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Response to Comments on Emergency Regulation

310 CMR 7.73:
Reducing Methane Emissions from Natural Gas Distribution Mains and Services

March 2021

Regulatory Authority:
M.G.L. c. 21A, §§ 2, 8, and 16
M.G.L. c. 21N, §§ 3(b) and 3(d)
and M.G.L. c. 111, §§ 2C and 142A – 142E

On December 21, 2020, the Massachusetts Department of Environmental Protection (MassDEP) promulgated the emergency regulation 310 CMR 7.73 *Reducing Methane Emission from Natural Gas Distribution Mains and Services*, which established gas operator annual declining emission limits for 2021, 2022, 2023, and 2024, streamlined the petition process by which gas operators may petition for reserve cap, and required gas operators to categorize their pipeline mileage by age and material type in their annual report to MassDEP.

On December 21, 2020, MassDEP published a notice in the Boston Globe and the Worcester Telegram & Gazette announcing a public hearing and public comment period on the emergency regulation, and posted the emergency regulation and a Technical Support Document (TSD)[1] online. On January 19, 2021, MassDEP held a virtual public hearing and solicited comments on the emergency regulation in accordance with Massachusetts General Law Chapter 30A. The comment period closed on January 29, 2021.

This document summarizes and responds to comments that were received during the public comment period. Those who provided comments are listed below:

1. Home Energy Efficiency Team, Z. Magavi and A. Schulman (HEET)
2. Massachusetts Sierra Club and Gas Leaks Allies, D. Zeek (MASC/GLA)
3. Environmental Defense Fund, E. Murphy and N. Karas (EDF)
4. Keegan Werlin LLP representing Massachusetts Local Distribution Companies (LDCs)

After considering the comments received, MassDEP is making the emergency regulation permanent with no changes (except for a correction to a transcription error MassDEP made to the emergency regulation as described in the response to comment 5), for the reasons explained in this response to public comment.

General Comments

1. Comment: All commenters supported extending the regulation and gas operator limits through 2024.

Response: MassDEP thanks commenters for their support.

2. Comment: MassDEP should base emissions reductions required in 310 CMR 7.73 both on pipeline repair and replacement and on leak repair. "Instead of approving a petition for an increased emissions cap in isolation, MassDEP could require that utilities demonstrate compliance with the annual limit by documenting methane emission reductions on another part of its system - i.e., by engaging in leak surveying and repair of super-emitting leaks" and requiring gas utilities to "report on methane emission reductions resulting from repair of large leaks, which could be most accurately identified and measured with" advanced leak detection technology and data analytics (ALD+). (HEET, EDF, MASC/GLA)

Response: MassDEP has based 310 CMR 7.73 on Massachusetts Department of Public Utilities (DPU)-approved Gas System Enhancement Plans (GSEPs). After 310 CMR 7.73 was originally

[1] *Program Review Report and Technical Support Document on Proposed Amendments to 310 CMR 7.73 Reducing Methane Emissions from Natural Gas Distribution Mains and Services*, December 2020, at https://www.mass.gov/doc/310-cmr-773-technical-support-document/download

promulgated in August 2017, DPU amended 220 CMR 114 *Uniform Natural Gas Leaks Classification* on March 22, 2019, to require gas operators to detect and categorize the areal extent and significance of pipeline leaks, which has resulted in additional oversight of natural gas distribution system leaks. The Commonwealth is open to new approaches, as indicated, for example in 220 CMR 114.07(1)(a) "A Gas Company is not precluded from proposing to the [DPU] a more rigorous method of designating environmentally significant Grade 3 leaks based on field data or tested and proven technologies that may become available from time to time. Such proposals shall be submitted to the [DPU] for approval."

Definition of Gas Operator

3. Comment: Commenters supported the revised definition of Gas Operator but recommended a minor technical edit: replacing "such gas operator" with "a Gas Operator" to ensure that only facilities acquired from former Gas Operators with DPU-approved GSEPs are subject to the regulation. (LDCs)

Response: MassDEP thanks commenters for their support, but has finalized the regulation without further changes to the definition, as the recommended edit would create a circular reference to the term "Gas Operator" and MassDEP believes the definition already accomplishes the limitation on applicability that commenters seek.

