August 15, 2022

Via Electronic and U.S. Mail
Robert R. Scott, Commissioner
N.H. Department of Environmental Services
29 Hazen Drive, P.O. Box 95
Concord, NH 03301–0095
Robert.Scott@des.nh.gov

Re: Petition for Rulemaking to Adopt Rules Pertaining to "Advanced Recycling"

Dear Commissioner Scott:

Conservation Law Foundation, New Hampshire Healthcare Workers for Climate Action, and the Union of Concerned Scientists hereby petition the Department of Environmental Services (Department) pursuant to RSA 541-A:4 to initiate rulemaking and adopt final rules specifically addressing the permitting and operation of "advanced recycling" facilities in New Hampshire.[1]

So-called "advanced recycling," or "AR," poses a serious threat to environmental and human health – particularly in historically marginalized communities experiencing disproportionate pollution and public health burdens – as AR facilities emit toxic pollutants, including polycyclic aromatic hydrocarbons (PAHs), dioxins, and heavy metals, as well as particulate matter and greenhouse gases.[2] As a result of the passage of SB 367 in the 2022 legislative session, as of

[1] For purposes of this petition, the terms "advanced recycling," and "AR" mean "Advanced recycling" as defined in Section 2 of SB 367, 2022 Leg., Reg. Sess. (N.H. 2022), eff. Aug. 16, 2022 ("SB 367"), to be codified at RSA 149-M:4, I-a. The term "facility" means "Advanced recycling facility" as defined in SB 367, to be codified at RSA 149-M:4, I-b.

[2] *See e.g.,* 86 Fed. Reg. 50296, 50299-50300 (Sept. 8, 2021) ("Regardless of the process category, through application of heat, pyrolysis disintegrates the long hydrocarbon bonds of the incoming feed materials and may generate tars, oils, particulate matter, reduced sulfur and nitrogen compounds, and hazardous air pollutants (HAPs) including polycyclic aromatic hydrocarbons (PAHs)."); LEE BELL & HIDESHIGE TAKADA, INTERNATIONAL POLLUTANTS ELIMINATION NETWORK, PLASTIC WASTE MANAGEMENT HAZARDS: WASTE-TO-ENERGY, CHEMICAL RECYCLING, AND PLASTIC FUELS 53–54 (2021), https://ipen.org/sites/default/files/documents/ipen-plastic-waste-management-hazards-en.pdf.

August 16, 2022 any AR facilities will be regulated as "manufacturing" facilities and specifically exempted from regulation under New Hampshire's solid waste management laws. Moreover, as manufacturers under New Hampshire's air pollution permitting regime, these facilities will likely seek "synthetic minor source" status, avoiding important technology controls as well as federal oversight mechanisms and public participation processes.[3]

To prevent AR facilities from emitting health- and climate-harming pollutants and ensure protection of public health and the environment, and in light of SB 367's explicit acknowledgment that such facilities are to be subject to Department rules relative to air, water, waste, and land use, the Department should exercise its statutory authority to initiate rulemaking addressing the permitting and operation of AR facilities in New Hampshire.[4] CLF requests that the Department complete this requested rulemaking before considering or issuing any permit for the construction and operation of any AR facility that may be proposed.

The Petitioners

Conservation Law Foundation (CLF) protects New England's environment for the benefit of all people. Founded in 1966, CLF is a non-profit, member-supported organization with offices located in New Hampshire, Vermont, Maine, Massachusetts, and Rhode Island. CLF uses the law, science, and the market to create solutions that protect public health, preserve natural

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[3] *See* NHDES, NON-ATTAINMENT NEW SOURCE REVIEW AND PREVENTION OF SIGNIFICANT DETERIORATION 2 (2020), https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/nsr-psd-guidance.pdf [hereinafter NSR AND PSD GUIDANCE] ("While many sources have the physical potential to emit air pollutants over the [major source] thresholds, most sources accept federally enforceable permit limits . . . to opt-out of [federal preconstruction] permitting."); *see also* NHDES, AIR RESOURCES DIVISION, TEMPORARY PERMIT, NO. TP-0256 at 3 (2021), https://www4.des.state.nh.us/OneStopPub/Air/330110016521-0089TypePermit.pdf [hereinafter SAINT-GOBAIN TEMPORARY PERMIT] (classifying Saint-Gobain Performance Plastics Corporation, a manufacturing facility, as a "synthetic minor source" for volatile organic compounds and hazardous air pollutants); OFF. OF INSPECTOR GENERAL, U.S. EPA, IMPROVING AIR QUALITY: EPA SHOULD CONDUCT MORE OVERSIGHT OF SYNTHETIC MINOR-SOURCE PERMITTING TO ASSURE PERMITS ADHERE TO EPA GUIDANCE, NO. 21-P-0175 at 7–10, 24 (2021) (https://www.epa.gov/system/files/documents/2021-07/_epaoig_20210708-21-p-0175.pdf) [hereinafter EPA INSPECTOR GENERAL'S SYNTHETIC MINOR REPORT].

