



# The Commonwealth of Massachusetts

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## DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 16-31-C

March 8, 2019

Investigation of the Department of Public Utilities, on its own motion, instituting a rulemaking pursuant to G.L. c. 164, § 144, G.L. c. 30A, § 2; and 220 CMR 2.00, establishing requirements for Uniform Natural Gas Leaks Classification.

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ORDER ADOPTING FINAL REGULATIONS

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## I. INTRODUCTION AND PROCEDURAL HISTORY

On June 26, 2014, Governor Patrick signed Chapter 149 of the Acts of 2014, An Act Relative to Natural Gas Leaks (“Act”). Section 2 of the Act amends G.L. c. 164 by adding § 144 (“Section 144”). The Act directs the Department of Public Utilities (“Department”) to promulgate regulations necessary to implement uniform natural gas leak classifications and to oversee and monitor gas companies (“Gas Companies”)<sup>1</sup> response and reporting. St. 2014, c. 149, § 2.

On May 18, 2016, the Department issued an Order instituting a rulemaking pursuant to G.L. c. 30A, § 2 and 220 CMR 2.00 et seq., establishing 220 CMR 114.00 et seq., Uniform Natural Gas Leaks Classification, for the purpose of adopting uniform natural gas leak classification requirements (“Initial Proposal”). Uniform Natural Gas Leaks Classification Rulemaking, D.P.U. 16-31, Order Instituting Rulemaking (2016). On May 18, 2016, the Department issued a notice of filing and public hearing and request for comments. On July 14, 2016, the Department held a public hearing to receive comments. The Department accepted initial written comments through July 5, 2016, and reply comments through August 3, 2016.

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<sup>1</sup> The proposed regulations define “Gas Company” to include every gas distribution company, municipal gas department, or other person engaged in the distribution of natural gas. 220 CMR 114.02. Therefore, for the purposes of these regulations, the Department intends for these to apply to the following entities as of the date of promulgation: Bay State Gas Company d/b/a Columbia Gas of Massachusetts; The Berkshire Gas Company; Blackstone Gas Company; Fitchburg Gas and Electric Light Company d/b/a Unittel; Boston Gas Company and Colonial Gas Company d/b/a National Grid; Liberty Utilities (New England Natural Gas Company) Corp. d/b/a Liberty Utilities; NSTAR Gas Company d/b/a Eversource Energy; City of Holyoke Gas and Electric Department; Wakefield Municipal Gas and Light Department; Middleborough Gas and Electric Department; and Westfield Gas and Electric Department.

On August 8, 2016, Governor Baker signed into law An Act to Promote Energy Diversity (“Energy Diversity Act”). Section 13 of the Energy Diversity Act requires the Department to open an investigation to establish specific criteria to identify Grade 3 gas leaks (classified pursuant to Section 144) that have significant environmental impact (“G3SEI”), and to establish a plan to repair leaks that are determined to have a significant environmental impact. St. 2016, c. 188, § 13. The Department, in consultation with the Massachusetts Department of Environmental Protection (“DEP”), was required to promulgate rules regarding the timeline and acceptable methods for remediation and repair of G3SEI leaks. On December 14, 2016, the Department issued an Interlocutory Order that set forth a straw proposal, along with proposed revised regulations, to identify and repair G3SEI leaks (“Straw Proposal”).<sup>2</sup> Uniform Natural Gas Leaks Classification Rulemaking, D.P.U. 16-31-A, Interlocutory Order (December 14, 2016). The Department accepted initial written comments on the Straw Proposal through January 13, 2017, and reply comments through January 25, 2017.

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<sup>2</sup> On September 9, 2016, following consultation with DEP regarding the types of information useful for implementing the provisions of Section 13, the Department’s Pipeline Engineering and Safety Division issued a set of information requests to the local distribution gas companies (“LDCs”) seeking information regarding the determination of emissions associated with Grade 3 leaks. Several LDCs submitted a joint answer to two information requests, IR-PL 1-8 and IR-PL 1-9, which included a proposed plan to identify and repair or eliminate environmentally significant Grade 3 leaks. Following a review of the responses to the information requests, on October 31, 2016, the Department and DEP jointly held a technical session at the Department’s offices with gas operators to discuss, among other things, the plan to identify and repair or eliminate environmentally significant Grade 3 gas leaks, as proposed by some gas operators in IR-PL 1-8 and IR-PL 1-9. During the technical session, all gas operators, including the LDCs and the municipal gas and light plants from the towns of Holyoke, Middleborough, Wakefield, and Westfield, indicated an ability to perform in accordance with the proposed plan. On December 13, 2016, the LDCs filed a revised joint response to IR-PL 1-8. In developing the Department’s Straw Proposal, the Department incorporated the relevant components from the LDCs’ initially proposed plan and revised joint response.

On September 14, 2017, the Department issued a subsequent Order instituting a rulemaking addressing all comments on both the Initial Proposal and Straw Proposal and proposing revised regulations (“Revised Proposal”). Uniform Natural Gas Leaks Classification Rulemaking, D.P.U. 16-31-B, Revised Proposal (2017). The Department accepted initial written comments on the Revised Proposal through October 24, 2017, and reply comments through November 7, 2017. Further, the Department held a public hearing on the Revised Proposal on October 25, 2017. The Department received the following initial comments on or before October 24, 2017: joint comments from Bay State Gas Company d/b/a Columbia Gas of Massachusetts (“Bay State”), The Berkshire Gas Company (“Berkshire”), Blackstone Gas Company (“Blackstone”), Liberty Utilities (New England Natural Gas Company) Corp. d/b/a Liberty Utilities (“Liberty”), Boston Gas Company and Colonial Gas Company each d/b/a National Grid (“National Grid”), NSTAR Gas Company d/b/a Eversource Energy (“NSTAR”), and Fitchburg Gas and Electric Light Company d/b/a Unitil (“Unitil”) (collectively, the “LDCs” or the “Companies”); the Office of the Attorney General of Massachusetts (“Attorney General”); Lowell Parks and Conservation Trust; the City of Newton (“Newton”); State Representative Carmine L. Gentile; Picarro, Inc.; the Esplanade Association; the New England Gas Workers Alliance (“NEGWA”); the researchers of the Large Volume Leak Study (“Study”), including lead researcher Zeyneb Magavi, Home Energy Efficiency Team, Inc. (“HEET”), Bay State, National Grid, and NSTAR (collectively, “Study Participants”); the Nature Conservancy in Massachusetts; Mothers Out Front Acton; Neighborhood Association of Back Bay; Massachusetts Chapter of the Sierra Club; Peter Papesch, AIA; the Wellesley Natural Resources Commission; Jacqueline Royce, Ph.D; the Emerald Necklace Conservancy; the Friends of the

Public Garden; Claire Corcoran; Clean Water Action; Robert C. Ackley; Resource Force; Elena Saporta; the Brookline Green Space Alliance; the Conservation Law Foundation (“CLF”) and Environmental Defense Fund; Arise for Social Justice; the Beacon Hill Civic Association; Sustainable Lexington; Salem Alliance for the Environment; the Garden Club of Back Bay; the Rose Fitzgerald Kennedy Greenway Conservancy; Massachusetts Health Professionals for Clean Energy (“MHPCE”); and the Arborway Coalition. The Department received the following reply comments on November 7, 2017: joint comments from the LDCs; the Attorney General; the Gas Leaks Allies;<sup>3</sup> and Edward Woll, Jr.

In their joint comments on the Revised Proposal, the LDCs proposed a new method for designating G3SEI leaks: the leak-extent method, which measures the gas-saturated surface area above a natural gas leak. The LDCs proposed adoption of the leak-extent method following the Study’s suggestion that the leak-extent method is a more accurate method for designating G3SEI leaks than the barhole method.<sup>4</sup> On May 4, 2018, the Department requested additional comments specifically on the estimated costs for each LDC to implement the leak-extent method to identify G3SEI leaks, the estimated annual costs associated with using the leak-extent method to identify G3SEI leaks, and the estimated annual costs of using the barhole method to identify

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<sup>3</sup> The Gas Leaks Allies is a coalition of more than 20 member organizations, including Arise for Social Justice; Brookline Green Space Alliance, Boston Climate Action Network; Clean Water Action; Friends of the Public Garden; HEET; Massachusetts Sierra Club; Mothers Out Front Massachusetts; MHPCE; Green Committee of the Neighborhood Association of the Back Bay; Professor Nathan Phillips, Boston University; Dr. Margaret Cherne-Hendrick, Boston University; and Salem Alliance for the Environment.

<sup>4</sup> The barhole method involves drilling a small hole and taking a sub-surface gas-in-air reading, and then designating any reading over 50 percent as a G3SEI leak (October 7, 2016 Information Requests, IR-PL 1-8 (Rev.)).

G3SEI leaks (Hearing Officer Memorandum, May 4, 2018). The Department received supplemental comments on or before May 22, 2018 from Bay State; NSTAR Gas; Liberty; National Grid; Unitil; Berkshire; Blackstone; the Emerald Necklace Conservancy; Physicians for Policy Action; Mothers Out Front; Friends of the Public Garden; Sarah Salois; HEET; MHPCE; Jacqueline Royce, PhD; Sierra Club; Sustainable Wellesley; and Brookline Greenspace Alliance. On May 25, 2018, the Department received supplemental reply comments from National Grid.

## II. PROPOSED REGULATIONS

The Revised Proposal established a system to classify natural gas leaks as Grade 1, Grade 2, or Grade 3 leaks, and it proposed to take steps to repair or monitor the Grade 1 through 3 leaks, based upon the classification level and consistent with Section 144. Revised Proposal, 220 CMR 114.04(3).<sup>5</sup> In addition, the proposed regulations specified requirements for undertaking significant projects on a public way that expose confirmed natural gas infrastructure, and they mandated the prioritization of gas leak repairs located within a school zone.<sup>6</sup> Revised

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<sup>5</sup> A Grade 1 leak is defined as an existing or probable hazard to persons or property, which requires repair as immediately as possible and continuous action until the conditions are no longer hazardous. G.L. c. 164, § 144(a)(2). A Grade 2 leak is defined as non-hazardous to persons or property at the time of detection, but justifies scheduled repair based on probable future hazard. Revised Proposal, 220 CMR 114.04(3)(b). The gas company shall repair Grade 2 leaks or replace the main within twelve months from the date the leak was classified, and it shall reevaluate Grade 2 gas leaks at least once every six months until eliminated. Revised Proposal, 220 CMR 114.04(3)(b). A Grade 3 leak is recognized as non-hazardous to persons or property at the time of detection and is expected to remain non-hazardous, but shall be reevaluated during the next scheduled survey or within twelve months, whichever comes first. Revised Proposal, 220 CMR 114.04(3)(c).

<sup>6</sup> A school zone means on or within 50 feet of the real property comprising a public or private accredited preschool, accredited Head Start facility, elementary, vocational, or secondary school. Revised Proposal, 220 CMR 114.02.

