STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF

ARIES PINE TREE, LLC SANFORD, YORK COUNTY AIR EMISSION LICENSE APPLICATION (A-1195-71-A-N) AND SOLID WASTE PROCESSING FACILITY LICENSE APPLICATION (S-100033)	**INTERVENORS'** **PRE-HEARING BRIEF**

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Pursuant to the Presiding Officer's September 22, 2026, procedural order, Intervenors Sanford Clean Air & Water Coalition and Conservation Law Foundation respectfully submit this pre-hearing brief addressing the issues identified as issues A, C, and E in their Petition to Intervene.[1] Intervenors are concurrently submitting pre-filed expert testimony from Kyle Doudrick, Ph.D., P.E., and William Northrop, Ph.D.[2]

INTRODUCTION

Aries Pine Tree LLC ("Aries") seeks approval from the Maine Department of Environmental Protection ("DEP") to construct and operate a large-scale sewage sludge thermal treatment facility known as Aries Pine Tree in Sanford, Maine (the "Facility").[3] Aries proposes to truck up to 500 tons of sludge per day into Sanford, "primarily from Maine, Southern New

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[1] *See* Fourth Procedural Order: Prehearing Order at 6, *In re Aries Pine Tree LLC, Sanford, York County, Air Emission License Application* (A-1195-71-A-N) *and Solid Waste Processing Facility License Application* (S-100033) (Me. Dep't Env't Prot. Sept. 22, 2026) ("Fourth Procedural Order"); Petition to Intervene of Sanford Clean Air & Water Coal. & Conservation Law Foundation at 5, *In re Aries Pine Tree LLC, Sanford, York County, Air Emission License Application* (A-1195-71-A-N) *and Solid Waste Processing Facility License Application* (S-100033) (Me. Dep't Env't Prot. July 27, 2026) ("Petition to Intervene").

[2] *See* Fourth Procedural Order at 6 (directing submission of Intervenors' pre-filed expert testimony concurrently with pre-hearing brief).

[3] *See generally* Aries Pine Tree LLC Minor Source Air License Application, *In re Aries Pine Tree LLC, Sanford, York County, Air Emission License Application* (A-1195-71-A-N) (Me. Dep't Env't Prot. Jan. 2026) ("Air Permit Application"); Facility Application Solid Waste Processing, *In re Aries Pine Tree LLC, Sanford, York County, Solid Waste Processing Application* (S-100033) (Me. Dep't Env't Prot. Jan. 7, 2026) ("Solid Waste Permit Application"). While Aries uses the term "biosolids," Intervenors refer to the material Aries intends to treat at the Facility as "sewage sludge," or "sludge," rather than "biosolids." "Biosolids" generally refers to sewage sludge that has been treated for land application. EPA, *Interim Guidance on the Destruction and Disposal of PFAS and Materials Containing Perfluoroalkyl and Polyfluoroalkyl Substances—2026 Version*, at 28 (Apr. 20, 2026), https://www.epa.gov/system/files/documents/2026-04/2026-interim-guidance-on-pfas-destruction-and-disposal.pdf; *see also Land Application of Biosolids*, EPA, https://www.epa.gov/biosolids/land-application-biosolids (last updated Jan. 5, 2026) (explaining that "biosolids" refers to "sewage sludge that has been treated to meet the requirements in [federal regulations] and intended to be applied to land as a soil conditioner or fertilizer"). It is not clear that the material Aries proposes to treat at the Facility meets this definition.

Hampshire and Eastern Massachusetts." Air Permit Application at 1-1. In fact, it is likely that half or more of the sludge treated at the Aries Pine Tree Facility will come from out of state; given the Facility's vast design capacity, even if 100% of Maine's municipal wastewater treatment plant sludge were diverted to the Facility in lieu of landfilling, which is hypothetical at best, approximately half the sludge the Facility treats would be imported from out of state.[4]

Aries acknowledges that its proposed thermal treatment process—drying and then combusting the sludge in a two-step process involving a gasifier and integrated thermal oxidizer—will emit an array of harmful air pollutants, including nitrogen oxides (NO_x), sulfur dioxide (SO_2), particulate matter (PM), hydrochloric acid (HCl), volatile organic compounds (VOCs), dioxin/furan, heavy metals, and per- and poly-fluoroalkyl substances (PFAS). *See*, *e.g.*, Air Permit Application at 6-2, Attachment F at 1. But as Intervenors will show in this proceeding, Aries fails to substantiate its claims regarding the quantity of pollutants its Facility will emit and the efficacy of its pollution controls. Further, Aries seeks to evade stringent regulation of its Facility's air pollution by claiming that the Facility is not an incinerator—without even attempting to justify that claim under Maine law.

Intervenors' members live, work, recreate, grow food, raise children, and care for other family members in close proximity to the site of Aries' proposed Facility. *See* Petition to Intervene at 2–5. Intervenors' members are concerned about breathing and ingesting toxic contaminants released from the Facility over its proposed 30-year operating life. *See id.*

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[4] *See* Air Permit Application at 1-1 (stating that Aries Pine Tree will be capable of treating up to 450 wet tons per day of biosolids, or 164,250 wet tons per year); Me. Dep't of Env't Prot., *Analysis of Sludge and State-Owned Landfills as Public Utilities* 1 (2024), https://www.maine.gov/dep/publications/documents/archive/legislative%20reports/2024/DEP_PUC%20LD718%20report.pdf (stating that "[m]ore than 90,000 wet tons of sludge is generated by publicly owned treatment works (POTWs) in Maine per year," with "up to 86,932 tons" disposed of in Maine landfills in 2022).

As explained below, DEP lacks authority to license the Facility because it is an incinerator under DEP's regulations and therefore constitutes a new commercial solid waste disposal facility that is banned under state law. Even if DEP had authority to license the Facility despite this ban, which it does not, DEP must deny Aries' pending Air Permit Application because it improperly seeks a minor source license when in fact the Facility is subject to federal incinerator standards that require Aries to obtain a permit that complies with Title V of the Clean Air Act. Finally, even if DEP had authority to license the Facility as a minor source, continuous emissions monitoring is required for multiple pollutants to ensure that the Facility complies with Aries' proposed emissions limits and with federal and state requirements for it to operate as a minor source.

FACTUAL BACKGROUND

Aries proposes to receive up to 500 tons of sludge per day at the Aries Pine Tree Facility and treat up to 450 tons per day. Air Permit Application at 1-1. After drying, the sludge will be "gasified using a proprietary fluidized bed process," which Aries claims is "not incineration." *Id.* at 1-1, 2-10. The gasification step of Aries' thermal treatment process will generate "producer gas" that will be "combusted on-site using a thermal oxidizer." *Id.* at 1-1. It will also produce "biochar," which Aries proposes to landfill offsite unless and until it secures a future approval to sell the char "as a concrete additive" or for "other beneficial uses." *Id.* at 1-1, 2-1.

Sewage sludge contains a broad array of toxic chemicals. The U.S. Environmental Protection Agency ("EPA") has so far identified 739 different chemicals in sewage sludge, including heavy metals, dioxins, chlorinated solvents, flame retardants, pesticides, and—as DEP

is well aware—PFAS.[5] Unless these contaminants are destroyed effectively by the Facility's thermal treatment process or removed by Aries' proposed emissions controls, the contaminants and/or their toxic degradation products will be released into the air in Sanford; released into the community's sewer system, from which they could be discharged into the Mousam River; and/or present in the char that Aries landfills.[6]

PFAS are a large group of synthetic organic chemicals characterized by carbon-fluorine bonds, which make PFAS extremely persistent in the environment and difficult to break down. Pre-Filed Testimony of Kyle Doudrick, Ph.D., P.E. ("Doudrick Testimony") ¶ 17. EPA has identified more than 21,000 individual PFAS, with more discovered on an ongoing basis. *Id.* ¶ 22. The PFAS that have been evaluated for toxicity to date are linked to an array of serious adverse health effects, including cancer, reproductive harm, low birth weight and other harm to fetal and infant development, harm to the liver and kidneys, immune system suppression, elevated cholesterol, and harm to the nervous system. *See id.* ¶¶ 23–24. As Dr. Doudrick explains:

> 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 humans and wildlife to PFAS exposure levels occurring in the environment. Many PFAS bioaccumulate, or build up, through repeated exposures in people and animals, meaning even low-level releases can result in significant long-term exposures and harm.
>
> *Id.* ¶ 25 (footnotes omitted).

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[5] *LIST: Chemicals in Biosolids (2022)*, EPA: CompTox, https://comptox.epa.gov/dashboard/chemical-lists/BIOSOLIDS2022 (last visited Nov. 11, 2026).

[6] *See* Solid Waste Permit Application at 3-14 (explaining that condensate from drying sludge at the Facility will be discharged to the Sanford Sewerage District); *Facility, How It Works*, Sanford Sewerage District, https://www.sanfordsewerage.org/about/facility/ (last accessed Nov. 12, 2026) (explaining that treated effluent from Sanford Sewerage District is discharged to the Mousam River).

Aries seeks authorization to treat nearly five million tons of sludge over the Facility's 30-year operating life, so "even low [PFAS] emissions per ton could accumulate substantially over the Facility's lifetime." *Id.* ¶ 141.

As noted, Aries' Facility also will generate substantial emissions of other air pollutants, including PM, VOCs, NO_x, SO_2, and HCl. These pollutants largely affect the respiratory system but can cause a range of systemic effects once absorbed in the body. Inhalable sizes of PM, which include PM_{10} and $PM_{2.5}$, can enter the lungs, heart, and bloodstream.[7] PM is linked to aggravated asthma, general respiratory issues, decreased lung function, irregular heartbeat, increased risk of nonfatal heart attacks, and premature death in people with heart or lung disease.[8] Year-round exposure to even low levels of PM is associated with higher likelihoods of developing several diseases, including diabetes and childhood asthma, and short-term spikes are associated with increased mortality in infants and increased hospitalizations among those with respiratory diseases.[9]

Similarly, short-term elevated exposure to NO_x aggravates existing respiratory diseases, especially asthma, and has been linked to increased emergency room visits and hospital admissions.[10] Chronic exposure to elevated levels of NO_x contributes to the development of asthma and respiratory infections. [11] The respiratory and cardiovascular effects of NO_x worsen

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[7] *Health and Environmental Effects of Particulate Matter (PM)*, EPA, https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm (last updated May 5, 2026).

[8] *Id*.

[9] *Particle Pollution*, Am. Lung Ass'n, https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/particle-pollution (last updated May 27, 2025).

[10] *Basic Information About NO_2,* EPA, https://www.epa.gov/no2-pollution/basic-information-about-no2 (last updated June 24, 2026).

[11] *Id*.

with co-exposures to SO_2.[12] Inhalation of SO_2 is especially hazardous to people with existing lung diseases, including asthma, since it causes airway resistance.[13] Like NO_x, SO_2 is linked to increased hospital admissions and emergency room visits, particularly for people with asthma, children, and older adults.[14] Children are especially susceptible to SO_2.[15] Chronic exposure to even low levels of SO_2 can contribute to the development of pulmonary disease and reduced lung function.[16]

HCl also produces respiratory problems at low levels of chronic exposure, in addition to eye and skin irritation and discoloration of the teeth. HCl is an irritant and corrosive to tissues it contacts in the body.[17]

VOCs, a class of gases that easily evaporate at normal room temperature, cause irritation to the eyes, nose, and throat; damage the liver, kidneys, and central nervous system; and cause

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[12] Taha, S., Idoudi, S., Alhamdan, N., Ibrahim, Surkatti, R., Amhamed, A., & Alrebei, O. (2025). Comprehensive review of health impacts of the exposure to nitrogen oxides (NOx), carbon dioxide (CO2), and particulate matter (PM). *J. of Hazardous Materials Advances, 19*, Article 100771. https://doi.org/10.1016/j.hazadv.2025.100771 ("Furthermore, NOx can react with other air pollutants including ozone (O_3) and sulphur dioxide (SO_2), causing synergistic effects that worsen their respective health consequences. For example, exposure to both NOx and O_3 can produce more lung inflammation and respiratory symptoms than either pollutant alone. The combination of NOx with other pollutants can cause oxidative stress, inflammation, and respiratory and cardiovascular problems." (citations omitted)).