[4] The Department has authority to engage in the rulemaking requested in this petition under RSA 125-C:4, I(a), which states that the Department "shall adopt rules under RSA 541-A, relative to . . . [t]he prevention, control, abatement, and limitation of air pollution, including, but not limited to, open air source pollution, mobile source pollution, and stationary source pollution." The Department has in the past relied upon RSA 124-C:4 as authority to promulgate source-specific rules for various manufacturing categories and incinerators. *See*, e.g., Env-A 1200; Env-A 1900. Accordingly, it has authority to do the same for AR facilities. The Department also has authority under RSA 125-C:6, II, XIV and RSA 125-C:11, I.

resources, build healthy communities, and sustain a vibrant economy. CLF has engaged in advocacy in New Hampshire and in other New England states to protect public health and the environmental from impacts associated with waste and sources of air pollution, and to ensure adequate regulation of "advanced recycling." In light of the recent enactment of SB 367, now exempting AR from regulation under New Hampshire's waste laws, the adoption of rules pertaining to AR is critically important to protecting public health and the environment, as well as ensuring that communities already experiencing disproportionate health and environmental impacts are not subjected to yet further adverse impacts.

New Hampshire Healthcare Workers for Climate Action (NH HWCA) is a grassroots, nonpartisan, nonprofit organization of diverse healthcare workers that was formed in September of 2021. The organization has grown to an interdisciplinary group of 2,600 healthcare professionals and others across New Hampshire and beyond who seek to advocate for climate solutions to improve human health, particularly for those most vulnerable among us. NH HWCA's mission is as follows: "As healthcare workers are uniquely positioned to increase public awareness of the links between health and climate change, we seek to provide NH healthcare workers the tools to educate and mobilize the public in support of climate solutions to improve health for all."

The Union of Concerned Scientists (UCS) is a national organization putting science into action to build a healthier planet, a safer world, and a more equitable society. UCS's half-million members and supporters include everyday people as well as some of the nation's top scientists, and its distinctive UCS Science Network draws upon nearly 23,000 scientists and technical experts across the country to assist in local, state, and national efforts. Working together, UCS advances science-based solutions to some of the world's most pressing problems, conducting rigorous technical analyses and mobilizing its supporters to build powerful coalitions, educate decisionmakers, and advocate for change. UCS conducts research and develops innovative policy solutions to address climate change, the risk of nuclear war, and sustainable forms of energy, agriculture, and transportation. UCS exposes bogus studies and the censorship and manipulation of science by special interests and industry.

Introduction

On April 28, 2022, California's Attorney General initiated an investigation into the fossil fuel and petrochemical industries' role in "causing and exacerbating the global plastics pollution crisis."[5] In announcing its investigation, including its issuance of a subpoena to the world's largest plastics manufacturer, ExxonMobil, California's Attorney General noted that:

- annual plastics production has increased from 1.5 million tons in the 1950s to more than 300 million tons today, with fossil fuel and petrochemical companies investing an additional $208 billion to expand plastic production "[a]s fossil fuels continue to be replaced by clean energy sources;"

[5] State of California Department of Justice, Office of the Attorney General, Media Release (Apr. 28, 2022) (https://oag.ca.gov/plastics).

- the plastics industry has since the 1980s engaged in "an aggressive – and deceptive – marketing and advertising campaign to convince the public that we could recycle our way out of the plastic waste problem;"
- "the vast majority of plastic products, by design, cannot be recycled and the U.S. plastic recycling rate has never broken 9%"; and

- "[t]he plastics industry continues to push the myth of broad-based plastic recycling as a tidy solution to the plastics crisis – with a modern twist[:] . . . advocating for more advanced recycling, also known as chemical recycling."[6]

California's Attorney General has announced that the investigation "will focus on the fossil fuel and petrochemical industries' role in misleading the public about plastics recycling" and the harm caused thereby, and will specifically include "[t]argeting companies that have caused and exacerbated the global plastics pollution crisis; . . . these companies' role in perpetuating myths around recycling and the extent to which this deception is still ongoing," and a determination whether "these actions violate the law."[7]

As part of a strategy one former Exxon lobbyist described as "getting ahead of government intervention," the chemical industry has engaged in an effort to exempt AR "from various regulations."[8] That effort played out in New Hampshire during the 2022 legislative session,

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[6] *Id. See also* Nat'l Public Radio, "California is Investigating Big Oil for Allegedly Misleading the Public on Recycling" (Apr. 28, 2022) (https://www.npr.org/2022/04/28/1095305949/california-is-investigating-big-oil-for-allegedly-misleading-the-public-on-recyc#:~:text=California%20is%20investigating%20Big%20Oil%20for%20allegedly%20misleading%20the%20public%20on%20recycling&text=Sullivan%2FGetty%20Images-,The%20office%20of%20California%20Attorney%20General%20Rob%20Bonta%20announced%20it,most%20plastic%20could%20be%20recycled) (discussing investigation and industry's $1.5 billion effort, launched in 2019, to "promote[] plastic recycling and clean up efforts rather than using less plastics"); The Nation, "Exxon Doubles Down on 'Advanced Recycling' Claims That Yield Few Results" (May 11, 2022) (https://www.thenation.com/article/environment/exxon-plastic-pollution-climate-change/) (discussing investigation and stating: "Accused of misleading the public for decades on the promise of plastic recycling, oil and chemical companies are pushing a new idea: 'advanced recycling.' Environmental advocates, however, say it's more of the same old greenwash, and litigators hope holding companies accountable for past lies might prevent the spread of a new one.").