Proposal, 220 CMR 114.05 and 114.06. The proposed regulations also required each gas company to report Grade 1, Grade 2, and Grade 3 gas leak information quarterly and in its annual service quality (“SQ”) report to the Department.<sup>7</sup> Revised Proposal, 220 CMR 114.08. Further, the proposed regulations directed each gas company to incorporate natural gas leaks classification procedures into its written procedures manual to ensure compliance with G.L. c. 164, § 144 and 220 CMR 114.00. Revised Proposal, 220 CMR 114.09.

In addition, the Revised Proposal established a system to identify and repair or eliminate G3SEI leaks. Revised Proposal, 220 CMR 114.07. The Revised Proposal set forth a requirement that Gas Companies use the barhole method to identify G3SEI leaks, and that a Gas Company designate any Grade 3 leak with a barhole reading of 50 percent or higher as a G3SEI leak. Revised Proposal, 220 CMR 114.07(1).<sup>8</sup> The Revised Proposal also established timeframes for repairing G3SEI leaks as well as lower-emission leaks, with those timeframes varying depending upon whether the leaks are located on GSEP or non-GSEP facilities. Revised Proposal, 220 CMR 114.07(2). The Revised Proposal also provided that all Grade 3 leaks identified prior to January 1, 2017 that have existed for more than ten years be designated as G3SEI leaks. Revised Proposal, 220 CMR 14.07(1)(b). The Revised Proposal further required

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<sup>7</sup> The provision to include the information in SQ reports applies only to the LDCs.

<sup>8</sup> With respect to methods to identify and repair G3SEI, the Department largely based the Revised Proposal upon information presented by the LDCs in response to a set of information requests issued by the Pipeline Engineering and Safety Division (“Pipeline Safety Division”) regarding the methods, techniques, and approaches available to measure G3SEI leaks. In their joint response, the LDCs identified the barhole method as the best available method for identifying G3SEI leaks (IR-PL 1-8, (Rev.)). Subsequently, the Department issued a Straw Proposal that proposed use of the barhole method as well as associated timeframes to repair G3SEI leaks and lower-emissions leaks. Following comment on the Straw Proposal, the Department issued the Revised Proposal.



Gas Companies to repair or eliminate those G3SEI leaks in an accelerated timeframe when compared to Grade 3 leaks not designated as environmentally significant.<sup>9</sup> Revised Proposal, 220 CMR114.07(2)(a). Additionally, the Revised Proposal acknowledged that alternative, superior technologies may emerge in the future, at which point the LDCs could propose to the Department that alternative method. Revised Proposal, 220 CMR 114.07. Finally, the Revised Proposal provided that, beginning on January 1, 2017, and annually thereafter until January 1, 2022, any Grade 3 leak that has existed for more than ten years shall be deemed a G3SEI leak. Revised Proposal, 220 CMR 114.07(1)(b).

### III. COMMENTS

#### A. Designation Method for Environmentally Significant Grade 3 leaks

##### 1. Comments

The LDCs assert that using the most effective method possible to designate G3SEI leaks will result in efficient use of resources to eliminate the environmental impact of G3SEI leaks (LDC Joint Comments at 5). Therefore, the LDCs propose adopting the leak-extent method, which measures the gas-saturated surface area above a natural gas leak, to designate G3SEI leaks

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<sup>9</sup> The Straw Proposal included the following repair timeframes for Grade 3 leaks: (1) Gas Companies shall repair G3SEI gas leaks initially designated via the barhole method on or after January 1, 2017, and confirmed as environmentally significant in the next annual survey within two years of the survey confirming the leak is environmentally significant unless that leak is located on a facility scheduled for replacement within five years under the Gas Company's GSEP program; (2) for G3SEI leaks designated as such based on age, each Gas Company shall file a plan with the Department to eliminate those leaks; (3) Gas Companies shall repair non-environmentally significant Grade 3 leaks located on non-GSEP facilities initially designated on or after January 1, 2017, within eight years; and (4) for non-environmentally significant Grade 3 leaks designated prior to January 1, 2017, each Gas Company shall file a plan with the Department to eliminate those leaks. D.P.U. 16-31-B, Att. at 4, § 114.07(2).

(LDC Joint Comments at 5; LDC Joint Reply Comments at 4; Sustainable Wellesley Supplemental Comments at 2; Physicians for Policy Action Supplemental Comments at 2).<sup>10</sup> The LDCs rely on a large-volume leak study performed by the Study Participants (“Study”) to recommend the use of the leak-extent method over the previously proposed barhole method (LDC Joint Comments at 4-5). The LDCs claim that the Study findings suggest that the leak-extent method would be substantially more effective in identifying and designating G3SEI leaks than the barhole method (LDC Joint Comments at 4-5). The Attorney General also agrees with the Study and the LDCs’ proposed revisions to adopt the leak-extent method (Attorney General Reply Comments at 4-5).<sup>11</sup>

The Study Participants proposed a Shared Action Plan aimed at the identification and repair of G3SEI leaks (Study Participant Comments at 7-8). Prior to developing the Shared Action Plan, the Study Participants conducted the Study to determine whether the currently proposed method of identifying G3SEI leaks, the barhole method, was effective in identifying G3SEI leaks, and if not, identifying a scalable, implementable method to accurately identify and measure the largest Grade 3 leaks (Study Participant Comments at 1, 3-4 & Att. A). The Study Participants contend that the Study showed that a 50 percent or greater barhole reading did not correlate with a large volume of emissions, and the Study Participants concluded that the barhole method is not an accurate method to identify the largest volume Grade 3 leaks (Study Participant

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<sup>10</sup> The Study defines leak extent as an area in which a Company has detected positive Combustible Gas Indicator (“CGI”) readings surrounded by an area of negative CGI readings (LDC Joint Comments at 5 n.4).

<sup>11</sup> No municipal gas operator commented on using the leak-extent method to identify G3SEI leaks.

Comments at 4).<sup>12</sup> The Study Participants maintain that measuring leaks through the leak-extent method significantly correlated with a larger volume of emissions (Study Participant Comments at 4-6). More specifically, the Study Participants assert that the leak with a footprint of over 2,000 square feet significantly correlated with a larger volume of leaks (Study Participants Comments at 5).

The Shared Action Plan would require the larger LDCs to use the leak-extent method to identify G3SEI leaks (Study Participant Comments at 7-9; LDC Joint Comments at 5). Specifically, the Shared Action Plan would require the LDCs to designate a Grade 3 leak with a leak footprint of 2,000 square feet or greater as a G3SEI leak (Study Participant Comments at 7; LDC Joint Comments, Att.). Further, the Shared Action Plan would require the LDCs, for at least the first year after implementation of the leak-extent method, to verify a statistically significant randomized sample of G3SEI leaks prior to repair through the FLUXbar method (Study Participant Comments at 8).<sup>13</sup> Finally, the Shared Action Plan would require a panel

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<sup>12</sup> The Study was conducted to test the hypothesis that the gas to air barhole readings are the best method to identify the large volume leaks, and if it was determined to not be the best method, to identify an operationally feasible alternative (Study Participant Comments at 3). The Study based its findings on the examining 89 existing leaks (Study Participant Comments at 4). According to the Study Participants, for each leak, the Study performed standard leak surveys, measured the leak footprint, found the highest sustained barhole reading, and used the chamber method to measure the emissions of each of the leaks (Study Participant Comments at 4). The Study Participants assert that the chamber method is a scientifically verified, peer-reviewed technique that is too costly to be scalable for gas systems across the state (Study Participant Comments at 4). The Study further assessed the leaks with other available technologies (Study Participant Comments at 4).

<sup>13</sup> The Study Participants state that the FLUXbar method, which measures the steady-state flow rate of a leak, is an accurate method of measuring the size of a leak and allows for comparison and ranking of leaks by size, but is not cost-effective enough for the LDCs to

comprising LDCs, HEET, and a mutually agreed-upon independent third party to annually reassess the methods of designation for at least five years, and report on that assessment to the Department (Study Participant Comments at 8).

The LDCs and the Attorney General both agree with the Study Participants that the regulations should provide for a transition to use of the leak-extent method to designate G3SEI leaks (LDC Joint Comments at 5-6; LDC Joint Reply Comments at 5; Attorney General Reply Comments at 2-4).<sup>14</sup> More specifically, the LDCs propose that the larger LDCs, Bay State, Eversource, and National Grid, transition fully to using the leak-extent method by December 31, 2018, and afterwards be prohibited from using the barhole method to designate G3SEI leaks (LDC Joint Comments at 5-6; LDC Joint Reply Comments at 5). The Companies argue that this delayed implementation will allow Bay State, Eversource, and National Grid time to implement system changes necessary to employ the leak-extent method (LDC Joint Comments at 5-6). The LDCs aver that in order to transition to the use of the leak-extent method, companies will have to develop internal processes and procedures to capture and record leak-extent data and modify their respective leak management and other systems to capture the data (LDC Joint Comments at 8).

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use during a normal leak survey to identify G3SEI leaks (Study Participant Comments at 5-6).

<sup>14</sup> The following comments also support the adoption of the Shared Action Plan, including the transition to the use of the leak-extent method: Arise for Social Justice Comments at 3-4; Gas Leaks Allies Comments at 2; MHPCE at 3; Mothers Out Front Comments at 3-4; Mothers Out Front Acton Comments at 4; Resource Force Comments at 2; Sierra Club Comments at 3; Sustainable Lexington Comments at 4; Royce Comments at 3; and Edward Woll, Jr. Comments at 4; Tr. at 12, 63, 70, 89, 104.

With respect to the smaller gas companies, the LDCs propose that gas companies serving less than 75,000 customers and having less than 50 percent of the respective distribution system composed of leak-prone main (Unitil, Liberty, and Berkshire) continue to use the barhole method for designating G3SEI leaks (LDC Joint Comments at 7). The LDCs argue that these smaller gas companies are not the primary contributors to the environmental impact of Grade 3 leaks, and given these companies' limited resources, it is appropriate to allow the continued use of the barhole method unless and until these companies implement the leak-extent method (LDC Joint Comments at 7-8). The LDCs also claim that this approach is consistent with the Department's decision in D.P.U. 16-31-B not to narrowly prescribe identical criteria for all LDCs given the unique operating conditions within each service territory (LDC Joint Comments at 7). Further, the LDCs propose that any Gas Company that qualifies to use the barhole method will be required to submit a transition plan to the Department within five years, either requesting to continue the barhole method or providing a plan to transition to the leak-extent method (LDC Joint Comments at 7). The LDCs propose that this transition plan take into account the number of G3SEI leaks, the availability of crew resources, and cost impacts for customers (LDC Joint Comments at 7 n.9).