[13] *Medical Management Guidelines for Sulfur Dioxide*, Agency for Toxic Substances & Disease Registry, https://wwwn.cdc.gov/Tsp/MMG/MMGDetails.aspx?mmgid=249&toxid=46 (last reviewed Oct. 21, 2014) ("ATSDR Sulfur Dioxide Guidelines").

[14] *Sulfur Dioxide*, Am. Lung Ass'n, https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/sulfur-dioxide (last updated Oct. 26, 2023) ("Am. Lung Ass'n, *Sulfur Dioxide*").

[15] ATSDR Sulfur Dioxide Guidelines, *supra* note 13.

[16] Stauffer, C. B., & Tat, J. (2026). Toxic effects of sulfur dioxide: A review. *Toxics*, *14*(1), Article 100. https://doi.org/10.3390/toxics14010100; Am. Lung Ass'n, *Sulfur Dioxide*, *supra* note 14.

[17] EPA, *Hydrochloric Acid (Hydrogen Chloride)*, https://www.epa.gov/sites/default/files/2016-09/documents/hydrochloric-acid.pdf (last revised Jan. 2000).

headaches, loss of coordination, and nausea.[18] Prevalent VOCs, such as benzene, are associated with increased risk of blood and bone marrow cancers.[19]

Pollution from the Facility will exacerbate existing environmental and public health burdens in Sanford. Already, asthma rates in Sanford are above the 78th percentile for the United States, with some areas above the 93rd percentile,[20] and Sanford's rate of emergency department visits for asthma is among the highest in Maine.[21] Moreover, PFAS levels in Sanford's public drinking water already exceed federal and state standards.[22]

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[18] *Volatile Organic Compounds' Impact on Indoor Air Quality*, EPA, https://www.epa.gov/indoor-air-quality-iaq/volatile-organic-compounds-impact-indoor-air-quality (last updated June 23, 2026).

[19] Andrew Smith, State Toxicologist, Me. CDC, & Stacy Knapp, Bureau of Air Qual., Me. Dep't of Env't Prot., *Update on Health Assessment of VOC Monitoring Results for Portland–South Portland* 7 (Oct. 14, 2025), https://www.maine.gov/dep/air/monitoring/docs/archive/Final_SoPo_Po%20VOC%20Health%20Assessment%20Update.10.14.25.pdf.

[20] *Environmental Justice Screening and Mapping Tool (Version 3.2022.3)*, Pub. Env't Data Partners, https://ejscreen.ejanalysis.com/ (last visited Nov. 11, 2026); City of Sanford, *City of Sanford, Maine - Narrative Information Sheet USEPA FY24 Brownfields Assessment Grant Application*, https://cms5.revize.com/revize/sanford/FY24%20Sanford%20BF%20Assessment%20Grant%20Application.pdf (last visited Nov. 11, 2026).

[21] *Asthma*, Me. Tracking Network, https://data.mainepublichealth.gov/tracking/asthma (last visited Nov. 8, 2026) (click on "Town Data").

[22] *Compare* 40 C.F.R. § 141.61(c) (establishing individual maximum contaminant levels of 0.0000040 mg/l, or 4 ng/l, for PFOA and PFOS), *and* 10-144 C.M.R. ch. 231, § 7(G)(9) (adopting federal PFAS drinking water standards), *with* Sanford Water District, *2025 Water Quality Report* 3, https://1887f3a9-e68d-4b3c-8a30-880ab7c022f5.filesusr.com/ugd/a14880_5e1222db12f4432ca81bbed438af558b.pdf (last visited Nov. 12, 2026) (reporting PFOS levels up to 7.1 ng/l and PFOA levels up to 6.8 ng/l in Sanford's public drinking water).

PROCEDURAL BACKGROUND

On January 28, 2026, DEP accepted for processing Aries' application for a solid waste processing facility license for the Facility.[23] On February 3, 2026, DEP accepted for processing Aries' application for a minor source air emission license for the Facility.[24] In response to multiple requests from members of the public, on March 19, 2026, DEP announced its decision to hold a combined public hearing on Aries' Solid Waste Permit and Air Permit Applications.[25]

On August 12, 2026, DEP granted the petition of Sanford Clean Air & Water Coalition and Conservation Law Foundation to participate in the hearing as intervening parties.[26] Intervenors' petition identified six issues for the hearing,[27] which the Presiding Officer determined represent an appropriate scope for the hearing in this matter.[28] Intervenors reserved their right to raise additional issues related to the Supplemental Best Available Control Technology ("BACT") Analysis submitted to DEP by Aries after the filing of Intervenors' Petition to Intervene.[29]

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[23] Me. Dep't Env't Prot., *Notice of Opportunity to Intervene* 1 (July 10, 2026).

[24] *Id*.

[25] Me. Dep't Env't Prot., Notice Re: Request for Public Hearing Regarding Aries Pine Tree LLC License Applications (Mar. 19, 2026).

[26] First Procedural Order Granting Petition to Intervene and Scheduling Prehearing Conference at 2, *In re Aries Pine Tree LLC, Sanford, York County, Air Emission License Application* (A-1195-71-A-N) *and Solid Waste Processing Facility License Application* (S-100033) (Me. Dep't Env't Prot. Aug. 12, 2026).

[27] Petition to Intervene at 5–6.

[28] Fourth Procedural Order at 2.

[29] *See id.* at 2 n.1; Supplemental Best Available Control Technology (BACT) Analysis, *In re Aries Pine Tree LLC, Sanford, York County, Air Emission License Application* (A-1195-71-A-N) (Me. Dep't Env't Prot. Sept. 15, 2026) ("Suppl. BACT Analysis").

On September 22, 2026, the Presiding Officer issued an order addressing multiple procedural issues and establishing a schedule for the submission of pre-hearing briefs and pre-filed testimony.[30]

ARGUMENT

I. DEP LACKS AUTHORITY TO LICENSE THE ARIES PINE TREE FACILITY BECAUSE IT IS A NEW COMMERCIAL SOLID WASTE DISPOSAL FACILITY (ISSUE A)

In 1989, the Maine Legislature banned the licensing of new commercial solid waste disposal facilities in Maine.[31] Accordingly, DEP "may not approve an application for a new commercial solid waste disposal . . . facility after September 30, 1989."[32] The Aries Pine Tree Facility is a new commercial solid waste disposal facility under the plain language of Maine's solid waste statute and implementing regulations. Moreover, Aries' proposal—which calls for treating substantial quantities of out-of-state waste at the Facility—directly contravenes the purpose of the legislative ban on new commercial solid waste disposal facilities. For this reason alone, DEP must deny Aries' pending application for a solid waste processing facility license, and the Facility cannot be licensed at all.

A. The Aries Pine Tree Facility Is a Solid Waste Disposal Facility

The Aries Pine Tree Facility is a solid waste *disposal* facility under Maine law—not a solid waste *processing* facility, as Aries claims—because it is "a solid waste facility for the incineration . . . of solid waste." 38 M.R.S. § 1303-C(30) (establishing that "[s]olid waste disposal facility" "means a solid waste facility for the incineration or landfilling of solid waste or refuse-derived fuel," with an exception not relevant here); 06-096 C.M.R. ch. 400, § 1(Jjj)

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[30] *See generally* Fourth Procedural Order.

[31] 38 M.R.S. § 1310-X(1).

[32] *Id.*; *see also* 06-096 C.M.R. ch. 400, § 2(E).

(same); *cf.* 38 M.R.S. § 1303-C(32-A) (defining a "solid waste processing facility" as a facility "*other than an incineration facility*, that is operated to reduce the volume or change the chemical or physical characteristics of solid waste" (emphasis added)). Under the governing DEP regulations, "incineration" means "the volume reduction of solid waste by means of controlled combustion." 06-096 C.M.R. ch. 400, § 1(PPP); *see also id.* ch. 403, § 1 (explaining that DEP's regulations for incineration facilities apply to solid waste facilities "which incinerate municipal solid waste and/or special wastes"). Combustion of solid waste is precisely what the Aries Pine Tree Facility is designed to do.[33]

As explained in the concurrently filed expert testimony of Dr. William Northrop, a combustion scientist and tenured professor of Mechanical Engineering at the University of Minnesota, "[t]he Aries Pine Tree Facility will use a controlled combustion process to achieve its stated purpose of reducing the volume of sludge/biosolids." Pre-filed Testimony of William Northrop, Ph.D. ("Northrop Testimony") ¶ 25. Combustion is defined in relevant part as "rapid oxidation generating heat, or both light and heat." *Id.* ¶ 26 (quoting Stephen Turns, *Introduction to Combustion* 6 (1st ed. 1996)). "Combustion of solid fuels such as sewage sludge involves drying, pyrolysis/devolatilization, and oxidation." *Id.* ¶ 27.

[33] There is no dispute that the Aries Pine Tree Facility is a solid waste facility under state law. *See* 06-096 C.M.R. ch. 400, § 1(Kkk) (defining solid waste facility as "any land area, structure, location, equipment or combination of them, used for the handling of solid waste," including, with exceptions not relevant here, "solid waste transfer stations, landfills, incinerators, processing facilities, composting facilities, storage facilities and agronomic utilization sites"). It is also beyond dispute that the Aries Pine Tree Facility is a new facility, and that it is a commercial facility because it is not owned by a public waste disposal corporation, a municipality, a refuse disposal district, or the Maine Department of Administrative and Financial Services, and Aries would not generate at least 85% of the waste disposed of at the Facility. *See id.* ch. 400, § 1(Z) (defining commercial solid waste disposal facility).

As Dr. Northrop explains, "[a]ll of these processes will occur in the Aries Pine Tree Facility." *Id.* The Facility's gasifier and integrated thermal oxidizer "are designed to jointly perform the main combustion processes in a stepwise manner to achieve the Facility's purpose of reducing the volume of the treated sludge and recovering heat to facilitate that process." *Id.* ¶ 28. Moreover, "combustion will occur within both the gasifier and the thermal oxidizer" individually. *Id.* "Gasification is itself a type of combustion." *Id.* ¶ 29; *see also id.* ¶ 30 (explaining that "gasification is treated as a combustion topic in the scientific literature").[34] Accordingly, Aries' public statements that no combustion will occur in the gasifier are incorrect. *Id.* ¶ 34. Aries acknowledges that combustion will occur in the thermal oxidizer. *E.g.*, Air Permit Application at 2-6.

In sum, the Aries Pine Tree Facility is designed to reduce sludge (waste) volume by means of controlled combustion, which constitutes incineration under Maine law, *see* 06-096 C.M.R. ch. 400, § 1(PPP) (defining incineration under Maine solid waste laws and DEP rules), and renders the Facility a solid waste disposal facility, 38 M.R.S. § 1303-C(30); 06-096 C.M.R. ch. 400, § 1(Jjj). Because the Aries Pine Tree Facility is a new commercial solid waste disposal facility, *see supra* note 33, DEP lacks authority to license the Facility under the plain language of Maine's solid waste laws, 38 M.R.S. § 1310-X(1); 06-096 C.M.R. ch. 400, § 2(E).