[7] State of California Department of Justice, Office of the Attorney General, Media Release, *supra* note 5.

[8] The Nation, "Exxon Doubles Down on 'Advanced Recycling' Claims That Yield Few Results," *supra* note 6.

through the enactment of SB 367 – strongly advocated by the American Chemistry Council – to exempt AR from regulation under New Hampshire's solid waste laws.

In addition to being part of a strategy to convince the public that plastics are being recycled, and to thereby continue expansion of plastics production, AR poses significant risks warranting greater (not less) regulatory attention.[9] For example, two forms of AR – pyrolysis and gasification – emit polycyclic aromatic hydrocarbons (PAH), including dioxins and furans,[10] which are persistent organic pollutants.[11] Research also indicates that gasification of a plastics waste stream results in emissions that include heavy metals – along with "NOx, SOx, hydrocarbons, carbon monoxide, particulate matter (PM)" and "greenhouse gas emissions such as CO2."[12] Permits from AR facilities in other states demonstrate that the technical processes involved emit multiple dangerous substances classified as "hazardous air pollutants" (HAPs) under the Clean Air Act (CAA).[13] The harmful pollutants emitted by AR facilities are detrimental to public health and can exacerbate environmental injustices in underserved communities.[14] Moreover, a study "commissioned by plastic manufacturers themselves found that advanced recycling generated more greenhouse gases than either landfilling plastic or burning it."[15]

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[9] *See generally, e.g.,* NRDC, RECYCLING LIES: "CHEMICAL RECYCLING" OF PLASTIC IS JUST GREENWASHING INCINERATION (2022), https://www.nrdc.org/sites/default/files/chemical-recycling-greenwashing-incineration-ib.pdf.

[10] *See* 86 Fed. Reg. 50296, 50300 (Sept. 8, 2021); BELL & TAKADA, *supra* note 2, at 53–54; NEIL TANGRI AND MONICA WILSON, GLOB. ALLIANCE FOR INCINERATOR ALTERNATIVES, WASTE GASIFICATION & PYROLYSIS:
HIGH RISK, LOW YIELD PROCESSES FOR WASTE MANAGEMENT 9 (2017), https://www.no-burn.org/wp-content/uploads/Waste-Gasification-and-Pyrolysis-high-risk-low-yield-processes-march-2017.pdf.

[11] *Learn about Dioxin*, EPA (June 1, 2022), https://www.epa.gov/dioxin/learn-about-dioxin.

[12] TANGRI & WILSON, *supra* note 10, at 9.

[13] *See* IND. DEP'T ENV'T MANAGEMENT, OFF. OF AIR QUALITY, FEDERALLY ENFORCEABLE STATE OPERATING PERMIT RENEWAL, NO. 151-43439-00067 at 6 (2021), https://permits.air.idem.in.gov/43439f.pdf [hereinafter BRIGHTMARK PERMIT]; *see generally* GA. DEP'T OF NAT. RES., NARRATIVE: SIP APPLICATION REVIEW, NO. 121-00946 (2017), https://permitsearch.gaepd.org/permit.aspx?id=PDF-ON-24218 [hereinafter NEXUS PERMIT NARRATIVE].

[14] *See* NRDC, *supra* note 9, at 4.

[15] The Nation, "Exxon Doubles Down on 'Advanced Recycling Claims that Yield Few Results," *supra* note 6.

In September 2021, EPA issued an Advanced Notice of Proposed Rulemaking "to assist in the consideration of potential changes to existing regulations under CAA Section 129 or the development of regulations pertaining to pyrolysis and gasification units that are used to convert solid and semi-solid feedstocks, including . . . plastics."[16] Without regulation under CAA Section 129, advanced recycling facilities using pyrolysis or gasification would largely or entirely avoid federal air pollution standards.[17] Moreover, in New Hampshire, manufacturing facilities can apply for "synthetic minor source" status to avoid state-incorporated CAA permitting programs and standards, including New Source Review (NSR)[18] and the National Emission Standards for Hazardous Air Pollutants (NESHAPs).[19] This classification allows manufacturing sources to avoid installing technology controls that the federal and state air pollution statutes would otherwise require.[20] It also potentially results in permits that receive little federal oversight and do not ensure facilities will comply with applicable limits.[21]

Unlike New Hampshire, no other state in New England exempted AR from existing laws or regulations (both Connecticut and Rhode Island have specifically rejected such attempts). As a result, it is reasonably foreseeable that New Hampshire will become a magnet both for AR activities and for out-of-state plastic waste to fuel such activities. Considering the dangerous pollutants associated with AR facilities – and given that New Hampshire's regulatory scheme may allow them to avoid technology controls and/or to obtain permits that do not ensure compliance with applicable legal standards – the Department should engage in rulemaking to ensure that New Hampshire's communities and environment will be adequately protected.

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[16] *See* 86 Fed. Reg. 50296, 50297–98 (Sept. 8, 2021); see also 86 Fed. Reg. 61102 (Nov. 05, 2021) (extending comment deadline to December 23, 2021).

