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July 22, 2013

corrected per accompanying errata letter

Mary E. Hohmann
NYSDEC Region 9 Allegany Sub-Office
182 East Union - Suite 3
Allegany, NY 14706

Re: Hyland Landfill, Applications 9-0232-00003/0002 and
9-0232-00003/00012 (Article 27 Title 7 Solid Waste Management and
Article 19 Air Title V Permit

Dear Ms. Hohman:

On behalf of Concerned Citizens of Allegany County (CCAC), please accept the following comments on the Department's draft permits referenced above and proposed for the Hyland Landfill (Hyland). CCAC is a volunteer environmental organization with over three decades of experience watchdogging solid waste management practices affecting Allegany County, including Hyland's operations.

By letter to CCAC member Marika Burke dated May 21, you extended the comment period for this matter to July 21, a Sunday. These comments are therefore submitted on the earliest work day thereafter. I note that Ms. Burke and other CCAC members will be submitting additional comments.

The comments below identify substantive and significant issues that warrant major modifications in the draft permits and, because Staff have tentatively determined to issue the draft permits, an issues conference and adjudicatory hearing.¹ All factual assertions made in these comments and supporting materials represent an offer to prove these facts. All documents cited here are on file with the author.

BACKGROUND

In 2006 Hyland obtained a permit modification to expand the landfill laterally 48 acres and vertically 68 feet.² This expansion resulted in the landfill exceeding the size threshold for the

¹ See 6 N.Y.C.R.R. §§ 624.1(b), (c).

² The expansion permit, dated December 20, 2006, Special Cond. 79, allows the landfill to reach a maximum elevation of 2083 feet. The previous permit, dated March 6, 2006, at Special Cond. 61, allows the landfill to reach a maximum elevation of 2015 feet.

New Source Performance Standards program under the federal Clean Air Act (Landfills NSPS)³ by about tenfold.⁴ The 2006 expansion permit also increased the annual waste acceptance rate to 312,000 tons per year (tpy) from 232,400 tpy.

Hyland operates a landfill gas collection system and treats the collected gas prior to combustion by three internal combustion (IC) engines at an onsite LFG-to-energy plant.⁵ About 1,500 gallons per month of condensate generated from the gas treatment process is added to landfill leachate.⁶ Hyland also operates an open flare to combust excess landfill gas not utilized by the onsite energy plant.⁷

In recent years Hyland has practiced leachate recirculation into the landfill. In 2008 the Department approved four leachate injection wells in the landfill, allowing a maximum of 6,000 gallons per well per day. In 2009 the Department approved an additional 18,000 gallons of leachate applied to the surface of the landfill working face.⁸

Hyland's Part 360 operating permit was modified last year to allow solidification of liquid wastes by adding absorbent material, which may be disposed in the landfill if solidified to at least 20% solids.⁹ This adds to substantial volumes of other permitted wet waste streams, including sewage sludge, industrial sludge, wet drill cuttings, and sludges from the treatment of liquid wastes generated at Pennsylvania drilling sites, all also subject to the 20% solids limit.¹⁰

³ 40 C.F.R. Part 60, Subpart WWW (40 C.F.R. §§ 60.750-60.759).

⁴ Hyland, Title V Permit Modification Application, cover letter to DEC dated February 22, 2011; *id.*, Appendix D, 2 (submitted to DEC under cover letter dated September 2, 2011) (both noting that the "design capacity" under the 2006 expansion is 14,169,300 cubic yards). The current Title V Permit and draft Title V permit modification state the 2006 expansion design capacity as 8.7 million Mg (7.89 million tons), based on an erroneous conclusion that nondegradable waste may be excluded from the design capacity. *See discussion below.*

⁵ *Cf.* 40 C.F.R. § 60.752(b)(2)(iii)(C).

⁶ McMahon & Mann, PC, *Operation and Maintenance Manual for Hyland* (May 2007), 16.

⁷ *Cf.* 40 C.F.R. § 60.752(b)(2)(iii)(A).

⁸ *See* Joseph R. Boyles, Letter to Mark Hans, P.E., NYSDEC, February 16, 2009.

⁹ Hyland, Part 360 Permit (mod 5), dated April 3, 2012, Cond. 8. *Cf.* McMahon & Mann, PC, *Liquid Waste Solidification Plan, Hyland Facility Associates Landfill* (October 2011).

¹⁰ 6 N.Y.C.R.R. § 360-2.17(n).

Rules for determining whether the Landfills NSPS applies to Hyland

Under the Landfills NSPS, if the “design capacity”¹¹ size threshold is exceeded (both 2.5 million tons and 2.5 million Mg), the landfill must calculate the concentration of non-methane organic compounds (NMOC) in its landfill gas (LFG) and, if NMOC emissions without considering controls exceeds 50 Mg/yr., install controls complying with the NSPS performance standards within 30 months of exceeding the size threshold.¹² “Many NMOC identified in LFG are either known or suspected carcinogens, and have the potential to produce noncancer health effects as well, such as adverse effects on the kidneys, liver, and central nervous system.”¹³

“A well-designed and well-operated gas collection system,” plus control devices capable of combusting and thus chemically destroying 98 percent of the toxics in the collected gas¹⁴ must be installed and properly monitored to control NMOC emissions where waste has been in place for five years or more (if active) and two years or more (if closed and at final grade).¹⁵ If the calculated NMOC concentration falls below the threshold, compliance with the performance standards is not required.

¹¹ The Landfills NSPS defines “design capacity” as “the maximum amount of solid waste a landfill can accept [over its permitted lifetime], as indicated in terms of volume or mass in the most recent [State] permit” and “any in-place waste not accounted for in the most recent permit.” 40 C.F.R. § 60.751. DEC’s Part 360 regulations define “approved design capacity” as “average daily tonnage to be received at the solid waste management facility during the quarter in which the most waste is anticipated to be received,” but this does not include cover materials and road bedding that will be landfilled. 6 N.Y.C.R.R. § 360-1.2(b)(8). DEC’s definition of “approved design volume” is similar to design capacity under the Landfills NSPS: “the maximum in-place volume of solid waste, including cover material, to be received at the solid waste management facility during its active life, as approved by the department.” 6 N.Y.C.R.R. § 360-1.2(b)(9). However, *as discussed below*, the Landfills NSPS requires “beneficial use” materials such as road bedding and daily or intermediate cover material that will eventually be landfilled to be included, and does not allow nondegradable wastes to be subtracted from design capacity unless disposed in a segregated area of the landfill.

¹² *Cf.* 40 C.F.R. § 60.752(b). Exceedance of the size threshold also requires the source to apply for a Title V permit within 90 days after the date of commencing construction of a new cell authorized under a modification of its design capacity. 40 C.F.R. § 60.752(c). Hyland’s initial Title V permit was issued in 2009. *See below*, note 16.

¹³ EPA, *Air Emissions from Municipal Solid Waste Landfills - Background Information for Final Standards and Guidelines*, EPA-453/R-94-021 (December 1995), 1-3.

¹⁴ 61 Fed.Reg. 9905, 9907 (March 12, 1996) (promulgating the Landfills NSPS).

¹⁵ 40 C.F.R. § 60.755(b).

Hyland asserted at the time of its 2006 expansion, and asserts in its application for the modification now under review that the calculated NMOC rate does not reach 50 Mg/yr., and therefore it need not comply with NSPS performance standards. Hyland installed a LFG collection system in 2003 to control odors, but asserts that this system need not comply with the Landfills NSPS.¹⁶

If the Landfills NSPS applies to Hyland, compliance with specific performance standards apply, such as a requirement to operate each wellhead in the LFG collection system with a landfill gas temperature less than 55° C (131° F), a requirement to maintain a nitrogen level less than 20 percent or an oxygen level less than 5 percent in the collected gas,¹⁷ and a requirement to test the effectiveness of its gas removal system by measuring methane concentrations 10 centimeters from the surface of the landfill at 30 meter intervals and around the perimeter of the landfill, to ensure that ambient methane does not exceed 500 ppm.¹⁸ Periodic testing and monitoring are required to detect exceedences of these parameters, but Hyland does not conduct such compliance testing and monitoring.¹⁹

If the Landfills NSPS applies to Hyland, additional Clean Air Act (CAA) programs also apply. These incorporate the requirements under the Landfills NSPS but add more stringent monitoring and reporting requirements. For example, if after January 4, 2004, Hyland's uncontrolled NMOC emissions are calculated to be 50 Mg/yr. or more it must control hazardous air pollutants (HAP)²⁰ by, among other things, determining whether the LFG generation rate is elevated as a result of the moisture content of the waste mass reaching or exceeding 40 percent.²¹ In addition, preconstruction permitting under CAA New Source Review programs may apply, requiring the purchase of emission offsets from other facilities that have reduced emissions more than is required, to offset emissions Hyland cannot control. It is assumed that landfills can collect

¹⁶ See Title V Permit 9-0232-00003/00012 (Hyland Landfill), 2 (eff. February 25, 2009).

