EARTHJUSTICE

February 17, 2026

Via e-mail to dec.sm.esmi@dec.ny.gov
Beth A. Magee
NYSDEC Region 5
232 Golf Course Rd.
Warrensburg, NY 12885

Re: Comments on Clean Earth RD&D Permit, DEC ID # 5-5330-00038/00027

Dear Ms. Magee,

Earthjustice, on behalf of Clean Air Action Network of Glens Falls, Inc. ("CAAN"), and joined by the undersigned 77 organizations, respectfully submits these Comments and requests that the Department of Environmental Conservation ("DEC") deny the application of Environmental Soil Management of New York, LLC, a Clean Earth Company (the "Applicant") for a Research, Development & Demonstration ("RD&D") permit.

On December 11, 2025, DEC prepared a draft permit that would allow the Applicant to thermally treat up to 5,000 tons of per- and polyfluoroalkyl substances ("PFAS")-contaminated soil over a two-week period at the Applicant's thermal desorption treatment center in Fort Edward, NY (the "Project").[1] The emissions from this activity would deposit PFAS, forever chemicals that are not safe at any level of exposure and are associated with significant health impacts, across Fort Edward and surrounding communities.

DEC must deny the proposed permit because the Project lacks sufficient scientific bases to guarantee that it can be performed safely. The Applicant has not identified the composition or concentration of PFAS likely to be present in the soil to be treated: prerequisite information to ascertain the effectiveness of the protocol. Critically, the Project proposes thermal desorption and thermal oxidizer treatment at temperatures that, based on available scientific evidence, are far below those necessary to separate the PFAS from the contaminated soil, let alone eliminate them. The Applicant further relies on inadequate metrics to support the tests' anticipated success. Additionally, the Applicant has failed to comply with the requirements of the Environmental Justice Siting Law ("Siting Law") because it did not complete an existing burden report, despite its own data showing potential harmful impacts to the nearby disadvantaged communities of Hudson Falls and Glens Falls. Were DEC to grant this RD&D permit, that action would be arbitrary and capricious and contrary to law, and likely to result in the release of dangerous PFAS into the surrounding communities.

[1] Documents related to the Project are available at https://pages.cleanearthinc.com/new-york-ppp. Documents cited here that are not available online are attached in the Appendix to these Comments.

I. BACKGROUND

PFAS represent a large class of chemicals known to be hazardous to human health.[2] A uniform characteristic among PFAS is the carbon-fluorine bond—"one of the strongest ever created"—that makes PFAS extremely persistent in the environment and difficult to break down or remediate.[3] Indeed, "[t]he most consistent feature within the class of PFAS is that their perfluorocarbon moieties do not break down, or do so very slowly under natural conditions, which is why PFAS are often termed 'forever chemicals.'"[4] "[A]ll PFAS either are extremely persistent in the environment and biota or partially transform into extremely persistent PFAS."[5]

The human health risks associated with PFAS are well-established and have been widely recognized by international scientific organizations,[6] federal and state regulatory agencies,[7] and other leading scientific bodies.[8] PFAS generally are associated with significant and diverse adverse health effects that "include (but are not limited to): effects on the liver (*e.g.*, liver cell death), growth and development (*e.g.*, low birth weight), hormone levels, kidney, the immune system (reduced response to vaccines), lipid levels (*e.g.*, high cholesterol), the nervous system, and reproduction, as well as increased risk of certain types of cancer."[9] These harms do not appear solely at high levels of exposure. Many PFAS present health risks at the lowest measurable exposure levels, and recent studies link adverse health effects in both

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[2] PFAS are linked to a variety of adverse health effects, including cancer, elevated cholesterol, obesity, immune suppression, pre-eclampsia, impaired liver and kidney function, and endocrine disruption. Agency for Toxic Substances & Disease Registry, U.S. Dep't Health & Hum. Servs., *Toxicological Profile for Perfluoroalkyls* (May 2021) ("PFAS Tox. Profile"), https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf.

[3] *Examining the Federal Response to the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS): Hearing Before the S. Comm. on Env't & Pub. Works*, 116th Cong. 2 (Mar. 28, 2019) (testimony of Linda S. Birnbaum, Dir., Nat'l Inst. of Env't Health Scis. & Nat'l Toxicology Program, Nat'l Insts. of Health), https://www.epw.senate.gov/public/_cache/files/2/2/22ca7c4b-b1dc-4a12-9264-7a4f16608933/BF2D70A4FB747A3F61E584CC30D58D0A.birnbaum-testimony-03.28.2019.pdf; *see also* Changes to Reporting Requirements for Per- and Polyfluoroalkyl Substances and to Supplier Notifications for Chemicals of Special Concern; Community Right-to-Know Toxic Chemical Release Reporting, 87 Fed. Reg. 74,379, 74,382 (proposed Dec. 5, 2022) (to be codified at 40 C.F.R. pt. 372).

[4] Carol F. Kwiatkowski et al., *Scientific Basis for Managing PFAS as a Chemical Class*, 7 Env't. Sci. Tech. Letters 532 (2020), https://doi.org/10.1021/acs.estlett.0c00255.

[5] *Id.* at 8.

[6] *See* United Nations Env't Programme, *Risk Profile on Perfluorooctane Sulfonate* 25–26, 29 (2006), http://chm.pops.int/Portals/0/download.aspx?d=UNEP-POPS-POPRC.2-17-Add.5.English.PDF; United Nations Env't Programme, *Risk Profile on Pentadecafluorooctanoic Acid (PFOA, Perfluorooctanoic Acid), Its Salts and PFOA-related Compounds* 24–26 (2016), http://chm.pops.int/Portals/0/download.aspx?d=UNEP-POPS-POPRC.12-11-Add.2.English.PDF.

[7] PFAS Tox. Profile *supra* note 1 at 4–21; 26–29; Off. of Env't Health Hazard Assessment, Cal. Env't Protection Agency, *Perfluorooctanoic Acid and Perfluorooctane Sulfonic Acid in Drinking Water (First Public Review Draft)*, 62–166 (2021), https://oehha.ca.gov/sites/default/files/media/downloads/crnr/pfoapfosphgdraft061021.pdf.

[8] Nat'l Acads. of Sci., Eng'g, & Med., *Guidance on PFAS Exposure, Testing, and Clinical Follow-Up* 6–8 (2022), https://nap.nationalacademies.org/catalog/26156/guidance-on-pfas-exposure-testing-and-clinical-follow-up; *see also* Arlene Blum et al., *The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFASs)*, 123 Env't Health Persps. A107, A107 (2015), https://pmc.ncbi.nlm.nih.gov/articles/PMC4421777/ (releasing a statement by more than 250 scientists expressing "concern[] about the production and release into the environment of an increasing number of [PFAS]").

[9] PFAS National Primary Drinking Water Regulation, 89 Fed. Reg. 32532, 32536–37 (Apr. 26, 2024).

humans[10] and wildlife[11] to PFAS exposure levels occurring in the environment. PFAS bioaccumulate, or build up, in people and animals, meaning even low-level releases can result in significant long-term exposures and harm.[12]

The Applicant intends to transport approximately 5,000 tons of PFAS-contaminated soil from outside of Fort Edward to the facility.[13] The contaminated soil will be stored on-site in a polyethylene-lined concrete bunker while it awaits treatment.[14] DEC has acknowledged that "[i]t is understood that the facility does not know where it will source the contaminated soil from at this time, and therefore the levels of PFAS contamination are unknown."[15]

The thermal treatment process has two steps. First, according to the Applicant, heating the contaminated soil in a thermal desorption unit will separate (or "desorb") any PFAS from the soil. In the second step, the volatilized, gaseous PFAS will then be heated at an even higher temperature in a thermal oxidizer, which the Applicant believes will destroy the PFAS. Specifically, the Applicant intends to heat the soil first in the thermal desorption unit to temperatures ranging from 700° to 900°F, and then put the desorbed gas through its thermal oxidizer at 1550°F, 1650°F, 1750°F, and 2000°F.[16] The Applicant "expects all four temperatures to be effective."[17] Originally, the Applicant sought to run the test at only the three lower temperatures, but DEC specifically requested that the company run the thermal oxidizer at 2000°F.[18] The Applicant replied that the higher temperature test will not supplant the lower temperature tests, but will be "additional" and "will increase the operating time and tonnage required to complete all emission testing."[19]

During the RD&D testing, the Applicant states it intends to take air emissions tests as

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[10] *See* Guoqi Yu et al., *Environmental Exposure to Perfluoroalkyl Substances in Early Pregnancy, Maternal Glucose Homeostasis and the Risk of Gestational Diabetes: A Prospective Cohort Study*, 156 Env't Int'l 106621, at 8 (2021), https://doi.org/10.1016/j.envint.2021.106621; *see also* Rahel L. Birru et al., *A Pathway Level Analysis of PFAS Exposure and Risk of Gestational Diabetes Mellitus*, 20 Env't Health 63, at 8–12 (2021), https://doi.org/10.1186/s12940-021-00740-z.

[11] *See* Carolyn A. Sonter et al., *Biological and Behavioral Responses of European Honey Bee (*Apis Mellifera*) Colonies to Perfluorooctane Sulfonate Exposure*, 17 Integrated Env't Assessment & Mgmt. 673, 679–80 (2021), https://doi.org/10.1002/ieam.4421; *see also* John P. Giesy & Kurunthachalam Kannan, *Global distribution of perfluorooctane sulfonate in wildlife*, 35 Env't Sci. Tech. 1339 (2001), https://doi.org/10.1021/es001834k (reporting bioaccumulation of PFOS in wildlife).

[12] Maria-Eleni Dimitrakopoulou et al., *Comprehensive Analysis of PFAS Presence from Environment to Plate*, 8 NPJ Sci. Food 80, at 4 (2024), https://doi.org/10.1038/s41538-024-00319-1 ("PFAS compounds possess a remarkable ability to bioaccumulate in organisms . . . .").

[13] Clean Earth, Draft RD&D Permit for Facility ID 5-5330-00038 (Dec. 11, 2025) ("Draft Permit"), https://pages.cleanearthinc.com/hubfs/2%20-%20ESMI%20of%20NY.RD%20and%20D.PFAS%20Soils.Ren%200%20Mod%200.DRAFT%20permit.121125.pdf.

[14] Clean Earth, Application for Solid Waste Management RD&D Permit Draft Permit ("Application"), at 9 (Dec. 29, 2023), https://pages.cleanearthinc.com/hubfs/1%20-%20ESMI%20of%20NY%20RD_D%20PFAS%20Submittal_Final_122923.pdf.

[15] Letter from DEC to Clean Earth, Attachment A, at Item 1 (Mar. 19, 2025), https://pages.cleanearthinc.com/hubfs/ESMI%20of%20NY%20RD_D%20PFAS%20MOD%20Request%20MAR%202025%20-%20ESMI-CE%20Response%20Final.pdf.

[16] Clean Earth Responses to June 18, 2025 Public Information Meeting Comments at 11–12 (July 2, 2025), https://pages.cleanearthinc.com/hubfs/Response%20to%20Questions%20-%20June%2018%20PIM.pdf.

