteria, including technical feasibility, cost, and reliability of operation.⁵⁶

The result of that study with regards to treatment of FGD wastewater is that CH2M Hill concluded that IPL should install a vapor compression-evaporation (“VCE”) system that achieves Zero Liquid Discharge.⁵⁷ To keep costs down, CH2M Hill recommended that IPL recycle a portion of the FGD wastewater back into each unit’s FGD after primary (physical-chemical) treatment but before secondary treatment in the evaporator.⁵⁸ CH2M Hill found that by doing so, the ZLD system would have a lower

⁵¹ EPA, Technical Development Document for the Proposed Effluent Limitation Guidelines and Standards for the Steam Electric Power Generating Point Source Category, EPA-821-R-13-002 (April 2013) at 7-3, available at http://water.epa.gov/scitech/wastetech/guide/steam-electric/upload/Steam-Electric_TDD_Proposed-rule_2013.pdf (last visited January 30, 2015).

⁵² EPA Region 1, Merrimack Station Revised Draft Permit – Fact Sheet (April 11, 2014) at 5, available at <http://www.epa.gov/region1/npdes/permits/draft/2014/draftnh0001465permit.pdf#page=30> (last visited January 30, 2015).

⁵³ *Id.* at 5-6.

⁵⁴ See Verified Petition of Indianapolis Power & Light Company, Cause No. 44540 (I.U.R.C. Oct. 3, 2014), attached hereto as Exhibit 5; Direct Testimony of Dennis H. Fink, Cause No. 44540 (I.U.R.C. Oct. 16, 2014), attached hereto as Exhibit 6.

⁵⁵ See Fink Testimony at 5-9, Attachment DHF-1.

⁵⁶ *Id.* at 8.

⁵⁷ *Id.* at 22-23, 25-26, Attachment DHF-1 at 4-6, 4-7, 6-5, 6-6, 7-4. IPL has requested that the IURC approve installation of a VCE system to treat FGD wastewater at its Petersburg Station. At its Harding Street Station, IPL has determined that refueling the plant to run on natural gas (thus eliminating the need for operation of a FGD) is the least-cost method of compliance with CWA and other environmental requirements. IPL states, however, that if it were to continue operating the Harding Street Station as a coal-burning plant, it would request that the IURC approve installation of a VCE system to treat FGD wastewater at Harding Street Station as well.

⁵⁸ *Id.*

capital and operating cost than biological treatment systems.⁵⁹ The IPL/CH2M Hill study provides further support for the fact that ZLD for FGD wastewater is technologically and economically feasible. As such, DEC must carefully and objectively evaluate ZLD systems as part of its BAT analysis for FGD wastewater effluent limits.

While ZLD is the most effective option for dealing with FGD wastewater, it is far from the only technologically and economically feasible option for achieving far lower limits than are included in the SPDES permit. For example, before reissuing a draft NPDES permit to reflect ZLD at the Merrimack plant, EPA Region 1 had issued a draft NPDES permit with significantly lower FGD wastewater effluent limits than are included in the Cayuga SPDES permit, as shown in the following table:

Comparison of FGD Wastewater Effluent Limits Merrimack 2011 vs. Cayuga⁶⁰				
Pollutant (µg/l)	Merrimack		Cayuga	
	Mthly Avg.	Daily Max.	Mthly Avg.	Daily Max.
Arsenic	8	15	50	100
Cadmium	Report	50	100	200
Chromium	Report	10	-	-
Copper	8	16	-	-
Lead	Report	100	-	-
Selenium	10	19	Report	1200
Zinc	12	15	-	-

As evidenced by the reissued draft NPDES permit, the Merrimack effluent limits in the table above fall short of the BAT standard because they are not based on complete elimination of pollution from this discharge – a readily achievable and economically affordable outcome. Nonetheless, the then-proposed limits for Merrimack were considerably more stringent than those established for the Cayuga Plant at least in part because the Merrimack limits were based on combined chemical and advanced biological treatment rather than the assumption of just chemical precipitation used to identify the limits for the Cayuga Plant.

EPA has made clear that chemical precipitation alone does not qualify as BAT. For example, in a memorandum from EPA’s Office of Wastewater Management to permit writers around the country, that agency explained that chemical precipitation is less effective than more advanced systems that significantly reduce or completely eliminate the discharge of toxic metals including arsenic, cadmium, and selenium, and numerous other pollutants that dissolve in wastewaters.⁶¹ EPA’s memorandum is based

⁵⁹ *Id.* Attachment DHF-1 at 6-2.

⁶⁰ See Cayuga Permit at 6 of 28 (outfall 01F, FGD wastewater only); and EPA Region 1, *NPDES Permit No. NH0001465* at 6, available at <http://www.epa.gov/region1/npdes/merrimackstation/pdfs/MerrimackStationDraftPermit.pdf> (last visited January 30, 2015) (outfall 003C, FGD wastewater only).

⁶¹ See generally 40 C.F.R. § 125.3, see also Hanlon Memo, Attachment A at 3-5.

on research that the agency conducted in preparation for its ongoing revision of the national power plant effluent guidelines. That research included a detailed study of FGD wastewater pollution control technologies (“the Detailed Study”).⁶² In the Detailed Study, EPA compared a standard chemical precipitation system to the improved pollution control available through technologies including anoxic/anaerobic biological treatment, mechanical evaporation, recycling and other operational changes that can achieve zero discharge.⁶³ Among the conclusions of EPA’s study and the memorandum based on it that are most relevant to setting effluent limits at Cayuga:

- Physical/chemical treatment systems like that at the Cayuga Plant are not effective at removing selenium, nitrogen compounds, and certain metals that contribute to high concentrations of total dissolved solids in FGD wastewater.⁶⁴
- Side-by-side comparisons at the same plant reveal that biological treatment is significantly more effective than chemical precipitation at removing mercury from FGD wastewaters and is orders of magnitude more effective at removing selenium, but is no more effective at reducing total dissolved solids.⁶⁵
- VCE systems, already in use in the United States and abroad, can completely eliminate the discharge of FGD wastewater.⁶⁶
- Many power plants inspected by EPA have already eliminated all FGD wastewater discharge even without an evaporation system, by recycling wastewater and using other techniques.⁶⁷

Given the clear inadequacy of the FGD wastewater limits in Cayuga’s SPDES permit, DEC must undertake a technical review of such limits and all options for eliminating or reducing FGD wastewater discharges from the Cayuga Plant, and modify the SPDES permit to include TBELs that are based on the use of BAT.

C. DEC Must Establish TBELs For Mercury Discharges From the Cayuga Plant.

Cayuga’s SPDES permit is also deficient because it fails to include technology-based limits for mercury discharges. Technologies that can achieve zero or near-zero mercury discharges are technically and economically available and, therefore, required by the Clean Water Act. Those technologies would also enable the Cayuga Plant to comply with New York’s water quality-based effluent limit for mercury of 0.7 ng/L. But instead

⁶² See EPA, *Steam Electric Power Generating Point Source Category: Final Detailed Study Report*, EPA 821-R-09-008 (Oct. 2009) (“Detailed Study Report”), available at http://water.epa.gov/lawsregs/guidance/cwa/304m/archive/upload/2009_10_26_guide_steam_finalreport.pdf (last visited January 30, 2015).

⁶³ See Detailed Study Report at 4-26 – 4-67.

⁶⁴ See Hanlon Memo, Attachment A at 4.

⁶⁵ See Detailed Study Report at 4-51 – 4-55.

⁶⁶ See Detailed Study Report at 4-33.

⁶⁷ See Detailed Study Report at 4-36.

of complying with these technology and water quality based standards, the SPDES permit includes a limit of 50 ng/L at Cayuga outfalls 01C, 01F, and 013, which is more than 70 times higher than the state standard. Renewal of the permit's plainly inadequate mercury limit would be arbitrary, capricious, an abuse of discretion, and contrary to law.

DEC developed this 50 ng/L limit under a statewide Multiple Discharger Variance ("MDV"), a variance to ordinary state Clean Water Act permitting procedures. As applied to the Cayuga Plant, however, the 50 ng/L limit is insufficiently stringent. Data gathered by EPA and the experience of other coal fired power plants in the United States and internationally show that plants like Cayuga can install and maintain pollution control technologies that reduce mercury discharges to well below 50 ng/L, and in some cases to zero. As such, the 50 ng/L variance-based effluent limit violates the Clean Water Act's requirement that TBELs be included in a SPDES permit "regardless of a discharge's effect on water quality standards."⁶⁸

New York's waters are severely contaminated with mercury. The state has established numeric water quality criteria that limit the allowable concentration of mercury in state waters.⁶⁹ Because mercury readily bioaccumulates in fish, DEC has determined that the concentration of dissolved mercury in fishable waters such as Cayuga Lake must be less than 0.7 ng/L.⁷⁰ Additionally, DEC set a statewide water quality criterion of 2.6 ng/L dissolved mercury in all waters in order to protect wildlife.⁷¹ But DEC has explained to permit writers that, in the absence of evidence to the contrary, it should be assumed that all surface waters in the state exceed the 0.7ng/L standard.⁷² As a result, DEC has issued a fish consumption advisory for mercury in all of New York's fresh and marine waters.⁷³

To address this widespread contamination, permit writers must set more stringent effluent limits for polluters that discharge mercury. In addition to TBELs, the Clean Water Act requires that SPDES permits include more stringent effluent limits when necessary to protect water quality—i.e., when water quality criteria are or may be exceeded.⁷⁴ These more stringent limits are typically referred to as water quality-based effluent limits ("WQBELs"). As DEC has explained:

⁶⁸ *American Petroleum Inst.*, 661 F.2d at 344.

