KEEGAN WERLIN LLP

ATTORNEYS AT LAW
99 HIGH STREET, SUITE 2900
BOSTON, MASSACHUSETTS 02110

(617) 951-1400

TELECOPIER:
(617) 951-1354

September 25, 2020

VIA ELECTRONIC MAIL

Mark Marini, Secretary
Department of Public Utilities
One South Station, 5th Floor
Boston, MA 02110

Re: Bay State Gas Company d/b/a Columbia Gas of Massachusetts – D.P.U. 19-140
Compliance Agreement Consent Order Requirements (23), (24), (25), (26) and (27)

Dear Mr. Marini:

Pursuant to the Consent Order, and associated Compliance Agreement, dated August 14, 2020, between the Pipeline Safety Division (the "Division") of the Massachusetts Department of Public Utilities and Bay State Gas Company d/b/a Columbia Gas of Massachusetts ("CMA" or the "Company") in the above-captioned matter, the Company hereby provides the following responses to address the requirements of Items 1, 2, 3, 4, 5, 6, 7, 8, and 9 of the Consent Order. Also enclosed is the Company's Statement in Support of a Designation of Critical Energy Infrastructure Information.

Compliance Agreement Requirement (1)
Revise the engineering plan and constructability review process across all CMA's Massachusetts' territories. This will ensure that all applicable departments review construction documents for accuracy and completeness. It will further confirm that the documents or plans be sealed by a professional engineer prior to commencing work.

Response:

Compliance Order Item #1 reiterates the National Transportation Safety Board (NTSB) Recommendation number P-18-6, issued to NiSource as a result of the Merrimack Valley Incident. NiSource submitted letters to the NTSB on March 15, 2019, May 10, 2019, and July 15, 2019 (Attachment 19-140-1-5(a)) outlining progress made on actions taken in response to Recommendation P-18-6. The NTSB issued a July 22, 2019 letter to NiSource requesting additional information about this work. The July 29, 2019 NiSource letter to the NTSB (Attachment 19-140-1-5(c)) provides additional detail regarding the actions taken for this recommendation. The NTSB classified this Recommendation as "Closed – Acceptable Action" in its final action report, adopted on September 24, 2019 (Attachment 19-140-1-5(d)).

Compliance Agreement Requirement (2)
Review and ensure that all records and documentation of CMA's natural gas systems are traceable, reliable, and complete.

Response:

Compliance Order Item #2 reiterates the National Transportation Safety Board (NTSB) Recommendation number P-18-7, issued to NiSource as a result of the Merrimack Valley Incident. NiSource submitted letters to the NTSB on March 15, 2019, May 10, 2019, and July 15, 2019 (Attachment DPU 19-140-1-5(a)) which outlined the actions taken in response to Recommendation P-18-7. The NTSB classified this Recommendation as "Closed – Acceptable Action" in its July 22, 2019 letter to NiSource (Attachment DPU 19-140-1-5(b)).

As discussed in CMA's July 29, 2020 letter to the Department (Attachment 19-140-1-5(h)), the Company identified errors on isometric drawings that were completed as part of the work to address NTSB recommendation P-18-7. CMA completed an extensive isometric drawing review program. Attachment 19-140-1-5(i) is the Company's letter to the DPU concerning the completion of the isometric drawing correction project.

Compliance Agreement Requirement (3)
Apply management of change process to all changes to adequately identify system threats that could result in a common mode failure.

Response:

Compliance Order Item #3 reiterates the National Transportation Safety Board (NTSB) Recommendation number P-18-8, issued to NiSource as a result of the Merrimack Valley Incident. NiSource submitted letters to the NTSB on March 15, 2019, May 10, 2019, and July 15, 2019 (Attachment 19-140-1-5(a)) outlining progress made on actions taken in response to Recommendation P-18-8. The NTSB issued a July 22, 2019 letter to NiSource requesting additional information about this work. The July 29, 2019 NiSource letter to the NTSB (Attachment 19-140-1-5(c)) provides additional detail regarding the actions taken for this recommendation. The NTSB classified this Recommendation as "Closed – Acceptable Action" in its final action report, adopted on September 24, 2019 (Attachment 19-140-1-5(d)).

Compliance Agreement Requirement (4)
Develop and implement control procedures during modifications to gas mains to mitigate the risks identified during management of change operations. Gas main pressures should be continually monitored during these modifications and assets should be placed at critical locations to immediately shut down the system if abnormal operations are detected.

Response:

Compliance Order Item #4 reiterates the National Transportation Safety Board (NTSB) Recommendation number P-18-9, issued to NiSource as a result of the Merrimack Valley Incident. NiSource submitted letters to the NTSB on March 15, 2019, May 10, 2019, and July 15, 2019 (Attachment DPU 19-140-1-5(a)) which outlined the actions taken in response to Recommendation P-18-9. The NTSB classified this Recommendation as "Closed – Acceptable Action" in its July 22, 2019 letter to NiSource (Attachment 19-140-1-5(b).

Compliance Agreement Requirement (5)
Review protocols and training for responding to large-scale emergency events, including providing timely information to emergency responders, appropriately assigning CMA emergency response duties, performing multi-jurisdictional training exercises, and participating cooperatively with municipal emergency management agencies.

Response:

Compliance Order item #5 reiterates Recommendation P-18-9, Issued to NiSource in the September 24, 2019 NTSB report. Attachment 19-140-1-5(e) is NiSource's December 23, 2019 letter to the NTSB which outlines proposed actions to this additional recommendation. Attachment 19-140-1-5(f) is a response letter from NTSB dated April 10, 2020 describing the status of this Recommendation as "Open – Acceptable Response". NiSource submitted Attachment 19-140-1-5(g) to the NTSB on September 22, 2020, which outlines actions and requesting closure of this recommendation.

In addition to the information supplied to the NTSB, CMA executed an emergency response table top drill in Easthampton, MA on September 24, 2020. The drill included CMA employees from multiple departments including engineering, construction, and operations, as well as representation from Eversource Energy, the DPU, and the Easthampton Fire Department. The material prepared to conduct this drill is included as Attachment 19-140-1-5(j). CMA also leveraged its newly established ICS structure in response to a gas leak in Lawrence in late September 2019. After the September 2019 event, the Company conducted an emergency response after action review of, which identified opportunities to improve its emergency preparedness and response (as discussed in Section 5 of Attachment 19-140-1-5(k). In addition, select CMA employees have started to receive training on the Eversource Energy emergency response plan, including information on roles and responsibilities in the Eversource Incident Command Structure. On August 27, 2020, CMA and Eversource employees participated in a joint table top emergency exercise drill.

Table 1: Consent Order Item / NTSB Recommendation & Status Summary

DPU Compliance Agreement Requirement	NTSB Recommendation	NTSB Recommendation Status	Supporting Document(s)
1	P-18-6	Closed – Acceptable Action	Attachment 19-140-1-5(d)
2	P-18-7	Closed – Acceptable Action	Attachment 19-140-1-5(b)
3	P-18-8	Closed – Acceptable Action	Attachment 19-140-1-5(d)
4	P-18-9	Closed – Acceptable Action	Attachment 19-140-1-5(b)
5	P-19-18	Open – Acceptable Response	Attachment 19-140-1-5(f); Attachment 19-140-1-5(g)

Compliance Agreement Requirement (6)
Review and verify that all plastic to steel transition fittings used in the reconstruction of Merrimack Valley comply with GS 1680.020 Plastic to Steel Transition Connections.

Response:

Please see the Company's responses the Department's First Set of Information Requests issued in DPU 20-PL-35, provided as Attachment 19-140-6, which documents the Company's review and verification of all plastic to steel transition fittings used in the Merrimack Valley Reconstruction. This review confirmed that all fittings comply with GS 1680.020 Plastic to Steel Transition Connections.

Compliance Agreement Requirement (7)
Review and verify that all services and mains installed during the reconstruction of Merrimack Valley have been pressure tested and documented per Federal and State requirements.

Response:

The Company conducted an extensive review of services and mains installed during the Merrimack Valley Reconstruction (MVR) to verify that all services and mains have been pressure tested and documented per Federal and State requirements. The review and its outcome were shared with Dynamic Risk as a part of the MVR Assessment.

As demonstrated in documentation provided to Dynamic Risk (provided here as Attachment 19-140-7), the Company asserts that 100% of the mains installed during the MVR have been pressure tested and documented per Federal and State requirements.

During the Dynamic Risk Assessment, the Company evaluated pressure test records for all services installed during the MVR to ensure compliance with State and Federal pressure test requirements. This evaluation included a review of documentation covering test pressures, pressure test duration, and operator qualification. During the service line review, 8 of the services installed during the MVR were identified for retest because of documentation gaps. In addition, documentation gaps were identified for 6 other services that were not part of the MVR. These 14 services are identified below, and were re-pressure tested and proper documentation has been completed (see Company response to Consent Order Item #8). As a result of this evaluation, the Company has verified that all services installed during the MVR have been pressure tested and documented per Federal and State requirements.

SITE ID	ADDRESS	MUNICIPALITY
570725009	35 ESSEX ST.	ANDOVER
558723005	18 FOSTER CR.	ANDOVER
694133000	61 F BROOKFIELD ST.	LAWRENCE
754923001	18 MARKET ST	LAWRENCE
921923004	88 MARKET ST	LAWRENCE
314033007	93 MARKET ST	LAWRENCE
201133000	94 MARKET ST	LAWRENCE
267923005	91 MARKET ST A	LAWRENCE
974233007	32 ASHLAND ST	NORTH ANDOVER
290133004	71 WAVERLY RD	NORTH ANDOVER
233233006	287 WAVERLY RD	NORTH ANDOVER
673233007	37 WAVERLEY RD	NORTH ANDOVER
893233007	147 WAVERLY RD	NORTH ANDOVER
926133001	206 WAVERLY RD	NORTH ANDOVER

Compliance Agreement Requirement (8)
All Merrimack Valley reconstruction services or mains identified as not having pressure test documentation will be required to have a pressure test performed in accordance with 49 C.F.R. Part 192, §§ 192.511 and 192.513.

Response:

As stated in the Company's response to Consent Order Item #7, fourteen services required re-testing due to gaps in documentation identified during the Merrimack Valley Reconstruction Dynamic Risk Assessment. Eight of these services were installed as part of the Merrimack Valley Restoration, and six services were not. Twelve of these services have been re-tested and

documented in accordance with State and Federal code requirements. These re-tests were completed using the Standard Operating Procedures provided as Attachment 19-140-8(a). Complete pressure test documentation for the 12 re-tested services is provided as Attachment 19-140-8(b). The services at two locations, 18 Foster Circle in Andover and 287 Waverly Road in North Andover, have not yet been completed. The customer at 18 Foster Circle indicated that they are travelling until mid-October and have agreed to schedule a re-test for the service line upon their return. The re-test will be completed at that time. The customer at 287 Waverly Road has refused to schedule the re-test, despite multiple contacts from the Company and additional contacts from the North Andover Town Manager's office (see Attachment 19-140-8(c)) and the Department. Coordination with the customer on the scheduling of the re-test is needed in order to access the home to relight appliances after the work is completed. The Company is continuing to work to schedule these retests and will provide documentation once the retests are complete.

Compliance Agreement Requirement (9)
By September 30, 2020, CMA shall provide documentation to the Department to show that it has complied with Items 1-8.

Response:

Please refer to the Company's response to Compliance Agreement Requirements (1) through (8) and Attachments provided herewith.

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Thank you very much for your attention to this matter. Please contact me with any questions.

Very truly yours,

Brendan P. Vaughan

Enclosures

Cc: Laurie E. Weisman, Esq. – Hearing Officer
Service List, D.P.U. 19-140

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

Bay State Gas Company d/b/a Columbia Gas of Massachusetts	)	D.P.U. 19-140

COLUMBIA GAS OF MASSACHUSETTS' STATEMENT IN SUPPORT OF A FINDING OF CRITICAL ENERGY INFRASTRUCTURE INFORMATION

I. INTRODUCTION

Bay State Gas Company d/b/a Columbia Gas of Massachusetts ("CMA" or the "Company") hereby requests the Department of Public Utilities (the "Department") grant protection from public disclosure of certain confidential, competitively sensitive and proprietary information submitted in compliance with a Consent Order and Compliance Agreement, dated August 14, 2020, with the Department's Pipeline Safety Division (the "Division") in accordance with G.L. c. 25, § 5D, G.L. c. 4 , §7 cl. 26(f) and (n), and 220 C.M.R. § 1.04(5)(e).

Specifically, the Company requests that the Department protect from public disclosure the Company's Emergency Response Training Exercises, as well as detailed maps and containing Confidential Energy Infrastructure Information ("CEII") produced as Attachment 19-140-1-5(j), and Attachment 19-140-8(b) (the "CEII Attachments"). As discussed below, public disclosure of the CEII Attachments would reveal certain CEII-related materials that are protected by statute. Any such disclosure could harm the competitive business position of the Company and impact the safety and security of the Company's system.

The Company is contemporaneously providing redacted versions of the CEII Attachments for the public record in this case, and un-redacted versions of the CEII Attachments to the Hearing Officer and the Office of the Attorney General via electronic mail.

II. STANDARD OF REVIEW

The Department is authorized to protect from public disclosure "trade secrets, confidential, competitively sensitive or other proprietary information provided in the course of proceedings." G.L. c. 25, § 5D. In interpreting this statute, the Department has held that G.L. c. 25, § 5D, "places the burden of proof on companies requesting confidential treatment." The Berkshire Gas Company et al., D.P.U. 93-187/188/189/190, at 20 (1994).

Accordingly, a party seeking to protect information from public disclosure must demonstrate that: (1) the information for which protection is sought constitutes trade secrets, confidential, competitively sensitive or other proprietary information; and (2) there is a need to ensure nondisclosure of the information. The Berkshire Gas Company et al., D.T.E. 01-41, at 17 (2001); Western Massachusetts Electric Company, D.T.E. 99-56, at 4 (1999). In assessing the need for nondisclosure, the Department will consider the interests at stake, the likely harm that would result from public disclosure of information, and the public policy implications of such disclosure. See, e.g., D.P.U. 93-187/188/189/190, at 20-23; Boston Gas Company, D.P.U. 92-259, at 106 (1993), Essex County Gas Company, D.P.U. 96-105, at 2-3 (1996). Where a party proves such a need, the Department will protect only so much of the information as is necessary to meet the need for nondisclosure and may limit the length of time that such protection is in effect. D.T.E. 01-41, at 17-18; D.T.E. 99-56, at 4; D.P.U. 93-187/188/189/190, at 20.

Further, G.L. c. 4, § 7, clause 26(f) specifically exempts from the definition of "public records:" "investigatory materials necessarily compiled out of the public view by…other investigatory officials, the disclosure of which would probably so prejudice the possibility of effective law enforcement" such that the disclosure is not in the public interest. Lastly, G.L. c. 4, § 7, cl. 26 sets out the statutory definition for "Public Records," which includes documents,

maps, and photographs that are made or received by any officer or employee of any state agency, department, board, commission. G.L. c. 4, § 7, cl. 26(n) exempts CEII from the public records law and thus public disclosure requirements as follows:

> (n) records, including, but not limited to, blueprints, plans, policies, procedures and schematic drawings, which relate to internal layout and structural elements, security measures, emergency preparedness, threat or vulnerability assessments, or any other records relating to the security or safety of persons or buildings, structures, facilities, utilities, transportation or other infrastructure located within the commonwealth, the disclosure of which, in the reasonable judgment of the record custodian, subject to review by the supervisor of public records under subsection (b) of section 10 of chapter 66, is likely to jeopardize public safety.

G.L. c. 4, § 7, cl. 26(n).

III. ARGUMENT

A. The CEII Attachments Should be Protected from Public Disclosure.

The Department has plain and unambiguous statutory authority to keep CEII information contained in the CEII Attachments, specifically in Attachment 19-140-15(b), Attachment 19-140-22(e), Attachment 19-140-22(f), and Attachment 19-140-22(g), as confidential pursuant to G.L. c. 4, § 7, clause 26(n). The Legislature, which enacted Clause 26(n) in 2002 in response to the events of September 11, 2001, clearly expressed a desire to protect public safety by exempting materials related to a utility's critical infrastructure from the general presumption that certain information is a public record. The Department has noted that its authority to keep materials exempt under G.L. c. 4, § 7, clause 26(n) is "separate and apart" from (and, by implication, broader than) its more narrowly construed authority under G.L. c. 25, § 5D. D.T.E. and Siting Board Rulemaking, D.T.E. 98-84, at 23 (2003) (declining to rule with particularity in the context of a rulemaking regarding the protection of critical energy infrastructure).

The Company recognizes that the Department must balance two competing interests of the public in making its determination whether to keep particular information such as the CEII

contained in the CEII Attachments as confidential pursuant to G.L. c. 4, § 7, clause 26(n). The Department must weigh the public's interest in transparency and information and the public's interest in safety, security and the safe and reliable provision of gas service. However, by inserting clause 26(n) as a specific exemption to the general presumption of disclosure, the Legislature has statutorily communicated its belief that the interest in safety, security and the safe and reliable provision of gas service should outweigh the public's interest in transparency and information where disclosure jeopardizes public safety. The Department has performed this balancing in the past and protected information pursuant to G.L. c. 4, § 7, clause 26(n). Verizon New England, Inc. d/b/a Verizon Massachusetts, D.T.E. 02-8, at 11-12 (2005) (granting Verizon's motion to restrict public disclosure of results of internal security reviews).

Based on the language of G.L. c. 4, § 7, cl. 26(n), the Company classifies the CEII Attachments as CEII, as the CEII Attachments contain the detailed diagrams and schematics of the Company's distribution system, and detailed information on the Company's emergency response exercises, including maps and images of the distribution system and response plans to address emergencies, the public exposure of which could reveal sensitive information to bad actors and jeopardize public safety. Based on this precedent, and the Department's clear statutory authority to protect emergency training exercises and the results of emergency training exercises as CEII, the Company respectfully requests that that Department afford protective treatment for the CEII Attachments.

IV. CONCLUSION

The Company respectfully requests that the Department grant the Company's motion and provide protective treatment for the CEII Attachments. Furthermore, given that the CEII Attachments are likely to change at any time or to lose their confidential nature, the Company respectfully requests the CEII Attachments be protected from disclosure for an indefinite period

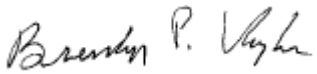
of time.

WHEREFORE, the Company respectfully requests that the Department grant its motion for protective treatment of confidential information.

Respectfully submitted by,

Bay State Gas Company d/b/a
Columbia Gas of Massachusetts

By its attorneys,



Brendan P. Vaughan, Esq.
Keegan Werlin LLP
99 High Street, Suite 2900
Boston, Massachusetts 02110
(617) 951-1400

Dated: September 25, 2020

Joe Hamrock
President & CEO

290 W. Nationwide Blvd.
Columbus, OH 43215

March 15, 2019

By E-Mail Only: correspondence@ntsb.gov

Hon. Robert Sumwalt, Chairman
National Transportation Safety Board
490 L'Enfant Plaza E, S.W.
Washington, D.C. 20594

Re: NiSource Progress Report on NTSB Urgent Safety Recommendations P-18-006, 007, 008 & 009 Overpressurization of Natural Gas Distribution System in Merrimack Valley, MA (NTSB PLD 18MR003)

Hon. Chairman Sumwalt:

On November 14, 2018, the NTSB issued four urgent safety recommendations to NiSource Inc. based upon the NTSB's investigation thus far of the September 13, 2018, gas overpressurization in Merrimack Valley, Massachusetts. A month later, on December 14, we issued our initial response and commitment.

NiSource remains dedicated to taking necessary steps to avoid reoccurrence of an event like the tragedy in the Merrimack Valley. Our December 14 response included our commitment to meeting the NTSB's recommendations and, since then we've made valuable progress.

Work continues on our intensive, company-wide Safety Management System (SMS) based off of API RP 1173. Additionally, we announced plans to invest an initial estimate of $150 million to install automatic shut-off devices to protect against overpressurization on low-pressure system across our territory.

What follows is our progress and next steps on the safety recommendations since the December update:

P-18-006 Engineering Plan & Constructability Review Process

Revise the engineering plan and constructability review process across all of your subsidiaries to ensure that all applicable departments review construction documents for accuracy, completeness, and correctness, and that the documents or plans be sealed by a professional engineer prior to commencing work.

NiSource Response:

NiSource will review our Engineering and Construction Gas Standards and our Constructability Review processes and implement changes to ensure that all internal operations departments are required to participate in Constructability Reviews and sign off that all documents used for construction are accurate and complete.

NiSource will have a third party firm with gas industry expertise review and validate the above modified engineering and construction standards.

All relevant construction documents and plans for construction work that could pose a material risk to public safety will be sealed by a professional engineer (PE) prior to commencing construction work. This work would include new or replacement mains involving multiple tie-ins, new or replacement of major components of a point of delivery, district regulator stations or large volume customer measurement and regulation station. For routine main extensions involving a standard tie-in, emergency main replacements requiring standard tie-ins and new and replacement service lines, NiSource will develop standard designs and construction procedures and have them reviewed and approved by a professional engineer.

Progress to Date:

Since January 1, 2019, complex projects are being reviewed and sealed by a PE prior to approval.

Standard designs for routine projects are in development with a cross-functional team working with PEs on completeness.

Constructability Review enhancements are ongoing to add stakeholder participation and guidance based on project design criteria.

NiSource has engaged a third-party engineering firm, TRC Solutions, to conduct a review of engineering and construction standards.

Next Steps:

Complete the development of standard designs for routine projects and ensure the addition of a PE’s seal.

Review the recommendations to be made by TRC Solutions and incorporate enhancements as appropriate.

Finalize enhancements to the Constructability Review, publish the new version, train users for appropriate use and ensure adoption.

P-18-007 Records & Document Traceability, Reliability & Completeness

Review and ensure that all records and documentation of your natural gas systems are traceable, reliable, and complete.

NiSource Response:

Only 12 of NiSource's 2,072 low pressure regulator station control lines (sensing lines) remain to be mapped, marked and protected. NiSource is working to complete these remaining lines.

NiSource, with assistance from third party experts, will define the assets required to safely operate its low pressure gas systems and check that such assets have records that are traceable, reliable and complete. NiSource will develop a plan to remediate any deficiencies identified.

NiSource will conduct a similar review for all of its other gas systems as part of its Safety Management System implementation.

Progress to Date:

NiSource is nearly complete in marking and protecting our 2,072 low pressure regulator station control lines, with only a few remaining.

NiSource engaged a third-party engineering firm, TRC Solutions, to review NiSource's geographic information system (GIS) and perform a gap analysis of visible and available assets within low pressure systems to recommend enhancements.

NiSource is in the midst of implementing a company-wide SMS with the intention of performing similar gap analyses on our other systems. Hundreds of employees are directly engaged in this project.

Next Steps:

Complete the mapping, marking and protection of the few remaining low pressure regulator station control lines.

Perform a thorough low pressure system asset gap analysis with TRC Solutions, who will share findings and recommendations with NiSource.

Build plans to enhance GIS and other systems as appropriate.

P-18-008 Management of Change Process

Apply management of change process to all changes to adequately identify system threats that could result in a common mode failure.

NiSource Response:

NiSource will engage third party experts to conduct gas system risk review with NiSource subject matter experts and key executives. The review will focus on risk identification, latent system risks, risk analysis, failures and failure sequences (cut set), risk end states, fault tree development, failure modes and effects analysis, event trees, dominant risk drivers, failures and failure combinations, risk mitigation /management options, risk register development and population, risk reduction action plan development and actions options, assessment of low probability- high consequence events and common mode failure threats.

NiSource will strengthen its Management of Change (MOC) procedures with the adoption of API RP 1173 and developing and implementing a Pipeline Safety Management System in 2019.

Identified system threats that can result in a common mode of failure and high

consequence events will be integrated into work risk reviews and procedures enhancements.

Progress to Date:

As part of SMS development, we have launched asset review and probabilistic risk assessment teams focused on improving risk analysis, identification and mitigation efforts across the organization. These teams have partnered with advisors who have expertise in these practices.

Additionally, SMS development is helping mature MOC procedures as safety excellence and risk mitigation strategies are defined.

We developed and deployed an MOC procedure to our construction employees and contractors that details steps needed to ensure safety on a project during a change in personnel.

We developed new enhanced tapping and tie-in procedures that outline stakeholder engagement, risk identification, roles and responsibilities and MOC principles.

Next Steps:

Continue SMS development across NiSource to bolster risk review and MOC processes and procedures.

Develop and implement additional MOC procedures to be used during construction planning and execution phases.

Implement enhanced tapping and tie-in procedures.

P-18-009 Control Procedures During Gas Main Modifications

Develop and implement control procedures during modifications to gas mains to mitigate the risks identified during management of change operations. Gas main pressures should be continually monitored during these modifications and assets should be placed at critical locations to immediately shut down the system if abnormal operations are detected.

NiSource Response:

As previously announced, NiSource will be installing automatic pressure control equipment, referred to as "slam-shut" devices, on every low-pressure system across our seven-state operating area. These devices provide another level of control and protection, in that when they sense operating pressure that is too high or too low, they immediately shut down gas to the system.

As an additional layer of protection, NiSource will install remote monitoring devices on all low-pressure systems so that our gas control center will see an alarm should the monitoring device indicate a high or low pressure alarm. In the event a system is shut down by the slam-shut devices described above, the remote monitors will enable us to respond more quickly to restore service to customers.

NiSource will develop project-specific risk reviews and plans detailing accountability and responsibility for activities during the construction process. This will include

individual responsibility for system operation, configuration and monitoring during the construction and "tie-in/gas up" process. The plans will identify the specific tasks (operating valves, monitoring pressure, notifying first responders) required to mitigate risk during critical steps. The plans will also identify follow up actions to be taken in an abnormal condition including identifying critical locations to place assets for immediate shut down if needed.

Progress to Date:

The project is underway to install automatic pressure control equipment and remote monitoring devices on low-pressure systems.

Enhanced tapping and tie-in procedures detailing stakeholder engagement, risk identification, roles and responsibilities and MOC principles provide project-specific risk review for all mainline projects.

Next Steps:

Continue planning and executing projects to install automatic pressure control equipment and remote monitoring devices on low-pressure systems across NiSource.

Develop additional risk reviews and plans for critical steps during a construction project. Implement enhanced tapping and tie-in procedures.

***

We continue to welcome any comments or questions about these ongoing implementation plans.

Thank you once again for allowing NiSource and Columbia Gas of Massachusetts to participate in the NTSB's investigation. Safety remains our top priority and the foundation of our business.

Very truly yours,

Joe Hamrock

Joe Hamrock
President & CEO

290 W. Nationwide Blvd.
Columbus, OH 43215

May 10, 2019

By E-Mail Only: correspondence@ntsb.gov

Hon. Robert Sumwalt, Chairman
National Transportation Safety Board
490 L'Enfant Plaza E, S.W.
Washington, D.C. 20594

Re: NiSource Closure Recommendation Report on NTSB Urgent Safety Recommendations P-18-007 and -009 Related to Overpressurization of Natural Gas Distribution System in Merrimack Valley, MA (NTSB PLD 18MR003)

Hon. Chairman Sumwalt:

On November 14, 2018, the NTSB issued four urgent safety recommendations to NiSource Inc. based upon the NTSB's investigation thus far of the September 13, 2018, gas overpressurization in Merrimack Valley, Massachusetts. We've since issued our initial response and outlined our commitments to meeting the recommendations, and provided a follow-up progress report.

NiSource has made considerable progress on all four recommendations and remains dedicated to taking every step we can to avoid another event like the tragedy in the Merrimack Valley.

Based on our progress, NiSource now believes we have complied with recommendations P-18-007 and -009. Herein, we describe why our work constitutes closure of those recommendations. We continue to make progress on recommendations P-18-006 and -008 and expect to close them out in the near future. Details to support closure of P-18-007 and -009 are below, followed by progress updates on P-18-006 and -008.

P-18-007 Records & Document Traceability, Reliability & Completeness

Review and ensure that all records and documentation of your natural gas systems are traceable, reliable, and complete.

NiSource Response:

NiSource has completed locating, marking and mapping of control (regulator-sensing) lines at all 2,072 low-pressure regulator runs across its seven state footprint. These facilities are depicted in isometric drawings, examples of which were provided to the NTSB during a meeting on April 18, and are visible in the NiSource geographic information system (GIS).

NiSource worked with third-party gas engineering firm TRC Solutions to verify the assets required to safely operate its low-pressure gas systems and ensure these assets are clearly indicated on relevant maps and records. The review of critical assets concluded that NiSource maps include visual records with attributes of facilities required to operate the low-pressure systems including but not limited to pipes, valves and pressure regulating stations. The review focused closely on the existence and quality of the updated station drawings showing control lines. This review concluded that those station schematics are traceable, reliable, and complete.

Results from this review are documented in a report published by TRC titled, *Report on Compliance with NTSB Recommendation - Item #2 - Material Verification Records*. NiSource provided this report to the NTSB during a meeting on April 18.

Above and beyond the scope of this urgent recommendation, and as part of business planning and overall SMS implementation, NiSource is prioritizing the mapping of control lines on the remaining elevated pressure stations across its seven-state footprint.

P-18-009 Control Procedures During Gas Main Modifications

Develop and implement control procedures during modifications to gas mains to mitigate the risks identified during management of change operations. Gas main pressures should be continually monitored during these modifications and assets should be placed at critical locations to immediately shut down the system if abnormal operations are detected.

NiSource Response:

NiSource has made significant enhancements to its tie-in and tapping procedures, including updates to Gas Standard 1680.010 *Tie-Ins and Tapping Pressurized Pipelines*, effective February 28, 2019, and the written tie-in plan template, which is required for all design capital mainline projects. We provided copies of both documents to the NTSB during a meeting on April 18.

The updates include:

- New tie-in procedure risk assessments, completed through checklists requiring key stakeholder engagement and reviews of the tie-in plan by Engineering, the project execution crew, and Measurement & Regulation.
- A new contingency plan that provides field crews the system knowledge required to perform emergency shut down of the impacted pipeline segments in the event of a hazardous situation.
- Identification of regulator stations impacted by the tie-in procedure and monitoring requirements.
- Enhanced station monitoring requirements for identified MOC activities.
- Clear roles and responsibilities for tasks during the tie-in procedure.
- Sign-off at each significant step of the tie-in procedure signifying completion of steps by the “person in charge.”
- Documentation of pressure gauge readings during the procedure.

NiSource has promulgated enhanced procedures encompassing these updates and trained

appropriate Engineering, Construction and Operations personnel on these procedures. The Gas Standard and written tie-in plan template provide strength in management of change procedures with respect to changes in the control of energy.

Above and beyond the scope of this recommendation, NiSource continues to install automatic shutoff and pressure control devices on low-pressure systems across its footprint. This project also includes installing remote monitoring devices on its low-pressure systems to ensure quick response to abnormal system conditions.

P-18-006 Engineering Plan & Constructability Review Process

Revise the engineering plan and constructability review process across all of your subsidiaries to ensure that all applicable departments review construction documents for accuracy, completeness, and correctness, and that the documents or plans be sealed by a professional engineer prior to commencing work.

NiSource Update:

NiSource has drafted a comprehensive procedure for stakeholder review of designed capital projects which includes an enhanced Constructability Review process that assists the project engineer with identifying the stakeholders required to participate in the review and to otherwise be consulted during project planning. It is anticipated that the enhanced stakeholder review process will be implemented over the next several weeks. Additionally, as stated in the NiSource response to P-18-009, the written tie-in plan template has been enhanced to include multiple briefings where critical stakeholders including Engineering, the project execution crew, and Measurement & Regulation review the tie-in plan for risks and accuracy. These critical project milestones and other project stakeholder reviews are included in a draft procedure detailing project criteria where each is performed.

All relevant construction documents and plans for construction work for "complex" projects are being sealed by a professional engineer prior to commencing construction work.

Above and beyond the scope of the recommendation, NiSource continues to consider ways to review and validate Standard Designs for "non-complex" or "routine" mainline projects.

P-18-008 Management of Change Process

Apply management of change process to all changes to adequately identify system threats that could result in a common mode failure.

NiSource Update:

NiSource is near completion of its initial asset review and probabilistic risk assessment efforts focused on improving risk identification, analysis and mitigation efforts across the organization. The result of this effort will be prioritization of risks based on the analysis performed across all asset classes to ensure focus is appropriately placed on mitigating those high priority risks.

A critical management of change procedure was developed and implemented through the enhanced Gas Standard 1680.010 and written tie-in plan template as stated in the NiSource response to P-18-009.

NiSource also continues to develop and implement a Safety Management System, including enterprise-wide Management of Change governance documentation.

***

We believe that two of the four recommendations have been fully implemented, which provides a stronger foundation for our continuous safety journey. NiSource continues to welcome any comments or questions about our work on the recommendations.

Thank you again for allowing NiSource and Columbia Gas of Massachusetts to participate in the NTSB's investigation. Safety for our customers, employees and communities is our top priority and will forever be the foundation of our company.

Very truly yours,

Joe Hamrock

Joe Hamrock
President & CEO

290 W. Nationwide Blvd.
Columbus, OH 43215

March 15, 2019

By E-Mail Only: correspondence@ntsb.gov

Hon. Robert Sumwalt, Chairman
National Transportation Safety Board
490 L'Enfant Plaza E, S.W.
Washington, D.C. 20594

Re: NiSource Progress Report on NTSB Urgent Safety Recommendations P-18-006, 007, 008 & 009 Overpressurization of Natural Gas Distribution System in Merrimack Valley, MA (NTSB PLD 18MR003)

Hon. Chairman Sumwalt:

On November 14, 2018, the NTSB issued four urgent safety recommendations to NiSource Inc. based upon the NTSB's investigation thus far of the September 13, 2018, gas overpressurization in Merrimack Valley, Massachusetts. A month later, on December 14, we issued our initial response and commitment.

NiSource remains dedicated to taking necessary steps to avoid reoccurrence of an event like the tragedy in the Merrimack Valley. Our December 14 response included our commitment to meeting the NTSB's recommendations and, since then we've made valuable progress.

Work continues on our intensive, company-wide Safety Management System (SMS) based off of API RP 1173. Additionally, we announced plans to invest an initial estimate of $150 million to install automatic shut-off devices to protect against overpressurization on low-pressure system across our territory.

What follows is our progress and next steps on the safety recommendations since the December update:

P-18-006 Engineering Plan & Constructability Review Process

Revise the engineering plan and constructability review process across all of your subsidiaries to ensure that all applicable departments review construction documents for accuracy, completeness, and correctness, and that the documents or plans be sealed by a professional engineer prior to commencing work.

NiSource Response:

NiSource will review our Engineering and Construction Gas Standards and our Constructability Review processes and implement changes to ensure that all internal operations departments are required to participate in Constructability Reviews and sign off that all documents used for construction are accurate and complete.

NiSource will have a third party firm with gas industry expertise review and validate the

above modified engineering and construction standards.

All relevant construction documents and plans for construction work that could pose a material risk to public safety will be sealed by a professional engineer (PE) prior to commencing construction work. This work would include new or replacement mains involving multiple tie-ins, new or replacement of major components of a point of delivery, district regulator stations or large volume customer measurement and regulation station. For routine main extensions involving a standard tie-in, emergency main replacements requiring standard tie-ins and new and replacement service lines, NiSource will develop standard designs and construction procedures and have them reviewed and approved by a professional engineer.

Progress to Date:

Since January 1, 2019, complex projects are being reviewed and sealed by a PE prior to approval.

Standard designs for routine projects are in development with a cross-functional team working with PEs on completeness.

Constructability Review enhancements are ongoing to add stakeholder participation and guidance based on project design criteria.

NiSource has engaged a third-party engineering firm, TRC Solutions, to conduct a review of engineering and construction standards.

Next Steps:

Complete the development of standard designs for routine projects and ensure the addition of a PE's seal.

Review the recommendations to be made by TRC Solutions and incorporate enhancements as appropriate.

Finalize enhancements to the Constructability Review, publish the new version, train users for appropriate use and ensure adoption.

P-18-007 Records & Document Traceability, Reliability & Completeness

Review and ensure that all records and documentation of your natural gas systems are traceable, reliable, and complete.

NiSource Response:

Only 12 of NiSource's 2,072 low pressure regulator station control lines (sensing lines) remain to be mapped, marked and protected. NiSource is working to complete these remaining lines.

NiSource, with assistance from third party experts, will define the assets required to safely operate its low pressure gas systems and check that such assets have records that are traceable, reliable and complete. NiSource will develop a plan to remediate any deficiencies identified.

NiSource will conduct a similar review for all of its other gas systems as part of its Safety Management System implementation.

Progress to Date:

NiSource is nearly complete in marking and protecting our 2,072 low pressure regulator station control lines, with only a few remaining.

NiSource engaged a third-party engineering firm, TRC Solutions, to review NiSource's geographic information system (GIS) and perform a gap analysis of visible and available assets within low pressure systems to recommend enhancements.

NiSource is in the midst of implementing a company-wide SMS with the intention of performing similar gap analyses on our other systems. Hundreds of employees are directly engaged in this project.

Next Steps:

Complete the mapping, marking and protection of the few remaining low pressure regulator station control lines.

Perform a thorough low pressure system asset gap analysis with TRC Solutions, who will share findings and recommendations with NiSource.

Build plans to enhance GIS and other systems as appropriate.

P-18-008 Management of Change Process

Apply management of change process to all changes to adequately identify system threats that could result in a common mode failure.

NiSource Response:

NiSource will engage third party experts to conduct gas system risk review with NiSource subject matter experts and key executives. The review will focus on risk identification, latent system risks, risk analysis, failures and failure sequences (cut set), risk end states, fault tree development, failure modes and effects analysis, event trees, dominant risk drivers, failures and failure combinations, risk mitigation /management options, risk register development and population, risk reduction action plan development and actions options, assessment of low probability- high consequence events and common mode failure threats.

NiSource will strengthen its Management of Change (MOC) procedures with the adoption of API RP 1173 and developing and implementing a Pipeline Safety Management System in 2019.

Identified system threats that can result in a common mode of failure and high consequence events will be integrated into work risk reviews and procedures enhancements.

Progress to Date:

As part of SMS development, we have launched asset review and probabilistic risk assessment teams focused on improving risk analysis, identification and mitigation efforts across the organization. These teams have partnered with advisors who have expertise in these practices.

Additionally, SMS development is helping mature MOC procedures as safety excellence and risk mitigation strategies are defined.

We developed and deployed an MOC procedure to our construction employees and contractors that details steps needed to ensure safety on a project during a change in personnel.

We developed new enhanced tapping and tie-in procedures that outline stakeholder engagement, risk identification, roles and responsibilities and MOC principles.

Next Steps:

Continue SMS development across NiSource to bolster risk review and MOC processes and procedures.

Develop and implement additional MOC procedures to be used during construction planning and execution phases.

Implement enhanced tapping and tie-in procedures.

P-18-009 Control Procedures During Gas Main Modifications

Develop and implement control procedures during modifications to gas mains to mitigate the risks identified during management of change operations. Gas main pressures should be continually monitored during these modifications and assets should be placed at critical locations to immediately shut down the system if abnormal operations are detected.

NiSource Response:

As previously announced, NiSource will be installing automatic pressure control equipment, referred to as "slam-shut" devices, on every low-pressure system across our seven-state operating area. These devices provide another level of control and protection, in that when they sense operating pressure that is too high or too low, they immediately shut down gas to the system.

As an additional layer of protection, NiSource will install remote monitoring devices on all low-pressure systems so that our gas control center will see an alarm should the monitoring device indicate a high or low pressure alarm. In the event a system is shut down by the slam-shut devices described above, the remote monitors will enable us to respond more quickly to restore service to customers.

NiSource will develop project-specific risk reviews and plans detailing accountability and responsibility for activities during the construction process. This will include individual responsibility for system operation, configuration and monitoring during the construction and "tie-in/gas up" process. The plans will identify the specific tasks (operating valves, monitoring pressure, notifying first responders) required to mitigate risk during critical steps. The plans will also identify follow up actions to be taken in an abnormal condition including identifying critical locations to place assets for immediate shut down if needed.

Progress to Date:

The project is underway to install automatic pressure control equipment and remote monitoring devices on low-pressure systems.

Enhanced tapping and tie-in procedures detailing stakeholder engagement, risk identification, roles and responsibilities and MOC principles provide project-specific risk review for all mainline projects.

Next Steps:

Continue planning and executing projects to install automatic pressure control equipment and remote monitoring devices on low-pressure systems across NiSource.

Develop additional risk reviews and plans for critical steps during a construction project. Implement enhanced tapping and tie-in procedures.

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We continue to welcome any comments or questions about these ongoing implementation plans.

Thank you once again for allowing NiSource and Columbia Gas of Massachusetts to participate in the NTSB's investigation. Safety remains our top priority and the foundation of our business.

Very truly yours,

Joe Hamrock

Joe Hamrock
President & CEO

290 W. Nationwide Blvd.
Columbus, OH 43215

May 10, 2019

By E-Mail Only: correspondence@ntsb.gov

Hon. Robert Sumwalt, Chairman
National Transportation Safety Board
490 L'Enfant Plaza E, S.W.
Washington, D.C. 20594

Re: NiSource Closure Recommendation Report on NTSB Urgent Safety Recommendations P-18-007 and -009 Related to Overpressurization of Natural Gas Distribution System in Merrimack Valley, MA (NTSB PLD 18MR003)

Hon. Chairman Sumwalt:

On November 14, 2018, the NTSB issued four urgent safety recommendations to NiSource Inc. based upon the NTSB's investigation thus far of the September 13, 2018, gas overpressurization in Merrimack Valley, Massachusetts. We've since issued our initial response and outlined our commitments to meeting the recommendations, and provided a follow-up progress report.

NiSource has made considerable progress on all four recommendations and remains dedicated to taking every step we can to avoid another event like the tragedy in the Merrimack Valley.

Based on our progress, NiSource now believes we have complied with recommendations P-18-007 and -009. Herein, we describe why our work constitutes closure of those recommendations. We continue to make progress on recommendations P-18-006 and -008 and expect to close them out in the near future. Details to support closure of P-18-007 and -009 are below, followed by progress updates on P-18-006 and -008.

P-18-007 Records & Document Traceability, Reliability & Completeness

Review and ensure that all records and documentation of your natural gas systems are traceable, reliable, and complete.

NiSource Response:

NiSource has completed locating, marking and mapping of control (regulator-sensing) lines at all 2,072 low-pressure regulator runs across its seven state footprint. These facilities are depicted in isometric drawings, examples of which were provided to the NTSB during a meeting on April 18, and are visible in the NiSource geographic information system (GIS).

NiSource worked with third-party gas engineering firm TRC Solutions to verify the assets required to safely operate its low-pressure gas systems and ensure these assets are clearly indicated on relevant maps and records. The review of critical assets concluded that NiSource maps include visual records with attributes of facilities required to operate the low-pressure systems including but not limited to pipes, valves and pressure regulating stations. The review focused closely on the existence and quality of the updated station drawings showing control lines. This review concluded that those station schematics are traceable, reliable, and complete.

Results from this review are documented in a report published by TRC titled, *Report on Compliance with NTSB Recommendation - Item #2 - Material Verification Records*. NiSource provided this report to the NTSB during a meeting on April 18.

Above and beyond the scope of this urgent recommendation, and as part of business planning and overall SMS implementation, NiSource is prioritizing the mapping of control lines on the remaining elevated pressure stations across its seven-state footprint.

P-18-009 Control Procedures During Gas Main Modifications

Develop and implement control procedures during modifications to gas mains to mitigate the risks identified during management of change operations. Gas main pressures should be continually monitored during these modifications and assets should be placed at critical locations to immediately shut down the system if abnormal operations are detected.

NiSource Response:

NiSource has made significant enhancements to its tie-in and tapping procedures, including updates to Gas Standard 1680.010 *Tie-Ins and Tapping Pressurized Pipelines*, effective February 28, 2019, and the written tie-in plan template, which is required for all design capital mainline projects. We provided copies of both documents to the NTSB during a meeting on April 18.

The updates include:

- New tie-in procedure risk assessments, completed through checklists requiring key stakeholder engagement and reviews of the tie-in plan by Engineering, the project execution crew, and Measurement & Regulation.
- A new contingency plan that provides field crews the system knowledge required to perform emergency shut down of the impacted pipeline segments in the event of a hazardous situation.
- Identification of regulator stations impacted by the tie-in procedure and monitoring requirements.
- Enhanced station monitoring requirements for identified MOC activities.
- Clear roles and responsibilities for tasks during the tie-in procedure.
- Sign-off at each significant step of the tie-in procedure signifying completion of steps by the "person in charge."
- Documentation of pressure gauge readings during the procedure.

NiSource has promulgated enhanced procedures encompassing these updates and trained

appropriate Engineering, Construction and Operations personnel on these procedures. The Gas Standard and written tie-in plan template provide strength in management of change procedures with respect to changes in the control of energy.

Above and beyond the scope of this recommendation, NiSource continues to install automatic shutoff and pressure control devices on low-pressure systems across its footprint. This project also includes installing remote monitoring devices on its low-pressure systems to ensure quick response to abnormal system conditions.

P-18-006 Engineering Plan & Constructability Review Process

Revise the engineering plan and constructability review process across all of your subsidiaries to ensure that all applicable departments review construction documents for accuracy, completeness, and correctness, and that the documents or plans be sealed by a professional engineer prior to commencing work.

NiSource Update:

NiSource has drafted a comprehensive procedure for stakeholder review of designed capital projects which includes an enhanced Constructability Review process that assists the project engineer with identifying the stakeholders required to participate in the review and to otherwise be consulted during project planning. It is anticipated that the enhanced stakeholder review process will be implemented over the next several weeks. Additionally, as stated in the NiSource response to P-18-009, the written tie-in plan template has been enhanced to include multiple briefings where critical stakeholders including Engineering, the project execution crew, and Measurement & Regulation review the tie-in plan for risks and accuracy. These critical project milestones and other project stakeholder reviews are included in a draft procedure detailing project criteria where each is performed.

All relevant construction documents and plans for construction work for "complex" projects are being sealed by a professional engineer prior to commencing construction work.

Above and beyond the scope of the recommendation, NiSource continues to consider ways to review and validate Standard Designs for "non-complex" or "routine" mainline projects.

P-18-008 Management of Change Process

Apply management of change process to all changes to adequately identify system threats that could result in a common mode failure.

NiSource Update:

NiSource is near completion of its initial asset review and probabilistic risk assessment efforts focused on improving risk identification, analysis and mitigation efforts across the organization. The result of this effort will be prioritization of risks based on the analysis performed across all asset classes to ensure focus is appropriately placed on mitigating those high priority risks.

A critical management of change procedure was developed and implemented through the enhanced Gas Standard 1680.010 and written tie-in plan template as stated in the NiSource response to P-18-009.

NiSource also continues to develop and implement a Safety Management System, including enterprise-wide Management of Change governance documentation.

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We believe that two of the four recommendations have been fully implemented, which provides a stronger foundation for our continuous safety journey. NiSource continues to welcome any comments or questions about our work on the recommendations.

Thank you again for allowing NiSource and Columbia Gas of Massachusetts to participate in the NTSB's investigation. Safety for our customers, employees and communities is our top priority and will forever be the foundation of our company.

Very truly yours,

Joe Hamrock

290 W. Nationwide Blvd
Columbus, Ohio 43215

July 15, 2019

By E-Mail & Overnight Mail: Roger.Evans@ntsb.gov

National Transportation Safety Board
490 L'Enfant Plaza East. SW
Washington, DC 20594

Attn: Mr. Roger Evans
Pipeline and Hazardous Materials Investigations Senior Investigator

Re: PLD18MR003 Merrimack Valley Investigation
NiSource Party Submission

Dear Roger:

Enclosed are NiSource's Proposed Findings & Recommendations concerning the Merrimack Valley overpressurization incident.

Please do not hesitate to advise should you or your team have any questions or comments.

Thank you very much once again for allowing NiSource and Columbia Gas of Massachusetts to participate in this NTSB investigation.

Very truly yours,

Robert Mooney
Vice President, Engineering & Pipeline Safety
NiSource Inc.

Copy to: Hon. NTSB Chairman Robert Sumwalt

Hon. NTSB Vice-Chairman Bruce Landsberg

Hon. NTSB Member Jennifer Homendy

Mr. Robert Hall
Director, NTSB Railroad, Pipeline and Hazardous Materials Investigations

Dr. Robert Beaton
Acting Chief, NTSB Pipeline and Hazardous Materials Investigations

NiSource Party Submission of Proposed

Findings & Recommendations to the NTSB

NiSource Assistance with this Investigation

The NTSB is conducting the investigation into this natural gas pipeline over-pressurization. Assisting the NTSB in its investigation are NiSource Inc. (and its subsidiary Columbia Gas of Massachusetts (CMA)), the Pipeline & Hazardous Materials Safety Administration (PHMSA), Massachusetts Department of Public Utilities (DPU), and Massachusetts State Police. As the operator of the gas system at issue, CMA's specific role in this investigation has been to provide technical information regarding the system design and operation and the construction activity that was taking place when the incident occurred. The NTSB has requested that all parties submit proposed findings to be drawn from the factual information established during the course of the investigation. NiSource is responding to the NTSB request with this document, which provides overviews of:

1. NiSource and CMA
2. The September 13, 2018 Event;
3. The Restoration Efforts in the Affected Merrimack Valley Communities;
4. NiSource's Enhanced Safety and Emergency Response Processes;
5. NiSource's Technical Training and Career Development Programs;
6. CMA's Distribution Integrity Management Program;
7. NiSource's Safety Management System Progress before and after the September Event;
8. NiSource's Safety Culture;
9. Factual Findings;
10. Probable Cause;
11. NiSource's Adoption of NTSB Urgent Safety Recommendations; and
12. Additional Recommendations

1. NiSource and CMA

NiSource Inc. (NiSource) is a public utility holding company whose utility subsidiaries serve approximately 3.5 million natural gas customers and 500,000 electric customers across seven states. NiSource's natural gas utilities provide natural gas to residential, commercial, and industrial customers via nearly 60,000 miles of pipeline and related facilities in Indiana, Kentucky, Maryland, Massachusetts, Ohio, Pennsylvania, and Virginia. This includes more than 6,000 miles of low-pressure gas mains serving more than 500,000 customers.

Columbia Gas of Massachusetts (CMA) is a subsidiary of NiSource. CMA is a supplier of natural gas to over 300,000 customers in parts of Massachusetts including the cities of Springfield, Brockton, and Lawrence, and surrounding areas. It operates more than 700 miles of low-pressure gas mains serving more than 80,000 customers.

As a public utility in Massachusetts, CMA is subject to extensive regulation by the Massachusetts Department of Public Utilities (DPU). The DPU determines what services may be offered, the terms and conditions under which those services are to be offered, and the rates to be charged for those services. The DPU also oversees numerous other aspects of CMA's operations, such as its energy efficiency programs, its long-term financing activities, and its forecast and supply planning process.

CMA is also subject to state and federal pipeline safety regulations, which are enforced by the DPU. Those regulations contain extensive, detailed requirements concerning matters such as pipe design; the design of pipeline components; the handling of customer meters, service regulators and service lines; corrosion control; test requirements for steel and plastic pipelines; uprating of pipelines; operation and maintenance of pipelines; training and qualification of pipeline personnel; integrity management for distribution and transmission pipelines; and leakage surveys and procedures.

2. The September 13, 2018 Event

In 2015, as part of its Gas System Enhancement Plan (GSEP), CMA initiated a project to replace the cast-iron, low-pressure main on South Union Street between Winthrop Avenue and Market Street in Lawrence with a new plastic, low-pressure main (the South Union Street Project). Consistent with federal and state pipeline safety policy, the South Union Street Project was part of the Company's long-term, ongoing efforts to modernize its natural gas infrastructure. The South Union Street Project was scheduled to be completed in 2016 before water improvement projects planned by the City of Lawrence would encroach upon CMA's existing cast-iron mains. CMA identified the South Union Street Project in its GSEP for 2016, which was submitted to the DPU in October 2015.

The South Union Street Project included:

- Installation of 3,700 feet of 8", plastic, low-pressure main;
- Tie-in of the new plastic main to the South Union at Winthrop regulator station (the Winthrop regulator station);
- Tie-in of side streets along South Union Street, and service line replacements and tie-overs; and
- Abandonment of 7,400 feet of cast-iron, low-pressure main.

The Winthrop regulator station was located on South Union Street, close to the intersection with Winthrop Avenue. It was one of 14 regulator stations that supplied gas to the low-pressure distribution system of which it was a part. It was an underground regulator station, housing a worker regulator and a monitor regulator. The worker and monitor regulators each had a dedicated sensing line (also known as a static, sense, or control line) attached to the cast-iron main on South Union Street. The regulators controlled the pressure in the low-pressure distribution system by responding to the pressure in the distribution system via their sensing lines.

The City of Lawrence granted CMA a permit for the South Union Street Project in April 2016. The Company began construction in June 2016, and the project was scheduled for completion that same year.

During the South Union Street Project's design and construction phases in 2016, both CMA's Engineering and Construction personnel spoke with Measurement and Regulation (M&R) personnel in Lawrence about the Winthrop regulator station's sensing lines. All of the construction personnel who worked on the South Union Street Project in 2016 knew that the sensing lines needed to be relocated from the cast-iron, low-pressure main before it was abandoned. The location of the sensing lines was documented in readily available company documentation located in CMA's Lawrence Operating Center, which the Inspector on the project in 2016 used to determine the location of the sensing lines. He notified the construction crew and foreman that the sensing lines were attached to the South Union cast-iron main, and they saw the sensing lines for themselves when they laid the new plastic main underneath them. During the 2016 construction phase, the South Union Street Project Inspector and Construction Leader discussed the need to relocate the sensing lines, and the Construction Leader notified M&R in October 2016 about the planned relocation of the sensing lines.

In October 2016, the City of Lawrence imposed a 30-day stop-work order. CMA raised concerns with the City about this cessation of work, and the City ultimately allowed the Company to undertake limited additional work on the South Union Street Project in November 2016. These work restrictions, together with the City's impending winter moratorium, impeded CMA from completing the project in 2016. In particular, CMA was unable to transfer to the new plastic main the distribution lines on South Union Street's side streets that were tied-in to the cast-iron main on South Union Street. Consequently, the project had not yet progressed to the point at which CMA ordinarily would transfer sensing lines on a project such as this. Prioritizing the safety and integrity of the project, and consistent with industry practice, CMA gassed the new plastic main in late November 2016, before the City's winter moratorium

took effect, so that if the plastic main incurred any damage before CMA was permitted to resume work on the project, that damage would be detected more readily.

The Company expected to resume work on the South Union Street Project in April 2017, after the City's winter moratorium was lifted. However, in March 2017, the City of Lawrence denied CMA a permit to resume work on the project. The City's work moratorium for the South Union Street Project lasted throughout 2017.

In January 2018, the City granted CMA a permit to resume work on the South Union Street Project. By the time CMA resumed work on the South Union Street Project in May 2018, there was a nearly complete turnover in project personnel. CMA did not effectively transfer the knowledge its 2016 construction personnel had about the status of the project sensing lines to its 2018 construction personnel. As noted above, CMA's 2016 construction personnel knew the location of the sensing lines and planned to relocate them to the new plastic main before the cast-iron main was abandoned. While the 2018 construction personnel had ready access to information about the status and location of the sensing lines, that information was not reviewed. As the project progressed, the construction crew disconnected the cast-iron main from the Winthrop regulator station and tied-in the distribution lines along the South Union Street side streets to the new plastic main. The cast-iron main remained tied-into to the low-pressure distribution system by the side streets that had not yet been tied-in to the plastic main.