[17] *Id*. at 12.

[18] Letter from DEC to Clean Earth, *supra* note 14, at Item 4.

[19] Clean Earth Response to DEC, at Item 4 (May 22, 2025), https://pages.cleanearthinc.com/hubfs/ESMI%20of%20NY%20RD_D%20PFAS%20MOD%20Request%20MAR%202025%20-%20ESMI-CE%20Response%20Final.pdf.

well as final soil tests to determine the efficacy of the thermal treatment on PFAS.

II. THE PROPOSED TESTS WOULD BE INEFFECTIVE AT DESTROYING PFAS, RELEASING DANGEROUS FOREVER CHEMICALS INTO LOCAL COMMUNITIES

Available science and information presented in the application demonstrate that the proposed Project would not be able to operate safely without the escape of toxic PFAS into Fort Edward and surrounding communities. For an RD&D permit to be issued, the Applicant must "demonstrate that adequate protection of public health and the environment will be maintained during all phases of the RD&D project." 6 NYCRR § 360.18(b)(2). "[T]he quantity and types of waste subject to the RD&D permit must not exceed those needed to effectively address the research objectives." 6 NYCRR § 360.18(d)(3). Additionally, all New Yorkers have a constitutional right to "clean air and water, and a healthful environment."[20] In light of these constitutional protections—which were enacted, in part, to protect communities from PFAS[21]—DEC is bound to interpret the RD&D requirements stringently and resolve ambiguities and close cases in favor of health protective measures.[22] As described below, the Project as currently designed fails both the regulatory and constitutional standards because there is no evidence the proposed tests could be effective at destroying PFAS. The tests therefore require unnecessary importation and emission of PFAS harmful to human health.

a. The Project Fails to Adequately Identify PFAS Contamination in the Soil.

The Applicant has not provided sufficient information about the composition and concentration of different forms of PFAS and co-contaminants in the soil to support its conclusion that its tests will be effective.

While the Applicant has identified and will test for five types of PFAS,[23] those represent only a fraction of the thousands of types that exist. PFAS vary in size, structure, and chemical composition. PFAS bonds can be "long-chain" or "short-chain," and they break down at different temperatures and rates. One method of destruction (or temperature) may be effective for short-chain bonds, but ineffective for long-chain bonds, and vice versa. For example, "longer-chain PFAS tend to adhere more strongly to soil particles."[24] Higher concentrations of PFAS (particularly long-chain) also require higher energy outputs to

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[20] N.Y. Const. art. I, § 19.

[21] Katrina F. Kuh et. al., *New York's Constitutional Guarantee of Environmental Rights*, 27 N.Y.U. J. Legis. & Pub. Pol'y 361, 373–77 (2025), https://nyujlpp.org/wp-content/uploads/2025/03/JLPP-27-2-Kuh-Robinson-and-Fein.pdf (describing the disaster in Hoosick Falls, in which drinking water was heavily contaminated with PFAS and PFOA, a chief motivator in adoption of the law).

[22] *See* Nicholas A. Robinson, "The Impact of the Green Amendment - A New Era of Environmental Jurisprudence," *New York's Green Amendment: Mountain or Molehill?*, Albany Law School, at 17 (Apr. 26, 2022), https://www.albanylaw.edu/media/15366/download?attachment (noting that with the passage of N.Y. Const. art. I, § 19, "[i]nterpretation of . . . regulations will now apply these environmental norms"); *see also* Rebecca Bratspies & Katrina F. Kuh, "New Yorkers' Environmental Rights Are Under Attack," Bloomberg Law (June 24, 2022), https://news.bloomberglaw.com/us-law-week/new-yorkers-environmental-rights-are-under-attack.

[23] Application at 8 (stating that "[a]ctual emissions . . . will be compared to the potential to emit (PTE) calculations . . . utilized in the facility Modeling to determine if the model should be re-run"); *see also* C.T. Male Associates, *Summary of Results - Emission Point Modeling Using AERMOD Software* 7 (2019) (modeling five PFAS compounds), https://www.win-waste.com/globalassets/leominster/whf---air-modeling-results.pdf (modeling five PFAS compounds).

[24] Declaration of Denise Trabbic-Pointer ("Trabbic-Pointer Decl.") at ¶ 21, attached hereto as Exhibit 1.

desorb.[25] The Applicant's failure to identify more than a handful of PFAS, or the concentrations of those PFAS, makes it impossible to state with certainty that their treatment will be effective.

The Applicant has also not provided a characterization of the soil, including potential co-contaminants contained therein, necessary to ensure successful PFAS destruction. The composition of the soil—sandy, silty, clay, or loamy—"will significantly impact thermal treatment parameters such as temperature, residence time, heat transfer, contaminant sorption strength, and the formation of vapor-phase products."[26] The Applicant acknowledges the role of soil characterization in its permit application,[27] but fails to address its implications and the related flaws in its proposal. Similarly, the presence of co-contaminants in the soil, such as polychlorinated biphenyls ("PCBs"), can prevent complete combustion.[28] Yet the application's pre- and post-treatment soil testing does not include co-contaminants, including PCBs.

Without knowing which PFAS the soil is contaminated with, the concentration of that PFAS in the soil, and the composition of the soil to be treated, it is impossible to state that all PFAS during this Project could and would be destroyed under the proposed conditions.

b. The Temperatures of the Thermal Desorption Unit and Thermal Oxidizer are Not High Enough to Separate PFAS From the Soil, Let Alone Destroy PFAS.

The proposed temperatures of both the thermal desorption unit and the thermal oxidizer are not high enough to effectively separate PFAS from the soil and destroy it.[29] Insufficient temperature in the thermal desorption unit means that PFAS will not be successfully separated from the soil, and the soil will remain contaminated with PFAS after being treated. Insufficient temperature in the thermal oxidizer means that PFAS will not be completely destroyed, but transformed. As a result, the proposed temperatures would lead to the escape of PFAS from the facility's stack into the surrounding environment.

As to the first stage of the testing process, the Applicant's proposed temperatures of 700°F (371°C), 800°F (427°C), and 900°F (482°C) are insufficient to remove PFAS from contaminated soil. Desorption requires sufficiently high temperatures and residence times to break the bonds between PFAS molecules and soil particles.[30] Effective desorption volatizes PFAS compounds into gas, which is then sent to the thermal oxidizer to mineralize, or destroy completely, gaseous PFAS.[31] Current evidence reflects that effective desorption of PFAS from soil requires temperatures close to 1292°F–1652°F (700°C–900°C).[32] Perfluoroalkane sulfonates (PFSAs) require temperatures of at least 500°C and residence times of at least 40 minutes—hotter and longer than any of the Applicant's proposed tests—to achieve 99.9976%

[25] *Id.* at ¶ 14.
[26] *Id.* at ¶ 12.
[27] Application at 3 (acknowledging that "soil organic matter (SOM) plays a role in PFAS retention in soil by binding PFAS and slowing the leaching of the substances.").
[28] Trabbic-Pointer Decl. at ¶¶ 10, 13, 15–16.
[29] *Id.* at ¶¶ 10, 18–29.
[30] *Id.* at ¶¶ 18, 22.
[31] *Id.* at ¶ 18.
[32] Ali Alinezhad et al., *An Investigation of Thermal Air Degradation and Pyrolysis of Per- and Polyfluoroalkyl Substances and Aqueous Film-Forming Foams in Soil* 2 ACS ES&T Engineering 198 (2022), https://doi.org/10.1021/acsestengg.1c00335.

decomposition.[33] None of the temperatures (all below 500°C) and residence times (15 minutes) the Applicant proposes reflect these findings.

The Applicant improperly relies solely on boiling points to support its assertion that its thermal desorption unit can remove PFAS from soil. Boiling points determine if a pure compound is solid, liquid, or gas at certain temperatures, but do not signify destruction of the carbon-fluorine bond that makes PFAS so resistant to breakdown.[34] Introducing soil to the process adds additional complexities. Even at their boiling point, "PFAS compounds can remain bound to soil or even degrade into other PFAS in the soil."[35] In one study, a thermal desorption treatment with a residence time of ten days at 300°C only separated "93–97% of PFCAs and 52–75% of PFSAs" from contaminated soil.[36] Other trials at the higher temperature of 550°C "have reported 71–99% removal of PFAS" from the soil.[37] Additionally, "low-temperature thermal desorption can volatilize (short-chain) PFCAs with low boiling points, but is otherwise ineffective at removing high-boiling-point, long-chain PFSAs."[38] The Applicant has not provided a sufficient basis to support its assertion that the thermal desorption unit will effectively separate PFAS from contaminated soil.

Even if the thermal desorption unit temperatures were high enough to successfully separate PFAS from the soil, the thermal oxidizer temperatures for the secondary treatment unit are too low to destroy the separated PFAS. Because of the strength of their carbon-fluorine bond, PFAS are "difficult to break down" in an incinerator.[39] The incomplete combustion of PFAS "can result in the formation of smaller PFAS," also known as "Products of Incomplete Combustion" or "PICs,"[40] as well as other toxic chemicals like hydrogen fluoride, fluoroacetates, or perfluoroisobutylene.[41] High PFAS levels in the communities surrounding incinerators further indicate that "commercial incineration . . . doesn't break down . . . [PFAS]. Instead, it spreads them into surrounding areas."[42]

At temperatures between 590–980ºC (1094–1796ºF), "incomplete destruction and the formation of reaction byproducts is likely."[43] Current evidence reflects that "complete PFAS

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[33] *Id.* at 203.
[34] Trabbic-Pointer Decl. at ¶ 20.
[35] *Id.*
[36] Alireza A. Dolatabad et al., *PFAS thermal treatment approaches and enhancement*, 2 *Nature Rev. Clean Tech.* 38, 42 (2026), https://doi.org/10.1038/s44359-025-00122-5.
[37] *Id.*
[38] *Id.*
[39] EPA, Technical Brief, *Per- and Polyfluoroalkyl Substances (PFAS): Incineration to Manage PFAS Waste Streams* 1 (2019), https://www.epa.gov/sites/default/files/2019-09/documents/technical_brief_pfas_incineration_ioaa_approved_final_july_2019.pdf.
[40] *Id*. at 1. These are also sometimes referred to as "Products of Incomplete Destruction," or "PIDs."
[41] *Id. See also* AFFF Disposal Solicitation from DoD Topic No. AF17B-T001, U.S. Small Bus. Admin. (Apr. 21, 2017), https://web.archive.org/web/20190616180416/https:/www.sbir.gov/sbirsearch/detail/1254657.
[42] Cheryl Hogue, *Incineration May Spread, Not Break Down PFAS*, Chem. & Eng'g News (Apr. 27, 2020), https://cen.acs.org/environment/persistent-pollutants/Incinerators-spread-break-down-PFAS/98/web/2020/04 (describing elevated PFAS levels in the soil around a Cohoes, New York incinerator); *see also* Noémi Brunschwiler, TNO, *Tracing Sources of Diffuse PFAS Contamination in Soil Near A Waste Incineration Plant* (June 30, 2023), https://publications.tno.nl/publication/34641491/qr1mfT/TNO-2023-S11566.pdf (reporting elevated PFAS levels in soil downwind of a Netherlands waste incinerator and concluding "the waste incinerator was . . . likely a substantial contributor to the observed PFAS content").
[43] Scott Bartell et al., Michigan PFAS Sci. Advisory Panel, *Scientific Evidence and Recommendations for Managing PFAS Contamination in Michigan* 65 (2018).