⁶⁹ See 6 NYCRR § 703.5(f), Table 1; see also 33 U.S.C. §§ 1314(a) (requiring EPA to develop water quality criteria); 1313(c) (requiring state to review and revise existing water quality standards every three years and include within them numeric water quality criteria that protect the designated uses of the state's waters).

⁷⁰ See 6 NYCRR § 703.5(f), Table 1; see also DEC, *Technical and Operational Guidance Series 1.3.10, Mercury – SPDES Permitting, Multiple Discharge Variance, and Water Quality Monitoring*, Table 1 ("TOGS 1.3.10"). Available at <http://www.dec.ny.gov/regulations/2652.html>.

⁷¹ See 6 NYCRR § 703.5(f), Table 1; see also TOGS 1.3.10 at Table 1.

⁷² TOGS 1.3.10 at 7, 9.

⁷³ See TOGS 1.3.10 at 8.

⁷⁴ See 33 U.S.C. §§ 1312 (establishing water quality related effluent limitations), 1342 (requiring that SPDES permits ensure compliance with, *inter alia*, Section 1312); see also 40 C.F.R. § 122.44(d) (SPDES permits must include "any requirements in addition to or more stringent than promulgated effluent limitations guidelines . . . necessary to: (1) Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.").

Typically, for each pollutant the more stringent of technology based effluent limits (TBELs) or water quality based effluent limits (WQBELs) is included in the SPDES permit. In the case of mercury, the WQBEL will always be more stringent than any TBEL. Since the most stringent ambient water quality standard is assumed to be exceeded in all cases, *no waste assimilative capacity is allowed and the WQBEL is set equal to this standard, i.e., 0.70 ng/L*, and expressed as the total form. . .⁷⁵

Thus, on their face, the Clean Water Act and implementing federal and state regulations require DEC to set a 0.7 ng/L WQBEL in every SPDES permit issued in New York, or to forbid mercury discharges entirely. DEC, however, believes that a 0.7 ng/L effluent limit is infeasible⁷⁶ and, therefore, issued an MDV setting a discharge limit of 50 ng/L for all permitted mercury dischargers in the state.⁷⁷

Leaving aside the question of whether the WQBEL variance is generally permissible and reasonable for other mercury dischargers in the state, DEC is not absolved of its statutory duty to impose the more stringent of TBELs or WQBELs in SPDES permits. With regards to this statutory duty, DEC erred in stating that “[i]n the case of mercury, the WQBEL will always be more stringent than any TBEL.” Whether or not DEC’s statement is true as applied to most discharges of mercury, it is false in the case of power plants that operate sophisticated pollution control equipment. For example, by installing bio reactors, the Cayuga Plant can expect to consistently reach a near-zero discharge of mercury – less than 5 ng/L.⁷⁸ And by installing an evaporation system or managing wastes through various “zero liquid discharge” operational techniques, the Cayuga Plant can completely eliminate the discharge of mercury and attain the statewide water quality-based effluent limit of 0.7 ng/L.⁷⁹ Because DEC has a duty to set, based on BPJ, a technology-based effluent limit for mercury that is more stringent than 50 ng/L, and because, in any case, the Cayuga Plant can meet the statewide water quality-based effluent limit, it is unreasonable and unlawful for DEC to set a 50 ng/L effluent limit based on a variance from both the technology and water quality-based protections of the Clean Water Act. Therefore, DEC should set zero or near-zero mercury effluent limits on all outfalls in the Cayuga SPDES permit.

DEC is aware that the Cayuga Plant and other sophisticated industrial polluters can readily access technologies that achieve mercury levels far below the 50 ng/L

⁷⁵ TOGS 1.3.10 at 13 (emphasis added).

⁷⁶ TOGS 1.3.10 at 13.

⁷⁷ See TOGS 1.3.10 at 16.

⁷⁸ See Detailed Study at 4-52, Figure 4-12D (indicating that, at Belews Creek, adding biological treatment to a chemical precipitation system stabilized the concentration of mercury found in the treated effluent from a range of 0-50 ng/L with chemical precipitation alone to a range of 0-2 ng/L when biological treatment was added).

⁷⁹ See Detailed Study Report at 4-36 (noting that several power plants have developed operational techniques for fully recycling of wastewater that results in zero discharge of coal ash metals).

effluent limitation that the agency has set.⁸⁰ In fact, DEC said so in the very guidance document that it now relies upon to justify the 50 ng/L effluent limit at Cayuga:

Under contract with USEPA, Science Applications International Corporation studied the mercury wastewater treatment issue and published a report in 2005. That report indicated that it was possible to reduce mercury to about 12 ng/L using selective sorbents. However, no treatment technology was demonstrated to consistently achieve levels of 12 ng/L or less.

Data collected in New York State appears to confirm the Science Applications International Corporation study. Two ion exchange systems in New York reported average influent/effluent levels of 91000/11 ng/L and 190/8.2 ng/L respectively. Ion exchange appears to be the most effective full-scale treatment system type which has been demonstrated in the state. Mercury precipitation theoretically can achieve very low levels due to the insolubility of mercurous sulfide but there are no known systems in the state to review. Granular Activated Carbon (GAC) and Sulfur-impregnated Granular Activated Carbon (SGAC) systems have been successfully used to reduce mercury. One GAC system reported average influent/effluent levels of 100/2.2 ng/L. However, limited data suggests that these GAC/SGAC systems may not be able to achieve the GLCA when treating very high levels of both dissolved solids and mercury.

* * *

It is important to acknowledge that there are several other states with progressive programs to reduce mercury levels in wastewater discharges . . . Starting February 2000, the Michigan Department of Environmental Quality implemented a mercury MDV which included mercury limits of 30 ng/L (12 month rolling average), use of EPA Method 1631 for sample analysis, and a MMP requirement. Implementation appears to have been successful as Michigan has more recently implemented an updated MDV which includes a further reduction in effluent limits to 10 ng/L (12 month rolling average).⁸¹

It is worth noting that DEC actually misstated the conclusion of the first study it refers to, which was that available field data show that mercury “levels below 12 ng/L can be achieved with selective sorbents.”⁸² In addition, that study was published nearly a decade

⁸⁰ It is also important to note that the Petersburg coal plant addressed in the IPL/CH2M Hill report discussed above has mercury limits of 12 ng/L on a monthly basis and 20 ng/L on a daily basis. Fink Testimony, Attachment DHF-1 at p. 21.

⁸¹ TOGS 1.3.10 at 26-27.

⁸² Science Applications International Corporation, *Technological Feasibility Of Proposed Water Quality Criteria For New Jersey* at 26; prepared for USEPA Region 2 (March 2005).

ago and, as such, DEC needs to evaluate as part of its BPJ BAT analysis here whether more effective mercury control technologies have developed since that 2005 report.

Regardless, DEC's statements in its guidance document make it patently clear that inclusion of the 50 ng/L mercury limit for the Cayuga Plant is arbitrary, capricious, and an abuse of discretion because DEC is choosing a less stringent, variance-based, 50 ng/L water quality based effluent limit over more stringent technology-based effluent limits. DEC has determined that technologies such as selective sorbents and ion exchange systems are available and can achieve mercury levels of around 12 ng/L; that experience from other states shows that effluent limits of 30 ng/L and 10 ng/L are technologically and economically achievable; and that full scale, demonstrated ion exchange systems already in place in New York are achieving 11 ng/L and 8.2 ng/L mercury concentrations. DEC cannot then turn around and conclude that a 50 ng/L effluent limit is the most stringent feasible limit.

D. DEC Must Establish TBELs For Discharges From the Coal Ash Landfill Sedimentation Pond

DEC cannot administratively renew the SPDES permit because the permit's terms do not ensure compliance with the Clean Water Act's technology-based standards at outfall 013, the discharge point from the coal ash landfill's sedimentation pond.⁸³ The effluent limitations at outfall 013 fall considerably short of ensuring a level of performance comparable to the best available technology economically achievable to reduce the discharge of toxic metals associated with coal ash wastewaters.