The LDCs propose the following definition for leak extent: "Leak Extent is an area in which a Gas Company has detected positive CGI [combustible gas indicator] or FIU [flame ionization unit] readings surrounded by an area of negative CGI or FIU readings" (LDC Joint Comments at n.4). The Gas Leaks Allies propose that the LDCs' definition requires clarification that leak extent is positive CGI readings at expected "pathways," where pathways are locations where gas would be expected to leak out such as a tree pit, curb cut or crack, surrounded by

negative CGI readings at all expected pathways (Gas Leaks Allies Reply Comments at 3). The Gas Leaks Allies argue that not finding a positive reading in an uninterrupted, crack-free pavement does not count as a negative CGI reading for purposes of the leak-extent method (Gas Leaks Allies Reply Comments at 3). The Gas Leaks Allies argue that the regulations should require all LDCs, regardless of size, to transition to the use of the leak-extent method (Gas Leaks Allies Reply Comments at 3-4). The Gas Leaks Allies assert that using the barhole method, which the Study found ineffective at identifying large volume leaks, would cost customers more than the cost to convert to the leak-extent method (Gas Leaks Allies Comments at 3-4). Specifically, the Gas Leaks Allies contend that using an ineffective method to designate G3SEI leaks would result in the LDCs repairing those leaks using gas system enhancement plan (“GSEP”) funding,<sup>15</sup> for which the Companies receive accelerated cost recovery as compared to a non-GSEP leak repair, thus misleading customers and wasting customers’ money (Gas Leaks Allies Reply Comments at 3-4). The Gas Leaks Allies propose allowing the smaller gas companies an additional year to transition to full use of the leak-extent method and not allowing them to use the barhole method in that interim year (Gas Leaks Allies Reply Comments at 4)

Several of the LDCs also provided cost estimates for the transition to the leak-extent method and annual expenses related to the leak-extent method and the barhole method. Bay State estimates that the initial cost to implement the leak extent method would be \$354,665, and the annual cost to administer either the leak-extent method or the barhole method would be \$2,228,877 (Bay State Supplemental Comments at 1-2). National Grid estimates that the initial

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<sup>15</sup> Six LDCs have GSEPs, which are programs where each company is accelerating the replacement of aging, leak-prone infrastructure over a period of 20 or 25 years.

cost to implement the leak-extent method would be \$33,000, the annual cost to administer the leak-extent method would be \$528,776, and the annual cost to administer the barhole method would be \$212,096 (National Grid Supplemental Comments at 1). Eversource notes that the costs it would incur to implement the leak-extent method are de minimis, and estimate that the additional annual cost associated with the use of the leak-extent method would be \$67,500, until Eversource's new work management system is in place, at which point Eversource will no longer incur that cost (Eversource Supplemental Comments at 1-2). Unitil estimates that the initial cost to implement the leak-extent method would be \$68,000.<sup>16</sup> Berkshire estimates that initial cost to implement the leak-extent method would be \$27,500, the annual cost to implement the leak-extent method would be \$179,500, and the annual cost to implement the barhole method would be \$157,000 (Berkshire Supplemental Comments at 1). Blackstone did not provide estimates for the implementation of either method as it has no outstanding Grade 3 leaks (Blackstone Supplemental Comments at 1).<sup>17</sup>

Several others commenters argue that the cost to the LDCs to implement the leak-extent would be minimal, and the equipment costs would only amount to approximately \$25 for a tape measure (Mothers Out Front Supplemental Comments at 3; Salois Supplemental Comments at 2; HEET Supplemental Comments at 3; Royce Supplemental Comments at 1; Friends of the Public Garden Supplemental Comments at 3; Brookline Green Space Alliance Supplemental Comments

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<sup>16</sup> Unitil did not provide estimates for the annual costs associated with the leak-extent method or the barhole method, but stated that the cost for using the two different methods would be the same (Unitil Supplemental Comments at 1, Att.).

<sup>17</sup> No municipal gas operator submitted comments regarding estimated costs associated with both the leak-extent method and barhole method.

at 3; Emerald Necklace Conservancy Supplemental Comments at 2-3; Sierra Club Supplemental Comments at 3-4). Several commenters claimed that the other costs associated with the implementation of the leak-extent method, aside from equipment costs, include training and management of the leak-extent process which commenters maintain can be accomplished within the LDCs' standard annual training (HEET Supplemental Comments at 3; Salois Supplemental Comments at 2; Brookline Green Space Alliance Supplemental Comments at 3). Further, some commenters suggest that the LDCs may claim that their databases will require updates to capture leak-extent data (HEET Supplemental Comments at 3; Brookline Greenspace Alliance Supplemental Comments at 3; Salois Supplemental Comments at 1; Friends of the Public Garden Supplemental Comments at 3). HEET and Brookline Green Space Alliance assert that the cost to update those databases should not be considered a cost to implement the leak-extent method because they require updating regardless of any regulatory mandate (HEET Supplemental Comments at 3; Brookline Greenspace Alliance Supplemental Comments at 3).

HEET and Friends of the Public Garden assert that the leak-extent method is substantially more cost effective than other viable methods, such as the chamber method, which requires many hours to perform and extensive training to conduct (HEET Supplemental Comments at 3; Friends of the Public Garden Supplemental Comments at 2). HEET and Friends of the Public Garden also claim that the leak-extent method is also more cost effective than the barhole method (HEET Supplemental Comments at 3). Specifically, HEET argues that the leak-extent method will identify the largest emitting leaks, while the barhole method would not necessarily do the same, and by identifying and eliminating the largest emitting leaks the LDCs and ratepayers would



realize the greatest savings due the reduction in leaked gas (HEET Supplemental Comments at 3).

Additionally, in response to the Department's May 4, 2018 request for their supplemental comments on the estimated costs associated with implementing the leak-extent method and barhole method to identify G3SEI leaks, several commenters assert that the barhole method is not a legally valid method for the identification of G3SEI leaks (HEET Supplemental Comments at 2; Royce Supplemental Comments; Friends of the Public Garden Supplemental Comments at 2; Sierra Club Supplemental Comments at 3). HEET argues that if LDCs were to use the barhole method to identify G3SEI leaks, the result would be the designation of a random assortment of Grade 3 leaks of average size (HEET Supplemental Comments at 2). Therefore, HEET asserts, the use of the barhole method would not meet the aim of the Energy Diversity Act, which is to prioritize the repair of G3SEI leaks (HEET Supplemental Comments at 2). Although these comments are outside the scope of the requested supplemental comments, the Department will address these comments below.<sup>18</sup>

CLF and Picarro argue that the barhole method is a flawed leak quantification method, and that barhole gas-in-air readings should not be used to designate G3SEI leaks (CLF Comments at 3; Picarro Comments at 6-7). Rather, CLF and Picarro assert that the LDCs should designate G3SEI leaks based on leak flow rate estimates using advanced leak detection and advanced data analytics (CLF Comments at 3; Picarro Comments at 7). CLF claims that leak flow rate is a more relevant metric of environmental significance because the environmental

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<sup>18</sup> To the extent the supplemental comments address other matters outside the scope of the estimated costs associated with implementing the leak-extent method and barhole method to identify G3SEI leaks, the Department will not address those comments.

impact of methane emissions is time dependent (CLF Comments at 3). Further, CLF avers that advanced leak detection technology has been tested and its accuracy has been verified to accurately rank leaks by size, while the barhole method has not been tested or verified (CLF Comments at 3-4).

The LDCs, Gas Leaks Allies, and CLF also propose eliminating the second annual confirming test for G3SEI leaks currently proposed in 220 CMR 114.07(2) (LDC Joint Comments at 9; Gas Leaks Allies Reply at 2-3; CLF Comments at 6). The Gas Leaks Allies assert that because the leak-extent method is accurate, there is no need for a second, confirming test, which would delay the repair of G3SEI leaks (Gas Leaks Allies Reply Comments at 3).

Finally, the LDCs propose that the regulations allow a gas company present the Department with proposals for “an alternate, more precise or rigorous method of designating G3SEI leaks” (LDC Joint Comments at 8 & Att. at 5). The LDCs claim that such a provision will preserve flexibility as technology advances (LDC Joint Comments at 8). The LDCs assert that a proposal for the use of an alternate technology must provide the Department with the details and specifications of the proposed method and a transition plan not exceeding one year for implementation of the alternate method (LDC Joint Comments at 8). The Attorney General agrees with the LDCs that new technologies and experience may warrant revisions to the way the LDCs designate G3SEI leaks (Attorney General Reply Comments at 5).

In addition to identifying a preferred method for designating G3SEI leaks, the LDCs, Study Participants, and the Attorney General all propose eliminating age as a designating factor (LDC Joint Comments, Att. at 5; Study Participant Comments at 7; Attorney General Reply Comments at 5). The Attorney General asserts that relying strictly on the leak-extent method,

and not the age of a leak, for designation as environmentally significant appropriately prioritizes the highest volume leaks for repair (Attorney General Reply Comments at 5). The Gas Leaks Allies concur that the leak extent should be the sole designating factor for G3SEI leak, and that we should eliminate age as a factor (Gas Leaks Allies Reply Comments at 4). Sierra Club and Sustainable Lexington argue that while age may remain a designation criteria, the leak extent or size of the leak should be used to set repair priority with the largest leaks prioritized first (Sierra Club Comments at 2; Sustainable Lexington Comments).

## 2. Analysis and Findings

The Study supports the conclusion that the leak-extent method is an accurate way to measure the size of a leak (Study Participant Comments at 5-6 & Att. at 18-19). By using the chamber method, a technique to actually measure the size of the test leaks, the Study Participants were able to determine that a leak footprint of 2,000 square feet or greater more closely correlates with a large volume of emissions (Study Participant Comments at 4, 5-6, & Att. at 12-19). Given this conclusion by the Study Participants, and the goal of eliminating the largest emitting Grade 3 leaks, we find that the leak-extent method is an acceptable method for Gas Companies to identify and designate Grade 3 leaks as G3SEI leaks, and we find that each Gas Company may implement that method. Final Regulations, 220 CMR 114.07(1)(a).<sup>19</sup>

We disagree, however, with HEET and other commenters who argue that the Study renders the barhole method legally inviable with respect to compliance with the Energy Diversity Act. We accept the Study's results for purposes of finding that the leak-extent method is an acceptable means to identify and designate G3SEI leaks, and it appears that, based upon a single

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<sup>19</sup> Attached are Final Regulations, 220 CMR 114.00.

study, the leak-extent method is a more effective means of identifying G3SEI leaks. Because it is based upon a single study, however, we will not mandate use of the leak-extent method, and we conclude that a single study is not sufficient to definitively eliminate the barhole method as an option for identifying G3SEI leaks. The larger Gas Companies advocated that the leak-extent method was the appropriate and most effective method for them to use identifying G3SEI leaks, and we expect and encourage the Gas Companies to use operational judgment to implement the most effective method for identifying G3SEI leaks, provided that implementation of the method proves to be reasonable, cost effective, and reliable.<sup>20</sup> Additionally, as we concluded in D.P.U. 16-31-B at 22, we must allow the Gas Companies flexibility to explore and implement future technologies to detect environmentally significant gas leaks. Final Regulations, 220 CMR 114.07(1)(a). The Department is not in the best position to be the arbiter of what technology is most valid for detecting and measuring environmentally significant gas leaks. The Gas Companies, along with industry experts, are best equipped to research, develop, and test new technologies to identify environmentally significant gas leaks.