mineralization is rarely achieved below 950°C [1742ºF]."[44] One recent study by EPA scientists also found that incineration below 1000ºC (1832ºF) failed to completely destroy PFAS, with significant performance declines and toxic byproduct formation at temperatures below 870ºC (1598ºF).[45] Another recent EPA study supporting a temperature of 2006°F–2233°F did not involve PFAS-contaminated soil, and relied on a residence time of 60 minutes, not the two-minute residence time that the Applicant is proposing.[46] The EPA has previously noted that the most difficult carbon-fluorine bonds in PFAS can require temperatures in excess of 1000ºC (2552ºF).[47] The Project's proposed thermal oxidizer treatments of 1550°F, 1650°F, 1750°F, and 2000°F are all below what would be required to destroy PFAS, even if it were properly mineralized for removal from the contaminated soil.[48]

In support of its far lower temperature tests, the Applicant primarily cites two studies that are more than twenty years old and are irrelevant to the issues present in the Application.[49] The 2003 study was meant to measure the formation of only one compound—PFOS—from incineration under laboratory settings, and nevertheless indicated that PICs were emitted during the test.[50] The 2005 study is simply inapposite, because it involved a pilot to remove a single compound—PFOA—from fabric that was treated with fluorotelomer-based acrylic polymer.[51] Neither study addressed the particular issues faced when attempting to remediate PFAS-contaminated soil, and therefore do not support the Applicant's position.

The Applicant also points to two companies operating in the State of Alaska that are currently using thermal desorption to treat PFAS contaminated soil, but these facilities are too dissimilar to the Applicant's facility to serve as useful comparisons. The thermal desorption units at both facilities also operate at much higher temperatures (between 1200ºF–1500ºF at Moose Creek and 1800ºF at the ASRC Mobile Unit) than the thermal desorption units at the Applicant's facility, making it more likely that harmful PFAS are actually being desorbed from the contaminated soil.[52] Further, the Moose Creek Facility and the ASRC Mobile Unit Facility in Alaska include additional equipment to protect against the release of PFAS into the air that is missing from the Applicant's facility, including a quench tower, an induction fan, and a wet scrubber.[53] The Moose Creek Facility also uses two baghouses, compared to the single baghouse in use at the Applicant's facility. These differences make comparison inappropriate and again fail to support the proposed permit.

DEC has recognized the high temperature requirements for PFAS destruction in this and similar applications. A 2023 email from DEC to Saratoga Biochar noted that "[t]he current research level literature on PFAS destruction has values of 2300 to 2500 F for complete

[44] Dolatabad, *supra* note 36, at 38.
[45] Erin P. Shields et al., *Pilot-Scale Thermal Destruction of Per- and Polyfluoroalkyl Substances in a Legacy Aqueous Film Forming Foam*, 3 Env't Sci. & Tech. Eng'g 1308 (2023), https://doi.org/10.1021/acsestengg.3c00098.
[46] Trabbic-Pointer Decl. at ¶ 28; Stefanie Silsby, et al., *Air emissions during destruction of PFAS-containing Materials*, Nature Rev. Earth Env't 7 (2026), https://doi.org/10.1038/s43017-025-00755-x ("sufficiently high temperature, temperature uniformity (which can be achieved through mixing), and a sufficiently long residence time are also critical for achieving effective PFAS destruction").
[47] EPA, Technical Brief, *supra* note 39, at 1.
[48] Trabbic-Pointer Decl. at ¶¶ 10, 25–29.
[49] Application at 4 (citing studies from 2003 and 2005).
[50] Trabbic-Pointer Decl. at ¶ 27.
[51] *Id.*
[52] *Id*. at ¶ 23.
[53] *Id*. at ¶ 24.

destruction, so approved stack test results will be needed to adjust those limits."[54] Again, none of the Applicant's proposed tests will reach that temperature. Moreover, in its Saratoga Biochar Decision, DEC stated that the anticipated effectiveness of the thermal oxidizer treatment at the much higher 2300°F[55] "is not supported by any clear demonstration of the effectiveness of this control technology."[56] DEC would be acting arbitrarily and capriciously to permit a different, lower standard for this Applicant. DEC even partially acknowledged the ineffectiveness of lower temperature tests in this application. In a March 2025 request for additional information to the Applicant, DEC wrote: "preliminary research on thermal treatment of PFAS suggests that the minimum conditions for PFAS destruction include well mixed environments with temperatures greater than 1,100°C (2012°F)."[57]

The weight of available evidence demonstrates that the Applicant's proposed temperatures will not sufficiently destroy PFAS, leading to incomplete combustion and emission of PFAS.

c. The Proposed Metric for Success is Inappropriate and Inadequate.

To accurately measure the efficacy of any PFAS incineration test, it is essential to measure all the PICs released as a result of the test. However, the Applicant does not propose sufficient PIC detection, omitting a key, EPA-recommended testing method necessary to ensure all PFAS have been mineralized.[58] Instead, the Applicant claims that their tests will result in a "destruction and removal efficiency" ("DRE") of 99.99% of PFAS. DRE compares "the mass feed rate to mass emissions rate through the stack exhaust," and accounts for the loss of individual PFAS between the two.[59] DREs do not reflect PFAS transformation into PICs as a result of insufficient combustion and destruction.[60] While an important metric, DRE on its own is therefore insufficient to determine the efficacy of the testing,[61] and must be used in combination with measuring all PICs.

First, the Applicant's claimed DRE is based on a PCB Proof-of-Performance test, not PFAS.[62] Even if the Applicant had demonstrated a DRE of 99.99% with PFAS, a June 2023 study by EPA noted "that [destruction and removal efficiency] alone may not be the best indication of total PFAS destruction, and additional PIC characterization may be warranted."[63] The authors added that while a DRE of >99.99% is "deemed acceptable for most hazardous compounds, many PFAS can be converted to other PFAS at low temperatures resulting in high [destruction efficiency] without full mineralization and the potential release of the remaining

[54] E-mail from Paul Sierzenga, DEC to Andrew Millspaugh, Sterling Env't Eng'g, Saratoga Biochar Solutions (Oct. 18, 2023).
[55] Earthjustice, Comments on Saratoga Biochar Solutions Air State Facility Permit, Expert Declaration of Denise Trabbic-Pointer ¶ 27, (Mar. 18, 2024), https://earthjustice.org/wp-content/uploads/2024/03/2024.03.18-ej-comments-appendices.pdf.
[56] Letter from Erin L. Burns, DEC Regional Permit Administrator to Raymond Apy, President, Saratoga Biochar Solutions (Nov. 12, 2024), at 5.
[57] Letter from DEC to Clean Earth, *supra* note 15, at Item 4.
[58] Decl. of Trabbic-Pointer at ¶¶ 33, 38–39.
[59] Silsby, *supra* note 46, at 2.
[60] *Id*. at 2 ("Destruction and removal efficiency (DRE) calculations, which simply account for the loss of individual PFASs by comparing the mass feed rate to the mass emissions rate through the stack exhaust, fail to account for the potential release of fluorinated PIDs to the air and for the potential presence of the parent compound or PIDs in residual solids and liquids.").
[61] *Id.* at 13 ("DREs alone are insufficient to ensure the absence of harmful air emissions and residuals from destructive technologies.").
[62] Application at 4.
[63] Shields, *supra* note 45 at 1308.

fluorocarbon portions to the environment."[64] PFAS PICs can deposit from incinerators and thermal oxidizers to soil, surface water, and groundwater.[65] Incineration treatment forms PICs, "particularly at low temperatures or under suboptimal operating conditions"[66] as would be the case here. A high DRE with no or limited PICs indicates that a high degree of mineralization is occurring, a far more accurate assessment of efficacy.

The Applicant's proposed PIC detection is inadequate to measure all PICs formed through incomplete combustion. While the Applicant proposes five testing methods for PICs focused on a narrow set of mostly volatile compounds,[67] they fail to include EPA Method 0010/8270, which detects a broader array of semi-volatile compounds. The EPA recommends this method in order to ensure that all PFAS have properly mineralized.[68] When used together, these methods ensure that all PICs are accounted for by detecting semi-volatile, nonpolar fluorinated compounds.[69] Without Method 8270, semi-volatile compounds will be missed, and PICs undetected, resulting in unnoticed PFAS escape.[70]

Lastly, the Applicant's DRE expectation of 99.99% is insufficient and would result in PFAS release into the surrounding communities. A recent EPA study performed with Clean Harbor demonstrated a 99.9999% DRE for some PFAS, and only running at temperatures well above those proposed by the Applicant here and with far longer residence times.[71] Even if the Applicant's stated DRE were to be accepted at face value—which, because of the too-low thermal desorption and oxidizer temperatures, it should not—the purported DRE is far less safe than what can be achieved with current technology.

III. THE APPLICANT HAS FAILED TO PERFORM ANY ANALYSIS OF THE TESTS' IMPACT ON THE DISADVANTAGED COMMUNITIES OF HUDSON FALLS AND GLENS FALLS

DEC has improperly prepared a Notice of Complete Application and draft permit despite the Applicant's failure to provide an existing burden report as required by Siting Law. Any permit applied for under "title seven . . .of article twenty-seven of this chapter" must complete an existing burden report if it meets the threshold in the Siting Law.[72] The Applicant is statutorily required to prepare an existing burden report because it is a new project under Article 27, Title 7 of the Environmental Conservation Law ("ECL")[73] that may cause more than a de minimis impact on the disproportionate pollution burden on a disadvantaged community.

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[64] *Id.*
[65] Decl. of Trabbic-Pointer at ¶¶ 32, 40.
[66] Silsby, *supra* note 46 at 6.
[67] Decl. of Trabbic-Pointer at ¶ 38.
[68] Decl. of Trabbic-Pointer at ¶ 39.
[69] *Id.*
[70] *Id.*
[71] William L. Troxler et al., EPA, *PFAS Destruction by a Hazardous Waste Incinerator: Testing Results*, EPA 600/R-25/172, (2025), https://cfpub.epa.gov/si/si_public_record_Report.cfm?dirEntryId=367138&Lab=CEMM (stating a protocol of 2006°F–2233°F at a residence time of approximately 60 minutes).
[72] ECL § 70-0118(1)(b)(v).
[73] On December 11, 2025, DEC notified the Applicant that its RD&D Permit Application was complete, prepared a draft permit, and opened a notice and comment period. The draft permit states that it is authorized as a Solid Waste Management permit pursuant to ECL Article 27, Title 7.