The inadequacy of Cayuga's sedimentation pond is manifest in at least two ways. First, EPA has told state regulators not to rely on such ponds to treat wastewater that has been in contact with coal ash. In the last thirty years, EPA has learned that the power sector is the second largest discharger of toxic pollutants and that the toxicity of these discharges is primarily driven by metals associated with coal combustion wastes.⁸⁴ EPA has also made clear that the existing ELGs fail to control metals in coal combustion wastes.⁸⁵ Thus, in 2009, EPA issued guidance for permit writers addressing coal combustion waste effluents from power plants, in which EPA restated its position that in the absence of an effluent guideline for those pollutants, the Clean Water Act requires permitting authorities to set BAT effluent limits on a case-by-case basis for coal ash pollutants in each permit.⁸⁶

⁸³ See 40 C.F.R. § 122.44(a) (NPDES permits must include conditions that meet the Clean Water Act's technology-based effluent limitations and standards); see also 6 NYCRR § 750-1.11(a)(7) ("The provisions of each issued SPDES permit *shall ensure compliance with* . . . [BAT effluent limitations and] prior to promulgation by the administrator of applicable effluent standards and limitations, BPJ effluent limitations and such conditions as the commissioner determines are necessary to carry out the provisions of this Part pursuant to Section 402 of the Act and 40 CFR Part 125.").

⁸⁴ See U.S. EPA, Notice of Availability of Preliminary 2008 Effluent Guidelines Program Plan, 72 Fed. Reg. 61,335, 61,342 (Oct. 30, 2007).

⁸⁵ See, e.g. U.S. EPA, Notice of Availability of Preliminary 2010 Effluent Guidelines Program Plan, 74 Fed. Reg. 68,599, 68,606 (Dec. 28, 2009).

⁸⁶ See Hanlon Memo, Appendix A, p.2.

According to EPA, coal ash handling waters, even after settling in ponds, still contain high levels of dissolved and toxic metals including arsenic, cadmium, mercury, selenium, and many others. For example, in its 2009 Detailed Study Report, EPA explained that:

An increasing amount of evidence indicates that the characteristics of coal combustion wastewater have the potential to impact human health and the environment. Many of the common pollutants found in coal combustion wastewater (e.g., selenium, mercury, and arsenic) are known to cause environmental harm and can potentially represent a human health risk. Pollutants in coal combustion wastewater are of particular concern because they can occur in large quantities (i.e., total pounds) and at high concentrations (i.e., exceeding Maximum Contaminant Levels (MCLs)) in discharges and leachate to groundwater and surface waters. In addition, some pollutants in coal combustion wastewater present an increased ecological threat due to their tendency to persist in the environment and bioaccumulate in organisms, which often results in slow ecological recovery times following exposure.⁸⁷

EPA warns that gravity settling – i.e. sedimentation – of pollutants from coal ash wastewaters is not an effective treatment technology. According to EPA, landfills and impoundments that rely on gravity settling are not designed for and are not effective at removing dissolved metals from coal ash leachate.⁸⁸

Second, the effluent limits at outfall 013 are inadequate because DEC has already determined that more stringent effluent limits are necessary. For example, in the fact sheet that DEC produced in 2009 to support its reissuance of the Cayuga SPDES permit, DEC noted that the concentration of boron at Outfall 013 was 12.8mg/L, and the TBEL calculated by DEC was 1.8 mg/L.⁸⁹ But the permit does not set an effluent limitation for boron, which is instead a “monitor only” parameter at Outfall 013. Comparison of discharge monitoring reports against the calculated boron limit displayed in the 2009 fact sheet shows that the limit would be routinely exceeded. Having calculated TBELs for Outfall 013, it was arbitrary, capricious, and an abuse of discretion for DEC to not include the limits in the final permit in 2009, and a renewed abuse of discretion for DEC to administratively renew this permit without conducting a full technical review and setting a full suite of effluent limits at outfall 013.

⁸⁷ Detailed Study Report at 6-2 to 6-3.

⁸⁸ EPA, *Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, Proposed Rule*, 78 Fed. Reg. 34432, 34461 (June 7, 2013).

⁸⁹ Cayuga Fact Sheet at 13 of 17.

V. DEC MUST REVISE THE SPDES PERMIT TO CONFORM TO EPA'S NEW COAL ASH LANDFILL REGULATIONS.

As noted above, Additional Requirement 6 of the Cayuga SPDES permit requires Cayuga Operating Company to administer its coal ash landfill in compliance with Part 360 regulations. In turn, Part 360 regulations require, among other things, compliance with federal Resource Conservation and Recovery Act ("RCRA") regulations.⁹⁰ Therefore, the Cayuga SPDES permit requires Cayuga Operating Company to operate the coal ash landfill in compliance with federal RCRA regulations.

By extension, the Clean Water Act requires DEC to ensure compliance with RCRA regulations for coal ash landfills. That is, the Clean Water Act requires DEC to ensure that every SPDES permit it issues includes any requirements above and beyond the Clean Water Act's baseline technology standards that the State has determined are necessary to achieve the goals of the Clean Water Act.⁹¹ In previous permit cycles, DEC determined that Additional Requirement 6 – i.e. compliance with federal RCRA regulations – is necessary to achieve the goals of the Clean Water Act.⁹² Thus, DEC must now ensure that the terms of the Cayuga SPDES permit are consistent with RCRA regulations in order to ensure compliance with the Clean Water Act. In sum, because DEC has included the RCRA regulations in the terms of the Cayuga SPDES permit, DEC is now legally obligated to issue a permit that ensures compliance with RCRA.

On December 19, 2014, EPA publicly released new RCRA regulations that govern the operation of coal ash landfills.⁹³ DEC must now conduct a full technical review of the Cayuga SPDES permit to ensure that its terms and protections are at least consistent with EPA's new coal ash landfill regulations.

A full technical review is required because it appears that the terms of the Cayuga SPDES permit are facially inconsistent with EPA's new RCRA regulations governing coal ash landfills. In particular, the Cayuga coal ash landfill is leaking and has caused groundwater outside the boundary of the landfill to exceed federal maximum contaminant levels (MCLs) for a number of pollutants associated with coal ash. The new rules at 40 C.F.R. § 257.95(h) prohibit exceedances of the MCLs and require corrective action in such circumstances. But as noted above, the Cayuga SPDES permit does not address the discharges causing these exceedances. Thus, the SPDES permit's tolerance of these discharges is facially inconsistent with EPA's new regulations prohibiting such

⁹⁰ See 6 NYCRR § 360-1.3, *see also id.* at § 360-1.7(a)(3)(rules not to be construed to excuse compliance with RCRA regulations).

⁹¹ See 40 C.F.R. § 122.44(d); *see also* 6 NYCRR § 750-1.11(a)(5) (The provisions of each issued SPDES permit shall ensure compliance with . . . any more stringent limitations, including those . . . necessary to meet water quality standards, guidance values, effluent limitations or schedules of compliance . . . [and those] necessary to meet any other State or Federal law or regulation.”).

⁹² DEC cannot now retract its previous determination and drop compliance with RCRA from the Cayuga SPDES permit without violating the anti-backsliding provisions of the Clean Water Act, 33 U.S.C. § 1342(o).

⁹³ The new rule will appear in the Federal Register shortly, but at the moment can be viewed at <http://www2.epa.gov/coalash/pre-publication-version-coal-combustion-residuals-final-rule>

discharges and calling for corrective action. Pursuant to 6 NYCRR § 750-1.19(a), DEC must review the Cayuga SPDES permit “to determine whether the permit conforms with changes to law [or] regulation.” It is immediately obvious that the permit does not conform to EPA’s new regulations. And as explained above, compliance with EPA’s new regulations is necessary to comply with the Clean Water Act. Because a full technical review of the permit “is necessary to include provisions in or make changes to the permit necessary to comply with the Clean Water Act,” it would be arbitrary, capricious, and an abuse of discretion to administratively renew the permit in its present form.⁹⁴

VI. DEC MUST ESTABLISH COMPLIANCE SCHEDULES TO ADDRESS CONTINUING VIOLATIONS OF THE SPDES PERMIT.

Cayuga Operating Company has violated and continues to violate the Clean Water Act by failing to comply with multiple conditions of its SPDES permit. A SPDES permit must ensure compliance with the technology and water quality based requirements of the Clean Water Act.⁹⁵ And where violations of applicable limits, standards, or other requirements are occurring, DEC is required as part of the SPDES permitting process to “establish specific steps in a compliance schedule designed to attain compliance within the shortest reasonable time.”⁹⁶ As such, DEC must revise the SPDES permit for the Cayuga Plant and add new requirement and schedules of compliance to ensure the cessation of the ongoing violations discussed below.

It is unlawful to discharge pollutants to waters of the United States such as Cayuga Lake except in compliance with the terms and conditions of a SPDES permit.⁹⁷ The Cayuga SPDES permit contains numeric and narrative limits on the quantity and concentration of pollutants that the permittee can discharge in specified effluents from specified outfalls, monitoring requirements, reporting obligations, and other conditions. Each condition of the Cayuga SPDES permit is a “condition or limitation” within the meaning of the Clean Water Act’s governmental enforcement provisions and an “effluent limitation” within the meaning of the Clean Water Act’s citizen suit provision.⁹⁸ Thus, any violation of a condition of the Cayuga SPDES permit is a violation of the Clean Water Act and exposes the permit holder to liability.⁹⁹

⁹⁴ 6 NYCRR §750-1.16(f).