In addition to violating the plain language of the statutory prohibition on licensing new commercial solid waste disposal facilities, licensing the Aries Pine Tree Facility would contravene the fundamental purpose of that prohibition, which is to ensure that Maine "c[an] control our waste stream" and, specifically, "take care of our own waste that we generate" and

[34] "Other types of combustion include premixed flames, diffusion flames, catalytic, mild/flameless, and detonation/deflagration, among others." Northrop Testimony ¶ 31.

not become a dumping ground for out-of-state waste.[35] *See*, *e.g.*, *Dickau v. Vt. Mut. Ins. Co.*, 2014 ME 158, ¶¶ 19, 21, 107 A.3d 621 ("In interpreting a statute, our single goal is to give effect to the Legislature's intent in enacting the statute" and the reviewing court "must interpret the plain language by taking into account the subject matter and purposes of the statute, and the consequences of a particular interpretation."). As explained above, the Facility is a commercial operation designed to receive hundreds of tons of out-of-state waste every day, as its capacity far exceeds the amount of sludge generated in Maine. This will vastly *increase* the quantity of toxic sludge in Maine, which is far from a solution to the present sludge-disposal challenges facing the State and is precisely the circumstance that the statutory ban on new commercial solid waste disposal facilities is intended to prevent.

B. Aries' Attempts to Distinguish Its Thermal Treatment Process from Incineration Fail

Aries' attempts to distinguish its thermal treatment process from incineration rely on flawed assumptions and fail to grapple with the governing law. At the outset, the question of whether Aries' proposed thermal treatment process constitutes "incineration" is a legal question that depends upon the governing regulatory definition of incineration. *See* Northrop Testimony ¶ 35. As Dr. Northrop explains, "incineration" is not a technical term in the field of combustion science; instead, it is generally defined by the governing regulations for a particular facility. *Id.* Yet Aries does not even attempt to explain how its Facility is not an incinerator under DEP's solid waste regulations. Further, the specific arguments Aries advances to attempt to distinguish its thermal treatment process from incineration lack merit.

[35] 5 Legis. Rec. 835 (2d. Reg. Sess. 1990), https://legislature.maine.gov/lawlib/lldl/bottlebill/elegrec_1990-04-05_sp_p0834-0836.pdf.

Aries first asserts that its proposed thermal treatment process is not incineration because the gasification step will occur in what it calls an "oxygen-starved environment" with "[n]o flame . . . applied to the biosolids in the gasifier" or "propagated as a result of the heating." Solid Waste Permit Application at 3-9; Air Permit Application at 2-10. The absence of flame is irrelevant because a flame is not required for a solid waste treatment process to constitute incineration under DEP's solid waste regulations. Instead, incineration includes all "volume reduction of solid waste by means of controlled combustion"—not just flame combustion— 06-096 C.M.R. ch. 400, § 1(PPP), and a flame is not required for combustion, Northrop Testimony ¶ 37.[36]

Moreover, the fact that the quantity of oxygen entering the gasifier is limited in Aries' design—what Aries describes as an "oxygen-starved environment"—does not transform the gasification process into something other than controlled combustion. The gasification system provides sufficient oxygen to sustain combustion without adding heat and is designed to ensure that combustion of sludge will occur in the gasifier. Northrop Testimony ¶¶ 28–29, 33. As Dr. Northrop explains:

> In addition to the oxygen that is present in the sludge feedstock, the gasifier is designed to receive oxygen through air injection at the bottom of the fluidized bed section. Oxygen is supplied from atmospheric air via blowers or from the recycled exhaust of the thermal oxidizer. The air flows through a grate structure and moves upward through the reactor, oxidizing entrained waste particles.

Id. ¶ 33.

[36] Although Aries' proposed process does not involve flame combustion, it does involve fire. Northrop Testimony ¶ 37. "Flame is defined as the rapid, self-sustaining propagation of combustion, typically requiring a reaction front or a well-defined boundary. However, fire is a broader category of combustion that encompasses smoldering, glowing, flames, and combinations of these. The process in the Aries Pine Tree Facility's gasifier involves fire." *Id*. (footnote omitted).

In short, neither the level of oxygen nor the absence of a flame in the gasifier takes Aries' thermal treatment process outside the governing definition of incineration. *See* 06-096 C.M.R. ch. 400, § 1(PPP).

Aries' second assertion, that EPA supposedly has "confirm[ed] that gasification is not incineration," Solid Waste Permit Application at 3-9, is incorrect. To the contrary, EPA has expressly and repeatedly deferred resolving the question of whether gasification constitutes incineration under the federal Clean Air Act (and EPA has not, to Intervenors' knowledge, taken any position on whether gasification constitutes incineration under Maine law). In 2021, EPA issued an advance notice of proposed rulemaking seeking public comment to inform "how best to address . . . pyrolysis and gasification units" under the Clean Air Act's incinerator standards. Potential Future Regulation Addressing Pyrolysis and Gasification Units, 86 Fed. Reg. 50296, 50298 (proposed Sept. 8, 2021). In that notice, EPA acknowledged "on-going questions about the regulation of pyrolysis and gasification units" under those standards and explicitly requested information about multiple Aries facilities, including the company's existing gasification facility in Linden, New Jersey, to help "determine whether [they] should be regulated under [Clean Air Act] section 129"—which governs incinerator emissions—"as part of a category (or subcategory) of solid waste incineration unit." *Id.* at 50298, 50303. EPA has not taken further regulatory action to settle that issue in the intervening years.[37]

[37] Instead, in March 2026, EPA issued another public notice in which it again declined to take a position on whether gasification facilities, including those treating sewage sludge, are subject to the Clean Air Act's incinerator standards. Standards for Air Curtain Incinerators That Only Burn Wood Wastes, Yard Wastes and Clean Lumber; Provision for Commercial and Industrial Solid Waste Incineration Units: Temporary Use Incinerators and Air Curtain Incinerators Used in Disaster Recovery, 91 Fed. Reg. 13543, 13553 (proposed Mar. 20, 2026).

Aries does not address these EPA statements. To support its claim that EPA supposedly has "confirm[ed] that gasification is not incineration," Solid Waste Permit Application at 3-9, Aries cites two letters conveying EPA's determinations that individual facilities in Washington and Florida are not subject to a particular set of federal incinerator standards, namely, the new source performance standards for sewage sludge incineration units ("SSI NSPS") promulgated by EPA under section 129 of the Clean Air Act.[38] The letters are specific to those federal regulations and those two facilities. They do not address the thermal treatment process proposed for the Aries Pine Tree Facility, the meaning of incineration under the governing DEP regulations, or the federal incinerator standards that apply to the Aries Pine Tree Facility, *see infra* Section II. Further, EPA's conclusions in the cited letters turn on its position that the SSI NSPS apply only to facilities "using controlled *flame* combustion."[39] As explained above, DEP's solid waste regulations defining incineration do not contain any such limitation. Furthermore, one of the cited EPA determinations relies on EPA's assumption that the Washington facility at issue "is designed so that *no combustion* or burning of any solid, semi-solid, or liquid can occur."[40] As explained above, that is not true of the Aries Pine Tree Facility, where combustion

[38] Letter from Peter Tsirigotis, EPA, to Dale G. Mullen, Whiteford Taylor Preston LLP, at 2 n.1 (Sept. 9, 2021) ("Ecoremedy Determination Letter") (explaining that EPA's determination is specific to the Ecoremedy facility and "to the existing SSI NSPS regulations addressing sewage sludge combustion units and do not rule out the applicability of regulations for gasification units issued by EPA in the future"); Letter from Edward Messina, EPA, to Jeff Snyder, MaxWest Env't Sys. Inc., Re: Request for Determination of Applicability under 40 CFR Part 60, Subpart MMMM – Emissions Guidelines and Compliance Timelines for Existing Sewage Sludge Incineration Units, at 1–2 (Dec. 19, 2013) ("MaxWest Determination Letter"). Both letters are included as Attachment R to Aries' Solid Waste Permit Application and Attachment D to Aries' Air Permit Application.

[39] Ecoremedy Determination Letter at 4, 5 & n.4; MaxWest Determination Letter at 3 (emphasis added).

[40] Ecoremedy Determination Letter at 2 (emphasis added); *see also id.* at 5 (accepting Ecoremedy's assertion that "combustion cannot occur" in the Ecoremedy facility's gasifier and

of sewage sludge will occur in the gasifier. *See* Northrop Testimony ¶¶ 28–29, 33; *see also id.* ¶ 34 ("Aries' statements that 'no combustion occurs' in the gasifier are not accurate.").

Furthermore, EPA has issued determinations that multiple facilities utilizing gasification and/or pyrolysis with an integrated thermal oxidizer to treat solid waste *are* incinerators under federal law.[41] Aries does not acknowledge these EPA determinations, which further undercut Aries' claim that EPA has broadly concluded that gasification is not incineration. *See* Solid Waste Permit Application at 3-9.

C. It Would Be Arbitrary to Conclude That the Aries Pine Tree Facility Is Not an Incinerator Under the Governing DEP Regulations Because the Facility Will Pollute Like an Incinerator

In addition to contravening the plain language of DEP's solid waste regulations, it would be arbitrary and irrational for DEP to conclude that the thermal treatment process proposed for the Aries Pine Tree Facility is not incineration under those regulations because the Facility would generate air pollution and ash that is substantially identical to that produced by other solid waste incinerators that do not utilize gasification as part of their waste-combustion process. *See Kroeger v. Dep't of Env't Prot.*, 2005 ME 50, ¶ 7, 870 A.2d 566 (affirming that agency's permitting decision may be overturned if it is arbitrary and capricious); *Cal. Cmtys. Against Toxics v. EPA*, 928 F.3d 1041, 1057 (D.C. Cir. 2019) ("Agency action is . . . arbitrary and

noting that facility is not subject to SSI NSPS "if the gasification unit does not combust the sewage sludge that is fed into it").

[41] *See, e.g.*, Letter from Steve Thompson, EPA, to David Cardenas, Monarch Waste Techs., LLC, Re: Applicability Determination – Emissions Guidelines and Compliance Times for Hospital/Medical/Infectious Waste Incinerators (July 7, 2017) (attached as **Exhibit A**) (concluding that facility that decomposes hospital, medical, and infectious waste using pyrolysis and gasification followed by combustion of resulting syngas in an integrated thermal oxidizer constitutes an incinerator under federal law).

capricious if it offer[s] insufficient reasons for treating similar situations differently." (quotation omitted)).

As Dr. Northrop explains, both the Aries Pine Tree Facility and what is colloquially described as a traditional solid waste incinerator (meaning one that does not use gasification) "treat waste using the same fundamental processes: combustion of a solid fuel followed by emissions control." Northrop Testimony ¶ 36. The Aries Pine Tree Facility will "use staged oxidation in two process steps." *Id.*

> First, in the gasifier, the waste reacts with oxygen to produce carbon-rich ash and syngas. This process . . . is a combustion process. Second, the thermal oxidizer combusts the syngas in an excess-oxygen environment . . . . In a solid waste incinerator that does not use gasification, there is typically a single oxygen addition rather than two, combining the gasifier and thermal oxidizer reactions into a single step. Both system designs use combustion processes to reduce waste volume through oxidation.

Id.

Accordingly, "[t]he air pollution from the Aries Pine Tree Facility will be substantially the same as the air pollution from a solid waste incinerator that does not use gasification." *Id.* ¶ 38. The Facility's stack exhaust will contain the same primary chemical species as the stack exhaust from other solid waste incinerators, including PM, VOCs, HCl, H_2O, CO_2, CO, NO_x, and SO_2. *Id*. In addition, "[t]he ash produced by the Facility will contain the same non-combustible materials as the ash produced by a solid waste incinerator that does not use gasification, except that it will also include uncombusted carbon, which is referred to as 'char' in [Aries'] applications." *Id.* ¶ 40. Therefore, in addition to being foreclosed by the plain text of DEP's solid waste regulations, there is no reasoned basis for treating Aries' proposed thermal treatment process as something other than incineration.