On September 13, 2018, CMA tied-in the Salem Street main to the plastic main. Salem Street was the last remaining side street that was to be tied-in to the new plastic main. This work was done at the intersection of South Union Street and Salem Street, eight blocks (approximately 2,350 feet) north of the Winthrop regulator station. To monitor pressure during the tie-in process, the construction crew installed gauges on the cast-iron main on South Union Street, the plastic main on South Union Street, and the main on Salem Street.

Once Salem Street was tied-in to the plastic main, the cast-iron main was disconnected from the distribution system and began to lose pressure. Because the sensing lines for the Winthrop regulator station were still attached to the cast-iron main, they sensed its drop in pressure, and the regulators to which they were attached responded as designed by opening, which increased the flow of gas into the distribution system. This resulted in an over-pressurization.

Construction personnel at the Salem Street tie-in site recognized the over-pressure situation and contacted the Lawrence Operations Center. In addition, Gas Systems Control in Columbus, Ohio (which provides remote monitoring service to CMA) received two high-pressure alarms – one at 4:04 p.m. and the other at 4:05 p.m. – from the low-pressure distribution system's Supervisory Control and Data Acquisition (SCADA) system, a remote monitoring system that uses telemetry readings to monitor overall system pressure. At 4:06 p.m., Gas Systems Control called the on-call technician for M&R in Lawrence about the alarms. The Lawrence technician immediately notified all Lawrence M&R technicians, who then immediately moved to perform field checks on the affected distribution system's 14 regulator stations to identify and shut down any station that was continuing to feed the system. CMA shut down the Winthrop regulator station by about 4:30 p.m., within 25 minutes of being notified. The Field Operations Leader, acting as the Incident Commander under CMA's Emergency Response Plan, directed efforts leading to the shutdown of the entire low-pressure distribution system by 7:17 p.m. The Company also worked quickly to shut down meters at businesses and residences, assisted emergency responders with evacuations, and initiated venting of the system to reduce system pressure.

The CMA Director of Government Affairs, who was traveling from Boston amid the heavy traffic resulting from the incident, arrived at the Lawrence Emergency Operations Center between 6:00 p.m. and 7:00 p.m. While en route, he was in contact with government officials and emergency responders by phone and, once he arrived, he remained at the Emergency Operations Center, facilitating communications between public officials and CMA. Because that representative did not have complete situational knowledge and the individuals who did have such knowledge were fully engaged in shutting

down the low-pressure distribution system and making the situation safe, in the first hours after the incident CMA was unable to provide complete information to first responders and other officials at the Emergency Operations Center regarding the cause of the incident, the areas affected, or how long it would take to shut down the system. CMA recognizes the importance of having a liaison who can provide substantive knowledge to first responders and other government officials about ongoing incidents, and acknowledges that, while it had individuals in place to serve as liaisons, complete information was not communicated in a timely manner. CMA has placed renewed emphasis on ensuring communication with both emergency responders and government officials in its revised Emergency Response Plan submitted to DPU earlier this year.

CMA provided the public with information regarding the incident at approximately 9:00 p.m., and regularly supplemented this initial publication with additional information regarding the incident and the status of the restoration process. As CMA has previously acknowledged, communicating promptly with customers was a weakness in the response to the incident. Although CMA was still gathering relevant information during the first several hours following the incident and did not have a complete understanding of the situation, it nevertheless should have issued a public statement more quickly.

CMA immediately advised the NTSB that the likely cause of the over-pressurization was that regulator sensing lines at the Winthrop regulator station had not been relocated from the cast-iron main being taken out of service to the new plastic main. Excavation was performed on September 15 to confirm this.

The over-pressurization damaged the integrity of the affected distribution system. After consulting with the DPU, it was determined that it was necessary to replace the system's cast-iron main before restoring service to affected customers.

3. The Restoration Efforts in the Affected Merrimack Valley Communities

a. Introduction

Since September 13, 2018, NiSource and CMA have been committed to restoring the affected communities of Andover, Lawrence, and North Andover. Over the course of three months, more than 5,000 workers came together to safely and efficiently restore gas service. This effort included replacing nearly 45 miles of gas pipeline as well as going house-to-house and business-to-business and conducting significant in-home and in-business restoration work so each customer could safely receive gas service. CMA restored heat and hot water to nearly 7,500 residential and business meters, and in the process installed nearly 18,500 new appliances and pieces of heating equipment (*i.e.*, boilers, furnaces, ranges, and dryers).

CMA continues to provide support and services for its customers in the three affected communities, including support to self-mitigating customers and administering an equipment repair plan for new CMA-installed or repaired appliances and equipment, at no cost to customers. CMA and state and local officials continue to work to address the needs of the affected communities.

b. Organization

Shortly after the incident, Massachusetts Governor Charlie Baker appointed retired Navy Captain Joe Albanese as Chief Recovery Officer to provide program management, leadership and oversight for the restoration and recovery efforts. NiSource named Pablo Vegas, an executive vice president, as Chief Restoration Officer, and sent a number of senior executives to Lawrence full-time for the duration of restoration activities. The team established a Command Operations Center (COC) at CMA's gas operations facility in Lawrence. Ultimately, more than 5,000 workers, ranging from Columbia Gas employees, plumbers, linguists, management consultants and contractors worked on the operation, under the supervision of the COC.

The COC team maintained communications with state and local officials throughout the restoration process, including daily briefings with Governor Baker, Mayor Rivera (Lawrence), Town Managers Flanagan (Andover) and Maylor (North Andover), and others in the first months of the restoration. Representatives of the Baker administration and the Office of Energy and Environmental affairs were stationed in the COC, and state and local officials were part of the regular COC workflow.

c. Temporary Housing

Working with the Massachusetts Emergency Management Agency (MEMA), CMA established a temporary housing program, sourcing more than 4,000 hotel rooms across the Merrimack Valley and southern New Hampshire, more than 160 one-, two-, and three-bedroom apartments, and over 200 RVs placed in the affected communities. Additionally, a communal shelter with beds, showers and hot meals was established and operated in Lawrence. At its peak, more than 2,200 families utilized temporary housing, totaling more than 7,000 individuals.

CMA committed to placing customers in temporary housing three hours after they requested it, and worked with customers to find the best available solutions that accommodated their needs. Customers were able to stay in temporary housing until gas service to their homes was re-established. Customers moved back into their homes throughout the period of the restoration as their natural gas equipment was replaced or repaired, and as other home repairs were completed.

d. Service Restoration

The restoration effort had two primary components: "Gas Ready" and "House Ready," which together enabled CMA to restore customers' gas service. The Gas Ready component consisted of replacing and requalifying pipeline and installing service lines, while the House Ready component consisted of repairing and replacing appliances and other natural gas equipment and infrastructure in customers' homes and businesses.

Gas Ready: On September 16, CMA announced its commitment to a complete replacement of the majority of the affected gas distribution system, replacing it with state-of-the-art infrastructure. A portion of the affected pipeline infrastructure had been recently replaced with modern polyethylene pipeline and was requalified rather than replaced. The Gas Ready construction plan included eight work zones, further defined into 63 projects, all running in parallel across the three communities. At its peak, there were over 200 construction crews working each day, including pipeline contractor crews from 10 states. The completed Gas Ready effort included the installation of 43.5 miles of gas main lines and 5,086 service lines, and the requalification of nearly 12.3 miles of main line polyethylene pipe. CMA announced the completion of the gas pipeline construction work on October 30.

House Ready: The House Ready effort comprised the work required inside the affected homes and businesses to allow for safe restoration of gas service. This in-home (and in-business) work included assessment, removal of damaged appliances and equipment, replacement or repair of gas appliances and equipment, and safety inspections. Once a home or business was deemed both Gas Ready and House Ready, multiple safety checks were performed, natural gas service was re-established, and appliances were relit.

CMA prioritized restoring gas service to the elderly, individuals with disabilities or health concerns, and young children. In all, gas service was restored to nearly 7,500 residential and business meters. Approximately 18,500 new appliances and pieces of equipment (*i.e.*, boilers, furnaces, ranges, and dryers) were installed, and more than 20,000 pieces of damaged gas equipment were removed. Nearly 25,000 plumbing and gas permits were issued and 11,385 inspections were completed by 91 inspectors from across the state. At the peak of the recovery effort, hundreds of meters were made House Ready, and service to hundreds of customers was re-established daily.

As winter approached, CMA contacted those customers who would not have heat restored before November 19, 2018 (the initial date CMA targeted for service restoration) to discuss interim options, including the provision by CMA of professional winterization services and temporary heating solutions. Overall, CMA winterized properties at 190 meters and installed more than 950 temporary heating solutions.[1]

Nearly 700 businesses were affected by the event. Approximately 80% of affected businesses were open by early October 2018. CMA established a "Back-to-Business" initiative designed to streamline and expedite the process of approving property damage claims and restoring gas service so that affected businesses could return to normal operations as soon as possible. Each affected business was assigned a dedicated project manager, who was responsible for shepherding the business through the entire process—from assessing damages to ordering and installing new equipment, and managing the claims process. CMA also opened a Back-to-Business Center in each of the three affected communities, where businesses could utilize the resources of CMA staff.

On December 16, 2018, CMA and state and local officials announced that the gas restoration project was substantially complete, meaning that 98 percent of residential and business customers had their natural gas service restored and had heat, hot water, and working gas appliances. At that time, the only customers to whom service had not been restored were those with extenuating circumstances or those who had decided to self-mitigate.[2]

e. **Customer Communications**

[1] CMA also reimbursed customers who temporarily or permanently switched fuel sources (*e.g.*, electric, propane, oil) for heating, hot water, cooking and other appliances.

[2] Certain customers did not want CMA-contracted crews to work inside their homes or businesses. For those customers, CMA offered reimbursement through the claims process for work performed by their own contractors (labor and parts). This process is known as self-mitigation.

CMA sought to provide accurate and timely information to affected customers on all aspects of the recovery process, in English and Spanish. CMA provided a weekly newsletter, mailed directly to customers, with updates on the recovery effort and what to expect in the week ahead. CMA also introduced an interactive, online map for customers to track the schedule range when work would be performed at their address. CMA posted multiple times a day on its social media accounts and website, provided personal calls for customers whose House Ready schedule had shifted and provided written materials for work crews to provide to customers when they entered homes to conduct work.

CMA established an Affected Customer Helpline, which operated 24 hours a day, seven days a week. These call centers handled hundreds of customer calls per day (totaling more than 100,000). CMA also operated Mobile Customer Care Centers which traveled throughout the affected communities to provide support to customers on the ground. CMA also conducted 15 open-house and town hall meetings, five in each of the affected communities. At these events, customers heard directly from those leading the recovery effort, and information stalls were available for each aspect of the effort so that customers could get answers to questions and resolve issues.

f. **Response to those Affected**

CMA established a claims process for those in the affected area who experienced losses caused by the incident. CMA took immediate steps to allow impacted individuals and businesses to access the claims process, including establishing a toll-free number and claims centers in each of the three affected municipalities, and making resources available to assist affected customers with the claims process. As of June 2019, more than 25,000 claims had been filed, and more than 97% of those claims had been resolved. Access to the claims process and two community walk-in centers remains available today.

g. **Community Donations**

In mid-September, CMA made a $10 million donation to the Greater Lawrence Disaster Relief Fund at the Essex County Community Foundation. The fund supported the work of meeting the immediate needs of people affected by the event. CMA also provided $10 million in funding to address immediate and longer-term needs of affected businesses and worked closely with state and local officials on a strategic plan for deploying these funds. The funding addressed three major areas: $2 million for direct technical and other business support such as bookkeeping, staffing, inventory management, claims submissions, business development and marketing efforts; $6 million for municipal discretion for business support and economic development, administered by the Essex County Community Foundation and the Lawrence Partnership, a grant-providing entity; and $2 million for longer-term regional support for economic development.

h. **Phase II Restoration**

In December 2018, CMA announced its Phase II of the restoration project, which includes:

- **Equipment Repair Plan**: For residential appliances, CMA will provide required repairs through May 1, 2020 to new boilers, furnaces, hot water heaters, ranges, and dryers installed by CMA or its subcontractors; for business customers, repairs will be covered for one year from date of installation.
- **Equipment Replacement Program**: Those residential customers who had their heating equipment repaired (rather than replaced) in the fall will receive full replacement. This covers approximately 900 customers. CMA has committed to complete this work by September 15, 2019.[3]

[3] During the House Ready restoration effort, for some customers, appliances were repaired instead of replaced to ensure that those customers could return to their homes as quickly as possible.

- **Property Restoration**: CMA contractors have been restoring outdoor property including: lawn repair, irrigation systems, and hardscape restoration such as concrete walkways.
- **Curb-to-Curb Paving**: CMA has fully compensated the affected municipalities for curb-to-curb paving of all roadways, sidewalks and intersection exchanges affected by the incident, including required accessibility improvements.

4. NiSource's Enhanced Safety and Emergency Response Processes

a. Safety Enhancements

Following the September 13, 2018 incident, NiSource has taken, or committed to take, the following infrastructure and operational improvements across its seven-state operating area, all of which are intended to better ensure safer operations:

- **Regulator Station Design/Over-Pressure Protection**: NiSource initiated and completed an engineering design review of low-pressure regulator stations to determine how best to install additional over-pressure protection systems and other safety features.
- **Over-Pressure Protection Devices**: NiSource is installing automatic pressure control equipment on low-pressure systems (which include more than 6,000 miles of low-pressure gas mains) across its seven-state operating area. These devices operate like circuit-breakers; when they sense operating pressure that is too high or too low, they shut down the flow of gas to the system, regardless of the cause. These devices operate independently of other pressure control devices, so they will automatically shut down the system to prevent over-pressurization.
- **Remote Monitoring**: NiSource is installing remote monitoring devices on low-pressure systems (to the extent not already in place on those systems) to expand the ability of its gas control centers to receive pressure alarms on a real-time basis. In the event a system is shut down by an automatic pressure control device (as described above), the remote monitors will enable quicker response times to restore service to customers.
- **Infrastructure Modernization**: NiSource is continuing to modernize its system (in Massachusetts and elsewhere) by replacing cast-iron and bare-steel pipes with more modern materials.
- **Field Survey/Mapping**: NiSource has completed a field survey of its low-pressure regulator stations to identify available options to enhance the safe, reliable operation of regulator station equipment. This effort included the locating, marking, and mapping of sensing lines (*i.e.*, regulator-sensing lines) at all 2,072 low-pressure regulator runs across the seven-state footprint. NiSource is using the information from the field survey to add further details to its electronic mapping system. NiSource also is also updating the drawings at the regulator stations themselves, as needed.
- **Asset Review**: NiSource retained a third-party gas engineering firm to verify the components and configurations of the assets required to safely operate low-pressure gas systems (including regulators, valves, and sensing lines) and ensure these assets are clearly indicated on relevant maps and records.
- **Professional Engineers**: Across NiSource, all relevant construction documents and plans for construction work for complex projects are being sealed by a professional engineer prior to commencing construction work, consistent with the recently-enacted Massachusetts statute. NiSource continues to consider ways to review and validate Standard Designs for non-complex or routine mainline projects.
- **Capital Projects Review**: NiSource has revised its procedure for stakeholder review of designed capital projects, which will include an enhanced Constructability Review process to assist the project engineer with identifying the stakeholders required to participate in the review and to otherwise be consulted during project planning.
- **Management of Change**: NiSource has supplemented its Management of Change (MOC) procedures to detail steps to enhance safety on construction projects, for example, during changes in company and contractor personnel.

- **Tie-In and Tapping Procedures**: NiSource has developed enhanced tie-in and tapping procedures. These enhanced procedures also outline stakeholder engagement, risk identification, roles and responsibilities, and MOC principles.
- **Damage Prevention**: NiSource has implemented enhanced damage prevention practices around low-pressure regulator stations, including field inspection and monitoring excavators working for third parties. When excavation work is being conducted in close proximity to regulator stations, a NiSource employee will be present.

In addition, as described in Section 7, NiSource has accelerated its implementation of a Safety Management System (SMS) to help identify and mitigate risk and continuously improve system safety and integrity.

b. **Emergency Preparedness and Response**

In early 2019, NiSource commissioned a cross-functional Emergency Preparedness and Response team[4] to integrate improved preparedness plans and exercises covering a broad range of potential scenarios and levels of emergency; it will provide increased awareness and understanding of all roles during an emergency to required personnel across the gas segment and corporate support teams. The overarching goal is to ensure an emergency response team that is capable of a timely and effective response to incidents with potentially wide ranges of scale and complexity anywhere in NiSource's service territory, and to be positioned to assist peer utilities in their restoration efforts as required.

In the first half of 2019, the NiSource Emergency Preparedness and Response team:

- Successfully completed classroom training and certification in Federal Emergency Management Agency ICS 100, 200, 300, and 700 modules.
- Reviewed and analyzed existing corporate and operating company Emergency and Crisis Communications Plans, as well as Business Continuity Plans.
- Completed best practice visits with industry peers as well as internally with the Northern Indiana Public Service Company's electric storm team.
- Submitted an updated Emergency Response Plan to the Massachusetts Department of Public Utilities, which included a significant restructuring and rewriting of the previous year's plan and incorporates improvement actions based on learning from prior responses of NiSource's previous incident response processes, plans and performance. The new Emergency Response Plan focuses on enhancing the Incident Command System to ensure a clear leadership structure in the event of an incident. It also provides a defined timeline for communications to ensure the public is informed, and adds a maintenance and Management of Change section.

The Emergency Preparedness and Response team's goals for the rest of 2019 include the following:

- A single emergency response plan that is utilized across the gas segment.
- Consistent definitions for incident levels from less severe to the most severe.
- Implementation of a single Incident Command System and structure that will be scalable to accommodate the incident level, and consistent use of Incident Command System processes and terminology.
- Enhanced training (computer-based and independent study) for all employees with roles in the emergency response plan and Incident Command System.[5]

[4] This team was established as part of NiSource's SMS implementation, described in more detail in Section 7 below.
[5] Enhanced classroom training for these employees will extend into 2020.

- Emergency exercises in the third and fourth quarters to build familiarity with the plan, processes and terminology, while ensuring employees more deeply understand their respective roles and responsibilities and enhancing relationships with external stakeholders

Concurrently, the team is working with the NiSource compliance team to develop a comprehensive exercise program to test the plan, identify gaps and make the necessary adjustments to strengthen overall company preparedness.

In addition to creating consistency across the NiSource gas segment, these efforts will enhance communications with key external partners with which NiSource works in an emergency, such as public safety personnel. NiSource will engage with first responders and other external stakeholders to build awareness of NiSource's emergency response plans. NiSource will also invite their participation in exercises to increase mutual understanding of the critical roles each participant plays.

Lastly, NiSource is enhancing its corporate crisis response efforts. The effort includes response protocols, template media statements, and customer-facing communications materials for use during crisis situations. NiSource intends to incorporate these materials into the gas segment Emergency Preparedness and Response Plan.

5. NiSource's Technical Training and Career Development Programs

a. Training for Engineers

The key elements of NiSource's training program for Field Engineers are effective onboarding, classroom and practical experience training, and feedback through mentorship/peer exchange and project reviews.

Each new Engineer completes a required onboarding program (designed to last four to eight weeks) that provides the Engineer with an overview of the information needed to do his or her job. Onboarding activities are grouped into four main categories: (1) Safety and Administrative; (2) Engineering, Technical and Standards; (3) Observation of Operations Activities; and (4) Technology. Engineers are required to review applicable Gas Standards, and the observation component includes a job shadow with several departments within NiSource.

After the initial onboarding, Engineers are assigned a detailed training program to complete over the next several years. Engineers are required to take substantive training on key subject areas such as the design of main line replacement projects and the operation and function of regulators and regulator stations. The training also provides an understanding of applicable Gas Standards necessary for the safe operation of the system. In addition to technical competencies, the curriculum covers safety and administrative responsibilities and includes observational opportunities. The resources utilized include internal classes for technical training and organizational development, safety, and IT applications. External sources (*e.g.*, GTI, Synergi, Corrosion Short Course) are also utilized. The training curriculum was created by a team of Engineers with a wide range of experience, in conjunction with members of NiSource's Training organization.

NiSource has established a set of Advancement Criteria that individual engineers must meet before they can be promoted to the next step. There are four levels within the Field Engineer job family, *i.e.*, the series of engineering positions at NiSource ranging from entry-level to senior roles: Associate Field Engineer (AFE) 1, Associate Field Engineer 2, Field Engineer, and Senior Field Engineer. The advancement criteria is grouped into three major categories: Key Work Experiences/Education Criteria; Technical/Functional; and General/Transferable. Across the three categories, there are a total of approximately 45 individual elements on which the engineer is evaluated.

The Engineer and his or her supervisor (Leader) meet periodically throughout the year to evaluate progress and alignment of goals. The overall program is designed to progress an engineer from Associate to the Senior level with intermediate milestone requirements for each level, and encourages engineers to obtain Professional Engineer certifications as part of advancement to the Senior level. Each Engineer submits evidence that he or she has met the criteria, which is then reviewed by his or her Leader. The Leader then sends the package to their supervisor (Manager), who decides whether to promote the Engineer from AFE 1 to AFE 2. For advancement to Field Engineer or Senior Field Engineer, the Director of Engineering (to whom the Manager of Engineering reports) must be involved in the process and sign off on the advancement proposal before it is final. Advancement to the Senior level also involves approval from a review team of the Managers and Director with the Leader presenting as a sponsor for the candidate.

NiSource has maintained an intern/co-op program for nearly a decade. The program has been successful in developing young engineers who return to NiSource as full-time employees. Approximately one-third of NiSource hires come from the internship program. The intern development and work assignment process is very similar to the experience any new engineer would have upon hiring.

b. Training for Construction Personnel

NiSource has a company-wide training program for field employees (including Inspectors and internal Construction Crews) who are new to the company or who internally transfer into the Construction department. This program focuses on hands-on training, and covers all aspects of the job (from

paperwork and customer interactions to safety requirements, environmental standards, and technical skills), at each level of expertise. This training is designed to prepare employees to perform the technical aspects of the work and to provide them with the larger picture of what goes into their job, as well as completion of associated Operator Qualifications (OQs).

The focus of this technical training is aimed at field employees – Inspectors, as well as Construction Crew employees. The program for new hires begins with a three-week onboarding program that includes elements on culture, process, safety/OSHA, driving, and the minimal qualifications an employee needs to work in the field, such as safe use of basic field tools and equipment, customer interactions, setting up a work zone, assisting with line locating, using the one-call system, identifying Abnormal Operating Conditions, and using the mobile data terminal (MDT). All employees attend at least a portion of this onboarding, depending on the level of experience s/he brings to the job when hired (either internally or externally). Once employees complete onboarding training within the training center, onboarding training continues in their new operating area, where they meet their leadership team and prepare for the next level of training.

After a few weeks, new field employees return for a three-week course titled Plant Basic. Employees learn how to use tools in the truck for service lines; safely excavate for service line installation, repair, or abandonment; join plastic pipes; identify and repair service line leaks; pressure test service lines; perform purging; and install, repair, and replace service lines.

After Plant Basic, the on-the-job training (OJT) portion of an employee's training begins. Each employee is assigned an "OJT coach" who monitors their progress. When the OJT coach and the employee's local leader believe the employee is ready, s/he is scheduled to take the OQ tasks necessary to perform his/her job. Once the OQs are passed, the individual is released to the field to perform the work he or she has been trained to perform.

The third phase of training begins with Plant 1, another three-week course designed to instruct employees on what is required to lead a crew on service line work. Plant 1 is intended to round out the skills and knowledge required to lead service and maintenance crews and respond to dig-ins where some main line work is required. The subjects of this phase of training include leak repair and leak investigation; purging; installing a temporary bypass; tapping; and the capital work order process. Employees who complete Plant 1 then engage in additional OJT and, in coordination with their OJT, take the relevant OQ tasks. Once an employee receives all OQs related to Plant 1, he or she may be designated as a "Tier 1" employee to lead an internal Construction Crew in service line and maintenance work, and to sign off on job orders such as service line leak repairs, locating, facility damage, and main line maintenance.[6] In addition, new Inspectors shadow experienced Inspectors to obtain construction project management skills and to understand the paperwork involved in their positions. Beginning in 2018, NiSource has started to develop additional classes and a formal OJT program that focus on project management and paperwork requirements to deepen Construction Inspectors' skills.

c. CMA Operator Qualification Plan

In accordance with federal and state requirements, CMA has developed an Operator Qualification (OQ) plan to ensure that employees and contractors who work on CMA gas line projects have the appropriate qualifications and training to complete assigned tasks safely. The CMA Operator Qualification Plan (CMA OQ Plan or OQ Plan) is designed to establish a verifiable, qualified workforce to promote personnel and public safety. CMA utilizes the Northeast Gas Association (NGA) written template as the basis for its own OQ Plan. CMA revised and edited that document to reflect its own operational requirements.

[6] Tier 1 employees may take advanced training offerings depending on the needs of their operating area, including courses on sequencing tie-in operations, complex pressure testing and uprates, and high pressure pipeline repair.

As a regulated entity, CMA must include provisions in its OQ Plan to identify covered tasks. To that end, the CMA OQ Plan includes provisions to:

- Ensure through evaluation that individuals performing covered tasks are qualified;
- Allow individuals who are not qualified to perform a covered task if directed and observed by an individual that is qualified;
- Evaluate an individual if the operator has reason to believe that the individual's performance of a covered task contributed to an incident;
- Evaluate an individual if the operator has reason to believe that the individual is no longer qualified to perform a covered task;
- Communicate changes that affect covered tasks to individuals performing those covered tasks; and
- Identify those covered tasks and intervals at which evaluation of the individual's qualifications is needed.

If a CMA employee or contractor needs to be able to perform a covered task in the course of his or her job, the individual shall be provided training, as appropriate. This applies to new hires, operators, and contractor/subcontractor employees transferring from other functions, individuals seeking to qualify for new covered tasks, or an individual who fails a covered task assessment. The appropriate level of training may include: on-the-job training, classroom instruction, demonstrations, or other methods deemed appropriate by CMA. Prior experience could allow the individual to proceed directly to qualification testing without training. Testing may be administered by NGA, CMA, or by one of the agencies identified as operator-approved in the CMA OQ Plan, and can include online testing, written testing, oral testing, and simulations. On-the-job performance can also be used as a qualification method, if used in conjunction with at least one of the other methods.[7]

In the event a CMA employee or contractor fails an evaluation of a covered task, or the individual's qualifications are suspended for cause, CMA immediately notifies the employee and his or her supervisor. The affected employee or contractor is thus no longer qualified in that task, and can either no longer perform the task, or, where allowed, can only perform the task under direct observation of a qualified individual. CMA will provide additional training to an employee who fails an evaluation or whose qualifications are suspended for cause, and the employee will then be re-tested on the task. If the employee passes the reevaluation, he or she will regain the qualifications, and he or she can once again perform the task without supervision. In the event of multiple failures, those are handled by management on a case by case basis. Additionally, if CMA has reason to believe an individual's performance contributed to an incident, the individual must be evaluated prior to continuing the performance of the covered task.

d. **Emergency Response Training**

As part of NiSource's continued efforts to enhance its training programs, NiSource has built four new training centers since 2016, including a training center in Massachusetts, which opened in 2018. These training centers have significant capabilities for training on emergency response, which build on NiSource's existing emergency response training. The new training centers service new hires and existing employees, and are also used for coordinated training with local emergency responders on

[7] When CMA employs a subcontractor to perform covered tasks, the subcontractor will either be qualified under the CMA OQ Plan or, if the subcontractor has its own plan, the plan will be reviewed and approved by the CMA OQ Plan Administrator to ensure the subcontractor plan meets all of the requirements in the CMA plan.

responding to natural gas emergencies. NiSource is working to further enhance training offered at the training centers based on recent experiences, including the incident.

These new training centers include an outdoor "Emergency Response Safety Town" – a mock neighborhood of mini-homes and buildings complete with underground utilities, meters, and regulators where instructors can create and control various emergency training scenarios, including natural gas leak simulations. Instructors use this area to teach other critical skills, including line locating and marking; leak detection and corrosion monitoring; and re-establishing gas service. These centers can create approximately 50 separate gas leak scenarios to provide unique training experiences. New employees joining the service department will spend a full week practicing emergency response individually and as a team to build confidence and competence in emergency response.

Instructors also use a variety of gas appliances to provide employees with experience relighting equipment and recognizing faulty operation, to help employees prepare for the wide variety of equipment that may be in customers' homes. Employees are also trained on proper installation of equipment in the safe, controlled environment of the centers. Hands-on training is supplemented with simulators that allow employees to experience various work activities in a safe environment. Participants are able to experience as close as possible to a real emergency situation and practice how they should respond.

While natural gas-related fires are rare, they require specialized training and coordination with first responders and other community partners. NiSource's fire school allows NiSource employees and local first responders to work together to gain valuable experience while safely approaching and extinguishing a broad range of gas-related fires. NiSource offers safety response training to local emergency responders free of charge.

6. CMA's Distribution Integrity Management Program

In accordance with federal pipeline safety regulations, NiSource companies, including CMA, have developed a comprehensive Distribution Integrity Management Program ("DIMP") that enhances pipeline safety by systematically identifying and reducing risks to its gas distribution systems. Since NiSource first implemented DIMP, it has enhanced its processes through continuous learning and improvement. NiSource's DIMP includes processes to:

- Develop general knowledge of its distribution system;
- Identify potential threats to facilities and materials ("assets");
- Rank the risk of each identified threat;
- Identify and implement measures to reduce risk;
- Measure performance, monitor results and evaluate effectiveness;
- Evaluate and improve the DIMP; and
- Report results.

A central DIMP administration team at NiSource facilitates the development of DIMP plans for each NiSource gas distribution company (including CMA), each of which has its own DIMP steering team made up of local subject matter experts representing all relevant disciplines within the company, including but not limited to Systems Operations, Field Operations, Construction, Communications, Field Engineering, Standards, and Damage Prevention. The DIMP administration team is in frequent contact, and meets formally at least annually with the steering teams to share and update information and coordinate ongoing efforts to identify, evaluate and reduce risks.

a. Knowledge

The knowledge element of a DIMP focuses on knowledge of system design and operation, as well as environmental conditions that can affect the distribution system. CMA's DIMP addresses the need to collect information about new facilities that it installs, as well as the need to incorporate evolving information to govern established facilities. CMA maintains data and records on system design and pressure, pipe installation methods, regulator stations, valves, leakage rates, and exposure to natural forces, among other aspects of its distribution system. As part of its ongoing DIMP review process, CMA and each of the NiSource gas companies also use "Knowledge Enhancement" programs to secure information about new potential threats as they are identified.

b. Threat Identification

By regulation, a DIMP must consider eight general threat categories: corrosion, natural forces, excavation damage, other outside force damage, material or welds, equipment failure, incorrect operations, and other concerns. The regulations contemplate that operators will develop integrity management programs tailored to their individual systems, as long as they demonstrate how those programs satisfy integrity management requirements. CMA's threat identification process considers not only these general categories, but also dozens of sub-categories specific to CMA's distribution systems and operating conditions.

To help identify potential threats, the DIMP Steering Team reviews information from the other NiSource operating companies, peer companies, industry associations, PHMSA Advisory Bulletins and NTSB Reports and Recommendations. NiSource actively participates in industry association programs and monitors industry-wide reports, to help ensure that any relevant issues are brought to the attention of local steering teams in the course of re-evaluating their DIMPs. CMA's DIMP plan also calls for operations, maintenance and engineering personnel to communicate potential threats or pipeline safety concerns that

they discover to members of the DIMP Steering Team; any such issues are documented and routed to the DIMP Coordinator for further consideration.

CMA's DIMP subdivides its distribution system into assets with similar physical characteristics (e.g., steel pipe, plastic pipe, location above or below ground) or functions (e.g., main or service line), thus grouping together assets for which similar actions would be most effective in reducing risk. CMA has historically considered M&R Stations (of which worker and monitor regulators and sensing lines are components) as assets in its DIMP. Going forward, CMA plans to separately identify the discrete components of M&R Stations as "assets" in its DIMP so that threats can be identified at a more granular level.

c. **Risk Evaluation and Ranking**

Risk ranking takes two factors into consideration: the probability of a threat and the consequences of that threat. Based on these factors, CMA ranks the risk for each threat, and subject matter experts evaluate the results. CMA evaluates risk at a system-level and a segment-level. The system-level process considers all threat categories and all distribution facilities, enabling CMA to focus efforts on those asset groups and threats that pose the greatest risk. The segment-level process includes evaluation of both main lines and service lines; both of these evaluations use a risk-model based decision support software tool (Optimain DS) to assess and prioritize the risks. CMA's segment-level risk evaluation also includes a Regulator Model Evaluation, which is informed by the field experience and knowledge of company personnel. The evaluation process, which is updated annually, enables CMA to assess and prioritize the risks specific to regulator stations. The system- and segment-level processes are assessed in parallel, and the results of each are used to add value to the other.

d. **Implementation of Measures to Reduce Risk**

CMA implements numerous processes to reduce known risks to its assets. These programs incorporate all relevant aspects of pipeline operation, including leak management, damage prevention, public awareness and education, operator qualification and training, internal audits, inspections and monitoring of facilities, quality assurance/quality control, and replacement of leak-prone infrastructure. In some instances, these programs have led to the implementation of programs or operational changes that go beyond federal regulations and DPU code requirements, such as conducting annual leak surveys of all distribution mains.

e. **Performance Measures**

CMA routinely collects and evaluates specific data that reflect the current performance of its distribution system to confirm that the system is safer and more reliable than in the past and that risk is being removed. In addition to the mandatory measures required by regulations, CMA has implemented additional measures over time as a means of assessing the effectiveness of "Additional or Accelerated Actions" taken in response to an identified threat or risk, or to obtain high level trend analysis that would provide leading indicators of change. Examples of performance measures that CMA has tracked in addition to those required include: number of leaks on cast iron pipeline; miles of cast iron pipeline remaining; damage rates; average response time for high priority calls; number of redundant communication SCADA sites; and average risk score for all assets in Optimain.

f. **Evaluation and Improvement**

The NiSource DIMP administration team has regular (generally monthly) meetings with CMA's DIMP Coordinator to track the progress of ongoing risk-reduction efforts. A separate quarterly meeting is dedicated to discussing initiatives to identify and study potential threats. In addition to these regular meetings, the NiSource DIMP administration team has frequent informal contact with members of CMA's DIMP Steering Team as specific issues arise.

While federal regulations call for DIMP plans to be re-evaluated at least every five years, CMA's DIMP plan is updated annually. NiSource's DIMP administration team meets annually with CMA's DIMP Steering Team to review and update CMA's DIMP. At the annual meeting, the DIMP administration team presents the results of risk modeling based on data gathered during the previous year. CMA's subject matter experts review and validate the data, and supplement it with insight gained from field employees. The NiSource DIMP administration team also presents information to CMA's DIMP Steering Team regarding incidents experienced by other operators, within or outside of NiSource, and incidents described in PHMSA advisory bulletins. The DIMP administration team incorporates the new data and other input from the CMA DIMP Steering Team into CMA's DIMP plan annually. This process allows NiSource to bring to bear the knowledge and expertise of personnel company-wide to improve the DIMP of each operating company.

g. **Reporting Requirements**

CMA reports results annually and provides updates on the DIMP plan to the DPU upon request. In 2015, the DPU inspected CMA's DIMP plan and found it be in compliance with the regulations and otherwise satisfactory in all regards. In addition, the DPU has specifically found that CMA's GSEP is prioritized to implement the DIMP consistent with the requirements of 49 C.F.R. §§ 192.1001 through 192.1015.

7. NiSource's Safety Management System Progress Before and After the September Event

NiSource has been in the process of implementing an advanced, comprehensive approach to managing safety, known as the Safety Management System (SMS). NiSource is joining other industries, from the airline industry to the nuclear industry, in adopting this forward-looking approach to safety. NiSource has aligned its SMS program with a framework developed for the pipeline industry by the American Petroleum Institute, in the form of Recommended Practice 1173 (RP 1173). SMS provides pipeline operators with an approach for rigorously identifying and managing risk, communicating with stakeholders, ensuring the effective operation of key processes, and promoting a learning environment.

a. SMS 2015 - 2018

The American Petroleum Institute published its Recommended Practice 1173 in 2015. As part of its commitment to safety, NiSource became one of 12 companies to publicly commit to implement SMS by participating with the industry's lead trade group, the American Gas Association, on a best-practice and information-sharing pilot group. NiSource began work on SMS in 2015 and, in 2016, NiSource established its SMS pilot program at Columbia Gas of Virginia. In 2018 (prior to the incident), NiSource adopted a staggered implementation plan for SMS across NiSource's seven operating companies.

b. Accelerated SMS Implementation

Following the incident, NiSource has accelerated its implementation of SMS across all operating companies in its gas segment, continuing its focus on identifying and mitigating potential risks while continually assessing and improving processes and procedures to keep its employees, contractors, customers, and the public safe. In late 2018, NiSource expanded the leadership team overseeing the implementation of SMS and established a significant operation that includes multiple workstreams staffed by employees and consultants dedicated to the implementation of SMS.

As NiSource implements and matures SMS, it will:

- Integrate the NiSource gas segment organization and connect safety management across people, assets, and processes.
- Promote safety leadership and individual accountability on the front line, as well as for executives.
- Build on NiSource's strong foundation of safety with a culture of transparency and mutual trust, an inclusive workplace, and a focus on continuous learning and improvement.
- Add rigor to work resulting in the identification and mitigation of risks to protect employees, contractors, customers and communities.

As NiSource works to operationalize SMS in each of its seven operating companies, it has established cross-functional teams to evaluate, prioritize, and elevate state-level risks. The state teams include two newly-created positions in each of the seven states in which NiSource operates: a Director of Safety, Compliance, and Risk, and a Safety Management System Lead. The Director role in each state reports to the state president and chief operating officer and is accountable for employee safety, pipeline safety and compliance, SMS program leadership, and overall risk management at the state level. The Lead position deploys and leads SMS processes in each state by driving performance improvement around public and

employee safety and advancing state level SMS continuous improvement. These teams have been engaged in comprehensive onboarding and training.

Some of the steps NiSource is taking to implement SMS include:

- **Development of a NiSource SMS Policy and Standard:** NiSource has established a policy that governs SMS, and has developed a standard and process documentation that will serve as a guide for the execution and administration of SMS.
- **SMS Risk Tables:** NiSource is establishing SMS Risk Tables at the NiSource gas segment level as well as the individual operating company level. At each operating company the Risk Table will be chaired by the presidents and chief operating officers and the top leaders in each company. Using a shared risk quantification model, they will monitor SMS performance and support performance improvement through proactive risk mitigation programs. These same actions will be performed at the NiSource gas segment Risk Table to achieve a balanced focus on all operating company risk management programs.
- **Corrective Action Program (CAP):** NiSource is establishing a Corrective Action Program or CAP to identify risks and to take action to mitigate those risks. CAP will identify issues or concerns with physical assets, materials, resourcing, tools and equipment, work methods, and issues regarding health and safety. Any concerns or opportunities for improvement pertaining to pipeline and public safety can be reported through an online NiSource CAP tool and then will be addressed. Reports through the CAP tool may be submitted anonymously.
- **Identification of Leadership Competencies to Support RP 1173 and Related Assessments:** Leaders across the NiSource gas segment will be assessed based on the management and leadership requirements of RP 1173. These assessments will drive consistency in defining the behaviors, knowledge, and experiences needed to be successful in safety and risk identification.
- **Safety Culture and Local Action Plans:** NiSource will strengthen its safety culture guided by competencies that align to the management and leadership requirements set forth in RP 1173. The majority of areas across the NiSource footprint will participate in this process and action planning through early 2020.
- **Emergency Preparedness and Response**: NiSource commissioned a cross-functional team to enhance emergency preparedness activities and emergency response capabilities. The team is integrating improved preparedness plans and exercises covering a broad range of potential scenarios and levels of emergency, and establishing well-defined roles with clear responsibilities.
- **SMS Training**: All 6,000 gas segment employees will participate in hands-on learning activities between mid-2019 to early 2020 to help them understand SMS and its implementation.

c. **External Governance: Quality Review Board**

NiSource has established a Quality Review Board (QRB), an independent body that provides oversight and governance of NiSource's implementation of SMS across its seven-state footprint with respect to program quality and alignment with API RP-1173. Chaired by Former United States Secretary of Transportation and Congressman Ray LaHood, the Quality Review Board is comprised of experts with diverse backgrounds spanning the nuclear, aviation, and energy industries. The six members are:

- Secretary Ray LaHood, Former United States Secretary of Transportation (Chair)
- John Cox, President & CEO, Safety Operating Systems
- John Durham, Retired Director, Enercon Services, Inc.
- Gary Harland, President, Work Management Inc.

- Cynthia Quarterman, former Administrator of PHMSA
- Jeff Wiese, Vice President for Pipeline Integrity, TRC Companies and former Associate Administrator of PHMSA

The QRB has held monthly meetings (four to date) with NiSource executive leadership and the SMS program team since March 2019. Meetings include significant program updates, engagement with front-line employees, and visits at training facilities and worksites. During these sessions, QRB members provide independent review of and challenges to NiSource's SMS approach, results, priorities, and actions. At the end of each meeting, QRB members meet with NiSource SMS executive sponsors to share key observations and recommendations.

8. NiSource's Safety Culture

As NiSource accelerates its implementation of SMS across its seven-state footprint, it is committed to building upon and enhancing its already strong safety culture. NiSource's long-term focus on continuous improvement in safety performance is rooted in its safety culture, which is NiSource's foremost stakeholder commitment, guiding daily work activities in the field as well as company investment in infrastructure and other safety enhancements. NiSource's safety commitment applies to all aspects of safety: customers, employees, business partners, and the communities NiSource serves. It reflects a continual focus on the personal safety of people, pipeline safety for the public, and the health and wellness assured through responsible environmental stewardship.

a. "Just Culture" Approach and Safety Coaching

For the past several years, NiSource has provided training to employees and leaders to educate, promote and foster a "Just Culture" approach to managing unwanted outcomes. This approach builds the organizational trust needed to proactively identify and mitigate risk, while creating a learning environment where the company learns from near misses and safety incidents.

To reinforce safety behaviors and the Just Culture safety approach, NiSource trains all front-line employees and leaders on behavior practices designed by the Aubrey Daniels Institute, which is an independent, research-based, behavior analysis organization that assists companies in optimizing their business metrics, work culture, and safety performance through behavioral science. NiSource launched this organizational learning through a Safe by Choice program to teach employees and leaders how to pinpoint key safety behaviors and positively reinforce those behaviors. The critical coaching element of the program is to "catch people doing something right" and reinforce that behavior to create positive safety habits and build organizational culture, trust in leadership, and safety accountability.

b. National Safety Council Partnership

NiSource partners with the National Safety Council (NSC), a non-profit organization that promotes health and safety in the workplace as well as in homes and communities, in improving NiSource's year-over-year safety culture, process, and management systems through NSC's Safety Barometer Survey. The Barometer Survey is a 50-question employee perception survey that focuses on a variety of safety and work-related statements. Over time, NiSource has modified the Survey to include additional questions that are specifically focused on employees who handle gas distribution and gas transmission. NiSource's responses are compared with the responses from the 820 participating organizations in the NSC database to produce comparative percentile values.

NiSource surveys all employees across its seven-state operating areas every year and uses the survey results to establish local, state, and corporate level improvement action plans. NiSource has seen annual improvement in these surveys, and, in the latest Survey, NiSource achieved scores higher than 91% of companies in the NSC peer group and CMA achieved scores higher than 94% of those companies.

c. Executive Safety Leadership

Executive Safety Council: NiSource has an Executive Safety Council chaired by its CEO and comprised of executive leaders. The purpose of the NiSource Executive Safety Council is to establish NiSource as an industry leader in safety through continued learning, support, strategy development, program performance reviews, predictive data analysis, reinforcement of leadership safety actions, and demonstrated safety engagement (internal and external).

NiSource Executive Field Safety Observations Program: NiSource has established an executive field safety observation program that requires every officer to perform field observations every quarter. This program provides the opportunity for executive learning, engagement, and reinforcement of NiSource's safety culture.

d. **Core Personal Safety Program and Policies**

Stop Work Authority: NiSource emphasizes the importance of Stop Work Authority to all employees and contractors. All employees and contractors (regardless of seniority or job responsibility) are expected to stop work whenever a situation arises due to an unsafe action, condition, behavior, or non-action and may potentially lead to harm.

Observation Programs: NiSource has established field observation programs to perform and collect information from pre-job briefs, safe driving observations, and leadership field safety observations. Additionally, NiSource performs Quality Assurance/Quality Control audits in the field and deploys employee field-based On-the-Job Coaches to support newly trained employees.

Industry Participation: NiSource is an active participant in industry associations and safety programs. NiSource is part of the American Gas Association's (AGA) Safety Management Systems working group and participates in the AGA's peer review / best practice program.

e. **Public Safety Improvements**

Infrastructure Modernization: In the late 2000's, NiSource established infrastructure modernization programs for its seven operating companies. These programs established year-over-year increases in capital investment to replace bare steel and cast-iron gas mains and customer service lines with modern plastic and coated steel pipe. This program has resulted in annual decreases in leaks from bare steel and cast-iron infrastructure.

Damage Prevention: NiSource has increased its external outreach to customers, first responders, public officials, and excavators with enhanced communications and education programs aimed at preventing excavation damage to its gas facilities. NiSource continues to trend positively, on average an 8-10% year-over-year reduction in the number of excavation damages per thousand one-call notifications. NiSource uses enhanced data analytics to continuously improve in how it deploys further focused efforts to address damages resulting from failure to call for a locate ticket, improper excavation, and locating errors.

Public Awareness: In addition to damage prevention focused awareness activities, NiSource conducts Public Awareness Surveys to drive key programs around gas odor detection, appliance safety, and carbon monoxide detection.

Integrity Management Programs: NiSource's Transmission Integrity Management (TIMP) and Distribution Integrity Management (DIMP) programs have driven the creation of several public safety programs in addition to infrastructure modernization and damage prevention, expanded in-line inspection and aerial patrolling and a pilot program utilizing fiber optic pipeline monitoring, among others.

Safety Technology Research and Development: NiSource is an original investor in the Gas Technology Institute's Operation Technology Development (OTD) and has also partnered in additional investments and development of methane detection equipment, tools, and processes for both gas emergency first responders and customer in-home monitoring.

9. Factual Findings

The South Union Street Project

a. Consistent with federal and state pipeline safety policy, CMA undertook the South Union Street Project in Lawrence, Massachusetts as part of its long-term, ongoing efforts to modernize and make safer its natural gas infrastructure. CMA identified the South Union Street Project in its GSEP for 2016, which was submitted to the DPU in October 2015.

b. The timing of the project was triggered by anticipated encroachment of existing cast-iron gas mains by water improvement projects planned by the City of Lawrence. The project was scheduled to be completed in 2016.

c. The NiSource Field Engineer who prepared the construction plans for the project was technically qualified and appropriately trained.[8]

d. This Field Engineer reported to a Leader of Field Engineering with advanced qualifications, a Professional Engineer certification, and more than 25 years of experience in the natural gas industry. One of that Leader's responsibilities was to review and approve the plans at issue.

e. Prior to the 2016 construction, the NiSource Field Engineer who prepared the construction plans spoke with the Lawrence System Operations Supervisor overseeing M&R in Lawrence about the project design and the Winthrop regulator station sensing lines.[9]

f. In 2016 and throughout this project, sensing line location information was readily available to Engineering, Construction, and M&R through multiple documentary and departmental resources in the Lawrence Operations Center. The 2016 Inspector and Construction Leader on the South Union Street Project used these materials to determine the location of the sensing lines. M&R technicians also had sensing line location information available in the M&R Regulator Books in their vehicles.

Sources of Sensing line Information		
Document or Source of Information	**Location**	**Description**
Critical Valve Book	Lawrence Operations Center	Identifies the location of critical valves in relation to other system components, including regulator stations and sensing lines where applicable.
Work Done Files	Lawrence Operations Center	Compilation by town and street of records and as-built sketches of work done on system, including sensing line installations, replacements, and relocations.
Historical Maps	Lawrence Operations Center	System maps pre-dating implementation of GIS. Certain historical maps include sensing line locations.

[8] When the engineer prepared the plans at issue, he had successfully completed training concerning regulator station design, regulator upstream and downstream piping, regulator sensing pressures, regulator vent lines, and regulator pressure ratings. That training also included the importance of pressure regulation, the way sensing lines help regulate pressure, and the hazards of inoperable regulators/sensing lines.

[9] Field Engineer completed "To Do" list.

Sources of Sensing line Information		
Document or Source of Information	**Location**	**Description**
Capital Close Out Files	Lawrence Operations Center	As-built drawings and other project documentation from inspector work order packets for capital projects, including as-built drawings of project sensing line installations, replacements, relocations.
WMS Docs	WMS Docs Database	Electronic version of Capital Close Out files, including as-built drawings of project sensing line installations, replacements, relocations.
Measurement & Regulation Regulator Books	Measurement & Regulation Technician Vehicles	Books maintained for reference by M&R in the field. The Books contain diagrams depicting the piping configuration around regulator stations, including the location of sensing lines.

g. During the 2016 construction phase, the construction crew, Construction Foreman, Construction Leader, Inspector, and Systems Operations Supervisor all knew that the sensing lines would eventually need to be moved to the new plastic main, and planned to do so. The Construction Leader notified M&R in October 2016 regarding the planned relocation of the sensing lines.[10]

h. In October 2016, the City of Lawrence imposed an unexpected 30-day stop-work order. Once the stop-work order was lifted, CMA was able to perform only limited work on limited projects in November 2016 before the City's winter moratorium went into effect. The City unexpectedly maintained its work moratorium on the South Union Street Project throughout 2017. Work on the project was permitted to resume in 2018.

i. There was a nearly complete turnover in project personnel by the time work resumed on the South Union Street Project in May 2018. Although the 2018 construction personnel had ready access to information about the status and location of the sensing lines, that information was not reviewed.

j. CMA's transfer of information about the project sensing lines from its 2016 construction personnel to the 2018 construction personnel was ineffective.

The Over-Pressurization

k. On September 13, 2018, CMA tied-in the Salem Street main to the new 8-inch plastic main. Salem Street was the last remaining side street that was to be tied-in to the new plastic main. This work took place eight blocks (approximately 2,350 feet) north of the Winthrop regulator station. Pressure gauges had been installed and used at the location of the tie-in. Personnel in the field (the Inspector and construction crew) monitored and verified the pressure at the work site using those gauges as the tie-in work was ongoing.

l. Once Salem Street was tied-in to the plastic main, the cast-iron main was disconnected from the distribution system and began to lose pressure. Because the sensing lines for the Winthrop regulator station were still attached to the cast-iron main, they sensed its drop in pressure, and the

[10] On October 17, 2016, the Construction Leader e-mailed the supervisor of M&R in Lawrence about this, who did not inform his successor of the work that needed to be done.

regulators to which they were attached responded as designed by opening, which increased the flow of gas into the distribution system. This resulted in an over-pressurization.

m. NiSource Gas Systems Control's remote monitoring of the distribution system pressure generated high-pressure alarms at 4:04 p.m. and 4:05 p.m. The controller at NiSource Gas Systems Control promptly responded to the alarms and called the on-call technician at 4:06 p.m. That technician immediately notified all Lawrence M&R technicians, who then immediately moved to perform field checks on the affected distribution system's 14 regulator stations to identify and shut down any station that was continuing to feed the system.

n. CMA responded immediately to the over-pressurization, including shutting down the Winthrop regulator station within 25 minutes of being notified, shutting down the entire system by 7:17 p.m., working quickly to shut down meters at businesses and residences, assisting emergency responders with evacuations, and initiating venting of the system to reduce pressure.

M&R Practices & Policies

o. NiSource 2015 Operational Notice 15-05 requires M&R personnel be consulted on all excavation work that is done within 25 feet of a regulator station with sensing lines. In this instance, excavation and construction work was being done, but approximately 2,350 feet from the regulator station at issue.

p. The NTSB's Safety Recommendation Report: Natural Gas Distribution System Project Development and Review (Urgent) (Report PSR1802 issued November 15, 2018) referenced a purported past policy or practice that NiSource allegedly phased out whereby M&R personnel stood by a regulator station whenever construction took place on its gas mains. Continued investigation revealed that no such a policy or practice existed, except as outlined by NiSource Operational Notice 15-05.[11]

The Low-Pressure Gas System

q. CMA's distribution system has pressure-relieving and/or pressure-limiting devices. CMA maintains at least two regulators (worker and a monitor), each with its own sensing lines, at each of its regulators stations. The monitor regulator serves as the over-pressurization protection should the worker regulator fail.

r. The regulator station design deployed at the Winthrop regulator station is widely used and accepted across the industry, meeting the design criteria described in applicable regulations.

s. The regulators at each regulator station are not the only aspect of the system designed to control and reduce the impact of an over-pressurization. Shut-off valves and remote monitoring of pressure levels are part of the design to mitigate accidental over-pressurization.

t. Following the incident, NiSource added the geometry of over 2,000 sensing lines to GIS across its seven-state operating area. Engineers and technicians can now view sensing line geometry from several electronic platforms.

NiSource Professional Career Development & Training for Engineers

u. NiSource has a comprehensive, multi-year career development program for Field Engineers. This program includes classroom and hands-on training in the design of main line replacement projects and the operation and function of regulators, regulator sensing lines and regulator stations.

[11] NiSource provided sworn affidavits from 18 Construction and M&R personnel in each of NiSource's three operational locations in Massachusetts attesting that no such policy or practice ever existed.

v. Field engineer advancement criteria are grouped into approximately 45 individual elements. The overall program is designed to progress an engineer from Associate Field Engineer 1 and 2, to Field Engineer to the Senior level with intermediate milestones and requirements for each level. For advancement to Field Engineer or Senior Field Engineer, the Director of Engineering (to whom the Manager of Engineering reports) must be involved in the process and sign off on the advancement proposal before it is final. The program encourages engineers to obtain Professional Engineer certifications.

NiSource Construction & Field Employee Training

w. NiSource's company-wide training program for field employees (including Inspectors and Construction Crews) focuses on hands-on training, and covers all aspects of the job (from paperwork and customer interactions to safety requirements, environmental standards, and technical skills). This training is designed not just to prepare employees to pass their Operator Qualifications (OQs), but to understand the larger picture and what goes into their job.

x. The program begins with a three-week onboarding program that includes elements on culture, process, safety/OSHA, driving, and the minimal qualifications an employee needs to work in the field, such as safe use of basic field tools and equipment, customer interactions, setting up a work zone, assisting with line locating, using the one-call system, identifying Abnormal Operating Conditions, and using the mobile data terminal (MDT).

y. Once new field employees have completed onboarding, they take a three-week course titled Plant Basic. Employees learn how to use tools in the truck for service lines; safely excavate for service line installation, repair, or abandonment; join plastic pipes; identify and repair service line leaks; pressure test service lines; perform purging; and install, repair, and replace service lines. After Plant Basic, the on-the-job training (OJT) portion of an employee's training begins. Each employee is assigned an "OJT coach" who monitors their progress. When the OJT coach believes the employee is ready, s/he is scheduled to take the OQ tasks necessary to perform his/her job. Once the OQs are passed, the individual is released to the field to perform the work he or she has been trained to perform.

z. The third phase of training begins with Plant 1, another three-week course designed to instruct employees on what is required to lead a crew on service line work. Plant 1 is intended to round out the skills and knowledge required to lead service and maintenance crews and respond to dig-ins where some main line work is required. The subjects of this phase of training include leak repair and leak investigation; purging; installing a temporary bypass; tapping; and the capital work order process.