In adopting the Siting Law in 2022, the Legislature recognized New York's troubling history of government decisions that disproportionately sited harmful and polluting facilities in low-wealth communities and communities of color.[74] The Siting Law was adopted to address the continued presence of multiple polluting facilities in disadvantaged communities ("DACs") and the disproportionate public health burdens carried by DACs.[75] Preparation of an existing burden report is necessary to understand how pollution from the Project may interact with existing burdens in DACs. Without an existing burden report, DEC lacks critical information to properly determine the impacts of the Project.

a. The Siting Law Requires the Applicant to Prepare an Existing Burden Report.

Because the Project may release more than a de minimis amount of toxic PFAS into a disadvantaged community, the Siting Law requires the Applicant to prepare an existing burden report. The existing burden report provides DEC the information necessary to evaluate the relevant baseline of existing burdens in an impacted DAC, the environmental health stressors already borne by the DAC, the potential contribution of the proposed action to existing pollution burdens, and any potential benefits of the project.[76]

The Siting Law requires preparation of an existing burden report when the project "*may* cause or contribute more than a de minimis amount of pollution to any disproportionate pollution burden on a disadvantaged community."[77] According to Merriam Webster "may" ordinarily is "used to indicate possibility or probability."[78] The Legislature's decision to use "may" in ECL § 70-0118(2)(a) is consequential. Lawmakers intended for DEC to produce an existing burden report even where a project has a *mere possibility* of contributing a more than de minimis amount of pollution to a DAC. In other words, an applicant can only avoid the requirement to produce an existing burden if the project *will not* contribute pollution to a DAC. This low threshold for requiring an existing burden report is no accident. The Legislature could have set a higher bar, as it did in ECL § 70-0118(3)(b), which requires DEC to deny a new permit if issuance "*will* cause or contribute more than a de minimis amount of pollution" in a DAC.[79] But the Legislature pointedly chose to direct DEC to err on the side of requiring existing burden reports in most instances where an application for a new Article 27, Title 7 permit is filed for a project in or near a DAC. In doing so, the Legislature sought to fulfill the precautionary and remedial aims of the Siting Law: existing burden reports help DEC and the public ensure that a new project does not exacerbate disproportionate burdens and historical inequities in a DAC.

[74] 2022 N.Y. Sess. Laws Ch. 840 (S. 1031) § 1 (as amended by 2023 N.Y. Sess. Laws Ch. 49 (A. 1286)).
[75] *See generally*, *The Environmental Justice Siting Law*, DEC, https://dec.ny.gov/environmental-protection/environmental-justice/the-environmental-justice-siting-law (last visited Feb. 11, 2026).
[76] ECL § 70-0118(5)(a)–(d).
[77] ECL § 70-0118(2)(b) (emphasis added).
[78] *May*, Merriam-Webster, https://www.merriam-webster.com/dictionary/may (last visited Feb. 11, 2026).
[79] ECL § 70-0118(3)(b) (emphasis added); *see also Nadkos, Inc. v. Preferred Contractors Ins. Co. Risk Retention Grp. LLC*, 34 N.Y.3d 1, 7 (2019) ("[S]tatutory language should be harmonized, giving effect to each component and avoiding a construction that treats a word or phrase as superfluous.") (citation omitted).

The Applicant's own calculations and air modeling demonstrate that undestroyed PFAS will be emitted from the facility and reach the Hudson Falls DAC and likely the Glens Falls DAC.[80] The Applicant will process the PFAS contaminated soil in a facility at 304 Towpath Road, Fort Edward, New York 12828. This facility is adjacent to Census Tract No. 36115080100 (Hudson Falls Village) and close to Census Tract Nos. 36113070500 and 36113070200 (Glens Falls City).[81] The Applicant's AERMOD assessment is missing critical information, but nevertheless shows that emissions (including PFAS) will reach these two disadvantaged communities.[82] Indeed, DEC has already acknowledged the proximity of this facility to the Hudson Falls DAC and stated that "initial screening indicates that the facility may have potential adverse environmental impacts on [this] area[]."[83]

The Applicant's proposed RD&D Permit "may cause or contribute"[84] dangerous PFAS pollution to the disproportionately pollution burdened Hudson Falls and Glens Falls DACs. Even very small amounts of additional PFAS introduced into a DAC should be deemed "more than a de minimis amount of pollution."[85] De minimis, a Latin term used in the law to describe matters "of a trifling consequence" or otherwise "so small that the court does not wish to even consider it,"[86] is a low threshold. In the case of PFAS, even small amounts are consequential because PFAS at any level harms health, persists in the environment for decades, and bioaccumulates in human beings. Finally, the facility seeking a permit need not be "in" a DAC to trigger preparation of an existing burden report, as long as the facility emits pollution that affects a DAC, as it does here.

b. Preexisting Disproportionate Burdens in the Hudson Falls and Glens Falls DACs Make these Communities Especially Vulnerable to Additional PFAS Pollution.

The Project's emissions would impact Hudson Falls and Glens Falls, two areas designated as DACs that experience disproportionate pollution burdens. In designating DACs pursuant to the Climate Leadership and Community Protection Act ("CLCPA"), the Climate Justice Working Group designated as DACs the communities that had the highest combined levels of pollution burdens and population vulnerability based on forty-five indicators. These communities were carefully selected in a thorough process, and the Siting Law adopted the CLCPA's definition of "disadvantaged communities." Additionally, DEC has already defined DACs as communities with "*disproportionate burden* of negative public health effects, *environmental pollution* . . . as identified pursuant to section 750111 of the Environmental Conservation Law and New York State Department of Environmental Conservation, Disadvantaged Communities Criteria Maps. . ."[87] Therefore, it is appropriate to presume that a community designated as a DAC experiences "disproportionate pollution burdens" under the Siting Law.

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[80] Decl. of Trabbic-Pointer ¶¶ 44–45.
[81] *See Disadvantaged Communities*, NYSERDA, https://www.nyserda.ny.gov/ny/Disadvantaged-Communities (last visited Feb. 11, 2026).
[82] Decl. of Trabbic-Pointer ¶¶ 44–45.
[83] DEC, *Notice of Incomplete Application*, Application No. 5-5330-00038/00027 at item 7 (Mar. 14, 2024), https://pages.cleanearthinc.com/hubfs/2%20-%20Notice%20of%20Incomplete%20Application_March%2015%202024.pdf.
[84] *See* ECL § 70-0118(2)(b).
[85] *Id*.
[86] *De Minimis*, Black's Law Dictionary (2nd ed. 2010), https://thelawdictionary.org/de-minimis/ (last visited Feb. 11, 2026).
[87] N.Y.C.R.R. tit. 6 § 494-1.3(a)(20) (emphasis added).

Even absent a presumption that DACs are disproportionately pollution burdened by virtue of their designation as DACs, both communities affected by the proposed Project are demonstrably disproportionately pollution burdened, as they fall within some of the highest levels of pollution in the state in several categories. The Hudson Falls DAC is in the 96th percentile for municipal waste combustion facilities and the 93rd percentile for regulated management plan chemical sites.[88] The Glens Falls DAC is in the 100th percentile for regulated management plan chemical sites and the 99th percentile for industrial/manufacturing/mining land usage. Both are still dealing with the effects of decades of pollution from General Electric factories which resulted in approximately 1.3 million pounds of toxic polychlorinated biphenyls being deposited into the Hudson River.[89] Despite dredging contaminated sediment, remediation continues with continued EPA review and monitoring of the water column, sediment, fish, and habitats.[90]

These communities also shoulder disproportionate health burdens. In addition to being in the 96th percentile for municipal waste combustion facilities and the 93rd percentile for regulated management plan chemical sites, the Wheelabrator incinerator is especially burdensome. This plant is the number one emitter of lead per ton of waste incinerated in the entire United States according to a report released in 2019, using data from 2014.[91] Residents continue to "express[] outrage" at the ways this facility inhibits their ability to enjoy time outside and build community.[92] These communities are disproportionately burdened by health vulnerabilities including for Chronic Obstructive Pulmonary Disease ("COPD") emergency department visits, disabilities, heart attack hospitalizations, and premature deaths. For example, Glens Falls is in the 97th and 93rd percentile respectively for COPD emergency department visits and heart attack hospitalizations.[93]

DEC must carefully consider the potential impacts of additional pollution in this vulnerable community before issuing a permit, and it cannot do that without an existing burden report that fully documents the environmental and health burdens already placed on this community.

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[88] *See Disadvantaged Communities Criteria,* Climate Justice Working Group, https://climate.ny.gov/Resources/Disadvantaged-Communities-Criteria (last visited Feb. 11, 2026). The New York Climate Justice Working Group explained its rationale for tracking proximity to regulated management plan chemical sites because of concerns about "accidental release of substances and fires or explosions. . . Additionally, as with many types of industrial facilities, there may be routine releases to the air and water of the residuals after pollution control devices remove what is generally a large fraction of the waste stream. Thus, people may be exposed to some substances directly through inhalation or indirectly through water routes or via ingestion of food." N.Y. Climate Just. Working Grp., *Draft Disadvantaged Communities Criteria and List Technical Documentation,* 33 (Mar. 9, 2022), https://climate.ny.gov/-/media/Project/Climate/Files/Disadvantaged-Communities-Criteria/Technical-Documentation-on-Disadvantaged-Community-Criteria.pdf.

[89] Hudson River Maritime Museum, "The Hudson River Then and Now: A Brief History of Water Quality," (July 1, 2020), https://www.hrmm.org/history-blog/the-hudson-river-then-and-now-a-brief-history-of-water-quality. *See also Hudson River Cleanup*, EPA, https://www.epa.gov/hudsonriverpcbs/hudson-river-cleanup (last updated Jan. 5, 2026).

[90] *Hudson River Cleanup*, *supra* note 89.

[91] Gwendolyn Craig, *Report: Hudson Falls Trash Plant Among Country's 'Dirty Dozen' Incinerators*, POST STAR (May 22, 2019), https://poststar.com/news/local/report-hudson-falls-trash-plant-among-countrys-dirty-dozen-incinerators/article_233446f9-c4a7-54ca-b371-4ca9c24da9c0.html; Ana Isabel Baptista & Adrienne Perovich, Tishman Env't & Design Ctr. *U.S. Municipal Solid Waste Incinerators: An Industry in Decline*, at 4041 (2019), https://www.no-burn.org/wp-content/uploads/2021/03/CR_GaiaReportFinal_05.21-1.pdf.

[92] Ben Westcott, *Hudson Falls Residents Urge: Shut the Trash Burn Plant*, Glens Falls Chronicle (May 1, 2025). https://www.glensfallschronicle.com/hudson-falls-residents-urge-shut-the-trash-burn-plant/.

[93] *See Disadvantaged Communities*, *supra* note 81.

c. PFAS Presents Unique Harms Such That Any Amount Should Be Considered More Than De Minimis.