[17] Corresp. from Jim Pew, Earthjustice Senior Attorney et al., to Michael Regan, U.S. EPA Administrator (July 14, 2022), https://www.momscleanairforce.org/resources/letter-to-epa-about-chemical-recycling-july-14-2022/ (stating that: if "pyrolysis and gasification incinerators" do not fall under CAA section 129, then "[t]here are no other federal standards that apply to pyrolysis and gasification incinerators"; that promulgating source-specific HAP rules for incinerators "would be a difficult and time-consuming process"; and that "[i]f the EPA does not regulate pyrolysis and gasification incinerators under Section 129, it would effectively strip emissions regulations and monitoring requirements for some of the most hazardous air pollutants regulated under the Clean Air Act, including lead, cadmium, mercury, and dioxins.")

[18] *See* NSR AND PSD GUIDANCE, *supra* note 3, at 2.

[19] *See* SAINT-GOBAIN TEMPORARY PERMIT, *supra* note 3, at 3.

[20] *See* NSR AND PSD GUIDANCE, *supra* note 3, at 2–3 (discussing "best available control technology" (BACT) and "lowest achievable emissions rate" (LAER) requirements, which are applicable only to "major sources" and not synthetic minor sources); *see also* RSA 125-C:10-b (requiring BACT only for sources "required to obtain a title V operating permit").

[21] *See* EPA INSPECTOR GENERAL'S SYNTHETIC MINOR REPORT, *supra* note 3, at 7–10, 24.

Background

I. AR has not proven economically or technically feasible, and its air pollution threatens human health and the environment.

The terms "advanced recycling" and "chemical recycling" generally refer to methods that involve (1) "thermal depolymerization" (also known as "thermolysis") or (2) "solvent-based regeneration."[22] SB 367's definition of "advanced recycling" includes multiple methods that fall within one or more of these process categories, listing: "pyrolysis, gasification, depolymerization, catalytic cracking, reforming, hydrogenation, solvolysis, and other similar technologies."[23]

Pyrolysis and gasification constitute forms of "thermal depolymerization" or "thermolysis."[24] These processes are known as "the only practicable thermolysis methods for chemical recycling."[25] However, the "nature of gasification and pyrolysis engineering" still greatly limits or prevents these processes from successfully "recycling" plastic.[26]

Both pyrolysis and gasification convert the polymers in plastic waste (known as "feedstock") into "smaller fragments" by placing the waste into a reactor with little oxygen (for gasification) or no oxygen (for pyrolysis).[27] Pyrolysis forms both gas and liquids; gasification forms a gas called "syngas."[28] Facilities then burn the "fragment" components as fuel ("plastic to fuel") or "repolymerize[]" them to create "new plastic" ("plastic to plastic").[29]

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[22] *See* ANDREW N. ROLLINSON AND JUMOKE OLADEJO, GLOB. ALLIANCE FOR INCINERATOR ALTERNATIVES, CHEMICAL RECYCLING: STATUS, SUSTAINABILITY, AND ENVIRONMENTAL IMPACTS at 7, 36 (2020), https://www.no-burn.org/wp-content/uploads/CR-Technical-Assessment_June-2020.pdf. Some sources classify these methods into two groups and describe depolymerization as an initial step for all chemical recycling. *See id.* Other sources categorize the process methods into three categories: (1) "thermal depolymerization," (2) "chemical depolymerization," and (3) "solvent-based regeneration." *See* BELL & TAKADA, *supra* note 2, at 48.

[23] SB 367.

[24] *See* NRDC, *supra* note 9, at 2; ROLLINSON & OLADEJO, *supra* note 22, at 7.

[25] *See* ROLLINSON & OLADEJO, *supra* note 22, at 7–8.

[26] *See id.* at 11.

[27] ROLLINSON & OLADEJO, *supra* note 22, at 6–7; BELL & TAKADA, *supra* note 2, at 54.

[28] *See* ROLLINSON & OLADEJO, *supra* note 22, at 10; NRDC, *supra* note 9, at 2.

[29] *See* ROLLINSON & OLADEJO, *supra* note 22, at 7.

The "plastic to fuel" process does not constitute recycling because it does not form new plastic.[30] The "plastic to plastic" process is "extremely difficult or even impossible" to accomplish in practice due to technical limitations.[31] Therefore, most "chemical recycling" plants "are actually 'plastic-to-fuel' operations," which burn their outputs instead of creating plastic, resulting in "the same environmental health concerns as waste incineration."[32] Research investigating AR facilities determined that "not one of the 37 'chemical recycling' projects announced in the U.S. in the last 20 years has been proven to successfully recycle plastic at a commercial scale."[33]

In addition to its economic and technical infeasibility, AR poses serious risks to public health and the environment. Pyrolysis and gasification release polycyclic aromatic hydrocarbons (PAH), including dioxins and furans, which are "highly toxic" pollutants that "can cause cancer, reproductive and developmental problems, damage to the immune system, and can interfere with hormones."[34] EPA's own advanced notice of proposed rulemaking states:

> Regardless of the process category, through application of heat, pyrolysis disintegrates the long hydrocarbon bonds of the incoming feed materials and may generate tars, oils, particulate matter, reduced sulfur and nitrogen compounds, and hazardous air pollutants (HAPs) including polycyclic aromatic hydrocarbons (PAHs).[35]

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[30] *See* DAVID AZOULAY ET AL., CTR. FOR INT'L ENV'T L., PLASTIC & HEALTH THE HIDDEN COSTS OF A PLASTIC PLANET 48 (2019), https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf; *see also* NRDC, *supra* note 9, at 2.