Emission Limits

4. Comment: LDCs suggested revising the limits in 310 CMR 7.73(4)(a) Tables 1, 2b, and 6 by using data from the GSEPs filed in October 2020 by National Grid, Eversource Gas Company of Massachusetts (EGMA), and NSTAR Gas dba Eversource, respectively, which take into account COVID-19 delays as well as the Settlement Agreement associated with the sale of Bay State Gas/Columbia Gas to Eversource.[2] The LDCs commented that MassDEP should base its limits for each LDC on that LDC's proposed GSEP planned work filed in October of 2020, rather than on the GSEP Orders that the DPU issued in April of 2020. The LDCs contend that if MassDEP does not rely on these October 2020 GSEP LDC filings, then MassDEP would not be using the most up to date information available on which to base the limits. (LDCs)

Response: MassDEP notes that it used the most recently-available DPU GSEP Orders (April of 2020) in developing the emergency regulation. DPU's investigation of the LDCs' GSEPs, which are filed each October, can result in issuance of Orders the following April which reflect changes to the amount of work initially proposed by LDCs. In implementing the 310 CMR 7.73 program, MassDEP has always relied on DPU Orders that contain the most accurate, up-to-date, and thorough information due to the likely changes that DPU will make at the end of the GSEP docket process each April when DPU issues its Orders. Lastly, regardless of the outcome of the DPU docket proceedings on the October 2020 filings, the set-aside is large enough to accommodate the concerns that the LDCs raise in their comments. Therefore, MassDEP is

[2] See October 7, 2020 DPU Order in "Joint Petition of Eversource Energy, NiSource Inc., Eversource Gas Company of Massachusetts, and Bay State Gas Company d/b/a Columbia Gas of Massachusetts for approval by the Department of Public Utilities of (1) the sale of Bay State Gas Company to Eversource Energy; and (2) a settlement agreement resolving the proposed sale and two pending Department investigations into the Merrimack Valley Incident: Bay State Gas Company, D.P.U. 19-140 and Bay State Gas Company, D.P.U. 19-141." Consolidated Docket Nos. D.P.U. 20-59/D.P.U. 19-140/D.P.U. 19-141 at https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/12751142

finalizing the emergency regulation without further changes to the emission limits in Tables 1, 2b, and 6.

5. Comment: LDCs suggested revising National Grid's limits in 310 CMR 7.73(4)(a) Table 1 by correcting a MassDEP transcription error in projected growth in services in years 2020 and 2021. (LDCs)

Response: MassDEP agrees and corrected the transcription error in the emergency regulation by filing a "Notice of Correction" with the Secretary of the Commonwealth, which also resulted in updates to Table 7 (sum of Tables 1 through 6) and Table 8 (Set-aside and sum of Set-aside and Table 7).

6. Comment: LDCs suggested revising Unitil's limits in 310 CMR 7.73(4)(a) Table 4 to account for: a) ~6 miles of cathodically protected pipe that Unitil will be re-classifying to cathodically unprotected pipe in their annual report due March 15, 2021 to the Pipeline and Hazardous Materials Safety Administration (PHMSA); and b) a reduction in the number of service replacements expected in 2020 through 2024.

Response: a) Information regarding potentially reclassified pipe was submitted in September 2020 by Unitil as part of the 310 CMR 7.73 program review. As detailed in the December 2020 TSD, MassDEP accounted for Unitil's potential reclassification in establishing the size of the annual emissions set-aside for which LDCs may petition. Unitil has not provided sufficient detail for MassDEP to account for the reclassification in Unitil's annual limits rather than through the petition process. Therefore, MassDEP cannot revise Unitil's Table 4 limits at this time.

b) Unitil provided updated service replacement numbers with no explanation or reference to a data source supporting why the values should be used to change Unitil's limits. Therefore, MassDEP cannot revise Unitil's Table 4 limits at this time.

Emission Factors

7. Comment: Some commenters suggested that emission factors should be based on the Weller study, instead of the Lamb study. Another commenter found that the Lamb emission factors were appropriate. A commenter suggested averaging the emission factors from the two studies together and also stated MassDEP was mistaken in its concerns that the Weller Study a) "did not directly measure emissions from pipelines" because the Weller Study is based on quantifying emissions from more than 4,000 leak indications collected during advanced mobile leak detection surveys with a quantification method calibrated with controlled methane releases and validated on actual natural gas leaks and b) "used a database rather than in-field confirmation to attribute the likely pipeline material associated with each leak," because the database consists of data reported directly by gas utilities and data quality checks were used to exclude pipelines that were incorrectly categorized in the database. (MASC/GLA, HEET, LDCs, EDF)