¹⁷ 40 C.F.R. § 60.753(c). The purposes of these two requirements are to avoid high temperatures than would destroy bacteria that generate methane, and to maintain minimal air infiltration into the system.

¹⁸ 40 C.F.R. §§ 60.753(d), 60.755(c).

¹⁹ Under Hyland's Title V permit, Cond. 40, such testing is triggered by a DEC observation that nuisance odors are being emitted by the landfill rather than requiring periodic testing. The proposed Draft Permit does not change this condition.

²⁰ Under the National Emission Standards for Hazardous Air Pollutants Program (NESHAP) for Municipal Solid Waste (MSW) Landfills, 40 C.F.R. Part 63, Subpart AAAA (Landfills NESHAP). See 40 C.F.R. § 63.1935.

²¹ 40 C.F.R. § 63.1980(g). See discussion below.

75% of the air pollutants they emit; the other 25% escapes uncontrolled into the atmosphere or into subsurface soils.

Because the Department has accepted Hyland's assertion that the Landfills NSPS does not apply, and has accepted Hyland's emissions model for all other regulated air pollutants, it has not included in the draft Title V permit modification any requirements under these other CAA programs.

However, Hyland's pending request to increase its waste acceptance rate has resulted in a determination by the Department that the landfill was, since 2006, a major source of greenhouse gas (GHG) emissions and approval of the request would result in a "significant" increase in the GHG emissions rate, making the approval a "major modification" under the Clean Air Act. Accordingly, the Department has imposed "early" implementation of the Landfills NSPS as a "mitigation" that renders the increase in emission non-significant. By incorporating the requirement to implement NSPS controls early, the Department has concluded that there will be no potentially significant air impacts. This, in turn, justifies dispensing with an environmental impact statement under the State Environmental Quality Review Act (SEQRA).

As discussed in detail below, CCAC believes Hyland has been subject to the Landfills NSPS since 2006, triggering requirements that are not contained in the current or draft modified Title V permit. The draft Title V permit, if not further modified, will therefore illegally evade applicable CAA programs.

Hyland has not sufficiently disclosed the reasons for a permit modification.

As an initial matter, Hyland's disclosure of the reasons for the proposed permit modification is insufficient under state landfill regulations (Part 360). Accordingly, the application must be supplemented by providing a sufficient disclosure.

An application for a modification of any kind must include and address the following:

- (1) a description of the proposed modification;
- (2) the reasons for the proposed modification;
- (3) a description of the impacts from the proposed modification upon the facility as presently permitted; and
- (4) a demonstration that, as modified, the facility will be capable of compliance with the applicable requirements of the ECL and this Part.²²

However, Hyland has not disclosed (2) with any specificity. Instead, its application says only that Hyland needs "to respond to current market conditions, and to more fully utilize the facilities

²² 6 N.Y.C.R.R. § 360-1.9(c).

available at the Hyland Landfill.”²³ This disclosure is insufficient because it lacks any specificity, and because every permit or permit modification applicant can say the same thing, rendering the word “reasons” superfluous and the requirement effectively meaningless.²⁴

Importantly, the recent history of the landfill clearly indicates that the reason for requesting an increased waste acceptance rate is to take advantage of waste streams generated by oil and gas drilling sites that are growing or anticipated to grow based on new requirements by Pennsylvania regulators designed to reduce the discharge of wastewater, and there is no indication that any need exists to landfill increased volumes of conventional waste. It is important to disclose with specificity the reasons for the proposed modification because, as discussed at greater length below, the addition of increased volumes of oil or gas drilling wastes has the potential to adversely affect emissions.

Failure to estimate the potential effect on emissions of increased disposal of oil or gas drilling wastes renders (3), the applicant’s description of the impacts from the proposed modification upon the facility as presently permitted, inadequate. For example, potentially hazardous constituents in fluids accompanying such wastes, including the effect of such constituents on air toxics emitted from the landfill were not considered. Nor were the effects of a waste rate increase on emissions from waste hauling trucks and landfill heavy equipment subject to an increased duty cycle considered. Instead, according to the SEQRA Environmental Assessment Form (EAF) submitted by Hyland, the increased use of fuels for waste transport and disposal operations at the Hyland Landfill will be offset by a reduction in fuel use for transport and disposal at other regional landfills.²⁵ Also, in response to Department questions, Hyland asserts that the increased disposal rate will not require any change in the number of pieces of heavy equipment, their duty cycle, or the personnel required to manage the increased rate.²⁶ However, no analysis or information supporting these assertions was provided, such as evidence that waste acceptance rates at other landfills would be diminished by an increased waste rate at Hyland.

According to its 2011 Annual Report, Hyland began accepting Marcellus Shale drill cuttings in October 2010. In 2012 the Department modified Hyland’s Part 360 operating permit

²³ Hyland, Permit Modification Application, dated October 23, 2007, 2.

²⁴ See McKinney’s Cons. Laws of N.Y., Book 1, Statutes, §§ 144 (“Statutes will not be construed as to render them ineffective.”), 231 (“... words are not to be rejected as superfluous when it is practicable to give to each a distinct and separate meaning”).

²⁵ Hyland Landfill, Permit Modification Application [to Part 360 Permit], October 23, 2007, Appendix B (EAF, Part 1, Response to Question A.21).

²⁶ Michale J. Mann, P.E., McMahan & Mann, PC, Letter to Joseph Boyles, Hyland, July 6, 2010 (responding to DEC comments).

to allow the disposal of solidified wastewater, sludges, filtrates and other residuals from recycling or treatment of produced water and “frac fluid” generated at Marcellus Shale drilling sites. Hyland also accepts soils contaminated by spills at oil and gas drilling sites. Hyland also accepts “pad liners and deconstruction wastes from the well sites.”²⁷ Hyland acknowledges that these waste streams “[m]ay have higher levels of NORM [naturally occurring radioactive materials]” than other approved waste streams.²⁸

Because higher levels of NORM can occur in such wastes, and because under the proposed permit modifications Hyland could utilize all the increased waste rate to accept such wastes, as an industrial discharger Hyland could be responsible for illegal interference or pass-through of radioactivity at publicly-owned treatment works (POTWs) that receive the landfill’s leachate.²⁹ The concentration of radioactivity in leachate Hyland transports for pretreatment and treatment at POTWs can be expected to increase as a result of the requested increase in Hyland’s waste acceptance rate. The Department has reported that EPA measured values of radioactivity for Marcellus Shale flowback water (brine) of 9,000 picocuries per liter, or 9,000 times the natural radiation in normal well water, and over 100,000 picocuries per gram (pCi/g) for pipe and tank scale.³⁰ Strontium, Barium and Bromine “are highly specific signatures of flowback and produced waters [from Marcellus Shale sites in Pennsylvania, and] . . . the ratio of ⁸⁷Sr/⁸⁶Sr may

²⁷ These waste streams are identified as approved wastes in Hyland’s expansion permit.

²⁸ Mark P. Millspaugh (Sterling Environmental Engineering, P.C.) and Larry Shilling (Casella Waste Systems), “Hydrofracking and Engineering Issues” (November 12, 2012), 27, attached hereto as **Exhibit A**.