Further, at present we have been presented with only two options for designating Grade 3 leaks as G3SEI leaks: the barhole method and the leak-extent method. The Department is cognizant that there are potential costs associated with the designation methods, and that only

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<sup>20</sup> While the Gas Companies may choose to use either the barhole method or the leak-extent method, we note that the cost recovery for the designation of G3SEI leaks is subject to Department review. Recovery of such costs will be subject to the usual requirements, including that the costs are incremental, reasonable, and prudent, and would be determined in a future GSEP or Gas System Enhancement Plan Reconciliation (“GREC”) case. Additionally, we adopt the following definition of GREC in the Final Regulations, 220 CMR 114.02: the Department’s annual investigation and reconciliation of GSEP project costs pursuant to G.L. c. 164 § 145(f).

some LDCs have provided cost estimates for transition to the leak-extent method. The cost estimates vary greatly among the LDCs and are, as stated above, only high-level estimates. Moreover, none of the municipal gas operators indicated their ability to implement the leak-extent method or estimated costs associated with such implementation. We note that the LDCs are already using the barhole method to classify leaks as Grade 1, 2, or 3, and should continue to do so, but would require additional resources to implement the leak-extent method for the designation of G3SEI leaks, including the development of internal processes and procedures, purchasing equipment, and training personnel (LDC Joint Reply Comments at 5-6; CMA Supplemental Comments at 1-2; National Grid Supplemental Reply Comments at 1). For these reasons, while the Department finds that the leak-extent method is an acceptable method for identifying Grade 3 leaks as G3SEI leaks, we decline at this time to require any Gas Company to use the leak-extent method as suggested by the Shared Action Plan. Rather, each Gas Company may choose to implement the leak-extent method. Similarly, we decline to prohibit the use of the barhole method for designating Grade 3 leaks as G3SEI leaks. Gas Companies are allowed to transition to the leak-extent method if in their operational judgment they choose to do so. Because we are not mandating the use of a certain method to designate G3SEI leaks, we also decline to impose a timeline for transition to the leak-extent method for those Gas Companies that choose to transition. Final Regulations, 220 CMR 114.07(1)(a).

We also note that during the course of this proceeding, between January 2017 (when comments on the Straw Proposal were due), and October 2017 (when comments on the Revised Proposal were due), the Study Participants identified and tested the leak-extent method, asserting that method to be preferable to the barhole method for the designation of G3SEI leaks. The

Department recognizes the possibility that new, more accurate, and perhaps less costly methods may be developed. Thus, it would be administratively inefficient for the regulations to require use of the leak-extent method and then have to reopen the regulations each time a new, more accurate method becomes available. Instead, we agree with the LDCs that the Department should allow for the use of future technologies without having to reopen a rulemaking to amend these regulations. To that end, we will maintain the provision in the regulations that allows the Gas Companies to petition the Department for approval of a new technology to designate G3SEI leaks when such technology becomes available. Final Regulations, 220 CMR 114.07(1)(a).

With respect to verification of leak size during a repair via the FLUXbar method, we adopt the requirement proposed by the Study Participants as well as the following definition: a barhole purger modified to gently vacuum air through a drillhole located over a leak while a CGI measures the percent of gas in that airflow. The Gas Companies, the Department, and other stakeholders will be better able to judge the accuracy and viability of the leak-extent method with the additional information available from the FLUXbar measurements. Therefore, the Gas Companies that choose to use the leak-extent method to designate G3SEI leaks will also be required, for one year following implementation of the leak-extent method, to measure a statistically significant randomized sample of G3SEI leaks prior to repair through the FLUXbar method. Final Regulations, 220 CMR 114.07(3). Further, we will require the LDCs to report the FLUXbar measurements along with the leak-extent measurements in the next annual SQ report following the end of the year in which they implement the leak-extent method. Final Regulations, 220 CMR 114.07(3). We also adopt the following definition of FLUXbar: a barhole purger modified to gently vacuum air through a drillhole located over a leak while a

combustible gas indicator measures the percent of gas in that airflow. Final Regulations, 220 CMR 114.07(2).

We decline to adopt the Study Participants proposal to require that a panel comprising the LDCs, HEET, and a mutually agreed-upon independent third party annually reassess the methods of designation for at least five years, and report on that assessment to the Department. As discussed below, the regulations will allow the Gas Companies to propose alternative methods of designation when such methods become viable. The Department, therefore, does not agree that such a panel is presently necessary, but may reconsider in the future should we determine further study is needed.

With respect to the LDCs', Gas Leaks Allies', and CLF's proposal to eliminate the second annual confirming test as the start of the repair timeframe, we agree with this proposal. It is in the best interests of customers and the environment to eliminate G3SEI leaks quickly, and eliminating the second annual confirming test as the start of the repair clock will shorten the repair timeframe by as much as one year. Moreover, as discussed below in Section III.B., below, it is important that the repair timeframes be as consistent as possible across the various available designation methods (presently, the barhole method and the leak-extent method). Therefore, regardless of method used to designate G3SEI leaks, the timeframe for repair shall begin to run when the leak is initially designated.<sup>21</sup> We revise § 114.07(2)(a) accordingly. We also note that the Gas Companies have a continuing obligation to re-evaluate a Grade 3 leak annually,

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<sup>21</sup> Timeframes for repair are set out in § 114.07(1)(a) and discussed further below in Section III.B.

regardless of environmental significance, until the leak is repaired or eliminated. Revised Proposal, 220 CMR 114.04(3)(c).

Because the Department finds that the leak-extent method is one acceptable method of designation for G3SEI leaks, along with the barhole method, we adopt the following definition of leak extent: “an area in which a Gas Company has detected positive FIU readings or positive CGI readings surrounded by an area of negative FIU readings or negative CGI readings”. Final Regulations, 220 CMR 114.02. The Department also agrees with the LDCs, the Attorney General, and many other commenters that age should not be a designating factor for G3SEI leaks. By relying on leak size (based on the leak-extent method), or a gas-in-air reading (based on the barhole method) as the designating factor, rather than age, the Gas Companies will prioritize the largest emitting leaks for earliest repair. Therefore, the Department finds that both the barhole method and the leak-extent method are currently acceptable methods for designating G3SEI leaks, and that the designating factor for a G3SEI leak is either: (1) the leak size, as determined by the leak-extent method; or (2) the gas-in-air reading, as determined by the barhole method. See Final Regulations, 220 CMR 114.07(1)(a).

B. Repair Timeframe for Environmentally Significant Grade 3 Leaks

1. Comments

The Study Participants propose requiring a Gas Company to repair G3SEI leaks in the following timeframes: (1) a leak footprint greater than 10,000 square feet within twelve months of designation; and (2) a leak footprint between 2,000 and 10,000 square feet within two years of designation (Study Participant Comments at 7). The Shared Action Plan includes the following exceptions to these repair timeframes: (1) if any G3SEI leak is inaccessible or challenging to



repair or in a street under a paving moratorium, a Gas Company shall eliminate or repair the leak when access may be gained; and (2) if an G3SEI leak with a leak footprint between 2,000 and 10,000 square feet is on a pipe scheduled for repair under a GSEP within five years, a Gas Company will endeavor to repair or eliminate the leak within three years, so long as it does not reduce safety (Study Participant Comments at 7-8). In addition, the Shared Action Plan allows a Gas Company to cap its repair of G3SEI leak repairs in any one calendar year at seven percent of its total Grade 3 leak inventory as of the end of the previous calendar year (Study Participant Comments at 8).<sup>22</sup>

The LDCs agree with the repair timelines proposed in the Shared Action Plan but propose that such timelines apply only to those G3SEI leaks designated as such on or after January 1, 2018 (LDC Joint Comments at 9). With respect to G3SEI leaks located on GSEP-eligible infrastructure designated prior to January 1, 2018, the LDCs recommend that each company file a plan with the Department regarding the repair or elimination of those leaks, with annual updates on progress made under the plan (LDC Joint Comments at 9). Further, the LDCs agree with the Shared Action Plan's repair timeframes for leaks with a leak extent of 2,000 to 10,000 square feet (LDC Joint Comments at 9).<sup>23</sup> The LDCs, however, propose a different treatment for

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<sup>22</sup> We adopt the following definitions of flame ionization unit (FIU) and combustible gas indicator (CGI), respectively: a device used to detect flammable gas concentrations measured in parts per million, and; a device used detect flammable gas-in-air concentrations. Final Regulations, 220 CMR 114.02.

<sup>23</sup> The LDCs agree that G3SEI leaks be repaired within two years unless located on a GSEP facility scheduled for repair within five years (LDC Joint Comments at 9). The LDCs do not indicate in their comments that they specifically agree that G3SEI leaks located on a GSEP facility scheduled for repair within five years be repaired within three years (see LDC Joint Comments at 9 & Att. at 6).

leaks with a leak footprint of 10,000 square feet or more. Specifically, the LDCs recommend that these leaks be repaired or eliminated within one year of G3SEI leak designation unless the leak is located on a facility that is scheduled for replacement within three years under a company's GSEP (LDC Joint Comments at 9). For all G3SEI leaks, the LDCs agree with the Shared Action Plan that the repair timeframe be waived in instances where the leak in question is: (1) inaccessible or challenging to repair or eliminate given its location, or for other operational reasons; or (2) is located in a street that is under a paving moratorium (LDC Joint Comments at 9-10). The LDCs propose that they repair or eliminate such leaks when the company is able to gain access to the leak (LDC Joint Comments at 10). The Attorney General agrees with the LDCs' revisions adopting the proposed timelines from the Study, and also agrees with the annual cap on G3SEI leak repairs (Attorney General Reply Comments at 5).

## 2. Analysis and Findings

In Section III.A.2, above, we found that the leak-extent method is an acceptable method for designating G3SEI leaks, but that we will not require any Gas Companies to adopt this method. Based upon consideration of comments, and the Department's interest in balancing the speedy elimination of G3SEI leaks with the cost and practical implications of such elimination, the Department, in Final Regulations, 220 CMR 114.07(2)(a), adopts the following timeframes for eliminating leak-extent designated G3SEI leaks:

- (1) Leaks with a leak footprint greater than 10,000 square feet shall be repaired within twelve months of designation; if the leak is on a facility scheduled for replacement within three years under the GSEP, then the leak shall be repaired or eliminated within two years of designation, provided that in either instance such

repair or elimination does not compromise public safety (Final Regulations, 220 CMR 114.07(2)(a)2.);

- (2) Leaks with a leak footprint between 2,000 and 10,000 square feet shall be repaired within two years of designation; if the leak is on a facility scheduled for replacement within five years under the GSEP, then the leak shall be repaired or eliminated within three years, provided that in either instance such repair or elimination does not compromise public safety (Final Regulations, 220 CMR 114.07(2)(a)3.).