Regardless of the amount of PFAS emitted, because PFAS is especially harmful to human health and persistent in the environment at a rate unlike other pollutants, the amount of pollution here cannot be deemed de minimis.[94] Deemed "forever chemicals," PFAS bioaccumulate in humans and animals alike.[95] As discussed above, there is no safe level of PFAS, and even small amounts are highly toxic and their negative effects on human health have been well documented to include impacts on the liver, growth and development, hormones, the immune system, cholesterol, the nervous system, reproduction, and increased risk of certain types of cancer.[96]

In light of these characteristics, no fair reading of the Siting Law would tolerate these types of harms to be "de minimis." Pollution should only be defined as de minimis if the amount and/or frequency of the pollution released is so minimal that it would not have potential consequence for human or environmental health, or "the comfortable enjoyment of life and property."[97] DEC must consider the impacted community's existing pollution levels and health indicators, and the Applicant here has already acknowledged that pollution will reach DACs. In this instance, due to PFAS's durability, its harm to human health at any level, and the likelihood that any PFAS not completely destroyed in the test will reach a DAC, the Applicant's project—even if performed as successfully as the Applicant anticipates—unquestionably "may cause or contribute more than a de minimis amount of pollution. . ." to the existing pollution burden in the Hudson DAC and Glens Falls DAC.[98]

Hudson Falls and Glens Falls, historically disadvantaged communities already targeted for disproportionate siting of polluting facilities, should not be used as guinea pigs for a research and development test depositing harmful PFAS pollution. DEC must require the Applicant to complete an existing burden report so that it can meaningfully assess whether any proposed permit could be issued consistent with the intent and purpose of the Siting Law. Without preparation of an existing burden report, DEC must deny the application as incomplete.

IV. CONCLUSION

Safe and effective PFAS treatment options are sorely needed to address pervasive PFAS contamination. However, this Project is neither safe nor effective. The flawed scientific

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[94] Additionally, short-chain PFAS has been shown to have similar toxicity levels as long-chain PFAS so whether the Applicant's thermal oxidizer fails to destroy the PFAS entirely, or simply reduces longer chains into short chain particles of incomplete combustion, is not a relevant inquiry. *See* Cheryl Hogue, *Short-chain and Long-chain PFAS Show Similar Toxicity, US National Toxicology Program Says*, Chem. & Eng'g News (Aug. 24, 2019), https://cen.acs.org/environment/persistentpollutants/Short-chain-long-chain-PFAS/97/i33.

[95] U.S. Geological Survey, *Tap Water Study Detects PFAS 'Forever Chemicals' Across the US*, (July 5, 2023), https://www.usgs.gov/news/national-news-release/tap-water-study-detects-pfas-forever-chemicals-across-us.

[96] *See* United Nations Env't Programme, *Risk Profile on Pentadecafluorooctanoic Acid (PFOA, Perfluorooctanoic Acid), its Salts and PFOA-related Compounds* at 24–26, *supra* note 6; PFAS Tox. Profile, *supra* note 2 at 4–21, 26–29; Off. of Env't Health Hazard Assessment, *Perfluorooctanoic Acid and Perfluorooctane Sulfonic Acid in Drinking Water (First Public Review Draft)*, *supra* note 7; *PFAS and Private Wells*, N.Y. Dept. of Health, https://www.health.ny.gov/environmental/water/drinking/pfasinprivatewells.htm (last visited Feb. 11, 2026); PFAS National Primary Drinking Water Regulation, 89 Fed. Reg. 32532, 32537 (Apr. 26, 2024).

[97] ECL § 1-0303(19).

[98] ECL § 70-0118(2)(b).

foundation for the Applicant's requested permit and its failure to analyze the tests' impacts on local DACs should be fatal.

Most troubling, the Applicant has been clear that if the Project is successful, the company will likely "pursue a permit modification for the acceptance of PFAS contaminated soils at the facility"[99] and operate the Fort Edward site continuously to thermally treat PFAS-contaminated soil at scale. It is therefore imperative to ensure that this application be denied, to prevent another decades-long project of toxic exposure for the already severely burdened Hudson Falls and Glens Falls communities.

Respectfully submitted,

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On behalf of:
Clean Air Action Network of Glens Falls, Inc.

Joined by:

National
Community Environmental Legal Defense Fund (CELDF)
Earth Ethics, Inc.
Energy Justice Network
Grassroots Environmental Education
Just Zero
Military Poisons
Natural Resources Defense Council (NRDC)
National PFAS Contamination Coalition

Statewide
All Our Energy
Alliance for a Green Economy (AGREE)

[99] Application at 11.

American Academy of Pediatrics, New York State Chapter
Church Women United in New York State
Citizen Action of New York
Clean+Healthy
New York Clinicians for Climate Action
New York Progressive Action Network (NYPAN) - Environmental Committee
New York River Watch
No Safe Level: The NYS Coalition to End Sewage Sludge Spreading
Northeast Organic Farming Association (NOFA), New York
NY Renews Coalition, 400+ member organizations
Physicians for Social Responsibility, New York
Sierra Club, Atlantic Chapter
Zero Waste New York

Regional & Local

Albany Progressive Action Network
Beyond Plastics Sullivan County NY
Breathe Free Hudson Falls
Cameron Committee for a Safe Environment (CCSE)
Capital Region Interfaith Creation Care
CARITAS
Catskill Mountainkeeper
Cayuga Lake Environmental Action Now (CLEAN)
Clean Air Coalition of Greater Ravena-Coeymans
Clean Cape Fear
Climate Crisis Working Group (IMV)
Columbia County Reduces Waste – BYO Initiative
Concerned Citizens of Allegany County
Don't Trash the Catskills
Extinction Rebellion Ithaca
FoCo Trash Mob, a Beyond Plastics Affiliate
The Fort Stops PFAS
Fountain Valley Clean Water Coalition
Grassland Bird Trust, Inc.
Grassroots Environmental Education
HabitatMap
Hudson River Sloop Clearwater
Idle No More SC/SC Indian Affairs Commission
KingstonCitizens.org
Lights Out Norlite
Long Island Progressive Coalition
Merrimack Citizens for Clean Water
Move Past Plastic (MPP)
Newburgh Clean Water Project
Not Moreau
PAUSE (People of Albany United for Safe Energy)
Peckham Action Group

Petersburgh C-8 PFAS Group
PFOAProject NY
Rensselaer Environmental Coalition
Seneca Lake Guardian
South Asian Fund for Education, Scholarship, and Training, Inc.
St. Mary's Church, Glens Falls
Sterling Water Stewards
Sustainable Saratoga
Sustainable Sullivan
Testing for Pease
Third Act New York City
Third Act Upstate New York
Tucson Environmental Justice Task Force
United for Action
United Neighbors Concerned About GE Dewey Loeffel Landfill
Waste for Life
WESPAC Foundation, Inc.
West Plains Water Coalition, Spokane WA
Westchester Alliance for Sustainable Solutions (WASS)
Zero Waste Capital District
Zero Waste Dutchess
Zero Waste Ithaca

Exhibit 1

DECLARATION OF DENISE TRABBIC-POINTER

Qualifications

1. My name is Denise Trabbic-Pointer. I am a Chemical Engineer with a BS and MS in Hazardous Materials Management, a career EHS professional and a Certified Hazardous Material Manager Emeritus. I retired in January 2019 after 42 years with DuPont. The last 7 years of my career were with a spin-off company, Axalta Coating Systems, as their Global Environmental Competency Leader.

2. Since May 2019, I have been the Sierra Club – Michigan Chapter, Toxics & Remediation Specialist, and volunteer nationally as a technical resource for communities impacted by releases of toxics to air, water, and/or soil. My Curriculum Vitae is attached as Exhibit A.

3. This declaration contains my expert opinions, which I hold to a reasonable degree of scientific certainty. In preparing this declaration, I have reviewed materials made public[1] by the New York State Department of Environmental Conservation ("NYSDEC") regarding the proposed Environmental Soil Management of New York LLC ("ESMI") Application ID: 5-5330-00038/00027, Batch Number: 1018418, to be located in Fort Edward, NY. Specifically, I have reviewed the following: September 13, 2023 ESMI Air Pollution Control – Air State Facility Permit: 5-5330-00038/00021; December 29, 2023 Solid Waste Management Facility Research, Development, and Demonstration ("RD&D") Permit application and the NYSDEC, Division of Air Resources March 14, 2024 Notice of Incomplete Application; April 15, 2024 ESMI Incomplete Application Response; June 5, 2024 NYSDEC Comments to ESMI's April 15, 2024 Response; November 13, 2024 ESMI Project: RD&D Permit Fact Sheet; August 1, 2024 ESMI of NY RD_D PFAS June 5 Comment Response; July 23, 2025 Public Participation Plan Certification Report for Clean Earth Fort Edward; July 30, 2025 Renewal Application for Solid Waste Management Facility Permit No.: 5-5330-00038/00019, including ESMI's Operations and Maintenance Manual; and December 2025 Draft Permit ID 5-5330-00038/00027.

4. My review included documents related to the application submittal, such as technical reports, various studies related to the effectiveness of thermal treatment as it relates to soil as a feedstock, maps, figures, data, process diagrams, and other related information. I also reviewed various studies and technical papers referenced throughout this declaration, which were not included in ESMI's application package.

5. Based on this review and my education, training, and experience, I have developed the opinions presented in this declaration. My opinions are based on my application of professional judgment and expertise.

[1] Documents related to the ESMI application are available at https://pages.cleanearthinc.com/new-york-ppp. Documents cited here that are not available online are attached in the Appendix.

Summary of Opinions

6. In my expert opinion, NYSDEC's issuance of an RD&D permit for the ESMI facility would present unreasonable risks to human health and the environment.

7. Per- and Polyfluoroalkyl Substances ("PFAS") are a large class of chemical compounds that are extremely persistent in the environment and bioaccumulate in people and animals. The carbon-fluorine bond signature of PFAS makes it exceptionally difficult to break down or remediate.[2] Indeed, "[t]he most consistent feature within the class of PFAS is that their perfluorocarbon moieties do not break down, or do so very slowly under natural conditions, which is why PFAS are often termed 'forever chemicals.'"[3]

8. PFAS exposure is linked to a variety of adverse health effects, including cancer, elevated cholesterol, obesity, immune suppression, pre-eclampsia, impaired liver and kidney function, and endocrine disruption.[4]

9. ESMI is proposing to thermally treat up to 5,000 tons of PFAS-contaminated soil over a two-week period at its thermal desorption treatment center in Fort Edward, NY. In simplified terms, ESMI's proposed treatment plan is meant to work as follows: First, the contaminated soil will be placed in the Primary Thermal Unit ("PTU"), or thermal desorption unit, and heated to temperatures between 700°F and 900°F in an attempt to separate (or "desorb") the PFAS contaminants from the soil. The separated PFAS are then moved to the Secondary Thermal Unit ("STU"), or thermal oxidizer, where they will be heated to temperatures ranging from 1550°F to 2000°F in an attempt to fully destroy the PFAS.