[31] ROLLINSON & OLADEJO, *supra* note 22, at 11.

[32] AZOULAY ET AL., *supra* note 31, at 48; NRDC, *supra* note 9, at 3.

[33] DENISE PATEL ET AL., GLOB. ALLIANCE FOR INCINERATOR ALTERNATIVES, ALL TALK AND NO RECYCLING: AN INVESTIGATION OF THE U.S. "CHEMICAL RECYCLING" INDUSTRY 3 (2020), https://www.no-burn.org/wp-content/uploads/All-Talk-and-No-Recycling_July-28.pdf; *see also* Joe Brock et al., *The Recycling Myth: Big Oil's Solution for Plastic Waste Littered with Failure,* REUTERS (July 29, 2021), https://www.reuters.com/investigates/special-report/environment-plastic-oil-recycling/ (reporting on the commercial failures of advanced recycling facilities); Amy Westervelt, *Exxon doubles down on 'advanced recycling' claims that yield few results,* THE GUARDIAN (May 11, 2022), https://www.theguardian.com/environment/2022/may/11/exxon-advanced-recycling-plastic-pollution-investigation (describing the California attorney general's "investigation into ExxonMobil for its role in exacerbating the global plastic pollution crisis," including "the way it is marketing advanced recycling today.").

[34] *See Learn about Dioxin*, EPA (June 1, 2022), https://www.epa.gov/dioxin/learn-about-dioxin; *see also* BELL & TAKADA, *supra* note 2, at 53–54.

[35] 86 Fed. Reg. 50296, 50299–300 (Sept. 8, 2021).

Moreover, permits from currently-operating advanced recycling facilities outside of New Hampshire identify several other HAPs as regulated pollutants, including: benzene, cumene, ethylbenzene, n-hexane, naphthalene, toluene, 2,2,4-trimethylpentane, and xylenes;[36] hydrogen chloride (HCl);[37] and mercury, arsenic, ethyl benzene, acetaldehyde, formaldehyde, and methanol.[38]

Research suggests that advanced recycling facilities also can emit heavy metals, including lead and mercury.[39] Additionally, even if they do not emit lead directly as an air pollutant, the facilities can create hazardous waste products that contain lead, mercury, and other heavy metals.[40] Lead and mercury from air emissions and/or toxic waste products from AR is of particular concern in New Hampshire, where the state has been struggling to reduce rates of

[36] BRIGHTMARK PERMIT, *supra* note 13, at 50 (2021) (listing these HAPs as outputs of the "thermal oxidizer").

[37] NEXUS PERMIT NARRATIVE, *supra* note 13, at 1 (listing this HAP as an output of the "extruders").

[38] NRDC, *supra* note 9, at 6.

[39] *See* AZOULAY ET AL., *supra* note 31, at 62 ("All combustion technologies (including incineration, co-incineration, gasification, or pyrolysis) to eliminate plastic waste result in emissions and releases of toxic metals, such as lead and mercury[.]") *See also id.* at 47 ("thermal processing of plastic waste leads to emissions of persistent organic pollutants (POPs) such as dioxins and PCBs, as well as lead, arsenic, mercury, and other heavy metals from the original components of the plastic waste: polymers derived from oil, gas, or coal that have been combined with toxic additives, such as flame retardants and/or plasticizers.")

[40] *See* ROLLINSON & OLADEJO, *supra* note 22, at 27 ("Following a study of mixed and blended plastic pyrolysis, the resultant char was contaminated with heavy metals (cadmium, lead, zinc, copper, mercury, and arsenic) and classified as both hazardous and ecotoxic"); NRDC, *supra* note 9, at 5 ("Data from the EPA shows that Agilyx generated nearly 500,000 pounds of hazardous waste in 2019 alone, sending most of it off site to be burned . . . This waste consisted primarily of benzene, along with other toxics such as lead, cadmium, and chromium").

childhood lead poisoning,[41] and where *all* surface waters have been designated as impaired (i.e., violating state water quality standards) as a result of mercury pollution.[42]

II. New Hampshire's current rules are insufficient to protect public health and the environment from the impacts of AR facilities.

A. Air permitting framework

Under New Hampshire's air permitting rules, a regulated facility must first obtain a "temporary permit" and subsequently obtain an operating permit.[43] Depending on the facility's location, source type, and emissions, the CAA's additional preconstruction permitting programs may apply.[44] Depending on the facility's classification under the CAA, the operating permit will constitute either a "state permit to operate" or a federal Title V permit.[45]

Facilities subject to the air permitting regulations include, among others:

- facilities with certain devices (i.e., "external combustion device[s]" with specific "heat input[s]" and combustion fuels, or "incinerator[s]" burning specific waste types);

- facilities that meet emissions thresholds for certain pollutants (i.e., those that emit "volatile organic compound[s] (VOC)" at total quantities "greater than or equal to 10 tons per calendar year");

- facilities that accept "restrictions" to reduce their "potential to emit" (i.e., synthetic minor sources); and

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[41] In recognition of this ongoing problem, caused in part by New Hampshire's aging housing stock, New Hampshire's legislature recently has taken important actions to better address childhood lead poisoning. *See* SB 247 (2018 Legis., Reg. Sess.) (requiring, *inter alia*, that all one- and two-year old children be tested for lead, and establishing a more protective regulatory action level to better protect children with lead exposures); HB 1247 (2022 Legis., Reg Sess.) (establishing more protective standard for lead in drinking water in schools and child care centers).