⁹⁵ 33 U.S.C. § 1342.

⁹⁶ 6 NYCCR § 750-1.14(a).

⁹⁷ 33 U.S.C. § 1311(a) (“[T]he discharge of any pollutant by any person shall be unlawful” unless the discharge is in compliance with the terms of a SPDES permit issued under Section 402 of the Clean Water Act (33 U.S.C. § 1342); *see also* 33 U.S.C. § 1342(a).

⁹⁸ 33 U.S.C. § 1319(a)(1) (authorizing state enforcement for “violation of any condition or limitation . . . in a [SPDES] permit”); CWA § 505(f)(6), 33 U.S.C. § 1365(f)(6) (effluent limitations whose violation is actionable in a citizen suit include “a permit or condition thereof issued under section 1342.”).

⁹⁹ 33 U.S.C. § 1365(a) (allowing citizens to commence a civil action in federal court against any person alleged to be in violation of an effluent standard or limitation under the Clean Water Act).

A. Outfalls 005 and 009 – Stormwater

Since at least 2008, Cayuga has established a pattern of routinely violating the limits on its discharge of suspended solids in stormwater from outfalls 005 and 009. The violations have recurred in the final quarter of most years from 2008 to 2013 (final data from the last quarter of 2014 are not available to Sierra Club at this time). Sierra Club raised this concern with DEC in mid-2012, and DEC responded that the violations had been fully addressed and no further action would be required. A few months later, in the fall of 2012, the violations recurred. Evidently, the problems with these stormwater outfalls have not been adequately addressed. DEC should explain to the public what additional measures have been taken since 2012 to reduce pollution at these outfalls and should revise this permit to require additional controls on these stormwater discharges.

Outfalls 005 and 009 convey stormwater to Cayuga Lake.¹⁰⁰ DEC set an effluent limit on the discharge of suspended solids from these outfalls of 50 mg/L (milligrams per Liter), and ordered quarterly sampling.¹⁰¹ Between 2008 and 2012, at outfall 005, Cayuga reported the following violations of this effluent limit:

Outfall 005				
Date	Pollutant	Permit Limit (mg/L)	Reported Value (mg/L)	Percent Over Limit
10/31/2008	Total Suspended Solids	50	578	1,056%
9/30/2010	Total Suspended Solids	50	1170	2,240%
12/31/2010	Total Suspended Solids	50	169	238%
9/30/2011	Total Suspended Solids	50	277	454%
10/19/2012	Total Suspended Solids	50	220	340%

At outfall 009, Cayuga reported the following violations of this effluent limit:

Outfall 009				
Date	Pollutant	Permit Limit (mg/L)	Reported Value (mg/L)	Percent Over Limit
10/31/2008	Total Suspended Solids	50	66	32%
4/30/2009	Total Suspended Solids	50	66	32%
10/31/2009	Total Suspended Solids	50	168	236%

¹⁰⁰ Cayuga Fact Sheet at 2.

¹⁰¹ Cayuga SPDES Permit at 7 of 28.

6/30/2011	Total Suspended Solids	50	98	96%
10/19/2012	Total Suspended Solids	50	74	48%

Because these outfalls are monitored on a quarterly basis, Cayuga’s former owners submitted only 20 samples at each outfall in five years. As such, the five effluent limit violations reported at each outfall represented a 25% rate of violation.

In non-compliance reports relating to the 2008-2011 violations, the former owners of Cayuga attributed these exceedances to the buildup of coal dust and dirt in ditches and on roads, as well as inadequate fencing and physical stormwater controls.¹⁰² But these problems recur annually or biannually. Cayuga’s explanation of these effluent violations is, in effect, an admission that it has violated and continues to violate its permit by failing to establish and execute adequate Best Management Practices, including street sweeping and other preventive maintenance activities, that would avoid these kinds of recurrent effluent limit violations.¹⁰³ Violations of the Cayuga SPDES permit’s stormwater management requirements are violations of the Clean Water Act separate from and additional to the Cayuga plant’s exceedances of the 50 mg/L effluent limits on total suspended solids.¹⁰⁴

On July 31, 2012, DEC responded to Sierra Club’s concerns by contending that:

After a detailed review of the monthly Discharge Monitoring Reports (DMRs) and the Department's compliance monitoring records, the Department concluded that the permittee has adequately addressed all previous violations and there are no unresolved continuing violations related to the SPDES permits at either the Cayuga or the Somerset facility. . . . After each reported violation . . . the permittee took corrective action when appropriate The Department has determined that the permittee is adequately implementing its Best Management Practices (BMP) Plan, and modification of the BMP plan under special condition #2 of the SPDES Permit Industry BMP section is not warranted at this time.¹⁰⁵

¹⁰² See Daniel K. Hill, AES, *Report of Non-Compliance Event* (Oct. 24, 2008) (attributing exceedance to buildup); Dave Warden, AES, *Report of Non-Compliance Event* (Nov. 23, 2009) (same); John Marabella, AES, *Report of Non-Compliance Event* (Aug. 25, 2010) (same); John Marabella, AES, *Report of Non-Compliance Event* (Jan. 25, 2011) (same); John Marabella, AES, *Report of Non-Compliance Event* (Oct. 26, 2011) (attributing exceedance to inadequate fencing and other physical measures).

¹⁰³ See Cayuga SPDES permit at 20-21.

¹⁰⁴ See *id.* at 20 (“The permittee shall develop, maintain, and implement a Best Management Practices plant to prevent release of significant amounts of pollutants to the waters of the State “at a minimum, the plan shall include . . . 7. preventive maintenance . . . 8. good housekeeping . . . 11. erosion and sediment control . . . 12. management of runoff . . . 13. street sweeping.”).

¹⁰⁵ Tierney Letter at 1-2.

Three months later, Cayuga violated the effluent limitations at outfalls 005 and 009 again. On October 19, 2012, Cayuga collected their next quarterly stormwater sample and again found exceedances: 74 mg/L TSS at outfall 009, which is 48% above the effluent limit; and 220 mg/L TSS at outfall 005, 340% above the effluent limit. As it had the last eight times, Cayuga attributed the exceedances to the buildup of pollutants over time with subsequent release during a rainstorm.¹⁰⁶ But that is merely a definition of how stormwater pollution works. It is not a legitimate explanation for why Cayuga seems to be continually caught by surprise by the reoccurrence of rain in autumn. As in previous instances of non-compliance, Cayuga reported in October 2012 that it had taken corrective measures by cleaning the (rain-scoured) culverts of sediment and deploying new hay bales and silt fences. Cayuga also stated that it “will need to stay proactive in cleaning out culverts of sediment during long periods of no rainfall.”¹⁰⁷

Cayuga’s responses to the violations occurring after DEC’s 2012 letter are more of the same. The plant has established a clear pattern of violations: during a storm, Cayuga exceeds its effluent limits at outfalls 005 and 009, then takes some rudimentary remedial action – sweeping, tossing down a few hay bales. After a while, Cayuga forgets about the problems with these outfalls, the operators cease to be “proactive” in cleaning up accumulated pollution. And then, every few autumns, Cayuga is once again surprised that their negligence has allowed pollutants to accumulate to the point that an autumn rainstorm has resulted in yet another permit violation.

DEC’s conclusion that permit violations at outfalls 005 and 009 are adequately addressed by Cayuga’s rudimentary corrective efforts is clearly arbitrary, capricious, and an abuse of DEC’s discretion. The permit’s current terms have not stopped these violations from recurring at least four times in the last seven years. The permit’s present conditions are inadequate to ensure that Cayuga meets its effluent limitations. In light of Cayuga’s repeated violations of the effluent limits at outfalls 005 and 009, DEC must revise the permit to include a schedule of compliance that requires Cayuga to implement more aggressive structural and operational BMPs at these outfalls.

In addition to violations of the effluent limits and stormwater management conditions of the Cayuga SPDES permit, in 2012 Sierra Club identified another concern to DEC: that recent testing by the former owners of the plant has revealed a third problem at outfall 009 – mercury concentrations of 35 ng/L, which is abnormally high for a stormwater discharge and far in excess of 0.7 ng/L, the statewide water quality-based effluent limit for mercury.¹⁰⁸ Currently, there is no effluent limit for the discharge of mercury or other toxic metals at outfall 009. But one of the conditions that DEC set in the Cayuga SPDES permit was completion of a “Short Term Monitoring Program” – a short course of sampling and water quality analysis of various effluent streams at Cayuga,

¹⁰⁶ John Marabella, AES, *Report of Non-Compliance Event* (Jan. 25, 2013) [two reports: outfall 005 and outfall 009].