Emergency Response Training

aa. As part of NiSource's continued efforts to enhance its training programs, NiSource has built four new training centers since 2016, including a training center in Massachusetts, which opened in 2018. These training centers have significant capabilities for training on emergency response, which build on NiSource's existing emergency response training. These training centers include an outdoor "Emergency Response Safety Town" – a mock neighborhood of mini-homes and businesses complete with underground utilities, meters, and regulators where instructors can create and control various emergency training scenarios, including natural gas leak simulations. Instructors use this area to teach other critical skills, including line locating and marking; leak detection and corrosion monitoring; and re-establishing gas service. These centers can create approximately 50 separate gas leak scenarios to provide unique training experiences. New employees joining the service department will spend a full week practicing emergency response individually and as a team to build confidence and competence in emergency response. NiSource

is working to further enhance training offered at the training centers based on recent experiences, including the incident.

bb. While natural gas-related fires are rare, they require specialized training and coordination with first responders and other community partners. NiSource's fire school allows NiSource employees and local first responders to work together to gain valuable experience while safely approaching and extinguishing a broad range of gas-related fires. NiSource offers safety response training to local emergency responders free of charge.

CMA's Distribution Integrity Management Program

cc. NiSource companies, including CMA, have developed a comprehensive Distribution Integrity Management Program (DIMP) that enhances pipeline safety by systematically identifying and reducing risks to its gas distribution systems. A central DIMP administration team facilitates the development of DIMP plans for each NiSource gas distribution company, each of which has its own DIMP steering team made up of local subject matter experts.

dd. The threat identification process of CMA's DIMP assesses not only the general threat categories required by regulation, but also dozens of sub-categories specific to CMA's distribution systems and operating conditions. To identify potential threats, CMA considers information from various sources, including personnel in the field, other NiSource operating companies, peer companies, industry associations, PHMSA Advisory Bulletins, and NTSB Reports and Recommendations.

ee. CMA's DIMP evaluates risk at a system- and segment-level. To reduce known risks, CMA's DIMP implements processes such as leak management, damage prevention, public awareness and education, operator qualification and training, internal audits, inspections and monitoring of facilities, quality assurance/quality control, and replacement of leak-prone infrastructure. These programs also have led to the implementation of risk reduction practices beyond those required by regulation, such as conducting annual leak surveys of all distribution mains. To confirm that risk is being removed, CMA also routinely collects and evaluates data that reflect the current performance of its distribution system.

ff. While federal regulations call for DIMP plans to be re-evaluated at least every five years, CMA's DIMP plan is updated annually. The NiSource DIMP administration team meets regularly (generally monthly) with CMA's DIMP Coordinator to track the progress of ongoing risk-reduction efforts, and conducts a separate quarterly meeting to discuss initiatives to identify and study potential threats. This culminates in an annual meeting between the NiSource DIMP administration team and CMA's DIMP Steering Team to review and update CMA's DIMP.

gg. In 2015, the DPU inspected CMA's DIMP plan and found it be in compliance with the regulations and otherwise satisfactory in all regards. In addition, the DPU has specifically found that CMA's GSEP is prioritized to implement the DIMP consistent with the requirements of 49 C.F.R. §§ 192.1001 through 192.1015.

NiSource Safety Management System

hh. NiSource initiated its Safety Management System (SMS) process in 2015. This process is modeled after the American Petroleum Institute's 2015 Recommended Practice 1173. NiSource was one of only 12 companies to publicly commit to implement SMS by participating with the industry's lead trade group, the American Gas Association, on a best-practice and information-sharing pilot group.

ii. In 2016, NiSource established its SMS pilot program at Columbia Gas of Virginia. In 2018 (prior to the incident), NiSource adopted a staggered implementation plan for SMS across NiSource's seven operating companies.

jj. Following the incident, NiSource accelerated implementation of SMS across all operating companies in its gas segment. In late 2018, NiSource expanded the leadership team overseeing the implementation of SMS and established a significant operation that includes multiple workstreams staffed by employees and consultants dedicated to the implementation of SMS.

kk. NiSource has established cross-functional teams to evaluate, prioritize, and elevate state-level risks. The state teams include two newly-created positions in each of the seven states in which NiSource operates: a Director of Safety, Compliance, and Risk, and a Safety Management System Lead. The Director role in each state reports to the state president and chief operating officer, and is accountable for employee safety, pipeline safety and compliance, SMS program leadership, and overall risk management at the state level. The Lead position deploys and leads SMS processes in their state by driving performance improvement around public and employee safety and advancing state level SMS continuous improvement.

ll. NiSource has established a Quality Review Board, an independent body that provides oversight and governance of NiSource's implementation of SMS across its seven-state footprint. Chaired by Former United States Secretary of Transportation and Congressman Ray LaHood, the Quality Review Board is comprised of experts with diverse backgrounds spanning the nuclear, aviation, and energy industries.

NiSource Safety Culture

mm. NiSource has provided training to employees and leaders to educate, promote and foster a "Just Culture" approach to managing unwanted outcomes. This approach builds the organizational trust needed to proactively identify and mitigate risk, while creating a learning environment where the Company learns from near misses and safety incidents.

nn. NiSource partners with the National Safety Council (NSC) to improve NiSource's year-over-year safety culture, process, and management systems through NSC's Safety Barometer Survey. The Barometer Survey is a 50-question employee perception survey that focuses on a variety of safety and work-related statements. Over time, NiSource has modified the Survey to include additional questions that are specifically focused on employees who handle gas distribution and gas transmission. NiSource's responses are compared with the responses from the 820 participating organizations in the NSC database to produce comparative percentile values.

oo. NiSource surveys all employees across its seven-state operating areas every year and uses the survey results to establish local, state, and corporate level improvement action plans. NiSource has seen annual improvement in these surveys, and, in the latest Survey, achieved scores higher than 91% of the companies in the NSC peer group.

pp. NiSource has an Executive Safety Council chaired by its CEO and comprised of executive leaders. The purpose of the NiSource Executive Safety Council is to establish NiSource as an industry leader in safety through continued learning, support, strategy development, program performance reviews, predictive data analysis, reinforcement of leadership safety actions, and demonstrated safety engagement (internal and external).

10. Probable Cause

As CMA advised the NTSB in the immediate aftermath of the event, the probable cause of the September 13, 2018 over-pressurization was the failure to move the worker and monitor regulator sensing lines from a natural gas cast-iron main that was being abandoned to a new plastic main that had been installed to replace the cast-iron main.

Contributing to the cause of this incident were several factors:

- The project work order package did not explicitly address sensing line locations or their relocation.
- The City of Lawrence issued a stop work order in 2016 and denied CMA a work permit to resume work in 2017. This resulted in an unprecedented suspension of project work and complicated project execution. When the project was permitted to resume one-and-a-half years later, in 2018, there had been a nearly complete turnover in project personnel.
- CMA's 2016 construction personnel knew the location of the sensing lines and that they needed to be relocated before the cast-iron main was abandoned. Although the 2018 project personnel had ready access to information about the status and location of the sensing lines, that information was not reviewed.
- CMA did not effectively transfer the knowledge its 2016 construction personnel had about the status of the project sensing lines to its 2018 construction personnel.[12]

[12] The NTSB Urgent Safety Recommendations addressed in Section 11 of this submission each bear on effective transfer of knowledge of such information (sensing lines in GIS; gas main modification procedures and safeguards; constructability review improvements and professional engineer design review and sealing; and, management of change risk assessments and methodologies). NiSource's accelerated adoption of the Safety Management System addressed by API RP 1173 will also address effective transfer of knowledge of such information.

11. NiSource's Adoption of NTSB Urgent Safety Recommendations

On November 14, 2018, the NTSB published its Safety Recommendation Report detailing the ongoing investigation and identifying four urgent safety recommendations addressed to NiSource. Since the incident and the NTSB's November 14 report, NiSource has been focused and working diligently on aligning business practices and enhancing procedures to adhere to these safety recommendations.

NiSource submitted a response to the four urgent safety recommendations on December 14, 2018, in which the company defined the proposed actions to comply with each of the NTSB's four urgent safety recommendations. This response was deemed acceptable by the NTSB on February 19, 2019. Since then, NiSource has provided regular updates to the NTSB, sharing the status of activities related to the urgent safety recommendations. NiSource has substantially completed its implementation of these recommendations.

P-18-007 Records & Document Traceability, Reliability & Completeness: Review and ensure that all records and documentation of your natural gas systems are traceable, reliable, and complete.

NiSource has completed locating, marking, and mapping sensing lines at all 2,072 low-pressure regulator runs across its seven-state footprint. These facilities are depicted in isometric drawings, examples of which were provided to the NTSB during a meeting on April 18, and are visible in the NiSource geographic information system (GIS).

NiSource worked with third-party gas engineering firm to verify the assets required to safely operate its low-pressure gas systems and ensure these assets are clearly indicated on relevant maps and records. The review of critical assets concluded that NiSource maps include visual records with attributes of facilities required to operate the low-pressure systems including but not limited to pipes, valves, and pressure regulating stations. The review focused closely on the existence and quality of updated station drawings showing sensing lines. This review concluded that those station schematics are traceable, reliable, and complete.

Above and beyond the scope of this urgent recommendation, and as part of business planning and overall SMS implementation, NiSource is prioritizing the mapping of sensing lines on the remaining elevated pressure stations across its seven-state footprint.

P-18-009 Control Procedures During Gas Main Modifications: Develop and implement control procedures during modifications to gas mains to mitigate the risks identified during management of change operations. Gas main pressures should be continually monitored during these modifications and assets should be placed at critical locations to immediately shut down the system if abnormal operations are detected.

NiSource has enhanced its tie-in and tapping procedures, including updates to Gas Standard 1680.010 Tie-Ins and Tapping Pressurized Pipelines, effective February 28, 2019, and the written tie-in plan template, which is required for all mainline projects. The updates include:

- New tie-in procedure risk assessments, completed through checklists requiring key stakeholder engagement and reviews of the tie-in plan by Engineering, the project execution crew, and Measurement & Regulation.
- A new contingency plan that provides field crews the system knowledge required to perform emergency shut down of the impacted pipeline segments in the event of a hazardous situation.
- Identification of regulator stations impacted by the tie-in procedure and monitoring requirements.
- Enhanced station monitoring requirements for identified management of change activities.
- Clear roles and responsibilities for tasks during the tie-in procedure.

- Sign-off at each significant step of the tie-in procedure signifying completion of steps by the "person in charge."
- Documentation of pressure gauge readings during the procedure.

NiSource has promulgated enhanced procedures encompassing these updates and trained appropriate Engineering, Construction, and Operations personnel on these procedures. The Gas Standard and written tie-in plan template provide strength in management of change procedures with respect to changes in the control of energy.

In addition to the enhanced procedures set forth in this recommendation, NiSource continues to install automatic shutoff and pressure control devices on low-pressure systems across its footprint, as described in Section 4 above. This project also includes installing remote monitoring devices on its low-pressure systems (to the extent not already installed) to ensure quick response to abnormal system conditions.

P-18-006 Engineering Plan & Constructability Review Process: Revise the engineering plan and constructability review process across all of your subsidiaries to ensure that all applicable departments review construction documents for accuracy, completeness, and correctness, and that the documents or plans be sealed by a professional engineer prior to commencing work.

NiSource has developed a comprehensive procedure for stakeholder review of capital projects. The procedure includes an enhanced Constructability Review process that assists the project engineer with identifying the stakeholders required to participate in the review and to otherwise be consulted during project planning. This procedure has undergone a management of change process for review and edits and has received final approval.

Additionally, as stated in the NiSource response to P-18-009, the written tie-in plan template has been enhanced to include multiple briefings where critical stakeholders including Engineering, the project execution crew, and Measurement & Regulation review the tie-in plan for risks and accuracy.

All relevant construction documents and plans for construction work for complex projects are being sealed by a professional engineer prior to commencing construction work.

P-18-008 Management of Change Process: Apply management of change process to all changes to adequately identify system threats that could result in a common mode failure.

NiSource has undertaken efforts focused on improving risk identification, analysis, and mitigation across the organization.

A critical management of change procedure was developed and implemented through the enhanced Gas Standard 1680.010 and written tie-in plan template as described with respect to P-18-009.

As discussed in Section 7, NiSource also continues to develop and implement SMS, including NiSource enterprise-wide management of change governance documentation.

12. Additional Recommendations

1. NiSource recommends that the safety of low-pressure gas distribution systems be enhanced beyond existing code requirements and industry-standard working and monitor regulator pressure control designs by adding another level of over-pressure protection. Considerations in evaluating the required added level of over-pressure protection should include the capability to (1) automatically shut down the flow of gas, (2) automatically fully relieve pressure by the venting of gas, and (3) conduct remote system monitoring.
2. NiSource recommends industry adoption of the American Petroleum Institute's Recommended Practice 1173, Pipeline Safety Management Systems, and an industry-adopted standard for program auditing and certification. As part of this recommendation, NiSource recommends that management of change processes be used to prepare and implement a set of energy control and knowledge transfer procedures to use when performing configuration control operations on gas systems that have the potential to create over pressure situations. Additionally, NiSource recommends the integration of the Distribution Integrity Management Program (DIMP) and the Transmission Integrity Management Program (TIMP) in a single, over-arching risk analysis, risk prioritization, and risk remediation and elimination process.
3. Consistent with the recommendations of the Department of Transportation's Voluntary Information-Sharing System Recommendation Report of April 2019, NiSource recommends that the industry, in partnership with state and federal regulators, develop incentives for the voluntary sharing of information regarding near-miss events, unintentional compliance violations, and quantified risk-register items. The standards for the reporting of this information must assure both the security of the information provided and non-punitive responses, in order to effectively incentivize industry members to share information voluntarily with their fellow members and their regulators. This information-sharing protocol would align with best practices in other energy sectors.
4. NiSource recommends the adoption of the national incident command system for response to gas-related emergencies, to assure optimal coordination with first responders and local, state, and federal regulators and officials. NiSource further recommends that training in the workings of the national incident command system be required for all participants, and that frequent exercises be conducted, to verify the participants' knowledge and the effectiveness of the overall process.
5. NiSource recommends that all gas system operators make available their Emergency Response Plan to requesting emergency response and government entities and that each gas system operator's Emergency Response Plan include:
    a. Details on incident management, including an incident command system structure and methodology;
    b. Details on activating the emergency response system;
    c. Description of communication protocols following the declaration of an Emergency Event under the Plan;
    d. Description of the training required to inform employees of their respective roles under the incident command system.

National Transportation Safety Board
Washington, DC 20594

Office of the Chairman

July 22, 2019

Mr. Joe Hamrock
President and CEO
NiSource, Inc.
290 W. Nationwide Blvd.
Columbus, OH 43215

Dear Mr. Hamrock:

Thank you for your March 15, 2019, and May 10, 2019, letters regarding Safety Recommendations P-18-6 through -9. We issued these urgent recommendations on November 15, 2018, as a result of our investigation of the September 13, 2018, series of explosions and fires in the Merrimack Valley in Massachusetts, after high-pressure natural gas was released into a low-pressure natural gas distribution system. Our staff met with your staff on March 4, 2019, and April 18, 2019, to discuss in detail our bases for issuing these recommendations and to review the actions you have initiated and completed in response.

P-18-6

> Revise the engineering plan and constructability review process across all of your subsidiaries to ensure that all applicable departments review construction documents for accuracy, completeness, and correctness, and that the documents or plans be sealed by a professional engineer [PE] prior to commencing work. (Urgent)

We note that, since January 1, 2019, PEs have been reviewing and sealing complex project plans prior to their approval, a cross-functional team is working with PEs to develop standard designs for routine projects, and you are enhancing constructability reviews so stakeholders may participate and suggest guidance based on project design criteria. Additionally, you have awarded a contract to a third-party engineering firm to review your engineering and construction standards, and you plan to incorporate the firm's recommended revisions, as appropriate. Finally, we note that you intend to finalize and publish your constructability review process and train your staff on how to implement it.

Discussion during our March 4, 2019, and April 18, 2019, meetings centered extensively on how to determine when a project is complex enough to warrant PE review and seal. We understand your concern that there are potentially large numbers of routine main extensions involving a standard tie-in, emergency main replacements requiring standard tie-ins, and new and replacement service lines, and that completing all of these standard designs may delay your implementation of this recommendation beyond what is appropriate, given its urgent classification.

Therefore, although you agree that construction work that could pose a material risk to public safety needs PE review and approval prior to commencing, you believe it would be more efficient to also develop criteria for when such a review is not necessary. We believe this is a reasonable way to address your concerns, and we ask that you tell us what criteria you develop and how the guidance will be shared with your staff. Pending your completion of the activities that you described and our review of your guidance for when PE review and approval may not be necessary, Safety Recommendation P-18-6 remains classified "Open—Acceptable Response."

P-18-7

> Review and ensure that all records and documentation of your natural gas systems are traceable, reliable, and complete. (Urgent)

We note that you have completed locating, marking, and mapping control (regulator-sensing) lines at all 2,072 low-pressure regulator runs across your system. These facilities are depicted in isometric drawings and are visible in your geographic information system. We further note that you contracted with a third-party gas engineering firm to verify the assets required to safely operate your low-pressure gas systems and ensure these assets are clearly indicated on relevant maps and records. The review concluded that NiSource maps include visual records with attributes of facilities required to operate the low-pressure systems, and that those station schematics are traceable, reliable, and complete. These actions satisfy Safety Recommendation P-18-7, which is classified "Closed—Acceptable Action."

P-18-8

> Apply management of change [MOC] process to all changes to adequately identify system threats that could result in a common mode failure. (Urgent)

We note that you have improved your MOC process by using Gas Standard 1680.010, "Tie-Ins and Tapping Pressurized Pipelines," and you now require the use of a written tie-in plan template. We further note that you continue to develop and implement a safety management system (SMS), which includes documentation of enterprise-wide MOC governance. As part of your SMS development activities, you initiated asset review and probabilistic risk assessments that focus on improving risk analysis, identification, and mitigation. Finally, you have developed and implemented an MOC procedure for your construction employees and contractors that details the steps needed to ensure safety on a project during a change in personnel.

During our March 4, 2019, and April 18, 2019, meetings, we discussed your efforts to develop a company-wide SMS consistent with American Petroleum Institute Recommended Practice 1173, "Pipeline Safety Management System." We were pleased to see the work you are doing to develop your SMS, as well as your plans to share lessons learned with other members of the natural gas distribution industry. We believe that, in addition to addressing issues specifically discussed in these recommendations, developing and implementing an SMS can significantly improve the safety of all operations within the natural gas distribution industry. Pending completion of your initial asset review and probabilistic risk assessments, Safety Recommendation P-18-8 remains classified "Open—Acceptable Response."

P-18-9

Develop and implement control procedures during modifications to gas mains to mitigate the risks identified during management of change operations. Gas main pressures should be continually monitored during these modifications and assets should be placed at critical locations to immediately shut down the system if abnormal operations are detected. (Urgent)

You previously told us that you were installing automatic pressure-control equipment, referred to as "slam-shut" devices, and remote monitoring devices on every low-pressure gas distribution system across your operating area. We note that, as mentioned, effective February 28, 2019, you updated to Gas Standard 1680.010, "Tie-Ins and Tapping Pressurized Pipelines," and now require the use of a written tie-in plan template. These revisions satisfy Safety Recommendation P-18-9, which is classified "Closed—Acceptable Action."

Please update us at ExecutiveSecretariat@ntsb.gov on your progress toward implementing Safety Recommendations P-18-6 and -8, and do not submit both an electronic and a hard copy of the same response.

Sincerely,

Robert L. Sumwalt, III
Chairman

Joe Hamrock
President & CEO

290 W. Nationwide Blvd.
Columbus, OH 43215

July 29, 2019

By E-Mail Only: ExecutiveSecretariat@ntsb.gov

Hon. Robert Sumwalt, Chairman
National Transportation Safety Board
490 L'Enfant Plaza E, S.W.
Washington, D.C. 20594

Re: NiSource Closure Recommendation Report on NTSB Urgent Safety Recommendations P-18-006 and -008 Related to Overpressurization of Natural Gas Distribution System in Merrimack Valley, MA (NTSB PLD 18MR003)

Hon. Chairman Sumwalt:

On November 14, 2018, the NTSB issued four urgent safety recommendations to NiSource Inc. based upon the NTSB's investigation thus far of the September 13, 2018, gas overpressurization in Merrimack Valley, Massachusetts. We've since issued our initial response, outlined our commitments to meeting the recommendations and provided follow-up progress reports, including our recommendation to close two of the four recommendations.

Since the Merrimack Valley incident, NiSource has implemented significant changes to improve pipeline safety and enhance practices related to project planning and execution, all of which further protect our customers, communities and employees. On May 10, 2019, NiSource submitted a letter to the NTSB constituting closure of urgent recommendations P-18-007 and P-18-009. On July 22, 2019, NTSB responded to that letter notifying NiSource that urgent recommendations P-18-007 and P-18-009 had been "Closed-Acceptable Action." Herein, we describe why our work constitutes closure of the remaining two recommendations, P-18-006 and -008.

P-18-006 Engineering Plan & Constructability Review Process

Revise the engineering plan and constructability review process across all of your subsidiaries to ensure that all applicable departments review construction documents for accuracy, completeness, and correctness, and that the documents or plans be sealed by a professional engineer prior to commencing work.

NiSource Response:

As of January 1, 2019, all relevant construction documents and plans for construction

work for complex projects are being sealed by a professional engineer prior to commencing construction work. NiSource has incorporated this practice across its seven-state footprint and continues to refine the process for effectiveness. Copies of NiSource project plans sealed by a professional engineer were submitted to the NTSB on April 18, 2019. As outlined in the Gas Standard described below, NiSource defines complex projects as follows:

a) Plans for installation or replacement of transmission class pipelines or distribution mains with an MAOP equal to or greater than 200 PSIG.
b) Plans for the installation of or replacement of distribution mains with more than two tie-ins.
c) Plans for the installation of pipelines requiring a temporary bypass.
d) Projects which involve a change in system pressure.
e) Plans for the installation of distribution services requiring the interruption of gas flow to the adjacent transmission lines and/or distribution main.
f) Plans for non-standard new points of delivery and district regulator stations.
g) Plans for regulator station work that requires an interruption of gas flow on the inlet or outlet transmission lines and/or distribution mains.

Additionally, NiSource has developed and implemented a new Gas Standard (GS 2810.050) detailing the stakeholder reviews that are required for design capital projects, or projects where pipeline facilities are installed or replaced. This Gas Standard details the steps in project design and execution when additional stakeholder input is necessary to ensure safe work performance. With this Gas Standard, use of an enhanced Constructability/Safety Review form is required across the organization to provide additional assurance that all applicable departments review project plans prior to the start of work. Copies of both the Gas Standard 2810.050 and enhanced Constructability/Safety Review form are included with this correspondence for your review.

P-18-008 Asset Assessment and Review

Apply management of change process to all changes to adequately identify system threats that could result in a common mode failure.

NiSource Response:

NiSource has completed its initial asset risk review and assessment, and continues to mature its probabilistic risk assessments to understand the spectrum of pipeline safety risks across the organization. This initial review has proven invaluable as NiSource continues to make progress on implementing our Safety Management System and places added emphasis on identifying and evaluating risks according to probability of occurrence and level of impact.

The asset review that is performed will inform future data collection efforts to ensure that NiSource is tracking the appropriate risks and events for trends and analysis. Additionally, the review of critical assets and associated risks will inform the NiSource business planning process to ensure that funds are allocated to mitigate the most significant risks across the organization.

An overview of NiSource's Asset Assessment and Probabilistic Risk Assessment is included with this correspondence for your review.

NiSource has developed and implemented a critical management of change procedure through the enhanced Gas Standard 1680.010 and written tie-in plan template. These documents were shared as part of the NiSource letter dated May 10, 2019, recommending closure of urgent recommendation P 18-009.

Above and beyond the scope of the recommendation, NiSource continues to develop the Safety Management System, including NiSource enterprise-wide Management of Change governance documentation.

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Thank you again for allowing NiSource and Columbia Gas of Massachusetts to participate in the NTSB's investigation. We're confident that the significant improvements we've made since the Merrimack Valley incident have enhanced pipeline safety across our seven states. A commitment to safety and continuous improvement remains our top priority.

NiSource would be happy to meet with the NTSB regarding the information herein. We continue to welcome your feedback and commentary about our work on the urgent recommendations.

Very truly yours,

Joe Hamrock

Joe Hamrock
President & CEO

290 W. Nationwide Blvd.
Columbus, OH 43215

December 23, 2019

By E-Mail Only: ExecutiveSecretariat@ntsb.gov

Hon. Robert Sumwalt, Chairman
National Transportation Safety Board
490 L'Enfant Plaza E, S.W.
Washington, D.C. 20594

Re: NiSource Response to NTSB Safety Recommendation P-19-18 Related to Overpressurization of Natural Gas Distribution System, Explosions, and Fires in Merrimack Valley, Massachusetts, September 13, 2018 (NTSB/PAR-19/02)

Hon. Chairman Sumwalt:

On October 24, 2019, the NTSB issued its final accident report based upon the NTSB's investigation of the September 13, 2018, gas overpressurization in Merrimack Valley, Massachusetts. That report included a single new safety recommendation directed to NiSource Inc.

The NTSB's recommendation to NiSource focuses on our protocols and training for responding to large-scale emergency events. Since early 2019, NiSource has made significant progress towards enhancing our emergency response protocols and procedures. Herein, we describe the progress NiSource has made toward enhancing our preparation and response to such events.

P-19-18 Emergency Preparedness and Response

Review your protocols and training for responding to large-scale emergency events, including providing timely information to emergency responders, appropriately assigning NiSource emergency response duties, performing multi-jurisdictional training exercises, and participating cooperatively with municipal emergency management agencies.

NiSource Response:

In February 2019, NiSource significantly enhanced our Gas Segment Emergency Preparedness and Response (EP&R) efforts based on learnings from the Merrimack Valley incident in 2018 and through research and interactions with private and public stakeholders. We built upon our existing efforts and created a full-time, cross-functional EP&R team to integrate improved preparedness plans and exercises covering a broad range of potential scenarios and levels of emergency. The team will also play an important role in significant emergency events, as needed.

Through ongoing training that includes regular exercises, the EP&R team provides awareness and understanding of all roles during an emergency to appropriate employees across the NiSource gas segment and corporate support teams. The goal is to ensure an Incident Management Team capable of a timely and effective response to incidents with potentially wide ranges of scale and complexity anywhere in NiSource's service territory. We also strive to be positioned to assist peer utilities in their restoration efforts as required.

In addition, NiSource created a single EP&R Plan that was implemented across the NiSource gas segment beginning on September 1, 2019. As part of a single EP&R Plan, a primary focus is implementing the Incident Command System (ICS) to ensure a clear leadership structure in the event of an incident. This plan provides multiple backups for each role to ensure our ability to support a lengthy incident response and enhances our ability to interact with public safety officials and first responders. The new plan also provides clear guidance for communications to ensure the public and relevant stakeholders are appropriately informed in a timely manner.

Since forming the EP&R Plan and team, NiSource has:

- Completed best practice visits externally with gas industry peers and internally with the Northern Indiana Public Service Company's electric storm team.

- Adopted the ICS as recommended and used by FEMA and other companies and agencies and established a structure with multiple backups for each role. This helps ensure our ability to support sustained incident response and readiness, as having a complete roster with trained backups provides depth in the event an employee with primary responsibility is unavailable.

- Reviewed and analyzed existing corporate and NiSource operating company Emergency and Crisis Communications Plans and Business Continuity Plans, and ensured their alignment with our Emergency Preparedness and Response Plan.

- Outlined consistent definitions for incident levels from less severe (Level 5) to the most severe (Level 1) to align with the American Petroleum Institute's Recommended Practice 1173, which is industry best practice.

- Mandated annual computer-based training for every NiSource employee – whether directly involved in the ICS or not.

- Developed and began executing on a multi-year training and exercise program to include enhanced training for employees with leadership roles in the Emergency Preparedness and Response Plan and ICS. Training includes computer-based training, instructor-led position-specific coaching sessions and statewide exercises, the first of which was held in September 2019.

- This training and exercise program is part of a comprehensive exercise program overseen by an independent, expert third-party evaluator. The enhanced training builds employee familiarity with the plan and its processes and terminology, while ensuring they more deeply understand their roles and responsibilities. It also emphasizes the importance of strong relationships with external stakeholders.

- Facilitated the successful completion of classroom training and certification in Federal Emergency Management Agency ICS 100, 200, 300, 700 and 800 modules for members of the EP&R team.

- Established a "Go Team" of approximately 20 high-level employees to serve, as needed, for the most severe or catastrophic Level 1 and Level 2 incidents. The team will be utilized at a Level 1 or Level 2 incident in any of our states, if needed, as supplemental resources or backups for all ICS positions. This cross-industry best practice ensures that a small but core group of leadership is ready and trained to engage in a significant incident as soon as possible. In early December, this "Go Team" participated in a tabletop exercise followed by an intensive 21-hour, instructor-led training course: "Federal Emergency Management Agency ICS 300: Intermediate Incident Command System for Expanding Incidents."

- Ordered four custom-built Mobile Command Centers that will strengthen our ability to efficiently, effectively and safely respond to incidents, while also supporting training exercises across our service territory. Each 38-foot trailer will be strategically located in NiSource locations to allow for rapid deployment and the least amount of travel time. Delivery is expected in early 2020.

In addition to direct contact between the company's Incident Commander and the applicable public safety Incident Commander, the ICS ensures strong communication and collaboration with all major emergency responders through liaisons, public information and on-site personnel.

Our training and exercise plan is robust but in its early stages. Our plan relies on a continuous, multi-year framework of steady training and exercises. We have more to do, and will continue to develop and enhance our abilities moving forward.

For example, in the first quarter of 2020, we will conduct tabletop exercises in each state in which we operate to assess our performance when responding to Level 3 to 5 incidents. During the third quarter of 2020, we expect to conduct at least one exercise to test our performance against the plan when responding to Level 1 to 2 incidents. This functional exercise will bring together employees from across NiSource and will simulate a major incident, including interaction with external stakeholders.

Later in the year, our "Go Team" members will continue their advanced incident command training by participating in "FEMA ICS 400: Advanced Incident Command for Complex Incidents," a 15-hour, instructor-led course that focuses on area command and multi-agency coordination to support effective incident response.

A Level 1 or Level 2 multi-state, full-scale exercise is planned for the second quarter of 2021 with widespread participation from internal functions and external partners. (The Homeland Security Exercise and Evaluation Program serves as the foundation and framework for NiSource's exercise program management.)

Lastly, NiSource is enhancing its corporate crisis response efforts. These efforts include updated response protocols, including external communications assignments and materials for use during crisis situations. NiSource is incorporating these materials into the Gas Segment Emergency Preparedness and Response plan.

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We appreciate your interest in our emergency preparedness and response updates, and are confident that the improvements we have made have enhanced overall pipeline safety across our seven states. Though there is still work to do, NiSource is making solid progress on the issues outlined in the recommendation.

As always, a commitment to safety and continuous improvement remains our top priority.

We continue to welcome your feedback about our response to this recommendation.

Very truly yours,

Joe Hamrock

National Transportation Safety Board
Washington, DC 20594

Office of the Chairman

April 10, 2020

Mr. Joe Hamrock
President and Chief Executive Officer
NiSource, Inc.
290 W. Nationwide Blvd.
Columbus, OH 43215

Dear Mr. Hamrock:

Thank you for your December 23, 2019, letter regarding Safety Recommendation P-19-18. We issued this recommendation on October 24, 2019, as a result of our investigation of a series of explosions and fires in the Merrimack Valley, Massachusetts, on September 13, 2018, after high-pressure natural gas was released into a low-pressure natural gas distribution system.

P-19-18

> Review your protocols and training for responding to large-scale emergency events, including providing timely information to emergency responders, appropriately assigning NiSource emergency response duties, performing multi-jurisdictional training exercises, and participating cooperatively with municipal emergency management agencies.

We note that you enhanced your gas segment emergency preparedness and response (EPR) plan based on lessons learned from the Merrimack Valley accident, creating a full-time, cross-functional EPR team to develop improved preparedness plans and exercises. This team will serve an important role in your response to significant emergency events. Your EPR plan implements an incident command system to ensure there is a clear leadership structure in the event of an incident, provides multiple backups for each role to ensure support for a lengthy incident response, and enhances your ability to interact with public safety officials and first responders. The new plan also provides communications guidance to ensure the public is appropriately informed in a timely manner.

We further note that you are providing thorough emergency response training to your staff, and you plan to carry out various emergency preparedness exercises. In the first quarter of 2020, you planned to conduct tabletop exercises in each state to assess your response to Federal Emergency Management Agency severity Level 3 to 5 incidents (moderate to least severe). During the third quarter of 2020, you plan to conduct at least one exercise to test your response—including your interaction with external stakeholders—to Level 1 and 2 incidents. Finally, during the second quarter of 2021, you plan to conduct a multistate, full-scale exercise of your response to a Level 1

or Level 2 event, which will include widespread participation from the various NiSource organizations involved and external partners.

The actions you have taken and planned show progress toward satisfying this recommendation. Pending a successful full-scale exercise showing that your EPR is effective, Safety Recommendation P-19-18 is classified "Open—Acceptable Response."

Please update us at ExecutiveSecretariat@ntsb.gov on your progress toward implementing this recommendation, and do not send both an electronic and a hard copy of the same response.

Sincerely,

Robert L. Sumwalt, III
Chairman

Joe Hamrock
President & CEO

290 W. Nationwide Blvd.
Columbus, OH 43215

September 22, 2020

By E-Mail Only: ExecutiveSecretariat@ntsb.gov

Hon. Robert Sumwalt, Chairman
National Transportation Safety Board
490 L'Enfant Plaza E, S.W.
Washington, D.C. 20594

Re: NiSource Response to NTSB Safety Recommendation P-19-18 Related to September 13, 2018 Overpressurization Event in Merrimack Valley, Massachusetts (NTSB/PAR-19/02)

Hon. Chairman Sumwalt:

On October 24, 2019, the NTSB issued its final accident report based upon the NTSB's investigation of the September 13, 2018, overpressurization event in Merrimack Valley, Massachusetts. The report included a new safety recommendation directed to NiSource Inc. The NTSB's recommendation to NiSource focused on our protocols and training for responding to large-scale emergency events. In our letter dated December 23, 2019, we described the significant progress made towards enhancing our emergency response protocols and procedures. In its response dated April 10, 2020, the NTSB acknowledged our progress and noted the remaining steps to satisfy the recommendation. Below we describe the additional actions that NiSource has taken to enhance our preparation and response to large-scale emergency events. Based on these additional actions, NiSource believes it has satisfied the requirements of safety recommendation P-19-18 and respectfully requests closure of this recommendation.

P-19-18 Emergency Preparedness and Response

Review your protocols and training for responding to large-scale emergency events, including providing timely information to emergency responders, appropriately assigning NiSource emergency response duties, performing multi-jurisdictional training exercises, and participating cooperatively with municipal emergency management agencies.

NiSource Response:
NiSource instituted a suite of changes to improve our response to emergency events. Our dedicated team of Emergency Preparedness & Response (EP&R) experts identified nearly 1,000 employees for roles in the Incident Command System (ICS), launched a multi-year training and exercise program, and staffed a "Go Team" for rapid response to high-severity incidents. We continue to build upon this solid foundation in 2020 and plan to continue in the years ahead.

The consulting firm Nixon & Associates continues to provide benchmarking and independent analysis related to our ongoing training and exercise program. Nixon & Associates is an emergency planning and crisis response firm based outside Washington, D.C., with more than 25 years of experience in the energy, utility, and chemical industries. The firm will remain a key partner in future exercises to identify and implement improvements to our emergency

preparedness and response capabilities.

Tabletop Exercises
In late February and early March 2020, in-person tabletop exercises were conducted for Columbia Gas companies in Virginia, Ohio, Massachusetts and Kentucky. Due to the COVID-19 pandemic, in-person exercises for Columbia Gas of Pennsylvania/Maryland and Northern Indiana Public Service Company (NIPSCO) were postponed and conducted virtually via the webcasting platform WebEx in June and July, respectively. These exercises were designed to assess our performance when responding to Level 3 to 5 incidents and highlighted the increased capabilities of the organization, as well as areas of improvement, and were conducted while the ICS was active for our COVID-19 response.

Nixon & Associates has provided an independent evaluation of the exercises, and those findings are being incorporated into our Emergency Preparedness and Response plans.

COVID-19 Response
The COVID-19 pandemic presented numerous challenges for NiSource and its Columbia Gas and NIPSCO subsidiaries. In addition to the safety, health, and operational concerns stemming from this situation, COVID-19 provided the first opportunity to implement a comprehensive, NiSource-wide response that incorporated lessons learned following the 2018 Merrimack Valley incident and the after-action reviews of incidents and exercises.

The company activated plans and personnel across its seven-state footprint at the local, state, and corporate levels. The pandemic response is being managed by the ICS, and an Area Command was established to provide strategic guidance to Incident Management Teams (IMTs) in each state. These teams have responsibility for local execution of response objectives.

The pandemic is impacting every aspect of our business, at every level of the organization, with more than 300 employees being activated for ICS roles in supporting the company's COVID-19 response. Through its response to the pandemic, the company has expanded its foundational ICS knowledge and capabilities beyond the gas segment to utilize the ICS framework to guide a NiSource-wide response.

The response emphasized common terminology, consistent processes, appropriate safety protocols, and strong communications. To date, the company has avoided a widespread outbreak of COVID-19 among its employees while experiencing no reported employee-to-customer or customer-to-employee transmission through hundreds of thousands of necessary interactions during the pandemic. In response to COVID-19, we engaged in a comprehensive, extended, multi-company utilization of both the ICS and the Area Command System. We achieved positive results, enhanced our engagement with local emergency management teams, and identified additional opportunities to learn and improve.

NiSource conducted an after-action review of the initial phase of the COVID-19 response. Based on feedback from hundreds of employees involved in the response, opportunities were identified regarding communication, process improvement and development, and clarity of ICS roles and responsibilities. The Area Command prioritized four findings from the after-action review and input those findings into the risk management Corrective Action Program (CAP) tool within our Safety Management System.

Similar to the tabletop exercises, Nixon & Associates provided an independent evaluation of the company's initial COVID-19 response. Lessons learned from internal reviews and the Nixon & Associates evaluation are being incorporated into EP&R continuous improvement plans.

Functional Exercise
On August 25, 2020, NiSource conducted a Multi-State Functional Exercise from the NIPSCO

local operating area in Monticello, Indiana, with cross-functional and multi-jurisdictional participation from across NiSource and police, fire, EMS, and emergency management officials.

Because of COVID-19, this exercise was mainly virtual, with some members of the IMT on site in Indiana. More than 100 individuals with ICS roles from across NiSource participated. Additional participation came from multiple evaluators and hundreds of observers from both inside and outside the company. The Functional Exercise tested our performance against the plan when responding to Level 1 to 2 incidents in a semi-virtual environment.

As part of our enhanced rapid response capabilities, the NIPSCO Gas IMT deployed and utilized one of the recently acquired, custom-built Mobile Command Centers during the exercise. These 38-foot trailers strengthen our ability to efficiently, effectively, and safely respond to incidents, while supporting similar training exercises across our service territory. Four of them will be situated throughout our seven-state footprint and bring a functionality we did not previously possess.

The Functional Exercise tested response capabilities and simulated a major incident with increasing scope and complexity involving severe weather, gas and electric infrastructure impacts, technology challenges, cybersecurity, and terrorism. Throughout the day, the Functional Exercise required participants to take action, make decisions, simulate personnel activation and resource deployment, and respond to new developments.

IMTs representing NIPSCO Gas (with support from across NiSource), NIPSCO Electric, NiSource Information Technology, White County, Indiana, Public Safety, and Carroll County, Indiana, Public Safety, exercised plans, policies and procedures and developed objectives and tactics to oversee and guide the response to the scenario. Evaluators provided feedback on IMT performance, including strengths and opportunities for improvement. Nixon & Associates reviewed this exercise.

Training

To date, building ICS knowledge, including roles, responsibilities, and key principles, has been the emphasis of the training and exercise program. Computer-based training was assigned to all NiSource employees in 2019, with more specific training provided to more than 1,000 employees with a role in the company's ICS.

The company is also expanding its training to include those beyond the Command and General Staff. For example, in late June, a Supporting Staff Self-Study Workbook was distributed to all NiSource employees with an Incident Command System role. This interactive workbook educates employees about ICS principles, provides real world scenarios, and emphasizes the company's philosophy about preparedness and response. The EP&R team is working closely with its technical training and instructional design groups to build additional training materials for those ICS roles that do not link to existing positions within the company. In Q4 2020, we will begin deploying a series of computer-based modules to our front-line employees who may serve as first responders during incidents to strengthen their ICS knowledge and capabilities.

As previously disclosed, in 2019 NiSource established a "Go Team" of approximately 20 high-level employees to serve, as needed, for the most severe or catastrophic Level 1 and Level 2 incidents. The team will be utilized at a Level 1 or Level 2 incident in any of our states, if needed, as supplemental resources or backups for Command and General Staff positions. This cross-industry best practice ensures that a small but core group of leadership is ready and trained to engage in a significant incident as soon as possible.

Last December, this "Go Team" participated in a tabletop exercise followed by an intensive 21-hour, instructor-led training course, Federal Emergency Management Agency (FEMA) ICS 300: Intermediate Incident Command System for Expanding Incidents.

As part of our continuous improvement efforts, the "Go Team" members will also be scheduled to attend advanced incident command training by participating in FEMA ICS 400: Advanced Incident Command for Complex Incidents, a 15-hour, instructor-led course that focuses on area command and multi-agency coordination to support effective incident response.

***

We appreciate your continued interest in our emergency preparedness and response efforts, and we are confident that improvements in emergency preparedness response have significantly strengthened capabilities across NiSource. While our efforts are built on a cycle of continuous improvement, we feel strongly that NiSource has addressed the issues outlined in recommendation P-19-18. We respectfully request that the recommendation be closed.

Very truly yours,

Joe Hamrock

Columbia Gas of Massachusetts
A NiSource Company

Katherine M. Silver
Operations Compliance Manager

4 Technology Drive, Suite 250
Westborough, MA 01581
Phone: (508) 836-7301
Cell: (508) 468-9956
ksilver@nisource.com

VIA ELECTRONIC MAIL ONLY

Richard Enright, Director
Pipeline Safety Division
Department of Public Utilities
One South Station
Boston, MA 02110

Re: Discovery of Inaccurate and Incomplete Regulator Station Drawings

Dear Mr. Enright:

Enclosed, please find the initial response of Bay State Gas Company d/b/a Columbia Gas of Massachusetts ("CMA" or the "Company") to the Department of Public Utilities' (the "Department") July 2, 2020 letter regarding the inaccurate and incomplete regulator station drawings that CMA discovered while working on other compliance related work.

CMA is in the process of performing a review of the records related to all regulator station facilities within its Massachusetts distribution system, consistent with the instructions provided by the Department. CMA developed a plan of action, described in more detail below, upon identifying the issue and subsequently notifying the Department of the Company's findings. In addition, CMA has retained ThinkReliability to assist in a thorough root cause analysis on this issue.

The isometric drawing review is being addressed in four phases: **Phase A** is an engineering department review of all records associated with each regulator station's facilities; **Phase B** is an on-site review of the regulator station facilities to be completed by Measurement & Regulation field technicians; **Phase C** is an update to, or creation of, an isometric drawing that accurately depicts the regulator station facilities present and return of the updated isometrics to the stations, with verification of the updates; and **Phase D** is a third-party independent quality review performed by Campos EPC, LLC, an engineering firm contracted by the Company. A daily scorecard, an example of which is included as Attachment A, is also distributed to CMA and NiSource project leadership to provide status updates and to ensure appropriate management of the review process.

CMA has completed **Phase A** of the review for all stations, and has committed to completing **Phase B** in its entirety prior to transitioning ownership to Eversource. The Company also commits to driving to completion of all isometric drawing updates in **Phase C** within 10 days after a discrepancy is identified in the field and submitted to Engineering, as outlined in the operational notice ON 20-07. Please refer to Attachment B for a copy of ON 20-07. The Company will provide

information on **Phase C** and **Phase D** in a subsequent update to the Department as this review progresses.

Once the entire review and root cause analysis are complete, CMA will provide a written response to the specific requests from the Department's July 2, 2020 letter: (1) total number of regulator station facilities verified; (2) total number of regulator station facilities identified with record deficiencies; (3) root cause review for regulator station facilities found to be deficient; and (4) corrective action plan pertaining to records and data quality.

CMA is providing the following additional information for consideration by the Department while the review is ongoing:

- The Company is continuing to work on the development of site-specific maintenance procedures. These procedures require accurate isometric drawings and will add an additional layer of protection to the safe operation of regulator stations once completed.
- ON 20-07 was released to all NiSource personnel informing them of the issue identified at CMA and giving clear guidance on expectations for how to report and correct isometric drawing issues.
- The following documentation was provided to internal and external employees performing isometric reviews and updates to ensure clarity and understanding of expectations for the project:
    - Attachment C: Written process instructions sent to engineers and technicians.
    - Attachment D: Isometric Drawing creation checklist
    - Attachment E: Isometric Drawing review checklist (M&R technicians)
    - Attachment F: Isometric Drawing review checklist (field engineering)
    - Attachment G – CONTAINS CEII DO NOT RELEASE: CMA Vault Isometric Example
    - Attachment H – CONTAINS CEII DO NOT RELEASE: Isometric Example – Below Ground Control Lines

Thank you for your attention to this matter. Please do not hesitate to contact me with any questions you may have.

Sincerely,

Katherine M. Silver

Cc: Laurie E. Weisman, Esq., Pipeline Safety Division Counsel
Deborah Hampton, Pipeline Safety Division
William Downs, Public Utilities Engineer, Pipeline Safety Division
Michael Daoust, Public Utilities Engineer, Pipeline Safety Division
Mark Kempic, CMA
Jim Howe, CMA
Martin Poulin, CMA
Meggan Birmingham, CMA
Shaela McNulty Collins, CMA
Susan Kullberg, CMA
Kenneth Christman, Esq, NCSC

DRAFT FOR REVIEW PURPOSES ONLY

(DATA NOT CURRENT ON DRAFT)

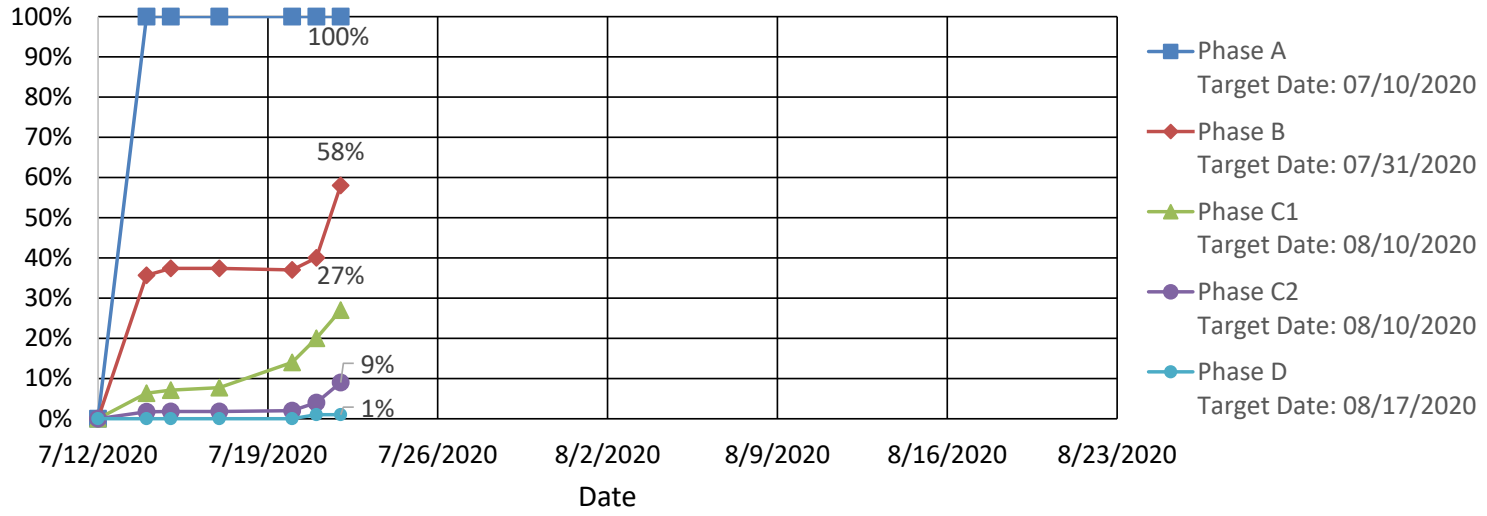
Station Isometric Drawing Validation

Data Date (CMA): Through 07/23/2020

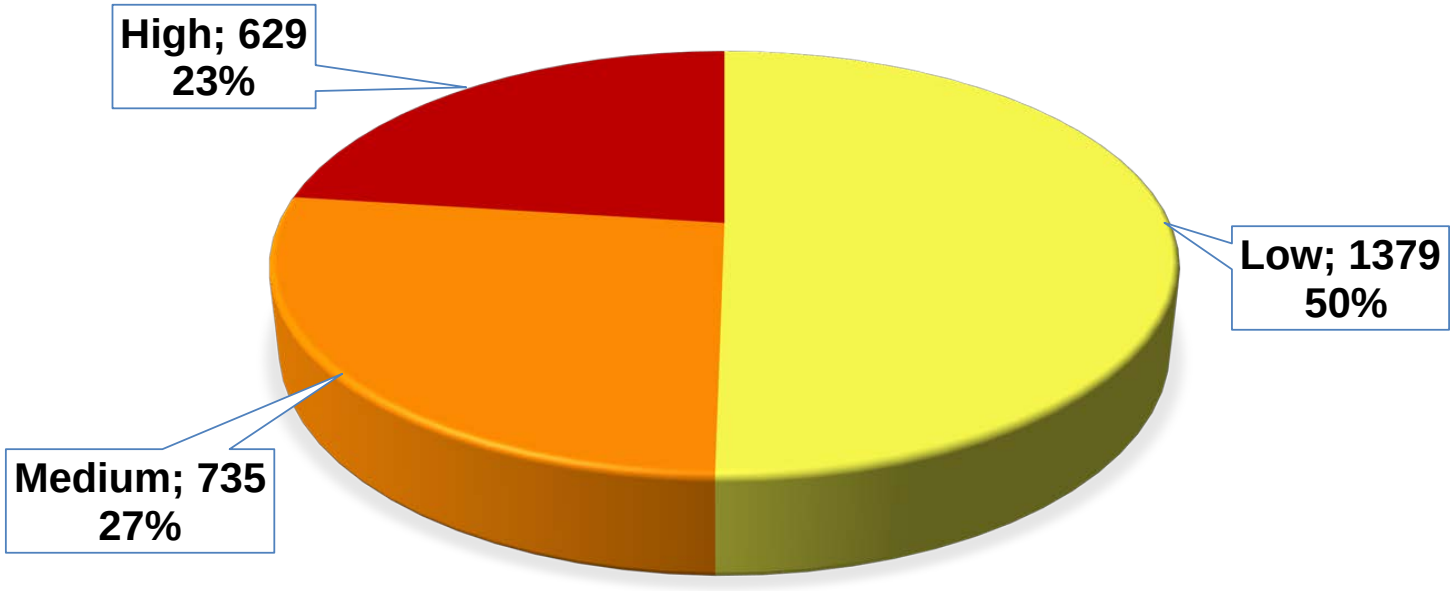
LP Isometric Sampling Progress Update (CMA)

(*) - Values are rounded to the nearest percent

Phase	Description	Completed	Total Required	Percent Complete*
Phase A	Field Engineering Records Review	222	222	100%
Phase B	M&R Tech On-Site Review	88	155	58%
Phase C1	Map Revisions Completed	31	222	27%
Phase C2	Iso Returned to Stations, Validated by M&R	9	222	9%
Phase D	Campos Quality Validation	2	222	1%



Risk Profile of Isometric Errors (CMA)



NOTE: 100% of isometrics show errors; drawings may contain multiple errors

Low Risk – Station number, Location/TCC, Premise ID, Drawing legend, North arrow, Flow arrows, Standard symbols, Station orientation
Medium Risk – All major station components are depicted, Piping extended to inlet/outlet CV, Below ground piping labels
High Risk – Below ground control/ sense line routing, dimensions, Control line function

NiSource

Operational Notice

Distribution Operations

Issue Date: 06/26/2020	**Isometric Drawing Validation**	Notice Number **ON 20-07**
Supersedes: N/A		Page 1 of 4
GS Team Reassess By: 12/31/2021		

Companies Affected:	☒ NIPSCO	☒ CVA	☒ CMD
		☒ CKY	☒ COH
		☒ CMA	☒ CPA

Summary

An isometric drawing or sketch is a representation of a measurement and regulation (M&R) station to accurately document the physical configuration of the M&R station. For clarity an M&R station also includes district regulating stations. See Attachment A for an example of an isometric drawing.

In late 2018 the distribution companies initiated efforts to map each M&R station feeding low pressure (LP) systems with an isometric drawing for the station. During these efforts led by the local Field Engineers, an isometric drawing, including control lines, was to be added to GIS and confirmed by the Field Engineer with a copy of the same isometric drawing placed at the physical location of the station by M&R Staff.

This ON provides:

- Awareness of the importance of continuing to ensure the accuracy of these isometric drawings for each M&R station physically in the field and in GIS,
- Required validation actions to confirm the accuracy of these drawings, and
- Specific actions to be taken when map revisions are required to update or correct these drawings.

This ON applies to validating isometric drawings at all M&R stations.

Required Actions

Isometric Drawing Validation

When *applicable work activities* in the field are being performed, the version of the isometric drawing at the physical location of the M&R station shall be validated as follows.

a) Compare the physical facilities, including orientation, against the field version of the isometric drawing.

b) Compare the field version to the hyperlinked detail of the Station feature in GIS to confirm that they are the same.

Notes: It is recommended to download a copy of the hyperlinked detail of the Station feature in GIS the day of the work activity to take to the site. Alternatively, the GIS version may be either viewed in the field if

NiSource

Distribution Operations

Operational Notice

Issue Date: 06/26/2020	**Isometric Drawing Validation**	Notice Number **ON 20-07**
Supersedes: N/A		
GS Team Reassess By: 12/31/2021		Page 2 of 4

connectivity is available or the local Field Engineer may be contacted to relay information from the GIS version.

If the comparison in either a) or b) does not match, the isometric drawing is not accurate and remedial action is required (see below for remedial actions).

Examples

- If the “Drawing Last Updated” field in the “STATION INFORMATION” block (see Attachment A) is not the same, the isometric drawing is not accurate and remedial action is required (see below for remedial actions).
- If the field isometric drawing shows any component located in a different location than the station site, the isometric drawing is not accurate and remedial action is required.

The person onsite at the station is accountable for the performing the validation, typically the M&R Staff.

<u>Applicable Work Activities</u>

Examples of *applicable work activities* involve emergency response, O&M, and design & construction. The only O&M activities that are excluded from performing the isometric validation are activities that do not involve operating the M&R station pressure control components, e.g., chart changing, mowing grass, painting.

<u>Remedial Actions</u>

When a discrepancy exists with an isometric drawing, a map revision shall be submitted in accordance with the Company’s process (see Attachment B).

- Columbia Gas - Submit a Map Revision [Damage Prevention Sharepoint site]
- NIPSCO – Electronic MAP Discrepancy Form [NIPSCO Engineering Services Sharepoint site]

Map revisions submitted to correct discrepancies with the isometric drawings shall be completed within 10 calendar days by Field Engineering.