²⁹ Centralized waste treatment plants, including pretreatment plants, are not designed to remove radionuclides, and discharge of “NORM associated with oil and gas extraction . . . that requires a change of disposal practice (e.g., radioactivity, etc.) is considered to be interference under the pretreatment program.” Memorandum from James Hanlon, Director of EPA’s Office of Wastewater Management to the EPA Regions, “Natural Gas Drilling in the Marcellus Shale under the NPDES Program, Attachment, 16, available at <<http://cfpub.epa.gov/npdes/hydrofracturing.cfm>> (citing 40 C.F.R. §§ 403.3(k)(2), 403.5(a)(1)). Discharge of “radioactive wastes” is prohibited under 40 C.F.R. § 403.5(b). Cf. EPA, *Guidance Manual for the Identification of Hazardous Wastes Delivered to Publicly Owned Treatment Works by Truck, Rail, or Dedicated Pipe*, No. 833B87100 (June, 1987), C-3, available at <<http://www.epa.gov/npdes/pubs/owm0190.pdf>>.

³⁰ NYSDEC, REVISED DRAFT SUPPLEMENTAL GENERIC ENVIRONMENTAL IMPACT STATEMENT ON THE OIL, GAS, AND SOLUTION MINING REGULATORY PROGRAM (Sept. 7, 2011), section 5.2.4.2, available at <<http://www.dec.ny.gov/data/dmn/rdsgeisfull0911.pdf>> (hereafter, 2011 dSGEIS).

be an isotopic fingerprint of Marcellus Shale waters.”³¹ Strontium is not on the list of expanded parameters for which Hyland must test its leachate.³² Nor are most of the dozens of chemicals the Department has identified as potentially contained in flowback and produced waters from Marcellus Shale sites in Pennsylvania.³³ In addition, the Department believes “little information is available to document whether and at what concentrations most fracturing chemicals occur in flowback water.”³⁴

Much of the concern with wastewater and wet wastes from the Marcellus Shale industry is addressed to Radium-226, which is soluble in water. In its 2011 dSGEIS addressing high-volume hydro-fracking, the Department found that brine returned from Marcellus shale drilling sites had concentrations of Ra-226 ranging from 7,885 (\pm 1,568) to 16,030 (\pm 2,995) pCi/L.³⁵ We are reliably informed that Marcellus Shale drill cuttings are accepted at Hyland wet, the particles being coated with return water from drilling operations that can be expected to exhibit this range of Ra-26 concentrations. Considering that Hyland is permitted to accept Marcellus Shale industry wastewater solidified to 20% solids (thus, 80% liquids), substantial volumes of liquid saturated with Ra-226 could be disposed in the landfill. We are also reliably informed that no POTW in New York is licensed to, or is capable of removing radioactivity from wastewater influent. However, there is no indication the Department has considered the impact of approving Hyland’s request on the radiological character of the landfill’s leachate.

According to its 2012 Annual Report, Hyland trucks leachate to the Wellsville and Steuben County POTWs, which discharge the treated effluent to the Genesee River and the Cohocton River, respectively.³⁶ Because increased concentrations of radioactivity will pass through or

³¹ R.D. Vidic et al., “Impact of Shale Gas Development on Regional Water Quality,” 340 SCIENCE 826 (May 2013).

³² See 6 N.Y.C.R.R. § 2.11(d)(6); Hyland’s Part 360 Permit (mod 5), Special Cond. 70).

³³ See 2011 dSGEIS, Ch. 5.

³⁴ *Id.*, 5-100.

³⁵ 2011 dSGEIS, Appendix 13.

³⁶ We do not know whether Hyland’s leachate is analyzed for radionuclides and other toxic compounds known to be contained in Marcellus Shale industry wastes, (see 6 N.Y.C.R.R. § 2.11(d)(6); Hyland’s Part 360 Permit (mod 5), Special Cond. 70), but our concern is heightened by a recent report that the lab Hyland uses to analyze wastewater transported to the Wellsville POTW has pled guilty in federal district court to falsifying hold times for samples for Hyland for the last three years. John O’Brien, *East Syracuse lab admits falsifying water, soil tests through backdating*, THE POST-STANDARD (Syracuse, NY), July 17, 2013, available at <http://www.syracuse.com/news/index.ssf/2013/07/east_syracuse_lab_admits_fraudulating>

interfere with the operation of these POTWs, item (4), whether the facility will be capable of compliance with applicable requirements has not been demonstrated.

Failure to disclose the need for the permit modification violates SEQRA.

Because CCAC believes the requested permit modification results in potentially significant air and other environmental and health impacts, we submit that an EIS is required under SEQRA.³⁷ However, the Department has not considered whether there is a *public* need for the modification, as would be required if an EIS is necessary.³⁸

Prior to enactment of SEQRA, the Appellate Division, Third Department, annulled that part of a DEC decision to deny a water supply permit based on the lack of public necessity. The court held that “public necessity” in the applicable statute means “the public’s need *for the particular water supply proposed*,” not “the needs of the people of the State as a whole.”³⁹ This is consistent with the interpretation of SEQRA provided by a former counsel to DEC:

The business judgments formulating the private need are influenced by such factors as the applicant’s ability to acquire rights to property in the form of purchase options, financing and the attendant profit-loss assessment, and so forth. Often, an applicant can induce a private need through advertising or promotion. *Public need, on the other hand, may be viewed as an identifiable benefit offered to the population of a given locale* in the form of a service, facility, or opportunity, the absence of which is producing a hardship. Public need is not something to be induced. Public need exists separate and apart from any given project proposal and may, in fact, be one of the inducements for the proposal.⁴⁰

[water soil tests.html](#)>.

³⁷ The Department is authorized to seek additional information as SEQRA lead agency. *Cf.* 6 N.Y.C.R.R. § 360-1.8(b). *See also* 6 N.Y.C.R.R. §§ 360-1.9(a)(2), (c)(4) (permit modifications).

³⁸ 6 N.Y.C.R.R. § 617.9(b)(5)(i) (the description of the proposed action in an EIS must include the action’s “purpose, public need and benefits, including social and economic considerations”). *See* Gerrard, Ruzow, Weinberg, ENVIRONMENTAL IMPACT REVIEW IN NEW YORK (Matthew Bender) § 5.06[2].

³⁹ *Ton-Da-Lay, Ltd. v. Diamond*, 44 A.D.2d 430, 435 and 436, 355 N.Y.S.2d 820, 825 (3d Dep’t), appeal dismissed, 35 N.Y.2d 789, 362 N.Y.S.2d 156 (1974) and 36 N.Y.2d 856, 370 N.Y.S.2d 918 (1975).

⁴⁰ Gerrard, Ruzow, Weinberg, ENVIRONMENTAL IMPACT REVIEW IN NEW YORK § 5.06[2] (quoting Ulasewicz, *The Department of Environmental Conservation and SEQRA: Upholding its*

Even if an EIS is not necessary, the Department remains obligated to consider the public need for the modification under SEQRA's mandate to "balance . . . social, economic and environmental factors" in Department decisions.⁴¹

Because, as discussed previously, the real reason for the requested modification is to exploit a growing market for management of Marcellus Shale industry wastes, and because the Department has held in abeyance any decision on whether to allow this industry in New York, in important part due to the inadequately understood impacts of managing the industry's wastes,⁴² approval of the request would circumvent the Department's ongoing review of such waste management issues. In advance of the conclusion of that review it cannot be said that there is any local or statewide public need to increase landfilling of such wastes.

Hyland's emissions calculations are seriously flawed.

EPA has said that landfills that meet the size threshold of the Landfills NSPS "will most often be major sources" based on their NMOC emission rate.⁴³ For example, "the components of MSW landfill emissions that are emitted as photochemically reactive VOCs are regulated, as applicable, under the nonattainment provisions for ozone contained in part D of title I of the

Mandates and Charting Parameters for the Elusive Socio-Economic Assessment, 46 ALB. L. REV. 1255, 1280 (1982) (emphases added). See also *Taxpayers Opposed to Floodmart, Ltd. v. City of Hornell Indus. Dev. Agency*, No. 69484 (Steuben Co. 1994), rev'd on other grounds, 212 A.D.2d 958, 624 N.Y.S.2d 689 (4th Dep't), lv. to appeal denied, 85 N.Y.2d 812 (1995) (industrial development agency's EIS for proposed shopping center properly considered public need requirement and such consideration does not address exclusively economic concerns).