[42] State of New Hampshire 2020/2022 Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology (Feb. 18, 2022) at 18 ("For this cycle, all surface waters in New Hampshire are considered impaired primarily as a result of the statewide fish consumption advisory for mercury in fresh waters and for mercury and polychlorinated biphenyls (PCB) in tidal waters.").

[43] *See* Env-A 603.01.

[44] Env-A 618–19.

[45] Env-A 608–09.

- facilities with "documented and repeated violations" of specified standards (i.e., violations of opacity standards and NAAQS).[46]

Facilities that fall within these categories must first obtain a temporary permit before building "any new or modified source or device."[47] The temporary permit includes "conditions to confirm that the source or device can operate as proposed and in compliance with applicable air standards and regulations."[48] This short-term state preconstruction permit remains effective for 18 months, and the permit holder may seek a maximum one-year "reissuance" under certain conditions.[49]

If the facility constitutes a "major source" for certain pollutants, the CAA's preconstruction permitting programs – Nonattainment New Source Review (Nonattainment NSR) or Prevention of Significant Deterioration (PSD) – also apply.[50] In New Hampshire, Nonattainment NSR applies to facilities that emit 50 tons per year of VOC or 100 tons per year of NOx, and it requires sources to complete a technology-based "Lowest Achievable Emissions Rate" (LAER) analysis to determine the applicable emissions limit.[51] In New Hampshire, PSD applies when a facility:

- has the potential to emit 100 tons per year (tpy) of NO2, CO, SO2, or PM and is listed in the PSD regulations' major source definition;

- has the potential to emit 250 tpy of NO2, CO, SO2, or PM and is not listed in the PSD regulations' major source definition; or

- has the potential to emit 100,000 tpy of "CO2 equivalent" and also qualifies as "major for at least one other pollutant."[52]

PSD requires facilities to determine applicable emissions limits through a technology-based "Best Available Control Technology" (BACT) analysis.[53]

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[46] Env-A 607.01(a)–(w).

[47] Env-A 603.01; 607.01.

[48] NHDES, ENVIRONMENTAL FACT SHEET: NEW HAMPSHIRE'S AIR PERMIT PROGRAM 3 (2020), https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/ard-17.pdf.

[49] Env-A 607.08–.09.

[50] Env-A 618–19.

[51] NSR AND PSD GUIDANCE, *supra* note 3, at 1, 3.

[52] *Id.* at 1–2.

[53] *Id.* at 3.

After receiving a temporary permit, a regulated source must obtain an operating permit, which could constitute either a state permit to operate or a Title V permit. A facility must acquire a state operating permit if it was subject to a temporary permit and was not "required to obtain a Title V permit."[54] Facilities can apply for "the incorporation of the provisions of a temporary permit into an existing state permit to operate or Title V operating permit."[55] State permits to operate remain effective for five years.[56]

Alternatively, a facility must obtain a Title V operating permit if it qualifies as a "major source" or an "affected source" under the CAA.[57] Sources subject to Title V must comply with separate regulatory requirements that ensure federal oversight.[58] These include requirements that the permit remain federally enforceable "by the Administrator and citizens under the [CAA]," and "that all compliance certifications be submitted to the Administrator as well as to the permitting authority."[59] EPA also retains authority to object to DES's permit approvals, and to "issue or deny" permits.[60] The rules also establish separate "notice and hearing procedures" for sources permitted under Title V.[61] Moreover, New Hampshire's air pollution statute requires Title V facilities to use BACT for controlling "particulate matter, mercury, or dioxin emissions."[62]

Regarding hazardous air pollutants, New Hampshire's permitting rules incorporate the CAA's National Emissions Standards for Hazardous Air Pollutants (NESHAPs), which require "Maximum Achievable Control Technology" for listed "source categories."[63] New Hampshire's regulations separately include a "Regulated Toxic Air Pollutants" program, which does not require control technology.[64]

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[54] Env-A 608.01.

[55] Env-A 607.10.

[56] Env-A 608.09–.10.

[57] Env-A 609.01.

[58] *See* Env-A 609.05(b).

[59] 40 C.F.R. § 70.6 (b)(1), (c)(5)(iv); 609.05(b).

[60] Env-A 609.14(a)–(c).

[61] Env-A 622.

[62] See RSA 125-C:10-b.

[63] Env-A 607.01(u).

[64] *See* ENV-A 1400; NHDES, ENV-A 1400 COMPLIANCE DETERMINATION FLOW CHART (2022), https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/NH-flowchart-2017A.pdf.