Corrective Action Program (CAP)

In our day-to-day activities, personnel are encouraged to submit a CAP if they see something that does not look right.

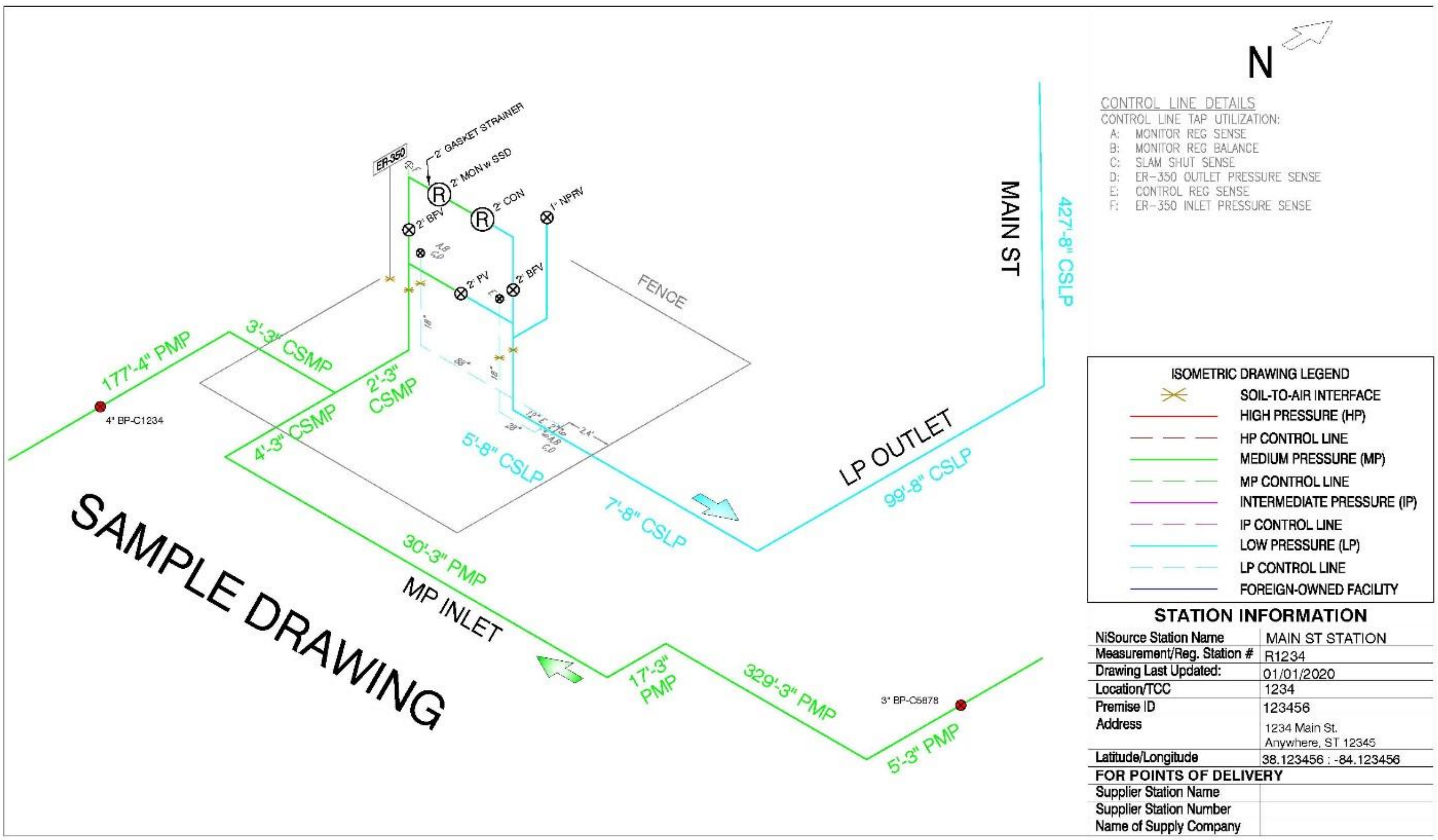
If there are any questions or concerns, please contact Gary Miller (Phone 717-515-6713 or e-mail gsmille@nisource.com) or Lee Reynolds, Manager Gas Standards (phone 614-989-2995 or e-mail lreynolds@nisource.com).

Distribution Operations

Operational Notice

Issue Date: 06/26/2020	Isometric Drawing Validation	Notice Number **ON 20-07**
Supersedes: N/A		
GS Team Reassess By: 12/31/2021		Page 3 of 4

Attachment A



NiSource

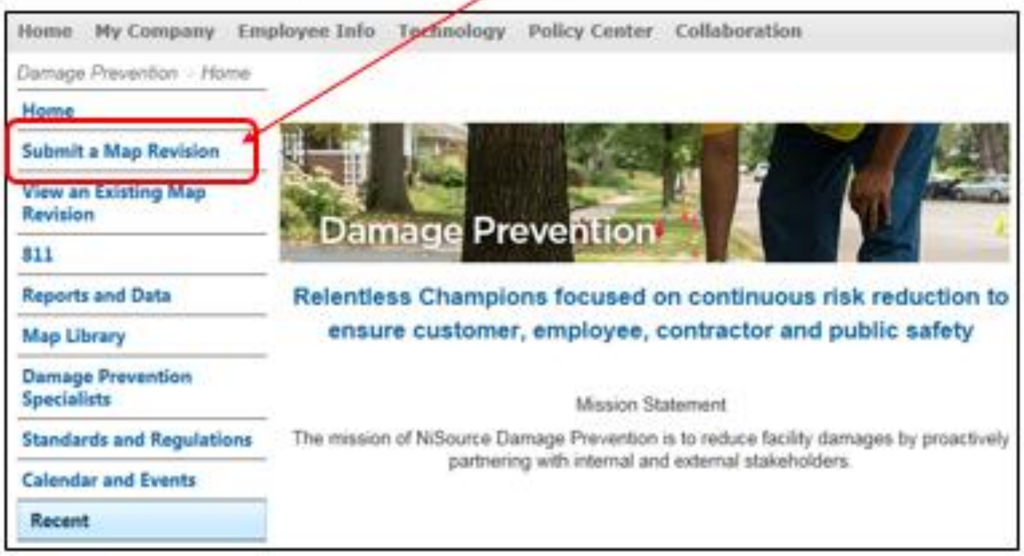
Distribution Operations

Operational Notice

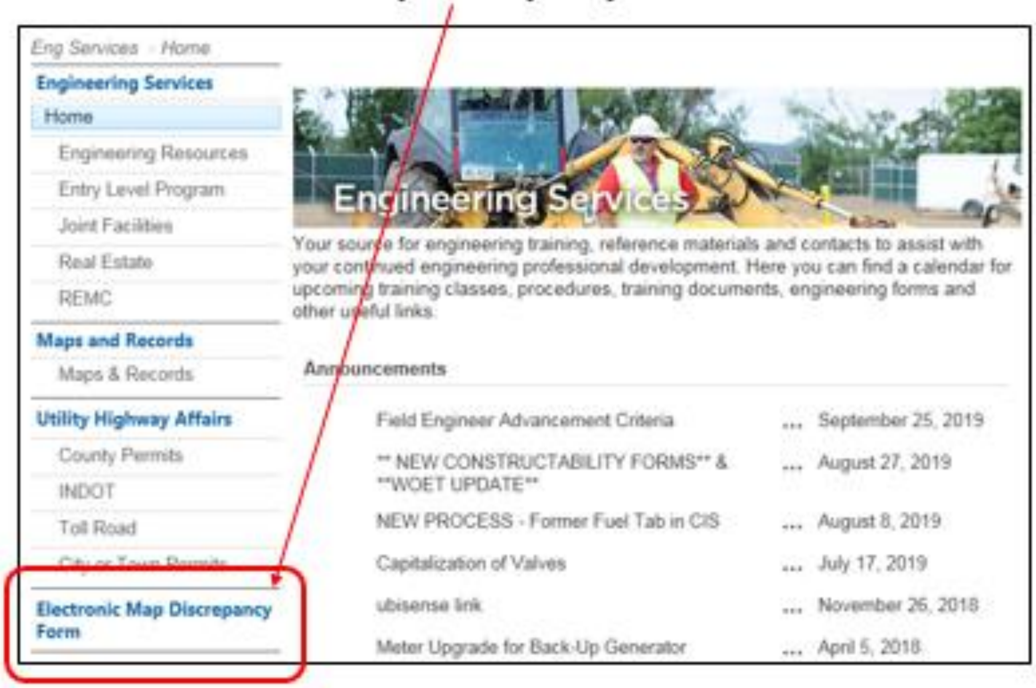
Issue Date: 06/26/2020	**Isometric Drawing Validation**	Notice Number **ON 20-07**
Supersedes: N/A		
GS Team Reassess By: 12/31/2021		Page 4 of 4

Attachment B

Columbia Gas Companies – Submit a Map Revision



NIPSCO – Electronic Map Discrepancy Form



Columbia Gas of Massachusetts
A NiSource Company

To: Dave Mueller, Field Engineering Manager
Dana Argo, System Operations Manager
From: Bryan Meccariello, Leader Field Engineering
Richard Salvarezza, Field Engineer
Subject: Isometric Drawing Review and Update Process
Date: 7-2-2020, Revision 6
CC: Marty Poulin, General Manager CMA
Mark Kempic, President CMA

Project Goals:

- Review the original isometric drawings and compare them to the original isometric drawing guidelines. Identify all gaps.
- Review the current isometric drawings loaded into WMSDocs and compare them to either the original isometric drawing guidelines or the revised isometric drawing guideline, depending on when the work that was done in the field which required the update. All gaps will be identified.
- Review the isometric drawings located at each regulator station against the isometric drawing shown in GIS and then compare it to the current isometric drawing guidelines. Red-line and update the isometric drawings. (ON 20-07)
- Campos will provided a third party review of all isometric drawings that have been reviewed by engineering and M&R.
- At the end of this process all isometric drawing will meet the requirements of the current guidelines.

Communication:

A weekly update will be sent out every Monday, with the updated tracking spreadsheet. The weekly update will be provided by Richard Salvarezza or Bryan Meccariello.

Files to be Used:

- Regulator Station Site Isometrics Quality Management Tracker MASTER.xslx
- Isometric Drawing Review Checklist - Field Engineering REV2.docx
- Isometric Drawing Review Checklist - M&R REV3.docx
- Isometric Drawing Creation Checklist - NEW DRAWING REV1.docx
- ON 20-07 Isometric Drawing Validation, 06/26/2020

Phase A- Engineering Review of Original and Most Recent Isometric Drawing

Engineering will research and review the following:

- original isometric drawing created for the station
- original field notes that were created to make each isometric drawing
- any photos taken on site
- isometric drawing that is currently saved in WMSDocs
- Field notes of photos of work done which created the need for a revised isometric drawing

As this data is being completed the engineer will complete the checklist named “Isometric Drawing Review Checklist - Field Engineering REV2”. Once the checklist has been completed, the engineer will update the “Phase A – Field Engineering Records Review” columns in the tracker spreadsheet named “Regulator Station Site Isometrics Quality Management Tracker MASTER” stored in Microsoft Teams.

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Phase B- M&R Review of Isometric Drawings Located On-Site

M&R will use the checklist named "Isometric Drawing Review Checklist - M&R REV3" to review the isometric drawing located at each site and compare to the field conditions. Compare the field version to the hyperlinked detail of the station feature in GIS. Any missing or incorrect information will be red-lined or noted on the drawings located at each site. As M&R has completes their reviews they will notify according to the following:

1. Isometric Drawing is found to be inaccurate
    a. Take photo of completed checklist and revised isometric drawing (Using the scan document function of the Notes App on their IPhone),see "Scan document" below
    b. Email photos to the respective Engineering Leader and Erika Pajak
    c. Submit a Map Revision by emailing MapRevisions@nisource.com
2. Isometric Drawing is found to be accurate
    a. Take photo of completed checklist
    b. Email photo to the respective Engineering Leader and Erika Pajak
    c. State the drawing is accurate in the email
3. No isometric drawing at the station
    a. Email the respective Engineering Leader and Erika Pajak stating there is no drawing at the station
    b. Submit a Map Revision by emailing MapRevisions@nisource.com

Brockton Contacts
Brian Gillis
bgillis@nisource.com
(508) 468-7411

Lawrence Contacts
Veena Kothapalli
vkothapalli@nisource.com
(978) 314-8061

Springfield Contacts
Bryan Meccariello
bjmeccariello@nisource.com
(413) 326-0636

Erika Pajak
EPajak@nisource.com
(413) 310-6663

Map Revisions
MapRevisions@niosource.com

The M&R admin will update the "Phase B – M&R Techs On-Site Review" columns in the tracker spreadsheet named "Regulator Station Site Isometrics Quality Management Tracker MASTER" stored in Microsoft Teams.

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Phase C- Isometric Updates

During the M&R Review, updated information will be submitted to Map Revisions and engineering. Map revisions submitted to correct discrepancies with the isometric drawings shall be completed within **10 calendar days** by Field Engineering. As engineering receives this information, the isometric drawing will be update following the process below:

1. M&R representative sends an E-mail notification to Map Revisions, the local engineering leader with a copy to M&R admin to notify them of a station isometric requiring updates.
2. Upon receipt of notification of change, engineering will create a polygon in GIS around affected station to notify operations of the pending changes
3. Engineering will update the isometric drawing according to the information received
    a. Engineering will reach out to M&R if clarification is needed.
4. Engineering will perform a peer review of the updated isometric drawing
5. Engineering will provide a hard copy of the updated isometric to the M&R representative submitting the request for review. M&R will perform a site visit and verify the revised drawing against the current field conditions on site. Any corrections will be send back to engineering and the process will start over again at step 3.
6. Once approved by the M&R representative:
    a. Engineering will provide a hard copy of the isometric drawing to the M&R representative submitting the request.
    b. M&R will take hard copy of the updated isometric drawing to field and store at the station. The previous versions of station drawings will be removed.
    c. Engineering will load the updated isometric drawing into WMSDocs
    d. Engineering will provide the updated isometric drawing to Campos in Box
7. Once, all steps above have been completed Engineering will remove the polygon created earlier in this process

*If no corrections are needed from the M&R review of the isometric drawing, the drawing will be marked for Phase D of the project, Campos review.

*If a station does not have an isometric drawing created. Engineering and M&R will go on site and use the checklist “Isometric Drawing Creation Checklist - NEW DRAWING REV1” to capture all required information. Engineering will then create the CAD Drawing and follow the process above for review, starting at step #3. If excavation is required to obtain the required information, engineering with coordinate with local operations or construction.

Engineering will update the “Phase C - Isometric Updates” columns in the tracker spreadsheet named “Regulator Station Site Isometrics Quality Management Tracker MASTER” stored in Microsoft Teams.

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Phase D- Campos Review On Site Review

Campos will use the current isometric drawing guidelines and the checklist named "Isometric Drawing Review Checklist - M&R REV3" to review the isometric drawing loaded into WMSDocs and compare to the field conditions. Any missing or incorrect information will be red-lined or noted on the drawings located at each site.

As Campos completes their reviews they will notify engineering according to the following:

1. Isometric Drawing is found to be inaccurate
    a. Load the completed checklist and revised isometric drawing into the Box folder named "Campos Isometric Drawing Review"
        i. Create a folder per station review using the following naming structure: Location-Premise-Station Name
    b. Email the respective Engineering Leader
    c. Submit a Map Revision by emailing MapRevisions@nisource.com
2. Isometric Drawing is found to be accurate
    a. Load the completed checklist
    b. Email the respective Engineering Leader and stating the drawing is accurate
3. No isometric drawing at the station
    a. Email the respective Engineering Leader and stating there is no drawing at the station
    b. Submit a Map Revision by emailing MapRevisions@nisource.com

Brockton Contacts
Brian Gillis
bgillis@nisource.com
(508) 468-7411

Lawrence Contacts
Veena Kothapalli
vkothapalli@nisource.com
(978) 314-8061

Springfield Contacts
Bryan Meccariello
bjmeccariello@nisource.com
(413) 326-0636

Map Revisions
MapRevisions@niosource.com

Campos will update the "Phase D - Campos On Site Review" columns in the tracker spreadsheet named "Regulator Station Site Isometrics Quality Management Tracker MASTER" stored in Microsoft Teams.

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Phase E - Updates to Isometric Drawings from Campos Review (If Necessary)

If there are any found errors during the Campos reviews, updated information will be submitted to Map Revisions and engineering. Map revisions submitted to correct discrepancies with the isometric drawings shall be completed within **10 calendar days** by Field Engineering. As engineering receives this information, the isometric drawing will be updated via the following the process below:

8. The Campos representative sends an E-mail notification to Map Revisions and to local Field Engineering leader to notify them of a station isometric requiring updates
9. Upon receipt of notification of change, Field Engineering will create a polygon in GIS around affected station to notify operations of the pending changes
10. Field Engineering will update the isometric drawing according to the information received
    a. Field Engineering will reach out to M&R if clarification is needed.
11. Field Engineering will perform a peer review of the updated isometric drawing
12. Field Engineering will provide a hard copy of the updated isometric to the M&R representative submitting the request for review. M&R will perform a site visit and verify the revised drawing against the current field conditions on site. Any corrections will be sent back to engineering and the process will start over again at step 3.
13. Once approved by the M&R representative:
    a. Field Engineering will provide a hard copy of the isometric drawing to the M&R representative submitting the request.
    b. M&R will take hard copy of the updated isometric drawing to the field and store at the station. The previous versions of station drawings will be removed and destroyed.
    c. Engineering will load the updated isometric drawing into WMSDocs
    d. Engineering will provide the updated isometric drawing to Campos in via Box
14. Once, all steps above have been completed Field Engineering will remove the polygon created earlier in this process

Engineering will update the “Phase E – M&R On Site Review (If needed)” columns in the tracker spreadsheet named “Regulator Station Site Isometrics Quality Management Tracker MASTER”

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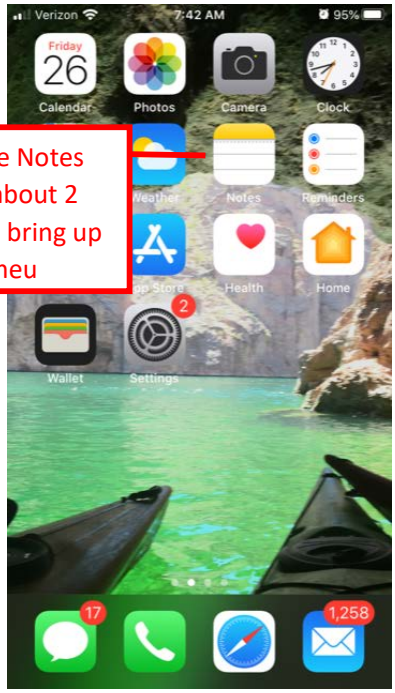
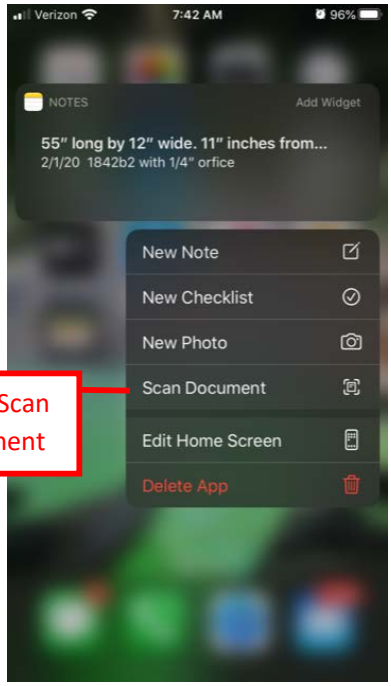
Scan Document

1.) Touch the Notes app for about 2 seconds to bring up the meu



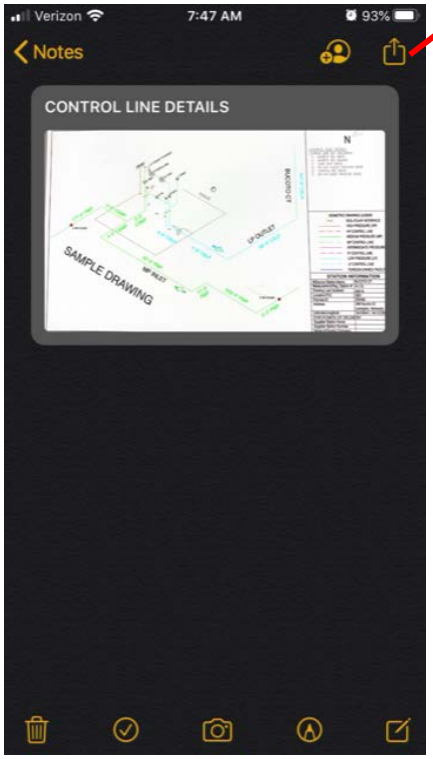
2.) Select Scan Document



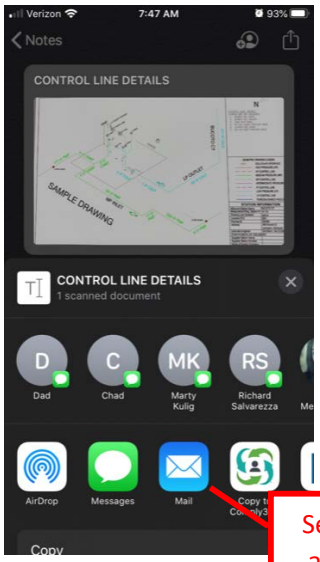
3.) Scan the Document

4.) Once Scanned, Click on Save

5.) Select to send document



6.) Select mail and email document



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Regulator Station NEW Isometric Drawing Creation Checklist

Revision: 1 (07/02/2020)

Station Premise	
Station Name	
Special Notes	
Date on site to gather information	
Engineer on site Name	
M&R on site Name	

Leave no blanks, provide notes whenever needed.

Review all requirements for completion and accuracy.

ONCE THIS DOCUMENT IS FULLY COMPLETED, CREATE A PDF AND ATTACH FIELD NOTES. SAVE COMBINED FILE IN MICROSOFT TEAMS UNDER THE FOLDER "NEW ISOMETRIC DRAWINGS". ALSO SAVE ALL PHOTOS (CREATE FOLDER FOR EACH STATION NAME= LOCATION # - PREMISE # – STATION NAME, CITY)

Isometric Based On 2019 Guidelines:

Requirement	Requirement Applies to Station (Circle One)	Information Captured	Notes
Inlet / Outlet Shutoff Valve Locations are Shown	Y or N	☐	
Regulation Equipment Shown and Labeled Correctly	Y or N	☐	
Block Valves (size and type) Shown	Y or N	☐	
Control Lines(Control): Route and Dimensions Shown From: (Downstream Tap to Tubing)	Y or N	☐	
Control Lines(Monitor): Route and Dimensions Shown From: (Downstream Tap to Tubing)	Y or N	☐	
Control Pilot Supply(Loading) Lines: Route and Dimensions Shown From: (Upstream Tap to Tubing)	Y or N	☐	
Monitor Pilot Supply(Loading) Lines: Route and Dimensions Shown From: (Upstream Tap to Tubing)	Y or N	☐	

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Gauge Lines: Route and Dimensions Shown From: (Upstream or Downstream Tap to Gauge Terminal (Pete's Plug)	Y or N	☐	
Electronic Recorder Lines: Route and Dimensions Shown From: (Upstream or Downstream Tap to tubing)	Y or N	☐	
Bypass Lines: Route and Dimensions Shown From: Start to Finish	Y or N	☐	
Vent Lines: Route and Dimensions Shown From: Full Route Start to Atmosphere	Y or N	☐	
Fuel Gas/Power Gas Lines: Route and Dimensions Shown From: Full Route Tap to tubing	Y or N	☐	
Flow Direction Shown	Y or N	☐	
Mainline Piping Shown Correctly	Y or N	☐	
Valves (Line and Setting) Shown Correctly	Y or N	☐	
Primary/Non-Primary Relief Valves Shown Correctly	Y or N	☐	
2" or Larger Pressure Control Fittings Shown Correctly	Y or N	☐	
Insulators Labeled and Shown Correctly	Y or N		
Meters Labeled and Shown Correctly	Y or N	☐	
Heaters Labeled and Shown Correctly	Y or N	☐	
Odorizers Labeled and Shown Correctly	Y or N	☐	
Cleaners (Filter/Separator/Strainer) Labeled and Shown Correctly (Tee, Y, Basket, etc.)	Y or N	☐	

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Attachment 1
Page 3 of 5

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Pig Launchers/Receivers Labeled and Shown Correctly	Y or N	☐	
Control Line Tapping Locations Shown with the Correct Symbology	Y or N	☐	
Control Line Purpose Labels and Legend Shown (“A”, “B”, “C”, etc.) Letters “I” and “O” are Skipped	Y or N	☐	
All Other Taps Purpose Labels and Legend Shown (“A”, “B”, “C”, etc.) Letters “I” and “O” are Skipped	Y or N	☐	
Odorant Lines Shown Correctly	Y or N	☐	
Electrical Conduit Shown Correctly	Y or N	☐	
Electronic Equipment (ERX, ER350, Recording Chart, Pressure/Temperature Transmitters, Motors)	Y or N	☐	
All Soil to Air Interfaces Shown Correctly	Y or N	☐	
Building / Fence Footprint Shown Correctly	Y or N	☐	
Overpipe Protection Plates Noted if Completed	Y or N	☐	
Title Block Complete and Correct	Y or N	☐	
North Direction Shown	Y or N	☐	
Linetype Legend Shown	Y or N	☐	
Runs Labeled (Run 1, Run 2, Heater Run, etc.)	Y or N	☐	
Intersecting Line Jumpers	Y or N	☐	
Correct Symbology Used	Y or N	☐	
Gasket Strainer Size and ANSI Class Shown if Applicable	Y or N	☐	

Columbia Gas of Massachusetts
Attachment 1(h)
Page 1 of 35

Columbia Gas of Massachusetts
A NiSource Company

Regulator Station Isometric Drawing Review Checklist

Department: M&R

Revision: 3 (06/30/2020)

Station Premise	
Station Name	
Special Notes	
Reviewer Name & User #	
Review Date	
Original Drawn By Date	
Original Drawn By Name	
Does the on-site isometric drawing match the most current version in GIS (Y/N)	

Leave no blanks, provide notes whenever requirements are not met or if notes are needed.
Review all requirements for completion and accuracy.
Enter error codes for "Requirement Not Met" in tracker spreadsheet.
Use the most current isometric drawing loaded in GIS for updating purposes.

Isometric Based On 2019 Guidelines:

Code	Requirement	Reviewed	Requirement Met	Requirement Not Met	Notes **If Facility Not Present, Indicate Below**
MA	Inlet / Outlet Shutoff Valve Locations are Shown	☐	☐	☐	
MB	Regulation Equipment Shown and Labeled Correctly	☐	☐	☐	
MC	Block Valves (size and type) Shown	☐	☐	☐	
MD1	**Control Lines(Control):** Route and Dimensions Shown From: (Downstream Tap to Tubing)	☐	☐	☐	
MD2	**Control Lines(Monitor):** Route and Dimensions Shown From: (Downstream Tap to Tubing)	☐	☐	☐	
MD3	**Control Pilot Supply(Loading) Lines:** Route and Dimensions Shown From: (Upstream Tap to Tubing)	☐	☐	☐	

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MD4	**Monitor Pilot Supply(Loading) Lines:** Route and Dimensions Shown From: (Upstream Tap to Tubing)	☐	☐	☐	
MD5	**Gauge Lines:** Route and Dimensions Shown From: (Upstream or Downstream Tap to Gauge Terminal (Pete's Plug)	☐	☐	☐	
MD6	**Electronic Recorder Lines:** Route and Dimensions Shown From: (Upstream or Downstream Tap to tubing)	☐	☐	☐	
MD7	**Bypass Lines:** Route and Dimensions Shown From: Start to Finish	☐	☐	☐	
MD8	**Vent Lines:** Route and Dimensions Shown From: Full Route Start to Atmosphere	☐	☐	☐	
MD9	**Fuel Gas/Power Gas Lines:** Route and Dimensions Shown From: Full Route Tap to tubing	☐	☐	☐	
ME	Flow Direction Shown	☐	☐	☐	
MF	Mainline Piping Shown Correctly	☐	☐	☐	
MG	Valves (Line and Setting) Shown Correctly	☐	☐	☐	
MH	Primary/Non-Primary Relief Valves Shown Correctly	☐	☐	☐	
MI	2" or Larger Pressure Control Fittings Shown Correctly	☐	☐	☐	
MJ	Insulators Labeled and Shown Correctly				
MK	Meters Labeled and Shown Correctly	☐	☐	☐	
ML	Heaters Labeled and Shown Correctly	☐	☐	☐	
MM	Odorizers Labeled and Shown Correctly	☐	☐	☐	

MN	Cleaners (Filter/Separator/Strainer) Labeled and Shown Correctly (Tee, Y, Basket, etc.)	☐	☐	☐	
MO	Pig Launchers/Receivers Labeled and Shown Correctly	☐	☐	☐	
MP	Control Line Tapping Locations Shown with the Correct Symbology	☐	☐	☐	
MQ	Control Line Purpose Labels and Legend Shown (“A”, “B”, “C”, etc.) Letters “I” and “O” are Skipped	☐	☐	☐	
MR	All Other Taps Purpose Labels and Legend Shown (“A”, “B”, “C”, etc.) Letters “I” and “O” are Skipped	☐	☐	☐	
MS	Odorant Lines Shown Correctly	☐	☐	☐	
MT	Electrical Conduit Shown Correctly	☐	☐	☐	
MU	Electronic Equipment (ERX, ER350, Recording Chart, Pressure/Temperature Transmitters, Motors)	☐	☐	☐	
MV	All Soil to Air Interfaces Shown Correctly	☐	☐	☐	
MW	Building / Fence Footprint Shown Correctly	☐	☐	☐	
MX	Overpipe Protection Plates Noted if Completed	☐	☐	☐	
MY	Title Block Complete and Correct	☐	☐	☐	
MZ	North Direction Shown	☐	☐	☐	
NA	Linetype Legend Shown	☐	☐	☐	
NB	Runs Labeled (Run 1, Run 2, Heater Run, etc.)	☐	☐	☐	
NC	Intersecting Line Jumpers	☐	☐	☐	

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ND	Correct Symbology Used	☐	☐	☐	
NE	Gasket Strainer Size and ANSI Class Shown if Applicable	☐	☐	☐	

Extra Data Tracking:

For the data below only enter error code into tracker for "Yes" and "Unknown"

Code	Category	Yes	No	N/A	Unknown	Notes
NF	Bypass at station	☐	☐	☐	☐	
NG	Below Ground Bypass	☐	☐	☐	☐	
NH	Single Blocking Valve on Bypass	☐	☐	☐	☐	
NI	Upstream Pilot Supply Lines Tapped Outside of Vault	☐	☐	☐	☐	
NJ	Further Excavation Required (Not including Overpipe Protection project)	☐	☐	☐	☐	
NK	Additional Notes (Additional notes to reference trigger error code)	☐				

Regulator Station Isometric Drawing Review Checklist

Department: Field Engineering

Revision: 2 (06/29/2020)

Station Premise			
Station Name			
Special Notes			
Reviewer Name			
Review Date			
Original Drawn By Date		Current Revision By Date	
Original Drawn By Name		Current Revision By Name	

Leave no blanks, provide notes whenever requirements are not met or if notes are needed.

Review all requirements for completion and accuracy.

Enter error codes for "Requirement Not Met" in tracker spreadsheet.

Original Isometric Based On 2018 Guidelines:

Code	Requirement	Reviewed	Requirement Met	Requirement Not Met	Notes **If Facility Not Present, Indicate Below**
AA	Drawing Title Block Correct and Complete	☐	☐	☐	
AB	Depicted from Inlet to Outlet Valve	☐	☐	☐	
AC1	**Control Lines(Control):** Route and Length Shown From: (Downstream Tap to Control Regulator)	☐	☐	☐	
AC2	**Control Lines(Monitor):** Route and Length Shown From: (Downstream Tap to Monitor Regulator or ASV)	☐	☐	☐	
AC3	**Pilot Supply(Loading) Lines:** Route and Length Shown From: (Upstream Tap to Regulator(s))	☐	☐	☐	
AC4	**Gauge Lines:** Route and Length Shown From: (Upstream or Downstream Tap to Gauge Terminal (Pete's Plug)	☐	☐	☐	
AC5	**Electronic Recorder Lines:** Route and Length Shown From: (Upstream or Downstream Tap to ERX/Chart Recorder/ER-350)	☐	☐	☐	

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AC6	**Bypass Lines:** Route and Length Shown From: Start to Finish	☐	☐	☐	
AC7	**Vent Lines:** Route and Length Shown From: Full Route Start to Atmosphere	☐	☐	☐	
AC8	**Fuel Gas/Power Gas Lines:** Route and Length Shown From: (Downstream Tap to Device)	☐	☐	☐	
AD	**Control Lines:** Diameter Shown	☐	☐	☐	
AE	**Control Lines:** Color Coded	☐	☐	☐	
AF	**Control Lines:** Offset Distances	☐	☐	☐	
AG	Electrical Conduit Full Route Shown (if none present, indicate in notes)	☐	☐	☐	
AH	Odorant Lines Full Route Shown (if none present, indicate in notes)	☐	☐	☐	
AI	All Other Buried Facilities Full Route Shown (if none present, indicate in notes)	☐	☐	☐	
AJ	**Photos:** Overall Station View	☐	☐	☐	
AK	**Photos:** Outlet Legs	☐	☐	☐	
AL	**Photos:** Control Lines Taps and Routing	☐	☐	☐	
AM	Proper Template Used	☐	☐	☐	

****continue to next page****

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Most Recent Revision Isometric Based On 2018 Guidelines (If Made Before 12-20-2019):

Code	Requirement	Reviewed	Requirement Met	Requirement Not Met	Notes **If Facility Not Present, Indicate Below**
AN	Drawing Title Block Correct and Complete	☐	☐	☐	
AO	Depicted from Inlet to Outlet Valve	☐	☐	☐	
AP1	**Control Lines(Control):** Route and Length Shown From: (Downstream Tap to Control Regulator)	☐	☐	☐	
AP2	**Control Lines(Monitor):** Route and Length Shown From: (Downstream Tap to Monitor Regulator or ASV)	☐	☐	☐	
AP3	**Pilot Supply(Loading) Lines:** Route and Length Shown From: (Upstream Tap to Regulator(s))	☐	☐	☐	
AP4	**Gauge Lines:** Route and Length Shown From: (Upstream or Downstream Tap to Gauge Terminal (Pete's Plug)	☐	☐	☐	
AP5	**Electronic Recorder Lines:** Route and Length Shown From: (Upstream or Downstream Tap to ERX/Chart Recorder/ER-350)	☐	☐	☐	
AP6	**Bypass Lines:** Route and Length Shown From: Start to Finish	☐	☐	☐	
AP7	**Vent Lines:** Route and Length Shown From: Full Route Start to Atmosphere	☐	☐	☐	
AP8	**Fuel Gas/Power Gas Lines:** Route and Length Shown From: (Downstream Tap to Device)	☐	☐	☐	
AQ	**Control Lines:** Diameter Shown	☐	☐	☐	

AR	**Control Lines:** Color Coded	☐	☐	☐	
AS	**Control Lines:** Offset Distances	☐	☐	☐	
AT	Electrical Conduit Full Route Shown (if none present, indicate in notes)	☐	☐	☐	
AU	Odorant Lines Full Route Shown (if none present, indicate in notes)	☐	☐	☐	
AV	All Other Buried Facilities Full Route Shown (if none present, indicate in notes)	☐	☐	☐	
AW	**Photos:** Overall Station View	☐	☐	☐	
AX	**Photos:** Outlet Legs	☐	☐	☐	
AY	**Photos:** Control Lines Taps and Routing	☐	☐	☐	
AZ	Proper Template Used	☐	☐	☐	

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Most Recent Revision Isometric Based On 2019 Guidelines (If Made After 12-20-2019):

Code	Requirement	Reviewed	Requirement Met	Requirement Not Met	Notes **If Facility Not Present, Indicate Below**
BA	Inlet / Outlet Shutoff Valve Locations are Shown	☐	☐	☐	
BB	Regulation Equipment Shown and Labeled Correctly	☐	☐	☐	
BC	Block Valves (size and type) Shown	☐	☐	☐	
BD1	**Control Lines(Control):** Route and Dimensions Shown From: (Downstream Tap to Tubing)	☐	☐	☐	
BD2	**Control Lines(Monitor):** Route and Dimensions Shown From: (Downstream Tap to Tubing)	☐	☐	☐	
BD3	**Control Pilot Supply(Loading) Lines:** Route and Dimensions Shown From: (Upstream Tap to Tubing)	☐	☐	☐	
BD4	**Monitor Pilot Supply(Loading) Lines:** Route and Dimensions Shown From: (Upstream Tap to Tubing)	☐	☐	☐	
BD5	**Gauge Lines:** Route and Dimensions Shown From: (Upstream or Downstream Tap to Gauge Terminal (Pete's Plug)	☐	☐	☐	
BD6	**Electronic Recorder Lines:** Route and Dimensions Shown From: (Upstream or Downstream Tap to tubing)	☐	☐	☐	
BD7	**Bypass Lines:** Route and Dimensions Shown From: Start to Finish	☐	☐	☐	
BD8	**Vent Lines:** Route and Dimensions Shown From: Full Route Start to Atmosphere	☐	☐	☐	
BD9	**Fuel Gas/Power Gas Lines:** Route and Dimensions Shown From: Full Route Tap to tubing	☐	☐	☐	

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BE	Flow Direction Shown	☐	☐	☐	
BF	Mainline Piping Shown Correctly	☐	☐	☐	
BG	Valves (Line and Setting) Shown Correctly	☐	☐	☐	
BH	Primary/Non-Primary Relief Valves Shown Correctly	☐	☐	☐	
BI	2” or Larger Pressure Control Fittings Shown Correctly	☐	☐	☐	
BJ	Insulators Labeled and Shown Correctly				
BK	Meters Labeled and Shown Correctly	☐	☐	☐	
BL	Heaters Labeled and Shown Correctly	☐	☐	☐	
BM	Odorizers Labeled and Shown Correctly	☐	☐	☐	
BN	Cleaners (Filter/Separator/Strainer) Labeled and Shown Correctly (Tee, Y, Basket, etc.)	☐	☐	☐	
BO	Pig Launchers/Receivers Labeled and Shown Correctly	☐	☐	☐	
BP	Control Line Tapping Locations Shown with the Correct Symbology	☐	☐	☐	
BQ	Control Line Purpose Labels and Legend Shown (“A”, “B”, “C”, etc.) Letters “I” and “O” are Skipped	☐	☐	☐	
BR	All Other Taps Purpose Labels and Legend Shown (“A”, “B”, “C”, etc.) Letters “I” and “O” are Skipped	☐	☐	☐	
BS	Odorant Lines Shown Correctly	☐	☐	☐	

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BT	Electrical Conduit Shown Correctly	☐	☐	☐	
BU	Electronic Equipment (ERX, ER350, Recording Chart, Pressure/Temperature Transmitters, Motors)	☐	☐	☐	
BV	All Soil to Air Interfaces Shown Correctly	☐	☐	☐	
BW	Building / Fence Footprint Shown Correctly	☐	☐	☐	
BX	Overpipe Protection Plates Noted if Completed	☐	☐	☐	
BY	Title Block Complete and Correct	☐	☐	☐	
BZ	North Direction Shown	☐	☐	☐	
CA	Linetype Legend Shown	☐	☐	☐	
CB	Runs Labeled (Run 1, Run 2, Heater Run, etc.)	☐	☐	☐	
CC	Intersecting Line Jumpers	☐	☐	☐	
CD	Correct Symbology Used	☐	☐	☐	
CE	Gasket Strainer Size and ANSI Class Shown if Applicable	☐	☐	☐	

****continue to next page****

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Extra Data Tracking:

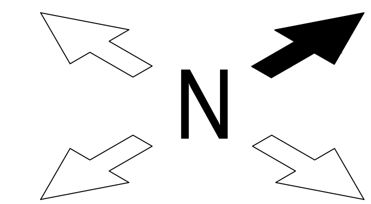
For the data below only enter error code into tracker for "Yes" and "Unknown"

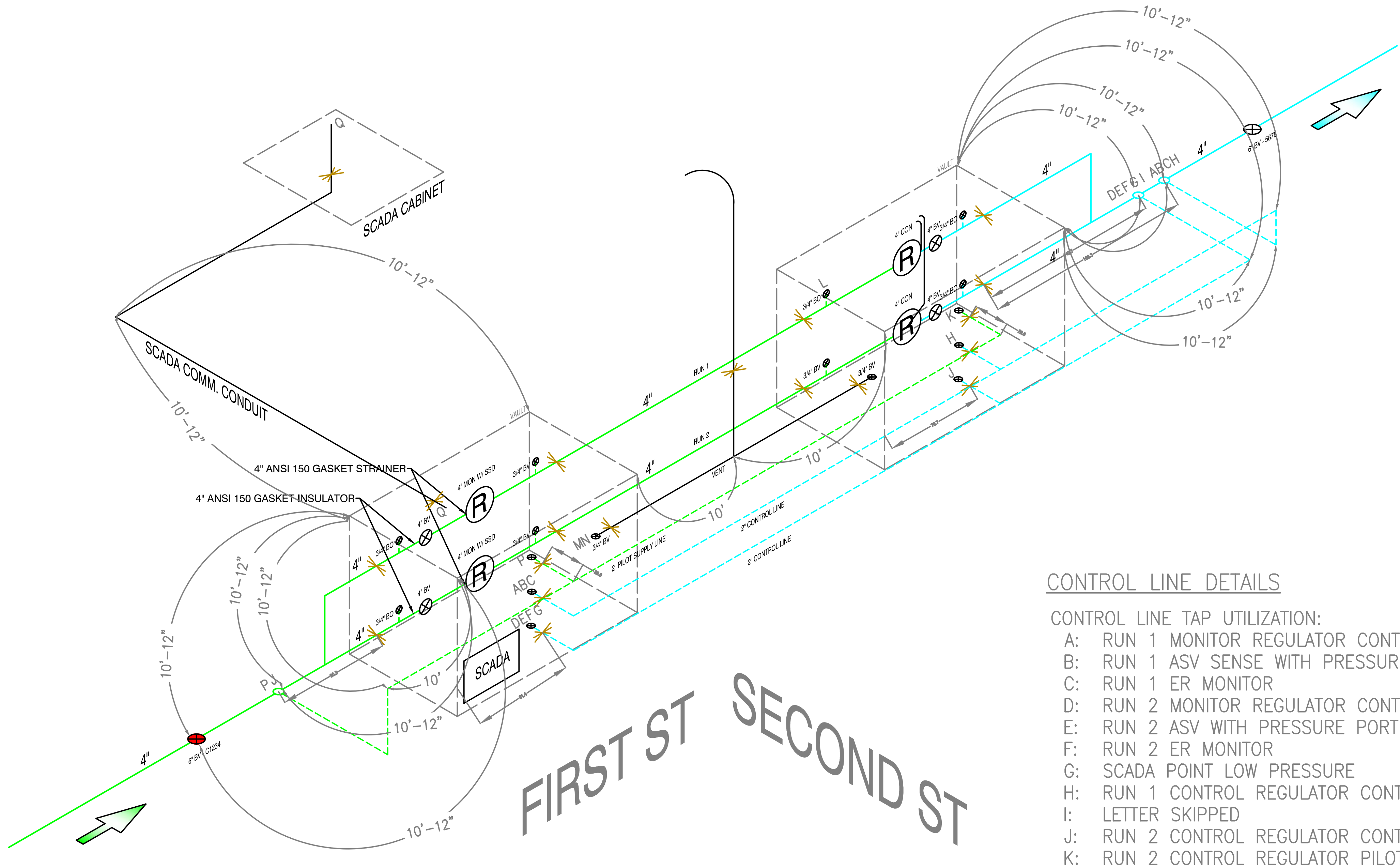
Code	Category	Yes	No	N/A	Unknown	Notes
CF	Bypass at station	☐	☐	☐	☐	
CG	Below Ground Bypass	☐	☐	☐	☐	
CH	Single Blocking Valve on Bypass	☐	☐	☐	☐	
CI	Upstream Pilot Supply Lines Tapped Outside of Vault	☐	☐	☐	☐	
CJ	Further Excavation Required (Not including Overpipe Protection project)	☐	☐	☐	☐	
CK	Additional Notes (Additional notes to reference trigger error code)	☐				

CONTAINS CEII - DO NOT RELEASE

NOTES:
OVER PIPE PROTECTION PLATES INSTALLED ON XX/XX/202X
MARKER BALLS INSTALLED ON XX/XX/202X
MISC. SPECIAL NOTES

WARNING: VENT LINE 'M, N' BELOW GRADE ROUTE NOT TRACED





CONTROL LINE DETAILS

CONTROL LINE TAP UTILIZATION:
A: RUN 1 MONITOR REGULATOR CONTROL LINE
B: RUN 1 ASV SENSE WITH PRESSURE PORT
C: RUN 1 ER MONITOR
D: RUN 2 MONITOR REGULATOR CONTROL LINE
E: RUN 2 ASV WITH PRESSURE PORT
F: RUN 2 ER MONITOR
G: SCADA POINT LOW PRESSURE
H: RUN 1 CONTROL REGULATOR CONTROL LINE
I: LETTER SKIPPED
J: RUN 2 CONTROL REGULATOR CONTROL LINE
K: RUN 2 CONTROL REGULATOR PILOT SUPPLY LINE
L: RUN 1 CONTROL REGULATOR PILOT SUPPLY LINE
M: RUN 1 MONITOR REGULATOR VENT
N: RUN 2 MONITOR REGULATOR VENT
O: LETTER SKIPPED
P: SCADA POINT MEDIUM PRESSURE
Q: SCADA COMMUNICATIONS CONDUIT

ISOMETRIC DRAWING LEGEND
- SOIL-TO-AIR INTERFACE
- HIGH PRESSURE (HP)
- HP CONTROL LINE
- MEDIUM PRESSURE (MP)
- MP CONTROL LINE
- INTERMEDIATE PRESSURE (IP)
- IP CONTROL LINE
- LOW PRESSURE (LP)
- LP CONTROL LINE
- CONDUIT - OTHER
- FOREIGN-OWNED FACILITY

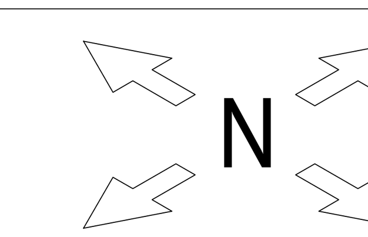
STATION INFORMATION

NiSource Station Name	FIRST ST @ SECOND ST
Measurement/Reg. Station #	
Location/TCC	1234
Premise ID	0012345
Address	100 FIRST ST SPRINGFIELD, MA 01104
Latitude/Longitude	1.123456, 1.123456
FOR POINTS OF DELIVERY	
Supplier Station Name	
Supplier Station Number	
Name of Supply Company	

DRAWING REVISION DATA

CAD DRAWING REVISION BY:	RICHARD SALVAREZZA
CAD DRAWING REVISION DATE:	07/08/2020
REDLINE DRAWING REVISION BY:	
REDLINE DRAWING REVISION DATE:	

CONTAINS CEII - DO NOT RELEASE



CONTROL LINE DETAILS
CONTROL LINE TAP UTILIZATION:
A:

ISOMETRIC DRAWING LEGEND

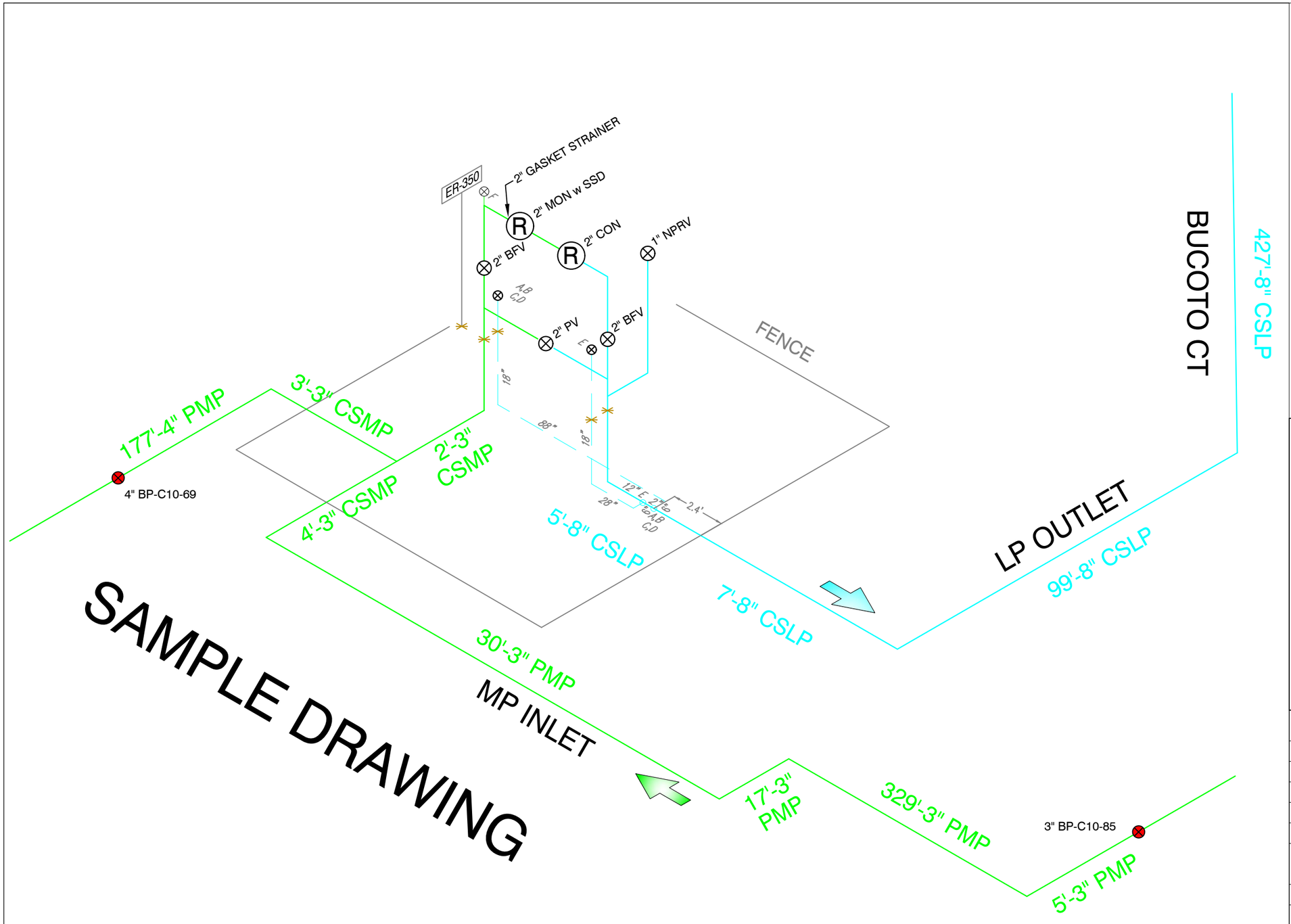
- SOIL-TO-AIR INTERFACE
- HIGH PRESSURE (HP)
- HP CONTROL LINE
- MEDIUM PRESSURE (MP)
- MP CONTROL LINE
- INTERMEDIATE PRESSURE (IP)
- IP CONTROL LINE
- LOW PRESSURE (LP)
- LP CONTROL LINE
- CONDUIT - OTHER
- FOREIGN-OWNED FACILITY

STATION INFORMATION

NiSource Station Name	
Measurement/Reg. Station #	
Location/TCC	
Premise ID	
Address	
Latitude/Longitude	
FOR POINTS OF DELIVERY	
Supplier Station Name	
Supplier Station Number	
Name of Supply Company	

DRAWING REVISION DATA	
CAD DRAWING REVISION BY:	
CAD DRAWING REVISION DATE:	
REDLINE DRAWING REVISION BY:	
REDLINE DRAWING REVISION DATE:	

CONTAINS CEII - DO NOT RELEASE



N

CONTROL LINE DETAILS

CONTROL LINE TAP UTILIZATION:

- A: MONITOR REG SENSE
- B: MONITOR REG BALANCE
- C: SLAM SHUT SENSE
- D: ER-350 OUTLET PRESSURE SENSE
- E: CONTROL REG SENSE
- F: ER-350 INLET PRESSURE SENSE

ISOMETRIC DRAWING LEGEND

- SOIL-TO-AIR INTERFACE
- HIGH PRESSURE (HP)
- HP CONTROL LINE
- MEDIUM PRESSURE (MP)
- MP CONTROL LINE
- INTERMEDIATE PRESSURE (IP)
- IP CONTROL LINE
- LOW PRESSURE (LP)
- LP CONTROL LINE
- FOREIGN-OWNED FACILITY

STATION INFORMATION

NiSource Station Name	BUCOTO CT
Measurement/Reg. Station #	R1173
Drawing Last Updated:	6/6/19
Location/TCC	2621
Premise ID	200460
Address	360 Bucoto Ct Lexington, Kentucky 40504
Latitude/Longitude	38.038441: -84.512580
FOR POINTS OF DELIVERY	
Supplier Station Name	
Supplier Station Number	
Name of Supply Company	

Katherine M. Silver
Operations Compliance Manager

4 Technology Drive, Suite 250
Westborough, MA 01581
Phone: (508) 836-7301
Cell: (508) 468-9956
ksilver@nisource.com

September 18, 2020

VIA ELECTRONIC MAIL ONLY

Richard Enright, Director
Pipeline Safety Division
Department of Public Utilities
One South Station
Boston, MA 02110

Re: Discovery of Inaccurate and Incomplete Regulator Station Drawings

Dear Mr. Enright:

Enclosed, please find the second response of Bay State Gas Company d/b/a Columbia Gas of Massachusetts ("CMA" or the "Company") to the Department of Public Utilities' (the "Department") July 2, 2020 letter regarding the inaccurate and incomplete regulator station drawings that CMA discovered while working on other compliance related work.

In our initial response, CMA notified the Department it would review isometric records for all regulator station facilities within its distribution system, consistent with the instructions provided by the Department. CMA developed a plan of action utilizing a four phase approach upon identifying the issue and subsequently notifying the Department of the Company's findings. As stated in the Company's July 29th response, the phases included an engineering department review of records (**Phase A**), an on-site review by Measurement & Regulation field technicians (**Phase B**), necessary updates to, or creation of, isometric records based on the findings in Phase A/B (**Phase C**), and a review by a third party engineering firm, Campos EPC, to verify the quality of the final isometric (**Phase D**). The revised process documents provided to the System Operations and Engineering department employees have been included as **Attachment A**. In addition, CMA retained a third party, ThinkReliability, to perform a thorough root cause analysis.

The isometric drawing review project and root cause analysis are now complete. As such, CMA is providing this response to the specific requests from the Department's July 2, 2020 letter: (1) total number of regulator station facilities verified; (2) total number of regulator station facilities identified with record deficiencies; (3) root cause review for regulator station facilities found to be deficient; and (4) corrective action plan pertaining to records and data quality.

1. CMA reviewed isometric drawings and or records for all 222 regulator stations within the distribution system.

2. CMA identified deficiencies in all 222 regulator stations. All identified record deficiencies were corrected in Phase C and verified as accurate by the third party engineering firm in Phase D. An updated version of the scorecard that reflects the types of deficiencies discovered and that was provided in the Company's July 29th response has been included as **Attachment B** to demonstrate the final findings of the review project.