⁴¹ 6 N.Y.C.R.R. § 617.1(d). Cf. *In re Bonded Concrete, Inc.* (DEC Comm'r Decision, Apr. 9, 1984) (an analysis of the demand for sand and gravel in the area was needed in order to undertake the SEQRA balancing process).

⁴² Over 50 applications for horizontal wells drilled into the Marcellus and other shales have been submitted to the Department but remain on hold pending the completion of the DEC's Supplemental Generic Environmental Impact Statement (SGEIS) on the Oil, Gas and Solution Mining Regulatory Program. NYSDEC Division of Mineral Resources, NEW YORK STATE OIL, GAS AND MINERAL RESOURCES, 2009, 18. This year, Pennsylvania Department of Environmental Protection (PADEP) has initiated a study of the effects of disposal of Marcellus Shale industry wastes in landfills. See below, pp. 20-22.

⁴³ 61 Fed.Reg. 9905, 9912 (March 12, 1996).

CAA,⁴⁴ also known as nonattainment New Source Review (NSR).⁴⁵ Nearly all of New York, including all of western New York, is designated a nonattainment area for ozone.⁴⁶ Accordingly, western New York is regulated under the Act as nonattainment for VOC and NO_x, chemical precursors to ozone, requiring major sources to obtain a preconstruction permit under the NSR program.

A modification of an existing major stationary source will subject the source to preconstruction permitting if the modification results in a significant net emissions increase of any pollutant.⁴⁷ The significance level for NO_x is 40 tpy, the significance level for VOC is 40 tpy, the significance level for NMOC is 50 tpy.⁴⁸ Accordingly, a modification that increases the potential to emit NMOC by 50 tpy subjects a major source to preconstruction permitting.⁴⁹ A modification that increases the potential to emit NO_x or VOCs by 40 tpy subjects the source to preconstruction permitting.⁵⁰

A source in New York is major under the nonattainment NSR program if it emits 100 tpy of VOCs. A source is major under the NESHAP program if it emits 10 or more tons per year of any one of 188 HAP regulated pursuant to Section 112 of the Act,⁵¹ or 25 or more tons per year of a combination of HAP.⁵² As previously noted, if the NESHAP program applies, planning, monitoring and reporting requirements are triggered that are more stringent than those required under the Landfills NSPS.

Hyland's emissions calculations on which the current and proposed modified Title V

⁴⁴ *Id.* at 9913.

⁴⁵ An MSW landfill located in a nonattainment area for ozone is considered to be a major stationary source if it would release at least 100 tons per year (tpy) of VOC or NO_x, or if it undergoes a design change that increases its potential to emit VOC or NO_x at least 100 tpy. 40 C.F.R. §§ 52.24(f)(4)(i), 51.165(a)(1)(iv)(A), (B).

⁴⁶ 42 U.S.C. § 7511c(a). See 6 N.Y.C.R.R. § 231-2.1(b)(24).

⁴⁷ 40 C.F.R. §§ 51.166(b)(2), 51.165(a)(1)(v), 52.21(b)(2)(i).

⁴⁸ 40 C.F.R. §§ 52.21(b)(23)(i), 51.166(b)(23)(i).

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ *Cf.* 42 U.S.C § 7412(b).

⁵² 42 U.S.C § 7412(a)(1).

permits rely are flawed in several respects such that correcting the flaws is likely to result in applicability of all the programs listed above. Specifically, in its calculations Hyland has (1) impermissibly subtracted non-putrescible waste from the waste it has and will landfill, and (2) has without adequate support deviated from default inputs to the emissions estimation model that forms the basis for the current and proposed modified Title V permits.

The LandGem emissions estimation model

Under the Landfills NSPS annual emissions must be calculated using equations provided in the regulation.⁵³ These equations are incorporated into the LandGem model provided by EPA for use on a personal computer.⁵⁴

Modeling is an imprecise way to estimate emissions. It has been found that “direct field measurements of landfill CH₄ emissions at small scale (<1m²) can vary over seven orders of magnitude (0.0001– >1000 g CH₄/m²/d) depending on waste composition, cover materials, soil moisture, temperature and other variables.”⁵⁵ EPA has approved a direct measurement method that improves significantly on LandGem’s uncertainty. Hyland’s emissions estimation relies on LandGem rather than direct measurements.

Users of LandGem must select from two different sets of default parameters:

CAA Defaults—The CAA defaults are based on requirements for MSW landfills laid out by the Clean Air Act (CAA), including the NSPS/EG and NESHAP. This set of default parameters yields conservative emission estimates and can be used for determining whether a landfill is subject to the control requirements of the NSPS/EG or NESHAP.

Inventory Defaults—With the exception of wet landfill defaults, the inventory defaults are based on emission factors in the U.S. Environmental Protection Agency’s (EPA’s) Compilation of Air Pollutant Emission Factors (AP-42). This set of defaults yields average emissions and can be used to generate emission estimates for use in emission inventories and air permits in the absence of

⁵³ See 40 C.F.R. § 60.754.

⁵⁴ EPA, Landfill Gas Emissions Model (LandGEM) Version 3.02, available at <http://www.epa.gov/ttnatw01/landfill/landflpg.html>.

⁵⁵ J. Bogner, et al., “Waste Management,” in: CLIMATE CHANGE 2007: MITIGATION. CONTRIBUTION OF WORKING GROUP III TO THE FOURTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds.)], Cambridge University Press, p. 600a.

site-specific test data.⁵⁶

The input values to LandGem include the following CAA default values:

methane generation constant (k):	0.05
methane gen. potential (L ₀):	170
NMOC concentration:	4,000 ppmv
LFG collection efficiency:	75%

Hyland input the following values into LandGem:⁵⁷

methane generation constant (k):	0.05
methane gen. potential (L ₀):	100
NMOC concentration:	211 ppmv
LFG collection efficiency:	75%

In addition, users of the model must enter the site-specific design capacity and the annual waste acceptance rates. However, Hyland improperly discounted the model inputs for design capacity and for waste acceptance rate.

Hyland improperly discounted its design capacity.

Hyland's design capacity is 14,169,300 cubic yards.⁵⁸ EPA guidance for converting cubic yards of waste that has degraded and settled in a landfill to tonnage assumes a waste mass density in the range of 1,700 to 1,900 pounds per cubic yard.⁵⁹ Using the middle of the range, or 1,800 lbs./cu.yd.,⁶⁰ the lifetime design capacity value input to LandGem should be 12,752,370 tons.

⁵⁶ EPA, LANDFILL GAS EMISSIONS MODEL (LANDGEM) VERSION 3.02 USER'S GUIDE, EPA-600/R-05/047 (May 2005), 1-2 (hereafter, *LandGem User's Guide*).

⁵⁷ Hyland, Title V Permit Modification Application, Appendix D, Attachment 1. Notes that in its 2010 Tier 2 NMOC Emissions Rate Report, Attachment 8, *discussed further below*, Hyland used the correct default value, 170.

⁵⁸ *See above*, note 4. The previous design capacity was "approximately 2.71 million cu. yds." (or approximately 4.88 million tons, 4.43 million Mg). Part 360 Permit, 1, dated March 6, 2006.

⁵⁹ EPA, Emission Inventory Improvement Program, Vol. VIII, Chap. 5: *Methods for Estimating Greenhouse Gas Emissions From Municipal Waste Disposal* (Oct. 1999), p. 15.4-2.

⁶⁰ This is consistent with LandGem's conversion factor, 0.909 Mg/ton. *See Hyland*, Title V Permit Application, at 2.n.1. This is also likely to be a liberal conversion factor for Hyland, as

However, Hyland's application calculates the input as 9,567,778 tons (approximately 8.7 million Mg),⁶¹ because Department Staff agreed to allow the removal of "beneficial use determination" (BUD) materials and drill cutting material that was less likely to produce landfill gas.⁶² Accordingly, non-construction and demolition debris (C&D) BUD materials and drill cuttings were excluded from the design capacity.