B. Synthetic minor source classification

Facilities that "accept" federal emissions limitations can classify as "synthetic minor" sources for criteria pollutants and/or HAPs, and thus can avoid qualifying as "major sources" for NSR, Title V, or NESHAP purposes.[65] New Hampshire's regulations suggest that Title V applies to "[a]ny source" to which the CAA's New Source Performance Standards (NSPS) and NESHAPs apply.[66] However, the rules "temporarily exempt" any "nonmajor sources" that fall under these sections from obtaining Title V permits.[67] Therefore, in practice in New Hampshire, Title V does not apply to "nonmajor sources" – including synthetic minor sources – even if they are subject to NSPS and NESHAPs.

Synthetic minor sources must include emissions limits below federal "major source" levels in their permits; however, these sources can achieve such levels through operating conditions and production limits as opposed to installing technology controls.[68] Additionally, research indicates that EPA has conducted minimal oversight of synthetic minor permits, which in practice can allow facilities to emit beyond major source thresholds.[69] The recent EPA Office of Inspector General review determined that "synthetic minor" sources often possess permits with inadequate technical detail to ensure that they will meet emissions limits and not emit pollutants at major-source levels.[70]

The Need to Initiate Rulemaking

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[65] NSR AND PSD GUIDANCE, *supra* note 3, at 2; *Permit Guidance*, NHDES, https://www.des.nh.gov/air/industrial-sources/permit-guidance; NHDES, AIR RESOURCES DIVISION, TEMPORARY PERMIT, NO. TP-0256 at 3 (2021), https://www4.des.state.nh.us/OneStopPub/Air/330110016521-0089TypePermit.pdf.

[66] Env-A 609.01(a)(2)–(3)

[67] Env-A 609.01(c)(2).

[68] *See* EPA INSPECTOR GENERAL'S SYNTHETIC MINOR REPORT, *supra* note 3, at 3.

[69] *See id.* at 6.

[70] *See id.* at 7–10, 24. While the Inspector General's report focused on "facilities in the natural gas extraction sector," its conclusions likely apply to manufacturing facilities New Hampshire. *See id.* at 5. For example, Saint-Gobain Performance Plastics' original permit described its synthetic minor source operating conditions as "limit[ing] the amount of liquefied petroleum gas burned" to stop emissions of "NOx from fuel-burning devices" from exceeding 50 tons per year; this operating condition merely restates the emissions limit. *See* NHDES, AIR RESOURCES DIVISION, STATE PERMIT TO OPERATE, FP-S-0151 (2003), https://www4.des.state.nh.us/OneStopPub/Air/3301100165FY03-0189TypePermit.pdf; *see also* NHDES, AIR RESOURCES DIVISION, ENGINEERING SUMMARY SHEET, NO. FP-T-0075 at 4 (2003), https://www4.des.state.nh.us/OneStopPub/Air/3301100165FY03-0189TypeSummary.pdf.

I. Current standards for manufacturing facilities do not ensure adequate health and environmental protections from AR.

As demonstrated by the discussion above, AR facilities pose a significant threat to public health and the environment, including people living or working in underserved communities, and New Hampshire's current regulations do not ensure adequate protection from this significant threat.

For example, although advanced recycling facilities use thermal depolymerization – and although they will likely burn product as fuel, considering the engineering processes' current technical and economic limits and the documented failures of AR facilities elsewhere – SB 367 exempts them from complying with source-specific regulations for incinerators.[71] In addition, advanced recycling facilities will likely seek to avoid federal standards requiring control technology – specifically, NSR, Title V, and NESHAPs – by acquiring "synthetic minor" source status.[72] This threatens human health and the environment because accepting federal limits does not ensure that the source will adequately minimize its emissions to remain under major source levels.[73] Moreover, the state's Regulated Toxic Air Pollutants program does not require the installation of control technologies. [74]

II. The Department should initiate rulemaking and adopt rules that ensure AR facilities do not harm public health and the environment.

To ensure the Department's air pollution rules adequately protect public health and the environment from the harmful pollutants associated with AR – including but not limited to PAHs, dioxins, heavy metals, and greenhouse gases – the Department should initiate a rulemaking process and adopt rules that, at a minimum, include the following:

1. The Department should amend Env-A 607.01, "Specific Applicability for Temporary Permits," by adding "advanced recycling" and "advanced recycling facilities" (as defined in SB 367) to the existing source categories. This amendment will ensure that the state's air permitting program will apply to AR facilities.

2. The Department should add an "Advanced Recycling" chapter to its rules. Such chapter would function similarly to the current "Incinerators and Wood Waste Burners" chapter,

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[71] ROLLINSON & OLADEJO, *supra* note 22, at 11; SB 367 (providing that AR "shall not be considered . . . incineration, or combustion" and that the term "advanced recycling facility" "shall not include . . . an incinerator.").

[72] *See* NSR AND PSD GUIDANCE, *supra* note 3, at 2.

[73] *See generally* EPA INSPECTOR GENERAL'S SYNTHETIC MINOR REPORT, *supra* note 3.