3. CMA is providing the full root cause report (RCA), as **Attachment C**. The RCA provides an overview of the key causes and opportunities for improvement. ThinkReliability performed this review, interviewing personnel and reviewing pertinent data and records related to the identified isometric issues. CMA is also providing a report from the third party engineering firm, Campos EPC, as **Attachment D.** The Company will continue to assess the recommendations made by Campos but has put in place a corrective action plan to continue to perform quality control and change management documentation for any isometric updates going forward.

4. CMA management has reviewed the findings of the RCA and established a correction action plan. Please see **Attachment E** for the corrective action plan developed by CMA to help prevent a similar issue from occurring in the future.

Thank you for your attention to this matter. Please do not hesitate to contact me with any questions you may have.

Sincerely,

Katherine M. Silver

cc: Laurie E. Weisman, Pipeline Safety Division Counsel
Deborah Hampton, Pipeline Safety Division
Jim Howe, COO, CMA
Martin Poulin, VP and General Manager, CMA
William Downs, Public Utilities Engineer, Pipeline Safety Division
Michael Daoust, Public Utilities Engineer, Pipeline Safety Division
Meggan Birmingham, Director of Safety Compliance Risk Management, CMA
Katherine Silver, Manager of Operations Compliance, CMA
Shaela McNulty Collins, Director of Regulator Policy, CMA
Susan Kullberg, Manager of Regulatory Affairs, CMA
Kenneth Christman, Esq, NCSC

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To: Dave Mueller, Field Engineering Manager
Dana Argo, System Operations Manager
From: Bryan Meccariello, Leader Field Engineering
Richard Salvarezza, Field Engineer
Subject: Isometric Drawing Review and Update Process
Date: 08/14/2020, Revision 7
CC: Marty Poulin, General Manager CMA

Project Goals:

- Review the original isometric drawings and compare them to the original isometric drawing guidelines. Identify all gaps.
- Review the current isometric drawings loaded into WMSDocs and compare them to either the original isometric drawing guidelines or the revised isometric drawing guideline, depending on when the work that was done in the field which required the update. All gaps will be identified.
- Review the isometric drawings located at each regulator station against the isometric drawing shown in GIS and then compare it to the current isometric drawing guidelines. Red-line and update the isometric drawings. (ON 20-07)
- Campos will provided a third party review of all isometric drawings that have been reviewed by engineering and M&R.
- At the end of this process all isometric drawing will meet the requirements of the current guidelines.

Communication:

A daily update will be sent out, with the updated tracking spreadsheet. The weekly update will be provided by Richard Salvarezza or Bryan Meccariello.

Files to be Used (All saved in Microsoft Teams):

- Regulator Station Site Isometrics Quality Management Tracker MASTER.xslx
- Isometric Drawing Review Checklist - Field Engineering REV2.docx
- Isometric Drawing Review Checklist - M&R REV3.docx
- Isometric Drawing Creation Checklist - NEW DRAWING REV1.docx
- ON 20-07 Isometric Drawing Validation, 06/26/2020

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Phase A- Engineering Review of Original and Most Recent Isometric Drawing

(For LP and Non-LP Stations)

Engineering will research and review the following:

- Original isometric drawing created for the station
- Original field notes that were created to make each isometric drawing
- Any photos taken on site
- Isometric drawing that is currently saved in WMSDocs
- Field notes of photos of work done which created the need for a revised isometric drawing
- If no isometric has been created for a station, the Field Engineer will mark N/A for all fields

As this data is being completed the engineer will complete the checklist named “Isometric Drawing Review Checklist - Field Engineering REV2”. Once the checklist has been completed, the engineer will update the “Phase A – Field Engineering Records Review” columns in the tracker spreadsheet named “Regulator Station Site Isometrics Quality Management Tracker MASTER” stored in Microsoft Teams.

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Phase B- M&R Review of Isometric Drawings Located On-Site

(For LP Stations and Non-LP Stations with Isometric Drawings)

M&R will use the checklist named "Isometric Drawing Review Checklist - M&R REV3" to review the isometric drawing located at each site and compare to the field conditions. Compare the field version to the hyperlinked detail of the station feature in GIS. Any missing or incorrect information will be red-lined or noted on the drawings located at each site. As M&R has completes their reviews they will notify according to the following:

1. Isometric Drawing is found to be inaccurate
    a. Take photo of completed checklist and revised isometric drawing (Using the scan document function of the Notes App on their IPhone),see "Scan document" below
    b. Email photos to the respective Engineering Leader and Erika Pajak
    c. Submit a Map Revision by emailing MapRevisions@nisource.com
2. Isometric Drawing is found to be accurate
    a. Take photo of completed checklist
    b. Email photo to the respective Engineering Leader and Erika Pajak
    c. State the drawing is accurate in the email
3. No isometric drawing at the station
    a. Please see "Caravan Process" below

Brockton Contacts
Brian Gillis
bgillis@nisource.com
(508) 468-7411

Lawrence Contacts
Veena Kothapalli
vkothapalli@nisource.com
(978) 314-8061

Springfield Contacts
Bryan Meccariello
bjmeccariello@nisource.com
(413) 326-0636

Erika Pajak
EPajak@nisource.com
(413) 310-6663

Map Revisions
MapRevisions@niosurce.com

The M&R admin will update the "Phase B – M&R Techs On-Site Review" columns in the tracker spreadsheet named "Regulator Station Site Isometrics Quality Management Tracker MASTER" stored in Microsoft Teams.

Phase C- Isometric Updates

(For LP Stations and Non-LP Stations with Isometric Drawings)

During the M&R Review, updated information will be submitted to Map Revisions and engineering. Map revisions submitted to correct discrepancies with the isometric drawings shall be completed within **10 calendar days** by Field Engineering. As engineering receives this information, the isometric drawing will be update following the process below:

1. M&R representative sends an E-mail notification to Map Revisions, the local engineering leader with a copy to M&R admin to notify them of a station isometric requiring updates.
2. Engineering will update the isometric drawing according to the information received
    a. Engineering will reach out to M&R if clarification is needed.
3. Engineering will perform a peer review of the updated isometric drawing
4. Engineering will provide a hard copy of the updated isometric to the M&R representative submitting the request for review. M&R will perform a site visit and verify the revised drawing against the current field conditions on site. Any corrections will be send back to engineering and the process will start over again at step 3.
5. Once approved by the M&R representative:
    a. Engineering will provide a hard copy of the isometric drawing to the M&R representative submitting the request.
    b. M&R will take hard copy of the updated isometric drawing to field and store at the station. The previous versions of station drawings will be removed.
    c. Engineering will load the updated isometric drawing into WMSDocs
    d. Engineering will provide the updated isometric drawing to Campos in Box

*If no corrections are needed from the M&R review of the isometric drawing, the drawing will be marked for Phase D of the project, Campos review.

Engineering will update the “Phase C - Isometric Updates” columns in the tracker spreadsheet named “Regulator Station Site Isometrics Quality Management Tracker MASTER” stored in Microsoft Teams.

Phase D- Campos Review On Site Review

(For LP Stations and Non-LP Stations with Isometric Drawings)

Campos will use the current isometric drawing guidelines and the checklist named "Isometric Drawing Review Checklist - M&R REV3" to review the isometric drawing loaded into WMSDocs and compare to the field conditions. Any missing or incorrect information will be red-lined or noted on the drawings located at each site.

As Campos completes their reviews they will notify engineering according to the following:

1. Isometric Drawing is found to be inaccurate
    a. Load the completed checklist and revised isometric drawing into the Microsoft Teams folder named "Campos Isometric Drawing Review (Field Visits"
        i. Create a folder per station review.
    b. Email this info Richard Salvarezza and Bryan Meccariello
    c. Richard Salvarezza or Bryan Meccariello will review the Campos review and provide feedback or have the isometric drawing revised. Richard or Bryan will update the tracker with their comments and date of the review.
    d. The feedback or revised drawing will be emailed back to Campos.
    e. Campos will review and approve if they agree the changes have been made, if not an email to Richard Salvarezza and Bryan Meccariello will be sent and the process starts at step b again.
    f. Once accepted by Campos, Campos will update that tracker with the date that the drawing has been accepted.
    g. M&R will perform a site visit and verify the revised drawing against the current field conditions on site. Once complete M&R will email Richard Salvarezza and Bryan Meccariello that the drawing has been delivered to the station.
    h. Engineering will update the M&R tech name and date on the tracker.
2. Isometric Drawing is found to be accurate
    a. Load the completed checklist into Microsoft Teams
    b. Email this info Richard Salvarezza and Bryan Meccariello

Richard Salvarezza
rsalvarezza@nisource.com
(413) 302-5853

Bryan Meccariello
bjmeccariello@nisource.com
(413) 326-0636

Map Revisions
MapRevisions@niosurce.com

Campos and Engineering will update the "Phase D - Campos On Site Review" columns in the tracker spreadsheet named "Regulator Station Site Isometrics Quality Management Tracker MASTER" stored in Microsoft Teams.

Engineering will update the "Project Close-Out" columns in the tracker spreadsheet named "Regulator Station Site Isometrics Quality Management Tracker MASTER" stored in Microsoft Teams.

Non – LP Stations "Caravan Approach"

Phases B, C and D will be conducted in sequence during a single visit to each Non-LP Station

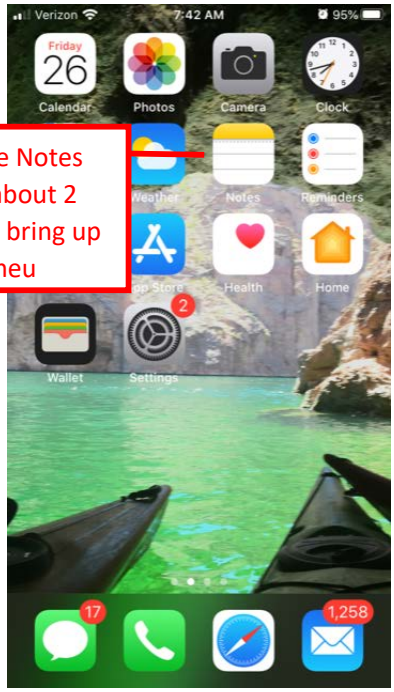
A "Caravan" will be assembled comprised of a Field Engineer, M&R representative and Campos Engineer. Each individual will travel separately to each identified Non-LP regulator station. The following process will be used:

1. Field Engineer will redline the current drawing stored at the station using only visible features
    a. A legacy document may be the only record available at this time
2. M&R representative will provide guidance for the redlined document and will also conduct a review of the redlined document
3. Campos Engineer will review the redlined document and provide comments and updates if needed
4. Once all individuals agree that the finalized redlined document is accurate the Field Engineer and Campos Engineer will sign and date the redlined document
5. Redlined document will be stored on-site at the regulator station
6. The Field Engineer will scan the document and send to Richard Salvarezza and Bryan Meccariello who will update the tracker for Phases B and C
7. The Field Engineer will update WMSdocs and establish the GIS Connected Link if necessary.
8. Campos Engineer will update the tracker for Phase D and store any gathered information in Microsoft Teams

Columbia Gas of Massachusetts
A NiSource Company

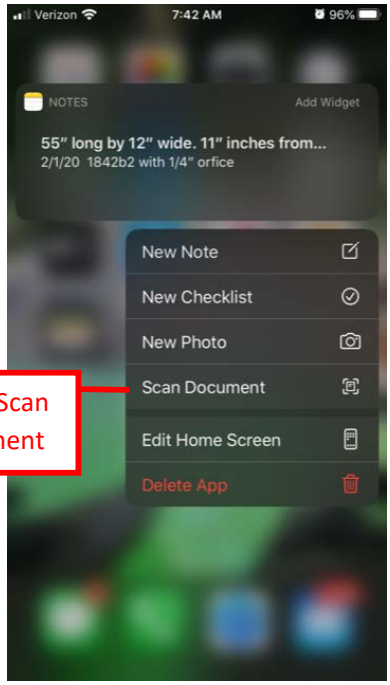
Scan Document

1.)



Touch the Notes app for about 2 seconds to bring up the meu

2.)

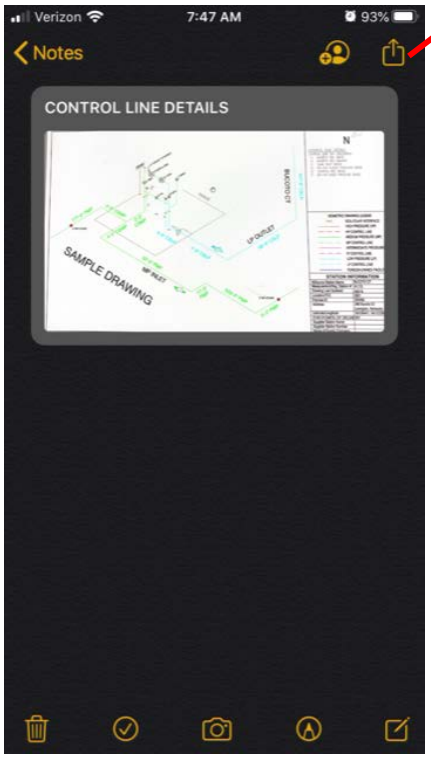


Select Scan Document

3.) Scan the Document

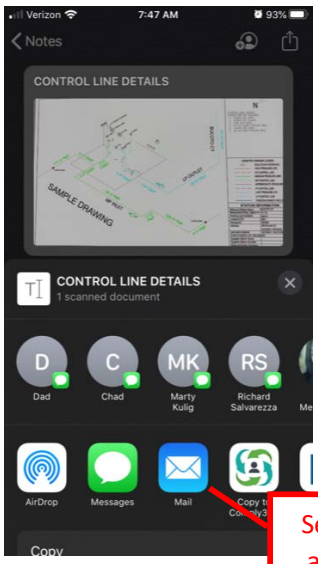
4.) Once Scanned, Click on Save

5.)



Select to send document

6.)



Select mail and email document

Station Isometric Drawing Validation

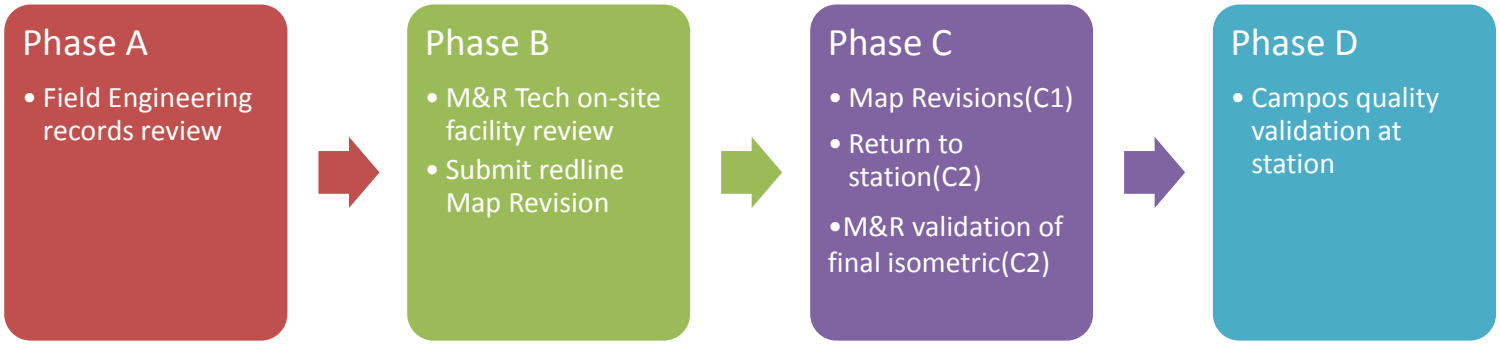
Data through 09/11/2020 (CMA)

CMA Data Supplied By: Richard Salvarezza, Field Engineer

Interim Safety Controls

- **Existing – Safety Action Levels (SAL)**
  - Defines regulator station monitoring requirements
  - Four levels based on control line tap proximity and OPP installed
  - Required field actions determined by SAL
  - Visible in GIS
- **Existing – Enhanced 811 boundary**
  - Variable sized buffer dependent on SAL to initiate enhanced Damage Prevention actions
  - Visible in GIS
- **Existing/New – Capital work area polygons**
  - Indicates capital installations have been planned or performed
  - Visible for 100% of LP stations in GIS
- **New – Redline ISO updates at station**
  - Revised Map Revision process
- **New – Stand Down (CMA)**
- **New – Operational Notice / Implementation of ON 20-07**

Isometric Validation Process

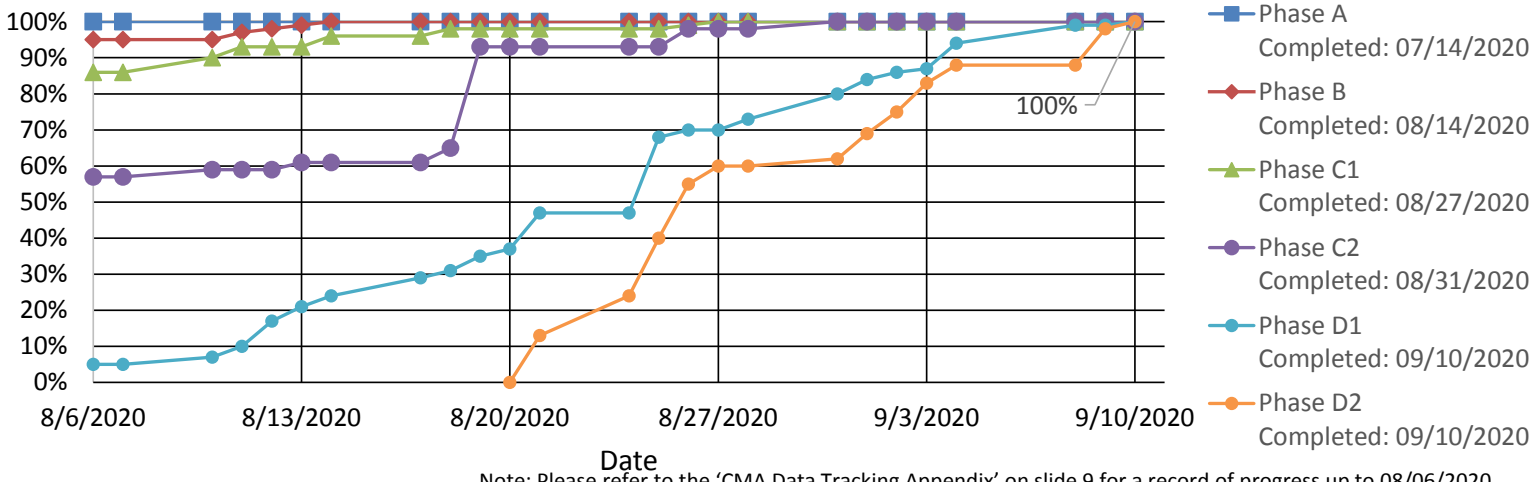


Isometric Review Population	
Phase	**CMA** (Reviewing all stations as required by consent agreement)
Phase A	All stations (222)
Phase B	All stations (222)
Phase C	All stations (222)
Phase D	All stations (222)

LP Isometric Validation Progress Update (CMA) – COMPLETED

(*) - Values are rounded to the nearest percent

Phase	Description	Completed	Total Required	Percent Complete*
Phase A	Field Engineering Records Review	121	121	100%
Phase B	M&R Tech On-Site Review	121	121	100%
Phase C1	Map Revisions Completed	121	121	100%
Phase C2	Iso Returned to Stations, Validated by M&R	121	121	100%
Phase D1	Campos Quality Validation	121	121	100%
Phase D2	Drawings Returned After Edits Completed	121	121	100%

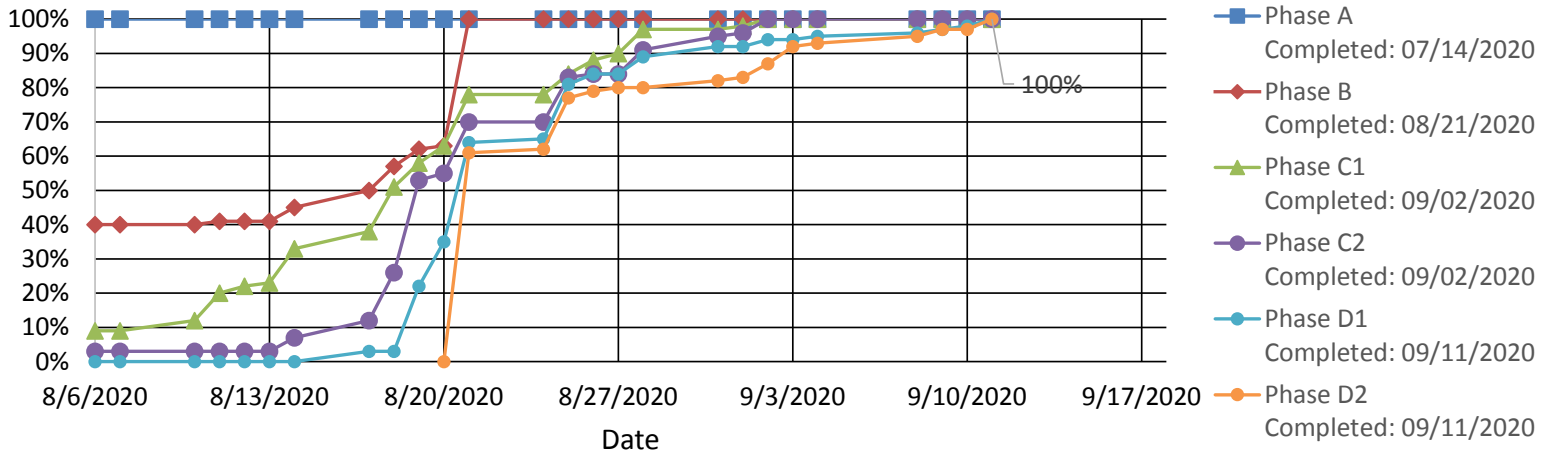


Note: Please refer to the 'CMA Data Tracking Appendix' on slide 9 for a record of progress up to 08/06/2020.

Non-LP Drawing Validation Progress Update (CMA) – COMPLETED

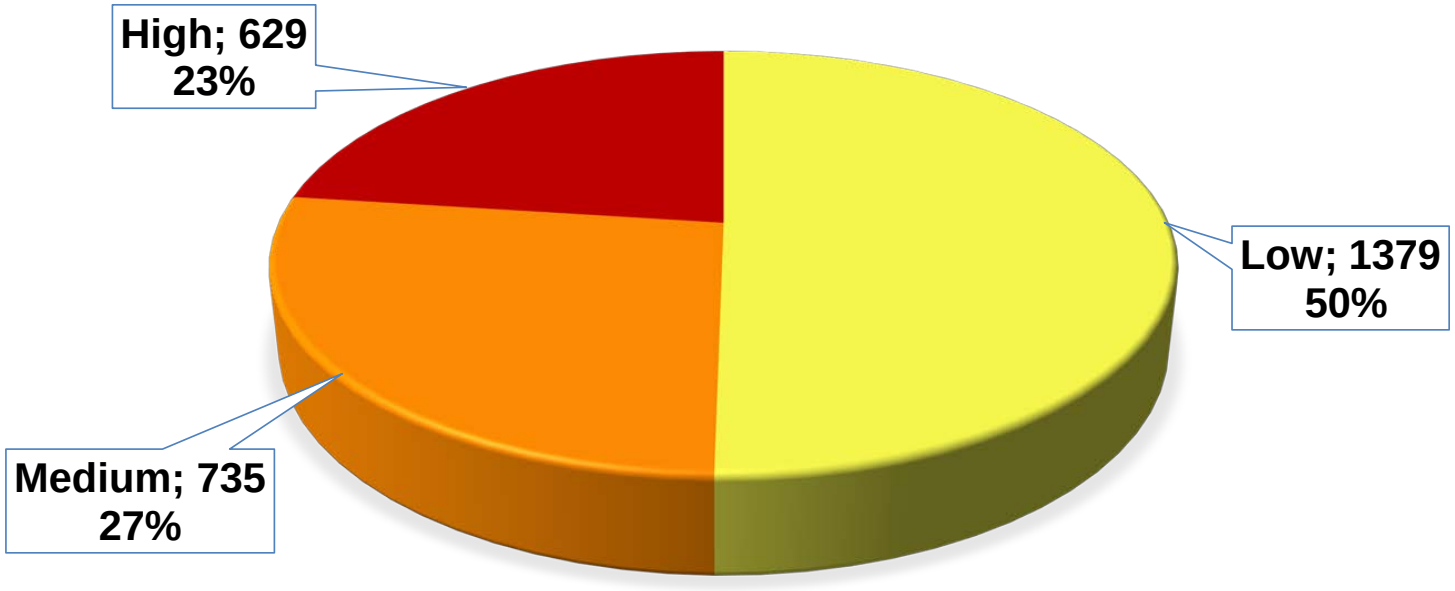
(*) - Values are rounded to the nearest percent

Phase	Description	Completed	Total Required	Percent Complete*
Phase A	Field Engineering Records Review	101	101	100%
Phase B	M&R Tech On-Site Review	101	101	100%
Phase C1	Map Revisions Completed	101	101	100%
Phase C2	Dwg Returned to Stations, Validated by M&R	101	101	100%
Phase D1	Campos Quality Validation	101	101	100%
Phase D2	Drawings Returned After Edits Completed	101	101	100%



Note: Please refer to the 'CMA Data Tracking Appendix' on slide 9 for a record of progress up to 08/06/2020.

Risk Profile of Isometric Errors (CMA)

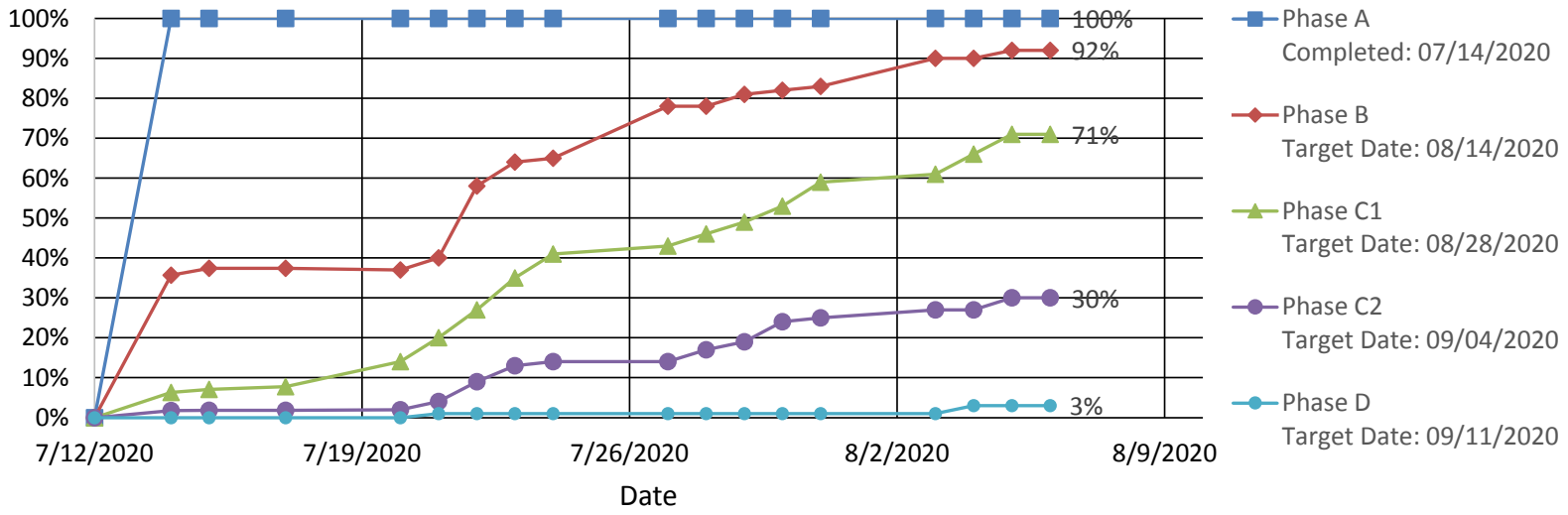


NOTE: 100% of isometrics show errors; drawings may contain multiple errors

Low Risk – Station number, Location/TCC, Premise ID, Drawing legend, North arrow, Flow arrows, Standard symbols, Station orientation
Medium Risk – All major station components are depicted, Piping extended to inlet/outlet CV, Below ground piping labels
High Risk – Below ground control/ sense line routing, dimensions, Control line function

CMA Data Tracking Appendix

- The below table represents the combined CMA LP and CMA Non-LP data tracking from 07/12/2020 to 08/06/2020. The decision was made on 08/07/2020 to separate the report outs for LP and Non-LP for additional clarity. Please refer back to slides 4 and 5 for additional progress on LP and Non-LP stations respectively.
- This slide will remain unchanged as a record of progress from 07/12/2020 to 08/06/2020.



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Houston, TX 77230-1252

(281) 412-7766 Phone
(281) 412-7761 Fax
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Isometric Drawing Deficiencies

Root Cause Analysis Investigation Report

Report Date: 08/06/2020

Location: Columbia Massachusetts

Event Date: Ongoing, Update Isometric Drawing Project Began in September 2018

Prepared by Katie Wohlust
ThinkReliability

NiSource

Team Participants (no particular order) :
Coleman Risch, Director - Asset Class Owner of M&R
Benjamin Gilman, Manager – GIS Strategy
Bryan Meccariello, Leader - Field Engineering
Dana Argo, Manager – System Operations
David Mueller, Manager – Field Engineering
Eric Belle, Managing Director – Asset and Risk Management
Gary Miller, Manager – Design Engineering
Kevin Swiger, Managing Director – Design and Field Engineering
Lee Reynolds, Manager - Standards
Maggie Cousineau, Chief of Staff
Richard Salvarezza, Field Engineer
Veena Kothapalli, Leader – Field Engineering
Brendan Levesque, Leader – Metering & Regulation (M&R)
Rick Wilbert, Manager – Asset Program Owners of M&R
Jeff Croke, OJT Coach, Springfield M&R Leader
Christopher Marlatt, Internal Audit PM (Info share only)
Cory Richins, Campos EPC – Special Instructions Lead (Info share only)
Jose Chacon, Campos EPC – Special Instructions PM (Info share only)

This report was generated from an investigation facilitated by ThinkReliability, involving multiple contacts at NiSource. The detailed root cause analysis was captured in a Cause Mapping project workbook. The following report provides a summary of the findings, conclusions, and recommendations based on the information provided to date.

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Introduction

A root cause analysis (RCA) investigation was conducted as a result of incorrect isometric drawings identified at Columbia of Massachusetts (CMA) low pressure (LP) stations.

The RCA identified that the root cause for the incorrect isometric drawings was due to a lack of management of change (MOC) process. In addition to this, there were contributing factors surrounding the lack of quality assurance/quality control (QA/QC) process, project planning, and ineffective resource management.

Background

Efforts to update isometric drawings at the 121 LP stations in the CMA region began in September 2018 after an over pressurization event occurred in the Merrimack Valley. Initial guidelines were developed and communicated to complete station isometric updates for LP stations. Since the initial effort began, several design, clarification, or improvement needs have been identified so additional informal guidelines and operational notices have been developed and rolled out to the applicable departments.

This root cause analysis investigation was initiated due to incorrect isometric drawings at LP stations for CMA. The audit findings that triggered this RCA was an internal field engineering review related to the Campos Special Instructions project in 2020. This audit revealed that 100% of isometric drawings reviewed for CMA LP systems were found to have incorrect and/or incomplete information per NiSource guidelines.

Although no incidents or accidents have occurred, incorrect or inconsistent isometric drawings have the potential to result in decisions that could lead to undesirable consequences.

The American Gas Association (AGA) released a publication in November 2018 titled *Leading Practices to Reduce the Possibility of a Natural Gas Over-Pressurization Event* that included guidance on recordkeeping, the use of maps and records to complete work, the expectation that incorrectly or unmapped facilities should be documented and communicated, and the ongoing effort to collect and maintain precise location data. AGA (2018) states, “This includes the location of all taps, control lines, and vent lines. As practical, records and drawings should include accurate dimensions and notations of as-installed conditions” (p. 11). The full publication can be found in the attachments.

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Findings

Initial effort insufficient to ensure updated / correct drawings are in place

The initial effort began in late September 2018 and lasted approximately 4 weeks. The initial project to kickoff isometric drawing updates was an immediate and urgent response to an over pressurization event. The work was initiated while the guidelines were still in the process of being developed and subsequently conflicting instructions were communicated to personnel. No guidance existed prior to this project which had to be completed in a relatively short period of time (weeks). Some of the required information was not collected and portions of information that was collected was incomplete or incorrect. In some cases, photos from the field were used to make updates in CAD and the clarity and angle of the photos may not have been sufficient to provide clear and accurate information. Additionally, insufficient knowledge and experience of M&R Technicians performing the work of updating and redlining isometric drawings caused incomplete or inaccurate drawings and there was not an adequate QA/QC process in place to identify and correct the incomplete or inaccurate drawings.

Ongoing effort insufficient to ensure updated / correct drawings are in place

Ongoing efforts can be defined as all work performed after the initial effort up to the completion of this RCA. M&R Technicians along with Engineers were responsible for making redline updates to the isometric drawings in the field. However, no formalized training was developed and given to the M&R Techs prior to beginning this task. Although an M&R Technician's primary responsibility is to operate the LP station, the knowledge to complete isometric drawing redlines and updates per NiSource guidelines is a different skill set. Additionally, the workload required to complete the task was not realized and it may have exceeded the available manpower.

Leadership's expectations were not clearly communicated in the initial guidelines making it difficult to complete an accurate isometric drawing update. For example, the process for maintaining updated isometric drawings during prolonged work was not documented. Some personnel were unaware of the expectation to validate the whole drawing, meaning every piece of information contained in the drawing, every time. Some were unaware of the requirement to use the drawing in GIS to perform the validation. Until June 2020, a checklist had not been developed to help ensure accurate and complete isometric drawing updates.

Overall QA/QC Process:

For the majority of the project, well defined QA/QC efforts have not been in use. No checklist existed for M&R Techs to use in the field while validating drawings. No second and independent verification step was utilized to verify completeness of the drawing against the standard or to verify the drawing in the field. There is no document control process to track redline updates and handoffs between departments. Additionally, the purpose and requirements of the project continue to change and evolve while the project is in progress. A technical quality assurance plan was not developed.

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Recommendations

Based on the investigation findings, the following recommendations have been made through the RCA process.

Management of Change Process:

Although having an MOC program is not a regulatory requirement, the MOC process could be used as a best practice to support QA/QC process development, project planning, and resource management. According to OSHA (2009) regulation 1910.119, Interpretation for Management of Organizational Change at https://www.osha.gov/laws-regs/standardinterpretations/publicationdate/currentyear , "MOC provisions act as a control point when organizational changes result in or could be reasonably expected to result in, changes that can affect covered processes. In other words, if organizational changes necessitate changes to process chemicals, technology, equipment, procedures, or facilities, an MOC procedure would be required to ensure that resulting changes are managed and implemented in a manner that assures continued safe operations" (p. 1). In addition, AGA (2018) also states, "MOC process is a leading practice for evaluating and mitigating the risk of significant changes to a pipeline system. Operators should consider developing an MOC process for all plans that have a potential for over-pressurization"… "For example, inspectors and/or operator personnel may have authority to make certain types of field changes, while more complex changes may have to be approved by a licensed PE or engineer with equivalent experience and technical knowledge" (p. 18).

Table 1. Key RCA Controls, Cause, Work Process, Actions

Item	Control	Cause	Work Process	Actions
1	Document and implement management of change (MOC) policy and process.	No documented, formalized MOC process	MOC	LN Capstone Team Initiative
2	Create checklist to meet expectations and invoke peer review process.	No checklists for majority of project, and no second form of validation.	QA / QC	ON 20-07, ON 20-09, and Validation check list formalize.Peer evaluation required in drawing update process.
3	Formalize a set of clear expectations and create a process for identifying gaps prior to roll out.	Changing guidelines and unexpected outcomes of prolonged work.	Project Planning	ON 20-07 and ON 20-09 issued. Quality Management System utilized to identify process gaps.
4	Consider additional resources along with SME training and assigning knowledgable and experience resources.	No formal process training for first time task and workload management.	Resource Management	Sourced additional support and set clear expectations with guidance.

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Conclusion

The urgency of action to update the LP isometrics did not allow sufficient time to develop the necessary documents to ensure proper controls and expectations were defined and communicated prior to starting work. The initial and ongoing project planning for updating isometric drawings may not have had enough detailed guidance to ensure drawings were updating completely and correctly. The internal resources used to conduct redlines on the isometric drawings likely did not have adequate experience and training. Additionally, the QA/QC process was either not in place or insufficient to identify deficiencies. The recommendations made from this RCA will reduce the likelihood of deficient isometric drawings in the future. Some of these process improvement opportunities were identified prior to beginning this RCA and efforts to implement recommendations for improvement were already made.

Attachments (See separate document)

1. American Gas Association (AGA) - Leading Practices to Reduce the Possibility of a Natural Gas Over-Pressurization Event, Nov. 26, 2018
2. OSHA (2009) regulation 1910.119, Interpretation for Management of Organizational Change at https://www.osha.gov/laws-regs/standardinterpretations/publicationdate/currentyear

REGULATOR STATION ISOMETRIC DRAWING VALIDATION

PROJECT COMPLETION REPORT

CAMPOS EPC, LLC

09/17/2020

TABLE OF CONTENTS

1 INTRODUCTION

1.1 EXECUTIVE SUMMARY

Campos EPC (CEPC) was contracted and has completed a project to validate that Columbia Gas of Massachusetts (CMA) has corrected and completed isometric drawings (isometric) at 222 CMA Measurement and Regulation (M&R) stations, of which 121 are Low Pressure (LP) stations and 101 are Non-LP stations. This report represents the completion report for this project. CEPC has verified that the correct and complete isometric drawings that meet the CMA requirements set forth in Operational Notice (ON) 20-07 and ON 20-09 are present at all CMA LP stations, and that requirements of ON 20-07 are met at all Non-LP stations. CEPC has also verified the appropriate correct and complete isometric drawing is available on the CMA GIS and Work Management systems for LP stations. During the investigations and validations, it was discovered that 77% of all LP stations and error-tracked Non-LP stations were found to have at least one error of various types. All isometric drawings that were found to have errors were updated and placed on site. In Section 6, CEPC has made recommendations that CMA should take into consideration to ensure ongoing compliance with ON 20-07, ON 20-09, and reduce operational risk.

2 BACKGROUND

2.1 PROJECT BACKGROUND

While performing a Pilot Program to create site-specific operation procedures at approximately 30 CMA M&R stations, CMA and CEPC found that there were sites (LP sites specifically) that had either incorrect and/or incomplete isometric drawings. CMA and CEPC validated these findings through the CMA M&R Department, and CEPC Engineers that were working on the Pilot Program. As a result of this finding, ON 20-07 was issued to all NiSource companies including CMA on June 26th, 2020. CMA has taken the action to re-evaluate the correctness and completeness of each of the CMA stations. For each station the isometrics were reviewed through a quality management process.

3 OBJECTIVE

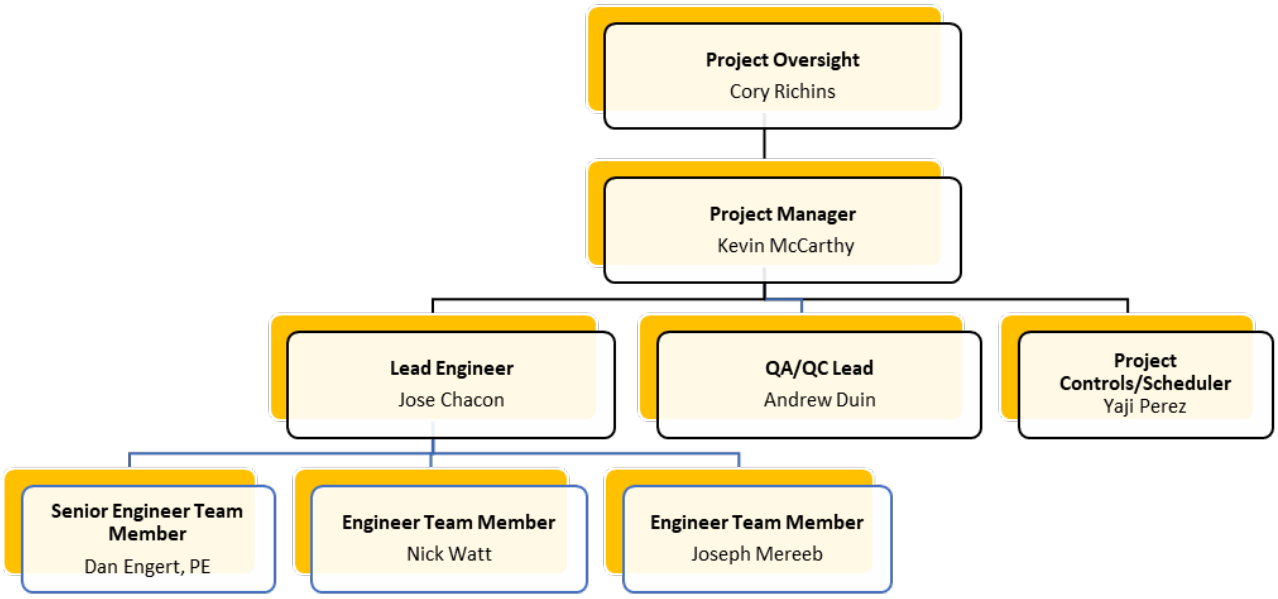
3.1 COMPLIANCE WITH ON 20-07 AND ON 20-09

NiSource has issued ON 20-07 and ON 20-09 that requires and reinforces that each M&R station has an accurate isometric based on required attributes. ON 20-07 specifies the requirement for validating isometric drawings, while ON 20-09 specifies the requirements of an isometric drawing.

The objective of CEPC was to ensure the CMA M&R isometrics were in compliance with ON 20-07 and ON 20-09 for LP stations and in compliance with ON 20-07 for Non-LP stations.

4 METHODOLOGY

Execution of this project occurred from CEPC's office in Marlborough, MA with primarily local resources and project management. A dedicated project file location for both the CEPC and the CMA ("Company") Team was allocated to allow security of information and an environment conducive to a close working relationship. The project team organization was as follows:



CEPC understands that no project is the same, and that each one offers unique challenges that need to be accounted for. Our team worked closely with CMA's Project Manager and Engineering Team to manage services and associated deliverables for validation services related to the validation of M&R isometric drawings. The team performed site visits to all 222 M&R stations, completed verification checklists, provided detailed redlines, and performed final QA/QC of revised drawings to ensure accuracy, and deliver fully compliant isometric drawings that met the requirements set by CMA by the completion date outlined in the project objective.

Kick Off Meeting - Upon award, CEPC conducted a Kick-Off Meeting with our selected team and key CMA team members to review the work scope, responsibilities and schedule.

Project Execution / Coordination Procedure - Concurrent with the Kick-Off activities, CEPC prepared a Project Execution Plan (PEP) to meet the needs of this project.. The Execution Plan was prepared under direct guidance from the CEPC Project Manager & Lead Engineer and as a joint effort by all members of the Project Team to define and

communicate the specific direction by which the project was to be executed in accordance with the Contract and within the budget and schedule duration. The Execution Plan was used to inform project personnel of their functions, interfaces, scope of work and individual/collective activities required in achieving mutual goals and the specific strategies.

Schedule **-** CEPC, in consultation with CMA developed a detailed overall schedule for the Project. The schedule was used to track the progress of the project and enabled the team to establish clear coordination, prioritized deliverables and dates, decision rules and key interfaces during the overall duration of the project from kickoff through completion.

Cost Budget **-** CEPC set the budget based on the proposed estimate. The actual cost was measured against the original budget. The baseline cost was broken into major accounts to ensure the cost could be adequately tracked. Weekly project health reports were produced by the Project Manager during the duration of the project which covered the budget, commitment and forecast by Work Breakdown Structure and reflected current project status.

Status Review Meetings **–** CEPC participated in 3 status review meetings per week throughout the duration of the project. The meetings were used to review the status of: schedule, progress, priorities, deliverables, and resource planning.

Safety in Engineering **-** As with operators, CEPC shares a genuine concern for safety, both in operations and engineering. CEPC had a responsibility to ensure that the station isometric drawings were accurate to ensure the site was fundamentally safe and to ensure that all normal and any abnormal operating conditions were considered. CEPC considered factors such as if equipment was safely setup, traffic control, and time of day for which site visits could safely occur. Also, CEPC communicated to CMA operations personnel any items that required their attention such as future maintenance, valve access and observed abnormal situations. CEPC's experience with M&R stations, along with understanding operational concerns, was critical to review the accuracy of every station's isometric drawing.

4.1 METHODOLOGY FOR LOW PRESSURE STATIONS

The quality management system review process utilized for all CMA LP stations was structured in a 4 phase process:

- Phase A - CMA Field Engineering Off-Site Records Review
- Phase B - CMA M&R Technician On-Site Review, and Submit Revision
- Phase C - CMA Field Engineering Updates Isometric, and M&R Technician On-Site for Final Isometric Delivery and Validation
- Phase D - CEPC Validation, and M&R Technician On-Site for Final Isometric Delivery and Validation

After a station had gone through Phase C, CEPC was notified that the revised Isometric drawing was ready for review. At this point, CEPC strategized and proposed a schedule to CMA M&R scheduler to ensure the necessary resources were available to support our efforts. After resources had been located to accompany CEPC on-site visits, CEPC would perform the site visit and review of the revised isometric drawing. All drawings were reviewed utilizing the Station Isometric Drawing Review Checklist that was developed in a collaborative effort between CMA Field Engineering and CEPC to ensure compliance with ON 20-07 and ON 20-09. After the site visit was conducted, CEPC would transmit to CMA Field Engineering the completed checklist along with its respective redline drawings to communicate any identified errors and/or consistency recommendations. After CMA Field Engineering was complete with updating the isometric drawing, CEPC reviewed the revised isometric drawing based on the provided redlines. Once the drawing was approved by CEPC, CMA Field Engineering was notified that the drawing was ready for printing and subsequently a CMA M&R member was scheduled to deliver the approved isometric drawing to the station and complete final isometric validation.

4.2 METHODOLOGY FOR NON-LOW PRESSURE STATIONS

In addition to LP station validation, CMA also contracted with CEPC to conduct 101 Non-LP station drawing validation work to meet ON 20-07. Non-LP isometric validation followed a different methodology and process. 39 of the 101 were completed using the same methodology as LP. The remaining 62 were completed using a single phase process where CMA Field Engineering, CMA M&R Technician, and CEPC Engineer made redline revisions onsite based on the level of detail for which the drawings were initially created. CMA has additionally taken action to identify any subsurface discrepancies and to create the initial electronic drawing for the stations that require additional detail to meet updated isometric requirements of ON 20-09.

The single phase method was intended to improve the utilization of resources during the validation process by minimizing the time between handoffs. Once onsite, the CMA Field Engineer and CMA M&R Technician would conduct an independent review of the existing station drawing and redline it for any errors or inconsistencies that were discovered. After CMA redlines were completed, CEPC performed a cold-eyes review and provided recommendations and additional perspective. Once CMA Field Engineering, CMA M&R Technician, and CEPC agreed that the redline drawing was a accurate based on the level of detail for which the drawing was initially created, both parties would signoff on the redline of the station drawing to demonstrate approval of drawing. At this point, the approved redline drawing was considered the new official station drawing.

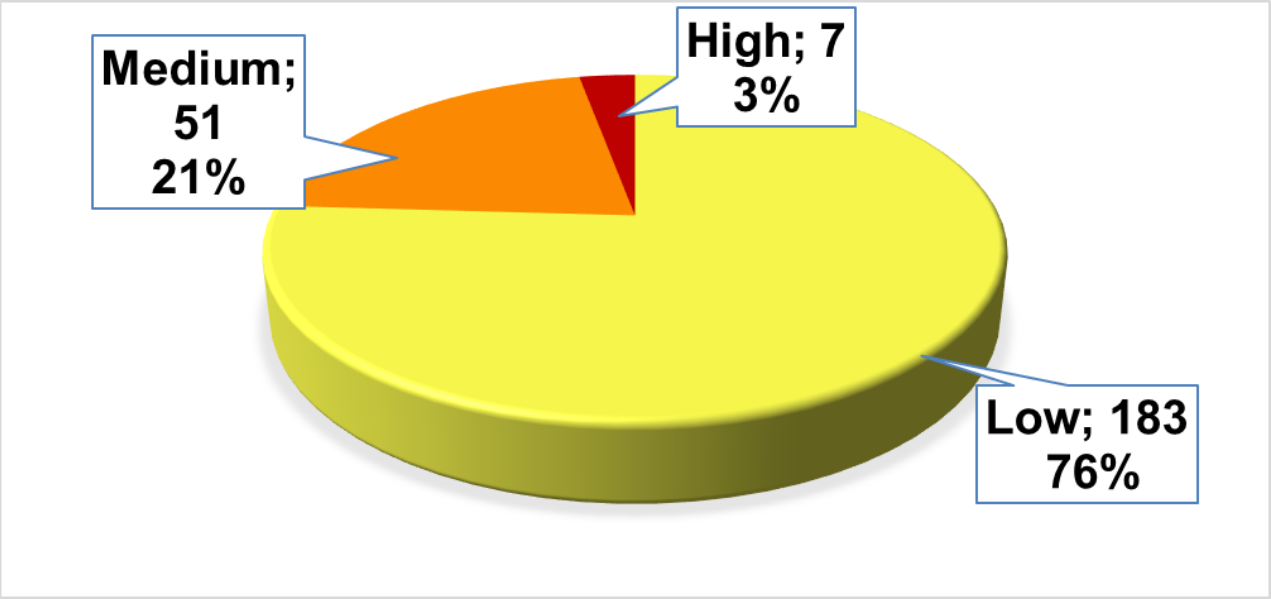
5 FINDINGS AND METRICS

5.1 121 LOW PRESSURE AND 39 NON-LOW PRESSURE STATIONS

CEPC identified that 77% of all LP stations and error-tracked Non-LP stations were found to have at least one error of various types that placed the drawing out of compliance with CMA's ON 20-07 and ON 20-09. All errors were categorized by CMA based on risk level:

1. **Low Risk:** Station Number, Location/TCC, Premise ID, Drawing Legend, North Arrow, Gas Flow Arrows, Standard Symbols, and Station Orientation.
2. **Medium Risk:** All Major Station Components, Piping Extended to Inlet/Outlet CV, Below Ground Piping Labels.
3. **High Risk:** Below Ground Control/ Sense Line Routing, Dimensions, Control Line Function

A summary of errors discovered by CEPC is shown in the graph below:



Note:

- One station isometric drawing may have had multiple errors.
- The results above show errors discovered on 121 CMA LP, and the 39 CMA non-LP stations that were reviewed utilizing the LP approach.

5.2 62 NON-LOW PRESSURE STATIONS

A total of 62 stations were reviewed utilizing the single phase process as described above. The findings among these stations, compared to the LP stations, were different given they were reviewed to a different standard. However, CEPC is providing a summary of the type of errors that were identified. Regardless of the size and complexity of station drawing available for review, CEPC, CMA Field Engineering, and CMA M&R Technicians ensured that all control lines were correctly identified, all visible station components were represented accurately, critical valves were identified and accurately shown, and station critical details were correct such as premise ID, location, and symbology legend.

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6 RECOMMENDATIONS

CEPC recognizes the importance to ensure each M&R station operated by CMA continues to have an accurate isometric drawing from the completion of this project and throughout the lifetime of the asset. The following recommendations are for consideration as an expansion of current best practices:

- Amend ON 20-07 and ON 20-09 specifically related to non-LP stations, allowing additional time to create initial isometric drawings and risk prioritized error findings.

- Transition the M&R station drawing from an isometric drawing to a piping and instrumentation diagram (P&ID) at M&R stations to enhance overall drawing clarity, specifically at Gate Stations and complex stations where many components are present.

- Expand the quality assurance audit process in which the M&R Quality Assurance Team performs investigations to verify isometrics are correct, isometric map revision process and validation process continues to function as intended.

<End of Report>

To: Meggan Birmingham, Director Safety Compliance
From: Richard Salvarezza, Field Engineer
Subject: Interim Process and Controls – Isometric Drawings
Date: 09/18/2020
CC: Jim Howe, COO CMA
Martin Poulin, VP & General Manager CMA
Dave Mueller, Manager of Engineering
Kathy Silver, Operations Compliance Manager
Bryan Meccariello, Leader of Field Engineering

Referenced Documents: Operational Notice 20-07 – Isometric Drawing Validation
Operational Notice 20-09 – Isometric Drawing Requirements
Isometric Drawing Review and Update Process REV7

Summary:

In response to ON 20-07 and ON 20-09, CMA has developed an extensive tracking and quality assurance process detailed in the document 'Isometric Drawing Review and Update Process REV7'. The process established in this document provides the means of quality assurance through a phased approach. This phased approach includes an internal engineering peer review and an external engineering peer review which are additional quality assurance steps not are required by ON 20-07 and ON 20-09.

A comprehensive Isometric Drawing Validation Project is underway to bring 100% of CMA isometric drawings up to current standards.

Isometric Drawing Validation Project Summary:

1. Validation of LP regulator station isometric drawings - Due 09/10/2020
2. Validation of Non-LP regulator station existing documentation - Due 09/11/2020

Additional Step Requested by CMA Leadership Team:

3. Creation and validation of Non-LP regulator station isometric drawings - Due 6/1/2021

This memo, will establish the process to ensure that the internal and external peer reviews that are integrated into the Isometric Drawing Validation Project continue after items 1 and 2 above have been completed and until the Eversource transition has been finalized and Eversource procedures are adopted. Any revisions to the peer review process must be reviewed and accepted by the CMA/Eversource Compliance department prior to being implemented.

Interim Process:

The existing isometric project will continue as planned. Any modifications made to a regulator station shall be processed in accordance with ON 20-07. A map revision shall be initiated and field engineering shall be made aware of the revision.

A communication will be processed from the CMA Compliance Group to the Map Revisions group to ensure that the appropriate CMA personnel are included in all CMA related Isometric Drawing Map Revisions. The appropriate CMA personnel are listed below.

A communication will be processed by System Operations Leadership to all CMA M&R technicians to reiterate the necessary processes involved with validation of isometric drawings and modifications to regulator stations.

In order to ensure that the additional quality assurance internal and external peer reviews are conducted in accordance with 'Isometric Drawing Review and Update Process REV7', all map revision requests shall be submitted to the below employees:

- Primary Field Engineering Contact – Currently: Richard Salvarezza, Field Engineer
- Secondary Field Engineering Contact – Currently: Bryan Meccariello, Leader of Field Engineering
- Carbon Copy to the Field Engineering Leader for applicable CMA Division or Designee
    - Brockton – Brian Gillis
    - Springfield/Northampton – Bryan Meccariello
    - Lawrence – Veena Kothapalli

The Primary and Secondary Field Engineering contacts will maintain a tracking system to record map revision requests and internal/external peer reviews. They will also ensure completion of all necessary reviews in accordance with 'Isometric Drawing Review and Update Process REV7' and will be responsible for managing the completion of the map revision requests, including the delivery of the isometric drawing back to the regulator station.

Documentation:
All necessary phases of the isometric drawing revision and quality assurance process will continue to be documented using similar methods utilized for the Isometric Drawing Validation Project.

Termination of this interim process will be documented with a written communication to the CMA/Eversource Compliance Group once instructed to do so or once a permanent process is established. This communication will be processed by the Primary or Secondary Field Engineering Contact. Once approval is given from the CMA/Eversource Compliance Group, this interim process will be terminated.