Response: MassDEP has no technical basis for averaging the Weller and Lamb emission factors together. As discussed in the TSD, MassDEP is concerned, for example, that the Weller study did not have real-world confirmation of the pipeline material. Because natural gas can migrate from the original leak location to where the leak is detected, the material of the pipeline at which

a leak originates is not known without in-field confirmation. The commenter provided no response to MassDEP's concern that Weller did not distinguish between pipelines and services as the source of leaks. This makes using the Weller emission factors difficult to justify technically in a regulation with a compliance methodology based on annual datasets that are distinguished by the material type of pipelines and services. MassDEP notes that the United States (US) Environmental Protection Agency's (EPA's) current approach to the US Greenhouse Gas (GHG) emissions inventory is also based on the Lamb study.[3] MassDEP has finalized the regulation continuing to use emission factors based on the Lamb study.

8. Comment: One commenter supported the use of the alternative emission factors proposed by MassDEP that accounted for "distribution system leaks based on the annual utility-reported number of leaks in our state." They noted that "the DPU piloted this method in 2020 when calculating lost and unaccounted for gas (or "LAUF") and will be determining the future reporting requirement for this data based upon this pilot year experience" and recommended that MassDEP "consider all the relevant data available when setting alternative emission factors for 2022-2024." (HEET) Another commenter also supported the use of leak data reported to DPU by Massachusetts gas operators "to calculate a per-mile/per-material emissions factor" noting that Massachusetts might differ from the national average, due to DPU's *Uniform Natural Gas Leaks Classification*[4] regulation mandating the repair or elimination of Grade 3 leaks. (MASC/GLA)

Response: MassDEP sought "comment on an alternative set of emission factors that could be used" and provided "a spreadsheet detailing the calculation of the alternative proposed limits." However, MassDEP did not receive any feedback on whether MassDEP's technical assumptions in calculating the alternative emission factors were appropriate. MassDEP is concerned about finalizing regulatory limits based on the first-ever pilot to collect utility-specific leak data by material type from the LDCs, which required corrections to the data reporting form during the course of reporting. MassDEP will stay abreast of DPU's next steps after the pilot year experience, but is not finalizing the regulation using the data from DPU's pilot.

9. Comment: One commenter did not support use of Massachusetts gas operator leak data in the emission factors as they were unable to determine how they were calculated in the provided appendix. They noted that using "leak instances" is an unreliable method for emission factors and any change in emission factors would introduce uncertainty in the regulation. "Such a factor assumes that leaks have been open for the same amount of time, leaking at the same rates, and relies on assumptions regarding when and how the leaks were found and repaired." In addition,

[3] Table 3.6-6: *CH_4 Emission Factors for Natural Gas Systems, Data Sources/Methodology* of Annex 3.6 in EPA's most recent GHGI, published in April 2020, references the April 2016 *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2014: Revisions to Natural Gas Distribution Emissions* as the source of its Natural Gas Distribution emission factor data. This document notes that EPA updated its natural gas distribution system emission factors using the 2015 Lamb CH_4 emitted per leak but continued to use the leaks per mile values developed through a joint Gas Research Institute (GRI)/EPA study published in 1996. https://www.epa.gov/sites/production/files/2016-08/documents/final_revision_ng_distribution_emissions_2016-04-14.pdf.

[4] 220 CMR 114.00: Uniform Natural Gas Leaks Classification section 114.04(3)(c): "Each Gas Company shall repair or eliminate Grade 3 leaks located on non-GSEP facilities that are initially classified on January 1, 2018 or later, other than those that were designated as environmentally significant in accordance with 220 CMR 114.07(1), within eight years."

the commenter stated that lost and unaccounted for ("LAUF") gas is not a measurement of methane emissions. (LDCs)

Response: The spreadsheet MassDEP provided for public comment showed all data and calculations and linked to the DPU file room containing the docket with the original pilot data reports, so it is unfortunate that the commenter was not able to determine how the alternative emission factors were calculated. However, MassDEP did not receive any feedback on whether MassDEP's technical assumptions in calculating the alternative emission factors were appropriate, and is not finalizing the regulation using the data from DPU's pilot.