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The Aries Pine Tree Facility is a new commercial facility designed to reduce the volume of solid waste by means of controlled combustion. It therefore is a "solid waste facility for the incineration . . . of solid waste," *i.e.*, a solid waste disposal facility, and DEP lacks authority to license it under the plain language of DEP's regulations and Maine's solid waste statute. *See* 06-096 C.M.R. ch. 400, § 1(PPP) (defining incineration under Maine's solid waste laws); 38 M.R.S. § 1303-C(30) (defining solid waste disposal facility); 06-096 C.M.R. ch. 400, § 1(Jjj) (same); 38 M.R.S. § 1310-X (prohibiting licensing of new commercial solid waste disposal facilities). Furthermore, acceding to Aries' argument that its thermal treatment process is not incineration under governing law because the company labels its combustion process "gasification" would be arbitrary and irrational because the Facility presents the same fundamental pollution concerns as other solid waste incinerators. Because the Aries Pine Tree Facility is a banned commercial solid waste disposal facility, its Solid Waste Permit Application must be denied, and the Facility cannot be licensed. DEP need not reach any other issue to adjudicate the pending permit applications and conclude this proceeding.

II. EVEN ASSUMING FOR THE SAKE OF ARGUMENT THAT THE ARIES PINE TREE FACILITY IS NOT A BANNED COMMERCIAL SOLID WASTE DISPOSAL FACILITY, IT IS AN INCINERATOR UNDER FEDERAL LAW AND REQUIRES A TITLE V PERMIT (ISSUE C)

Even if DEP could license the Aries Pine Tree Facility consistent with 38 M.R.S. § 1310-X(1), which it cannot, DEP still must deny Aries' pending application for a minor source air emission license because the Facility is an incinerator within the meaning of section 129 of the Clean Air Act, 42 U.S.C. § 7429, and therefore requires an operating permit under Title V of the Clean Air Act instead of a minor source license, *id.* § 7429(e); 40 C.F.R. § 60.2242; *see also Who Has to Obtain a Title V Permit?*, EPA, https://www.epa.gov/title-v-operating-permits/who-has-obtain-title-v-permit (last updated Aug. 7, 2026) (explaining that "[r]egardless of [s]ize," solid

waste incineration units subject to section 129 standards must obtain a Title V permit). As explained below, that Title V permit must incorporate the federal new source performance standards for commercial and industrial solid waste incinerators ("CISWI NSPS"). *See* 40 C.F.R. Part 60 Subpart CCCC; 06-096 C.M.R. ch. 143, § 2(91) (incorporating CISWI NSPS into Maine law); *see also* 40 C.F.R. § 60.2030 (providing for state enforcement of CISWI NSPS).[42]

Congress enacted section 129 of the Clean Air Act specifically to address air pollution from solid waste combustion. 42 U.S.C. § 7429. Section 129 applies to all "solid waste incineration unit[s]," which the Clean Air Act defines as any "distinct operating unit of any facility which combusts any solid waste material from commercial or industrial establishments or the general public," with exceptions not relevant here. *Id.* § 7429(g)(1).[43] Section 129 requires EPA to establish emissions standards and standards of performance for new and existing facilities within "each category of solid waste incineration units" that reflect the use of the "maximum achievable control technology," or "MACT." *Id.* § 7429(a)(1)(A); *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 596 (D.C. Cir. 2016).

EPA's section 129 new source performance standards for commercial and industrial solid waste incinerators, or "CISWI," apply to the Aries Pine Tree Facility. The CISWI NSPS apply to

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[42] The applicable federal emissions limits apply to metals (cadmium, lead, mercury), CO, dioxin/furan, fugitive ash, HCl, NO_x, PM, and SO_2. 40 C.F.R. Part 60 Subpart CCCC tbl. 5. The CISWI NSPS also require compliance with operating limits and requirements for preconstruction siting analysis, waste management planning, operator training and certification, performance testing, initial and continuous compliance testing, monitoring, recordkeeping, and reporting. *See* 40 C.F.R. Part 60 Subpart CCCC *et seq*.

[43] Section 129 exempts from the definition of "solid waste incineration unit" (1) incinerators or other units required to have a hazardous waste disposal permit under the federal Resource Conservation and Recovery Act; (2) facilities that combust waste primarily to recover metals; (3) certain small power production or cogeneration facilities; and (4) air curtain incinerators that burn only wood wastes, yard wastes, and clean lumber. 42 U.S.C. § 7429(g)(1). None of these exemptions applies to the Aries Pine Tree Facility.

any "new incineration unit" that meets the definition of a CISWI and is not subject to an established exemption. 40 C.F.R. § 60.2010. Because the Arie Pines Tree Facility is a new incineration unit, constitutes a CISWI, and is not exempted by the governing regulations, the NSPS apply.[44]

First, the Aries Pine Tree Facility's thermal treatment system constitutes a new incineration unit because it would "commence[] construction after June 4, 2010," *id*. § 60.2015(a)(1).

Second, the Facility's thermal treatment equipment meets the definition of CISWI, *i.e.*:

> any distinct operating unit of any commercial or industrial facility that combusts . . . any solid waste as that term is defined in 40 CFR part 241. If the operating unit burns materials other than traditional fuels as defined in [40 C.F.R.] § 241.2 that have been discarded, and . . . do[es] not keep and produce records as required by [40 C.F.R.] § 60.2175(v), the operating unit is a CISWI.

Id. § 60.2265. As explained *supra* Section I, Aries' system will combust sewage sludge, which constitutes solid waste within the meaning of 40 C.F.R. Part 241. *See* 40 C.F.R. § 241.2 (incorporating the definition of solid waste in 40 C.F.R. § 258.2); *id.* § 258.2 (defining solid waste to include "any . . . sludge from a wastewater treatment plant"). The sludge feedstock does not constitute "traditional fuels." *See id.* § 241.2 (defining "traditional fuels" as "materials that are produced as fuels and are unused products that have not been discarded and therefore, are not solid wastes"). Further, the Facility would not be required to keep and produce records under 40 C.F.R. § 60.2175(v), which applies to facilities that combust "non-hazardous secondary materials

[44] EPA has separately promulgated NSPS for sewage sludge incineration units. *See* 40 C.F.R. Part 60 Subpart LLLL. While those standards would not apply to the Aries Pine Tree Facility because the Facility will not be located at a wastewater treatment plant, EPA's regulations are clear that facilities combusting sewage sludge that are not subject to the sewage sludge incineration unit standards "may be subject to another" category of incinerator standards, including the CISWI NSPS. 40 C.F.R. § 60.4780.

that have been determined not to be solid waste pursuant to [40 C.F.R.] § 241.3(b)(1)" or "fuel that has been processed from a discarded non-hazardous secondary material pursuant to [40 C.F.R.] § 241.3(b)(4).[45]

Third, the Facility is "not exempt under [40 C.F.R.] § 60.2020," *id.* § 60.2010, which exempts from the CISWI standards pathological waste incineration units, units regulated under other federal incinerator standards, small power production and cogeneration facilities under the Federal Power Act, hazardous waste combustion units, and certain incineration units in Alaska, *id.* § 60.2020.

Therefore, the Aries Pine Tree Facility improperly seeks a minor source license where a Title V permit is required. Accordingly, even if DEP had authority to license the Facility consistent with the statutory ban on new commercial solid waste disposal facilities, 38 M.R.S. § 1310-X(1), which it does not, DEP still would be required to deny Aries' pending Air Permit Application.

III. ASSUMING FOR THE SAKE OF ARGUMENT THAT DEP COULD LAWFULLY LICENSE THE ARIES PINE TREE FACILITY AS A MINOR SOURCE, CONTINUOUS EMISSIONS MONITORING IS REQUIRED (ISSUE E)

Even if DEP had authority to license the Aries Pine Tree Facility as a minor source, which it does not, the Facility would be required to operate continuous emissions monitoring systems ("CEMS") for NOx, SO_2, PM (opacity), HCl, CO, and O_2 because CEMS are necessary to demonstrate compliance with Aries' proposed emissions limits, *see* 06-096 C.M.R. ch. 117,

[45] 40 C.F.R. § 241.3(b)(1) addresses "[n]on-hazardous secondary materials used as a fuel in a combustion unit that remain within the control of the generator." Section 241.3(b)(4) addresses "secondary materials" used as fuel. "Secondary material" is defined, separately from "solid waste," as "any material that is not the primary product of a manufacturing or commercial process, and can include post-consumer material, off-specification commercial chemical products or manufacturing chemical intermediates, post-industrial material, and scrap." *Id.* § 241.2.

§ 1(B)(5)–(6), and to satisfy applicable state and federal requirements for synthetic minor sources.[46] Aries' proposed monitoring does not include the required CEMS. *See* Air Permit Application at 5-1 to 5-3.

A. DEP's CEMS Regulations Apply to the Aries Pine Tree Facility

DEP's regulations require CEMS for multiple categories of emissions units.[47] These include, as relevant here, "[a]ny emissions unit that utilizes air pollution control equipment in order to maintain compliance with an opacity or emission limit" where DEP "determines through the licensing process that a CEMS is necessary to demonstrate compliance with such limit." 06-096 C.M.R. ch. 117, § 1(B)(6).

CEMS also are required for "[a]ny emissions unit whose potential to emit is limited by federally enforceable license conditions which restrict its hours of operation or operating configuration, type or amount of material combusted, stored, or processed, or level of production," where DEP "determines that CEMS are necessary to demonstrate compliance with these license conditions," subject to specified exceptions not relevant here. *Id.* ch. 117, § 1(B)(5). Section 1(B)(5) applies to "synthetic minor sources," which are facilities whose "potential to emit" regulated pollutants is above major source thresholds, but which accept "federally enforceable" emissions limits or operational limits that reduce emissions below those thresholds in order to avoid more stringent major source permitting requirements.[48]

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[46] For PM, DEP should require continuous monitoring of opacity, which is a feasible method to indirectly monitor compliance with hourly PM limits. Northrop Testimony ¶ 66.

[47] An "emissions unit" is "any equipment or pollutant-emitting activity of a source which emits or would have the potential to emit a regulated pollutant or hazardous air pollutant." 06-096 C.M.R. ch. 100, § 47.

[48] *See Minor Source*, Me. Dep't Env't Prot., https://www.maine.gov/dep/air/permits/minor.html (last accessed Nov. 10, 2026) (describing "synthetic minor" sources); 06-096 C.M.R. ch. 100,

A facility may rely on limitations in its license to reduce its potential to emit ("PTE") below major source thresholds and qualify as a synthetic minor source "only if the limitation or the effect it would have on emissions is federally enforceable as a practical matter." 06-096 C.M.R. ch. 100, § 137; *see also* 40 C.F.R. §§ 52.21(b)(4), 70.2 (Clean Air Act implementing regulations establishing this requirement as a matter of federal law). This means that the relevant license conditions must be "contained in a permit issued pursuant to an EPA-approved permitting program or a permit directly issued by EPA," *i.e.*, legally enforceable, and must be "enforceable as a practical matter." EPA, *Guidance on Limiting Potential to Emit in New Source Permitting* 2 (June 13, 1989) ("EPA Synthetic Minor Source Guidance") (attached as **Exhibit B**); *see also Weiler v. Chatham Forest Prods., Inc*., 392 F.3d 532, 535 (2nd Cir. 2004) (discussing substantively identical requirements of New York law). "In order for an emission limit to be enforceable as a practical matter, the permit must clearly specify how emissions will be measured or determined for purposes of demonstrating compliance with the limit." *In re Yuhuang Chemical Inc. Methanol Plant St. James Parish, Louisiana*, Petition No. VI-2015-03, 2016 WL 7489679, at *14 (EPA Aug. 31, 2016). It must include "monitoring . . . requirements sufficient to enable regulators and citizens to determine whether the limit has been exceeded and, if so, to take appropriate enforcement action." *Id.* (quotation omitted).

The Aries Pine Tree Facility is subject to CEMS requirements under Chapter 117 sections 1(B)(6) and 1(B)(5). First, the Facility is subject to section 1(B)(6) because Aries intends to use air pollution control equipment to maintain compliance with proposed hourly emissions limits for NO_x, PM, SO_2, HCl, VOCs, and PFAS. Air Permit Application. at 4-1, 4-5; Suppl. BACT

§ 137 (defining "[p]otential to emit"); *see also id.* ch. 100, § 89 (defining "[m]inor source" as a facility that emits "or has the potential to emit" minor source levels of pollution).