Excluding these materials from the design capacity is not warranted. Properly documented cells of nondegradable material can be excluded if the amount of NMOC emissions from those cells are less than 1% of the total NMOC emission from the landfill.⁶³ This requirement is based on the fact that wastes containing organic compounds contribute to the NMOC fraction of LFG when they are mixed with degradable waste, regardless of whether the organic wastes are themselves degradable.⁶⁴ No documentation was provided by Hyland demonstrating that any cells of the landfill that received only nondegradable waste emit less than 1% of total NMOC emissions. Therefore, the design capacity input to Hyland's emissions estimation model was improperly discounted.

Hyland improperly discounted its waste acceptance rate.

Hyland's waste acceptance rates must also be reevaluated. In addition to design capacity, LandGem requires annual waste acceptance rates to be entered. Future waste acceptance rates are entered based on the maximum permitted acceptance rate.

The draft permit, like the current operating permit, allows up to 30% of the approved waste

we are reliably informed that Hyland's growing Marcellus Shale industry waste streams are approximately four times as dense as MSW and industrial solid waste, the primary approved waste streams for this landfill.

⁶¹ Hyland, Title V Permit Application, at 2.

⁶² Id., Appendix C, Table 1. The same design capacity value was input to LandGem for the current Title V permit.

⁶³ 40 C.F.R. § 60.759(a)(3)(i).

⁶⁴ Cf. *LandGem User's Guide*, 44 ("As landfill gas passes through the waste, it sweeps NMOCs and other air pollutants present in the waste to the surface."). Cf. also below, EPA as quoted in text at note 91 ("The organic compounds in the decomposing waste are stripped from the waste by these gases and transported to the surface, or the organic compounds travel underground to other locations prior to their release."); EPA, *Air Emissions from Municipal Solid Waste Landfills - Background Information for Final Standards and Guidelines*, EPA-453/R-94-021 (December 1995), 1-2 ("The methane strips or transports NMOC through the landfill to the atmosphere.").

acceptance rate to be added to the landfill as alternative daily cover (ADC, 20%) and bedding materials for access roads on the landfill surface (10%) (road BUD).⁶⁵ Both ADC and road bedding materials are authorized under a “beneficial use determination” (BUD) by the Department. Hyland’s Title V Application asserts that the requested increase “would not increase the beneficial use determination (BUD) materials acceptance rate . . .”⁶⁶ However, this is manifestly false: increasing the annual waste acceptance rate from 312,000 tons to 465,000 tons would authorize road BUD materials to increase from a maximum of 93,600 tons to a maximum of 139,500 tons per year.

EPA guidance states: “If a facility has documentation that a certain segment (cell) of a landfill received *only* nondegradable refuse, then the waste from this segment of the landfill can be excluded from the calculation of R [waste acceptance rate].”⁶⁷ The LandGem *User’s Guide* states:

Landfill gas emission factors were developed using empirical data from U.S. MSW landfills. The composition of waste in the landfills reflects U.S. waste composition including MSW, inert material, and other non-hazardous waste streams. For a landfill that may have a portion containing non-biodegradable waste (i.e., inert material), such as ash from waste combustion, this portion may be subtracted from the Waste Acceptance Rates depending on documentation and approval from a regulatory authority. However, this is not recommended for sites that are typical of MSW landfills containing a range of waste that may or may not be degradable. This is because the emission factors were developed relating total waste quantity to total quantity of landfill gas.⁶⁸

Thus, if there are “organic compounds in the decomposing waste,”⁶⁹ their transport out of the landfill in LFG must be included in emissions estimations. This is also recognized in EPA’s requirement to use a default value four times higher for NMOC concentration at a “co-disposal” landfill—a landfill that may have disposed hazardous waste with MSW, even if not

⁶⁵ Cf. Hyland, cover letter to Title V application, dated February 22, 2011, p. 1; Hyland, Title V Application, Section III.

⁶⁶ Title V Application, Appendix D, at p. 2.

⁶⁷ EPA, Draft AP-42, *Compilation of Air Pollutant Emission Factors*, ch. 2, 2.4-5/4-6, <<http://www.epa.gov/ttn/chief/ap42/ch02/draft/d02s04.pdf>> (emphasis in orig.).

⁶⁸ LandGem *User’s Guide*, 24.

⁶⁹ EPA, as quoted in text at note 91.

biodegradable—compared to the appropriate value for a conventional MSW landfill.⁷⁰

Because EPA interprets waste acceptance rate to include all materials mixed with landfilled wastes, and because Hyland has provided no documentation showing that landfilled materials it excluded from the waste acceptance volumes entered into the LandGem model were not mixed with MSW, to determine whether the Landfill NSPS applies requires that corrected waste rates be entered into new LandGem model runs.

Hyland improperly discounted its methane generation potential.

The Potential Methane Generation Capacity (L_0) value differs depending on whether the landfill is located in an arid area. “Arid area landfills are located in areas that receive less than 25 inches of rainfall per year.”⁷¹ The default L_0 value is 170 for conventional landfills, 100 for landfills located in an arid area.⁷² Hyland’s use of 100, the LandGem arid climate value for this parameter, is therefore improper.⁷³

Hyland’s NMOC concentration rate is not adequately supported.

The Landfills NSPS allows deviations from the default value for the landfill’s NMOC concentration rate under certain circumstances. When the NMOC emission rate calculated with the default value (4,000 ppmv) exceeds 50 Mg/yr., the owner or operator of the landfill may avoid applicability of the NSPS performance requirements by conducting “Tier 2” testing to determine a source-specific NMOC concentration to enter into the required emissions estimation equations (using LandGem).⁷⁴ Tier 2 sampling directly from the gas removal system is available in lieu of gas probes installed into the landfill at a density of two probes per hectare, “provided the removal system can be shown to provide sampling as representative as the two sampling probe per hectare requirement.”⁷⁵

⁷⁰ LandGem *User’s Guide*, 17.

⁷¹ *Id.*, 16.

⁷² *Id.*, 17.

⁷³ Hyland also improperly input the arid climate value (100) for methane generation rate in its 2006 run of the LandGem model, in order to avoid applicability at that time. See Hyland Landfill, DRAFT ENVIRONMENTAL IMPACT STATEMENT, Appendix G, 11 (June 2006) (hereafter, Hyland DEIS). LandGem version 2.0 was used at that time, but the arid climate and conventional climate values are the same as in current version 3.02.

⁷⁴ See 40 C.F.R. § 60.754(a)(3).

⁷⁵ 40 C.F.R. § 60.754(a)(3).

In the first instance, since Hyland does not comply with the NSPS performance standards, it has not installed as many gas wells, with the density of well placements required under the standards. Under standards, wells must be placed in “sufficient density” to “control all gas producing areas.”⁷⁶ As noted *below*, Hyland’s last Tier 2 test in 2010 did not sample gas from Cell 3 of the landfill, which had been receiving waste since 2008. It cannot therefore show that sampling for NMOC concentration directly from its gas removal system would be as representative as the two sampling probe per hectare requirement.⁷⁷ Indeed, the results Hyland obtained from sampling suggest that the system does not collect gas representative of what is generated by all areas of the landfill.

The Draft Title V Permit relies on a 2010 Tier 2 analysis purporting to show the NMOC concentration is 211 ppmv.⁷⁸ This value is outside the range of the 23 landfills EPA tested and which provide the data basis for LandGem.⁷⁹ That is, a purported NMOC concentration of 211 ppmv is out of bounds for the design limits of the model. It is therefore likely that the results of sampling reflect a poorly designed and operated gas removal system rather than valid data.⁸⁰

This was the third Tier 2 analysis submitted by Hyland, following a Tier 1 analysis that showed an exceedence of the 50 Mg/yr. NMOC emissions rate threshold.⁸¹ Hyland completed a Tier 2 test on August 24, 2007 purporting to show the uncontrolled NMOC emission rate was 11 Mg/yr. (based on an NMOC concentration in samples of 119 ppmv),⁸² and another Tier 2 test on

⁷⁶ 40 C.F.R. §§ 60.759(a), (a)(3).