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Operational Notice

Distribution Operations

Issue Date: 06/26/2020	**Isometric Drawing Validation**	Notice Number **ON 20-07**
Supersedes: N/A		
GS Team Reassess By: 12/31/2021		Page 1 of 4

Companies Affected:	☒ NIPSCO	☒ CVA	☒ CMD
		☒ CKY	☒ COH
		☒ CMA	☒ CPA

Summary

An isometric drawing or sketch is a representation of a measurement and regulation (M&R) station to accurately document the physical configuration of the M&R station. For clarity an M&R station also includes district regulating stations. See Attachment A for an example of an isometric drawing.

In late 2018 the distribution companies initiated efforts to map each M&R station feeding low pressure (LP) systems with an isometric drawing for the station. During these efforts led by the local Field Engineers, an isometric drawing, including control lines, was to be added to GIS and confirmed by the Field Engineer with a copy of the same isometric drawing placed at the physical location of the station by M&R Staff.

This ON provides:

- Awareness of the importance of continuing to ensure the accuracy of these isometric drawings for each M&R station physically in the field and in GIS,
- Required validation actions to confirm the accuracy of these drawings, and
- Specific actions to be taken when map revisions are required to update or correct these drawings.

This ON applies to validating isometric drawings at all M&R stations.

Required Actions

Isometric Drawing Validation

When *applicable work activities* in the field are being performed, the version of the isometric drawing at the physical location of the M&R station shall be validated as follows.

a) Compare the physical facilities, including orientation, against the field version of the isometric drawing.

b) Compare the field version to the hyperlinked detail of the Station feature in GIS to confirm that they are the same.

Notes: It is recommended to download a copy of the hyperlinked detail of the Station feature in GIS the day of the work activity to take to the site. Alternatively, the GIS version may be either viewed in the field if

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connectivity is available or the local Field Engineer may be contacted to relay information from the GIS version.

If the comparison in either a) or b) does not match, the isometric drawing is not accurate and remedial action is required (see below for remedial actions).

Examples

- If the "Drawing Last Updated" field in the "STATION INFORMATION" block (see Attachment A) is not the same, the isometric drawing is not accurate and remedial action is required (see below for remedial actions).
- If the field isometric drawing shows any component located in a different location than the station site, the isometric drawing is not accurate and remedial action is required.

The person onsite at the station is accountable for the performing the validation, typically the M&R Staff.

Applicable Work Activities

Examples of *applicable work activities* involve emergency response, O&M, and design & construction. The only O&M activities that are excluded from performing the isometric validation are activities that do not involve operating the M&R station pressure control components, e.g., chart changing, mowing grass, painting.

Remedial Actions

When a discrepancy exists with an isometric drawing, a map revision shall be submitted in accordance with the Company's process (see Attachment B).

- Columbia Gas - Submit a Map Revision [Damage Prevention Sharepoint site]
- NIPSCO – Electronic MAP Discrepancy Form [NIPSCO Engineering Services Sharepoint site]

Map revisions submitted to correct discrepancies with the isometric drawings shall be completed within 10 calendar days by Field Engineering.

Corrective Action Program (CAP)

In our day-to-day activities, personnel are encouraged to submit a CAP if they see something that does not look right.

If there are any questions or concerns, please contact Gary Miller (Phone 717-515-6713 or e-mail gsmille@nisource.com) or Lee Reynolds, Manager Gas Standards (phone 614-989-2995 or e-mail lreynolds@nisource.com).

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Distribution Operations

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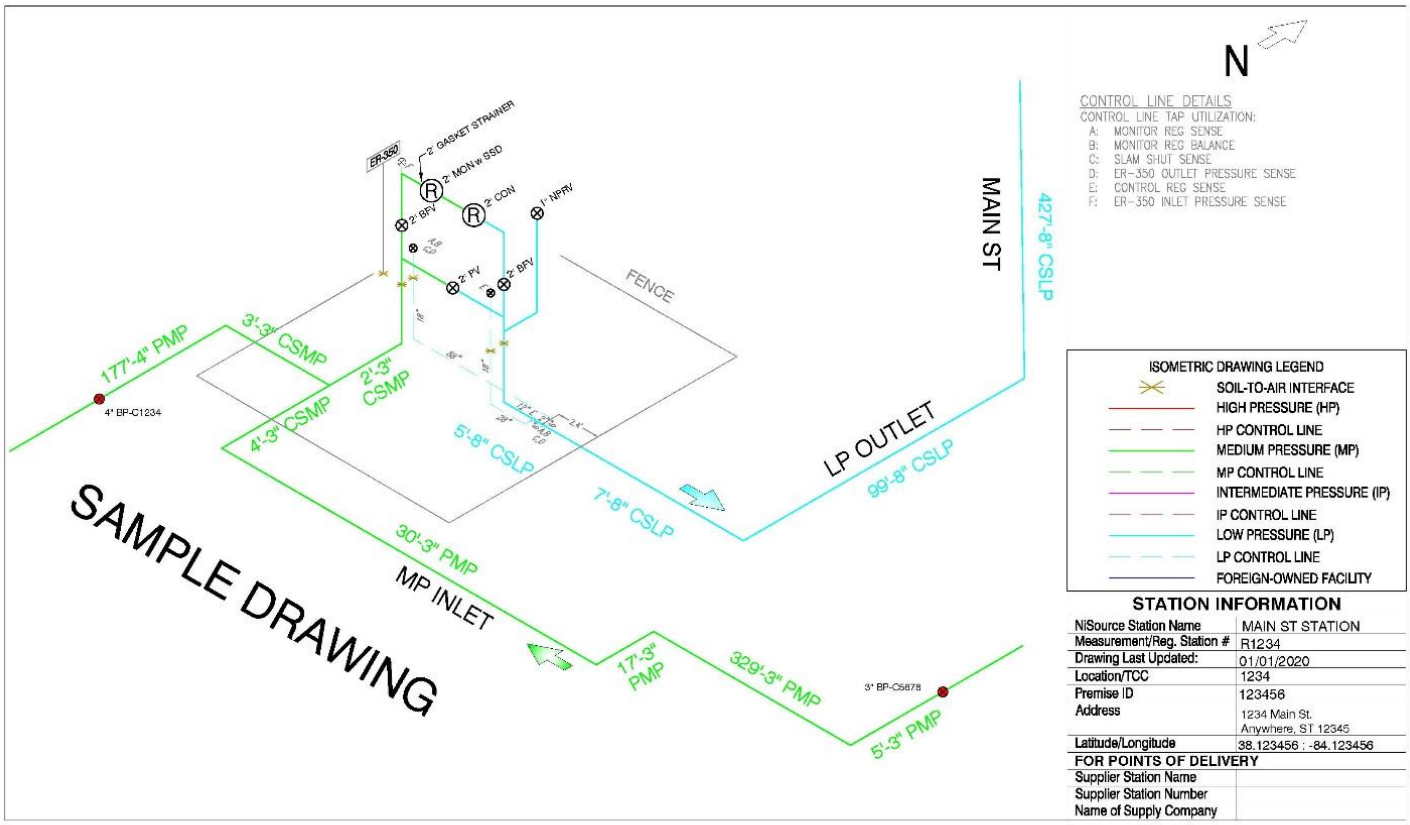
Attachment A



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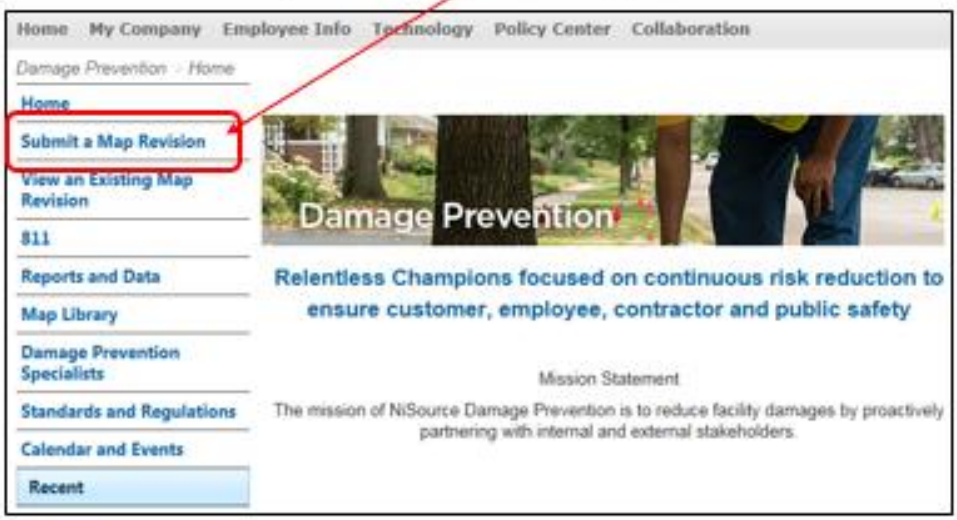
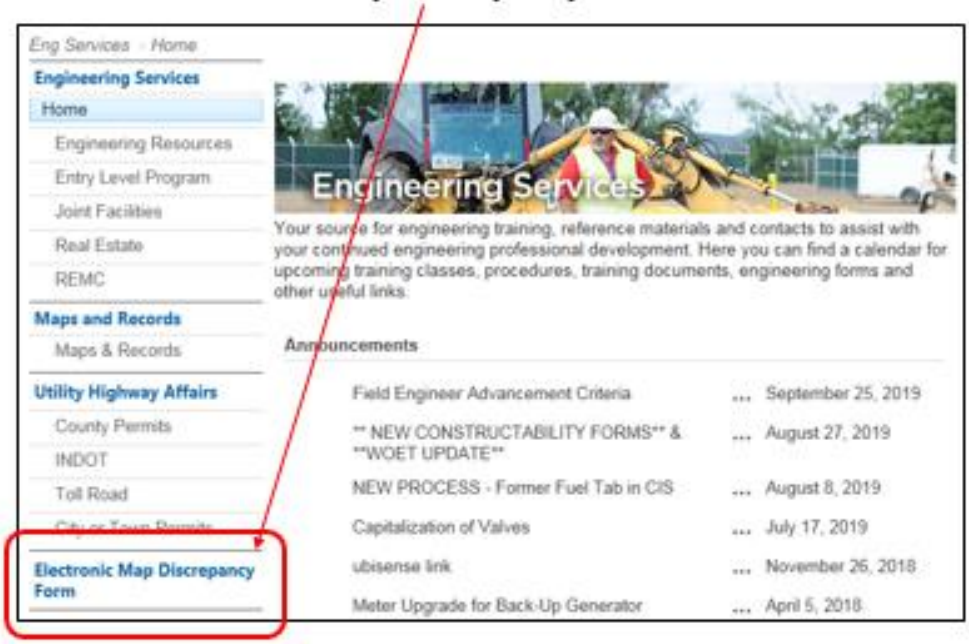
Attachment B

Columbia Gas Companies – Submit a Map Revision



NIPSCO – Electronic Map Discrepancy Form



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Operational Notice

Distribution Operations

Issue Date: 08/01/2020	**Isometric Drawing Requirements**	Notice Number **ON 20-09**
Supersedes: N/A		Page 1 of 4
GS Team Reassess By: 12/31/2021		

Companies Affected:	☒ NIPSCO	☒ CVA	☒ CMD
		☒ CKY	☒ COH
		☒ CMA	☒ CPA

Summary

The purpose of this Operational Notice (ON) is to provide the requirements for isometric drawings, which are to be reviewed and updated as necessary in accordance with GS 1750.010(KY), GS 1750.010(MA), GS 1750.010(MD), GS 1750.010(OH), and GS 1750.010(VA) "Pressure Regulating Station Operation and Maintenance," GS 1680.010 "Tie-ins and Tapping Pressurized Pipelines," and ON 20-07 "Isometric Drawing Validation."

The updated isometric template, contained in Exhibit A, shall apply to Map Revisions submitted on and after the Issue date of this ON.

For additional guidance, refer to the following documents, which can be found on the Gas Engineering page of MySource, under “GE Documents” within the “CAD” folder.

- Station Isometric Drawing Detail Requirements.
- Isometric Drawing Updating, Creation and Storage Requirements (Columbia Companies).
- Isometric Drawing Updating, Creation and Storage Requirements (NIPSCO).

Requirements

Isometric drawings shall be drawn on a common template. See Exhibit A.

Isometric drawings shall contain all of the following “mappable” features.

a. Mainline piping.
b. Valves (line and setting valves).
c. Primary/non-primary relief valves.
d. 2-inch and larger pressure control fittings (refer to job order drawing symbology).
e. Regulators.
f. Meters.
g. Heaters (line and regulator).
h. Odorizers.
i. Cleaners (filter/separators).
j. Pig launcher/receivers.

Isometric drawings shall also indicate the following details critical to station operation.

a. Gasket strainers.

b. Pressure recorders and correctors.
c. Soil-to-air interface for all facilities entering/exiting ground level.
d. Enclosure or fence footprint represented by isometric rectangle.
e. Odorant lines.
f. Heater fuel gas lines.
g. Electrical conduit.
h. Flow arrows indicating the direction of normal gas flow through the station.
i. Existence of any below grade control line protection as indicated by a note on the drawing (e.g., “OVERPIPE PROTECTION PLATES INSTALLED OVER CONTROL LINES OUTSIDE OF STATION FOOTPRINT”).
j. All known below grade control lines/sense lines and tap locations.
    1. Color scheme used for control lines should indicate pressure contained within control line based on tap location.
    2. Offset distances from up- or downstream facilities should be noted.
    3. If control/sense lines are located outside of a structure such as a fence or building, indicate the distance between the line and the structure.
        i. Tapping fittings should be indicated using appropriate label and symbology (use a pressure control fitting “circle” symbol).
        ii. Control line/sense line depictions must show routing and dimensions in inches of each “leg” of line from tap to soil-to-air interface where facilities enter/exit ground level (show the distance directly on the “leg”), and routing only (no dimensions) of control line/sense line from soil-to-air interface to transition from steel piping to stainless steel tubing.
        iii. A legend must be included that indicates control line/sense line purpose that corresponds to control line/sense line tap takeoff points and transition points from steel piping to stainless steel tubing; each control line/sense line purpose must have a unique entry within the legend.
            - For example, if one control line tap will be used to install three control lines to a monitor regulator with integrated slam shut device, the tap must be labeled “A, B, C” on the drawing and the legend will indicate the purposes of control lines A, B, and C.
            - Skip letters “I” and “O” to avoid confusion with numbers “1” and “0”.
            - Leaders with labels directing drawing users to control line/sense line tap takeoff or transition points may be used when labels are in conflict with dimensions or other critical labels.
                o For above ground control lines, control line/sense line taps must be drawn on the isometric drawing with a corresponding reference to the control line/sense line purpose(s) on the legend.
                o If modification to an isometric drawing for an existing station is required but below grade control lines/sense lines are not exposed from tap location to soil-to-air interface.

- Indicate above ground control line/sense line piping location from its transition from stainless steel tubing to steel piping to the soil-to-air interface on the drawing with a reference to the control line/sense line purpose on the legend.
- Indicate on the drawing that below grade control lines were not traced to tap locations with the following note.

  "WARNING: CONTROL LINE 'X' NOT TRACED TO BELOW GRADE TAP LOCATION"

  …where 'X' is the letter representing the control line purpose in the legend.

Record Updates

When a gas standard, including ON 20-07, requires a review of the existing isometric drawing, the lists above shall be used to determine if the existing isometric drawing is accurate and complete. If a discrepancy is found, follow the process in ON 20-07 "Isometric Drawing Validation."

If there are any questions or concerns, please contact Gary Miller, Manager Design Engineering (phone 717-515-6713 or email gsmille@nisource.com) or Lee Reynolds, Manager Gas Standards (phone 614-989-2995 or email lreynolds@nisource.com).

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Operational Notice

Distribution Operations

Issue Date: 08/01/2020	**Isometric Drawing Requirements**	Notice Number **ON 20-09**
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EXHIBIT A

N

CONTROL LINE DETAILS
CONTROL LINE TAP UTILIZATION:
A:

ISOMETRIC DRAWING LEGEND

- SOIL-TO-AIR INTERFACE
- HIGH PRESSURE (HP)
- HP CONTROL LINE
- MEDIUM PRESSURE (MP)
- MP CONTROL LINE
- INTERMEDIATE PRESSURE (IP)
- IP CONTROL LINE
- LOW PRESSURE (LP)
- LP CONTROL LINE
- CONDUIT - OTHER
- FOREIGN-OWNED FACILITY

STATION INFORMATION	
NiSource Station Name	
Measurement/Reg. Station #	
Location/TCC	
Premise ID	
Address	
Latitude/Longitude	
FOR POINTS OF DELIVERY	
Supplier Station Name	
Supplier Station Number	
Name of Supply Company	

DRAWING REVISION DATA	
CAD DRAWING REVISION BY:	
CAD DRAWING REVISION DATE:	
REDLINE DRAWING REVISION BY:	
REDLINE DRAWING REVISION DATE:	

Columbia Gas of Massachusetts
A NiSource Company

To: Dave Mueller, Field Engineering Manager
Dana Argo, System Operations Manager
From: Bryan Meccariello, Leader Field Engineering
Richard Salvarezza, Field Engineer
Subject: Isometric Drawing Review and Update Process
Date: 08/14/2020, Revision 7
CC: Marty Poulin, General Manager CMA

Project Goals:

- Review the original isometric drawings and compare them to the original isometric drawing guidelines. Identify all gaps.
- Review the current isometric drawings loaded into WMSDocs and compare them to either the original isometric drawing guidelines or the revised isometric drawing guideline, depending on when the work that was done in the field which required the update. All gaps will be identified.
- Review the isometric drawings located at each regulator station against the isometric drawing shown in GIS and then compare it to the current isometric drawing guidelines. Red-line and update the isometric drawings. (ON 20-07)
- Campos will provided a third party review of all isometric drawings that have been reviewed by engineering and M&R.
- At the end of this process all isometric drawing will meet the requirements of the current guidelines.

Communication:

A daily update will be sent out, with the updated tracking spreadsheet. The weekly update will be provided by Richard Salvarezza or Bryan Meccariello.

Files to be Used (All saved in Microsoft Teams):

- Regulator Station Site Isometrics Quality Management Tracker MASTER.xslx
- Isometric Drawing Review Checklist - Field Engineering REV2.docx
- Isometric Drawing Review Checklist - M&R REV3.docx
- Isometric Drawing Creation Checklist - NEW DRAWING REV1.docx
- ON 20-07 Isometric Drawing Validation, 06/26/2020

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Phase A- Engineering Review of Original and Most Recent Isometric Drawing

(For LP and Non-LP Stations)

Engineering will research and review the following:

- Original isometric drawing created for the station
- Original field notes that were created to make each isometric drawing
- Any photos taken on site
- Isometric drawing that is currently saved in WMSDocs
- Field notes of photos of work done which created the need for a revised isometric drawing
- If no isometric has been created for a station, the Field Engineer will mark N/A for all fields

As this data is being completed the engineer will complete the checklist named “Isometric Drawing Review Checklist - Field Engineering REV2”. Once the checklist has been completed, the engineer will update the “Phase A – Field Engineering Records Review” columns in the tracker spreadsheet named “Regulator Station Site Isometrics Quality Management Tracker MASTER” stored in Microsoft Teams.

Phase B- M&R Review of Isometric Drawings Located On-Site

(For LP Stations and Non-LP Stations with Isometric Drawings)

M&R will use the checklist named "Isometric Drawing Review Checklist - M&R REV3" to review the isometric drawing located at each site and compare to the field conditions. Compare the field version to the hyperlinked detail of the station feature in GIS. Any missing or incorrect information will be red-lined or noted on the drawings located at each site. As M&R has completes their reviews they will notify according to the following:

1. Isometric Drawing is found to be inaccurate
    a. Take photo of completed checklist and revised isometric drawing (Using the scan document function of the Notes App on their IPhone),see "Scan document" below
    b. Email photos to the respective Engineering Leader and Erika Pajak
    c. Submit a Map Revision by emailing MapRevisions@nisource.com
2. Isometric Drawing is found to be accurate
    a. Take photo of completed checklist
    b. Email photo to the respective Engineering Leader and Erika Pajak
    c. State the drawing is accurate in the email
3. No isometric drawing at the station
    a. Please see "Caravan Process" below

Brockton Contacts
Brian Gillis
bgillis@nisource.com
(508) 468-7411

Lawrence Contacts
Veena Kothapalli
vkothapalli@nisource.com
(978) 314-8061

Springfield Contacts
Bryan Meccariello
bjmeccariello@nisource.com
(413) 326-0636

Erika Pajak
EPajak@nisource.com
(413) 310-6663

Map Revisions
MapRevisions@niosurce.com

The M&R admin will update the "Phase B – M&R Techs On-Site Review" columns in the tracker spreadsheet named "Regulator Station Site Isometrics Quality Management Tracker MASTER" stored in Microsoft Teams.

Phase C- Isometric Updates

(For LP Stations and Non-LP Stations with Isometric Drawings)

During the M&R Review, updated information will be submitted to Map Revisions and engineering. Map revisions submitted to correct discrepancies with the isometric drawings shall be completed within **10 calendar days** by Field Engineering. As engineering receives this information, the isometric drawing will be update following the process below:

1. M&R representative sends an E-mail notification to Map Revisions, the local engineering leader with a copy to M&R admin to notify them of a station isometric requiring updates.
2. Engineering will update the isometric drawing according to the information received
    a. Engineering will reach out to M&R if clarification is needed.
3. Engineering will perform a peer review of the updated isometric drawing
4. Engineering will provide a hard copy of the updated isometric to the M&R representative submitting the request for review. M&R will perform a site visit and verify the revised drawing against the current field conditions on site. Any corrections will be send back to engineering and the process will start over again at step 3.
5. Once approved by the M&R representative:
    a. Engineering will provide a hard copy of the isometric drawing to the M&R representative submitting the request.
    b. M&R will take hard copy of the updated isometric drawing to field and store at the station. The previous versions of station drawings will be removed.
    c. Engineering will load the updated isometric drawing into WMSDocs
    d. Engineering will provide the updated isometric drawing to Campos in Box

*If no corrections are needed from the M&R review of the isometric drawing, the drawing will be marked for Phase D of the project, Campos review.

Engineering will update the “Phase C - Isometric Updates” columns in the tracker spreadsheet named “Regulator Station Site Isometrics Quality Management Tracker MASTER” stored in Microsoft Teams.

Phase D- Campos Review On Site Review

(For LP Stations and Non-LP Stations with Isometric Drawings)

Campos will use the current isometric drawing guidelines and the checklist named "Isometric Drawing Review Checklist - M&R REV3" to review the isometric drawing loaded into WMSDocs and compare to the field conditions. Any missing or incorrect information will be red-lined or noted on the drawings located at each site.

As Campos completes their reviews they will notify engineering according to the following:

1. Isometric Drawing is found to be inaccurate
    a. Load the completed checklist and revised isometric drawing into the Microsoft Teams folder named "Campos Isometric Drawing Review (Field Visits"
        i. Create a folder per station review.
    b. Email this info Richard Salvarezza and Bryan Meccariello
    c. Richard Salvarezza or Bryan Meccariello will review the Campos review and provide feedback or have the isometric drawing revised. Richard or Bryan will update the tracker with their comments and date of the review.
    d. The feedback or revised drawing will be emailed back to Campos.
    e. Campos will review and approve if they agree the changes have been made, if not an email to Richard Salvarezza and Bryan Meccariello will be sent and the process starts at step b again.
    f. Once accepted by Campos, Campos will update that tracker with the date that the drawing has been accepted.
    g. M&R will perform a site visit and verify the revised drawing against the current field conditions on site. Once complete M&R will email Richard Salvarezza and Bryan Meccariello that the drawing has been delivered to the station.
    h. Engineering will update the M&R tech name and date on the tracker.
2. Isometric Drawing is found to be accurate
    a. Load the completed checklist into Microsoft Teams
    b. Email this info Richard Salvarezza and Bryan Meccariello

Richard Salvarezza
rsalvarezza@nisource.com
(413) 302-5853

Bryan Meccariello
bjmeccariello@nisource.com
(413) 326-0636

Map Revisions
MapRevisions@niosurce.com

Campos and Engineering will update the "Phase D - Campos On Site Review" columns in the tracker spreadsheet named "Regulator Station Site Isometrics Quality Management Tracker MASTER" stored in Microsoft Teams.

Engineering will update the "Project Close-Out" columns in the tracker spreadsheet named "Regulator Station Site Isometrics Quality Management Tracker MASTER" stored in Microsoft Teams.

Non – LP Stations "Caravan Approach"

Phases B, C and D will be conducted in sequence during a single visit to each Non-LP Station

A "Caravan" will be assembled comprised of a Field Engineer, M&R representative and Campos Engineer. Each individual will travel separately to each identified Non-LP regulator station. The following process will be used:

1. Field Engineer will redline the current drawing stored at the station using only visible features
    a. A legacy document may be the only record available at this time
2. M&R representative will provide guidance for the redlined document and will also conduct a review of the redlined document
3. Campos Engineer will review the redlined document and provide comments and updates if needed
4. Once all individuals agree that the finalized redlined document is accurate the Field Engineer and Campos Engineer will sign and date the redlined document
5. Redlined document will be stored on-site at the regulator station
6. The Field Engineer will scan the document and send to Richard Salvarezza and Bryan Meccariello who will update the tracker for Phases B and C
7. The Field Engineer will update WMSdocs and establish the GIS Connected Link if necessary.
8. Campos Engineer will update the tracker for Phase D and store any gathered information in Microsoft Teams

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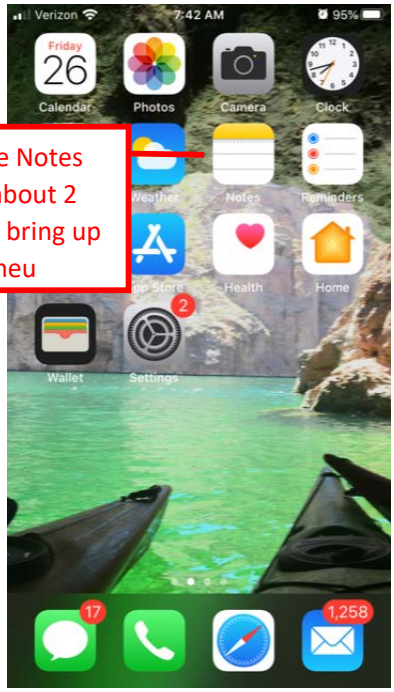
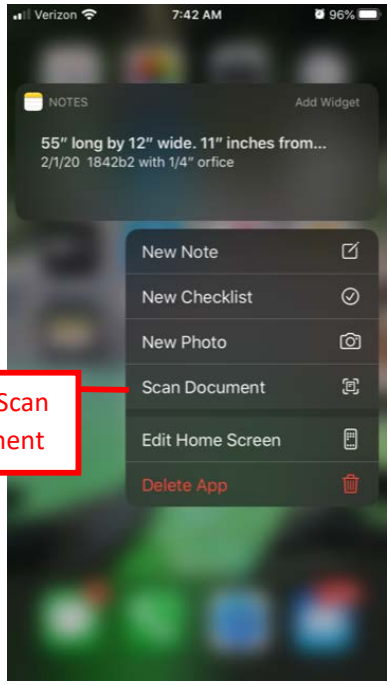
Scan Document

1.)



Touch the Notes app for about 2 seconds to bring up the meu

2.)

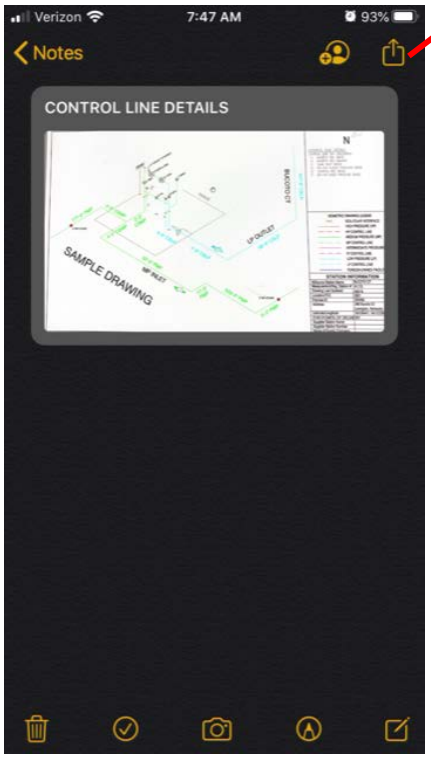


Select Scan Document

3.) Scan the Document

4.) Once Scanned, Click on Save

5.)



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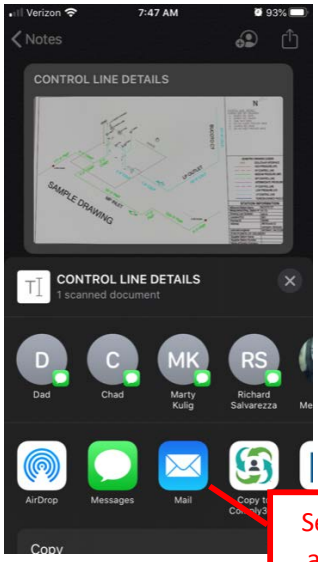

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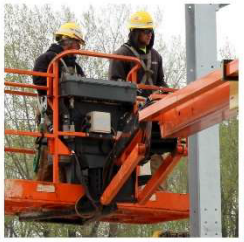
2020 [redacted] Outage Response Tabletop

Compliance, Pipeline Safety



NiSource

Columbia Gas of Massachusetts

A NiSource Company

REDACTED

Overview of [redacted] Area

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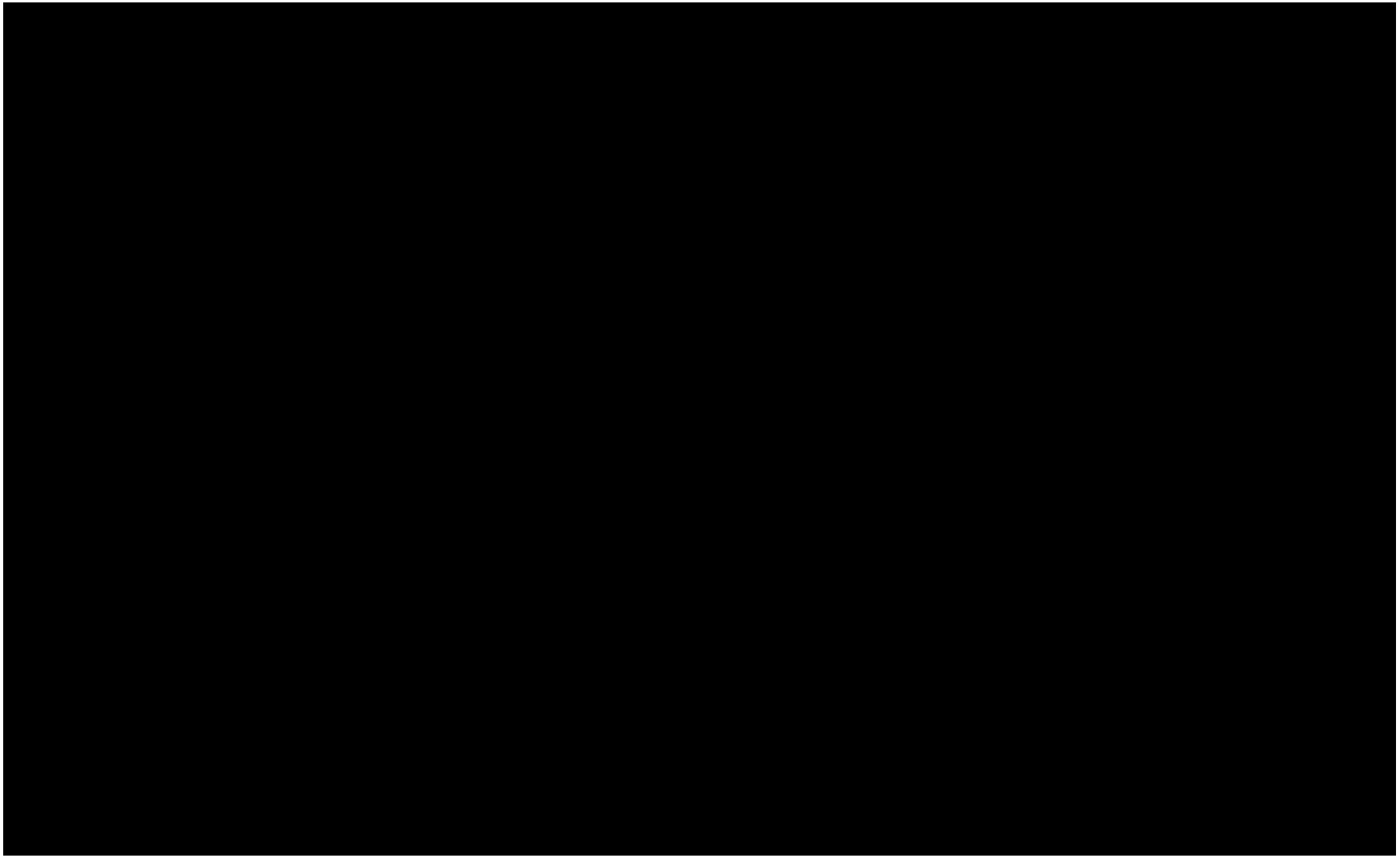
Tabletop Objective



REDACTED

Exercise Instructions

- [redacted]

REDACTED

Weather

REDACTED

Scenario

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

REDACTED

Report of [redacted]

[redacted]

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Report of [redacted]

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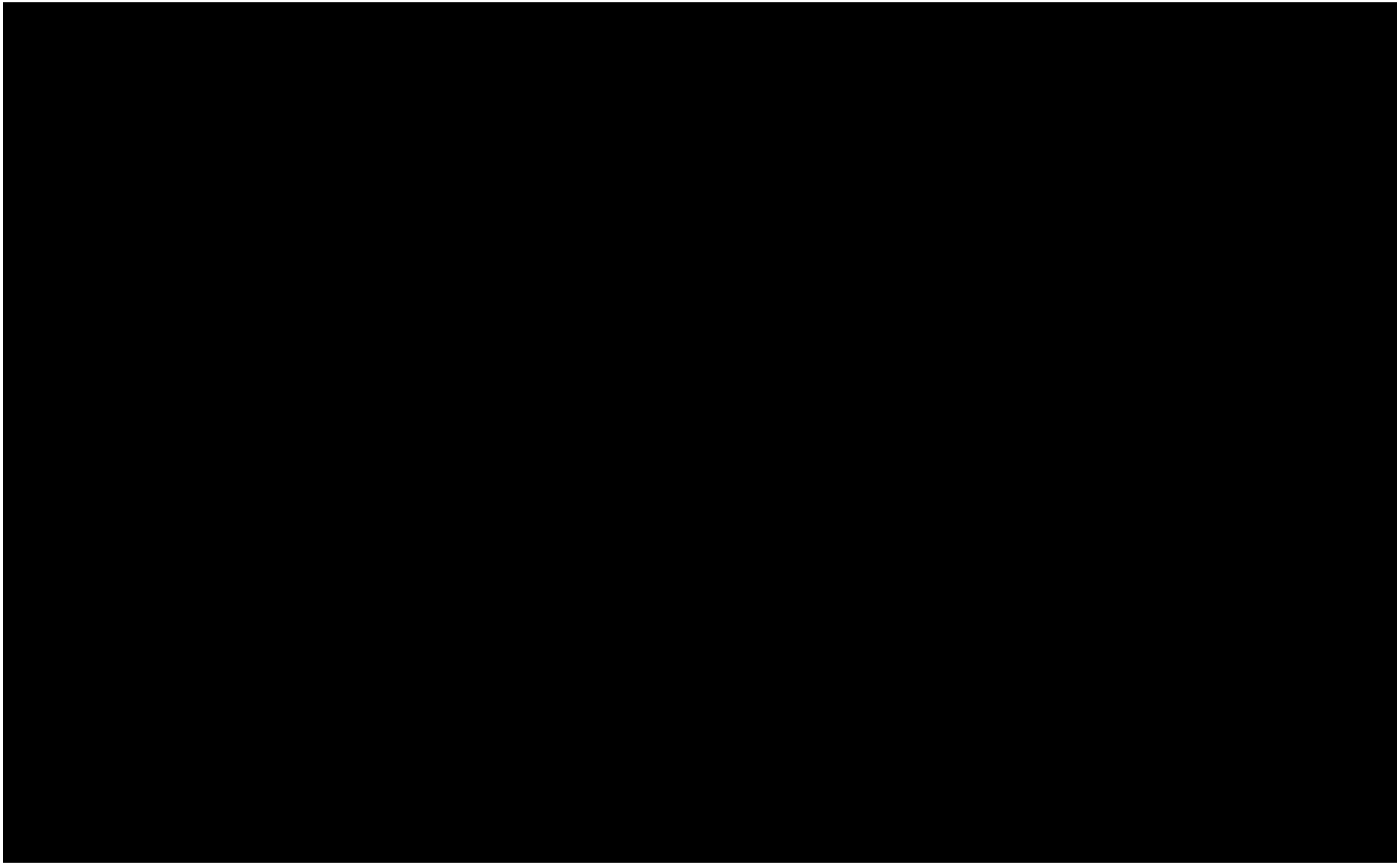
Incident Overview of Area



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Module 1: [redacted]

[redacted]

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Module 1: [redacted]

- [redacted]

REDACTED

Module 2: [redacted]

[redacted]

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EPRP Incident Level Matrix

Incident Type	Incident Definition	Scenarios (Including but not limited to)	Personnel Guidelines / Characteristics
5	**Routine Incident** - Dispatch First Responder to determine the severity of the incident and if additional resources are required.	**Any Incident requiring a First Responder** • Potential gas at foundation • Odor of gas • Checking for carbon monoxide • Structure fire reported • Reported flooding • Potential overpressure / no pressure • <10 customers	First Responder (Incident Commander) determines if additional resources are needed.
4	**Elevated Incident** – Potential incident that requires more than a routine response – no injuries or fatalities or accidental ignitions.	**Any heightened incident from level 5 requiring more attention/resources** • Dig-In main and/or service • Large evacuation (educational, commercial, medical facility, etc.) • Gas at foundation • Flood • Incidents related to severe weather • Over pressure/No pressure • Odor over a large area • Gas blowing inside structure • Major road closure due to gas related emergency • No odorant and/or over odorization • Vehicular damage to gas facility • Between 10 and 49 customers	A First Responder, Field Leader, and if appropriate a Leak Inspector and Crew will be dispatched. The Fire Department and Police Department will be contacted as appropriate. The need for additional resources will be determined by the Incident Commander.
3	**Serious Incident** - Requires more than an Elevated Operations response. May involve a gas related fire or explosion or a dig-in with a major loss of service. Incident is DOT and State Reportable.	**Any heightened incident from level 4 requiring more attention/resources** • Explosion • Reported as Gas Related Fire • Major structure fire • Gas in consecutive manholes • Incidents related to severe weather • Dig In main and / or service – Major Outage • Between 50 and 499 customers	For all Level 3 Incidents a First Responder, Crew, Field Leader, Locator and as appropriate a Leakage Inspector will be dispatched. We will notify the Fire Department, Police Departments and the Electric Company as appropriate. Legal will be contacted as necessary for possible use of a Cause and Origin Expert. The need for additional resources will be determined by the Incident Commander.
2	**Severe Incident** - Gas related Incident that has a fatality or injury, major dig-in with transmission impact with severe distribution interruptions, DOT and or State reportable gas related property damage or a major distribution interruption. Incident may trigger the Corporate Crisis Management Plan.	**Any heightened incident from level 3 requiring more attention/resources** • Loss of a regulator station • Loss of Gas Supply • Gas related Incident that has a fatality or injury • Between 500 and 999 customers	A Level 2 Incident will include all of the elements of a Level 3 response and may require additional out-of-state or corporate resources to support the response. The need for additional resources will be determined by the Incident Commander.
1	**Catastrophic Incident** - If not handled in an appropriate manner, may cause liability or dramatically impact NiSource's reputation and/or assets. Corporate Crisis Management Plan activated.	**Any heightened incident from level 2 requiring more attention/resources** • Loss of a major gas facility / supplemental asset • Loss of critical gas infrastructure • >1000 customers	A Level 1 Incident includes all the elements of a Level 2 response and the activation of the Corporate Crisis Management Plan.

REDACTED

Module 2: [redacted]

[redacted]

REDACTED

Module 3: [redacted]

[redacted]

REDACTED

Module 3: [redacted]

- [redacted]
- [redacted]
- [redacted]

REDACTED

Module 3: [redacted]

[redacted]

REDACTED

Module 4: [redacted]

- [redacted]

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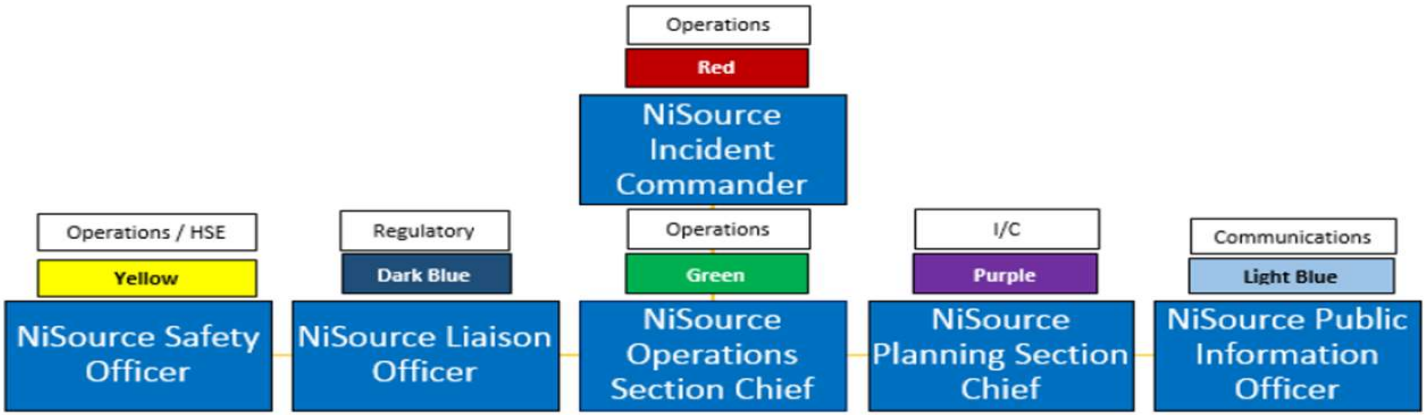
Incident Command – Define your Role and Responsibility



Incident Commander: Accountable for overall incident management.

Safety Officer: Operational Safety, health and safety of all personnel at the scene.

Liaison Officer: Point of contact for other governmental, non-governmental and or private entities.

Operations Section Chief: Managing all tactical operations with the incident action plan

Planning Section Chief: Collection, evaluation and dissemination of the incident information. Establish Work order, resources, establish periodic incident meetings, internal reporting

Public Information Officer: Communicating incident related information to public, media and or other agencies.

REDACTED

Timeline

- [redacted]

REDACTED

What Sections of Your Emergency Manual Did you use?

- [redacted]
- [redacted]

KEEGAN WERLIN LLP

ATTORNEYS AT LAW
99 High Street Suite 2900
Boston, Massachusetts 02110-3113

(617) 951-1400

TELECOPIERS:
(617) 951-1354

January 17, 2020

Mark D. Marini, Secretary
Department of Public Utilities
One South Station, 5th Floor
Boston, MA 02110

Re: Bay State Gas Company d/b/a Columbia Gas of Massachusetts, D.P.U. 19-141

Dear Mr. Marini:

Enclosed for filing in the above-captioned matter on behalf of Bay State Gas Company d/b/a Columbia Gas of Massachusetts (the "Company") is the Company's September 27, 2019 Final Event Report pertaining to the gas leak event that occurred on September 27, 2019 in Lawrence, Massachusetts. The Final Event Report details the Company's response to the event through the completion of valve inspections on September 30, 2019. Lastly, enclosed is the Company's Motion for Confidential Treatment for certain Appendices and the Addendum submitted with the Company's Final Event Report.

Thank you for your attention to this matter.

Sincerely,

Cheryl M. Kimball, Esq.

Enclosures

cc: Lauren Morris, Esq. – Hearing Officer
Service List – D.P.U. 19-141

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

Bay State Gas Company d/b/a Columbia Gas of Massachusetts	)	D.P.U. 19-141

MOTION OF COLUMBIA GAS OF MASSACHUSETTS FOR PROTECTIVE TREATMENT OF CONFIDENTIAL INFORMATION

I. INTRODUCTION

Bay State Gas Company d/b/a Columbia Gas of Massachusetts ("CMA" or the "Company") hereby requests the Department of Public Utilities (the "Department") grant protection from public disclosure of certain confidential, competitively sensitive and proprietary information submitted in this proceeding in accordance with G.L. c. 25, § 5D and 220 C.M.R. § 1.04(5)(e). Specifically, the Company requests that the Department protect from public disclosure confidential customer and employee data and contact information contained in the following Appendices to the Company's September 27, 2019 Final Event Report: Appendices 1, 3, 4, 8, 9, and 10[1] CONFIDENTIAL (together the Confidential Appendices), as well as the Addendum containing Figures 1 through 3. As discussed below, public disclosure of the Confidential Appendices would reveal proprietary, confidential employee and vendor contact information, which could expose the Company's vendors and employees to harassment and abuse. Further, the Addendum, Figures 1 through 3, contains critical energy infrastructure information ("CEII") including the exact locations of critical valves on the Company's system, which must be protected from public disclosure. Any such disclosure of the Confidential

[1] Appendix 10 is a compilation of e-mail correspondence between the Company and state and local officials relating to the Company's response to the September 27, 2019 Event. The Company is in the process of compiling and redacting this Appendix and will provide it to the Department as soon as is practicable.

Appendices and the Addendum could harm the competitive business position of the Company, its customers, impact the safety and security of the Company's system, and would reveal certain CEII materials that are protected by statute.

The Company has provided the Confidential Appendices to the Hearing Officer in this proceeding in a USB Drive marked "Confidential" and is providing redacted versions of the Confidential Appendices for the public record. Further, the Company has provided the Addendum to the Hearing Officer in a separate envelope marked "CONTAINS CEII – DO NOT RELEASE" and is providing a redacted version of the public record.

II. STANDARD OF REVIEW

The Department is authorized to protect from public disclosure "trade secrets, confidential, competitively sensitive or other proprietary information provided in the course of proceedings." G.L. c. 25, § 5D. In interpreting this statute, the Department has held that G.L. c. 25, § 5D, "places the burden of proof on companies requesting confidential treatment." The Berkshire Gas Company et al., D.P.U. 93-187/188/189/190, at 20 (1994).

Accordingly, a party seeking to protect information from public disclosure must demonstrate that: (1) the information for which protection is sought constitutes trade secrets, confidential, competitively sensitive or other proprietary information; and (2) there is a need to ensure nondisclosure of the information. The Berkshire Gas Company et al., D.T.E. 01-41, at 17 (2001); Western Massachusetts Electric Company, D.T.E. 99-56, at 4 (1999). In assessing the need for nondisclosure, the Department will consider the interests at stake, the likely harm that would result from public disclosure of information, and the public policy implications of such disclosure. See, e.g., D.P.U. 93-187/188/189/190, at 20-23; Boston Gas Company, D.P.U. 92-259, at 106 (1993), Essex County Gas Company, D.P.U. 96-105, at 2-3 (1996). Where a party proves such a need, the Department will protect only so much of the information

as is necessary to meet the need for nondisclosure and may limit the length of time that such protection is in effect. D.T.E. 01-41, at 17-18; D.T.E. 99-56, at 4; D.P.U. 93-187/188/189/190, at 20.

Further, G.L. c. 4, § 7, cl. 26(n) exempts CEII from the public records law and thus public disclosure requirements as follows:

> (n) records, including, but not limited to, blueprints, plans, policies, procedures and schematic drawings, which relate to internal layout and structural elements, security measures, emergency preparedness, threat or vulnerability assessments, or any other records relating to the security or safety of persons or buildings, structures, facilities, utilities, transportation or other infrastructure located within the commonwealth, the disclosure of which, in the reasonable judgment of the record custodian, subject to review by the supervisor of public records under subsection (b) of section 10 of chapter 66, is likely to jeopardize public safety.

G.L. c. 4, § 7, cl. 26(n).

III. ARGUMENT

A. The Confidential Appendices 1, 3, 4, 8, 9, and 10 Contain Confidential Employee Information and Should be Protected from Public Disclosure.

The Confidential Appendices contain confidential employee identification information, including names, phone numbers, employee user identification numbers, and e-mail addresses, as well as the names and contact information of the Company's media contacts. All of this information is protected as confidential and maintained by the Company as proprietary information. To the extent an individual is not an officer of the Company, this information is not publicly available and should be treated as confidential for reasons of privacy. Pursuant to G.L. c. 4, § 7(26)(c), materials or data "relating to a specifically named individual, the disclosure of which may constitute an unwarranted invasion of personal privacy" are not public records subject to disclosure.

The Department has previously considered the privacy implications of releasing personally identifying employee information (salary and employee names) to the public and

accorded confidential treatment to such information. Aquarion Water Company of Massachusetts, Inc., D.P.U. 11-43, Hearing Officer Ruling on Motion for Confidential Treatment at 5-6 (Nov. 9, 2011) (privacy concerns with releasing identifying non-officer employee information justified confidential treatment).

Moreover, there is no compelling public policy that would mandate the disclosure of employee information. Rather, it is sound public policy to ensure the privacy and security of individuals working for the Company or customers taking service from the Company. For these reasons, personal information regarding customers, employees or contractors should be protected from public disclosure indefinitely. See also G.L. c. 93H & 201 C.M.R. §§ 17.00 *et seq*. (protecting against disclosure of "personal information"). This provides an exception from the general statutory mandate in G.L. c. 66, § 10 that all documents and data received by an agency of the Commonwealth are to be viewable public records.

B. The Addendum Contains CEII Materials and Should be Protected from Public Disclosure.

The Department has plain and unambiguous statutory authority to keep CEII information contained in the Addendum as confidential pursuant to G.L. c. 4, § 7, clause 26(n). The Legislature, which enacted Clause 26(n) in 2002 in response to the events of September 11, 2001, clearly expressed a desire to protect public safety by exempting materials related to a utility's critical infrastructure from the general presumption that certain information is a public record. The Department has noted that its authority to keep materials exempt under G.L. c. 4, § 7, clause 26(n) is "separate and apart" from (and, by implication, broader than) its more narrowly construed authority under G.L. c. 25, § 5D. D.T.E. and Siting Board Rulemaking, D.T.E. 98-84, at 23 (2003) (declining to rule with particularity in the context of a rulemaking regarding the protection of critical energy infrastructure).

The Company recognizes that the Department must balance two competing interests of the public in making its determination whether to keep particular information such as the CEII contained in the Addendum as confidential pursuant to G.L. c. 4, § 7, clause 26(n). The Department must weigh the public's interest in transparency and information and the public's interest in safety, security and the safe and reliable provision of gas service. However, by inserting clause 26(n) as a specific exemption to the general presumption of disclosure, the Legislature has statutorily communicated its belief that the interest in safety, security and the safe and reliable provision of gas service should outweigh the public's interest in transparency and information where disclosure jeopardizes public safety. The Department has performed this balancing in the past and protected information pursuant to G.L. c. 4, § 7, clause 26(n). Verizon New England, Inc. d/b/a Verizon Massachusetts, D.T.E. 02-8, at 11-12 (2005) (granting Verizon's motion to restrict public disclosure of results of internal security reviews).

Based on the language of G.L. c. 4, § 7, cl. 26(n), the Company classifies Figures 1 through 3 contained in the Addendum as CEII, as it contains the exact locations of critical and non-critical valves in the Company's Lawrence service area, the disclosure of which would show potential bad actors the specific streets and locations in the Company's service territory where critical valves are located, and hereby seeks to protect this document from public dissemination. In D.P.U. 19-GSEP-05, the Department approved a similar request for protective treatment of CEII information. See D.P.U. 19-GSEP-05, Bay State Gas Company d/b/a Columbia Gas of Massachusetts (September 6, 2019 Hearing Officer Ruling on Critical Energy Infrastructure Information) (protecting as CEII maps and diagrams of mains and services). Based on this precedent, and the Department's statutory authority, the Company respectfully requests that that Department afford protective treatment for the Addendum as CEII.

IV. CONCLUSION

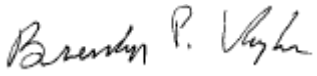
The Department has consistently held that employee contact information is confidential and should be protected from public disclosure, and that critical valve information is classified as CEII and exempted from public disclosure. For the reasons outlined above, the Company respectfully requests that employee and customer names and contact information and the CEII materials contained in the Confidential Appendices and Addendum be maintained as confidential. Lastly, given that the information contained in the Confidential Appendices and Addendum is unlikely to change at any time, the Company respectfully requests the Confidential Appendices and Addendum be protected from disclosure for an indefinite period of time.

WHEREFORE, the Company respectfully requests that the Department grant its motion for protective treatment of confidential information.

Respectfully submitted by,

Bay State Gas Company d/b/a
Columbia Gas of Massachusetts

By its attorneys,



Brendan P. Vaughan, Esq.
Keegan Werlin LLP
99 High Street, Suite 2900
Boston, Massachusetts 02110
(617) 951-1400

Dated: January 17, 2020

BAY STATE GAS COMPANY
d/b/a COLUMBIA GAS OF MASSACHUSETTS

D.P.U. 19-141

September 27, 2019 Event

Final Event Report

January 17, 2020

Submitted to:

Massachusetts Department of Public Utilities

Submitted by:

Columbia Gas of Massachusetts
A NiSource Company

COLUMBIA GAS OF MASSACHUSETTS EVENT REPORT

Addendum: Figures 1-3

I. INTRODUCTION AND EXECUTIVE SUMMARY

NiSource Inc. (NiSource) is a public utility holding company whose utility subsidiaries serve approximately 3.5 million natural gas customers and 500,000 electric customers across seven states. NiSource's natural gas utilities provide natural gas to residential, commercial, and industrial customers in Indiana, Kentucky, Maryland, Massachusetts, Ohio, Pennsylvania, and Virginia. Columbia Gas of Massachusetts (CMA or the Company) is a subsidiary of NiSource. CMA is a supplier of natural gas to over 320,000 customers in parts of Massachusetts, including the cities of Springfield, Brockton, and Lawrence, and the surrounding areas.

In the early morning of Friday, September 27, 2019, while conducting a check of water valves, contractors working for the City of Lawrence inadvertently closed a legacy gas valve that was connected to an abandoned gas main. The abandoned gas main had within it an inserted, active gas main. The turning of the legacy valve sheared the active inserted main (the Incident). The location of the valve in question is circled in Figure 1 of the Addendum.[1] Because the City of Lawrence did not plan any excavation as part of this work, it did not need to call Dig Safe, and therefore CMA had not been made aware of the water valve work that was being performed overnight by the City.

CMA received a call from the Lawrence Fire Department at 3:08 a.m. that morning indicating odor of gas at a manhole near Salem Street at South Broadway in Lawrence. CMA responded immediately, confirmed that gas was detectable in the free air, and began to identify the source of the leak. Onsite responders from CMA communicated with Engineering, informing Engineering of the need to isolate the area by identifying the appropriate valves to shut down the leak. By 4:14 a.m., Engineering identified two distribution valves and one critical valve necessary to isolate the area and shut off the gas to the approximately 150 affected homes and businesses. A CMA crew then went to each location to close the valves and shut down the flow of gas to the impacted area. CMA shut off the gas by 5:08 a.m. At the direction of the Lawrence Fire Department, and in consultation with CMA, electricity was also shut off by National Grid to the affected area.[2] As a safety precaution, all affected residences and businesses were evacuated by the Lawrence Fire Department. CMA crews then went door-to-door with emergency responders to check for the presence of gas in all homes and businesses in the affected area. The evacuated area is shown in yellow highlighting on the map located at Figure 2 of the Addendum, which was created during the course of the event and available to first responders.