Additionally, in order to align the leak-extent method and barhole repair with elimination timeframes, we make several changes to the associated timeframes previously set forth in the Revised Proposal. Specifically, with respect to barhole-designated G3SEI leaks, such leaks shall be repaired within two years of designation; if the leak is on a facility scheduled for replacement within five years under the GSEP, then the leak shall be repaired or eliminated within three years, provided that in either instance such repair or elimination does not compromise public safety.<sup>24</sup> Final Regulations, 220 CMR 114.07(2)(a)1.

We also agree with the LDCs' proposal that these repair timeframes apply only to leaks designated after January 1, 2018, regardless of designation method. Final Regulations, 220 CMR 114.07(2)(a). For all previously designated G3SEI leaks, including those on

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<sup>24</sup> The eight-year repair timeframe for non-environmentally significant Grade 3 leaks on a non-GSEP facility remains the same as in the Revised Proposal, 220 CMR 114.07(2)(b), but has been moved to 220 CMR 114.04(3)(c) in the Final Regulations, and with the exception that this provision will apply to leaks identified on or after January 1, 2018 rather than to those identified on or after January 1, 2017. We decline to include a repair time frame for Grade 3 leaks on GSEP facilities, as those leaks will be repaired in a timely manner in accordance with each Gas Company's GSEP.

GSEP-eligible infrastructure, each LDC will file a plan with the Department regarding the repair or elimination of those leaks, with annual progress reports filed in each LDCs' annual Service Quality Report. Final Regulations, 220 CMR 114.07(2)(d). Because municipal gas operators do not file annual SQ reports, we will require them to file a similar plan for the repair or elimination of all G3SEI leaks designated prior to January 1, 2018. Municipal gas operators will file such a plan no later than March 1, 2020, and they will submit an annual update on March 1 until all G3SEI leaks designated prior to January 1, 2018 are repaired or eliminated. See Final Regulations, 220 CMR 114.07(2)(d).

We further agree with the Shared Action Plan and the LDCs that if any G3SEI leak is inaccessible or challenging to repair or in a street under a paving moratorium, the repair timeframe may be waived. Final Regulation, 220 CMR 114.07(2)(b). This provision applies to all Gas Companies regardless of the designation method. Further, we find reasonable the LDCs' proposal that a Gas Company may cap its repair of G3SEI leak repairs in any one calendar year at seven percent of its total Grade 3 leak inventory as of the end of the previous calendar year. Final Regulations, 220 CMR 114.07(2)(c). We concur with the LDCs that this provision acknowledges that the Gas Companies do not have unlimited resources with which to repair gas leaks, and it strikes an appropriate balance between public safety and environmental mandates. Though the LDCs proposed this measure for leaks designated by the leak-extent method, we find that it is an appropriate provision for all Gas Companies, regardless of designation method.

Repair Timeframes for G3SEI Leaks:<sup>25</sup>

Designation Method and Leak Size	Repair Timeframe from Date of Designation	
	On GSEP-Eligible infrastructure	On non-GSEP infrastructure
Barhole Method - Barhole Reading of 50% or greater	3 years*	2 years
Leak-Extent Method – Leak extent between 2,000 and 10,000 square feet	3 years*	2 years
Leak extent over 10,000 square feet	2 years**	1 year

\* This applies if the G3SEI leak is on GSEP-eligible infrastructure and scheduled for repair within 5 years.

\*\* This applies if the G3SEI leak is on GSEP-eligible infrastructure and scheduled for repair within 3 years.

Final Regulations, 220 CMR 114.07(2)(a).

C. Classification

1. Comments

The LDCs propose that we eliminate two factors from the considerations for classifying Grade 1, 2, and 3 leaks: (1) population density and (2) operating pressure (LDCs Joint Comments at 11). The LDCs contend that such information is not used to classify leaks and, in fact, that pipeline operating pressure cannot be confirmed until after a leak is repaired or eliminated and, therefore, it can have no bearing on leak classification (LDC Joint Comments

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<sup>25</sup> If a G3SEI leak is inaccessible or challenging to repair or in a street under a paving moratorium, these timeframes may be waived. Final Regulations, 220 CMR 114.07(2)(b).

at 12). The LDCs further argue that population density is not an appropriate consideration in classifying Grade 1, 2, or 3 leaks, and the LDCs are unclear on how population density would be characterized (LDC Joint Comments at 12). The Attorney General disagrees and argues that the Department denied the same proposal from the LDCs in D.P.U. 16-31-B and should do so in this Order (Attorney General Reply Comments at 10, citing D.P.U. 16-31-B at 10).

NEGWA proposes that the regulations include additional criteria for classification of Grade 1 leaks (NEGWA Comments at 2-3). Specifically, NEGWA suggests that any positive reading inside an inhabited structure that is related to a pipeline, any positive reading from an external source within five feet of an inhabited structure, or any reading indicating four percent or more gas in an enclosed space should all be classified as Grade 1 leaks (NEGWA Comments at 2-3). NEGWA argues that these criteria set a common sense floor for when a leak must be classified as a Grade 1 leak, and none of these criteria would prevent the Gas Companies from using other factors to classify a Grade 1 leak (NEGWA Comments at 3). NEGWA further asserts that without these more specific criteria, Gas Companies may fail to classify dangerous leaks and, as a result, those dangerous leaks will not be eliminated or repaired (NEGWA Comments at 3). NEGWA claims that including its proposed criteria would not detract from a Gas Company's ability to rank risk, but rather will promote consistency and protect the public (NEGWA Comments at 3).

Newton proposes that we include a provision that allows municipalities to request reclassification of a Grade 3 leak if there is a reasonable belief that the leak poses a threat to public safety, in accordance with Section 144(b)(4) (Newton Comments at 2). Newton claims that while Section 144(b)(4) does not provide any specific process for requesting reclassification,

the Department should provide a uniform, objective procedure for the benefit of the Gas Companies and municipalities (Newton Comments at 3). Newton recommends the following procedure for a municipality to request reclassification of a Grade 3 leak: the request for reclassification must be made in writing; the Gas Company must respond in writing to a reclassification request in seven days or less; the Gas Company must detail the steps taken to reevaluate the leak in question; and the requesting municipal official may seek recourse from the Director of the Pipeline Safety Division of the Department if the Gas Company fails to follow this procedure (Newton Comments at 2-3).

Finally, with respect to classification, many commenters propose that any leak in the root zone of a tree be classified as a Grade 2 leak, effectively treating trees as property and requiring repair of the leak within twelve months (Arise for Social Justice Comments at 2; Brookline Green Space Alliance Comments at 1; Emerald Necklace Conservancy Comments at 6; Esplanade Association Comments at 2; Friends of the Public Garden Comments at 2; Garden Club of Back Bay Comments at 2; Representative Gentile Comments at 2; Nature Conservancy Comments at 2; Sierra Club Comments at 4; Lowell Parks and Conservation Trust at 2; Neighborhood Association of Back Bay Comments at 1; Arborway Coalition at 1; Papesch Comments at 1; Wellesley Natural Resources Commission Comments at 4; Royce Comments at 2-3; Corcoran Comments at 2; Salem Alliance for the Environment Comments at 8; Rose Fitzgerald Kennedy Greenway Conservancy Comments at 2). Specifically, these commenters argue that trees have monetary value to either their owners or the public if the tree in question is

a public shade tree (Emerald Necklace Conservancy Comments at 7).<sup>26</sup> Further, the commenters argue that every tree killed by gas leaks must be removed at the owner's expense, whether that owner is an individual property owner or a municipality (Emerald Necklace Conservancy Comments at 7-8). The Emerald Necklace Conservancy avers that defining gas leaks in root zones of trees as Grade 2 leaks will be a significant step toward redressing decades of inaction by the Department and the LDCs to protect property interests in trees (Emerald Necklace Conservancy Comments at 8). Finally, Robert Ackley proposes that we include a new designation for G3SEI leaks, and proposes a definition of environmentally sensitive as "any leak with migration area of 500 square feet or more or any leak in the root zone of any tree" (Ackley Comments at 2). He also proposes that any such leak be "expeditiously" repaired (Ackley Comments at 2). The LDCs disagree that additional measures are necessary to protect trees (LDC Joint Reply Comments at 8). The LDCs argue that the proposed repair designation and repair timeframes for G3SEI leaks will address environmental impacts associated with gas leaks, including the impact to trees (LDC Joint Reply Comments at 8).

## 2. Analysis and Findings

With respect to the Company's argument that we should remove operating pressure and population density from the classification criteria, we decline to do so. The Department rejected this same proposal in our previous Order. D.P.U. 16-31-B at 10. Operating pressure and

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<sup>26</sup> The following commenters concur with the Emerald Necklace Conservancy's arguments: Lowell Parks and Conservation Trust; Neighborhood Association of Back Bay; Arborway Coalition; Peter Papesch; Wellesley Natural Resources Commission; Jacqueline Royce; Claire Corcoran; Salem Alliance for the Environment; Rose Fitzberald Kennedy Greenway Conservancy; Garden Club of Back Bay; Brookline Green Space Alliance; Clean Water Action; Robert C. Ackley; and Friends of the Public Garden.



population density are only two factors, along with the size of the leak and proximity to buildings and structures, and they are simply guidance that the Gas Companies should consider when classifying leaks. Final Regulations, 220 CMR 114.04(2).

We also decline to adopt NEGWA's proposal to include additional classification criteria, consistent with our previous Order, D.P.U. 16-31-B. The Revised Proposal already requires a Gas Company to classify a leak as Grade 1 if it poses an existing or probable hazard to persons or property, and the Gas Companies may use their experience and judgement to determine what constitutes a hazard. In fact, each Gas Company has operation and maintenance manuals that contain the company-specific classification procedures, and federal law requires the Gas Companies to follow those procedures. 49 C.F.R. Part 192, § 192.605(a). The Department stated in D.P.U. 16-31-B at 11, that we decline to direct the Gas Companies to use identical criteria or considerations in classifying natural gas leaks because to do so would detract from a Gas Company's ability to rank risk and account for unique operating conditions within each Gas Company's service territory. Therefore, we decline to adopt NEGWA's proposed provisions.

Newton Requests a provision that allows municipalities to request reclassification of a Grade 3 leak if there is a reasonable belief that the leak poses a threat to public safety, along with a multi-step procedure for such a request. We agree that the regulations should include a provision allowing municipalities to request reevaluation of Grade 3 leaks, in accordance with the Act, Section 144(b)(4). Therefore, we maintain the provision stating such a requirement in Final Regulations, 220 CMR 114.04(3)(c). We decline to adopt Newton's proposed procedures regarding a request for reclassification.