Analysis at 6, 10, 12. Second, the Facility is subject to section 1(B)(5) because it intends to operate as a synthetic minor source. The Facility's uncontrolled emissions of NO_x, PM, SO_2, and HCl exceed the applicable major source, or "significant emissions," thresholds, Air Permit Application Attachment F at 1, and Aries proposes hourly emissions limits based on specified control efficiencies to remain below those thresholds, *see* Air Permit Application at 1-2 (asserting that the Facility will "qualify as a Minor Source, since its controlled potential to emit [PM, SO_2, NO_x, and HCl] . . . is below the applicable significance threshold specified by [DEP]"); *id.* at 4-1, 4-5, 5-1 to 5-3; *see also* 06-096 C.M.R. ch. 100, § 156 (defining significant emissions).[49] And as explained below, CEMS for NO_x, PM (opacity), SO_2, HCl, CO, and O_2 are necessary to demonstrate compliance with Aries' proposed hourly emissions limits, 06-096 C.M.R. ch. 117, § 1(B)(5), (6), and satisfy applicable synthetic minor source requirements.

B. CEMS Are Necessary to Demonstrate Compliance with the Facility's Emissions Limits and Satisfy Synthetic Minor Source Requirements

Under DEP's regulations, the Aries Pine Tree Facility requires CEMS for NO_x, SO_2, PM (opacity), and HCl because continuous emissions monitoring is necessary to demonstrate compliance with the Facility's proposed hourly emissions limits for these pollutants and ensure that the limits on which Aries relies to reduce the Facility's PTE are legally and practicably enforceable. 06-096 C.M.R. ch. 117, § 1(B)(5), (6); *id*. ch. 100, § 137; *Yuhuang*, 2016 WL 7489679, at *14. CEMS for CO and O_2 also are necessary. "Continuous monitoring of CO is

[49] The major source, or significance, threshold for SO_2, NO_x, and PM is 100 tons per year. 06-096 C.M.R. ch. 100, § 156. The threshold for hazardous air pollutants ("HAP"), which include HCl, is 10 tons per year for any individual HAP or 25 tons per year of any combination of HAPs, including fugitive emissions. 40 C.F.R. §§ 70.3, 70.2 (see definition of "major source"); *see also* 06-096 C.M.R. ch. 100, § 125(A) (incorporating section 70.3 standards). Federal and DEP regulations also set VOC, PM, and CO emission thresholds depending on whether the Sanford area has attained compliance with national ambient air quality standards. 40 C.F.R. §§ 70.3, 70.2; *see also* 06-096 C.M.R. ch. 100, § 125(C).

necessary to understand the control effectiveness of the thermal oxidizer," Northrop Testimony ¶ 67, and ensure compliance with Aries' proposed hourly emissions limits for VOCs and PFAS, Suppl. BACT Analysis at 6, 10, 12.[50] "Continuous monitoring of O_2 is necessary to monitor dilution of the stack exhaust" and ensure that the addition of extra air is not making the concentration of regulated pollutants in the stack exhaust appear lower. Northrop Testimony ¶ 67.

Aries proposes hourly emissions limits for NO_x, SO_2, PM, HCl, VOCs, and two PFAS (PFOA and PFOS), Air Permit Application at 4-1, 4-5; Suppl. BACT Analysis at 12, but proposes biennial stack testing as the only emissions monitoring to demonstrate ongoing compliance with those limits, Air Permit Application at 5-1; Suppl. BACT Analysis at 12. This snapshot of compliance once every two years is plainly inadequate to demonstrate ongoing compliance with *hourly* emissions limits. As Dr. Northrop explains, "[s]tack testing can show whether the Facility is capable of meeting its design operating conditions and permitted emissions once every two years; it will not show whether the Facility is continuously operating under design conditions and complying with its permitted emissions limits." Northrop Testimony ¶ 61. Accordingly, "[r]elying on biennial stack testing as the only method of emissions measurement means that lengthy periods of noncompliance and excess emissions could go undetected by Aries and DEP," and no records would be generated of the extent or duration of that noncompliance. *Id.* Further, because "these lengthy periods of noncompliance may not result in any equipment failure in the plant and could even save Aries operational costs (e.g., if it does

[50] While outside the scope of this pre-hearing brief, *see* Fourth Procedural Order at 5–6, Intervenors intend to argue at the hearing that additional PFAS emissions limits and compliance testing are required for the Aries Pine Tree Facility beyond what Aries has proposed in its Supplemental BACT Analysis.

not inject ammonia for a period of time), . . . Aries may lack incentives to take prompt corrective action in the absence of sufficient compliance monitoring." *Id.*

CEMS for NO_x and CO (as a measure of destruction effectiveness in the thermal oxidizer) are particularly critical for the Aries Pine Tree Facility because the Facility's operations "will have to be carefully controlled to balance NO_x and PFAS emissions, which are inherently in tension. Maintaining high temperatures in the thermal oxidizer is essential for the destruction of PFAS but will generate higher NO_x emissions." *Id.* ¶ 65. Accordingly, continuous monitoring of NO_x emissions and of the effectiveness of destruction in the thermal oxidizer are necessary "[t]o ensure that Aries does not favor one destruction process over another" and complies with its hourly emissions limits for NO_x and PFAS. *Id.*

Further, periodic stack testing will not capture short-term spikes in emissions that can occur during startup, shutdown, maintenance, and malfunctions. *See id.* ¶ 64. As Dr. Northrop explains, "[a]ll unit operations within the Aries facility are vulnerable to malfunction and emergency shutdown," including both the "emissions-generating and emissions-control equipment." *Id.* ¶ 56, 64. Planned maintenance also can result in uncontrolled releases of pollutants and emissions spikes. *Id.* ¶ 64; *see also* EPA, *EPA Should Conduct More Oversight of Synthetic-Minor-Source Permitting to Assure Permits Adhere to EPA Guidance* 16 (2021), https://www.epa.gov/system/files/documents/2021-07/_epaoig_20210708-21-p-0175.pdf (discussing potential for emissions to exceed major source thresholds during short-term malfunction). The insufficient parametric monitoring Aries proposes would exacerbate the risk of malfunctions and unplanned shutdowns and the potential for associated exceedances of Aries' hourly emissions limits. *See* Northrop Testimony ¶¶ 56, 61–62; *see also id.* ¶¶ 70–75 (discussing need for additional parametric monitoring in conjunction with CEMS).

For the same fundamental reasons, CEMS are necessary to ensure that the emissions limits and corresponding control efficiencies on which Aries relies to reduce its potential to emit NO_x, SO_2, PM, and HCl are legally and practicably enforceable, which is required for Aries' Facility to qualify as a synthetic minor source. *See* 06-096 C.M.R. ch. 117, § 1(B)(5); *id*. ch. 100, § 137; *id.* ch. 100, § 89; *Yuhuang*, 2016 WL 7489679, at *14. To satisfy this standard, the emissions limits "must be supported by monitoring . . . requirements sufficient to enable regulators and citizens to determine whether the limit has been exceeded and, if so, to take appropriate enforcement action." *Yuhuang*, 2016 WL 7489679, at *14 (quotation omitted); *see also Weiler*, 392 F.3d at 535–36 (license conditions must be sufficient to ensure that regulators and citizens can "*make certain* that the emissions remain below the relevant levels" (emphasis added)); *see also* EPA Synthetic Minor Source Guidance at 20 ("[T]he efficiency rate of [a pollution control method] would not be enforceable as a practical matter unless there were an enforceable means to monitor . . . performance on a short term basis."). Furthermore, "all actual emissions, at all times, and from all emission units—including emissions during startups, shutdowns, maintenance, upsets, *and* malfunctions—must be included when determining compliance with emission limits intended to restrict a facility's PTE." *Yuhuang*, 2016 WL 7489679, at *18 (emphasis in original); *see also id.* at *14, *21. As explained above and in Dr. Northrop's testimony, CEMS are necessary to capture such emissions at the Aries Pine Tree Facility.

Finally, CEMS are demonstrably feasible and are widely used at other sewage sludge thermal treatment facilities, including Aries' Linden facility. Northrop Testimony ¶ 69. There is no reasoned basis for not requiring them here. *Id.*

CONCLUSION

DEP lacks authority to license the Aries Pine Tree Facility because it is a new commercial solid waste disposal facility, and such facilities are banned under Maine's solid waste laws. DEP need not reach any other issue to deny Aries' pending permit applications and conclude this proceeding. Further, even if that were not the case, DEP must deny Aries' Air Permit Application because the Facility is not eligible for a minor source air emissions license as Aries claims; instead, the Facility must obtain a Title V permit because it is subject to federal incinerator standards. Even if that were not the case and DEP had authority to license the Facility as a minor source, CEMS would be required for NO_x, SO_2, PM, HCl, CO, and O_2 because they are necessary to demonstrate compliance with Aries' proposed hourly emissions limits and satisfy state and federal requirements for synthetic minor sources.

Dated: November 13, 2026

Respectfully submitted,

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Exhibit A

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202 - 2733

July 7, 2017

Monarch Waste Technologies, LLC
c/o David Cardenas CEO
8501 Washington St. NE.
Albuquerque New Mexico 87113

Re: Applicability Determination – Emission Guidelines and Compliance Times for Hospital/Medical/Infectious Waste Incinerators (HMIWI) (40 C.F.R. Part 60, Subpart Ce) and New Source Performance Standards (NSPS) for HMIWI for Which Construction is Commenced After June 20, 1996 (40 C.F.R. Part 60, Subpart Ec) – Pyrolysis Unit to be Constructed and Operated on the Nambe Pueblo near Santa Fe, New Mexico.

Dear Mr. Cardenas:

This letter is in response to your letter dated October 28, 2016, regarding the proposed installation and operation of the Pyromed 550 Pyrolysis System ("Pyromed 550 System") on the Nambe Pueblo, for processing hospital/medical/infectious waste. Your letter asked us to determine applicability for the Pyromed 550 System under 40 C.F.R. Part 60 Subpart Ce and under 40 C.F.R. Part 60 Subpart Ec. However, prior to issuance of our response, you contacted us by phone on June 13, 2017, to withdraw your request of October 28, 2016.

The United States Environmental Protection Agency (EPA) has received your letter dated June 20, 2017, formally requesting withdrawal of your applicability determination request. As a courtesy and for your information, please find EPA's evaluation for your proposed Pyromed 550 System in the enclosure to this letter. This evaluation has been coordinated with our Office of Air Quality Planning and Standards as well as our Office of Enforcement and Compliance Assurance. If you have any further questions, please do not hesitate to contact Ms. Cynthia Kaleri of my staff at (214) 665-6772.

Sincerely,

Steve Thompson
Branch Chief
Air Enforcement Branch

Enclosure

Ec: Herbert Yates, Nambe Pueblo
Amy Hambrick, EPA OAQPS
Marcia Mia, EPA OECA

ENCLOSURE

US EPA APPLICABILITY EVALUATION
PROPOSED **PYROMED 550 SYSTEM** DESIGN & OPERATION

Monarch Waste Technologies, L.L.C. ("MWT") requested an applicability determination for the proposed design and operation of the Pyromed 550 Pyrolysis System ("Pyromed 550 System") on October 28, 2016. The United States Environmental Protection Agency (EPA) requested additional information on February 2, 2017. MWT provided supplemental material on February 16 and March 28, 2017. MWT indicated in the request that the Pyromed 550 System will be used for processing hospital/medical/infectious waste (HMIW). MWT believes that the "pyrolysis unit" should be exempted under the Emissions Guidelines and Compliance Times for Hospital/Medical/Infectious Waste Incinerators ("HMIWI") (40 C.F.R. Part 60 Subpart Ce) and New Source Performance Standards (NSPS) for HMIWI for Which Construction is Commenced After June 20, 1996 (40 C.F.R. Part 60 Subpart Ec). However, based upon all information provided that describes the process overall system design and operations, EPA believes that the Pyromed 550 System would be subject to NSPS Subpart Ec, as evaluated below.