⁷⁷ *Id.*

⁷⁸ *See* Hyland, Title V Modification Application, Appendix C, Table 4; Hyland, Tier 2 Landfill Gas Sampling and NMOC Emission Rate Report, dated September 2010 (hereafter, 2010 NMOC Emission Rate Report).

⁷⁹ *Id.*, 46 (“The NMOC concentrations from 23 landfills ranged from 240 to 14,300 ppmv.”).

⁸⁰ It should be noted that the initial gas analysis Hyland submitted upon commencing operation of its gas removal system was clearly invalid, as it showed nitrogen content 30.1%, carbon dioxide 31.8%, and methane 38.0%, based on one sample collected on December 29, 2005. Atlantic Analytical Laboratory, “Gas Analysis Report, for Landfill Gas Sample–Angelica”, dated January 12, 2006. Importantly, “using LandGEM at landfills that have methane content outside the range of 40 to 60 percent is not recommended.” *LandGem User’s Guide*, 17-18.

⁸¹ 2009 Title V Permit, Item 24.2.

⁸² Sanborn, Head Engineering, PC, *New Source Performance Standards for MSW Landfills Tier 2 LFG Testing and NMOC Emission Rate Report*, Hyland Facility Associates

July 7, 2008 purporting to show the uncontrolled NMOC emission rate was 29 Mg/yr.⁸³ None of these Tier 2 samples included Cell 3, which was permitted in 2006 and began accepting waste in 2008,⁸⁴ because no wells were installed in Cell 3 at the time of sampling.⁸⁵ Thus, Hyland can be expected to experience an increasing NMOC concentration as gas wells in Cell 3 are brought on line, compared to the results of 2010 sampling.

Conclusion: Hyland is bound by its Tier 1 NMOC Emission Rate Report

All three of Hyland's purported Tier 2 analyses are out of bounds for LandGem, indicating the landfill has not been well-designed and well-operated and rendering the analyses invalid. Indeed, because Hyland has not complied with the gas well density requirement under the Landfills NSPS, it should not be allowed to take advantage of the model assumption that 75% of the LFG generated by the landfill is being collected, further undermining the validity of its purported Tier 2 tests.⁸⁶ Since no valid Tier 2 analysis has been performed, Hyland is subject to the Tier 1 NMOC estimation procedure which it submitted to the Department. Even with its erroneous and substantially discounted NMOC concentration, the Tier 1 report resulted in exceeding the 50 Mg/yr. NMOC emission threshold, requiring full compliance with the NSPS and NESHAP programs.

The Draft Title V Permit impermissibly relaxes annual NMOC emissions monitoring

Hyland's 2010 Tier 2 report states that a five-year estimate showing NMOC emissions would not exceed 50 Mg/yr. during that period allows the landfill to relax the annual NMOC monitoring schedule from annually to every five years under the Landfill NSPS.⁸⁷ Hyland therefore requested the relaxed NMOC monitoring schedule and, on September 28, 2010, the

Landfill (September 2007), 2.

⁸³ 2009 Title V Permit, Item 24.2.

⁸⁴ See 2010 NMOC Emission Rate Report, Attachment 7. Waste was accepted in 2009 and thereafter only in Cell 3, and annual disposal rates were approximately the combined annual disposal rates in Cells 1 and 2 (for 2004-2009). *Id.*

⁸⁵ See 2012 Annual Report, Section 9; 2010 NMOC Emission Rate Report, Fig. 1. Hyland added six gas wells after its 2010 Tier 2 sampling. 2010 NMOC Emission Rate Report, 2-3.

⁸⁶ LandGem assumes a 75% LFG collection efficiency, but that presumes the landfill is completely served by a gas collection system. EPA, *Compilation of Air Pollutant Emission Factors, AP-42*, 5th Edition (1998), 2.4-6.

⁸⁷ 2010 NMOC Emission Rate Report, 2.

Department accepted Hyland's request.⁸⁸ Accordingly, the proposed Title V modification allows the relaxed five-year NMOC monitoring schedule, modifying the current permit requirement to monitor annually. By doing so, the Department has impermissibly relaxed applicable standards requiring an annual NMOC emission rate report.

The landfills NSPS does not allow such relaxed reporting unless five "consecutive years" of *annual reports* all show the rate of emissions would not exceed 50 Mg/yr.⁸⁹ Otherwise, NMOC monitoring and reporting is required annually.⁹⁰ Alternative monitoring requests that would relax applicable requirements are generally impermissible.⁹¹ Since Hyland has not conducted five annual NMOC emissions tests (indeed, it is currently out of compliance with the annual NMOC monitoring and reporting requirements), it must continue to test annually for potential NMOC emissions.

Annual testing is important at this facility because, as previously noted, Hyland can be expected to experience growing annual gas generation rates. Given the elevated waste acceptance rates in 2009 and thereafter (reflecting the expanded design capacity approved in 2006), NMOC emissions for 2013 can be expected to be elevated compared to the calculations provided in the 2008 NMOC emission rate report. Since the 2008 report calculates NMOC to be 47.29 Mg/yr. in 2013,⁹² a recalculation using corrected default values is likely to result in NMOC emissions exceeding 50 Mg/yr. in 2013.

The Department's Title V Permit Report is deficient

The information discussed above regarding the basis for the emissions estimation on which the current and draft Title V permits rely is not provided in the permits nor can it be found in the Department's permit report accompanying the draft permit. DEC's permit report requires "a statement that sets forth the legal and factual basis for the draft permit conditions (including references to the applicable statutory and regulatory provisions)."⁹³ To evaluate conditions

⁸⁸ See Hyland, Semi-Annual Monitoring Report [for Title V Permit No. 9-0232-00003/00012, July 1 to December 31, 2011], dated January 23, 2012, re: Condition 24.

⁸⁹ See 40 C.F.R. § 60.752(b)(1)(ii).

⁹⁰ 40 C.F.R. § 60.752(b). See also 40 C.F.R. §§ 60.754(a)(2)(i), 60.757(b)(1)(i).

⁹¹ See George T. Czerniak, EPA Region 5, Letter to Kyle Nay, Cornerstone Environmental Group, LLC, "Re: Lee County Landfill," December 20, 2007, available at <<http://cfpub.epa.gov/adi/pdf/adi-nsps-0800020.pdf>>.

⁹² 2010 NMOC Emission Rate Report, 2.

⁹³ 40 C.F.R. § 70.7(a)(5).

included in the draft permit, the Tier 2 analysis on which the proposed Title V permit modification relies must be described in the permit report.⁹⁴ Because only the numerical results of Tier 2 testing but nothing about the factual conditions of the testing is provided, DEC is in violation of Title V requirements.

The impact on emissions of toxic and radioactive constituents in nonconventional waste streams was not considered

Both the character of emissions and the rate of generation of emissions are affected by type and volume of nonconventional waste streams Hyland accepts. However, there is no indication the Department has considered the effect of nonconventional waste streams on Hyland's emissions.

Waste streams containing toxic organic compounds can be expected to increase the NMOC emission rate at a landfill. According to EPA:

Typical municipal solid waste contains household and commercial rubbish, paints, solvents, pesticides, and adhesives, which contain numerous organic compounds. During the decomposition process, landfill gas is generated. This gas is primarily composed of methane and carbon dioxide. The organic compounds in the decomposing waste are stripped from the waste by these gases and transported to the surface, or the organic compounds travel underground to other locations prior to their release.

A second but significantly lesser source of emissions of HAP [hazardous air pollutants] comes from the collection, storage and treatment of landfill leachate. Landfill leachate is a liquid generated during the waste decomposition process. This liquid contains a much smaller concentration of the same HAP contained in landfill gas. During collection, storage and treatment, small amounts of HAP may volatilize to the air or may come in contact with groundwater.