10. There are several flaws with ESMI's proposal. Primarily, the temperatures proposed by ESMI for their PTU and STU are almost certainly too low to either completely separate long-chain PFAS from the impacted soil or to fully destroy those PFAS that are desorbed from the soil. Additionally, ESMI admits that as of now, it does not know the character of the soil that will be used during the proposed RD&D Project, nor does it know what kinds of PFAS will be present in the soil or in what concentrations. Given the low proposed temperatures and the uncertainty regarding the nature of the soil to be used in the proposed Project, it is highly likely that longer-chain PFAS will be broken down into harmful shorter-chain PFAS, also known as Products of Incomplete Combustion or

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[2] *Examining the Federal Response to the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS): Hearing Before the S. Comm. on Env't & Pub. Works*, 116th Cong. 2 (Mar. 28, 2019) (testimony of Linda S. Birnbaum, Dir., Nat'l Inst. of Env't Health Scis. & Nat'l Toxicology Program, Nat'l Insts. of Health), https://www.epw.senate.gov/public/_cache/files/2/2/22ca7c4b-b1dc-4a12-9264-7a4f16608933/BF2D70A4FB747A3F61E584CC30D58D0A.birnbaum-testimony-03.28.2019.pdf; *see also* Changes to Reporting Requirements for Per- and Polyfluoroalkyl Substances and to Supplier Notifications for Chemicals of Special Concern; Community Right-to-Know Toxic Chemical Release Reporting, 87 Fed. Reg. 74,379, 74,382 (proposed Dec. 5, 2022) (to be codified at 40 C.F.R. pt. 372).

[3] Carol F. Kwiatkowski et al., *Scientific Basis for Managing PFAS as a Chemical Class*, 7 Env't. Sci. Tech. Letters 532 (2020), https://doi.org/10.1021/acs.estlett.0c00255.

[4] Agency for Toxic Substances & Disease Registry, U.S. Dep't Health & Hum. Servs., *Toxicological Profile for Perfluoroalkyls* (May 2021) https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf.

PICs, which will be released into surrounding Disadvantaged Communities ("DACs"). Unfortunately, the air dispersion modeling provided by ESMI lacks important details to fully express the potential harm faced by the surrounding DACs, which itself is another reason that the RD&D Permit should be denied. I will provide further explanation for these conclusions below.

I. PFAS and Products of Incomplete Combustion ("PICs") Will be Emitted from the Facility During the Proposed RD&D Project.

A. ESMI Cannot Claim PFAS Destruction Without Knowing the Soil Composition, PFAS Types Present, and PFAS Concentration.

11. PFAS vary in size, structure, and chemical composition. PFAS bonds can be "long-chain" or "short-chain," and they break down at different temperatures and rates. ESMI has identified and will test for five types of PFAS that may be in the soil it anticipates treating, but those represent only a fraction of the thousands of types that exist.

12. PFAS-contaminated soil would be transported in for the test and ESMI has not identified the source nor the composition of that soil. The composition of soil that ESMI will treat during the RD&D Project is particularly important to know ahead of time in order to assess the impact that the Project will have on the health and wellbeing of the communities surrounding ESMI's facility. For example, whether soil is predominantly sand, silt, clay, or loam will significantly impact thermal treatment parameters such as temperature, residence time, heat transfer, contaminant sorption strength, and the formation of vapor-phase products.

13. I am concerned that ESMI has not provided a full characterization of the soil that will be used as feedstock during the Project. A typical characterization would include the type of soil used, its moisture content, and a list of all contaminants present in the soil, including the levels of each PFAS compound present.

14. The concentration of PFAS within the soil is important to know in advance. Generally speaking, the higher the concentration of PFAS in soil, the more energy is required to desorb.[5] This is particularly true for longer-chain PFAS like PFOS.

15. The presence of other co-contaminants in the soil besides PFAS, such as PCBs, chlorinated solvents, and petroleum hydrocarbons, total organic carbon, organic matter, and minerals, is also important to know because they can have a significant impact on treatment efficacy that can result in incomplete combustion. For example, and as ESMI itself acknowledges in its permit application, "soil organic matter (SOM) plays a role in PFAS retention in soil by binding PFAS and slowing the leaching of the substances."[6]

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[5] Mattias Sörengård et al., *Thermal Desorption as a High Removal Remediation Technique for Soils Contaminated with Per- and Polyfluoroalkyl Substances (PFASs)*, 15 PLoS ONE 6 (2020). https://doi.org/10.1371/journal.pone.0234476.

[6] ESMI of New York, LLC Application for Solid Waste Management RD&D Permit Draft Permit ("RD&D Permit Application") at 7 (Dec. 29, 2023), https://pages.cleanearthinc.com/hubfs/1%20-%20ESMI%20of%20NY%20RD_D%20PFAS%20Submittal_Final_122923.pdf.

16. Providing this soil characterization ahead of time would allow NYSDEC to make a more informed decision on the potential health impacts resulting from its granting of the RD&D permit. Without this soil characterization, I am concerned that NYSDEC does not have all the information needed to approve the permit application.

17. Based on the limited information ESMI has provided, it is impossible to state that all of the PFAS contained in the imported contaminated soil could and would be destroyed under the proposed conditions.

B. The Thermal Desorption Unit Temperatures Proposed by ESMI Are Not High Enough to Separate PFAS from the Contaminated Soil.

18. To remove PFAS from soil using thermal treatment, the PFAS must be "desorbed" from soil particles. Desorption refers to the physical process of using high temperatures to break the bonds between PFAS molecules and soil particles. An effective thermal desorption unit heats PFAS-contaminated soil at a temperature sufficient to volatilize PFAS compounds to their gas phase. Gas phase emissions are then sent to secondary treatment in a control device operating at temperatures sufficient to completely mineralize gaseous PFAS compounds. The US Environmental Protection Agency ("EPA") defines the mineralization of PFAS as the complete thermal destruction or degradation of PFAS into their thermodynamic endpoints, primarily carbon dioxide, water, and hydrogen fluoride or other inorganic fluorine/sulfur compounds. PFAS have unique qualities that make them especially difficult to remove from soil. As the authors of one recent study put it, "[t]he only practical and proven solution at the moment for . . . severely polluted soil . . . is high temperature incineration, which is both expensive and harmful to the environment."[7]

19. ESMI misunderstands the complexity of PFAS removal from contaminated soil. Their proposed use of boiling points as the sole criteria for the ability of their PTU to remove PFAS from soil is not based on what is known about the physical properties of PFAS. Boiling points determine if a pure compound is solid, liquid, or gas at certain temperatures. Some chemicals, like organic or chlorinated solvents, can be desorbed from soil when they reach their boiling points. But PFAS compounds might remain in soil even after they have reached their boiling point because, for example, their strong Carbon-Fluorine ("C-F") bond makes removal from soil especially difficult. Thus, even at their boiling point PFAS compounds can remain bound to soil or even degrade into other PFAS in the soil.

20. Moreover, longer-chain PFAS tend to adhere more strongly to soil particles. As the number and complexity of detected PFAS compounds grow, significant uncertainties and gaps remain in understanding their characteristics, pharmacokinetics, toxicity, environmental fate, and potential risks to human health.[8]

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[7] Hafiz N. Hussain et al., *Advances in the removal of Polyfluoroalkyl Substances (PFAS) from Water Using Destructive and Non-Destructive Methods* 12 Green Analytical Chemistry 100225 (2025), https://doi.org/10.1016/j.greeac.2025.100225.

[8] *See* Organisation for Economic Co-operation and Development, *Toward a New Comprehensive Global Database of Per- and Polyfluoroalkyl Substances (PFASs)* (2018),

21. Perhaps because ESMI misunderstands the complex challenge presented by removing PFAS from soil, the company has proposed to treat the soils at a temperature that is likely too low and with residence times that are too short to desorb PFAS from soil. Specifically, ESMI intends to treat soils at 700°F (371°C), 800°F (427°C), and 900°F (482°C) during its proposed research project. For complete desorption of PFAS from soil, higher temperatures are crucial, with research showing effective desorption occurring at temperatures closer to 1292°F to 1652°F (700°C to 900°C).[9] Recent studies have found that temperatures ≥ 932°F (500°C), can result in near complete desorption of PFAS from soil, however, much longer residence times of ≥ 30 minutes are needed.[10] ESMI's proposed 15-minute residence time, in combination with its proposed temperatures below 500°C, would not be successful at desorbing PFAS from the soil.

22. The two thermal desorption facilities operating in Alaska that ESMI cites in its permit application—Moose Creek and the ASRC Mobile Unit—in fact serve to illustrate ESMI's inadequate temperatures.[11] The thermal desorption units at both facilities operate at much higher temperatures to desorb PFAS from soil (up to 1500°F at Moose Creek[12] and 1800°F at ASRC[13]). These higher temperatures make it more likely that PFAS will be successfully desorbed from the contaminated soil.

23. Additionally, both the Moose Creek Facility and the ASRC Mobile Unit Facility in Alaska include additional equipment to protect against the release of PFAS into the air that is missing from ESMI's facility, including a quench tower, an induction fan, and a wet scrubber. The Moose Creek Facility also uses two baghouses, compared to the single baghouse in use at ESMI's facility.[14]

C. The Thermal Oxidizer Temperatures Proposed by ESMI Are Not High Enough to Destroy All PFAS Compounds and Pics.

24. Even assuming that ESMI was operating its PTU at high enough temperatures to fully desorb PFAS from the contaminated soil, the STU (or, "thermal oxidizer") must be capable of destroying all PFAS emissions, including PICs. However, here too, the

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https://www.oecd.org/content/dam/oecd/en/publications/reports/2018/05/summary-report-on-the-new-comprehensive-global-database-of-per-and-polyfluoroalkyl-substances-pfass_73d72705/1a14ad6c-en.pdf.

[9] Ali Alinezhad et al., *An Investigation of Thermal Air Degradation and Pyrolysis of Per- and Polyfluoroalkyl Substances and Aqueous Film-Forming Foams in Soil* 2 ACS ES&T Eng'g 198 (2022), https://doi.org/10.1021/acsestengg.1c00335.

[10] *Id.* at 203.

[11] RD&D Permit Application at 8.

[12] Organic Incineration Technology, Inc., *NRC Alaska, LLC Moose Creek Facility Thermal Remediation of PFAS-Contaminated Soil* 12 (2019), https://cms.dec.alaska.gov/spar/csp/pfas/moose-creek-thermal-remediation/; Brian Gullett & Jeffrey V. Ryan, EPA, *Final Test Report PFAS Emissions Measurement Methods Development and Emissions Characterization Study at National Response Corporation Alaska, LLC AFFF Contaminated Soil Thermal Treatment Facility* (2019), https://apps.dtic.mil/sti/pdfs/AD1134823.pdf (last visited Feb. 17, 2026).

[13] Alaska Dep't of Env't Conservation, Air Quality Minor Permit Application, *Stationary Source Identification Form: ACES MRS-1* (2016), https://dec.alaska.gov/Applications/Air/airtoolsweb/Home/ViewAttachment/16970940/5q0rNNCs_g5W590KEgZGxg2.