With respect to the treatment of gas leaks in the root zones of trees, the Department addressed this issue in its previous Order. D.P.U. 16-31-B at 52-53. While we recognize that natural gas leaks may have an adverse environmental impact on trees, we found that this is another reason to adopt policies that aim to eliminate G3SEI leaks while balancing the needs of public safety and resource constraints. D.P.U. 16-31-B at 53. We maintain that the currently proposed classification system and accompanying repair timeframes appropriately balance those factors. Accordingly, we decline to define gas leaks in root zones of trees as Grade 2 leaks or as environmentally sensitive.

D. Reporting

1. Comments

The LDCs argue that the Quarterly Reporting requirements in the Revised Proposal, 220 CMR 114.08(2), are burdensome and that it is not administratively feasible to report such details on a quarterly basis (LDC Joint Comments at 12). Rather, the LDCs propose that we require them to report only the totals for each category listed in the quarterly reports (LDC Joint Comments at 12).<sup>27</sup> The LDCs assert that the detailed quarterly reporting currently required would result in conflicting information between the final quarterly report of the year and the Service Quality report and that simply providing totals in the quarterly reporting would provide

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<sup>27</sup> The quarterly reporting categories are: (1) leaks carried forward from previous quarter; (2) new leaks identified by classification during the quarter; (3) each leak repaired during the quarter; (4) each leak eliminated by replacement during the quarter; (5) leaks pending at end of quarter; (6) any change in leak classification during the quarter; and (7) for each leak, whether it is designated as environmentally significant. Revised Proposal 220 CMR 114.08(2). The reporting requirements apply only to LDCs.

the Department with sufficient insight into the Companies' progress (LDC Joint Comments at 12).

The Gas Leaks Allies, Arise for Social Justice, Sierra Club, and Sustainable Lexington all disagree with the LDCs' proposal and want to maintain the detailed quarterly reporting requirements of the currently proposed regulations (Gas Leaks Allies Reply Comments at 5; Arise for Social Justice Comments at 4; Sustainable Lexington Comments at 5; Sierra Club Comments at 3-4). The Gas Leaks Allies maintain that the detailed quarterly reporting will allow the Department and other stakeholders to better monitor the LDCs' progress (Gas Leaks Allies Reply Comments at 5).

Several commenters offered proposals regarding reporting of G3SEI leaks. The Study Participants propose that for all G3SEI leaks, the following information should be included in the annual report: (1) leak address; (2) leak footprint; (3) date reported; (4) date of designation; and (5) date of repair (Study Participant Comments at 8). The Study Participants also propose a requirement that the LDCs report the number of G3SEI leaks on each GSEP-eligible pipe in the annual GSEP reports (Study Participant Comments at 8). Further, CLF and the Gas Leaks Allies recommend that the LDCs report the flow rate of G3SEI leaks in the quarterly and annual reports (Gas Leaks Allies Reply Comments at 5; CLF Comments at 10). Finally, the Attorney General proposes a requirement that LDCs incorporate emissions data derived from the designation of G3SEI leaks into their distribution integrity management plans ("DIMPs").

Sustainable Lexington proposes that we include a requirement that any gas leak data be made available to municipalities upon request to the Department (Sustainable Lexington at 5). Similarly, Clean Water Action proposes that we require the LDCs to send quarterly reports

directly to municipalities (Clean Water Action Comments at 2). Further, Clean Water Action recommends that reports on methane emissions, lost and unaccounted for (“LAUF”) gas and charges to consumers for lost gas be integrated into gas leak reporting (Clean Water Action Comments at 2). Finally, NEGWA proposes that we include a provision requiring LDCs to immediately report the detection and elimination of Grade 1 leaks to the Department (NEGWA Comments at 4). NEGWA claims that such a provision would give the Department a fuller and more immediate understanding of the LDCs efforts to address Grade 1 leaks (NEGWA Comments at 4).

## 2. Analysis and Findings

With respect to quarterly reports, we decline to reduce the requirements as proposed by the LDCs. Final Regulations, 220 CMR 114.08(2). We agree with the other commenters who oppose the LDCs’ proposal to reduce the quarterly reporting requirements, and we find that this information is critical for transparency. Further, we note that the LDCs are already required to maintain all of this data for the annual reports. We find that public interest supports requiring quarterly reports. If there are discrepancies between quarterly reporting data and annual, year-end data, the Companies will be responsible for addressing those discrepancies. The mere possibility of such discrepancies, however, is not sufficient to reduce the quarterly data reporting.

Several commenters proposed various annual reporting requirements regarding G3SEI leaks, including (1) reporting leak address, footprint, date reported, date of designation, date of repair in annual reports; (2) reporting the leak size in quarterly and annual reports; and (3) reporting the number of known G3SEI leaks in GSEP reports. First, we note that the Revised Proposal already requires the Gas Companies to report the leak address and date of repair for all

leak grades in the annual reports, including Grade 3 leaks and G3SEI leaks. We will further require Gas Companies to report the date of designation as a G3SEI leak pursuant to Final Regulations, 220 CMR 114.08(1) and (2). For those LDCs that choose to implement the leak-extent method, they shall report the leak footprint and, for those that use the barhole method, they shall report the barhole reading. See Final Regulations, 220 CMR 114.08(1)(1) and (2)(i). We agree with the Study Participants that the LDCs should also report the number of known G3SEI leaks on each length of GSEP-eligible pipe in their annual GREC filings

We disagree with the Attorney General's proposal to incorporate G3SEI emissions data into the companies' DIMPs. DIMPs are aimed exclusively at maintaining the safety and integrity of gas distribution systems, and while we acknowledge that G3SEI leaks are an important environmental issue, they are by definition not safety-related. We decline to require the LDCs to insert non-safety-related data into a safety-focused program.

With respect to Sustainable Lexington's proposal that we require LDCs to provide reported data to municipalities upon request and Clean Water Action's proposal to require LDCs to send quarterly and annual reports to municipalities, we do not find such provisions necessary. Absent such provisions, LDCs should still provide municipalities with reported data upon request. Further, the Department will make all data not otherwise protected from public release available to the public through our online file room, ensuring municipalities and other interested entities have access to quarterly and annual gas leak data.

We also reject NEGWA's proposal to require Gas Companies to immediately report classification and repair of Grade 1 leaks to the Department. We are satisfied that the extensive quarterly and annual reporting required by Final Regulations, 220 CMR 114.08, will give the

Department and other interested parties a sufficient understanding of the Gas Company's efforts in classifying and eliminating natural gas leaks, and further reporting requirements are unnecessary. Finally, with respect to reporting, we decline to require the Gas Companies to report methane emissions, LAUF gas, or the cost of LAUF gas in this instance. These regulations are aimed at repairing natural gas leaks and require extensive reporting on natural gas leaks, not emissions or LAUF gas.

E. Projects in a Public Way

1. Comments

Sustainable Lexington and the Sierra Club both argue that, in addition to Grade 1 and Grade 2 leaks, Gas Companies should be required to identify and establish a repair plan for G3SEI leaks when undertaking a significant project in a public way requiring restoration of pavement (Sustainable Lexington Comments at 5-6; Sierra Club Comments at 4). The LDCs propose a revision to the Revised Proposal, 220 CMR 114.05(1)(b) that reads, "ensure that any shut off valve required for the safe operation of the system in the Significant Project area has a gate box installed . . ." (LDC Joint Comments, Att. 5, at 4). Clean Water Action opposes this proposed revision, claiming that it weakens the obligation on the Gas Company by limiting it to only those shut-off valves required for the safe operation of the system, not any shut-off valve in the significant project area (Clean Water Action Comments at 2). Further, Clean Water Action argues that easily accessible shut-off valves are important safety measures and protect the environment from further methane emissions, and that if alternatives exist, the Department should define what comprises a "reasonable alternative" (Clean Water Action Comments at 2-3). Finally, Clean Water Action contends that given the current lack of penalty enforcement,

noncompliance with shut-off valve requirements puts workers and the environment at risk (Clean Water Action Comments at 3).

## 2. Analysis and Findings

The Department agrees with Sustainable Lexington and Sierra Club that, in addition to Grade 1 and Grade 2 leaks, Grade 3 leaks and G3SEI leaks should also be addressed when undertaking a significant project in a public way requiring restoration of pavement. Many municipalities impose a five-year moratorium on excavation of newly paved streets. Gas Operator Compliance with Gate Box Maintenance and Improvement, D.P.U. 15-12-A at 5, 21, 24 (2015); Gate Box Maintenance and Improvement, D.P.U. 06-48-A at 28-29 (2008). If a street is opened for a significant project and then repaved, there could be restrictions on when that road can be opened again, denying access to unaddressed leaks. Therefore, we require the Gas Companies to evaluate and establish a repair plan for any leak, regardless of grade or designation, when operating in an open public way requiring pavement restoration. Final Regulations, 220 CMR 114.05(1)(a).

We also agree with Clean Water Action that the LDCs' revision weakens the Gas Companies' safety obligations to ensure that all shut-off valves remain accessible through gateboxes. Accordingly, we decline to adopt the LDCs' revision to the Revised Proposal, 220 CMR 114.05(1)(b) and will continue to require all shut-off valves to have gate boxes.

## F. Miscellaneous

### 1. Comments

Several commenters proposed further revisions to various sections of the Revised Proposal. The LDCs propose revisions to two definitions, (1) school zone and (2) Grade 1 Leaks

(LDC Joint Comments at 11, 12). The current definition of “school zone” is: “on or within 50 feet of the real property comprising a public or private accredited preschool, accredited Head Start facility, elementary, vocational, or secondary school.” The LDCs propose to redefine “school zone” to mean on or within any physical structure located on the real property, so that 220 CMR 114.06 would require LDCs to prioritize any pipeline repairs or replacements for those leaks located within 50 feet of a physical structure located on the real property of a public or private accredited preschool, accredited Head Start facility, elementary, vocational or secondary school (LDC Joint Comments at 11). The LDCs assert that including the reference to a physical structure on the real property will enable the LDCs to prioritize repairs or replacements for leaks that are close to buildings, as opposed to those that are simply close to the property line (LDC Joint Comments at 11). The Attorney General opposes the LDCs’ proposed revision because the current definition mirrors the statutory language found at Section 144(d) (Attorney General Reply Comments at 9-10).

The LDCs also propose the following revision to the definition of Grade 1 leaks: “Grade 1 leaks require repair as immediately as possible and continuous action until the conditions are no longer hazardous. A Gas Company shall immediately schedule a completion of repairs of Grade 1 leaks and the condition shall be kept under continuous surveillance until the hazard or source of the leak is eliminated” (LDC Joint Comments at 12-13 & Att. at 3). The LDCs contend that their definition conforms more closely with the provisions of the Act and also clearly sets out the requirement for the immediate repair of these leaks (LDC Joint Comments at 12-13).