Once CMA shut down the flow of gas to the area, field personnel were able to begin work to determine the precise location of the leak. To determine the location of the leak, CMA crews focused on the area where the highest concentration of gas was present in the air. The crews also used visual cues, such as sunken pavement that could indicate possible damage to the pipe, to guide their investigation into the potential source of the leak. By 8:48 a.m., the CMA crews had identified the area of pipe where the shear occurred. After identifying the shear, CMA received information from the City of Lawrence that their contractors had been operating water

[1] The maps contained in the Addendum reference Critical Energy Infrastructure Information and, for that reason, have not been excerpted in this report.
[2] "Affected area" is defined as all buildings adjacent to the natural gas main that was isolated and taken out of service, regardless of whether they were a gas customer.

valves in that location overnight. At approximately 11:30 a.m., CMA crews confirmed that the damage to the pipe was caused by the turning of the legacy gas valve. By 3:18 p.m. on September 27, CMA crews had repaired the damaged main.

CMA conducted its restoration and relight work in phases, first working to relight those customers not served from impacted system, but whose gas had been shut off as a precaution. Then, once the impacted system was put back in service, CMA worked to relight those whose houses or businesses were tied in to the impacted system itself. Most residents in the affected area were advised that they could return home by 1:00 p.m. on September 28. The impacted gas system was put back into service at 3:00 p.m. on September 28. After CMA restored gas service to the gas system impacted by the leak, CMA technicians went door-to-door to restore service to customers and relight natural gas appliances. The majority of customers had service restored and were relit by 7:00 p.m. on September 28, CMA restored gas service to nearly all remaining customers by 10:00 p.m. on Saturday, September 28, 2019, and restored service to all remaining customers by October 2, 2019.

The gas valve that was operated by the City of Lawrence contractor was located on an abandoned gas main that was taken out of service as part of CMA's restoration work in the fall of 2018. The Mayor of Lawrence indicated during a press conference on September 28, 2019, that the City's Geographic Information System (GIS) incorrectly identified the gas valve in question as a water valve. The valve was listed on CMA's GIS and, as CMA acknowledged in the joint statement on September 27, 2019, CMA should have rendered the valve inoperable as part of the pipeline restoration work in 2018. When the City of Lawrence contractor operated the valve on September 27, 2019, it damaged an active plastic gas main that had been inserted into the abandoned cast iron main as part of the fall 2018 restoration work.

Once CMA learned that the damage was caused by the operation of a legacy valve on an inserted main, CMA reviewed its records to determine whether similar conditions existed elsewhere. The review entailed identifying all valves on the abandoned pipeline into which new main was inserted during its 2018 pipeline restoration work. In addition, to ensure its records were accurate, on September 28 and 29, CMA then conducted a walking verification of the entire eight miles of inserted pipe in all three communities (Lawrence, Andover and North Andover). This review and walking verification of the eight miles identified three legacy valves (including the valve operated during the Incident) on inserted main that should have been abandoned during the 2018 restoration work. CMA physically inspected these valves and all others that were visible and performed any necessary remedial work. The Massachusetts Department of Public Utilities (DPU) instructed all municipalities in the Merrimack Valley to suspend all construction and maintenance projects in the affected area until the DPU determined that the valves were safe. The valve inspections and necessary remediations were fully completed on September 30, 2019, and municipal work was permitted to resume on September 30.

This Event Report details CMA's response to the Incident and subsequent recovery efforts through the restoration of service on October 2, 2019.

II. EMERGENCY RESPONSE PLANS AND TRAINING

Through extensive planning and training, CMA constantly endeavors to "ensure that [it] is adequately and sufficiently prepared to restore service to its customers in a safe and reasonably prompt manner during an Emergency Event," in accordance with DPU regulations at 220 C.M.R. §19.03(2). Protecting people and property is paramount. To achieve these goals, CMA adheres to its Emergency Response Plan, which is filed annually with the DPU. The Emergency Response Plan provides CMA personnel with the overarching guidance and structure needed to respond to gas pipeline emergencies safely and expeditiously while seeking to minimize any effect on the community.

The Emergency Response Plan that was in place as of September 2019 was filed with the DPU in May 2019 (2019 ERP). The 2019 ERP was revised from the 2018 Emergency Response Plan based on what CMA learned as a result of recent events. Specifically, the updated plan strengthens the organizational formation and communication protocols for emergency response to enable the safe, efficient, and reasonably expeditious restoration of gas service, accompanied by effective and timely communication of information with customers and stakeholders. CMA also continues to evaluate new and changed processes or resources to create structural improvements to the Company's emergency response and management processes. CMA is focused on improving the effectiveness of emergency preparedness and response by learning from past events, best practices throughout the industry and expanding incident scenarios beyond historic levels in scope, complexity, duration of customer impact, and restoration/recovery resources and efforts.

The 2019 ERP incorporated and relied on two principal documents to govern CMA's response in emergencies: The Operations and Maintenance (O&M) Manual and the Emergency Manual.

A. O&M Manual

The O&M Manual is a compendium of "Gas Standards" that govern actions by operations and maintenance personnel in myriad circumstances, including normal, abnormal, or emergency situations. The O&M Manual includes an Emergency Plan addressing overpressurization, fire, explosion, and notifications.

B. Emergency Manual

The Emergency Manual contains processes necessary for the successful management and closure of an emergency/incident. These processes are Preparation, Management, Reporting and Review. More specifically, the Emergency Manual contains:

- Guidelines to ensure that company personnel are prepared to respond to gas pipeline emergencies.
- Tabs to quickly identify specific types of incidents.
- Forms and guidelines for the initial and post-reporting of an incident at the state and federal regulatory levels.

- Guidelines to follow when determining the level of incident review that is necessary and the process steps within each level of review.
- Contact information specific to the person and area with which the manual resides.
- A glossary and references to relevant Gas Standards.
- A listing of sections and forms and their most recent revision date.

C. Emergency Response Plan

The primary functions of the 2019 ERP are to: (a) establish the organizational structure of emergency management positions responsible for operations during an incident; (b) structure the deployment of internal, external, and mutual assistance crews to work areas and guide the acquisition of external resources; (c) ensure adequate and appropriate logistical support, including procurement of sufficient supplies and equipment; (d) set forth a process for communicating timely and accurate information to customers, municipal and state officials, employees, and other stakeholders; and (e) provide for measures to assure the safety of the public, customers, employees and contractors during an incident.

The Emergency Response Plan defined five Emergency Event Levels:

- Level 5: Fewer than 10 customer outages; expected duration of less than 8 hours.
- Level 4: 10 to 49 customer outages; expected duration of 8 to 24 hours.
- Level 3: 50 to 499 customer outages; expected duration of 24 to 36 hours.
- Level 2: 500 to 999 customer outages; expected duration of 36 to 72 hours.
- Level 1: 1,000 and greater customer outages; expected duration of 72 hours or greater.

Based on early estimates of the number of customers who were out of service and the estimated duration of how long the service outage was expected to last, the Incident Commander determined the Incident to be a Level 3 Emergency Event during the early morning hours of September 27.[3] Emergencies classified as Levels 3, 4 or 5 do not result in the activation of the Emergency Response Plan but instead are governed by CMA's O&M Manual and the Emergency Manual where applicable. However, parts of the Emergency Response Plan may be utilized by CMA to assist in responding to an event of any level. Here, CMA utilized the Incident Command Structure to respond to the Incident, despite the fact that the Emergency Response Plan was not formally triggered by the level of the event.

The Emergency Response Plan empowered the CMA first responder to perform an initial emergency assessment once on site. If the CMA first responder determines the emergency is more severe than a routine event, then the assessment is reported to the Integration Center (IC)[4] and the first responder's leader. The IC contacts the Operations Center Manager (OCM) or designee with details of the assessment and the OCM designates the CMA Incident Commander.

[3] The Incident was determined to be a "Grade 1 Leak" – which is defined by state law as "a leak that represents an existing or probable hazard to persons or property." M.G.L. ch. 164, sec. 144.
[4] The Integration Center is the centralized work and resource management organization that works with CMA field operations to provide safe and reliable service to customers.

Until such time as the designated Incident Commander arrives on site, the CMA first responder or his/her on-site leader is the Incident Commander.

D. Emergency Response Training

As required by the Emergency Response Plan, the Company provided emergency response training to its personnel, which included training on the Emergency Response Plan's requirements. CMA had a variety of training programs in which employees of the Lawrence Operations Center participated. Emergency preparedness activities include, but are not limited to, planning, training, participating in exercises, working with external stakeholders and public safety officials, and maintaining updated emergency event personnel rosters. Training and drills are designed and conducted to develop and improve the knowledge and skills of Company personnel assigned to emergency response activities and to support the safe and reasonably prompt completion of all required actions during emergency events. Training and drills serve to identify opportunities for improvement in emergency preparedness, including staffing, planning, training, and equipment/resources.

CMA performs two annual mock emergency drills across the Company's three operating divisions, Springfield, Brockton, and Lawrence. These mock emergency drills are performed in the field with no advance notice to the participants and the dates are kept confidential. The results of each field drill are documented and a written after action review is prepared. The after action review includes recommendations for improving the effectiveness of the emergency response, which are tracked by the Compliance department.

CMA also performs annual table-top (or classroom) exercises in which operations, construction and engineering leaders are assigned a role in an incident, which is facilitated and managed by conversation. Participants review the Emergency Manual during tabletop exercises. Local fire departments and other stakeholders may be invited to participate, and all steps are documented, and the outcome critiqued.

CMA also conducts trainings tailored for potential Incident Command team members to familiarize them with the content of the Emergency Response Plan, the Incident Command Structure and their role in it. Drills and exercises will be utilized on an ongoing basis to develop and operationalize Incident Command skills and provide for continuous improvement by critiquing performance during the drills. In addition, CMA uses the Incident Command Structure for planned events in order to provide a continuous learning opportunity of structure, reporting lines, roles and responsibilities, etc. CMA conducted such a training as recently as the day before the Incident, on September 26, 2019. In the tabletop exercise, potential Incident Command team members responded to mock scenarios, including dig-in calls, explosions, and structure fires, based on the role they would likely be assigned during a real event. Incident Command team members walked through the various actions they should take at different steps of an emergency event.

CMA offers a formal natural gas emergency response training program for fire departments and police departments. In addition to the regular formal trainings, the Lawrence OCM, CMA's Director of Communications, and the Lawrence Senior Field Operations Leader (Senior FOL) meet monthly with area fire chiefs to review safety issues. On September 26,

2019, the day before the Incident, CMA's team and the fire chiefs held their monthly meeting. During the meeting, CMA and the fire chiefs reviewed a case study of an incident involving gas explosions in Indiana and discussed how to continue to improve coordination and communications between the fire departments and CMA.

III. CMA EMERGENCY RESPONSE

A. CMA Responds to an Odor of Gas Call and Stops the Flow of Gas to the Affected Area

Early on the morning of September 27, 2019, while conducting a check of water valves, contractors working for the City of Lawrence inadvertently closed a gas valve, shearing an active gas main. At 3:08 a.m., CMA's Customer Care Center in Springfield, Massachusetts received a phone call from the Lawrence Fire Department reporting an odor of gas in the street at South Broadway and Salem Streets in Lawrence. No additional detail regarding the severity of the situation was provided to CMA staff at that point. The Customer Care Center immediately notified the IC and at 3:12 am, the IC dispatched a service technician to the scene to respond to the report of an odor of gas in the area.

The CMA technician arrived on the scene at 3:29 a.m., joining members of the Lawrence Fire Department who were already onsite.[5] Upon arriving onsite, the technician quickly realized the severity of the Incident. The technician called the IC at 3:31 a.m., advising that there was blowing gas and that additional resources were needed immediately. The technician also called the CMA Field Operations Leader (FOL) at 3:33 a.m. The FOL then called the Senior FOL to inform him of the Incident. The OCM was informed at 3:49 a.m.

Beginning at 3:33 a.m., the IC issued a series of electronic "callouts" to summon designated on-call Distribution personnel. Given the severity of the Incident, off-shift emergency personnel were also dispatched to the site. The IC Team Leader and IC Manager were also advised of the Incident at 4:04 a.m. and 4:06 a.m., respectively.

CMA crews worked with members of the Lawrence Fire Department to establish a perimeter of affected homes in order to evacuate all residents within the perimeter. CMA and the Lawrence Fire Department used maps showing the general location of CMA's facilities which had been previously provided to the Lawrence Fire Department during a coordination meeting. To establish this perimeter, CMA crews were instructed to find the location at which they would no longer receive readings of gas being present, which is referred to as receiving "zero readings." From the point of zero readings the investigation was extended to a point where the gas readings were at zero percent for two consecutive sewer manholes in all directions – north, south, east, and west. While the perimeter was being established, all residents within the perimeter were evacuated by the Lawrence Fire Department. As of 4:30 a.m., 82 individuals had been evacuated. CMA crews then went door-to-door with emergency responders to check for the presence of gas in affected homes and businesses. The map at Figure 2 of the Addendum,

[5] When the technician arrived, he was not aware that the City of Lawrence had had contractors working overnight checking valves. CMA did not learn that City contractors had been doing work overnight until after the gas was shut off.

which was prepared during the Incident and used to inform first responders, depicts with yellow highlighting the area in which homes were evacuated.

Concurrent with the evacuation of nearby residents, CMA personnel worked to identify the source of the leak and to stop the flow of gas to the affected area. The Senior FOL was in continuous contact with the OCM, who had already been informed of the Incident. The Senior FOL contacted Engineering at 3:54 a.m. to identify which valves would need to be closed to stop the flow of gas to the affected area. Receiving real-time updates from CMA personnel in the field, at 4:14 a.m. Engineering identified three valves—one critical valve and two distribution valves—that could be used to isolate the area. A CMA crew then worked sequentially to locate, operate, and shut down the identified valves one-by-one. Given the presence of first responders and traffic, this crew worked on foot, walking between the valves, and worked with the Lawrence Fire Department to set up work zones in each location where they needed to operate the valve. By 5:08 a.m., CMA personnel operated those valves and stopped the flow of gas to the affected area.

The Lawrence Fire Department reported that, at its direction, National Grid shut off electricity in the neighborhood at approximately 4:28 a.m. The Lawrence Fire Department made this decision in coordination with CMA.

Once CMA shut down the flow of gas to the affected area, field personnel surveyed the area to determine the precise location of the damaged pipe. CMA pinpointed a potential location to dig based upon indicators such as an audible leak near the intersection of South Broadway and Salem and sunken pavement that could indicate possible damage to the pipe. The crew dug at this location and discovered a segment of polyethylene pipe inserted through legacy cast iron pipe. The polyethylene pipe segment was noted to be moving "freely" within the cast iron carrier pipe. The crew cut the segment of polyethylene pipe and removed it from the cast iron carrier pipe and determined the shear was near the location of a valve approximately 52 feet south of the first excavation. The crew then dug another hole at the valve and confirmed that the polyethylene pipe had been inserted through the valve, which had been operated causing damage to the inserted pipe.

The segment of damaged pipe described above was replaced and all repairs to the pipe above were completed by 3:18 p.m. on September 27. To ensure there were no remaining issues, and at the request of the DPU staff onsite, CMA then pressure-tested 4972 feet of pipe over the course of 5.5 hours on September 28. No issues were found in the course of the pressure test. From there, the focus turned to reinstating service to the gas main and purging any residual gas from the ground.

With the assistance of mutual aid crews, CMA began relighting affected customers during the morning of September 28. Most residents in the affected area were advised that they could return home by 1:00 p.m. on September 28, 2019. The impacted gas system was put back into service at 3:00 p.m. on September 28. Thereafter, CMA technicians went door-to-door to restore service to customers and relight natural gas appliances. The majority of customers had service restored and were relit by 7:00 p.m. on September 28, and CMA restored gas service to nearly all remaining customers by 10:00 p.m. on Saturday, September 28, 2019. On September

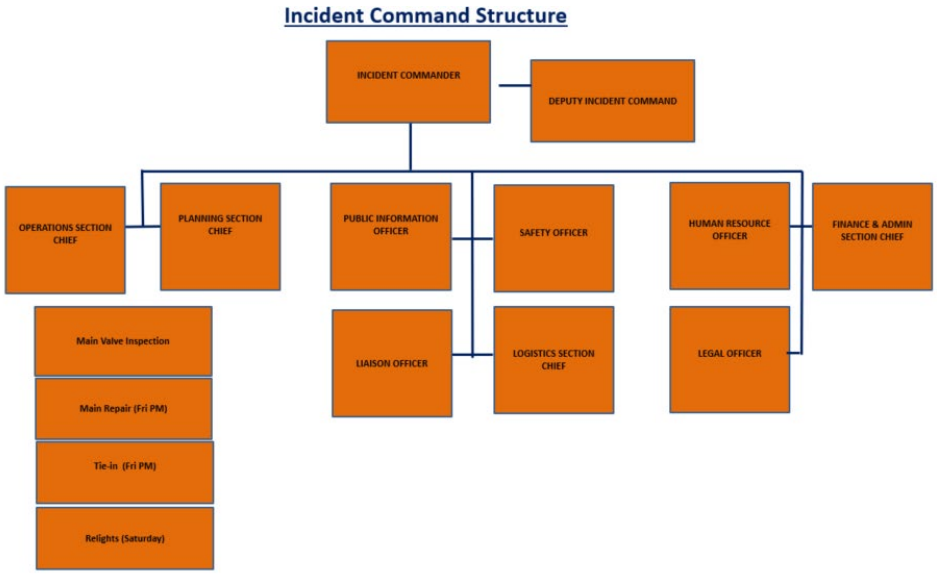
30, the Company declared that the Incident had ended, and CMA decommissioned the Incident Command Structure. By October 2, all customers had been restored.

Once CMA learned that the damage was caused by the operation of a legacy gas valve on an inserted main, CMA reviewed its records to determine whether similar conditions existed elsewhere. The review entailed identifying all valves on the abandoned pipeline into which new main was inserted during its 2018 pipeline restoration work. In addition, to confirm its records were accurate, on September 28 and 29, CMA completed a walking verification of the entire eight miles of inserted pipe in all three communities (Lawrence, Andover and North Andover). This review and walking verification of the eight miles identified three legacy valves (including the valve operated during the Incident) on inserted main that should have been abandoned during the 2018 restoration work. CMA physically inspected these valves and all others that were visible and performed any necessary remedial work. The DPU instructed all municipalities in the Merrimack Valley to suspend all construction and maintenance projects in the affected area until the DPU determined that the valves were safe. The valve inspections and necessary remediations were fully completed on September 30, 2019, and municipal work was permitted to resume on September 30.

B. Incident Command Structure

The service technician who first responded to the site performed an initial emergency assessment and reported the Incident to the IC and the service technician's leader (the FOL). When the FOL arrived, he took control of the situation and became Incident Commander until his superior, the Senior FOL, arrived, was informed of the situation, and assumed the role of Incident Commander. The Senior FOL immediately contacted and worked with his leader, the OCM, who had already been made aware of the Incident, while the OCM was en route to the Incident site. Upon the OCM's arrival at the site at approximately 4:30 a.m. on September 27, the OCM took over as Incident Commander and others assumed assigned roles within the Incident Command Structure. Consistent with its Emergency Response Plan and related training, CMA seamlessly transitioned Incident Command roles as more senior leadership arrived at the site.

CMA set up the following Incident Command Structure on September 27:



The Incident Command Structure was updated several times over the ensuing hours after the Incident, to reflect the individuals who were serving each role as the situation evolved.

C. Coordination with Lawrence Fire Department

After the September 2018 Merrimack Valley incident, and at the request of local fire departments, the OCM met with those departments and provided maps of the Lawrence service territory (Andover, North Andover, and Lawrence). The maps provided by CMA were utilized by the Lawrence Fire Department and first responders onsite during the response to the Incident on September 27. In addition, throughout the Incident, CMA's Incident Command Structure coordinated with the Lawrence Fire Department's incident command structure in a unified command which allowed for effective communication between the two responding entities. The Lawrence Fire Chief acted as the overall Incident Commander, responsible for all aspects of the overall emergency response, while CMA's Incident Commander, responsible for gas-related emergency response, kept in constant contact.

D. Mutual Aid

The OCM, in his role as Incident Commander, determined that mutual aid would be helpful to perform customer relights because of their labor-intensive nature. CMA anticipated customer relights would start on September 28, once the damaged main was repaired, purged, and pressure tested.[6] CMA submitted an initial request to Northeast Gas Association at 8:05 p.m. on September 27, seeking mutual aid from other companies. Specifically, the Company requested construction and maintenance crews and relight personnel, as well as supervisors. A subsequent request for locators was made at 11:34 p.m. that evening. Mutual aid crews responded to the request and on the morning of September 28, CMA conducted onboarding of

[6] This work was initially estimated to last 15-16 hours.

crews from several other utility companies and third party contractors. As part of this onboarding, CMA provided the mutual aid crews safety training. Those crews assisted CMA crews with restoring service.

E. Communications

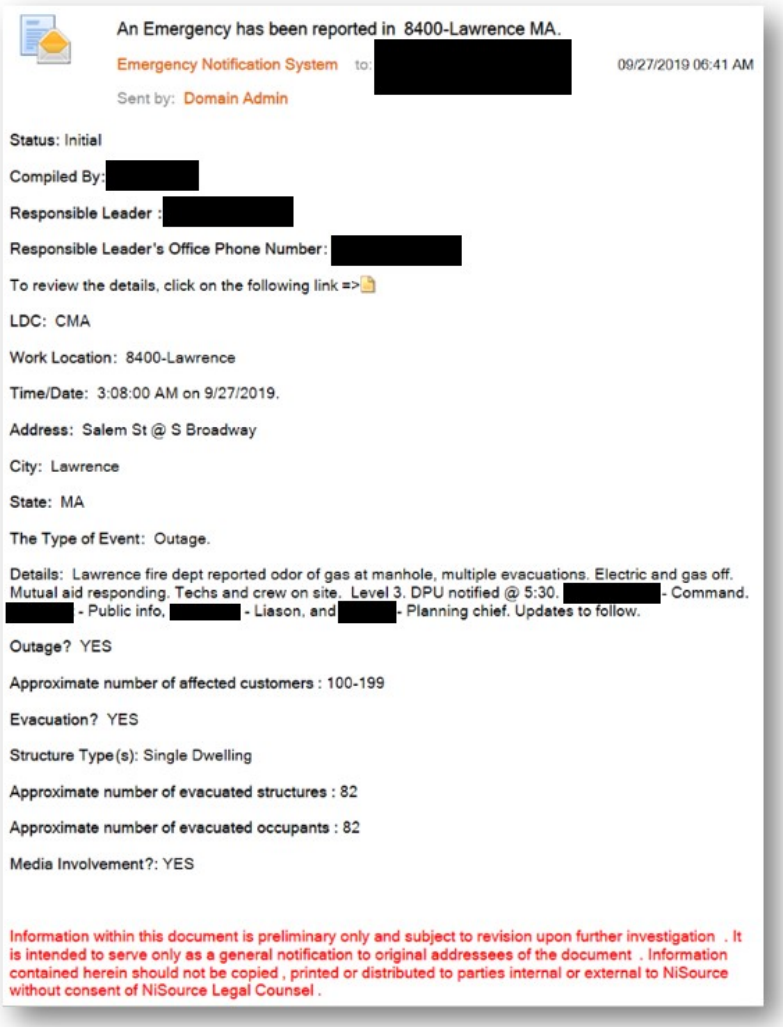
From the outset of the Incident, CMA established numerous channels for communicating internally, as well as externally with public officials, and with the general public, including CMA's customers.

Internal Communications

After the Company received the initial emergency inbound calls, the IC made a series of contacts throughout the Company to assign personnel to respond to the Incident. For example, the IC contacted a service technician, field operations leader, plant technicians, and the IC Team Leader and IC Manager. These contacts facilitated the distribution of information about the Incident, such as: the progress of shutting off gas to the affected area; the estimated number of affected customers; the identities of Incident Command Team personnel; the status of communications with regulators, other utilities, and customers; the status of field repair work; and the resources used and needed.

At approximately 7:00 a.m. on September 27, CMA established a command center at the intersection of Merrimack Street and Carver Street, near the location of the Incident. CMA liaisons stationed at the command center were in contact with field personnel to obtain information about the Incident. Information also flowed from the field to the Lawrence Operations Center and to those stationed at CMA's office at 220 Sutton Street in North Andover, including members of the Communications team. CMA demobilized its command center at midnight on September 28.

CMA has an internal notification system to communicate regarding emergencies, which is known as the Emergency Notification System (ENS). CMA used its ENS to distribute priority information to its personnel during the course of the event. First, CMS sent a "pre-ENS" message at 6:05 a.m. on September 27, notifying appropriate personnel of the type and location of the Incident, and providing preliminary details about it. Thereafter, starting at 6:41 a.m. on September 27, CMA used its ENS to distribute additional information to company employees, including an initial report of the odor of gas, the declaration of a Level 3 Emergency Event by the Incident Commander, the names and contact information of the key personnel working within the Incident Command Structure, and the shutoff of electricity and gas in the affected area. After the initial ENS report, several further ENS updates were issued, ending with a final update—reporting that the status of the Incident was closed—at 12:04 a.m. on September 29. A (redacted) screen shot of the initial ENS message is depicted in the graphic below.



An Emergency has been reported in 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/27/2019 06:41 AM

Sent by: Domain Admin

Status: Initial

Compiled By: [redacted]

Responsible Leader : [redacted]

Responsible Leader's Office Phone Number: [redacted]

To review the details, click on the following link =>

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The Type of Event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Approximate number of evacuated occupants : 82

Media Involvement?: YES

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Communications with Public Officials

After the Lawrence Fire Department reported an odor of gas to CMA's Customer Care Center, CMA was in regular contact with public officials throughout the duration of the Incident, including the Fire Department, DPU, the Executive Office of Energy and Environmental Affairs, the Governor's office, federal regulators, and state and local officials. At the time CMA personnel arrived on site Friday morning, first responders were already on the scene and many communications occurred in person.

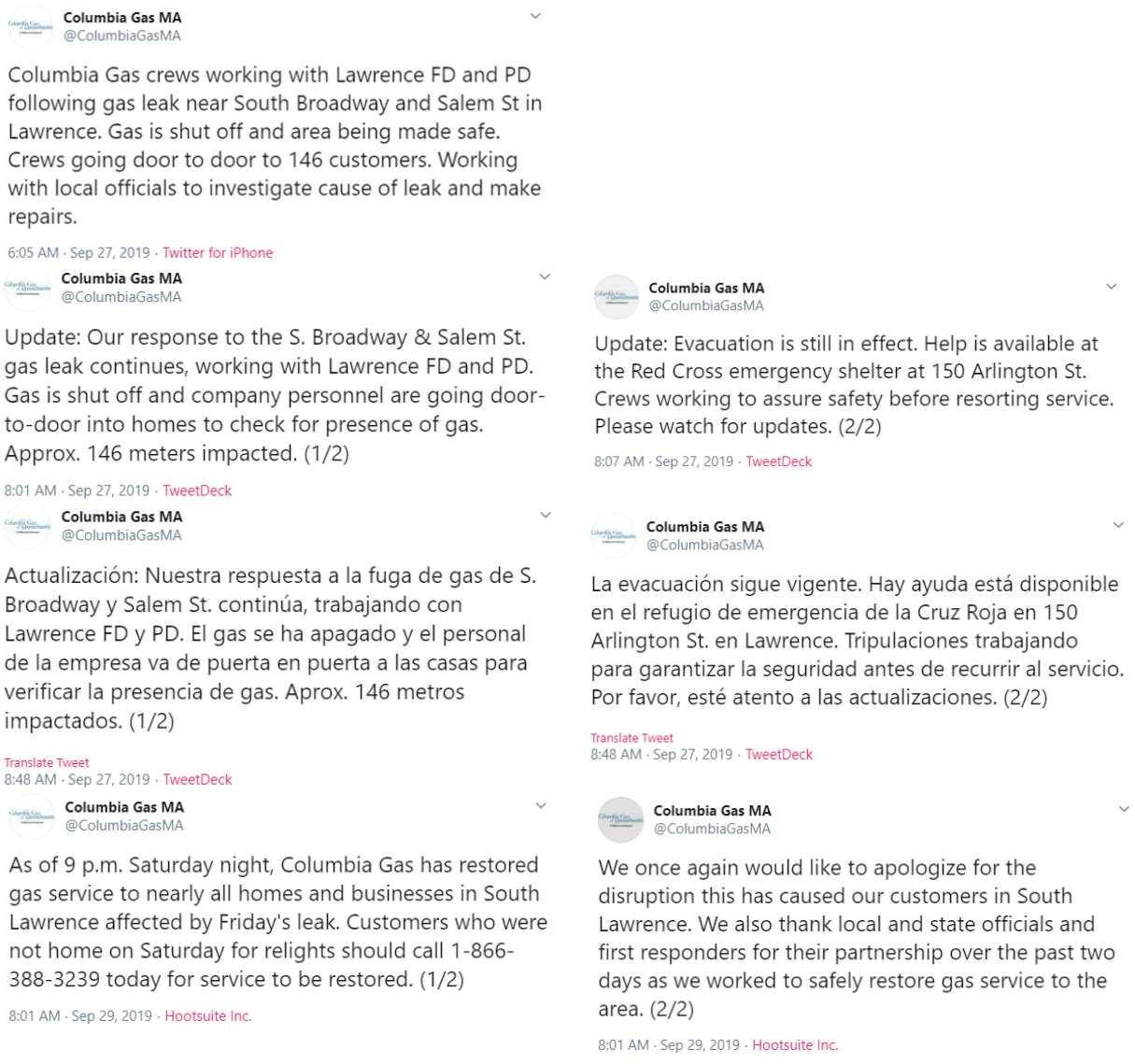
The Mayor of Lawrence and the President of CMA discussed the Incident via phone at 4:15 a.m. on September 27. CMA alerted the DPU at 4:44 a.m. and made the telephonic report to the DPU notification line at 5:30 a.m. The Company notified the Governor's office at 5:40 a.m. and the National Response Center (NRC) at 6:04 a.m.

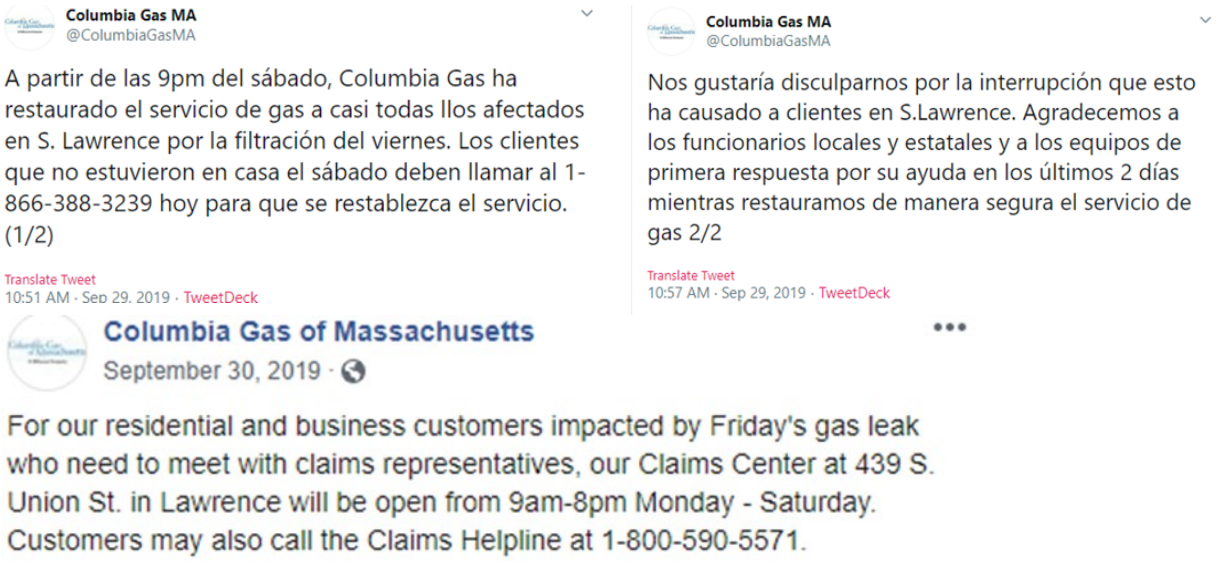
After providing these initial notifications, CMA continued to communicate with DPU and other public officials by email, phone and in person. The Company participated in several conference calls and, in conjunction with local officials and the DPU, organized and conducted

press conferences on September 27 at 7:00 a.m., 1:40 p.m. and on September 28 at 1:00 p.m. CMA promptly responded to data requests and other questions from the DPU, the federal Pipeline and Hazardous Material Safety Administration (PHMSA), and other government officials. CMA also provided daily briefings to the DPU and other state officials regarding the restoration status. CMA provided 48 hour follow-up notification to the NRC at 7:15 a.m. on September 29 and a follow-up report to DPU on October 11, 2019. In addition, CMA submitted an incident report to PHMSA on October 25, 2019.

Communications with the General Public

CMA communicated with the general public and the media through various means during the Incident. Starting at 6:05 a.m. on September 27, CMA posted updates about the Incident and safety instructions to its Twitter feed, Facebook page, and its online "Alert Center" in English and Spanish. Representative social media posts are shown below.





CMA also sent a series of press statements to 164 media contacts at regional publications and news outlets via email. CMA issued these statements at 3:00 p.m. on September 27, 8:00 p.m. on September 27, and 3:00 p.m. on September 28. Among other updates, CMA, the City of Lawrence, and the DPU issued a joint statement regarding the cause of the Incident on the evening of September 27, 2019.

For the duration of the Incident, CMA Communications personnel provided the CMA Customer Care Center with information and guidance for responding to customer inquiries. As of 9 p.m. on September 30, the Company had fielded 162 calls to its 1-800 number.

CMA directed residential and business customers impacted by the Incident to call CMA's toll-free Claims Helpline and to meet with claims representatives at CMA's Claims Center at 439 S. Union St. in Lawrence, which was kept open for extended hours during the week after the Incident. At the request of public officials, CMA also established a "pop-up" claims center on Monday, September 30, in the parking lot at St. Patrick's Church, 118 S. Broadway in Lawrence, for residents and businesses potentially impacted by the Incident.

F. Management Support

In addition to the above Incident Command Structure, the President of CMA and the General Manager were onsite during the Incident. The CEO of NiSource, as well as NiSource's Senior Vice President, Safety, Environmental, Engineering, and Training also arrived onsite on September 27th. The NiSource officials were fully briefed on the Incident, attended meetings, and supported the emergency response efforts.

IV. DAMAGE ASSESSMENT, RECOVERY, AND COMPENSATION

A. Damage Assessment

To CMA's knowledge, the Incident did not result in any damage to private property, with the exception of damage caused during efforts to gain entry to confirm evacuation/clearing houses with gas readings. With respect to damage to CMA's infrastructure and the natural gas distribution system, CMA has estimated the restoration cost at approximately $1.4 million, which includes, for example, the cost of repairing the main, purging gas, relighting customers, as well as the fees for contractors who worked on the response. As part of the investigation into the source of the leak, CMA notified its Damage Assessment team at 5:30 a.m. to conduct an evaluation of the impacted system. The work done to repair the system included replacing the damaged section of 2" plastic main with new pipe. The ultimate cost of the restoration is expected to exceed the $1.4 million estimate, as CMA continues to receive invoices from contractors who participated in the restoration work.

B. Recovery

The map at Figure 3 of the Addendum, which was used onsite with first responders, depicts the gas main that was affected by the shut off of gas service.

Electrical service to the area was restored by 11:00 a.m. on September 28. That same morning, CMA crews, along with mutual aid contractors from its Springfield office and other nearby utilities, began relighting customers. The initial relights focused on those customers whose service had been cut off as a precaution, but who were ultimately not connected to the impacted gas distribution system. Once CMA determined they were not connected to the impacted system, those customers were relit, and were permitted to return home by 1:00 p.m. on September 28.

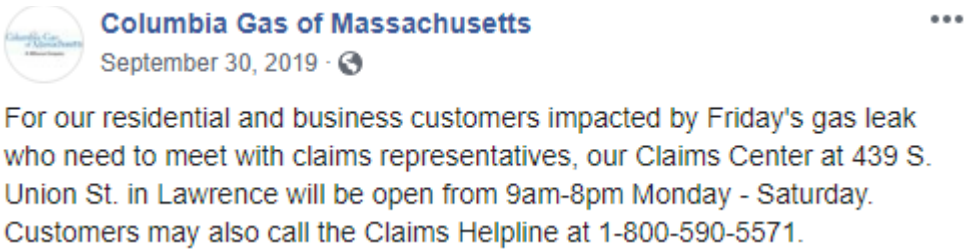
For those customers who were connected to the impacted system, the Company advised they could return once CMA performed the necessary system repairs and their homes were verified as safe. After service was restored to the impacted system, CMA technicians went door-to-door to restore service to customers, perform safety checks, and relight natural gas appliances. Gas service was restored to most of the impacted customers by 7:00 p.m. on September 28, and nearly all remaining customers by 10:00 p.m. on September 28. Service was restored to all customers by October 2, 2019.

C. Shelter

As noted above, in order to make the area safe, residents on South Broadway, Shattuck St., Crosby St., Kingston St., Durham St., Ellis St., Atkinson St., Salem St., and Front St. in Lawrence were evacuated during the early morning hours of September 27. Those residents were taken to the Red Cross shelter set up at the Arlington Middle School located at 150 Arlington St. CMA then arranged for 100 hotel rooms at the Springhill Suites and Courtyard Marriott for customers without service. 35 groups of customers (67 adults and 29 children) utilized those hotel rooms. All residents had checked out of their hotel rooms by Sunday, September 29.

D. Claims

CMA had its Customer Care Center, located at 439 South Union Street in Lawrence, as well as its Claims Hotline operating during the course of the Incident. In an effort to better serve impacted customers, and at the request of public officials, CMA opened a Pop-up Claims Center at 118 South Broadway on September 30. The Pop-up Claims Center remained open until 5 p.m. on September 30. The Company informed DPU of the closure and kept its existing Customer Care Center (located approximately one mile from the Pop-Up location) open for additional hours during the week of September 30 to afford customers additional time to submit a claim. CMA notified customers of the extended hours through social medial posts in English and Spanish and through the news and social media:



As of September 30, there were 520 registered claims in the system. CMA ultimately received 1,280 total claims and has paid out over $300,000. The most common claim, making up approximately two-thirds of the total claims received, was for spoiled food caused when the electricity was shut down to customers. The next most common claim was wage loss.

Table 1: Claims Submitted to CMA, by Factor[7]

Factor	Count
Additional Living Expenses	26
Appliance	1
Commercial LOI	66
Evacuation Expenses	293
Food Spoilage	889
Home Exterior	13
Personal Property	3
Pets	4
Power Surge	5
Psychological	1
Respiratory	2
Wage Loss	458

[7] "LOI" as used in Table 1 means "loss of income."

V. LESSONS LEARNED / REMEDIAL ACTIONS

As explained above, in the immediate aftermath of the Incident, the Company reviewed its records to identify all valves on the abandoned pipeline into which new main was inserted during its 2018 pipeline restoration work. The Company physically inspected all such valves that were visible and performed any necessary remedial work in accordance with its Gas Standards (GS 1740.010). CMA also met with municipalities to provide maps showing inserted mains and met with all DPWs regarding this shut down and included the inserted gas mains on the POP "Protect Our Pipe" Program. The Company also performed a verification process for all visible curb valves on abandoned service lines associated with the 2018 pipeline restoration work and performed any necessary remediation. Additionally, on October 21, 2019, the Company issued an Operational Notice (with an implementation date of December 1, 2019) to provide additional guidance regarding the removal or deactivation of valves/valve boxes for abandoned facilities. A copy of the operational notice (ON 19-12) is attached as Appendix 3.

Since the Incident, CMA has expended significant effort assessing its emergency response efforts and incorporating the experience gained. For example, on November 6, 2019, members of the Incident Command Structure and the Company's operations, construction, finance, administration, human resources, public information, compliance, and legal functions conducted an after action review of the emergency response to the Incident. Through these efforts, which have included input from the Incident Command team, CMA leaders, and subject matter experts, CMA has identified the following opportunities to improve its emergency preparedness and response.

- *Integration Center:* CMA personnel communicated with the IC throughout the Incident regarding the Incident Command Structure and the issuance of internal notifications, including updates to ENS, its internal system of communicating emergency situations. The Company is exploring how to update its ENS process (including criteria for issuance of "pre-ENS" messages) and link it to the Company's Incident Command Structure, and how ENS distribution lists can be revised.

- *Support for Incident Command Structure*: CMA has identified a number of steps to provide better support to the Incident Command team during emergency events:

    - Visually post the Incident Command Structure, including primary members and backups, during emergency events.
    - Determine whether an application (or "app") is available for installation on smart devices and laptops to enhance the process for resource acquisition and activation.
    - Develop training for call center personnel to better understand the Incident Command Structure.
    - Task local personnel with the roles of "Check In/Out Unit Leader" and "Check in/Out Coordinator" to more clearly track personnel, mutual aid, and third party contractors that are deployed during emergency events.
    - Review communications plans to better align with the Incident Command Structure, ensuring that the Public Information Officer has a full team of

resources available to develop and execute internal and external communications.

- *Command Center:* CMA is taking steps to enhance the work done at its command centers to improve the security of command centers and to improve the check-in/check-out process at command centers for personnel, mutual aid, and third party contractors. The Company is creating "Go Bags" with materials for quick deployment after an incident occurs. The Company also is obtaining additional equipment (such as vests, workstations and mobile printers) for use at command centers.

- *Mutual Aid:* CMA is working to clarify its approach to resource management and mutual aid activation, and to streamline the verification of operator qualifications for mutual aid workers who are deployed.

- *Pop-Up Claims Center:* CMA identified the need to ensure that there are adequate resources at its pop-up claims centers to handle the anticipated volume of claims quickly and efficiently.

REDACTED

September 27, 2019 Event: Final Event Report

Addendum

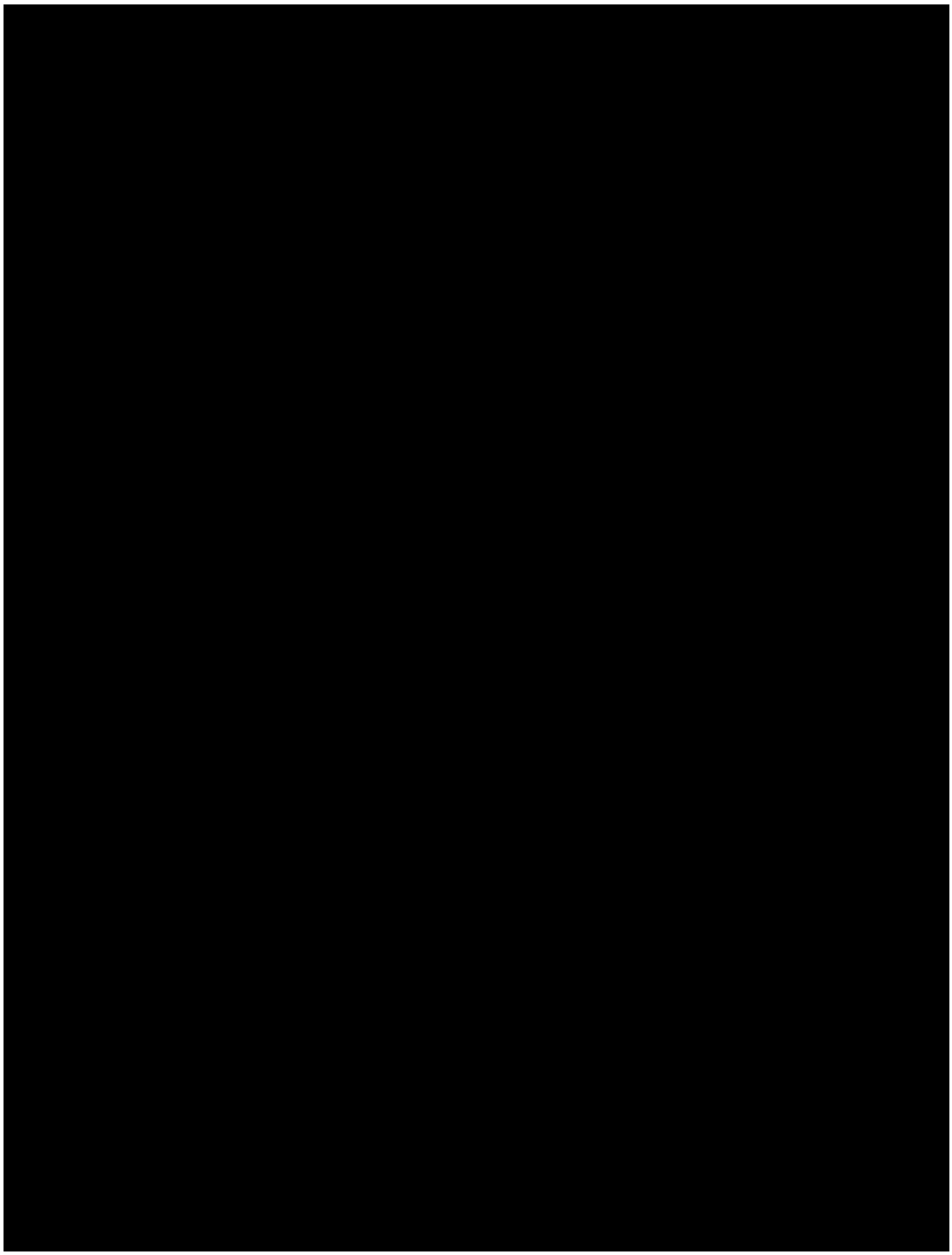
Figure 1:

REDACTED

Figure 2:

REDACTED

Figure 3:



REDACTED

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Callout Recap Report

Selected Range: Sep 26, 2019 00:00:00 - Sep 28, 2019 07:00:00

Callouts to Selected Rosters

Callout ID	Type	Eff. Date/Time *	OpCenter	Additional Info	Co Id	Class / WG / Query	#Req	#Filled	Accepted	Work Start	Work End
306050	Emergency Service	9/27/2019 3:09	961 - Lawrence	slame st and broadway Lawrence ma Creator: [redacted] Reason: Odor Order#: 00213757306	324211	Bullseye ER	1	1	[redacted]	9/27/2019 3:12	9/27/2019 8:00
306051	Plant	9/27/2019 3:33	961 - Lawrence	salem street, lawrence mass **Creator:** [redacted] **Reason:** Odor **Order#:** 19-7459032-00	324212	Distribution Foreman On Call	1	1	[redacted]	9/27/2019 3:37	9/27/2019 7:00
					324213	Distribution Operator On Call	1	1	[redacted]	9/27/2019 3:41	9/27/2019 7:00
					324214	Distribution Third Man On Call	1	1	[redacted]	9/27/2019 3:54	9/27/2019 7:00
306052	Emergency Service	9/27/2019 3:51	961 - Lawrence	salem street, lawrence massachusetts Creator: [redacted] Reason: Odor Order#: salem street, lawren	324215	Bullseye ER	2	1	[redacted]	9/27/2019 3:53	9/27/2019 8:00
306053	Emergency Service	9/27/2019 3:58	961 - Lawrence	salem street, lawrence, massachusetts **Creator:** [redacted] **Reason:** Odor **Order#:** salem street, lawren	324216	Bullseye ER	1	1	[redacted]	9/27/2019 4:04	9/27/2019 7:00
					324217	OT Only - Service/Meter Daily Calls	4	1	[redacted]	9/27/2019 4:13	9/27/2019 7:00
					324218	Distribution Foreman On Call	1	1	[redacted]	9/27/2019 4:08	9/27/2019 7:00
					324219	Distribution Operator On Call	2	2	[redacted]	9/27/2019 4:19	9/27/2019 7:00
										9/27/2019 4:15	9/27/2019 7:00
					324220	Distribution Third Man On Call	1	1	[redacted]	9/27/2019 4:15	9/27/2019 7:00
					324221	Lawrence Locators	2	2	[redacted]	9/27/2019 4:42	9/27/2019 7:00
										9/27/2019 4:42	9/27/2019 8:00
306057	Emergency Service	9/27/2019 5:20	961 - Lawrence	salem street, lawrence mass Creator: [redacted] Reason: Odor Order#: salem street, lawren	324225	Pipe Fitter Daily	6	1	[redacted]	9/27/2019 5:21	9/27/2019 7:00
306080	All Hands on Deck	9/27/2019 9:28	961 - Lawrence	Lawrence **Creator:** [redacted] **Reason:** Assist Crew **Order#:** 19-7459043-00	324247	Command Team - Safety Officer - Lawrence	4	0	None		

REDACTED

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Callout Recap Report

Selected Range: Sep 26, 2019 00:00:00 - Sep 28, 2019 07:00:00

Callouts to Selected Rosters

Callout ID	Type	Eff. Date/Time *	OpCenter	Additional Info	Co Id	Class / WG / Query	#Req	#Filled	Accepted	Work Start	Work End
306070	Service	9/27/2019 7:16	856 - Brockton	Lawrence outage assistance **Creator:** [redacted] **Reason:** Service Order **Order#:** 19-74590043-00	324237	OT Only - Service Non-Emergency Calls	10	4	[redacted]	9/27/2019 7:22	9/27/2019 8:00
									[redacted]	9/27/2019 7:21	9/27/2019 8:00
									[redacted]	9/27/2019 7:20	9/27/2019 8:00
									[redacted]	9/27/2019 7:19	9/27/2019 16:00
306092	Plant	9/27/2019 19:00	856 - Brockton	Dist Leader - Lawrence ,MA Mutual Aid **Creator:** [redacted] **Reason:** Assist Crew	324260	Qualified Leader	2	2	[redacted]	9/27/2019 19:00	9/28/2019 11:00
									[redacted]	9/27/2019 19:00	9/28/2019 11:00
306093	Plant	9/27/2019 19:00	856 - Brockton	Dist Operator - Lawrence,MA Mutual Aid Creator: [redacted] Reason: Assist Crew	324261	Qualified Operator	2	2	[redacted]	9/27/2019 19:00	9/28/2019 7:30
									[redacted]	9/27/2019 19:00	9/28/2019 11:00
306095	Plant	9/27/2019 19:00	856 - Brockton	Dist 3rd Man - Lawrence,MA Mutual Aid **Creator:** [redacted] **Reason:** Assist Crew	324263	Qualified 3rd Man	1	1	[redacted]	9/27/2019 19:00	9/28/2019 11:00
306096	Plant	9/27/2019 19:00	856 - Brockton	Dist Locator - Lawrence,MA - Mutual Aid Creator: [redacted] Reason: Assist Crew	324264	Locator	3	3	[redacted]	9/27/2019 19:00	9/28/2019 11:00
									[redacted]	9/27/2019 19:00	9/28/2019 7:06
									[redacted]	9/27/2019 19:00	9/28/2019 11:00
306109	Service	9/27/2019 20:00	856 - Brockton	Service Tech - Lawrence,MA - Mutual Aid **Creator:** [redacted] **Reason:** Assist Crew	324276	OT Only - Service Non-Emergency Calls	3	3	[redacted]	9/27/2019 20:00	9/27/2019 20:01
									[redacted]	9/27/2019 20:00	9/27/2019 20:01
									[redacted]	9/27/2019 20:00	9/28/2019 10:00
306134	Service	9/27/2019 22:00	856 - Brockton	Lawrence,MA - Mutual Aid Service Tech **Creator:** [redacted] **Reason:** Assist Crew	324303	OT Only - Service Non-Emergency Calls	3	0	None		
306166	Service	9/27/2019 22:00	856 - Brockton	Lawrence,MA - Matual Aid 10pm-2pm Creator: [redacted] Reason: Assist Crew	324339	OT Only - Service Non-Emergency Calls	3	0	None		

REDACTED

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Callout Recap Report

Selected Range: Sep 26, 2019 00:00:00 - Sep 28, 2019 07:00:00

Callouts to Selected Rosters

Callout ID	Type	Eff. Date/Time *	OpCenter	Additional Info	Co Id	Class / WG / Query	#Req	#Filled	Accepted	Work Start	Work End
306068	Service	9/27/2019 7:03	857 - Springfield	assist lawrence **Creator:** [redacted] **Reason:** Assist Crew **Order#:** 19745904300	324236	Service - All Service	10	6	[redacted]	9/27/2019 7:44	9/27/2019 16:00
									[redacted]	9/27/2019 7:11	9/27/2019 8:00
									[redacted]	9/27/2019 7:23	9/27/2019 12:00
									[redacted]	9/27/2019 7:08	9/27/2019 8:00
									[redacted]	9/27/2019 7:12	9/27/2019 7:30
									[redacted]	9/27/2019 7:08	9/27/2019 12:00
306100	Plant	9/27/2019 19:00	857 - Springfield	Dist Leader - Lawrence,MA - Mutual Aid Creator: [redacted] Reason: Assist Crew	324268	Distribution Chief	2	2	[redacted]	9/27/2019 19:00	9/28/2019 11:00
									[redacted]	9/27/2019 19:00	9/28/2019 11:00
306101	Plant	9/27/2019 19:00	857 - Springfield	Dist Operator - Lawrence,MA - Mutual Aid **Creator:** [redacted] **Reason:** Assist Crew	324269	Distribution Operator	1	1	[redacted]	9/27/2019 19:00	9/28/2019 11:00
306102	Plant	9/27/2019 19:00	857 - Springfield	Dist 3rd Man - Lawrence,MA - Mutual Aid Creator: [redacted] Reason: Assist Crew	324270	Distribution - All (Laborer)	1	1	[redacted]	9/27/2019 19:00	9/28/2019 11:00
306103	Plant	9/27/2019 19:00	857 - Springfield	Dist Locator Lawrence,MA - Mutual Aid **Creator:** [redacted] **Reason:** Assist Crew	324271	Distribution Locators	1	1	[redacted]	9/27/2019 19:00	9/28/2019 11:00

CMA Media Statements re: South Lawrence Gas Leak

South Lawrence Gas Leak – Fri., 9/27 3:00pm Update

Today's gas leak in South Lawrence was an isolated incident and there are no public safety concerns surrounding the incident at this point. Columbia Gas is continuing to work closely with emergency responders, the city of Lawrence and the Massachusetts Department of Public Utilities to make repairs to the damaged line and restore gas service to our customers in the area. We are working cooperatively with state and local officials to investigate the cause of the incident and will provide additional information as it becomes available.

At this time, residents can return home with the exception of those who live on Wolcott Avenue or on South Broadway or East Carver Street in between Andover and Merrimack Streets. Any resident who has not had gas service restored by this evening can call 1-800-590-5571, and we will work with them to arrange accommodations.

Columbia Gas crews have begun the process of restoring service to all affected homes and businesses. Please visit: https://www.columbiagasma.com/services/alert-center for more information about the natural gas relight process.

Customers can visit https://www.columbiagasma.com/services/alert-center for more information We will provide updates via social media on Facebook (https://www.facebook.com/ColumbiaGasMa/) and Twitter (https://twitter.com/ColumbiaGasMA).

Customers are reminded that if they smell natural gas, they should stop what they are doing, leave the area immediately and move to a safe location and call 911 and Columbia Gas at 1-800-525-8222.

If any affected customers and residents need assistance, the American Red Cross has established an emergency shelter at the Arlington Middle School located at 150 Arlington Street. Affected residents can also contact the American Red Cross at 1-800-564-1234.

BACKGROUND (information previously issued)

On September 27 at approximately 3:00am, Columbia Gas received reports of an odor of gas in the street at South Broadway and Salem streets in the city of Lawrence.