REGULATORY BACKGROUND

Under 40 C.F.R. Part 60, an emissions guideline (EG) does not apply directly to a source. Instead, the EG applies to Administrators of air quality programs in a state or in a United States protectorate. The EG directs those Administrators on the content, timing, and requirements for developing a state/tribal plan in order to implement the guidelines for existing sources. A state/tribe is required to submit a plan for approval to EPA, to implement and enforce the EG no later than one year after EPA promulgates the EG.[1] If a state/tribe has not submitted an approvable plan within two years after the date of promulgation of an EG, then the EPA shall develop, implement, and enforce a federal plan.[2] An EG is not enforceable until the EPA approves a state/tribal plan (or adopts a federal plan that implements and enforces the guideline), and the state/tribal (or federal) plan has become effective.

EPA first proposed standards and guidelines for new and existing medical waste incinerators, respectively, on February 27, 1995.[3] In 1996, EPA provided supplemental information[4] that was later recognized as a "re-proposal" in the issuance of the final NSPS and EG rules in 1997[5]. The HMIWI Federal Plan for states and tribes that did not have a plan was promulgated on August 15, 2000, and the 1997 HMIWI rules were fully implemented by September 2002.[6] Since the Pyromed 550 System would be a new source "commencing

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[1] See 42 U.S.C. § 7429(b)(2).
[2] See 42 U.S.C. § 7429(b)(3).
[3] See Proposed Rules at 60 Fed. Reg. 10654 (Monday, February 27, 1995).
[4] See Proposed Rules at 61 Fed. Reg. 31736 (Thursday, June 20, 1996).
[5] See Final Rules at 62 Fed. Reg. 48348 (Monday, September 15, 1997).
[6] The NSPS was subsequently amended at 74 Fed. Reg. 51402 (October 6, 2009), and the EG was amended at 74 Fed. Reg. 51402 (October 6, 2009) and 76 Fed. Reg. 18412 (April 4, 2011). The 2009 amended rules were fully implemented by May 2013 (78 Fed. Reg. 28051).

construction" after December 1, 2008, potential applicability would therefore fall under NSPS Subpart Ec ("HMIWI NSPS).[7]

The applicability at 40 CFR § 60.50c(a) states that the subpart applies to each individual HMIWI. The following key definitions are found at 40 CFR § 60.51c:

> *Hospital waste* means discards generated at a hospital, except unused items returned to the manufacturer. The definition of hospital waste does not include human corpses, remains, and anatomical parts that are intended for interment or cremation.
>
> *Medical/infectious waste* means any waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals that are listed in paragraphs (1) through (7) of this definition. The definition of medical/infectious waste does not include hazardous waste identified or listed under the regulations in part 261 of this chapter; household waste, as defined in §261.4(b)(1) of this chapter; ash from incineration of medical/infectious waste, once the incineration process has been completed; human corpses, remains, and anatomical parts that are intended for interment or cremation; and domestic sewage materials identified in §261.4(a)(1) of this chapter.
>
> *Hospital/medical/infectious waste incinerator* or *HMIWI* or *HMIWI unit* means any device that combusts any amount of hospital waste and/or medical/infectious waste.
>
> *Primary chamber* means the chamber in an HMIWI that receives waste material, in which the waste is ignited, and from which ash is removed.
>
> *Secondary chamber* means a component of the HMIWI that receives combustion gases from the primary chamber and in which the combustion process is completed.
>
> *Pyrolysis* means the endothermic gasification of hospital waste and/or medical/infectious waste using external energy.

Applicability for units that process HMIW are evaluated in light of the site-specific technology and operational applications as well as the definition of "affected facility" under the HMIWI NSPS. There is an exception at 40 CFR § 60.50c(f) for "any pyrolysis unit" as that term is defined in the rule.

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[7] See Final Rules at 74 Fed. Reg. 51374 (Tuesday, October 6, 2009).

PYROMED 550 SYSTEM DESCRIPTION

The *Pyromed 550 Process Flow Line Diagram and Process Narrative (Final Version)* provided in the MWT request identified key components for preparation and treatment of HMIW. The following is a non-confidential technical summary of the overall system, and incorporates supplemental information provided by MWT:

1. "Shredder with Ventilation Hood/ID Fan" and "Auger Ram Feed": HMIW enters an air-tight hopper and screw assembly. The "Screw" pushes shredded waste up a compaction tube to a "Feed Ram" and proprietary knife gate assembly. Moving up the compaction tube, the waste is compressed and excess air/oxygen and vapors are evacuated as the waste enters the Feed Ram assembly. A hood/filter captures the air/oxygen and vapors, which are pulled forward to the top of the Cyclone section of the Oxidizer (Modulating Valve), where the vapors are destroyed as they are mixed along with the required ambient air needed to initiate combustion of the Syngas at auto ignition temperature.

2. "Muffle Furnace"/"Pyro Tube" Unit: The shredded HMIW enters the interior rotary sealed Pyro Tube via the Feed Ram, where high temperatures and a negative air/oxygen environment result in an endothermic reaction for initial decomposition of the HMIW into "Pyro Gas" (volatile hydrocarbon gases) and "Carbon Char" (carbon char solids). The exterior Muffle Furnace uses the hot exhaust "Syngas" routed from the final end of the Oxidizer Unit to provide the necessary indirect heat transfer to the interior sealed Pyro Tube for the endothermic reaction to occur (inside the Pyro Tube).

3. "Char Vessel" Unit: Pyro Gas (g) and Carbon Char (s) waste streams from the Pyro Tube enter the Char Vessel, where gasification occurs as a slight amount of controlled steam/air mix, routed from a separate heat exchanger unit, is injected into the bottom of the vessel. Mixing and "roasting" of the waste streams occur at a temperature of 1500°F in order to reduce the Carbon Char to a weak producer gas by hydrogen shift, turning the Carbon Char into a gray ash-like residual that falls to the bottom of the Vessel. The producer gas mixes with the Pyro gas to become usable "Syngas Fuel" that exits the top of the Char Vessel and is routed to the Oxidizer Unit. The ash residual pile at the bottom of the Char Vessel has an overall residence time (build up pile) of two (2) hours. The bottom ash is automatically removed by the augers and then cooled using a proprietary mechanical cooling and conveying system, which slowly moves the ash in an enclosed sealed system that automatically top loads the ash into a container at the end, for proper off-site disposal.

4. "Oxidizer" Unit: Syngas Fuel from the Char Vessel enters the cyclonic reaction section of the Oxidizer. A proprietary mechanical valve known as the "Modulating Valve," which is located at the top of the section and controlled by the main PLC, is used to induce a contra rotating air flow movement in the section. As the Syngas Fuel

rotates within this top section, the Modulating Valve steadily introduces a controlled mixture of ambient air along with any vapors evacuated via the hood/filter from the Feed Ram assembly (where the HMIW shredded feed stream is inserted into the Pyro Tube), which naturally allows combustion of the Syngas Fuel to occur at auto ignition temperature. To further ensure complete mixing and full oxidation of the Syngas Fuel, a choke ring has also been installed. Temperatures in the Oxidizer can exceed 2600°F (dependent on the BTU of the gases being combusted), with a total residence time of two seconds. Low NOx burners provide controlled flame combustion of natural gas in order to initially start up the Pyromed 550 System.

EPA EVALUATION OF APPLICABILITY FOR PYROMED 550 SYSTEM

According to the information MWT submitted, the Pyromed 550 System will receive HMIW and will operate as a continuous integrated process using the Pyro Tube, Char Vessel, and Oxidizer. Based upon the technical design and process operation details submitted and reviewed, the gas stream generated in one process unit of the Pyromed 550 System is immediately and continuously routed to the next process unit, and the operation of the prior unit is integral to the operation of the subsequent unit. Therefore, emissions derived from processing the HMIW are not emitted to the atmosphere until the gases have passed through all process units comprising the Pyromed 550 System. One of the process units is endothermic (i.e., the Pyro Tube), while the other units are exothermic (e.g., the Char Vessel and the Oxidizer). Therefore, because the Pyromed 550 System is not "endothermic" throughout the overall operation, we do not believe that the Pyromed 550 System meets the exclusion for "any pyrolysis unit" as "pyrolysis" is defined in the HMIWI NSPS. However, this alone does not mean that the system is subject to the HMIWI standards.

As provided by MWT, the Pyromed 550 System will receive HMIW. The gas produced by the destruction of the HMIW in the Pyro Tube and Char Vessel will be routed to the Oxidizer, where the synthetic gases resulting from the gasification of HMIW will then be combusted. This meets the definition of a HMIWI at 40 CFR § 60.51c for "any device that combusts any amount of hospital waste and/or medical/infectious waste" as the rule does not exclude gasified HMIW. In the 1995 proposed rule[8], EPA described a typical HMIWI design system as follows:

> *In each of the design systems, sequential combustion operations typically are carried out in two separate chambers: primary and secondary. [1] In the primary chamber, the waste is loaded and ignited, the volatile organic components driven off, and the nonvolatile materials combusted to ash. [2] The volatile organic components released from the primary chamber are combusted in the secondary chamber.*

[8] See Proposed Rules at 60 Fed. Reg. 10654 (Monday, February 27, 1995).

In the 1996 re-proposal, the definitions of "primary chamber" and "secondary chamber," and the basic description of the HMIWI as consisting of a primary and secondary chamber, were not altered. In fact, the 1996 re-proposal discussed the use of the "primary chamber" as a method of determining the size of the HMIWI.

Regarding [1] "Primary Chamber" from the description above, MWT states that the purpose of the Pyro Tube is for initial decomposition of the HMIW into "Pyro Gas" (volatile hydrocarbon gases), and that the purpose of the Char Vessel is to take the waste stream from the Pyro Tube into the Char Vessel, where gasification occurs as a slight amount of controlled steam/air mix. Mixing and "roasting" of the waste streams occur at a temperature of 1500°F to reduce the Carbon Char to a weak producer gas, turning the Carbon Char into a gray ash like residual that falls to the bottom of the Vessel. This description matches the description [1] above, where volatile organic components are driven off, and the nonvolatile materials converted to ash. Therefore, the combination Pyro Tube and the Char Vessel should be viewed as a primary chamber.

Regarding [2] Secondary Chamber from the description above, MWT states that the purpose of the Oxidizer is to combust the syngas. This matches the description [2] above, where "the volatile organic components released from the primary chamber are combusted in the secondary chamber." Therefore, we believe that the combined Pyro Tube and Char Vessel (primary chamber) and Oxidizer (secondary chamber) comprise a HMIWI[9].

Therefore, based upon review of the design and operational information submitted by MWT for the system, and based upon the rule promulgation documents reviewed as part of our evaluation, the Pyromed 550 System would be subject to the HMIWI NSPS (40 C.F.R. Part 60 Subpart Ec).

[9] The HMIWI also includes other elements, including the feed system and ash handling system.

Exhibit B

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

JUN 13 1989

MEMORANDUM

SUBJECT: Guidance on Limiting Potential to Emit in New Source Permitting

FROM: Terrell E. Hunt
Associate Enforcement Counsel
Air Enforcement Division
Office of Enforcement and Compliance Monitoring

John S. Seitz, Director
Stationary Source Compliance Division
Office of Air Quality Planning and Standards

TO: Addressees

This memorandum transmits the final guidance on conditions in construction permits which can legally limit a source's potential to emit to minor or de minimis levels. We received many helpful comments on the January 24, 1989 draft of this guidance, and have incorporated the comments into the final document wherever possible. A summary of the major changes which have been made to the guidance in response to these comments is provided below.