Use of "leak instances" (i.e., leaks per mile) is fundamental to the calculation of emission factors, i.e., emission factors are calculated by multiplying the CH_4 emitted per leak by the number of leaks per mile, and have been used in 310 CMR 7.73 emission factors since the regulation was first proposed. MassDEP agrees that it would not be appropriate to use LAUF as the basis of methane emissions or limits, and notes that while the DPU pilot data that MassDEP used to calculate the alternative emissions factors were submitted to DPU pursuant to a regulation whose title happens to include the word "LAUF," the data do not represent LAUF.

Petition Process

10. Comment: Commenters supported the simpler petition process but also noted "that the set aside process did not include an exemption for *force majeure* events outside of the LDCs' control" stating that "Such a waiver would not be without precedent in the DEP's regulations. MassDEP has provide force majeure waivers in 310 C.M.R. § 7.72 which governs the reduction of Sulfur Hexaflouride [SF_6] Emissions from Gas Insulated Switchgear." (LDCs)

Response: Gas-insulated Switchgear (GIS) equipment containing SF_6 is used in large electricity generation, transmission and distribution facilities. Given the nature of the equipment subject to 310 CMR 7.72 (not in homes or other types of businesses), MassDEP determined that it made sense to include an emergency event exemption in 310 CMR 7.72(7) to exempt some releases from regulation where the release was caused by a sudden, unforeseeable emergency event, since a single such event could lead to an exceedance of annual limits. MassDEP also notes that the 310 CMR 7.72 SF_6 limits program does not contain a set-aside provision. MassDEP recognizes that the GSEP process provides for flexibility and therefore some variability in emissions, but this variability differs from the unforeseen circumstances which justify a waiver in the SF_6 regulations. MassDEP will not include a waiver in 310 CMR 7.73, but, through the 2017 development of the set-aside provision and petition process, has already recognized that there may be an impact on emissions from unanticipated events, future approved GSEPs, or reclassification of leak-prone pipe. Therefore, MassDEP continues to include a set-aside provision and a petition process in the regulation to permit some flexibility and to account for the potential introduction of new sources of GHG leaks from the distribution system.

Reporting

11. Comment: Several commenters supported the new requirement in the Emergency Regulation for gas operators to report their pipeline mains and services by material type and age in their annual reports to MassDEP as a method of tracking progress on eliminating the oldest pipeline. One commenter did not support the new reporting requirement because of the unknown

age of some pipeline, the amount of work required to categorize all pipeline by material type and age, and that it may not be possible to replace the oldest pipe first. (MASC/GLA, EDF, LDCs)

Response: MassDEP is finalizing the regulation with the new requirement to report mains and services by material type and age. Age will be reported by decade (e.g., cast iron main placed from 1960 to 1969), identical to the date ranges used by the LDCs to report to PHMSA, with the earliest age range being for mains and services installed prior to 1940, and including a category for "unknown" age. Using the same date ranges as PHMSA will reduce the reporting burden. There is no requirement in the regulation to replace the oldest pipe first; however, MassDEP believes that it will be helpful for planning to track trends in pipeline age by material.

Other

12. Comment: Commenters suggested next steps, including: "MassDEP should also coordinate to ensure that implementation of [310 CMR 7.73] aligns with the long-term planning proceeding for gas utilities underway before the DPU;" MassDEP "should establish an inclusive technical review process designed to inform and consider all the relevant data available when setting alternative emission factors for 2022-2024;" encouraging MassDEP "to support any effort either by the Commonwealth, the Federal EPA, or other scientists to measure and quantify total methane emissions and to identify the sources of those emissions;" suggesting "that the Department hold a technical meeting to determine how the alternative emissions factors would be calculated and how often such factors should be updated;" looking forward to "continuing to engage with MassDEP and other stakeholders to improve the Gas Distribution Methane Standard and achieve greater reductions in methane emissions from the natural gas distribution system;" and committing "to working with the MassDEP to evaluate whether there are alternative emission factors that are trackable, verifiable and vetted or otherwise accepted in other jurisdictions." (HEET, EDF, MASC/GLA, LDCs)

Response: The purpose of the September 2020 stakeholder meeting and comment period, and the January 2021 public hearing and comment period, was to obtain technical information to develop the regulation amendments. 310 CMR 7.73(9) requires another program review not later than December 31, 2024. MassDEP is closely following both EPA's development of the national GHG inventory, and DPU Docket 20-80, [5] either or both of which may provide information relevant to regulating the Massachusetts natural gas distribution system.

[5] https://www.mass.gov/news/department-of-public-utilities-opens-investigation-assessing-future-of-natural-gas-in