¹⁰⁷ *Id.*

¹⁰⁸ Water-quality and technology-based effluent limits for mercury discharges are discussed more extensively in Section IV.B above.

including outfalls 005 and 009.¹⁰⁹ Since both of these stormwater outfalls discharge directly to Cayuga Lake without treatment, a comparison between the levels of some metals at the two outfalls is particularly illuminating and relevant:¹¹⁰

Comparison of Monitoring Results for Outfalls 005 and 009			
Pollutant	Units	005	009
Aluminum	mg/L	0.363	1.66
Boron	µg/L	268	2590
Iron	mg/L	0.514	2.16
Magnesium	mg/L	20.7	55.2
Manganese	µg/L	19	164
Mercury	ng/L	2	35.4
Zinc	µg/L	12	54

In comparison to the discharge from outfall 005, the discharge from outfall 009 is considerably more contaminated with certain metals. Most alarmingly, the concentration of the potent neurotoxin mercury is 50 times higher than the statewide water quality-based effluent limit, and is even in the range of some samples taken from treated discharges of FGD wastewater and coal pile runoff at the plant. The iron and aluminum levels found in the outfall 009 effluent are also extremely close to, and may exceed, the effluent limits set at outfalls 01F (FGD wastewater) and 01C (coal pile runoff and other wastes).¹¹¹

It is inappropriate for Cayuga Operating Company to discharge this mercury-laden effluent to Cayuga Lake without treatment. At the very least, DEC should modify the Cayuga SPDES permit to re-route this outfall to Cayuga’s wastewater treatment system. But these results may also be indicative of an unpermitted discharge that violates the Cayuga SPDES permit and Section 301 of the Clean Water Act.¹¹² Cayuga Operating Company is permitted to discharge untreated stormwater at outfall 009, but not industrial wastewaters. These results suggest that the Cayuga plant may be discharging effluents other than stormwater through this outfall, which would be another violation of the Cayuga SPDES permit.

¹⁰⁹ See SPDES permit at 15 of 28, 26 of 28.

¹¹⁰ Data for this comparison is taken directly from Cayuga Operating Company Creative Resources Laboratories, *Laboratory Analysis Report* dated Aug. 30, 2010, available in AES Cayuga, LLC, *SPDES Permit NY-0001333 Short Term Monitoring Program Outfalls 005, 009 Storm Water Analytical Results*.

¹¹¹ A direct comparison between the outfalls is difficult because there are monthly average and daily maximum limits set at outfalls 01F and 01C, but only one data point at outfall 009. However, the monthly average effluent limit for iron at outfall 01C is 1.0 mg/L when cleaning wastes (not coal pile runoff) are being treated. See Cayuga SPDES permit at 5 of 28. The sample taken at outfall 009 exceeds this limit.

¹¹² 33 U.S.C. § 1311(a) (prohibiting the discharge of water pollution except in compliance with the terms of a permit).

B. Outfall 01F – FGD Wastewater

In its May 3, 2012 Letter, Sierra Club informed DEC that the Cayuga Plant had violated the toxic metals effluent limits for the FGD wastewater treatment system (outfall 01F) on a regular and ongoing basis, with discharge monitoring reports showing repeated violations of effluent limits for arsenic, cadmium, mercury, selenium, and total suspended solids.¹¹³

In July 2012, DEC dismissed Sierra Club's concerns with regard to arsenic, cadmium and selenium, attributing the reported exceedances to laboratory errors.¹¹⁴ But EPA's ECHO database indicates that shortly thereafter (in the third quarter of 2012), the discharge at outfall 01F again exceeded the selenium effluent limitation by 33%. DEC ignored Sierra Club's concerns about mercury discharges entirely.

With respect to total suspended solids exceedances at outfall 01F in March and September of 2011, DEC wrote that "subsequent to these exceedances, the permittee took corrective and preventive measures and submitted a plan for continued maintenance. Follow-up samples met permit limits and the parameter has returned to compliance."¹¹⁵ TSS levels at outfall 01F **have not** returned to compliance. Instead, they demonstrate a repeated and ongoing failure to properly operate the pollution control equipment. According to EPA's ECHO database, in the fourth quarter of 2012 TSS levels at outfall 01F were measured at 118% above the 50 mg/L effluent limit. Subsequently, the discharge from outfall 01F has violated the TSS effluent limit in all of the last five quarters: 48% exceedance in Q3 2013, 138% exceedance in Q4 2013, 30% exceedance in Q1 2014, 120% exceedance in Q2 2014, and 36% exceedance in Q3 2014 (final data for Q4 not available yet). The passage of time has shown that DEC is plainly incorrect – TSS levels at outfall 01F routinely exceed permitted limits and Cayuga is in ongoing violation of its permit.

In light of Cayuga's repeated violations of the effluent limits at outfall 01F, and particularly the TSS limit, DEC must revise the Cayuga SPDES permit to ensure that the permit meets the Clean Water Act's technology and water quality based standards. DEC must add a schedule of compliance to the permit that requires Cayuga to investigate and abate the ongoing violations from its FGD scrubber discharge.

C. Additional Requirement 6 – Operation of Coal Ash Landfill in Compliance with 6 NYCRR Part 360.

Additional Requirement 6 of the Cayuga SPDES permit states that:

The permittee shall operate the AES Cayuga Ash Disposal Facility in accordance with Part 360, the Solid Waste Management Facility (SWMF) Guidelines, the Part 360 Environmental Monitoring Plan, the

¹¹³ Sierra Club May 3, 2012 Letter at 10-11.

¹¹⁴ See Tierney Letter at 2-3.

¹¹⁵ *Id.* at 3.

Final Environmental Impact Statement (FEIS), and the plans, specifications and engineering report approved for this facility by the Department's Division of Solid Waste.

Part 360 of Title 6 of the NYCRR governs the construction and operation of solid waste management facilities, including coal ash landfills. Among the requirements of Part 360 are the following:

- All solid waste management facilities must be constructed, operated and closed in a manner that minimizes the generation of leachate that must be disposed of and prevent the migration of leachate into surface and groundwaters. Leachate must not be allowed to drain or discharge into surface water except pursuant to a State Pollutant Discharge Elimination System permit and must not cause or contribute to contravention of groundwater quality standards established by the department pursuant to ECL section 17-0301.¹¹⁶
- Facility components must be maintained and operated in accordance with the permit and intended use of the facility.¹¹⁷
- Geomembranes must be installed in accordance with the requirements of the approved engineering plans, report, and specifications and manufacturer's recommendations.¹¹⁸

Cayuga Operating Company does not operate its coal ash landfill in accordance with Part 360 regulations governing landfill operation and maintenance. In this respect, we join in and incorporate by reference the comments of Mark Quarles, P.G., Global Environmental Consulting.

The Cayuga coal ash landfill violates Part 360 regulations in a number of ways. First, contrary to 6 NYCRR §§ 360-1.14(b)(2) and 360-2.17(g), the Cayuga coal ash landfill **is not** operated “in a manner that minimizes the generation of leachate that must be disposed of and prevent the migration of leachate into surface and groundwaters.” As noted previously and in the comments of Mark Quarles, P.G., Global Environmental Consulting, the landfill is leaking and leachate is migrating into groundwater (and surface water).

Second, leachate **is** allowed to discharge into surface water (Milliken Creek and Cayuga Lake) through outfalls not regulated in this SPDES permit.

¹¹⁶ 6 NYCRR § 360-1.14(b)(2); *see also id.* § 360-2.17(g) (“All landfills must be constructed, operated, and closed to minimize the generation of leachate and to prevent the migration of leachate into surface and groundwater.”).

¹¹⁷ 6 NYCRR § 360-1.14(f)(1).

¹¹⁸ 6 NYCRR §§ 360-2.13(k)(2), (r) (applying (k)(2) requirements to geomembrane covers).

Third, unpermitted discharges from the coal ash landfill **do** cause or contribute to contravention of groundwater quality standards. Again, we refer DEC to the incorporated comments of Mark Quarles, P.G., Global Environmental Consulting.

None of this is news to DEC – particularly not the existence of Cayuga’s groundwater contamination in contravention of water quality standards. In 2010, Sierra Club, Earthjustice, and the Environmental Integrity Project released a study titled “In Harm’s Way: Lack Of Federal Coal Ash Regulations Endangers Americans And Their Environment,”¹¹⁹ that detailed serious groundwater or surface water contamination at 39 coal ash landfill sites across the U.S. One of the sites discussed in the report was the Cayuga Plant, about which the report explained that:

Groundwater monitoring data shows that the partially-lined coal ash landfill at the Cayuga Plant has contaminated underlying groundwater with selenium up to . . . 7.6 times the New York State Groundwater Standard (NYGWS); . . . and arsenic at up to 10 times the MCL and NYGWS. . . . Data from AES also shows that discharges to Cayuga Lake from the CCW leachate pond, which collects leachate from the CCW landfill grossly exceed federal water quality criteria for selenium (up to 55 times higher than the chronic toxicity standard for aquatic life), arsenic (up to 4,778 times higher than the standard for protection of human health from surface water ingestion and fish consumption), and cadmium (up to 26 times higher than the acute toxicity standard for aquatic life). Yet the State Pollutant Discharge Elimination System (SPDES) permit that regulates this discharge has no limits for many of these parameters, nor is the New York Department of Environmental Protection monitoring surface water in Cayuga Lake near this discharge.