[14] Jeffrey V. Ryan & Brian Gullet, EPA, *Analysis of Fate of PFAS During Incineration* (2020), https://sepub-prod-0001-124733793621-us-gov-west-1.s3.us-gov-west-1.amazonaws.com/s3fs-public/project_documents/ER19-1408_Final_Report.pdf.

temperatures proposed by ESMI for the thermal oxidizer are not sufficiently high.

25. As the EPA notes, the energy required to break all the C-F bonds in PFAS can require temperatures in excess of 1450°C (2642°F).[15] ESMI is proposing to perform tests on the system at only 1550°F, 1650°F, 1750°F, and 2000°F.[16]

26. ESMI highlights two studies from 2003 and 2005 to support their decision to operate the STU at these temperatures.[17] These two studies, from Yamada and Taylor, are irrelevant to the need to fully mineralize PFAS in soil and emissions. The 2003 study, which focused solely on the formation of PFOS from incineration under laboratory settings nevertheless indicates that PICs were emitted as a result of incineration during the test. The 2005 study is similarly irrelevant. This latter study focused on the removal of PFOA from polyester/cellulose fabric that had been treated with a fluorotelomer-based acrylic polymer, while ESMI is proposing to remove several as-of-yet unidentified PFAS compounds from soil. Given the above differences, and the fact that one of the cited studies nevertheless identified the emission of PICs, I do not find the results of these studies to be persuasive.

27. While at least one study suggests that temperatures in the range of 2000–2233°F may be high enough to destroy some PFAS compounds, these temperatures were paired with a residence time of one hour and researchers nevertheless identified evidence of PIC formation resulting from the tests.[18]

28. Current scientific research simply does not support ESMI's position that it "expects all four temperatures to be effective."[19]

D. DEC Should Not Rely on ESMI's Claims Regarding Destruction Efficiency When Assessing Potential Risks to Human Health and the Environment.

29. ESMI focuses too much on achieving Destruction Efficiency ("DE" or "DRE") and consequently is not focused on assuring that all PFAS are mineralized in both the soil media being treated and in emissions to ambient air. DRE alone does not indicate if a compound was transformed. A high DRE *in addition to* no or limited PICs indicates that

[15] *See* EPA, Technical Brief, *Per- and Polyfluoroalkyl Substances (PFAS): Incineration to Manage PFAS Waste Streams* 1 (2019), https://www.epa.gov/sites/default/files/2019-09/documents/technical_brief_pfas_incineration_ioaa_approved_final_july_2019.pdf; *see also* John Horst et al., *Understanding and Managing the Potential By-Products of PFAS Destruction*, 40 Groundwater Monitoring & Remediation 2, 20-21 (2020), https://doi.org/10.1111/gwmr.12372 (noting that temperatures up to 900°C (1,652°F) are likely insufficient to destroy PFAS in water).

[16] Application at 8 (indicating tests at 1550°F, 1650°F, 1750°F) and Clean Earth Response to DEC, at Item 4 (May 22, 2025), https://pages.cleanearthinc.com/hubfs/ESMI%20of%20NY%20RD_D%20PFAS%20MOD%20Request%20MAR%202025%20-%20ESMI-CE%20Response%20Final.pdf (adding fourth test at 2000°F).

[17] RD&D Permit Application at 4.

[18] William L. Troxler et al., EPA, *PFAS Destruction by a Hazardous Waste Incinerator: Testing Results*, EPA 600/R-25/172 (2025), https://cfpub.epa.gov/si/si_public_record_Report.cfm?dirEntryId=367138&Lab=CEMM.

[19] Clean Earth Response to June 18, 2025 Public Information Meeting Comments at 11–12 (July 2, 2025), https://pages.cleanearthinc.com/hubfs/Response%20to%20Questions%20-%20June%2018%20PIM.pdf.

a high degree of mineralization is occurring.

30. DRE compares the mass feed rate to the mass emissions rate through the stack exhaust, and account for the loss of individual PFAS between the two. It does not account for the transformation of PFAS into PICs.[20]

31. PFAS PICs can deposit from incinerators and thermal oxidizers to soil, surface water, and groundwater. A June 2023 study by EPA noted "that [destruction efficiency] alone may not be the best indication of total PFAS destruction, and additional PIC characterization may be warranted."[21] Without measurement of PICs, a high DRE may mask the transformation and escape of PFAS.

32. Unfortunately, ESMI's application does not include sufficient measurement of PICs. This makes it extremely difficult, if not impossible, to accurately assess the degree of mineralization and, by extension, destruction of PFAS.

E. ESMI's Facility Lacks Adequate Features to Ensure That Its Pollution Control Systems Always Operate as Intended.

33. Not enough information has been provided to know whether ESMI has adequate safety and emergency safeguards in place or that all key operating parameters are met during the proposed research project. The ESMI application only makes one reference to an automated process logic controller ("PLC") and nowhere do their application materials describe the parameters that are measured and controlled. A well-designed thermal treatment facility needs adequate monitoring equipment to ensure that temperatures in a thermal oxidizer do not drop such that increased amounts of PFAS are released into the atmosphere.

34. I am concerned that ESMI's thermal oxidizer lacks adequate measurement and control equipment to ensure that it will be able to maintain required temperatures. Equipment necessary to ensure that a thermal oxidizer is properly functioning would include a continuous temperature measurement recording device that is able to provide no less than one reading every 15 minutes whenever the source is in operation.[22] To my knowledge, there is nothing in the permit application to indicate that ESMI's facility has the necessary equipment to meet this requirement and to ensure that its thermal oxidizer is functioning properly.

35. This continuous temperature measurement would need to be coupled with continuous duct flow measurement devices to ensure that PFAS are subject to heat and other pollution controls for the minimum residence times required to prevent the pollutants from escaping the facility.

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[20] Stefanie Silsby et al., *Air Emissions During Destruction of PFAS-Containing Materials*, Nature Rev. Earth Env't (2026), https://doi.org/10.1038/s43017-025-00755-x.
[21] Erin P. Shields et al., *Pilot-Scale Thermal Destruction of Per- and Polyfluoroalkyl Substances in a Legacy Aqueous Film Forming Foam*, 3 Env't Sci. & Tech. Eng'g 1308 (2023), https://doi.org/10.1021/acsestengg.3c00098.
[22] 40 CFR 60.13(e).

36. Finally, a safe facility would need interlock systems to shut down connected processes if permitted control equipment, operating conditions, and limits required to fully destroy PFAS, PICs, and other harmful pollutants are not being met (e.g., temperature, flow, pressure differential, retention time, flame-out). ESMI's documents that have been made available do not mention interlock systems. I am concerned that interlocks have not been installed to shut down emitting processes in order to avoid uncontrolled emissions. Without additional information that describes, in detail, the automated and manual controls that are in place to ensure continuous process operational controls, there are insufficient assurances for NYSDEC or for the surrounding communities that ESMI would be in compliance with permit requirements during the Project.

F. ESMI's Proposed Emissions Assessment is Insufficient.

37. EPA provides clear guidance on how to conduct PFAS Emissions Field Testing at Commercial Thermal Destruction Sources.[23] Of particular importance in EPA's guidance is the focus on what a comprehensive air emission source characterization should include. ESMI has proposed to assess emissions from their STU/thermal oxidizer using the following methods:

    EPA Method 1,2,3/3A, and 4 (Gas Flow)

    EPA Method 3A (O_2 and CO_2)

    OTM-45

    OTM-50

    EPA Method 26A (HF/F)

38. Each of these methods target some, but not all, PICs. OTM-50, for example, targets 30 specific volatile fluorinated compounds like HFPO and HFC-23 in canisters. Importantly, ESMI is not proposing to use EPA Method 0010/8270 despite EPA's recommendation that the Method should be used in order to ensure that all PFAS have been mineralized.[24] EPA Method 0010/8270 detects broader, semi-volatile, nonpolar fluorinated compounds, including fluorotelomer alcohols and unknown PICs not captured by OTM-50's canister approach. EPA Method 0010/8270, in conjunction with OTM-50, ensures that all PICs are accounted for by testing for semi-volatile PICs that would otherwise be missed.

[23] EPA, *Interim Guidance on the Destruction and Disposal of Perfluoroalkyl and Polyfluoroalkyl Substances and Materials Containing Perfluoroalkyl and Polyfluoroalkyl Substances — Version 2*, Appendix A (2024), https://www.epa.gov/system/files/documents/2024-04/2024-interim-guidance-on-pfas-destruction-and-disposal.pdf.
[24] *SW-846 Test Method 0010: Modified Method 5 Sampling Train*, EPA, https://www.epa.gov/hw-sw846/sw-846-test-method-0010-modified-method-5-sampling-train; https://www.epa.gov/esam/epa-method-8270e-sw-846-semivolatile-organic-compounds-gas-chromatographymass-spectrometry-gc (last updated July 22, 2025).

II. The Applicant's Air Dispersion Modeling Is Missing Important Information, But Nevertheless Demonstrates that the Facility will Emit Harmful Air Pollutants in DACs as a Result of ESMI's Proposed Testing.

39. As mentioned above, the failure of the thermal oxidizer to reach and sustain temperatures that destroy PFAS will lead to PICs reforming inside the thermal oxidizer chamber and stack. Deposition of PFAS compounds to land surrounding communities from PICs emitted by industrial and commercial incinerators and thermal oxidizers is a well-known problem. These PICs are emitted to ambient air and deposited onto surrounding soil and surface water. PFAS deposited to soil can also leach to groundwater and ultimately impact public and residential drinking water supplies.[25]

40. The AERMOD assessment, conducted by C.T. Male Associates on behalf of ESMI, is based on analytical data of the soil to be treated but associated lab reports are not provided. The permit application only lists the five regulated PFAS compounds and does not include the actual lab report or how the sample was collected or received by the lab. We do not know if hold times and temperatures were met or if the proper paperwork, such as a chain-of-custody and field notes, were included. ESMI failed to provide the lab analyses and field reports to the public. This failure is a problem because the community needs assurances that the analyses are representative of what ESMI proposes to treat. The community also needs to know all detected PFAS compounds. Characterization of soil type(s), moisture content, and pH is also important.

41. The AERMOD assessment for estimating particulate deposition does not include consideration of smaller particulate matter $PM_{2.5}$. $PM_{2.5}$ particles are smaller than 2.5 micrometers, allowing them to bypass the nose and throat to enter the deepest parts of the lungs and enter the bloodstream causing serious health issues like premature death, heart attacks, strokes, asthma, and dementia. $PM_{2.5}$ particles also travel much farther than the larger, courser PM_{10} particles. ESMI choosing not to include $PM_{2.5}$ in their AERMOD assessment means that the distances that PFAS compounds might travel and the communities that they might impact is unknown.

42. The AERMOD assessment and associated information do not include how they concluded or derived prevailing wind direction. For example, no wind rose was included that shows local prevailing wind direction.