Several commenters noted that the draft guidance used the term "federally enforceable" to mean both federally enforceable as defined in the new source regulations (40 C.F.R. Sections 52.21(b) (17), 51.165(a) (1) (xiv), 51.166(b) (17)), and enforceable as a practical matter. We have tried to distinguish the places where each term should be used, explained the relationship between the two terms, and indicated that in order to properly restrict potential to emit, limitations must be both federally enforceable as defined in the regulations and practically enforceable.

Some commenters requested that the section on averaging times for production limits be more specific as to when it is appropriate to use limitations which exceed a one month time basis. We have tried to explain why it is not possible to develop generic criteria for making this distinction, and to indicate situations where exceptions to the policy that production and operation limitations not exceed one month may be warranted.

There were some requests for a section on enforcement. We have included a new Section VI which addresses this topic. We also received many good suggestions on the example permit limitations. The section on examples has been substantially reworked to reflect your comments.

Finally, we learned through the comments that in two specific circumstances, short term emission limits are the most useful and reasonable way to restrict and verify limits on potential to emit. These circumstances are: 1) when control equipment is installed but control equipment operating parameters are difficult to measure during enforcement inspections; and 2) in surface coating operations with numerous and unpredictable use of coatings containing varying VOC content, where add-on control equipment is not employed. Therefore, we have made a narrow exception to the flat prohibition on use of emission limits to restrict potential to emit for these specific circumstances, and only when certain additional conditions have been met.

Again, we appreciate the thoughtful comments we have received on this guidance. Please insert this document into your Clean Air Act Compliance/Enforcement Policy Compendium as Item Number H.3. If you have any questions, please contact Judith Katz in the Air Enforcement Division at FTS 382-2843, or Sally Farrell in the Stationary Source Compliance Division at FTS 382-2875.

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Environmental Enforcement Section

DOJ

LIMITING POTENTIAL TO EMIT IN NEW SOURCE PERMITTING

JUNE 13, 1989

AIR ENFORCEMENT DIVISION
OFFICE OF ENFORCEMENT AND COMPLIANCE MONITORING

STATIONARY SOURCE COMPLIANCE DIVISION
OFFICE OF AIR QUALITY PLANNING AND STANDARDS

Limiting Potential to Emit in New Source Permitting

I. Introduction

II. The Louisiana-Pacific Case

III. Types of Limitations that will Limit Potential to Emit

IV. Time Periods for Limiting Production and Operation

V. Sham Operational Limits

A. Permits with conditions that do not reflect a source's planned mode of operation are void ab initio and cannot act to shield the source from the requirement to undergo preconstruction review.

1. Sham permits are not allowed by 40 CFR 52.21(r) (4)

2. Sham permits are not allowed by the definition of potential to emit: 40 CFR 52.21(b) (4), 51.165(a) (1) (iii), 51.166(b) (4)

3. Sham permits are not allowed by the Clean Air Act

B. Guidelines for determining when minor source construction permits are shams.

1. Filing a PSD or nonattainment NSR application

2. Applications for funding

3. Reports on consumer demand and projected productions levels

4. Statements of authorized representatives of the source regarding plans for operation

VI. Enforcement Procedures

VII. Examples

VIII. Conclusion

Limiting Potential to Emit in New Source Permitting

I. Introduction

Whether a new source or modification is major and subject to new source review under Parts C and D of the Clean Air Act is dependent on whether that source or modification has or will have the potential to emit major or significant amounts of a regulated pollutant. Therefore, the definition of "potential to emit" under the new source regulations is extremely important in determining the applicability of new source review to a particular source. The federal regulations define "potential to emit" as:

> the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of fuel combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

40 C.F.R Sections 52.21(b) (4), 51.165(a) (1) (iii), 51.166(b) (4).

Permit limitations are very significant in determining whether a source is subject to major new source review. This is because they are the easiest and most common way for a source to obtain restrictions on its potential to emit. A permit does not

have to be a major source permit to legally restrict potential emissions. A minor source construction permit issued pursuant to a state program approved by EPA as meeting the requirements of 40 C.F.R. Section 51.160 is federally enforceable. In fact, any permit limitation can legally restrict potential to emit if it meets two criteria: 1) it is federally enforceable as defined by 40 C.F.R. Sections 52.21(b) (17), 51.165(a) (1) (xiv), 51.166(b) (17), i.e., contained in a permit issued pursuant to an EPA-approved permitting program or a permit directly issued by EPA, or has been submitted to EPA as a revision to a State Implementation Plan and approved as such by EPA; and 2) it is enforceable as a practical matter. The second criterion is an implied requirement of the first criterion. A permit requirement may purport to be federally enforceable, but, in reality cannot be federally enforceable if it cannot be enforced as a practical matter.

Non-permit limitations can also legally restrict potential to emit. These limitations include New Source Performance Standards codified at 40 C.F.R. Part 60 and National Emission Standards for Hazardous Air Pollutants codified at 40 C.F.R. Part 61.

The appropriate means of restricting potential to emit through permit conditions has been an issue in recent enforcement cases. Through these cases and through guidance issued by EPA, the Agency has addressed three questions: what types of permit

limitations can legally limit potential to emit; whether long averaging times for production limitations are enforceable as a practical matter; and whether sources may limit potential to emit to minor source levels as a means of circumventing the preconstruction review requirements of major source review.

II. The Louisiana-Pacific Case

In United States v. Louisiana-Pacific Corporation, 682 F. Supp. 1122 (D. Colo. Oct. 30, 1987) and 682 F. Supp. 1141 (D. Colo. March 22, 1988), Judge Alfred Arraj discussed the type of permit restrictions which can be used to limit a source's potential to emit. The Judge concluded that:

> ... not all federally enforceable restrictions are properly considered in the calculation of a source's potential to emit. While restrictions on hours of operation and on the amount of materials combusted or produced are properly included, blanket restrictions on actual emissions are not.

682 F. Supp. at 1133.

The Court held that Louisiana-Pacific's permit conditions which limited carbon monoxide emissions to 78 tons per year and volatile organic compounds to 101.5 tons per year should not be considered in determining "potential to emit" because these blanket emission limits did not reflect the type of permit conditions which restricted operations or production such as limits on hours of operation, fuel consumption, or final product.

The Louisiana-Pacific court was guided in its reasoning by the D.C. Circuit's holding in Alabama Power v. Costle, 636 F. 2d 323 (D.C. Circuit 1979). Before Alabama Power, EPA regulations required potential to emit to be calculated according to a source's maximum uncontrolled emissions. In Alabama Power, the D. C. Circuit remanded those regulations to EPA with instructions that the Agency include the effect of in-place control equipment in defining potential to emit. EPA went beyond the minimum dictates of the D.C. Circuit in promulgating revised regulations in 1980 to include, in addition to control equipment, any federally enforceable physical or operational limitation. The Louisiana-Pacific court found that blanket limits on emissions did not fit within the concept of proper restrictions on potential to emit as set forth by Alabama Power.

Moreover, Judge Arraj found that:

> ...a fundamental distinction can be drawn between the federally enforceable limitations which are expressly included in the definition of potential to emit and (emission) limitations.... Restrictions on hours of operation or on the amount of material which may be combusted or produced ... are, relatively speaking, much easier to "federally enforce." Compliance with such conditions could be easily verified through the testimony of officers, all manner of internal correspondence and accounting, purchasing and production records. In contrast, compliance with blanket restrictions on actual emissions would be virtually impossible to verify or enforce.

Id. Thus, Judge Arraj found that blanket emission limits were not enforceable as a practical matter.

Finally, the Court reasoned that allowing blanket emission limitation to restrict potential to emit would violate the intent of Congress in establishing the Prevention of Significant Deterioration (PSD) program.

III. Types of Limitations that will Restrict Potential to Emit

As an initial matter in this discussion, a few important terms should be defined. Emission limits are restrictions over a given period of time on the amount of a pollutant which may be emitted from a source into the outside air. Production limits are restrictions on the amount of final product which can be manufactured or otherwise produced at a source. Operational limits are all other restrictions on the manner in which a source is run, including hours of operation, amount of raw material consumed, fuel combusted, or conditions which specify that the source must install and maintain add-on controls that operate at a specified emission rate or efficiency. All production and operational limits except for hours of operation are limits on a source's capacity utilization. Potential emissions are defined as the product of a source's emission rate at maximum operating capacity, capacity utilization, and hours of operation.

To appropriately limit potential to emit consistent with the opinion in Louisiana-Pacific, all permits issued pursuant to 40 C.F.R. Sections 51.160, 51.166, 52.21 and 51.165 must contain a

production or operational limitation in addition to the emission limitation in cases where the emission limitation does not reflect the maximum emissions of the source operating at full design capacity without pollution control equipment. Restrictions on production or operation that will limit potential to emit include limitations on quantities of raw materials consumed, fuel combusted, hours of operation, or conditions which specify that the source must install and maintain controls that reduce emissions to a specified emission rate or to a specified efficiency level. Production and operational limits must be stated as conditions that can be enforced independently of one another. For example, restrictions on fuel which relates to both type and amount of fuel combusted should state each as an independent condition in the permit. This is necessary for purposes of practical enforcement so that, if one of the conditions is found to be difficult to monitor for any reason, the other may still be enforced.

When permits contain production or operational limits, they should also have recordkeeping requirements that allow a permitting agency to verify a source's compliance with its limits. For example, permits with limits on hours of operation or amount of final product should require an operating log to be kept in which the hours of operation and the amount of final product produced are recorded. These logs should be available

for inspection should staff of a permitting agency wish to check a source's compliance with the terms of its permit.

When permits require add-on controls operated at a specified efficiency level, permit writers should include, so that the operating efficiency condition is enforceable as a practical matter, those operating parameters and assumptions which the permitting agency depended upon to determine that the control equipment would have a given efficiency.

An emission limitation alone would limit potential to emit only when it reflects the absolute maximum that the source could emit without controls or other operational restrictions. When a permit contains no limits on capacity utilization or hours of operation, the potential to emit calculation should assume operation at maximum design or achievable capacity (whichever is higher) and continuous operation (8760 hours per year).

The particular circumstances of some individual sources make it difficult to state operating parameters for control equipment limits in a manner that is easily enforceable as a practical matter. Therefore, there are two exceptions to the absolute prohibition on using blanket emission limits to restrict potential to emit. If the permitting agency determines that setting operating parameters for control equipment is infeasible in a particular situation, a federally enforceable permit

containing short term emission limits (e.g. lbs per hour) would be sufficient to limit potential to emit, provided that such limits reflect the operation of the control equipment, and the permit includes requirements to install, maintain, and operate a continuous emission monitoring (CEM) system and to retain CEM data, and specifies that CEM data may be used to determine compliance with the emission limit.

Likewise, for volatile organic compound (VOC) surface coating operations where no add-on control is employed but emissions are restricted through limiting VOC contents and quantities of coatings used, emission limits may be used to restrict potential to emit under the following limited circumstances. If the permitting agency determines for a particular surface coating operation that operating and production parameters (e.g. gallons of coating, quantities produced) are not readily limited due to the wide variety of coatings and products and due to the unpredictable nature of the operation, emission limits coupled with a requirement to calculate daily emissions may be used to restrict potential to emit. The source must be required to keep the records necessary for this calculation, including daily quantities and the VOC content of each coating used. Emission limits may be used in this limited circumstance to restrict potential to emit since, in this case, emission limits are more easily enforceable than operating or production limits.

IV. Time Periods For Limiting Production and Operation

As discussed above, a limitation specifically recognized by the regulations as reducing potential to emit is a limitation on production or operation. However, for these limitations to be enforceable as a practical matter, the time over which they extend should be as short term as possible and should generally not exceed one month. This policy was explained in a March 13, 1987 memorandum from John Seitz to Bruce Miller, Region IV. The requirement for a monthly limit prevents the enforcing agency from having to wait for long periods of time to establish a continuing violation before initiating an enforcement action.