* * *

AES Cayuga purchased a former residential well, located downgradient, southwest of the landfill, and evidence of CCW metals can be seen in this well.

* * *

[S]everal wells labeled “upgradient” . . . appear to be influenced by the CCW landfill. Available information suggests that at least five wells designated as upgradient have been contaminated by arsenic and, to a lesser extent, selenium, from the CCW landfill. . . . [these]wells have

¹¹⁹ Jeff Stant, Project Director, Editor and Contributing Author, on behalf of Environmental Integrity Project, Earthjustice, and Sierra Club, *IN HARM’S WAY: Lack Of Federal Coal Ash Regulations Endangers Americans And Their Environment; Thirty-nine New Damage Cases of Contamination from Improperly Disposed Coal Combustion Waste* (August 26, 2010), available at http://action.sierraclub.org/site/DocServer/OOC2_FINAL.pdf?docID=5761 (last visited January 30, 2015).

levels of contaminants that exceed federal and/or State groundwater standards for the same contaminants, particularly selenium and arsenic, that are elevated in the CCW leachate and in the water from the groundwater suppression system.¹²⁰

The report also included a chart reporting exceedances of state groundwater quality standards and federal water quality criteria for arsenic and selenium in all downgradient wells.¹²¹

In light of the Cayuga Plant's multiple and serious violations of Part 360 requirements, and thus of Additional Requirement 6 of this SPDES permit, DEC must revise the Cayuga SPDES permit to ensure that the state's groundwater quality standards are met, and to ensure that the permit's technology and water quality based limits are achieved. DEC must subject the permit to full technical review and add a schedule of compliance to the permit that will require Cayuga to investigate and abate the ongoing violations from its coal ash landfill.

VII. THE SPDES PERMIT'S COOLING WATER INTAKE SYSTEM PROVISIONS FAIL TO SATISFY THE REQUIREMENTS OF NEW YORK'S COOLING WATER INTAKE STRUCTURE BTA POLICY AND SECTION 316(b) OF THE CLEAN WATER ACT.

The SPDES permit is also fundamentally flawed because DEC failed to require or even seriously evaluate the use of a closed-cycle cooling system as the best technology available ("BTA") to implement the requirements of Section 316(b) of the Clean Water Act. The applicable legal standards here are clear. Under both federal law and state regulations, the "location, design, construction, and capacity of cooling water intake structures" are required to "reflect the best technology available for minimizing adverse environmental impact."¹²² DEC implements these provisions through its 2011 BTA policy document in which the agency found that "the demonstrated technology that achieves the greatest reduction in non-contact cooling water use is closed-cycle cooling."¹²³ Despite this finding, which is well-supported by the available evidence, DEC, in its December 2014 DIM for the SPDES permit, attempts to pass off the less effective and comparatively unproven option of cylindrical wedgewire screens ("CWWS") with a slot size of 0.5mm to 1.0 mm and variable speed pumps as satisfying the BTA standard. Those options do not fully minimize the adverse environmental impacts of the Cayuga Plant's once-through cooling water system and, therefore, do not satisfy BTA.

¹²⁰ *Id.* at 112.

¹²¹ *Id.*

¹²² 33 U.S.C. § 1326(b); 6 NYCRR § 704.5.

¹²³ DEC, CP-#52, Best Technology Available (BTA) for Cooling Water Intake Structures, July 10, 2011, at 4, available at http://www.dec.ny.gov/docs/fish_marine_pdf/btapolicyfinal.pdf (last visited January 30, 2015).

As already explained in Sierra Club's June 20, 2013 comments on the proposed DIM¹²⁴ and in the Sierra Club May 3, 2012 Letter regarding the transfer of the SPDES permit for the Cayuga Plant which was repeated and incorporated by reference in Section III above, the CWWS and variable speed pump provisions do not satisfy the requirements of Section 316(b) and New York law, which here require closed-cycle cooling. As detailed in those comments letter, the CWWS and variable speed pump provisions are insufficient because:

- The available evidence, including DEC's position regarding cooling water intake at the Indian Point plant, demonstrates that closed-cycle cooling is BTA, as it would reduce both water intake and fish kills by 98%;
- There is insufficient evidence to determine that the narrow slot CWWS are feasible in Cayuga Lake;
- DEC overestimated the levels of entrainment reductions that would be achieved by the CWWS;
- DEC ignored the significant levels of impingement that would be caused by the CWWS; and
- DEC ignored the fact that CWWS and variable speed pumps would not provide any thermal benefits while closed-cycle cooling would.

In its December 2014 DIM, DEC included a response to comments that purports to address the challenges that Sierra Club raised to the inadequate CWWS and variable speed pump proposal. DEC's responses, however, miss the mark by a wide margin.

First, DEC responds to Sierra Club's comments questioning the feasibility of narrow slot CWWS in Cayuga Lake by claiming that the "Department has acquired substantial affirmation that narrow slot-width CWWS will be able to operate effectively in Cayuga Lake . . . from two studies recently completed that were conducted on the tidal Hudson River."¹²⁵ According to the DEC, "since the results of two feasibility studies conducted on the Hudson River clearly demonstrated that 0.5 mm slot-width CWWS are feasible under highly turbid conditions, there is no reason to expect this technology to fail if operated in a clear water lake."¹²⁶ In the very next sentence, however, DEC argues that the standard that it applied to evaluating feasibility of CWWS in the Hudson River, for the Indian Point plant, does not apply to Cayuga Lake because the conditions in two water bodies are so different. DEC cannot have it both ways – either the standards and conditions in the Hudson are relevant experience to be used in assessing feasibility of CWWS in Cayuga Lake, or they are not.

¹²⁴ Letter from Edan Rotenberg to Rudyard G. Edick, *Re: Department Initiated Modification of SPDES Permit for Cayuga Generating Station* (June 20, 2013). This letter is hereby repeated and incorporated by reference, and is included as Exhibit 7 to these comments.

¹²⁵ December 2014 DIM, Resp. to Comments § 1.A.

¹²⁶ *Id.*

In addition, DEC's suggestion that the presence of turbidity in the Hudson demonstrates that narrow slot CWWS will work in Cayuga Lake misses the point because concerns about whether narrow slot CWWS will work do not stem from turbidity. Instead, the concern is that Cayuga Lake does not have the type of cross-currents that exist in the Hudson River and that help screens work. In addition, unlike the Hudson River, Cayuga Lake has been invaded by water fleas which could interfere with the CWWS. These issues are not addressed by DEC's response, and are meaningful differences between the Hudson and Cayuga Lake that raise concerns about the feasibility of the narrow slot CWWS.

With regards to the feasibility of narrow slot CWWS, it is also important to note that DEC is applying a double standard in its treatment of different technologies. In particular, DEC determined that narrow slot CWWS and variable speed pumps are the best technology available for the Cayuga Plant even before the feasibility studies for these technologies have been conducted. In contrast, DEC refuses to even evaluate whether closed-cycle cooling is available and feasible for the Cayuga Plant, what a closed-cycle cooling system would cost, and what added environmental benefits closed-cycle cooling would provide compared to CWWS and variable speed pumps.

DEC next attempts to rebut the evidence that narrow slot CWWS would lead to increased impingement, but again fails. In particular, DEC dismisses impingement concerns on the ground that the EPA data on impingement mortality that Sierra Club cited purportedly relates only to fine mesh *traveling* screens, rather than the type of passive fine mesh screens that would be used here.¹²⁷ DEC, however, is flatly wrong, as EPA explained in its response to comments document for the final rule:

EPA has evaluated the use of fine mesh screens (both fine mesh traveling screens and fine mesh wedgewire screens) . . . In response to the commenter stating that EPA had equated the performance of fine mesh traveling screens with fine mesh wedgewire screens, EPA's intent in discussing the two technologies jointly was to raise the issue of screen mesh size and the possibility that previously entrained organisms could then instead be impinged.¹²⁸

And, in fact, EPA reiterated its concerns about increased impingement from fine mesh wedgewire screens in finalizing its cooling water intake rule. For example, in the Response to Comments document issued with the rule, EPA explained that:

¹²⁷ December 2014 DIM, Resp. to Comments § 1.C.

¹²⁸ EPA, *Response to Public Comment: National Pollutant Discharge Elimination System Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities (40 CFR Parts 122 and 125)*, at 180, Docket # EPA-HQ-OW-2008-0667 (May 19, 2014) [Response to Comments], available at <http://www.regulations.gov/#1documentDetail:D=EPA-HQ-OW-2008-0667-3679> (last visited January 30, 2015).

EPA specifically recognized that the two technologies operate differently and some studies have shown modest performance levels of fine mesh wedgewire screens on exclusion of some organisms. However, more commonly EPA found that smaller organisms were simply impinged on the fine mesh rather than being entrained by the intake structure (also called “converts”). Upon review of the survival of these smaller organisms post-impingement, EPA concludes the overall survival was low.