[74] ENV-A 1400; NHDES, ENV-A 1400 COMPLIANCE DETERMINATION FLOW CHART (2022), https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/NH-flowchart-2017A.pdf.

which "establish[es] emission standards and operating practices for incinerators that are not specifically regulated pursuant to federal incinerator or waste combustor standards or any other chapter, part, or section of this subtitle."[75] This AR chapter should include a requirement that facilities install BACT for PAH (including dioxins and furans), benzene, HCL, heavy metals (including lead, cadmium, chromium, copper, zinc, mercury, and arsenic), and any other pollutant associated with AR that the Department determines will adversely affect public health and the environment.

3. The Department should add AR to its existing source-specific rules. Specifically, it should amend Env-1201.03 to clarify that AR facilities are subject to Env-A 1200, Volatile Organic Compounds, which requires Reasonably Available Control Technology (RACT) for VOCs.

4. The Department should adopt rules to ensure that, where a proposed AR facility has the reasonable potential to affect a marginalized or underserved community, such community (a) is provided meaningful opportunities to participate in the permitting process, with notices and public hearings accommodating specific language needs within the community, and (b) is not inequitably exposed to adverse public health and environmental impacts, taking into account the cumulative impacts of the proposed AR facility and other public health and environmental exposures existing in the community.

5. SB 367 specifically includes in its definition of "Advanced recycling" the following language: "For the purposes of this chapter, the primary products of advanced recycling shall *not* include hydrocarbons which are marketed, sold, or used as fuel for energy. Incidental products may be used for fuel *only* within the facility." SB 367 (emphases added). Consistent with this definition, the Department should establish rules ensuring that hydrocarbons produced by AR facilities are not marketed or sold to any entity for use as fuel, and requiring applicants to demonstrate that the production of any hydrocarbons for fuel will be (a) only incidental, and (b) used for fuel only within the applicant's AR facility.

6. SB 367 requires that AR facilities "shall give priority to utilizing post-use polymers and recovered feedstocks generated within the state." The Department should adopt rules ensuring compliance with this requirement and requiring applicants to disclose during the permitting process the sources of feedstock proposed AR facilities will rely on, including the proportion and quantity (by weight or volume) of total feedstock that will originate from New Hampshire and non-New Hampshire sources.

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[75] *See* Part Env-A 1900. In addition to Part Env-A 1900, the Department's rules contain other examples of regulating specific types of activities and manufacturers. *See e.g.,* Part Env-A 1219, regulating "Fiberglass Boat Manufacturing" under Ch. Env-A 1200, pertaining to "Volatile Organics Compounds (VOCs) Reasonably Available Control Technology (RACT);" Parts 1309 and 1310, regulating incinerators and wallboard manufacturing facilities, respectively, under Ch. Env-A 1300, pertaining "Nitrogen Oxides (NOx) Reasonably Available Control Technology (RACT)." It is essential that the Department adopt rules specifically designed to protect public health and the environment from the unique threats posed by AR facilities and their activities.

7. The Department should adopt rules requiring applicants to demonstrate whether and to what extent proposed AR facilities will result in actual ("circular") recycling – i.e., the generation of plastic materials to be used in the production of new products, as opposed to the use of plastics or plastic constituents as fuel.

8. The Department should adopt rules requiring applicants to analyze the greenhouse gas emissions associated with proposed AR facilities. Such analysis should include greenhouse gas emissions associated with (a) the combustion of fuels for the AR process, (b) the processing of feedstock, and (c) any combustion of fuels produced by the AR facility. The analysis should include a comparison of the total greenhouse gas emissions caused by the above AR activities with the greenhouse gas emissions that would result from landfilling the proposed AR facility's plastic feedstock. The Department's rules should require denial of a permit if a proposed AR facility will not result in a reduction of greenhouse gases.

9. The Department should adopt rules requiring owners of AR facilities to monitor, and periodically report to the Department, the pollutants emitted by the AR facility and the amounts thereof; the net greenhouse gases generated by the AR facility's activities; the characteristics of feedstock; the amount (by volume or weight) of plastic produced by the AR facility for circular use and the ultimate destination(s) of such product, and other reporting requirements in SB 367's "Reporting for Waste Reduction Goals" section, to be codified at RSA 149-M:63.

10. To avoid unnecessary air, land, and water impacts associated with the construction and operation of AR facilities, and because AR has a demonstrated history of not being economically or technically viable, the Department should adopt rules requiring permit applicants to demonstrate the economic and technical viability of proposed AR facilities.

Conclusion

For the forgoing reasons, CLF, NH HWCA, and UCS request that the Department initiate rulemaking to ensure that "advanced recycling" does not adversely affect public health and the environment. We further request that, in doing so, the Department adopt final rules addressing, at a minimum, the specific needs identified above. We appreciate the Department's consideration of this petition and look forward to your response.

Respectfully submitted,

Tom Irwin
Vice President for New Hampshire
Conservation Law Foundation
tirwin@clf.org

Emily Thompson
Director of Operations
New Hampshire Healthcare Workers for Climate Action
ethompson@nhclimatehealth.org

Roger W. Stephenson, APR
Northeast Regional Advocacy Director
Union of Concerned Scientists
rstephenson@ucsusa.org

Note: While all documents and reports cited in this petition are available online, petitioners are willing to provide paper copies upon request.

cc: Craig Wright, NHDES Air Resources Division Director