Regardless of the emission pathway, it is the decomposition of organic-containing solid waste that is the source of the HAP. Landfills have been identified as the source of nearly 30 HAP, including but not limited to toluene, ethyl benzene, vinyl chloride and benzene. Estimated uncontrolled emissions from

⁹⁴ For example, as is the case at Hyland, if a gas collection system was already installed, Tier 2 LFG samples may be taken from the common header collecting the gas, but at least three samples of LFG must be collected from a site located prior to any gas moving or condensate removal equipment. 40 C.F.R. § 60.754(a)(3). Since no description of the Tier 2 analysis on which the draft Title V permit modification relies accompanies the draft permit, the public is unable to evaluate the methods and results of the analysis.

all landfills can be as high as 36,000 tpy.⁹⁵

Pennsylvania DEP has recently found that “[t]he drilling industry production and flowback water, as well as drill cuttings and sources of off gassing (e.g. drill cuttings), are potentially impacted with naturally occurring radioactive material (NORM) and/or technologically enhanced naturally occurring radioactive material (TENORM).”⁹⁶ Accordingly, on January 24, 2013, PADEP announced a comprehensive study of radioactivity in materials associated with oil and gas development, including radioactivity in materials disposed in landfills and the effect of such materials on the radioactivity of landfill leachate and the effluent from treatment plants receiving landfill leachate.⁹⁷ The study “is expected to take 12 to 14 months.”⁹⁸

According to PADEP’s Bureau of Radiation Protection, “residual or industrial waste containing NORM, TENORM or other types of radioactive material” are among the “credible routes to the waste stream” that cause “alarm events with radiation monitoring of the municipal waste stream in Pennsylvania.”⁹⁹ When this guidance was issued in 2004, it was PADEP’s view that “[m]ost of the alarm events with radiation monitoring of the municipal waste stream in Pennsylvania have been from short-lived isotopes often used in medical procedures.”¹⁰⁰ However, recently it was reported that at Pennsylvania landfills “[b]etween 2009 and 2012, radiation alarms went off 1,325 times in 2012, with more than 1,000 of those alarms just from oil

⁹⁵ 65 Fed.Reg. 66672, 66675 (Nov. 7, 2000) (proposed NESHAP standards for MSW landfills to control HAPs and nonhazardous air pollutant volatile organic compound (VOC) emissions).

⁹⁶ PADEP, TENORM Study Scope of Work (April 3, 2013), 1, available at <http://www.portal.state.pa.us/portal/server.pt/community/oil_gas_related_topics/20349/radiation_protection/986697>. PADEP has defined TENORM as materials “whose radionuclide concentrations or potential for human exposure have been increased above levels encountered in the undisturbed natural environment by human activities.” *Final Guidance Document on Radioactivity Monitoring at Solid Waste Processing and Disposal Facilities*, PADEP Doc. No. 50-3100-001 (January 2, 2004), 4.

⁹⁷ PADEP, “DEP Announces Comprehensive Oil and Gas Development Radiation Study” (January 24, 2013), available at <<http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/RadiationProtection/rls-DEP-TENORMStudy-012413.pdf>>.

⁹⁸ *Id.*

⁹⁹ PADEP, FINAL GUIDANCE DOCUMENT ON RADIOACTIVITY MONITORING AT SOLID WASTE PROCESSING AND DISPOSAL FACILITIES, 5 (January 2, 2004), available at <<http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-48337/250-3100-001.pdf>>.

¹⁰⁰ *Id.*

and gas waste, according to data from the Department of Environmental Protection.”¹⁰¹

On April 3, 2013, PADEP confirmed that the scope of its proposed TENORM study includes the quantification of potential radioactivity of several waste streams that are disposed at Hyland, and whose disposal would likely increase as a result of approval of the current request to increase Hyland’s waste acceptance rate. Sludge from the treatment of Marcellus shale industry wastewater “will be analyzed for gross alpha and beta and by gamma spectroscopy to identify TENORM radionuclides.”¹⁰² “Approximately 10% of the samples, based on the gross alpha and beta, and gamma spectroscopy results, will also be analyzed by alpha spectroscopy for uranium (U- 238, U-235 and U-234), thorium-232, radium (Ra-226 and Ra-228) and for any unsupported decay chain radionuclides; and for radon (Rn-220 + Rn-222).”¹⁰³

“Based on the results of the first round of waste water treatment plant sampling, loads of sludge from selected facilities will be followed to the landfill disposal sites and resampled to evaluate the effects of the transportation of that material as part of the second round of sampling of these facilities.”¹⁰⁴

“Landfill leachate will be sampled at each of the 54 active landfills and analyzed for gross alpha/beta and Ra-226/Ra-228 by gamma spectroscopy to evaluate the effects of NORM/TENORM disposal on leachate quality. . . . field sampling at nine (9) landfills [will] include ambient measurements, solid samples and sweeps of facilities and equipment at entry points to the facilities, the working faces and other areas potentially affected during disposal activities . . . [and the study will evaluate] all byproducts of the oil and gas production industry including crystalline salts from the evaporation of brine water and the sludge associated with the flocking of process and flowback waters impacted with solids, in regards to worker exposure, public exposure and future exposure from the disposal of the products.”¹⁰⁵

Currently PADEP provides a “blanket authorization” for the disposal of Marcellus Shale industry wastes in MSW landfills, but this study will reassess that policy. Specifically, the study will provide: “An assessment of the current landfill conceptual model used to determine the DEP blanket authorization activity and quantity for disposal of TENORM in the Commonwealth

¹⁰¹ Timothy Puko, “Radioactive fracking debris triggers worries at dump sites,” *Pittsburgh Tribune-Review* (May 12, 2013), available at <<http://triblive.com/business/headlines/3945499-74/gas-radiation-radioactivity>>.

¹⁰² PADEP, TENORM Study Scope of Work, 5.

¹⁰³ *Id.*

¹⁰⁴ *Id.*, 6.

¹⁰⁵ *Id.*, 6-7.

municipal landfills. The RESRAD software code will be used to model the standard landfill future exposure through environmental pathways.”¹⁰⁶

A previous Department landfill proceeding considering whether disposal of NORM-contaminated Marcellus shale drill cuttings in landfills is regulated concluded that, under current Department practice, the quantity of such wastes that may be disposed in a landfill in New York is not limited.¹⁰⁷ At the time of that proceeding the landfill’s waste receipts “comprised about half of the incoming waste on a tonnage basis.”¹⁰⁸

In that proceeding Hyland’s parent company New England Waste Systems of New York, Inc. (NEWSNY) asserted “that the landfill receives drill cutting wastes, and not hydrofracking wastes such as produced water (the flow-back water generated from well stimulation), sludges associated with produced water, or scale associated with the processing of produced water.” DEC Staff testified that because drill cuttings were “the only Marcellus Shale wastes DEC Staff has explicitly approved for disposal,” Staff “did not consider pipe scale, brine filtrates and associated sludges, which [NEWSNY] acknowledged have been known to contain elevated levels of NORM,” and the landfill would “prevent the disposal of such materials.”¹⁰⁹

It thus appears that the Department has not considered the effects of disposing the full range of Marcellus Shale industry solid wastes, including unconventionally wet wastes, when evaluating Hyland’s request to increase its waste acceptance rate. Since there is no permitted limit on the volume of such wastes Hyland may accept,¹¹⁰ such consideration is clearly warranted before the Part 360 permit is modified.

¹⁰⁶ *Id.*

¹⁰⁷ Rulings of the ALJ on Issues and Party Status, *In re Chemung County*, DEC Application No. 8-0728-00004/00013, 2010 N.Y. ENV LEXIS 60, *69 (September 3, 2010), affirmed by Final Decision of the Commissioner (Aug. 4, 2011).

¹⁰⁸ 2010 N.Y. ENV LEXIS 60, at *58.

¹⁰⁹ *Id.*, at *62. However, the ALJ notes in his decision at least two incidents at odds with this conclusion, the acceptance at the landfill of “brine-contaminated soil” and “soil contaminated by filtered produced water from a well site operated by Chesapeake Energy,” respectively. *Id.*, at *65. Accordingly, Staff revised NEWSNY’s permit to prohibit acceptance of the latter waste streams. *Id.*, at *67-68.

¹¹⁰ This author is reliably informed that soon after NEWSNY was permitted to accept Marcellus Shale drill cuttings at the Chemung County Landfill, NEWSNY diverted most of the county’s waste to other landfills the company operates in order to make the maximum amount of permitted space available for drill cuttings.