The Attorney General proposes an edit to the Revised Proposal, 220 CMR 114.09, regarding Gas Company Procedures manuals, to incorporate references to 220 CMR 101.01 and G.L. c. 164 § 105A (Attorney General Reply Comments at 9). The Attorney General asserts that, pursuant to 220 CMR 101.01, the Department requires a Gas Company to train and qualify employees to safely perform leak surveys; to follow their procedural manuals for operation, maintenance, and emergencies; and to have access to relevant portions of the manuals when performing these procedures (Attorney General Reply Comments at 9). Further, the Attorney General contends that the Department has the authority to enforce 49 C.F.R. Part 192 pursuant to G.L. c. 164, § 105A (Attorney General Reply Comments at 9).

NEGWA offers several revisions to the Revised Proposal. First, NEGWA reiterates its prior recommendation that we include a definition of “eliminated” as the word is used in § 114.03(3)(a) regarding Grade 1 leaks (NEGWA Comments at 1). NEGWA asserts that, absent a definition, different Gas Companies may have different understandings of when a Grade 1 leak is eliminated and, thus, a definition is necessary to protect public safety (NEGWA Comments at 1). NEGWA also argues that Gas Companies currently apply temporary fixes to avoid the costs associated with permanent repairs and that a definition of “eliminated” would stop this practice (NEGWA Comments at 2). NEGWA further repeats its proposal to include a provision that bans retaliation by the Gas Companies against employees who report gas leaks and imposes a fine for any such retaliation (NEGWA Comments at 4-5). NEGWA asserts that Gas Companies may try to avoid identifying gas leaks to avoid the cost of repairing or eliminating those leaks and that, therefore, a company may retaliate against employees who identify and report gas leaks (NEGWA Comments at 4-5). NEGWA also claims that the Department has the authority to

issue a ban on retaliation pursuant to Section 144, which requires the Department to promulgate regulations “necessary to implement the uniform natural gas leak classifications” (NEGWA Comments at 5). Specifically, NEGWA argues that a provision banning retaliation is necessary to implement these classifications because, without employee protection, accurate gas leak reporting is not guaranteed (NEGWA Comments at 5-6). The LDCs oppose a provision banning retaliation against workers for reporting gas leaks because the suggestion that an LDC would retaliate is baseless (LDC Joint Reply Comments at 7). Further, the LDCs argue that NEGWA’s retaliation argument is undermined by the LDCs’ entitlement to accelerated cost recovery for leak repairs under the GSEPs (LDC Joint Reply Comments at 7). Finally, the LDCs note that NEGWA members already have avenues, such as company and union protocols, to pursue any alleged grievances (LDC Joint Reply Comments at 7-8).

NEGWA also recommends requiring the Gas Companies to classify a leak as Grade 1 in the following circumstances: (1) any positive reading inside an inhabited structure that is determined to be related to a pipeline; (2) any positive reading from an external source within five feet of an inhabited structure; and (3) any reading of four percent or more gas in an enclosed space (NEGWA Comments at 2-3). NEGWA claims that without these additional criteria, dangerous leaks may be improperly classified and that these criteria do not detract from a Gas Company’s ability to rank risk (NEGWA Comments at 3).

Several commenters, including the Attorney General, advocate for additional guidance and procedure from the Department (Attorney General Reply Comments at 5; CLF Comments at 6-7; Clean Water Action Comments at 3). The Attorney General, CLF, and Clean Water Action propose that the Department convene a technical session to consider various topics, including

available technologies for the detection of environmentally significant leaks and LAUF gas (Attorney General Reply Comments at 5-6; CLF Comments at 5; Clean Water Action Comment at 3). Further, many commenters propose that the Department provide guidance for annual independent reassessment of procedures regarding G3SEI leaks (Mass Health Care Professionals Comments at 4; Sierra Club Comments at 4; Sustainable Lexington Comments at 6; Arise for Social Justice Comments at 4).

Clean Water Action and Gas Leaks Allies propose that the Department adopt procedures to measure LAUF gas (Clean Water Action Comments at 3; Gas Leaks Allies Reply Comments at 5-6). Edward Woll, Jr. further proposes that we adopt procedures to measure fugitive emissions, which he asserts are not a proxy for LAUF gas (Woll Comments at 1-2).

## 2. Analysis and Findings

With respect to the LDCs' proposed school zone definition, we agree with the Attorney General that the current definition already mirrors the statutory language at Section 144(d). Moreover, defining a school zone in terms of the buildings on the property and not the property line would defeat safety concerns. Accordingly, we decline to change the definition as the currently proposed language is appropriate and tracks the statutory language. Final Regulations, 220 CMR 114.02. Further, we disagree with the LDCs' proposed revision to the definition of Grade 1 leaks. The definition in the Revised Proposal follows the intent of the Act, and it also clarifies when an LDC's obligation regarding a Grade 1 leaks is fulfilled. Therefore, we maintain the definition of a Grade 1 leak in the Revised Proposal. Final Regulations, 220 CMR 114.09.

We also agree that § 114.09 regarding gas company manuals should include a reference to G.L. c. 164 § 105A. Therefore, we revise that provision to read, “Each Gas Company shall incorporate procedures for all requirements of 220 CMR 114.00 into their written procedures under 49 CFR Part 192 as applicable, to ensure compliance with M.G.L. c. 164, §§ 105A, 144, and 220 CMR 114.00.”

In our previous Order, D.P.U. 16-31-B, the Department declined to adopt any of the proposals that NEGWA raised, and that it has raised again in the comments above. D.P.U. 16-31-B at 11, 34-35, 53. We decline to adopt NEGWA’s proposed definition of “eliminated” because we find that the definition is unnecessary. Contrary to NEGWA’s assertions, the Department sees no indication that Gas Companies have shirked or will attempt to shirk their obligations to eliminate natural gas leaks legitimately in the interest of saving money. We further reject NEGWA’s proposal to ban and fine for retaliation against employees for reporting leaks for the same reason that we stated in our previous Order. There is nothing to suggest that the Gas Companies have ever or would ever retaliate against employees in an effort to save money. D.P.U. 16-31-B at 53. We disagree with NEGWA’s assertion that simply because it is possible that a Gas Company could retaliate against an employee, there must be a regulatory provision banning and fining for that retaliation to prevent it from happening. We also disagree with NEGWA’s claim that banning retaliation is necessary to ensure the uniform classification of natural gas leaks and, therefore, required by Section 144.

Similarly, we again reject NEGWA’s proposal for additional Grade 1 classification criteria, and we reiterate our reasoning from our prior Order: we decline to narrowly prescribe identical classification criteria because to do so would detract from a Gas Company’s ability to

rank risk and to account for unique operating conditions within each Gas Company's service territory. D.P.U. 16-31-B at 11. We also note that each Gas Company has operations and maintenance manuals unique to its operating system and service territory that provide additional company-specific classification criteria and guidance.

With respect to the various requests that the Department provide additional guidance or conduct a technical session, we decline to do so at this time. This Order and Final Regulations allow the LDCs to propose new and alternative processes and technologies for the designation of G3SEI leaks. In the future, should a need arise, the Department may initiate further process or proceedings to evaluate and adjust these regulations. It is not, however, administratively efficient to require additional process at this time without a clear need to do so.

As in our previous Order, we also decline to adopt procedures to measure LAUF gas and fugitive emissions. D.P.U. 16-31-B at 47. In that Order, we found that there is no recognized industry standard to accurately measure LAUF gas from natural gas leaks, but that the Companies estimate LAUF gas where required by federal law. D.P.U. 16-31-B at 47. Pursuant to Chapter 227 of the Acts of 2018, An Act to Advance Clean Energy, the Department will open a rulemaking to create regulations specific to LAUF gas reporting.

G. Comments Previously Addressed

In our previous Order in this proceeding the Department addressed comments and made findings regarding uniform gas leak classification, the barhole method, and repair timeframes for Grade 1, 2 and 3 leaks. Revised Proposal, D.P.U. 16-31-B. To the extent they are not modified by this Order, we adopt those findings as final.

IV. ADOPTION OF FINAL REGULATIONS

For the reasons stated above, the Department, by this Order, adopts the attached Final Regulations 220 CMR 114.00, Uniform Natural Gas Leaks Classification.

The Department has filed standard Regulations Filing Forms and the regulations 220 CMR 114.00, with the Office of the Secretary of the Commonwealth, State Publications and Regulations Division. These regulations are effective upon publication in the Massachusetts Register.

By Order of the Department,

\_\_\_\_\_  
/s/  
Matthew H. Nelson, Chair

\_\_\_\_\_  
/s/  
Robert E. Hayden, Commissioner

\_\_\_\_\_  
/s/  
Cecile M. Fraser, Commissioner

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220 CMR 114.00: UNIFORM NATURAL GAS LEAKS CLASSIFICATION

Section

114.01: Purpose and Scope

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114.06: Prioritization of Projects Located within a School Zone

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114.08: Reporting Requirements

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114.01: Purpose and Scope

(1) Purpose. 220 CMR 114.00 governs:

- (a) uniform natural gas leaks classification;
- (b) requirements for undertaking projects in a public way;
- (c) prioritization of projects located within a School Zone;
- (d) reporting requirements, consistent with the provisions of M.G.L. c. 164, § 144; and
- (e) the repair and elimination of environmentally significant Grade 3 leaks.

(2) Scope. 220 CMR 114.00 applies to every Gas Company, municipal gas department, or other person engaged in the distribution of natural gas.

114.02: Definitions

For the purposes of 220 CMR 114.00, the terms set forth in 220 CMR 114.02 shall be defined as follows:

Annual Service Quality Report. A Company's annual report which compares its performance in the previous calendar year to the Department's service quality standards, as required by M.G.L. c. 164, § 1I.

Barhole. A small-diameter hole made in the ground along the route of a gas pipe that is used by the Gas Company to obtain a sub-surface gas-in-air reading.

Combustible Gas Indicator (CGI). A device used to detect flammable gas-in-air concentrations.

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Department. Department of Public Utilities, Commonwealth of Massachusetts.

Flame Ionization Unit (FIU). A device used to detect flammable gas concentrations measured in parts per million.

FLUXbar. A barhole purger modified to gently vacuum air through a drillhole located over a leak while a CGI measures the percent of gas in that airflow.

Gas Company. Refers to every Gas Company, municipal gas department, or other person engaged in the distribution of natural gas, as provided in M.G.L. c. 164, §§ 1 and 34.

Gas System Enhancement Plan (GSEP). A Gas Company's annual gas system enhancement program plan to replace aging natural gas pipeline infrastructure, pursuant to M.G.L. c. 164, § 145.

Gas System Enhancement Plan Reconciliation (GREC). The Department's annual investigation and reconciliation of GSEP project costs pursuant to M.G.L. c. 164, § 145(f).

Leak Extent. An area in which a Gas Company has detected positive FIU readings or positive CGI readings surrounded by an area of negative FIU readings or negative CGI readings.