43. Even with these deficiencies, the AERMOD modeling nevertheless indicates that pollutant emissions—including the five regulated PFAS compounds—will reach disadvantaged communities ("DACs"). ESMI states that "a total of 4,001 receptors (including sensitive receptors) were modeled under this scenario, covering an area of approximately 100,000,000 square meters (±24,700 acres)."[26] The area mapped in ESMI's AERMOD modeling includes a DAC in the Village of Hudson Falls (DAC GEOID: 36115080100) and another DAC in the City of Glens Falls (DAC GEOID:

[25] Tim Schroeder et al., *PFAS Soil and Groundwater Contamination via Industrial Airborne Emission and Land Deposition in SW Vermont and Eastern New York State, USA* 23 Env't Sci.: Processes Impacts 291 (2021), https://doi.org/10.1039/D0EM00427H.
[26] RD&D Permit Application at 29.

36113070500). Nine sensitive receptors within 2 kilometers of ESMI, including schools, a daycare, and community recreational areas are identified in the AERMOD assessment.

44. Attachment A to the AERMOD assessment provides several maps that show the dispersion and deposition of PFAS within a 1.5-mile radius of ESMI's facility.[27] These maps clearly show that ESMI expects PFAS to reach the Hudson Falls DAC as a result of the RD&D Project. Troublingly, ESMI does not provide maps showing expected dispersion and deposition to each of the receptors included in the AERMOD modeling. Despite this lack of information, I have serious concerns that PFAS emitted from the facility as a result of these tests will also disperse to the nearby Glens Falls DAC given (1) that PFAS levels are still indicated at the north-northwest area of the 1.5-mile radius reported by ESMI, which suggests that dispersion extends beyond that radius, and (2) that ESMI's modeling does not account for PICs smaller than PM_{10}, which due to their smaller size can be carried in the air for longer distances.

45. In addition to the harmful dispersion of PFAS to nearby DACs, I am also concerned by the AERMOD modeling showing PFAS deposition to the Champlain Canal and the Hudson River, which will place downstream communities at similar risk.

46. In my expert opinion, even with its deficiencies, the AERMOD modeling report strongly suggests that ESMI's RD&D Project would present serious health risks to DACs in Hudson Falls and Glens Falls, which already experience high health burdens.

Denise Trabbic-Pointer

2/17/2026

Denise Trabbic-Pointer — Date

[27] *Id*.

Exhibit A

Denise Trabbic-Pointer, CHMM Emeritus
Curriculum Vitae

Experience

May 2019 – present
Toxics & Remediation Specialist, Sierra Club

- Conducts research into complex community exposures to chemical and biological hazards, compiles and assesses large volumes of data and documented information and provides written and/or verbal conclusions and recommendations. The majority of research is in regard to per- and polyfluoroalkyl substance (PFAS) and specifically, its presence and transport in environmental media (soil/water), wastewater treatment plant effluent and sludge/biosolids.
- Evaluates draft environmental permits, environmental site assessments, and other impactful regulatory reports and provides written assessments of potential impacts or proposes public comments to effect change.
- Reviews the potential impact of proposed new federal and/or state laws or regulations and assists with stated objections or support.
- Facilitates educational programs concerning the chemical and biological hazards facing impacted communities, how to avoid exposure, and recommends effective methods of communicating concerns to responsible agencies and community leaders.
- Conducts and communicates community quantitative cumulative risk assessments as it relates to human health and the environment.
- Listed Expert with the Environmental Integrity Project (EIP) working with communities across the US on issues related to toxics.
- Owner of DTP Consulting, LLC, representing communities and providing written and verbal comment on environmental and health issues and regulatory activities related to PFAS and other toxics.

November 2012 – January 2019
Global Environmental Competency Leader, Axalta coating systems (spin-off of DuPont Performance Coatings)

- Supported global environmental compliance and risk matters for all global manufacturing and non-manufacturing facilities.
- Coordinated and conducted internal 2nd party health and environmental audits of all global facilities
- Controlled global resources and assets for department activities to comply with industry standards and government regulations.
- Managed closure and post-inspection of numerous global facilities.
- Oversaw global acquisition environmental site assessments and partner relationships, enabling footprint expansion into new markets.

November 1989 – October 2012
Environmental and Health Coordinator, DuPont

- Planned and conducted research, analyzed data, and communicated and reported information to employees, regulators, and senior management about workplace exposure to chemicals.
- Scheduled and conducted regular inspections and audits, reported findings, and implemented solutions, including for other company business units and facilities.
- Assured compliance with relevant federal, state, and local regulations, including for shipment of dangerous goods. Maintained, managed, and organized company environmental records for > 23 years.
- Supported several other North American sister facilities, training centers, and warehouses in meeting applicable regulatory and company requirements.
- Trained site and local community first responders on the hazards and toxicology of the chemicals they might encounter. Also represented the Toledo and Mt Clemens sites' on their respective local emergency planning committees.
- Was part of the facility process safety management (PSM) support staff. PSM is extremely important to protecting people and the environment because of its proactive approach (consequence analysis) and incident investigation system (root cause analysis).

February 1977 – November 1989
Factory and Quality Assurance Laboratory, DuPont

Education

May 1995
Bachelor of Science in Hazardous Materials Management
University of Findlay, Chemical Engineering
Certificate in Hazardous Materials Management and a minor in Industrial Hygiene

December 1999
Master of Science in Chemical Engineering Waste Management
Wayne State University, Chemical Engineering
Certificate in Hazardous Waste Control and a minor in Industrial Hygiene

Certification 2003
Certified Hazardous Materials Manager (CHHM) Emeritus

Continuing Education 2019 Through Present
Attend from 10 to 12 online environmental-related webinars each year that are pertinent to my expertise and planned current and future work.

Affiliations

- American Industrial Hygiene Association (AIHA) Emeritus Member
- American Conference of Governmental Industrial Hygienists (ACGIH)
- Institute of Hazardous Materials Management (IHMM)

Publications

- Co-author of the Sierra Club publication “Sludge in the Garden: Toxic PFAS in home fertilizers made from sewage sludge”, May 25, 2021

  Contributions to the report include:
  - Researched, purchased, and sampled commercial biosolids-derived products, following documented protocols to assure uncompromised results
  - Compiled and analyzed the results and assured data quality
  - Assisted in writing the report, including initial design of charts and tables to illustrate results
  - Calculated and assessed environmental PFAS loading from multiple applications of the selected commercial products
  - Collected, researched, and reported source wastewater treatment plant (WWTP) processes to determine if process differences impacted final results.

- American Industrial Hygiene Association (AIHA), The Synergist, October 2020 edition, IH Pride, “The Virtue of Perseverance”
  - As an emeritus member of AIHA (member since1995), I was asked to write an article to encourage and help young IH professionals. My focus was to help them through tough problems in the workplace based on my real-life experiences and suggest how they can effect meaningful change in the workplace by training employees on the hazards of material and their potential exposures, explaining how to protect themselves, and ways to present data to management in order to convince them to invest in necessary engineered controls.

- American Industrial Hygiene Association (AIHA), The Synergist, February 2002 edition, Letter to the Editor, “A Personal Response”
  - A personal response to what I saw immediately following the attack on September 11, 2001, where first responders and clean-up personnel were working around extremely hazardous materials without wearing proper protection.

Presentations and Expert Contributions

- Have served as expert witness representing communities potentially exposed to PFAS and other toxics.
- Louisiana Department of Environmental Quality (LDEQ), Numerous written public comments regarding 17 Southwestern Louisiana industrial facility permits, representing the Micah 6:8 Mission
- Alabama Department of Environmental Management (ADEM), Written comments regarding draft permits for two contaminated industrial facilities, representing the Mobile Environmental Justice Action Coalition (MEJAC)
- 4th National PFAS Conference, “The Irony Doesn’t Escape me - A Cautionary Tale, My personal workplace exposure to PFAS”, June 2024

- Walkerville, Michigan Community, “Eagle Ottawa Newaygo Farms (Walkerville, Oceana and Newaygo County) PFAS impacts from use of leather tannery waste derived compost to farmland”, October 2024
- Micah 6:8 Mission and Southwest Louisiana Communities, “Per- and Polyfluoroalkyl Substances (PFAS) in the Louisiana Environment”, October 2025
- EarthJustice, “PFAS disposal – what are the concerns and challenges, what is the current state of the science around best practices”, December 2025
- Oklahoma House of Representatives, Interim Study #:25-010/25-085, Soil Nutrient Management related to the use of Biosolids/ Land application of Biosolids, “The Presence of Per- and Polyfluoroalkyl Substances (PFAS) in Biosolids and Impacts to Human Health and the Environment”, October 2025
- Great Lakes PFAS Action Network (GLPAN), “Community vs Occupational Exposure to PFAS”, October 2025

Other Presentations and Documentaries

- 3rd Annual PFAS Meeting. Wilmington, NC, June 16, 2022, Presenter regarding “Overlooked Exposure Pathways: Occupational”, “What You Don’t Know, Can Hurt You”
  - One of 3 people that spoke about our experience of being exposed to PFAS in the workplace.
- Sierra Club and Ecology Center present “Dark Waters” film review and discussions panel, panelists Rob Billott, Sandy Wynn, Denise Trabbic-Pointer, A.J. Birkbeck, Courtney Carignan, and Arnie Leriche, August 2020.
- Radio-Canada, enquête, “A story that does not smell good”, December 2022
- Vice TV, Video, and YouTube, “Vice News Special Report: Toxic Farmland”, June 2023

Recent Awards

- Sierra Club – Michigan Chapter, 2021 Service Award
- Sierra Club – Michigan Chapter, 2022 Marlene “Marty” Fluharty Award

Notable Projects and Achievements

- Currently working with Micah 6:8 Mission In Sulphur, Louisiana through a grant project titled Southwest Environmental Permitting Team (SWEPT) to monitor and comment on air, NPDES, and waste permits and other public comment opportunities for seventeen large chemical manufacturers.
- Working with the Virginia Institute of Marine Science in assisting South Korea design a rule and process to put together a rule similar to the US Clean Water Act for a specific list of "hazardous and noxious substances (HNS)". The first two phases have been completed in 2024 and the 3rd phase completed in 2025.
- Worked with the Environmental Law & Policy Center (ELPC) on comments for 3 steel plants seeking NPDES permits in East Chicago, IN.
- Assisted a community group in Colorado to comment on a 2024 and 2025 Colorado Energy & Carbon Management Commission Cumulative Impacts Rules for proposed Oil & Gas Development, including fracking.

- One of three scientists in 2020 assisting a coalition of eNGO to review and comment on the proposal to install a tunnel through the Straits of Mackinac to replace the current Enbridge Line 5. My part of the panel was to review the draft NPDES permit, Process Safety Management, Emergency Response, and Pipeline and Hazardous Materials Safety Administration (PHMSA) Concerns.
- Asked to act as PFAS and biosolids expert witness in September 2021 in Washington State for an appeal in challenge to the Washington Department of Ecology, Statewide General Permit for Biosolids Management. My expert witness report for the appeal was submitted and the case was resolved on January 29, 2024 for the appellant.