.....
EPA found that the survival of impinged organisms smaller than the 3/8-inch mesh size to be poor; unlike larger and more mature life stages of fish, larvae and similar early life stages have little avoidance response, undeveloped skeletal structure, and a general lack of mobility. Eggs have no mobility and no avoidance response. Thus while fine mesh screens may reduce entrainment, the mean value of entrainment survival is 12 percent.¹²⁹

The available evidence shows that there is a significant likelihood that the proposed narrow slot CWWS will lead to significant impingement impacts on aquatic life in Cayuga Lake. Such impingement impacts must be factored into the selection of BTA for the Cayuga Plant cooling water intake rather than being baselessly dismissed.

Finally, DEC will presumably contend that any concerns about the performance of the narrow slot CWWS and variable speed pumps provisions are supplanted by the equivalent performance provisions of the SPDES permit pursuant to which impingement is to be reduced by 95% and entrainment by 85%.¹³⁰ But these provisions are inadequate to ensure that BTA-level reductions in aquatic impacts will occur for at least two reasons.

First, there is no evidentiary basis upon which to conclude that narrow slot CWWS and variable speed pumps are equivalent to closed-cycle cooling. In fact, EPA has found exactly the opposite. In particular, EPA has specifically found that “closed-cycle recirculating systems reduce entrainment (and impingement mortality) to the greatest extent and are the most effective performing technology.”¹³¹ EPA also explained in response to public comments on its final rule, “one commenter specifically argued that wedgewire screens can offer comparable performance to closed-cycle cooling.” But after reviewing all of the available performance data – including the EPRI studies that DEC relies on – EPA’s conclusion was stark: “EPA disagrees with all of these comments

¹²⁹ *Id.* at 180-81; *see also* EPA, Technical Development Document for the Final Section 316(b) Existing Facilities Rule, EPA-821-R-14-002 (May 2014), at 6-47 (“More tellingly, the mortality of larvae collected from a fine mesh screen was usually greater than 80 percent. As a result, a facility with entrainment exclusion technologies such as fine mesh screens could approach 90 percent performance, but the subsequent survival of these organisms ranged from 0 to 52 percent (mean value of 12 percent survival) depending on life stage and species, and the facility’s impingement mortality rates increased.”), available at http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/upload/Cooling-Water_Phase-4_TDD_2014.pdf (last visited January 30, 2015).

¹³⁰ Dec. 2014 DIM, Permit at 18.

¹³¹ 79 Fed. Reg. at 48340.

fine mesh screens do not offer survival of entrainable organisms to the extent CCRS [closed-cycle recirculating systems] can. The record shows that CCRS reduces the entrainment mortality of eggs and larvae 8-fold more than fine mesh screens (based on the mean value of performance data for both eggs and larvae).”¹³²

Second, the equivalent performance provisions in the SPDES permit allow for lengthy delays before substantial reductions in impingement and entrainment must occur. In particular, the 95% impingement and 85% entrainment reductions are not required to be demonstrated for five years. And while the permit includes a “contingency plan” provision if the CWWS plan ends up being infeasible, that “plan” simply calls for the same approach just with large slot widths for the wedge wire screens.¹³³ As Sierra Club pointed out in its previous comments, moving to larger slot widths will almost entirely negate the purported impingement and entrainment benefits of converting to wedgewire screens. The potential for lengthy delays that these provisions open up is especially concerning given how little evidence there is that the narrow slot CWWS and variable speed pumps approach will achieve reductions in entrainment and impingement that are anywhere close to what is required by the Clean Water Act.

VIII. DEC SHOULD MODIFY THE SPDES PERMIT TO REQUIRE THAT THE CAYUGA PLANT CONVERT TO DRY BOTTOM ASH HANDLING.

In its May 3, 2012 Letter, Sierra Club wrote to DEC that the wet handling of ash at Cayuga does not reflect use of the best available technology economically achievable to reduce water pollution, as required by Section 301 of the Act. 33 U.S.C. §1311. Sierra Club requested that DEC modify the Cayuga SPDES permit to require a conversion to full dry handling of all bottom ash. In response, DEC said that:

Bottom ash transport water at AES Cayuga is regulated, as required, by 40 CFR Part 423. The bottom ash transport water at AES Cayuga is dewatered and decanted. Overflow from the decanted bottom ash water is either reused or sent to the process water reclamation facility for further treatment prior to discharge. . . . The SPDES permit . . . includes limits that satisfy the requirements of 40 CFR Part 423. The Department will take Sierra Club comments into account during the next full technical review in 2014.¹³⁴

2014 has passed, but DEC has not conducted the promised full technical review. And while DEC appears to rely on the existing national effluent limitation guidelines (“ELGs”) for coal-fired power plants, 40 C.F.R. Pt. 423 (promulgated in 1982), to excuse its failure to require dry bottom ash handling, such reliance is both legally and factually flawed. As EPA has explained repeatedly to state regulators, the 1982 ELGs did not

¹³² Response to Comments at 163.

¹³³ Dec. 2014 DIM, Permit at 19.

¹³⁴ Tierney Letter at 4.

purport to establish BAT for bottom ash transport water and, instead, state permit writers must use their Best Professional Judgment (“BPJ”) to set such BAT limits.¹³⁵ The available evidence clearly demonstrates that the best available technology for addressing bottom ash transport water wastestream is dry bottom ash handling.

There can be no reasonable dispute that bottom ash waste handling is currently a major wastestream at the Cayuga Plant. Cayuga uses water to sluice bottom ash away from the boilers. Bottom ash is partially dewatered and trucked to the landfill. At capacity, the flow diagram on page 13 of the SPDES permit indicates that Cayuga adds approximately 40,000 gallons of water to sluice bottom ash away from the boilers every day,¹³⁶ meaning that about 40,000 gallons of water are lost every day – either routed to the plant’s main waste treatment system (outfall 01B, discharging through outfall 001),¹³⁷ or carried by truck and dumped in the landfill along with the coal ash. Over the course of a year, enormous volumes of bottom ash transport water leach out of the landfill. Most of that water passes through minimal treatment at the landfill retention pond and discharges to Cayuga Lake via outfall 013. Some of that bottom ash transport water also flows out of the leaking landfill and seeps into Milliken Creek or is conveyed via groundwater into Cayuga Lake.

Bottom ash transport waters, like other coal combustion wastes, contain a number of metals in both suspended and dissolved forms including mercury, selenium, chromium, and others.¹³⁸ Data from other plants show that bottom ash transport waters contain toxic metals that are not adequately eliminated by sedimentation ponds (or sand filtration). In 1982, EPA gathered effluent samples from nine settling basins that receive *only* bottom ash transport water.¹³⁹ EPA found arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, and zinc in the sedimentation pond discharges. EPA also reported an average iron concentration of 3.4 mg/L at these nine plants, and an average mercury concentration of 800 ng/L – more than one thousand times higher than New York’s statewide limit for discharge to fishable waters.¹⁴⁰

¹³⁵ See, e.g., Letter from Christopher Thomas, EPA Region 4, to Paul Davis, Tennessee Department of Environment and Conservation regarding the draft NPDES permit for the Tennessee Valley Authority Gallatin Fossil Plant, dated Aug. 11, 2011 (“The record for the 1982 ELG indicates that Best Available Technology (BAT) was not established for fly ash or bottom ash transporter water in the final 1982 rule. These wastewaters discharge from CCR [coal combustion residual] impoundments. Thus, BAT-based limits would currently need to be established through BPJ for discharges from CCR impoundments.”); Letter from Christopher Thomas, EPA Region 4, to Paul Davis, Tennessee Department of Environment and Conservation regarding the draft NPDES permit for the Tennessee Valley Authority Kingston Fossil Plant, dated Aug. 8, 2011 (same language).

¹³⁶ See Cayuga SPDES Permit at 13 of 28 (showing that bottom ash sluice systems produce approximately 40,000 GPD of wastewater).

¹³⁷ See Cayuga SPDES Permit at 13 of 28.

¹³⁸ See Hanlon Memo, Attachment B, at 3.

¹³⁹ See EPA, *Development Document for Final Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Steam Electric Point Source Category* 158, Table V-33 (Nov. 1982), available at <http://yosemite.epa.gov/water/owrccatalog.nsf/065ca07e299b464685256ce50075c11a/bcb8943d1dacbe6085256b060072340e!OpenDocument> (last visited January 30, 2015).

¹⁴⁰ *Id.*

In 2009, EPA analyzed the effluent from another pond receiving only bottom ash transport waters, located at Pennsylvania's Homer City plant.¹⁴¹ Testing of the Homer City effluent revealed selenium concentrations of 6.1 µg/L, consistent with EPA's findings nearly three decades earlier. Testing also revealed the presence of dissolved hexavalent chromium. And while mercury concentrations were far lower at Homer City in 2009 than in EPA's 1982 tests,¹⁴² the concentrations still exceeded New York's statewide water quality-based effluent limits. Thus, assuming that settled bottom ash transport waters at Cayuga are comparable to those at other plants, undiluted bottom ash transport waters likely contain ten or more toxic metals including dissolved mercury, arsenic, and selenium. The discharge of these effluents causes or contributes to ongoing violations of water quality standards for mercury in Cayuga Lake.