Pipeline. All parts of those physical facilities through which gas moves in transportation, including pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies, as defined in 49 CFR 192.3.

School Zone. On or within 50 feet of the real property comprising a public or private accredited preschool, accredited Head Start facility, elementary, vocational, or secondary school.

114.03: Applications for Exceptions

Any person engaged in the classification of natural gas leaks may make a written request to the Department for an exception to the provisions of 220 CMR 114.00, in whole or in part.

The request shall justify why the exception should be granted and shall demonstrate why the exception sought provides an equal or greater level of safety than the safety objective prescribed in M.G.L. c. 164, § 144. The request shall include details on the need for the exception, specific information on the circumstances



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surrounding the requested exception, the provisions of 220 CMR 114.00 from which exception is sought, the time period for which the exception is sought, and a description of any safety consequences that might result from the exception.

Documentation in support of the request shall be submitted.

The Department may deny the exception or grant the exception as requested, or as modified by the Department and subject to conditions. Any exception shall be issued in writing and may be made by the Director of the Pipeline Engineering and Safety Division, or by the Director's functional successor in the event of an internal reorganization of the Department. Any person aggrieved by a decision of the Director regarding a request for an exception may appeal the Director's decision to the Commission. Any appeal shall be in writing and shall be made not later than ten business days following issuance of the written decision of the Director.

114.04: Uniform Gas Leak Classification

- (1) Every person whose job duties or responsibilities include the classification of natural gas leaks shall be trained and qualified pursuant to 49 CFR Part 192.805 to ensure proper leak classification.
- (2) Each Gas Company shall classify natural gas leaks utilizing established gas leak classification criteria and a method to determine sub-surface gas migration as set forth in the Gas Companies' operating procedures within a reasonable amount of time of discovery taking into consideration the following:
  - (a) the operating pressure of the Pipeline;
  - (b) the size of the leak migration pattern;
  - (c) the population density; and
  - (d) the proximity to buildings and structures.
- (3) Each Gas Company shall assess a grade to all reported natural gas leaks as follows:
  - (a) Grade 1 Leak. A Grade 1 leak shall be a leak that represents an existing or probable hazard to persons or property. Grade 1 leaks require the immediate commencement of repair and continuous action until the conditions are no longer hazardous, the source of the leak is eliminated, and permanent repairs have been completed. Whenever appropriate and feasible, a Gas Company shall notify the fire department and chief law enforcement officer in each city or town where a Grade 1 leak is identified.
  - (b) Grade 2 Leak. A Grade 2 leak shall be a leak that is recognized as nonhazardous to persons or property at the time of detection, but justifies scheduled repair based on probable future hazard. The Gas Company shall repair Grade 2 leaks or replace the Pipeline within 12 months from the date the leak was classified. All Grade 2 leaks shall be reevaluated by a Gas Company at least once every six months until eliminated; provided, however,

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that the frequency of reevaluation shall be determined by the location and magnitude of the leakage condition.

(c) Grade 3 Leak. A Grade 3 Leak shall be a leak that is recognized as nonhazardous to persons or property at the time of detection and can be reasonably expected to remain nonhazardous. The Gas Company shall reevaluate Grade 3 leaks during the next scheduled survey, or within 12 months from the date last evaluated, whichever occurs first, until the leak is eliminated or the Pipeline is replaced. A municipal or state public safety official may request a reevaluation of a Grade 3 leak prior to the next scheduled survey, or sooner than 12 months of the date last evaluated, if the official reasonably believes that the Grade 3 leak poses a threat to public safety. 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.

- (4) Each Gas Company shall file a plan with the Department to eliminate Grade 3 leaks on non-GSEP facilities that existed prior to January 1, 2018, in either its next Annual Service Quality Report, if required to submit such report, or on March 1, 2020. The Gas Companies shall thereafter submit an update in each subsequent Annual Service Quality Report, or annually on March 1<sup>st</sup>, until all such leaks are eliminated.

114.05: Requirements for Projects in a Public Way

- (1) Upon the undertaking of a significant project on a public way exposing confirmed natural gas infrastructure, and with sufficient notice, a municipality or the Commonwealth shall submit written notification of the project to a Gas Company. Upon receipt of such written notice the Gas Company shall:
- (a) survey the project area for the presence of Grade 1, Grade 2, or Grade 3 leaks and set repair and replacement schedules for all known or newly detected Grade 1, Grade 2, and Grade 3 leaks;
  - (b) ensure that any shut off valve in the significant project area has a gate box installed upon it or a reasonable alternative that would otherwise ensure continued public safety and that any critical valve that has not been inspected and tested within the past 12 months is verified to be operational and accessible; and
  - (c) provide the repair and replacement schedule of gas leaks to the municipality or the Commonwealth.

114.06: Prioritization of Projects Located within a School Zone

Each Gas Company shall prioritize any Pipeline repairs or replacements required under 220 CMR 114.00 for gas leaks detected within a School Zone. A

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prioritization procedure shall be included in the operators' Operations and Maintenance plan.

114.07: Repair or Elimination of Environmentally Significant Grade 3 Gas Leaks

(1) Identification and Designation.

(a) Each Gas Company shall designate Grade 3 gas leaks as environmentally significant if during the initial identification or the most recent annual survey if:

1. the highest barhole reading shows a gas-in-air reading of 50% or higher or

2. the Leak Extent is 2,000 square feet or greater.

A Gas Company is not precluded from proposing to the Department 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 Department for approval.

(b) Each Gas Company with a GSEP shall incorporate the environmentally significant Grade 3 identification criteria into its GSEP and report the number of environmentally significant Grade 3 leaks on each length of GSEP-eligible pipe in its annual GREC filing.

(2) Repair or Elimination.

(a) Each Gas Company shall repair or eliminate environmentally significant Grade 3 gas leaks initially designated on or after January 1, 2018 as set out in 220 CMR 114.07(1)(a), provided that such repair or elimination does not compromise public safety, as follows:

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1. Barhole-designated leaks shall be repaired or eliminated within two years of initial designation, provided that any such leaks located on a pipe scheduled for repair under the GSEP within five years shall be repaired or eliminated within three years of initial designation;
  2. Leak-extent designated leaks with a Leak Extent between 2,000 and 10,000 square feet shall be repaired or eliminated within two years of initial designation, provided that any such leaks located on a pipe scheduled for repair under the GSEP within five years shall be repaired or eliminated within three years of initial designation; and
  3. Leak-extent designated leaks with a Leak Extent greater than 10,000 square feet shall be repaired or eliminated within twelve months of initial designation, provided that any such leaks located on a pipe scheduled for repair under the GSEP within three years shall be repaired or eliminated within two years of initial designation.
- (b) The Department may, pursuant to 220 CMR 114.03, grant an exception to the time frames for repair in 220 CMR 114.07(2)(a) for environmentally significant Grade 3 leaks that are inaccessible, challenging to repair, or in a street under a paving moratorium.
- (c) A Gas Company may choose to cap its environmentally significant Grade 3 leak repairs in any one calendar year at 7% of its total Grade 3 leak inventory as indicated in the previous year's final quarterly leak report.
- (d) Each Gas Company shall file a plan with the Department to eliminate environmentally significant Grade 3 leaks existing prior to January 1, 2018 with its next Annual Service Quality Report, if required to file such report, or on March 1, 2020. The Gas Companies shall thereafter submit an update with each subsequent Annual Service Quality Report, or annually on March 1<sup>st</sup>, as applicable, until all such leaks are eliminated.
- (3) If a Gas Company uses the leak-extent method to designate Grade 3 leaks as environmentally significant, the Gas Company shall measure a statistically significant randomized sample of environmentally significant Grade 3 leaks prior to repair using the FLUXbar method for a period of one year following implementation of the leak-extent method. Each such Gas Company shall report the FLUXbar measurements in
- (a) its next Annual Service Quality Report, or
  - (b) in a report to the Department on March 1<sup>st</sup> following the one-year period of measurement.
- (4) Redesignation. A Grade 3 leak initially designated as environmentally significant by the Barhole method may be redesignated to a standard Grade 3 leak if a subsequent annual survey measurement indicates that the leak no longer qualifies as environmentally significant in accordance with 220 CMR 114.07(1)(a).

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114.08: Reporting Requirements

- (1) Each Gas Company shall, for the life of the pipeline, maintain records of and provide the following information in its Annual Service Quality Report, or on March 1<sup>st</sup>, annually, as applicable:
  - (a) the location of each Grade 1, Grade 2, and Grade 3 leak existing as of the date of December 31<sup>st</sup>;
  - (b) the date each Grade 1, Grade 2, and Grade 3 leak was classified;
  - (c) the dates of repairs performed on each Grade 1, Grade 2, and Grade 3 leak;
  - (d) leaks carried forward from previous calendar year;
  - (e) new leaks identified by classification during the calendar year;
  - (f) each leak repaired during the calendar year;
  - (g) each leak eliminated during the calendar year;
  - (h) leaks pending at end of calendar year;
  - (i) any change in leak classification during the calendar year;
  - (j) whether each Grade 3 leak is designated as environmentally significant;
  - (k) the date of designation as environmentally significant, as applicable;and
  - (l) the Leak Extent or Barhole reading for environmentally significant Grade 3 leaks, as applicable.
  
- (2) Each Gas Company shall provide the following information to the Department for each quarter of each calendar year (*i.e.*, by April 15<sup>th</sup>, July 15<sup>th</sup>, October 15<sup>th</sup>, and January 15<sup>th</sup>):
  - (a) leaks carried forward from previous quarter;
  - (b) new leaks identified by classification during the quarter;
  - (c) each leak repaired during the quarter;
  - (d) each leak eliminated by replacement during the quarter;
  - (e) leaks pending at end of quarter;
  - (f) any change in leak classification during the quarter;
  - (g) whether each Grade 3 leak is designated as environmentally significant;
  - (h) the date of designation as environmentally significant, as applicable;and
  - (i) the Leak Extent or Barhole reading for environmentally significant Grade 3 leaks, as applicable.
  
- (3) Each Gas Company shall specify any reclassification or redesignation of previously identified leaks in its annual report. For each reclassified or redesignated leak, the Gas Company shall provide the following minimum information:
  - (a) the change in the gas in air or leak-extent readings;
  - (b) the leak migration pattern; and

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- (c) a justification for the change in classification or designation.
- (4) Gas leak information not otherwise available to the public on the Department's website shall be made available to any municipal or state public safety official upon written request to the Department.

114.09: Gas Company Procedures Manual

Each Gas Company shall incorporate procedures for all requirements of 220 CMR 114.00 into their written procedures under 49 CFR Part 192 as applicable, to ensure compliance with M.G.L. c. 164, §§ 105A, 144 and 220 CMR 114.00.

REGULATORY AUTHORITY

220 CMR 114.00: M.G.L. c. 164, §§ 66, 76, 76C, 105A, 144, 145, and St. 2016, c. 188, § 13.