The potential impacts of radon generation was not considered

The PADEP TENORM study will also evaluate the “rapid buildup of radon and progeny in samples/waste streams impacted with radium,” based on the following consideration: “The evaluation of waste containing Ra-226 is subject to the buildup of radon gas and the other short-lived progeny of Ra-226, complicating any decision made to transport or dispose of such materials based on an exposure rate survey of the container. The exposure rate is directly proportional to the degree of secular equilibrium and NOT proportional to the activity concentration of Ra-226 (remains the same as radon and other progeny buildup).”¹¹¹

Because the potential for elevated radon emissions at landfills accepting Marcellus Shale industry wastes has been recognized by at least one state environmental agency, the Department should consider this potential impact before approving the permit modifications proposed for Hyland.

The impact on emissions of operating a “bioreactor” landfill were not considered

The Department should determine whether Hyland is a “bioreactor” landfill subject to additional NESHAP requirements.

Under the Landfills NESHAP program, if the waste mass in a landfill reaches 40 moisture content or more, it is considered a bioreactor landfill and must implement NSPS-equivalent controls within 180 days of reaching the threshold moisture content. Landfills practicing leachate recirculation without addition of other liquids are not expected to reach a moisture content of 40 percent or more.¹¹² However, the Landfills NESHAP program requires “a record of calculations showing that the percent moisture by weight expected in the waste mass to which liquid is added is less than 40 percent” if the landfill “add[s] any liquids other than leachate in a controlled fashion to the waste mass and does not comply with the bioreactor requirements.”¹¹³

Hyland does not comply with the bioreactor control requirements, but since 2009 it has been permitted to recirculate leachate.¹¹⁴ In 2012 Hyland reporting receiving as waste over 10.9

¹¹¹ PADEP, TENORM Study Scope of Work, 8.

¹¹² 68 Fed.Reg. 2227, 2233 (January 16, 2003) (Landfills NESHAP) (“A very small percentage of bioreactors in moist climates would reach moisture content of 40 percent with leachate recirculation only.”).

¹¹³ 40 C.F.R. § 63.1980(g).

¹¹⁴ See above, note 8. See also proposed Part 360 Permit, Special Conds. 57 and 59; *id.*, General Cond. 7 (listing correspondence and plans, including conceptual proposal to recirculate leachate dated September 16, 2008, and response to Department comments dated February 16,

million gallons of leachate.¹¹⁵

Hyland has also added substantially wet waste streams and, on at least one occasion in 2012, Hyland dumped a long-haul truck load of liquid waste in the landfill.¹¹⁶ Among the wet waste streams Hyland accepts or plans to accept are industrial process sludges, sewage treatment plant sludges, drilling waste sludges, sludges from the processing of drilling wastes, and its own solidification sludges from drilling liquid wastes.¹¹⁷ Under New York regulations, these wastes are allowed to reach 80% and be disposed in the landfill.¹¹⁸

Because Hyland disposes substantial volumes of wet waste, in addition to leachate it has recirculated into the landfill, the Department should require testing for moisture content and, if moisture content exceeds 40% emissions should be recalculated under emission factors appropriate for a bioreactor landfill.

Additional SEQRA issues

The deficiencies in Hyland's air emissions analysis are also significant issues under the State Environmental Quality Review Act (SEQRA), for which the Department is acting as lead agency. SEQRA and its implementing regulations require the Department to determine whether any potential significant impacts are presented by Hyland's request to increase its waste acceptance rate. The Department has concluded there are not, and thus an environmental impact statement and a public hearing may be dispensed with. The Department has concluded that

2009).

¹¹⁵ 2012 Annual Report, 18.

¹¹⁶ DEC Monitoring Report for August 2012, dated September 6, 2012, at p. 3 ("a load of drill cuttings was carried by tanker trailer . . . contain[ing] a large volume of free flowing water"); Joseph R. Boyes, Hyland, Letter to John Munn, DEC, dated August 24, 2012, included in Attachment 10 to Hyland's 2012 Annual Report (reporting that waste load from Talisman Energy unloaded onto the landfill working face "was predominantly aqueous").

¹¹⁷ *See above*, note 28. For example, in 2012 Hyland accepted 43,206 tons of sludge (not including ADC), or over 18 percent of the approved waste disposed. 2012 Annual Report, Section 6, Table (adding the reported volumes for the waste streams listed above).

¹¹⁸ 6 N.Y.C.R.R. § 360-2.17. The proposed permit includes the same limitation on liquid content in industrial wastes and drilling wastes. See proposed Part 360 Permit, General Cond. 8 ("All nonhazardous industrial waste, friable asbestos containing material, contaminated soil waste, sludge waste, liquids, waste containing free liquids, waste with a solid content of less than 20%, drilling waste and solid waste incinerator ash may only be received upon written acceptance from the RMME.").

Hyland's request would result in "significant" additional GHG emissions compared to operations under the current waste acceptance rate, but emissions of other air pollutants, and impacts on wastewater management would be insignificant.

CCAC objects to this conclusion because, based on the necessary and recommended corrections to Hyland's air emissions analysis identified above, Hyland's 2006 expansion almost certainly results in projected NMOC emissions that exceed the 50 Mg/yr. NSPS threshold. Correctly projected emissions resulting from the 2006 expansion also very likely make Hyland a major source of volatile organic compounds (VOCs), carbon monoxide (CO),¹¹⁹ and hazardous air pollutants (HAPs), all regulated air pollutants under the CAA. Impacts on wastewater resulting from increased volumes of wet wastes, and increased toxics and radionuclides contained in Marcellus Shale industry wastes may also be significant.

These potential impacts do not appear to have been considered. Accordingly, CCAC requests the Department reissue its determination of environmental significance.

The Department has impermissibly segmented review of Hyland's project plan

Another issue under SEQRA is the Department's acquiescence in Hyland's efforts to segment review of its project plan in order to evade a full and meaningful environmental impact review.

The currently requested modification of Hyland's Part 360 permit, termed "mod 4," was planned to precede "mod 5," approved last year, which allows solidification of liquid waste streams. As noted above, both modifications are part of a plan outlined in a November 12, 2012 conference presentation where Hyland's project manager explains that Marcellus Shale industry wastes present a growing market opportunity it will exploit, resulting from changes in regulatory policy in Pennsylvania requiring drilling fluids used for high-volume hydrofracking—whose impacts are under review in New York—to be reused rather than treated and discharged to the environment. This policy requires the generation of substantially greater volumes of solid waste, owing to a greater need to process liquid waste.¹²⁰

The opportunity to landfill the resulting filtration residues, sludges, and other wastes in addition to Marcellus Shale drill cuttings disposed at Hyland since 2010, constitutes the real purpose for Mod 4 and Mod 5. These two modifications, in other words, are necessary phases of a single plan that should be reviewed as one piece rather than segmented. By segmenting review

¹¹⁹ Owing to combustion of an increased gas flow to Hyland's onsite gas-to-energy plant of a well-designed and well-operated GCCS managing the correctly calculated maximum LFG generation rate.

¹²⁰ See Exhibit A, hereto.

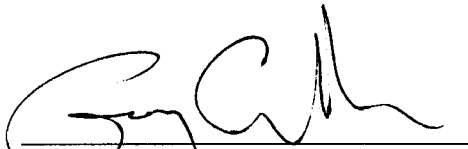
of the liquid solidification modification from the waste rate modification, the Department has shielded Hyland from a review of the potential impacts of utilizing 100% of the increase in the requested waste rate for Marcellus Shale industry wastes.

CONCLUSION

Because Hyland is very likely already subject to the Landfills NSPS, and because the requested modifications of both the Part 360 and Title V permits result in potentially significant increases in air pollutants, the Department's proposed mitigation ("early" implementation of the Landfill NSPS) is in reality no mitigation at all. Accordingly, the Department must reissue its determination of environmental significance based on corrected emissions calculations; consider whether Hyland operates a wet landfill with elevated emissions, compared to conventional landfills; and consider potential impacts of increased disposal of Marcellus Shale industry wastes on the character of Hyland's leachate.

Once the deficiencies in Hyland's emissions estimation modeling are rectified, CCAC looks forward to commenting on a corrected emissions analysis and any revised applicability determinations the Department may make in light of the corrected emissions analysis.

Respectfully submitted,



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