EPA recognizes that in some rare situations, it is not reasonable to hold a source to a one month limit. In these cases, a limit spanning a longer time is appropriate if it is a rolling limit. However, the limit should not exceed an annual limit rolled on a monthly basis. EPA cannot now set out all inclusive categories of sources where a production limit longer than a month will be acceptable because every situation that may arise in the future cannot now be anticipated. However, permits where longer rolling limits are used to restrict production should be issued only to sources with substantial and unpredictable annual variation in production, such as emergency

boilers. Rolling limits could be used as well for sources which shut down or curtail operation during part of a year on a regular seasonal cycle, but the permitting authority should first explore the possibility of imposing a month-by-month limit. For example, if a pulp drier is periodically shut down from December to April, the permit could contain a zero hours of operation limit for each of those months, and then the appropriate hourly operation limit for each of the remaining months. Under no circumstances would a production or operation limit expressed on a calendar year annual basis be considered capable of legally restricting potential to emit.

V. Sham Operational Limits

In the past year, several sources have obtained purportedly federally enforceable permits with operating restrictions limiting their potential to emit to minor or de minimis levels for the purpose of allowing them to commence construction prior to receipt of a major source permit. In such cases where EPA can demonstrate an intent to operate the source at major source levels, EPA considers the minor source construction permit void ab initio and will take appropriate enforcement action to prevent the source from constructing or operating without a major source permit.

The following example illustrates the kind of situation addressed in this section: An existing major stationary source proposes to add a 12.5 megawatt electric utility steam generating unit, and applies for a federally enforceable minor source permit which restricts operation at the unit to 240 hours per year. Because the project is designed as a baseload facility, EPA does not believe that the source intends to operate the facility for only 240 hours a year. Further investigation would probably uncover documentation of the source's intent to operate at higher levels than those for which it is permitted.

This situation raises the question of whether a source can lawfully bypass the preconstruction or premodification review requirements of Prevention of Significant Deterioration (PSD) and nonattainment New Source Review by committing to permit conditions which restrict production to a level at which the source does not intend to operate for any extensive time. If, after constructing and commencing operation, the source obtains a relaxation of its original permit conditions prior to exceeding them, does this constitute a violation of the preconstruction review requirements? This section discusses why it is improper to construct a source with a minor source permit when there is intent to operate as a major source, and provides guidelines for identifying these "sham" permits.

A. Permits with conditions that do not reflect a source's planned mode of operation are void ab initio and cannot act to shield the source from the requirement to undergo preconstruction review.

1. Sham permits are not allowed by 40 CFR Section 52.21(r) (4) Section

52.21(r) (4) states:

> At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980 on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then (PSD) shall apply to the source or modification as though construction had not yet commenced on the source or modification.

When a source that is minor because of operating restrictions in a construction permit later applies for a relaxation of that construction permit which would make the source major, Section 52.21(r) (4) prescribes the methodology for determining best available control technology (BACT). However, it does not foreclose EPA's ability, in addition to the retroactive application of BACT and other requirements of the PSD program, to pursue enforcement where the Agency believes that the initial minor source permit was a sham. EPA will limit its activity to requiring application of 40 CFR 52.21(r) (4) only for the cases where a source legitimately changes a project after finding that the operating restrictions which were taken in good faith cannot be complied with. Whether a source has acted in good faith is a factual question which is answered by available evidence in the particular case.

2. Sham permits are not allowed by the definition of potential to emit:

40 C.F.R. Sections 52.21(b) (4), 51.165(a) (1) (iii), 51.166(b) (4).

The definition of potential to emit enables sources to obtain federally enforceable permits with operational restrictions as a means of limiting emissions to minor source levels. However, implicit in the application of these limitations is the understanding that they comport with the true design and intended operation of the project.

3. Sham permits are not allowed by the Clean Air Act

Parts C and D of the Clean Air Act exhibit Congress's clear intent that new major sources of air pollution be subject to preconstruction review. The purposes for these programs cannot be served without this essential element. Therefore, attempts to expedite construction by securing minor source status through the receipt of operational restrictions from which the source intends to free itself shortly after operation are to be treated as circumvention of the preconstruction review requirements.

B. Guidelines for determining when minor source construction permits are shams.

EPA's determination that a purportedly federally enforceable construction permit is a sham is made based on an evaluation of specific facts and evidence in each individual case. The following are criteria which should be scrutinized when making such a determination:

1. Filing a PSD or nonattainment NSR permit application

If a major source or major modification permit application is filed simultaneously with or at approximately the same time as the minor source construction permit, this is strong evidence of an intent to circumvent the requirements of preconstruction review. Even a major source application filed after the minor source application, but either before operation has commenced or after less than a year of operation should be looked at closely.

2. Applications for funding

Applications for commercial loans or, for public utilities, bond issues, should be scrutinized to see if the source has guaranteed a c ertain level of operation which is higher than that in its construction permit. If the project would not be funded or if it would not be economically viable if operated on an extended basis

(at least a year) at the permitted level of production, this should be considered as evidence of circumvention.

3. Reports on consumer demand and projected production levels.

Stockholder reports, reports to the Securities and Exchange Commission, utility board reports, or business permit applications should be reviewed for projected operation or production levels. Ifreported levels are necessary to meet projected consumer demand but are higher than permitted levels, this is additional evidence of circumvention.

4. Statements of authorized representatives of the source regarding plans for operation.

Statements by representatives of the source to EPA or to state or local permitting agencies about the source's plans for operation can be evidence to show intent to circumvent preconstruction review requirements.

Note that if a determination is made that a permit is a "sham" for one pollutant and, therefore, the source is a major source or major modification, the permit may possibly still contain valid limits on potential to emit for other pollutants.

In such cases, the entire source must still go through new source review, during which, for PSD review, all pollutants for which there is a net significant increase must be analyzed for BACT. In nonattainment new source review, new sources must have LAER determinations only for pollutants for which they are major. Major modifications, however, must have LAER determinations for all nonattainment pollutants emitted in significant amounts. If the valid limits in a partially void minor source construction permit keep certain pollutants below significance levels, then those pollutants would not have to be analyzed for BACT or LAER. However, if a source or modification is determined to be major for PSD or NSR because part of its minor permit is deemed void, it would have to undergo BACT or LAER analysis for all significant pollutants.

VI. Enforcement Procedures

This guidance has discussed permit conditions which will legally restrict potential to emit, shielding a source from the requirement to comply with major new source permitting regulation. Failure by a permitting agency to adhere to these guidelines may result in a permit that does not legally restrict potential to emit, thereby subjecting a source to major new source review. If that source has not gone through preconstruction review, it is a significant violator of the Clean Air Act and is subject to enforcement for constructing or

modifying without a major new source permit.

The enforcement options available to EPA in these situations include administrative action under Sections 167 or 113 (a) (5) of the Act or federal judicial action under Sections 113 (b) (2), 113 (b) (5), 113(c), or 167. Which enforcement option is selected depends on the facts of the particular situation. (See July 15, 1988 guidance on EPA Procedures for Addressing Deficient New Source Permits.)

VII. Examples

The following examples are provided to illustrate the type of permit restrictions which would and would not legally limit potential to emit to less than major source thresholds. These examples are provided for purposes of clarifying the potential to emit and averaging time guidance only. They are not intended to reflect all the permit conditions necessary for a valid permit. Specific test methods, compliance monitoring and recordkeeping and reporting requirements are necessary to make permit limitations enforceable as a practical matter. The use of examples where averaging times are the longest times allowed under EPA policies is not intended to necessarily condone the selection of the longest averaging times; averaging times should in practice be as short as possible.

1. The minor source construction permit for a boiler contains the following restrictions: 250,000 gal fuel/month; 0.8% S fuel; 8000 hours/year.

These conditions are federally enforceable production and operation limits, but do not limit potential to emit because one of them does not meet EPA policies on enforceability as a practical matter. The averaging time for hours of operation, one of the operational limits necessary to restrict emissions to less than 250 tpy, exceeds a monthly or rolling yearly limit. If, instead of 8000 hours/year, the hourly restriction were stated as 666 hours/month, the permit would serve to keep the source a minor source, assuming the permit contains appropriate recordkeeping provisions.

2. A waferboard plant which has the physical capacity to emit over 300 tpy of carbon monoxide in the absence of using specific combustion techniques has the following permit restriction as the sole emission limitation: 249 tpy.

This does not limit potential to emit since an operational or production restriction is necessary for the source to be restricted to 249 tpy. The permit must contain a restriction on hours of operation or capacity utilization which, when multiplied by the maximum emission rate for the CO sources at the plant, results in emissions of 249 tpy. Additionally, while the

emission limit alone cannot restrict potential to emit, the emission limit is unenforceable as a practical matter since it is limited on an annual basis. The permit should contain a short term emission limit (in addition to the annual emission limit), consistent with the compliance period or parameter in the applicable test method for determining compliance.

3. A small scale rock crushing plant that cannot emit more than 240 tpy under maximum operation without controls (including plant-wide particulate emissions from transfer and storage operations) has the following permit restriction as the sole emission limitation: 240 tpy particulate matter.

Since no operational limitations are necessary for the source to emit below 250 tpy, no operational restrictions need be in the permit to limit potential to emit. However, although this is not a major source, the state agency should express the emission limit in this permit as a lb/hour measure or gr/dscf so that it will be enforceable as a practical matter.

4. A plant consisting solely of a small rock crusher has the following permit restrictions: 0.05 lb gr PM/dscf; fabric filter must be employed and maintained at 99% efficiency.

Assuming that maintaining the fabric filter at 99% efficiency will result in emissions of less than 250 tpy, this permit would limit

potential to emit if it also contained either 1) parameters that allowed the permitting agency to verify the fabric filter's operating efficiency or 2) a requirement to install and operate continuous opacity monitors (COMs) and a specification that COM data may be used to verify compliance with emission limits. Note that if this second alternative were adopted, it would not be necessary to require that the fabric filter be maintained at 99% efficiency.

To determine potential to emit, the efficiency rate of the fabric filter would be multiplied by the maximum uncontrolled emission rate, the maximum number of operating hours and maximum throughput capacity since there are no other operating or production limits. However, the efficiency rate of the fabric filter would not be enforceable as a practical matter unless there were an enforceable means to monitor ESP performance on a short term basis. The two alternatives mentioned above would satisfy this requirement.

5. A surface coating operation has the capability of utilizing 15,000 gal coating/month, with the following permit restrictions: 3.0 lb VOC/gal coating minus water; 20.5 tons VOC/month; monthly VOC emissions to be determined from records of the daily volumes of coatings used times the manufacturers specified VOC content.

This does not limit potential to emit since the source has the physical capacity to exceed 250 tpy of VOC, and the permit does not contain a production or an operational limitation. A monthly limit on gallons of coating used which when multiplied by 3.0 lb/gal equates to less than the 250 tpy threshold 13,500 gallons/month), with appropriate recordkeeping, would generally be necessary to limit potential to emit. If, however, the permitting agency determines, due to the wide variety of coatings employed and products produced, that restrictions on operation or production are not practically enforceable, then the above emission limits could restrict potential to emit if there are requirements that the source calculate emissions daily, and keep the appropriate records.

If the source was alternatively to meet the 20.5 ton/month limit by employing add-on controls, the permit would need to contain an operational limit, such as the requirement to install and operate an incinerator at 99% efficiency. A requirement to monitor incinerator efficiency (either directly or indirectly via temperature monitoring for example), and appropriate recordkeeping retirements to verify compliance with each of the permit conditions would also be necessary to make the permit conditions enforceable as a practical matter. Note, however, that in the case where add-on controls are employed, the source may be able to meet a shorter term emission limit than the ton per month figure.

VIII. Conclusion

We hope this guidance will help EPA Regions identify sources which have the potential to emit major amounts of an air pollutant which will subject those sources to the requirements of preconstruction new source review. Every source which is subject to these requirements but has not obtained a major new source permit should be seriously considered for enforcement action.