Currently, the SPDES permit does not impose internal effluent limits on bottom ash transport waters per se. Instead, Cayuga mixes part of the bottom ash transport water with other waste streams and sets internal effluent limits upon the mixed waste at the plant's waste treatment facility.¹⁴³ The remainder of the bottom ash transport water is conveyed with ash to the onsite landfill, where it either leaks into groundwater or is discharged via the landfill's sedimentation pond after first mixing with other sources of leachate, stormwater runoff, and groundwater.¹⁴⁴ As such, there is no sampling data that measures the concentration of pollution in undiluted bottom ash transport waters or the effectiveness of treatment technologies on this waste.

DEC's treatment of bottom ash wastewater fails to satisfy the Clean Water Act, which requires that DEC set BPJ-based BAT effluent limits on bottom ash transport waters directly, not on a diluted discharge. As EPA has explained in the context of the NPDES permitting for the Merrimack plant:

The Steam Electric Power Plant ELGs, *See* 40 C.F.R. Part 423, require that when separately regulated waste streams (i.e., "waste streams from different sources") are combined for treatment or discharge, each waste stream must independently satisfy the effluent limitations applicable to it. *See* 40 C.F.R. §§ 423.12(b)(12), 423.13(h). *See also* 40 C.F.R. § 125.3(f) (technology-based treatment requirements may not be satisfied with "non-treatment" techniques such as flow augmentation). Thus, it is not acceptable to determine compliance for different wastewater streams after they have been mixed (or diluted) with each other, unless the effluent limits applicable to them are the same. *See* 40 C.F.R. § 122.45(h) (internal waste streams).¹⁴⁵

¹⁴¹ *See* EPA Detailed Study at 5-17 to 5-20.

¹⁴² *See id.* (5 ng/L total and 1.4 ng/L dissolved at Homer City).

¹⁴³ Cayuga SPDES Permit, Outfall 01B, at 4 of 28.

¹⁴⁴ Cayuga SPDES Permit, Outfall 013, at 7 of 28.

¹⁴⁵ EPA, Merrimack Station 2011 Draft NPDES Permit Fact Sheet (Sept. 29, 2011) at 20 of 60, *available at* <http://www.epa.gov/region1/npdes/merrimackstation/pdfs/MerrimackStationFactSheet.pdf> (last visited Jan. 29, 2015).

In short, bottom ash transport waters are a separately regulated waste stream from a “different source” than the other effluents with which they are mixed. Consequently, DEC must establish separate effluent limits and treatment methods for bottom ash transport waters in the SPDES permit.¹⁴⁶

In order to do this, DEC must conduct a full technical review of the Cayuga SPDES permit in order to evaluate bottom ash transport water as an independent waste stream and set effluent limitations on this waste stream that represent the level of pollution reduction achievable by application of BAT.¹⁴⁷ Without doing so, DEC cannot lawfully conclude that the effluent limitations established at outfalls 01B and 013 (the two outfalls that discharge water that has been used to transport bottom ash) ensure compliance with the technology based requirements of the Clean Water Act.

The available evidence firmly establishes that dry ash handling is the best available technology economically achievable for reducing the discharge of mercury and other toxic metals from bottom ash transport waters, as it is affordable, widely used in the industry, and completely eliminates this waste stream. Seven years ago, EPA found that thirteen percent (13%) of the plants sampled already operated dry handling systems for bottom ash.¹⁴⁸ More than four-and-a-half years ago – in July 2010 – the Tennessee Valley Authority announced plans to convert all of its power plants to dry bottom ash handling.¹⁴⁹ And while the 1982 ELGs did not address BAT standards for bottom ash transport waters, EPA’s proposed revisions to the ELGs, which were issued in draft form in June 2013, will create national ELGs for bottom ash transport waters.¹⁵⁰ In the preamble to that proposal, which is scheduled to be finalized in September 2015, EPA states that many power plants today design their fly and bottom ash handling systems to eliminate the discharge of any wastewater from the ash handling process.¹⁵¹ Accordingly, EPA’s proposed new standards conclude that the current BAT is “no discharge of wastewater pollutants” from either bottom ash or fly ash transport waters.¹⁵²

¹⁴⁶ In addition to being “from a different source” than other wastewaters, bottom and fly ash transport waters are also “separately regulated.” EPA analyzed bottom and fly ash transport waters as different sources of pollution when developing the 1982 ELGs and regulated these waters separately from other wastes – for example, by establishing national BPT (best practicable control technology currently available) effluent limits for fly and bottom ash transport waters at 40 C.F.R. § 423.12(b)(4).

¹⁴⁷ See 40 C.F.R. § 122.44(a) (NPDES permits must include conditions that meet the Clean Water Act’s technology-based effluent limitations and standards); see also 6 NYCRR § 750-1.11(a)(7) (“The provisions of each issued SPDES permit *shall ensure compliance with* . . . [BAT effluent limitations and] prior to promulgation by the administrator of applicable effluent standards and limitations, BPJ effluent limitations and such conditions as the commissioner determines are necessary to carry out the provisions of this Part pursuant to Section 402 of the Act and 40 CFR Part 125.”).

¹⁴⁸ See EPA Detailed Study at 5-5.

¹⁴⁹ See TVA, *Coal Combustion Byproducts* (July 2010), available at www.tva.gov/news/keytopics/coal_combustion_products.htm (last visited January 30, 2015) (“All 11 TVA coal-burning plants now use wet bottom-ash systems, and these will be converted to dry systems.”).

¹⁵⁰ EPA, *Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, Proposed Rule*, 78 Fed. Reg. 34432 (June 7, 2013).

¹⁵¹ 78 Fed. Reg. at 34453.

¹⁵² 78 Fed. Reg. at 34535 (Proposed 40 C.F.R. § 423.13(h)(1) and (k)(1)).

Because EPA's proposed new regulations are not final yet, DEC must still make its own BAT determination for the Cayuga Plant. But the BAT standard requires "the elimination of discharges of all pollutants if the Administrator finds . . . that such elimination is technologically and economically achievable,"¹⁵³ EPA has found, and the available evidence demonstrates, that dry ash handling is technologically and economically achievable. Therefore, DEC must set a zero discharge BAT effluent limitation for bottom ash transport waters at the Cayuga Plant.

In addition to requiring a dry handling conversion to comply with the Clean Water Act's technology-based standards, DEC must require this conversion so that Cayuga's discharge of bottom ash transport water meets the 0.7 ng/L statewide effluent limit for mercury. As discussed above, DEC determined that a statewide WQBEL for mercury of 0.7 ng/L was necessary, but then unlawfully issued a statewide variance to that standard of 50 ng/L for all mercury dischargers including the Cayuga Plant. Discharge monitoring reports (DMRs) from the plant show that the sedimentation pond discharge (outfall 013) routinely exceeds the 0.7 ng/L standard needed to protect fishable waters, even though the bottom ash transport water in the sedimentation pond is diluted by stormwater runoff and groundwater. Cayuga reported that mercury concentrations in its sedimentation pond discharge met or exceeded 2 ng/L on three occasions between 2010 and 2012.¹⁵⁴ Conversion to dry bottom ash handling is feasible and would completely eliminate this discharge of mercury. Under these circumstances, it is arbitrary, capricious, and an abuse of discretion for DEC to rely on the statewide multiple discharger variance for mercury. In order to comply with the 0.7 ng/L statewide effluent limit for mercury, Cayuga must convert to dry handling.

IX. CONCLUSION

For the reasons stated above, DEC cannot administratively renew the SPDES permit for the Cayuga Plant. Instead, a full technical review is required, at the conclusion of which DEC should revise the SPDES permit to, at minimum, address the following needed modifications:

1. require the installation of a closed-cycle cooling system;
2. impose significantly more stringent technology-based effluent limits on the discharge of all pollutants from FGD wastewater;
3. impose significantly more stringent technology-based effluent limits on the discharge of leachate from outfall 013;
4. impose water quality and technology-based effluent limits on the discharge of mercury in all effluent streams that require zero or near-zero levels of mercury discharge;

¹⁵³ 33 U.S.C. § 1311(b)(2)(A).

¹⁵⁴ Discharge monitoring reports were provided in electronic form by DEC.

5. require a conversion to dry handling of bottom ash; and
6. terminate unlawful discharges to groundwater from the coal pile and from the coal ash landfill at Cayuga.

Given the significant substantive issues at stake in this permitting process, we request that DEC hold public and adjudicatory hearings prior to the issuance of any renewal of the SPDES permit. We also request an opportunity to meet with DEC staff as soon as possible to discuss the situation at the Cayuga Plant.

Thank you for consideration of these comments and request for a technical review and modification of the SPDES permit for the Cayuga Plant. We look forward to the opportunity to discuss the matters addressed in this letter.

Respectfully submitted,

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