Columbia Gas crews responded immediately, confirmed a leak and shut off the gas to approximately 150 affected homes and businesses. Electricity was also shut off to these residents.

As a safety precaution, all affected residences and business were evacuated. Crews then went door-to-door with emergency responders to check for the presence of gas in all affected homes and businesses.

South Lawrence Gas Leak – Fri., 9/27 9:00pm Update

Columbia Gas crews are working overnight, in close cooperation with the Massachusetts Department of Public Utilities, to restore gas service to the approximately 150 affected homes and businesses whose service was disconnected earlier today. We will provide an update on estimated time for service restoration when it is available.

Residents who do not have gas service and are unable to return to their homes can call 1-800-590-5571 and we will work with them to arrange accommodations.

There are no public safety concerns surrounding the incident at this point.

Customers can visit https://www.columbiagasma.com/services/alert-center for more information We will provide updates via social media on Facebook (https://www.facebook.com/ColumbiaGasMa/) and Twitter (https://twitter.com/ColumbiaGasMA).

Customers are reminded that if they smell natural gas, they should stop what they are doing, leave the area immediately and move to a safe location and call 911 and Columbia Gas at 1-800-525-8222.

If any affected customers and residents need assistance, the American Red Cross has established an emergency shelter at the Arlington Middle School located at 150 Arlington Street. Affected residents can also contact the American Red Cross at 1-800-564-1234.

South Lawrence Gas Leak – Sat., 9/28 3:00pm Update

At 1:00 p.m. Saturday, Columbia Gas announced that its crews will soon begin the process of restoring service to the approximately 150 affected homes and businesses whose gas service was disconnected on Friday.

At this time, all affected residents can return home. Our service technicians will be going door-to-door to perform safety checks and relight natural gas appliances. Service is expected to be restored for roughly 30 customers with odd number addresses between 107 and 169 on South Broadway in Lawrence by 3:00 p.m. Saturday. Columbia Gas is continuing to work with state and local officials and anticipates all remaining customers will have gas service restored by 10:00 p.m. Saturday.

To expedite the relight process, it is best for customers to return home. To ensure quick and safe restoration after an outage, customers should note the following:

- An adult (18 years or older) must be present to allow our employees to restore service. If you need to leave your home, please leave your contact information with a neighbor or on your door.
- Our crew will need access into every impacted home or business to conduct safety checks and restore service.
- Keep your porch light on until your gas service is back on. It helps our crews determine if your gas service is on or off from the road.
- Our employees and representatives carry a photo ID and will be happy to show it to you upon request.
- The leak was an isolated incident in the street. There was no impact on customer homes or to natural gas appliances, which will work normally once gas service is restored.

Residents who prefer not to return to their homes later Saturday can continue to work with Columbia Gas to arrange accommodations by calling 1-800-590-5571.

Customers can visit https://www.columbiagasma.com/services/alert-center for more information We will provide updates via social media on Facebook (https://www.facebook.com/ColumbiaGasMa/) and Twitter (https://twitter.com/ColumbiaGasMA).

Customers are reminded that if they smell natural gas, they should stop what they are doing, leave the area immediately and move to a safe location and call 911 and Columbia Gas at 1-800-525-8222.

We apologize for the inconvenience this has caused and we appreciate the patience of our customers as we continue to restore service throughout the day.

South Lawrence Gas Leak – Sat., 9/28 10:00pm Update

As of 9 p.m. Saturday, Columbia Gas has restored gas service to nearly all homes and businesses in South Lawrence affected by Friday's leak. We could not get into approximately 15 properties and will continue to make attempts to contact those customers to restore service. Evacuated residents were allowed to return home Saturday as Columbia Gas crews repaired a gas main on South Broadway Street, pressure tested the line and restored service, going door-to-door to perform safety checks and relight natural gas appliances to affected customers.

A small number of residents who preferred not to return to their homes on Saturday have accommodations for the night and will return to their homes on Sunday. Customers who were not home on Saturday for relights should call 1-866-388-3239 on Sunday for service to be restored.

We once again would like to apologize for the disruption this has caused our customers in South Lawrence. We also thank local and state officials and first responders for their partnership over the past two days as we worked to safely restore gas service to the area.

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Distribution Operations

Operational Notice

Issue Date: 10/21/2019	**Removal or Deactivation of Valve Boxes Required for Abandoned Valves**	Notice Number **ON 19-12**
Supersedes: N/A		Page 1 of 5
GS Team Reassess By: 12/31/2020		

Companies Affected:	☒ NIPSCO	☒ CVA	☒ CMD
		☒ CKY	☒ COH
		☒ CMA	☒ CPA

Reference: GS 1740.010, GS 1740.010(MA), GS 1740.010(OH), GS 1740.010(PA), & GS 1740.010(VA) "Abandonment of Facilities"

Summary

On September 27, 2019, a city maintenance contractor checking water valves inadvertently closed a gas valve that was part of an abandoned gas main. The abandoned gas main had been inserted with an active plastic gas main. However, when the gas main and gas valve were abandoned, the valve box had not been removed or deactivated (e.g., filled with concrete) as called for by GS 1740.010 "Abandonment of Facilities." The closing of the gas valve resulted in damage to the inserted active plastic gas main causing a leak that required emergency response and evacuations.

The purpose of this Operational Notice (ON) includes the following.

a. Reminds Company employees and contractors of the requirements to remove or deactivate a valve box or curb box (i.e., valve/curb box) that is associated with an abandoned transmission line, distribution main, or service line valve (i.e., valve).
b. Requires additional mitigative measures to make the Field Operations or Construction crew doing abandonment work aware of the locations of existing valve(s) planned for abandonment.
c. Requires additional mitigative measures when planning to insert plastic pipe into an abandoned pipeline that contains abandoned valve(s).

For the purpose of this ON, the phrase "valve/curb box" means "valve box or curb box."

Existing Gas Standard Requirements

Each state's version of GS 1740.010 "Abandonment of Facilities" requires the following actions when abandoning a pipeline that contains valve(s).

Abandoned Distribution and Transmission Line Valves

GS 1740.010(MA), Section 2.5, states the following.

> When a distribution main is to be abandoned, valve boxes associated with the abandoned main (if they exist) shall be removed and the hole filled with a suitable compacting material. If the valve boxes cannot be removed due to their location in concrete or pavement, the valve box lids shall be removed and the valve boxes filled with concrete or other suitable material.

GS 1740.010, GS 1740.010(OH), GS 1740.010(PA), and GS 1740.010(VA), Section 2.5, state the following.

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Operational Notice

Distribution Operations

Issue Date: 10/21/2019	**Removal or Deactivation of Valve Boxes Required for Abandoned Valves**	Notice Number **ON 19-12**
Supersedes: N/A		
GS Team Reassess By: 12/31/2020		Page 2 of 5

Valve boxes and grade level corrosion test stations boxes (if they exist) shall be removed and the hole filled with a suitable compacting material. If the boxes cannot be removed due to their location in concrete or pavement, the box lids shall be removed and the boxes filled with concrete or similar material.

Abandoned Service Line Valves

Section 3.2 of the applicable GS 1740.010 states the following.

> When service lines are abandoned, curb boxes (if they exist) shall be removed and the hole filled with a suitable compacting material. If the curb boxes cannot be removed due to their location in concrete or pavement, the curb box lids shall be removed and the curb boxes filled with concrete or similar material.

Modifications to Existing Gas Standard Requirements

Plastic Pipe Insertion through Service Lines

Service lines shall not be inserted through an abandoned curb valve. The associated abandoned curb valve, curb box, and lid shall be **physically removed** and discarded.

Plastic Pipe Insertion through Mains

When planning to insert plastic pipe into an abandoned gas main, except as noted below, abandoned valve(s) shall be **physically removed** and discarded (i.e., plastic pipe is not to be inserted through an abandoned valve). The associated valve boxes and lids shall also be removed and discarded.

NOTE: If circumstance limits the ability to physically remove an abandoned gas valve that exists within the abandoned pipeline to be inserted, approval from the local Operations Center Manager (OCM), Engineering Manager, and if applicable the Construction Manager, or their designees, is required to leave the valve in place and both the approval and the reason why the valve cannot be removed shall be documented. However, in all cases the valve box and lid shall be removed or deactivated (see NOTE 1 below) prior to placing the inserted main into service as required in this Operational Notice as indicated below.

Additional Clarification for All Abandoned Valves

For abandoned valves within an abandoned pipeline with no plans for insertion, efforts shall be made to remove and discard each associated valve/curb box and lid. If a valve/curb box cannot be removed, the valve/curb box shall be deactivated (see NOTE 1 below).

NOTE 1: Going forward, the term “deactivated” shall include removing the valve/curb box lid, removing the metallic ring (e.g., cast lid collar) or top portion of a plastic valve/curb box, and filling the remaining box with concrete (see NOTE 2 below) to an appropriate distance from the top of the valve/curb box in accordance with state or local pavement restoration.

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Operational Notice

Distribution Operations

Issue Date: 10/21/2019	**Removal or Deactivation of Valve Boxes Required for Abandoned Valves**	Notice Number **ON 19-12**
Supersedes: N/A		
GS Team Reassess By: 12/31/2020		Page 3 of 5

NOTE 2: When using dry concrete mix, the Field Operations or Construction crew doing abandonment work shall ensure that concrete is mixed according to manufacturer's instructions prior to leaving the job site. Flowable fill, sand, and/or gravel are not acceptable materials since they can be easily removed to make the valve accessible.

Modifications to CAD Drawing and Tie-in Plan Templates

The following modifications are required regardless of whether or not the project involves plastic pipe insertion. These requirements shall be incorporated onto the project drawing and the Tie-in Plan for all projects that begin construction (i.e., on-site construction) on or after November 1, 2019.

Revisions are currently underway to revise the CAD drawing template (template used by Engineering to depict the installation and abandonment pipeline on the project drawing). The Engineer shall identify all known valves on transmission lines, distribution mains, and designed capital service lines that are planned for abandonment on a table on the project drawing. (NOTE: Designed capital service lines are those that are greater than or equal to 3-inches in diameter.) In addition, the valves planned for abandonment shall be shown on the work (job) order drawing depicting the facilities to be abandoned.

As part of completing the as-built drawing, Construction (or Field Operations) personnel shall indicate the disposition of the valve and valve box (e.g., valve and valve box removed, valve box removed, valve box filled with concrete). When planning to insert plastic pipe into an abandoned gas main, if an abandoned valve cannot be physically removed, approval from the local Operations Center Manager (OCM), Engineering Manager, and if applicable the Construction Manager, or their designees, is required to leave the valve in place and both the approval and the reason why the valve cannot be removed shall be documented.

In addition, a written step will be added to applicable Project-Specific Tie-in / Purge /Abandonment Steps to sign-off that this requirement has been completed in accordance with GS 1740.010 "Abandonment of Facilities" and this Operational Notice.

Additional Mitigative Measures

The following measures shall be taken to ensure that gas valves to be abandoned are identified prior to or during the construction project. These measures are required regardless of whether or not the project involves plastic pipe insertion.

Construction or Field Operations

When locating existing gas facilities for a construction project (e.g., main replacement), be observant of valve/curb boxes and lids within the tolerance/safety zone (i.e., applicable state damage prevention tolerance/safety zones 18-24") of existing facilities that will be abandoned.

If a valve/curb box is identified in the field within the tolerance/safety zone of the pipeline to be abandoned, but the valve is not included on the abandonment work (job) order drawing or service line record, investigate to determine the ownership of the valve/curb box and function of the valve. This may mean contacting the utility indicated on the valve/curb box lid (e.g., water)

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Operational Notice

Distribution Operations

Issue Date: 10/21/2019	**Removal or Deactivation of Valve Boxes Required for Abandoned Valves**	Notice Number **ON 19-12**
Supersedes: N/A		
GS Team Reassess By: 12/31/2020		Page 4 of 5

or if the valve lid indicates “GAS” or is indeterminable, it may mean digging with caution to determine the function of the valve/curb box or associated valve.

If a valve is identified on the work (job) order drawing or within the service line records (e.g., Service Line Data, SLR) of the pipeline to be abandoned, but the valve/curb box is inaccessible (e.g., covered by grass or pavement), dig with caution using non-mechanized equipment (as required by applicable state damage prevention laws) to access the valve/curb box and remove the valve or remove/deactivate the valve box as required by the applicable GS 1740.010 “Abandonment of Facilities” and this Operational Notice.

<u>All Personnel Working on Gas Facilities</u>

If during the normal course of work you observe indications that a previously abandoned valve was not abandoned in accordance with the applicable GS 1740.010 “Abandonment of Facilities,” notify your front line leader, contact the Integration Center to create a job order, and submit a Safety Management System (SMS) Corrective Action Program (CAP) item. When submitting the CAP, indicate if the abandoned valve might have been inserted with pipe and reference the work (job) order number, if known.

NOTE: For issues reported from external personnel (e.g., municipality, water company, customer), Integration Center (IC) shall create a priority order and dispatch first responder to investigate.

Examples of situations that would need additional investigation and potential remediation include, but are not limited to, the following.

a. Company crew performing leak repair on main notices water valve box in line with in-service gas facilities that have been inserted into a previously abandoned pipeline.
b. Service Technician performing work at a customer property notices a “GAS” curb box at the property line, and the service line record indicates the service line has no curb valve.
c. Contract crew performing service line tap on main line notices “GAS” valve box in street not in line with existing gas facilities.

Associated work (job) orders that suspect improperly abandoned valves (i.e., those without removed or deactivated boxes) with inserted plastic pipeline shall be investigated (and, if necessary, remediated) promptly (i.e., same day, next day) as directed by the local Field Operations Leader.

Other associated work (job) orders that suspect improperly abandoned valves shall be investigated (and, if necessary, scheduled for remediation) as directed by the local Field Operations Leader, with target dates set according to the risk (see note below), but no later than 90 days from the date the job order is created, unless directed otherwise by the SMS governance process or the state Distribution Integrity Management Program (DIMP) Steering Team.

NOTE: Additional risk (e.g., other construction activity in the area, demolition activities at site, possible mislabeling of water or gas valve box, records indicate abandoned service line but gas curb box is present) might necessitate a more prompt response. Communicate additional risk(s) to the IC.

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Distribution Operations

Operational Notice

Issue Date: 10/21/2019	**Removal or Deactivation of Valve Boxes Required for Abandoned Valves**	Notice Number **ON 19-12**
Supersedes: N/A		Page 5 of 5
GS Team Reassess By: 12/31/2020		

Remediation of Abandoned Valves Confirmed to be Improperly Abandoned

If an improperly abandoned valve has been confirmed by records research and field validation (i.e., using applicable tools, technology, and data), remediate by removing and discarding each associated valve/curb box and lid. If a valve/curb box cannot be removed, each valve/curb box lid shall be removed and discarded and the valve/curb box shall then be filled (i.e., deactivated) with concrete to an appropriate distance from the top of the valve/curb box in accordance with state or local pavement restoration requirements.

In addition, perform a site investigation (i.e., walking survey, review maps and records) of the nearby vicinity (e.g., city block, previous project) for similar improperly abandoned valves.

NOTE: Records research and field validation are required to ensure that a valve/curb box is not removed or deactivated, by mistake, for an in-service valve. After confirmation and remediation, update all applicable records if needed (e.g., map revision, SLR update, update service line data in work management system).

If there are any questions or concerns, please contact [redacted], Principal Engineer ([redacted]) or [redacted], Manager Gas Standards ([redacted]).

REDACTED

TELEPHONIC INCIDENT NOTIFICATION (T.I.N.) FORM

Massachusetts Department of Public Utilities

Pipeline Engineering & Safety Division

TRANSFER OF FORM BETWEEN SHIFTS MUST BE APPROVED BY LEADER

DPU INFORMATION					
Date Reported to DPU:	9/27/2019	Time Reported to DPU (mil.):	05:30	DPU Contact Name:	Mike Conkey

SECTION 1 | GENERAL INFORMATION			
Company's Name:	Columbia Gas	Who Notified Company:	FD
Assigner's Name:	[redacted]	Incident Address:	Salem St and S Broadway
Field Leader's Name:	[redacted]	Incident City/Town:	Lawrence
Assigner's Phone Number:	[redacted]		

DPU Phone – 617-305-3537 (8:45am – 5:00pm). After hours 617-305-3845 (5:00pm – 8:45am, Weekends and Holidays)

SECTION 2 | INCIDENT INFORMATION

TYPE OF CALL (check all that apply)		DETAILED DESCRIPTION OF INCIDENT
1. Hit Pipeline w/Release of Gas	☐	Received call from fire dept gas odor at manhole in street. Dispatched tech at 3:12, onsite at 3:29. Called out crew at 3:33 as well as additional personnel to help. Evacuated approximately 82 people as of 4:30. Gas shut-off at 5:08. Electricity shut-off at 5:17. Continuing to investigate origin of gas leak. FOI is [redacted]. OCM, [redacted] on site as well.
2. Evacuation	☒	
3. Gas Outage	☐	
4. 49 CFR 191 Incident	☐	
5. Over/Under Pressure	☐	
6. Gas Ignition/Explosion	☐	
7. LNG Facility	☐	
8. LPG Facility	☐	
9. Security Breach	☐	
10. Media on site	☒	

INCIDENT TIMELINE (military time)

Company received call:	03:08	Company's technician arrived on site:	03:29
IC notified:	03:08	Incident made safe:	05:08
Company dispatched technician:	03:12	Service restored: (*if applicable*)	

SECTION 3| ADDITIONAL INCIDENT INFORMATION

EVACUATION INFORMATION ☐ N/A		LEAK INFORMATION ☐ N/A	
Evacuated by:	FD	Leak Classification:	Grade 1
No. of persons Evacuated:	82	Has the leak been secured?	☐ Yes ☒ No
Time Evacuated:	04:30	Was gas service interrupted?	☒ Yes ☐ No
Time Allowed to re-enter:			
INJURIES/HOSPITALIZATION ☐ N/A		**OUTAGE INFORMATION** ☒ N/A	
No. of persons hospitalized:		Estimated duration of outage:	
No. of persons injured:		No. of customers affected:	

SECTION 4 | DISTRIBUTION SYSTEM INFORMATION

Pipe Material (select one):		Operating Pressure (psig):		Pipe Size (inch):	

SECTION 5 | DAMAGE PREVENTION INFORMATION ☒ N/A

Dig Safe No.		Dig Safe No. valid?	☐ Yes ☐ No	Site properly marked?	☐ Yes ☐ No
Excavator Information:					

SECTION 6 | NATIONAL RESPONSE CENTER (NRC) INFORMATION ☒ N/A

Incident reported	☐ Yes ☐ No	Date reported:		Time reported	

TELEPHONIC INCIDENT NOTIFICATION (T.I.N.) FORM

Massachusetts Department of Public Utilities

Pipeline Engineering & Safety Division

TRANSFER OF FORM BETWEEN SHIFTS MUST BE APPROVED BY LEADER

to NRC?				(est.):	

REDACTED

OPERATOR TELEPHONIC INCIDENT NOTIFICATION FOLLOW-UP REPORT

Massachusetts Department of Public Utilities

Pipeline Safety Division

SECTION 1 GENERAL INFORMATION			
Operator's Name:	Columbia Gas	Who Notified Operator:	FD
Person Filing Report:	[redacted]	Incident Address:	Salem St and S Broadway
Contact Phone Number:	[redacted]	Incident City/Town:	Lawrence

SECTION 2 INCIDENT INFORMATION		
TYPE OF CALL (check all that apply)		**DETAILED DESCRIPTION OF INCIDENT**
1. Hit Pipeline w/Release of Gas	☒	***FD called in gas odor at manhole in street. Columbia Gas service tech arrived onsite and found Lawrence water department working valve project. Lawrence water department turned gas valve in error, severing 2" plastic main, resulting in a release of gas. Columbia Gas service tech called in FOL and additional crews. Columbia Gas crews shut off gas service to area. National Grid arrived to shut off electricity. Approximately 80 people evacuated by FD. Repairs made and gas main put in service on 09/28/2019 at 15:00.***
2. Evacuation	☒	
3. Gas Outage	☒	
4. 49 CFR 191 Incident	☒	***NRC #1259504 – 1st notification***
5. Over/Under Pressure	☐	***NRC #1259694 – 48 hour notification***
6. Gas Ignition/Explosion	☐	
7. LNG Facility	☐	Date of Incident – 09/27/2019
8. LPG Facility	☐	DPU Contact – Mike Conkey
9. Security Breach	☐	Time DPU Contacted – 05:30
10. Media on site	☒	
INCIDENT TIMELINE (military time)		
Operator received call:	**03:08**	
Operator dispatched technician:	**03:12**	
Operator's technician arrived on site:	**03:29**	
Incident made safe:	**05:08**	
Service restored (*if applicable):*	**15:00 (9/28/19)**	

SECTION 3 ADDITIONAL INFORMATION			
EVACUATION INFORMATION ☐ N/A		**LEAK INFORMATION** ☐ N/A	
Evacuated by:	**FD**	Leak Classification:	**Grade 1**
No. of persons evacuated:	**Approx. 80**	Has the leak been secured?	☒ Yes ☐ No
Time evacuated:	**04:30**	Was gas service interrupted?	☒ Yes ☐ No
Time allowed to re-enter:	**15:00 (9/28/19)**		
INJURIES/HOSPITALIZATION ☒ N/A		**OUTAGE INFORMATION** ☐ N/A	
No. of persons hospitalized:		Estimated duration of outage:	34 Hours
No. of persons injured:		No. of customers Affected:	103

SECTION 4 | DISTRIBUTION SYSTEM INFORMATION					
Pipe Material (select one):	Plastic	Operating Pressure (psig):	99	Pipe Size (inches):	2.0

SECTION 5 DAMAGE PREVENTION INFORMATION ☒ N/A					
Dig Safe No.		Dig Safe No. valid?	☐ Yes ☐ No	Site properly marked?	☐ Yes ☐ No
Excavator Information:					

Date (GMT)	Facebook Page	Facebook Post ID	Post Permalink	Post Type	Post Title	Post Message	Post Tags	Post Campaign	Reactions	Comments	Shares	Ow.ly Clicks
9/27/2019 12:11	Columbia Gas of Massachusetts	926565730796163_2467371386715582	https://www.facebook.com/926565730796163/posts/2467371386715582/	Status		Our response to the S. Broadway & Salem St. gas leak continues, working with Lawrence FD and PD. Gas is shut off and company personnel are going door-to-door into homes to check for presence of gas. Approximately 146 meters impacted. Evacuation is still in effect. Help is available at the Red Cross emergency shelter at 150 Arlington St. in Lawrence. Crews working to assure safety before restoring service. Please watch for updates. ---------- ActualizaciÃ³n: Nuestra respuesta a la fuga de gas de S. Broadway y Salem St. continÃºa, trabajando con Lawrence FD y PD. El gas se ha apagado y el personal de la empresa va de puerta en puerta a las casas para verificar la presencia de gas. Aprox. 146 metros impactados. La evacuaciÃ³n sigue vigente. Hay ayuda estÃ¡ disponible en el refugio de emergencia de la Cruz Roja en 150 Arlington St. en Lawrence. Tripulaciones trabajando para garantizar la seguridad antes de recurrir al servicio. Por favor, estÃ© atento a las actualizaciones.			29	30	22	
9/27/2019 13:57	Columbia Gas of Massachusetts	926565730796163_2467547446697976	https://www.facebook.com/926565730796163/posts/2467547446697976/	Status		Our response to the S. Broadway & Salem St. gas leak continues. Gas and electricity are shut off and an evacuation is still in effect. Our crews are currently going door-to-door with local FD and PD to check for presence of gas. Approximately 150 homes and businesses are impacted. Help is available at the American Red Cross emergency shelter at 150 Arlington St. in #Lawrence. You may also call the American Red cross at 1-800-564-1234. Please watch for updates here and at www.columbiagasma.com/alert-center.			6	5	6	
9/27/2019 15:57	Columbia Gas of Massachusetts	926565730796163_2467750900010964	https://www.facebook.com/926565730796163/posts/2467750900010964/	Link		Nuestra respuesta a la fuga de gas de S. Broadway y Salem St. continÃºa. El gas y la electricidad estÃ¡n apagados y la evacuaciÃ³n aÃºn estÃ¡ en vigor. Nuestras cuadrillas actualmente estÃ¡n yendo de puerta en puerta con FD y PD locales para verificar la presencia de gas. Aproximadamente 150 hogares y negocios se ven afectados. Hay ayuda disponible en el refugio de emergencia de la Cruz Roja Americana en 150 Arlington St. en #Lawrence. TambiÃ©n puede llamar a la Cruz Roja Americana al 1-800-564-1234. EstÃ© atento a las actualizaciones aquÃ- y en www.columbiagasma.com/alert-center			0	0	0	
9/27/2019 16:39	Columbia Gas of Massachusetts	926565730796163_2467817123337675	https://www.facebook.com/926565730796163/posts/2467817123337675/	Link		We continue to work closely with local emergency responders to ensure safety in #Lawrence. Please visit the American Red Cross emergency shelter at Arlington Middle School if you are in need of assistance. Updates will be posted here and at www.columbiagasma.com/alert-center			0	0	2	
9/27/2019 16:41	Columbia Gas of Massachusetts	926565730796163_2467819960004058	https://www.facebook.com/926565730796163/posts/2467819960004058/	Link		Continuamos trabajando en estrecha colaboraciÃ³n con los servicios de emergencia locales para garantizar la seguridad en #Lawrence. Visite el refugio de emergencia de la Cruz Roja Americana en la Escuela Intermedia Arlington si necesita ayuda. Las actualizaciones se publicarÃ¡n aquÃ- y en www.columbiagasma.com/alert-center			0	0	1	
9/27/2019 20:39	Columbia Gas of Massachusetts	926565730796163_2468168006635920	https://www.facebook.com/926565730796163/posts/2468168006635920/	Status		#Lawrence Update: Residents can now return home with the exception of those who live on Wolcott Ave., South Broadway or East Carver St. between Andover and Merrimack Streets. Columbia Gas crews have begun the process of restoring service to all affected homes and businesses. Any resident who has not had gas service restored by this evening can call 1-800-590-5571 and we will work with them to arrange accommodations. Affected customers and residents in need of assistance can visit the American Red Cross emergency shelter at Arlington Middle School at 150 Arlington Street or contact the American Red Cross at 1-800-564-1234.			52	11	40	
9/27/2019 20:41	Columbia Gas of Massachusetts	926565730796163_2468170466635674	https://www.facebook.com/926565730796163/posts/2468170466635674/	Status		ActualizaciÃ³n de #Lawrence: los residentes ahora pueden regresar a casa con la excepciÃ³n de aquellos que viven en Wolcott Ave., South Broadway o East Carver St. entre las calles Andover y Merrimack. Los equipos de Columbia Gas han comenzado el proceso de restaurar el servicio a todos los hogares y negocios afectados. Cualquier residente que no tenga restablecido el servicio de gas para esta noche puede llamar al 1-800-590-5571 y trabajaremos con ellos para organizar el alojamiento. Los clientes y residentes afectados que necesiten asistencia pueden visitar el refugio de emergencia de la Cruz Roja Americana en la Escuela Intermedia Arlington en 150 Arlington Street o comunicarse con la Cruz Roja Americana al 1-800-564-1234.			0	0	3	
9/27/2019 23:12	Columbia Gas of Massachusetts	926565730796163_2468357539950300	https://www.facebook.com/926565730796163/posts/2468357539950300/	Status		Joint Statement from DPU, Columbia Gas and the City of Lawrence on todayâ€™s gas leak in Lawrence: â€œEarly Friday morning while conducting a routine check of water valves in preparation of road paving, contractors working for the City of Lawrence inadvertently closed a gas valve, puncturing an active gas main. Preliminarily, it appears that this gas valve should have been disabled as part of pipeline reconstruction in 2018 and was not compliant with DPU standards. Out of an abundance of caution, Columbia Gas has identified 45 gas valves that the Department of Public Utilities has required Columbia Gas and mutual aid partners to immediately inspect and bring into compliance if necessary. The process of inspecting and remediating these valves, located near surface level of the road, will not require excavating and will be completed by Saturday. Until then, the Department has instructed all municipalities in the Merrimack Valley to suspend all construction and maintenance projects in the affected area until the valves are determined to be safe by the Department of Public Utilities. The Department will continue to closely monitor the restoration effort and Columbia Gas will be required to continue to use mobile leak detection equipment in the form of â€¯sniffer trucks.â€™ The small number of residents who have not yet returned home should expect to return home following completion of testing of the impacted pipeline to ensure safe operation. The Departmentâ€™s investigation into the incident is ongoing.â€‰			5	10	16	
9/27/2019 23:15	Columbia Gas of Massachusetts	926565730796163_2468360909949963	https://www.facebook.com/926565730796163/posts/2468360909949963/	Status		DeclaraciÃ³n de DPU, Columbia Gas y la Ciudad de Lawrence sobre la fuga de gas de hoy en Lawrence: â€œDurante la madrugada del viernes, mientras realizaban una revisiÃ³n de rutina de las vÃ¡lvulas de agua en preparaciÃ³n de la pavimentaciÃ³n de carreteras, los contratistas que trabajaban para la Ciudad de Lawrence cerraron inadvertidamente una vÃ¡lvula de gas, perforando una tuberÃ-a de gas activa. Preliminarmente, parece que esta vÃ¡lvula de gas deberÃ-a haberse desactivado como parte de la reconstrucciÃ³n de la tuberÃ-a en 2018 y no cumplÃ-a con los estÃ¡ndares DPU. Por precauciÃ³n, Columbia Gas ha identificado 45 vÃ¡lvulas de gas que el Departamento de Servicios PÃºblicos ha requerido que Columbia Gas y sus socios de ayuda mutua inspeccionen de inmediato y cumplan con los requisitos si es necesario. El proceso de inspecciÃ³n y reparaciÃ³n de estas vÃ¡lvulas, ubicadas cerca del nivel de la superficie de la carretera, no requerirÃ¡ excavaciÃ³n y se completarÃ¡ el sÃ¡bado. Hasta entonces, el Departamento ha ordenado a todos los municipios del Valle de Merrimack que suspendan todos los proyectos de construcciÃ³n y mantenimiento en el Ã¡rea afectada hasta que el Departamento de Servicios PÃºblicos determine que las vÃ¡lvulas son seguras. El Departamento continuarÃ¡ monitoreando cercanamente el esfuerzo de restauraciÃ³n y se requerirÃ¡ que Columbia Gas continÃºe usando el equipo mÃ³vil de detecciÃ³n de fugas en forma de 'camiones rastreadores'. El pequeÃ±o nÃºmero de residentes que aÃºn no han regresado a casa deberÃ-a esperar regresar a casa despuÃ©s de realizaciÃ³n de pruebas de la tuberÃ-a impactada para garantizar un funcionamiento seguro. La investigaciÃ³n del Departamento sobre el incidente estÃ¡ en curso."			0	0	0	
9/28/2019 2:18	Columbia Gas of Massachusetts	926565730796163_2468585106594210	https://www.facebook.com/926565730796163/posts/2468585106594210/	Link		Columbia Gas crews are working overnight, in close cooperation with the Massachusetts Department of Public Utilities, to restore gas service to the approximately 150 affected homes and businesses whose service was disconnected earlier today. We will provide an update on estimated time for service restoration when it is available. Residents who do not have gas service and are unable to return to their homes can call 1-800-590-5571 and we will work with them to arrange accommodations. There are no public safety concerns surrounding the incident at this point. Customers can visit https://www.columbiagasma.com/services/alert-center for more information We will provide updates via social media on Facebook (https://www.facebook.com/ColumbiaGasMa/) and Twitter (https://twitter.com/ColumbiaGasMA). Customers are reminded that if they smell natural gas, they should stop what they are doing, leave the area immediately and move to a safe location and call 911 and Columbia Gas at 1-800-525-8222. If any affected customers and residents need assistance, please contact the American Red Cross at 1-800-564-1234.			3	1	3	
9/28/2019 20:00	Columbia Gas of Massachusetts	926565730796163_2470074833111904	https://www.facebook.com/926565730796163/posts/2470074833111904/	Link		We will soon begin the process of restoring service to the approx. 150 affected homes and businesses whose gas service was disconnected on Friday. All affected residents can return home. Our service technicians will be going door-to-door to perform safety checks and relight natural gas appliances. Service is expected to be restored for roughly 30 customers with odd number addresses between 107 & 169 on So. Broadway in Lawrence by 3pm Saturday. We are continuing to work with state & local officials and anticipate all remaining customers will have gas service restored by 10pm Saturday. To expedite the relight process, it is best for customers to return home. To ensure quick and safe restoration after an outage, customers should note the following: --An adult (18 years or older) must be present to allow our employees to restore service. If you need to leave your home, please leave your contact info. with a neighbor or on your door. --Our crew will need access into every impacted home or business to conduct safety checks and restore service. --Keep your porch light on until your gas service is back on. This helps crews determine if your gas service is on or off from the road. --Our employees & reps. carry a photo ID & will be happy to show it to you upon request. --The leak was an isolated incident in the street. There was no impact on customer homes or to natural gas appliances, which will work normally once gas service is restored. Residents who prefer not to return to their homes later Saturday can continue to work with us to arrange accommodations by calling 800-590-5571. See www.columbiagasma.com/services/alert-center for more info. Customers are reminded that if they smell natural gas, they should stop what they are doing, leave the area immediately and move to a safe location, call 911 and us at 800-525-8222. We apologize for the inconvenience this has caused and we appreciate the patience of our customers as we continue to restore service throughout the day.			2	0	3	
9/29/2019 12:05	Columbia Gas of Massachusetts	926565730796163_2471285219657532	https://www.facebook.com/926565730796163/posts/2471285219657532/	Status		As of 9 p.m. Saturday, Columbia Gas has restored gas service to nearly all homes and businesses in South Lawrence affected by Friday's leak. We could not get into approximately 15 properties and will continue to make attempts to contact those customers to restore service. Evacuated residents were allowed to return home Saturday as Columbia Gas crews repaired a gas main on South Broadway Street, pressure tested the line and restored service, going door-to-door to perform safety checks and relight natural gas appliances to affected customers. A small number of residents who preferred not to return to their homes on Saturday have accommodations for the night and will return to their homes on Sunday. Customers who were not home on Saturday for relights should call 1-866-388-3239 on Sunday for service to be restored. We once again would like to apologize for the disruption this has caused our customers in South Lawrence. We also thank local and state officials and first responders for their partnership over the past two days as we worked to safely restore gas service to the area.			35	0	6	
9/30/2019 1:21	Columbia Gas of Massachusetts	926565730796163_2472479072871480	https://www.facebook.com/926565730796163/posts/2472479072871480/	Status		Columbia Gas will be setting up a pop-up Claims Center on Monday [9/30] in the parking lot at St. Patrickâ€™s Church [118 S. Broadway, Lawrence] from 9am-5pm for residents and businesses impacted by Fridayâ€™s gas leak. Customers may also call our Claims Helpline at 1-800-590-5571.			1	0	11	
9/30/2019 20:43	Columbia Gas of Massachusetts	926565730796163_2474114016041319	https://www.facebook.com/926565730796163/posts/2474114016041319/	Status		For our residential and business customers impacted by Friday's gas leak who need to meet with claims representatives, our Claims Center at 439 S. Union St. in Lawrence will be open from 9am-8pm Monday - Saturday. Customers may also call the Claims Helpline at 1-800-590-5571.			1	1	4	

Tweet id	Tweet permalink	Tweet text	time	impressions	engagements	engagement rate	retweets	replies	likes	user profile clicks	url clicks	hashtag clicks	detail expands
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177524577204719617	Columbia Gas crews working with Lawrence FD and PD following gas leak near South Broadway and Salem St in Lawrence. Gas is shut off and area being made safe. Crews going door to door to 146 customers. Working with local officials to investigate cause of leak and make repairs.	2019-09-27 10:05 +0000	36220	669	0.018470458	53	17	23	144	0	0	432
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177553860438765580	Update: Our response to the S. Broadway & Salem St. gas leak continues, working with Lawrence FD and PD. Gas is shut off and company personnel are going door-to-door into homes to check for presence of gas. Approx. 146 meters impacted. (1/2)	2019-09-27 12:01 +0000	8838	124	0.014030324	9	1	6	53	0	0	55
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177555472255205376	Update: Evacuation is still in effect. Help is available at the Red Cross emergency shelter at 150 Arlington St. Crews working to assure safety before resorting service. Please watch for updates. (2/2)	2019-09-27 12:07 +0000	9513	143	0.015032061	15	3	5	56	0	0	64
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177565764439728128	La evacuaciÃ³n sigue vigente. Hay ayuda estÃ¡ disponible en el refugio de emergencia de la Cruz Roja en 150 Arlington St. en Lawrence. Tripulaciones trabajando para garantizar la seguridad antes de recurrir al servicio. Por favor, estÃ© atento a las actualizaciones. (2/2)	2019-09-27 12:48 +0000	1819	14	0.007696537	3	0	0	9	0	0	2
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177565666502696961	ActualizaciÃ³n: Nuestra respuesta a la fuga de gas de S. Broadway y Salem St. continÃºa, trabajando con Lawrence FD y PD. El gas se ha apagado y el personal de la empresa va de puerta en puerta a las casas para verificar la presencia de gas. Aprox. 146 metros impactados. (1/2)	2019-09-27 12:48 +0000	1644	9	0.005474453	3	0	0	3	0	0	3
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177583521747132417	Our crews and local FD & PD continue to assess #Lawrence homes for safety in response to the S. Broadway & Salem St. gas leak. Watch for updates here and at https://t.co/RDm8iboqm3	2019-09-27 13:59 +0000	2301	72	0.031290743	2	0	0	7	51	3	9
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177584126658076674	Update: Gas has been shut off and evacuation is in effect for approx. 150 #Lawrence homes and businesses. Help is available at the American Red Cross emergency shelter at 150 Arlington St. or by calling: 1-800-564-1234	2019-09-27 14:01 +0000	12865	223	0.017333852	20	4	5	67	0	8	119
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177613480360329217	Nuestros equipos y FD y PD locales continÃºan evaluando la seguridad de los hogares de #Lawrence en respuesta a la fuga de gas de S. Broadway y Salem St. EstÃ© atento a las actualizaciones aquÃ- y en https://t.co/ZI0AiV6mue	2019-09-27 15:58 +0000	1500	21	0.014	2	0	0	12	4	0	3
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177613885567836165	ActualizaciÃ³n: El gas se ha apagado y la evacuaciÃ³n estÃ¡ en vigor durante aprox. 150 hogares y negocios en #Lawrence. Hay ayuda disponible en el refugio de emergencia de la Cruz Roja Americana en 150 Arlington St. o llamando al: 1-800-564-1234	2019-09-27 16:00 +0000	1347	8	0.005939124	1	0	0	4	0	0	3
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177623782724456448	We continue to work closely with local emergency responders to ensure safety in #Lawrence. Please visit the American Red Cross emergency shelter at Arlington Middle School if you are in need of assistance. Updates will be posted here and at https://t.co/RDm8iboqm3	2019-09-27 16:39 +0000	2504	93	0.037140575	9	2	2	9	33	2	36
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177624642456039426	Continuamos trabajando con los servicios de emergencia locales para garantizar la seguridad en #Lawrence. Visite el refugio de la Cruz Roja en la Escuela Intermedia Arlington si necesitas ayuda. Las actualizaciones se publicarÃ¡n aquÃ- y en https://t.co/RDm8iboqm3	2019-09-27 16:42 +0000	1318	18	0.013657056	3	0	0	7	2	2	4
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177685344331927552	#Lawrence Update: Residents can now return home with the exception of those who live on Wolcott Ave., South Broadway or East Carver St. between Andover and Merrimack Streets	2019-09-27 20:44 +0000	8728	49	0.005614115	9	0	5	17	0	1	17
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177685791406985216	ActualizaciÃ³n de #Lawrence: Los residentes ahora pueden regresar a casa con la excepciÃ³n de aquellos que viven en Wolcott Ave., South Broadway o East Carver St. entre las calles Andover y Merrimack.	2019-09-27 20:45 +0000	1237	12	0.009700889	3	0	0	2	0	1	6
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177686199407960064	#Lawrence Update: Columbia Gas crews are restoring service to affected homes and businesses.	2019-09-27 20:47 +0000	903	7	0.007751938	1	0	0	2	0	0	4
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177686415007780867	Los equipos de Columbia Gas han comenzado el proceso de restaurar el servicio a todos los hogares y negocios afectados.	2019-09-27 20:48 +0000	1143	6	0.005249344	2	0	0	3	0	0	1
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177687156669767680	#Lawrence Update: Any resident who has not had gas service restored by this evening can call 1-800-590-5571, and we will work with them to arrange accommodations.	2019-09-27 20:51 +0000	6559	27	0.004116481	4	0	5	13	0	0	5
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177687546668752898	Cualquier residente que no tenga restablecido el servicio de gas para esta noche puede llamar al 1-800-590-5571 y trabajaremos con ellos para organizar el alojamiento.	2019-09-27 20:52 +0000	981	4	0.004077472	1	0	0	1	0	0	2
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177687810679214080	#Lawrence Update: Affected customers and residents in need of assistance can visit the American Red Cross emergency shelter at Arlington Middle School at 150 Arlington Street or contact the American Red Cross at 1-800-564-1234.	2019-09-27 20:53 +0000	1124	5	0.004448399	1	0	0	2	0	1	1
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177688176078524419	Los clientes y residentes afectados que necesiten asistencia pueden visitar el refugio de emergencia de la Cruz Roja Americana en la Escuela Intermedia Arlington en 150 Arlington Street o comunicarse con la Cruz Roja Americana al 1-800-564-1234.	2019-09-27 20:55 +0000	1168	4	0.003424658	1	0	0	2	0	0	1
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177725701463642117	Joint Statement from DPU, Columbia Gas and the City of Lawrence on todayâ€™s gas leak in Lawrence: https://t.co/RDm8iboqm3	2019-09-27 23:24 +0000	8700	286	0.032873563	3	2	4	7	227	0	43
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177726076489015296	DeclaraciÃ³n de DPU, Columbia Gas y la Ciudad de Lawrence sobre la fuga de gas de hoy en Lawrence: https://t.co/kb8qWcNWZ7	2019-09-27 23:25 +0000	1493	16	0.010716678	1	0	1	1	11	0	2
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177772377473785856	Our crews are working overnight, in close cooperation with the MA DPU, to restore gas service to the approx. 150 affected homes & businesses whose service was disconnected earlier today. We will provide an update on est. time for service restoration when it is available. (1/4)	2019-09-28 02:29 +0000	9370	78	0.00832444	5	0	3	53	0	0	17
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177772672995991558	Residents who do not have gas service and are unable to return to their homes can call 1-800-590-5571 and we will work with them to arrange accommodations. There are no public safety concerns surrounding the incident at this point. (2/4)	2019-09-28 02:31 +0000	7387	41	0.005550291	9	0	3	17	0	0	12
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177776669534441472	Visit https://t.co/FiqIJArzyT for more info. We will provide updates here & on FB https://t.co/0E1z2ZLfMX. Customers are reminded that if they smell natural gas, they should stop what they are doing, leave immediately, move to a safe location & call 911 & us at 800-525-8222.(3/4)	2019-09-28 02:46 +0000	6013	48	0.007982704	1	0	0	3	36	0	8
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177783843476180993	If any affected customers and residents need assistance. please contact the American Red Cross at 1-800-564-1234. (4/4)	2019-09-28 03:15 +0000	3465	28	0.008080808	6	0	6	14	0	0	2
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1177924697469718528	#Lawrence update: Crews remain onsite this morning and continue to work to restore service. We will be providing updates throughout the day.	2019-09-28 12:35 +0000	8291	86	0.010372693	4	0	3	37	0	6	36
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1178038352853000193	Update (1/2): We will be going door-to-door to perform safety checks and relight natural gas appliances. All affected residents can return home. Service is expected to be restored for approx. 30 customers with odd # addresses between 107 & 169 S. Broadway in #Lawrence today.	2019-09-28 20:06 +0000	1841	21	0.011406844	2	0	3	11	0	1	4
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1178039188287098883	Update (2/2) We are continuing to work with state & local officials and anticipate all remaining customers will have gas service restored by 10pm tonight. To expedite the relight process, it is best for customers to return home. See https://t.co/1qzThCeezo for more info.	2019-09-28 20:10 +0000	2486	30	0.012067578	3	0	3	6	4	0	14
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1178040381658804229	Iremos de puerta en puerta para realizar controles de seguridad y encender aparatos de gas.Residentes afectados pueden regresar a su hogar. Esperamos que el servicio se restablezca para aprox.30 clientes con direcciones impares entre #107 y 169 S. Broadway #Lawrence hoy. (1/2)	2019-09-28 20:14 +0000	1564	13	0.00831202	1	0	0	8	0	2	2
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1178041756199333888	Continuamos trabajando con funcionarios estatales y locales.Anticipamos que todos los clientes tendrÃ¡n servicio de gas restaurado a las 10pm de esta noche.Para acelerar el proceso, es mejor que los clientes regresen a casa. Ver https://t.co/egYrfWn3N0 para obtener mÃ¡s info.(2/2)	2019-09-28 20:20 +0000	1349	13	0.009636768	1	0	1	1	5	0	5
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1178115085455286272	Columbia Gas personnel are in the South Broadway area of #Lawrence relighting meters and some of you were not home. If you were out of service due to Friday's leak and are ready to be relit, please call 1-866-388-3239 to schedule a relight.	2019-09-29 01:11 +0000	2470	53	0.02145749	4	1	4	10	0	4	30
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1178278708303536128	We once again would like to apologize for the disruption this has caused our customers in South Lawrence. We also thank local and state officials and first responders for their partnership over the past two days as we worked to safely restore gas service to the area. (2/2)	2019-09-29 12:01 +0000	8557	64	0.007479257	5	1	5	36	0	0	17
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1178278515403362304	As of 9 p.m. Saturday night, Columbia Gas has restored gas service to nearly all homes and businesses in South Lawrence affected by Friday's leak. Customers who were not home on Saturday for relights should call 1-866-388-3239 today for service to be restored. (1/2)	2019-09-29 12:01 +0000	13224	82	0.006200847	10	0	9	12	0	0	51
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1178321487645859841	A partir de las 9pm del sÃ¡bado, Columbia Gas ha restaurado el servicio de gas a casi todas llos afectados en S. Lawrence por la filtraciÃ³n del viernes. Los clientes que no estuvieron en casa el sÃ¡bado deben llamar al 1-866-388-3239 hoy para que se restablezca el servicio. (1/2)	2019-09-29 14:51 +0000	1573	5	0.00317864	0	0	0	3	0	0	2
1.18E+18	https://twitter.com/ColumbiaGasMA/status/1178322946789695490	Nos gustarÃ-a disculparnos por la interrupciÃ³n que esto ha causado a clientes en S.Lawrence. Agradecemos a los funcionarios locales y estatales y a los equipos de primera respuesta por su ayuda en los Ã°ltimos 2 dÃ-as mientras restauramos de manera segura el servicio de gas 2/2	2019-09-29 14:57 +0000	1592	5	0.003140704	0	0	0	4	0	0	1

South Lawrence Hit Gas Line / Leak

September 27 Joint Statement from Massachusetts Department of Public Utilities, Columbia Gas of Massachusetts and the City of Lawrence

"Early Friday morning while conducting a routine check of water valves in preparation of road paving, contractors working for the City of Lawrence inadvertently closed a gas valve, puncturing an active gas main. Preliminarily, it appears that this gas valve should have been disabled as part of pipeline reconstruction in 2018 and was not compliant with DPU standards. Out of an abundance of caution, Columbia Gas has identified 45 gas valves that the Department of Public Utilities has required Columbia Gas and mutual aid partners to immediately inspect and bring into compliance if necessary. The process of inspecting and remediating these valves, located near surface level of the road, will not require excavating and will be completed by Saturday. Until then, the Department has instructed all municipalities in the Merrimack Valley to suspend all construction and maintenance projects in the affected area until the valves are determined to be safe by the Department of Public Utilities. The Department will continue to closely monitor the restoration effort and Columbia Gas will be required to continue to use mobile leak detection equipment in the form of 'sniffer trucks.' The small number of residents who have not yet returned home should expect to return home following completion of testing of the impacted pipeline to ensure safe operation. The Department's investigation into the incident is ongoing."

Start Your Claim

Over the Phone

Call **1-800-590-5571** to file your claim or check status 24/7.

If you are filing a new claim, you will be asked to provide your contact information so a claims adjuster can follow up within 24-72 hours to begin the process.

In Person

Lawrence

439 S. Union Street, Lawrence, MA 01843
(1 Heritage Place)

Special Hours:

Monday, September 30th only – 5 - 8pm

9am – 8pm Tuesday, October 1 – Saturday, October 5.

Regular Hours starting on Monday, October 7:

Monday - Friday
9 a.m. to 6 p.m.
Saturday
9 a.m. to 12 p.m.

Comienza su reclamo

Por telefono

Por favor llamar al **1-800-590-5571** para presentar su reclamo o verificar el estatus

24/7.

Si está presentando un nuevo reclamo, se le pedirá que proporcione su información de contacto para que un ajustador de reclamos pueda hacer un seguimiento dentro de las 24-72 horas para comenzar el proceso.

En Persona

Lawrence

439 S. Union Street, Lawrence, MA 01843
(1 Heritage Place)

Horario especial solamente para lunes, 30 de Septiembre – 5 - 8pm

9am – 8pm Martes, Octubre 1 – Sábado, 5 de octubre.

Horario regular a partir del lunes 7 de octubre

Monday - Friday
9 a.m. to 6 p.m.
Saturday
9 a.m. to 12 p.m.

An Emergency report has been updated for location 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/27/2019 10:24 PM

Sent by: Domain Admin

To review the details, click on the following link =>

Status: Updated

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The type of event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Media Involvement?: YES

Reason for Editing: Command Team update: Incident Commander: [redacted], Operation Section Chief: [redacted], Public Information Officer: [redacted], Safety Officer: [redacted], Liaison Officer: [redacted], Logistics Section Chief: [redacted]. updates to follow

An Emergency has been reported in 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/27/2019 06:41 AM

Sent by: Domain Admin

Status: Initial

Compiled By: [redacted]

Responsible Leader : [redacted]

Responsible Leader's Office Phone Number: [redacted]

To review the details, click on the following link =>

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The Type of Event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Approximate number of evacuated occupants : 82

Media Involvement?: YES

An Emergency report has been updated for location 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/27/2019 07:03 AM

Sent by: Domain Admin

To review the details, click on the following link =>

Status: Updated

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The type of event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Media Involvement?: YES

Reason for Editing: Updated responsible leader

An Emergency report has been updated for location 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/27/2019 08:16 AM

Sent by: Domain Admin

To review the details, click on the following link =>

Status: Updated

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The type of event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Media Involvement?: YES

Reason for Editing: Update to Command structure : [redacted] as Liaison Officer

An Emergency report has been updated for location 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/28/2019 09:01 AM

Sent by: Domain Admin

To review the details, click on the following link =>

Status: Updated

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The type of event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Media Involvement?: YES

Reason for Editing: Incident command update: Incident commander [redacted]

An Emergency report has been updated for location 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/28/2019 09:04 AM

Sent by: Domain Admin

To review the details, click on the following link =>

Status: Updated

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The type of event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Media Involvement?: YES

Reason for Editing: Incident command update: Incident commander [redacted] / Liaison officer: [redacted] / Public Information officer: [redacted] / Legal: [redacted] / Safety Officer: [redacted] / Human Resources: [redacted] / Operations Section Chief: [redacted] /Planning Section Chief: [redacted] / Logistics Section Chief: [redacted] / Finance Officer: [redacted] / Liaison officer: [redacted] / Public Information officer: [redacted] / Legal: [redacted] / Safety Officer: [redacted] / Human Resources: [redacted] / Operations Section Chief: [redacted] / Planning Section Chief: [redacted] / Logistics Section Chief: [redacted] / Finance Officer: [redacted] - Updates to Follow

An Emergency report has been updated for location 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/28/2019 11:57 AM

Sent by: Domain Admin

To review the details, click on the following link =>

Status: Updated

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The type of event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Media Involvement?: YES

Reason for Editing: Planning Section chief Update: [redacted] [redacted] replacing [redacted]

An Emergency report has been updated for location 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/28/2019 03:46 PM

Sent by: Domain Admin

To review the details, click on the following link =>

Status: Updated

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The type of event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Media Involvement?: YES

Reason for Editing: Update: Operations Section Chief is now [redacted] for [redacted].

An Emergency report has been updated for location 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/28/2019 06:14 PM

Sent by: Domain Admin

To review the details, click on the following link =>

Status: Updated

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The type of event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Media Involvement?: YES

Reason for Editing: Legal Officer- [redacted], Liason Office- [redacted], Safety Officer- [redacted]. Main is gassed. Relights have started.

An Emergency report has been updated for location 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/28/2019 08:59 PM

Sent by: Domain Admin

To review the details, click on the following link =>

Status: Updated

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The type of event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Media Involvement?: YES

Reason for Editing: 16 cgi remaining relights to complete. tech on stand by. updates to follow.

An Emergency report has been updated for location 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/28/2019 12:20 AM

Sent by: Domain Admin

To review the details, click on the following link =>

Status: Updated

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The type of event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Media Involvement?: YES

Reason for Editing: Planning Section Chief now [redacted] as of 00:30

An Emergency report has been updated for location 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/28/2019 12:21 AM

Sent by: Domain Admin

To review the details, click on the following link =>

Status: Updated

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The type of event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Media Involvement?: YES

Reason for Editing: Pressure Test to Begin A apprx 0130 per [redacted]. Additional updates to follow

An Emergency report has been updated for location 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/28/2019 12:30 AM

Sent by: Domain Admin

To review the details, click on the following link =>

Status: Updated

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The type of event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Media Involvement?: YES

Reason for Editing: Pressure test to begin at apprx 0130 per [redacted]. Planning Section Chief [redacted] as of 0030. Updates to follow.

An Emergency report has been updated for location 8400-Lawrence MA.

Emergency Notification System to: [redacted] 09/29/2019 12:04 AM

Sent by: Domain Admin

To review the details, click on the following link =>

Status: Closed

LDC: CMA

Work Location: 8400-Lawrence

Time/Date: 3:08:00 AM on 9/27/2019.

Address: Salem St @ S Broadway

City: Lawrence

State: MA

The type of event: Outage.

Details: Lawrence fire dept reported odor of gas at manhole, multiple evacuations. Electric and gas off. Mutual aid responding. Techs and crew on site. Level 3. DPU notified @ 5:30. [redacted] - Command. [redacted] - Public info, [redacted] - Liason, and [redacted] - Planning chief. Updates to follow.

Outage? YES

Approximate number of affected customers : 100-199

Evacuation? YES

Structure Type(s): Single Dwelling

Approximate number of evacuated structures : 82

Media Involvement?: YES

Reason for Editing: 9 CGI relights remain. All mutual aid released. ENS closed

REDACTED

Outlet	Last Name	First Name
Boston 25 News		
Boston 25 News		
Boston 25 News		
Boston 25 News/WFXT-TV		
Boston 25 News/WFXT-TV		
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Eagle-Tribune		
Eagle-Tribune		
Eagle-Tribune/Andover Townsman		
Eagle-Tribune/Gloucester Daily Times		
El Planeta		
Enterprise News		
Entravision/Univision		
Foxboro Reporter		
Gloucester Daily Times		
Greenfield Recorder		
Hopkinton News		

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Inside Medford	
Lowell Sun	
Lowell Sun	
Lynn Journal	
Mass INC/CommonWealth	
Mass Live	
Mass Live	
NBC Boston	
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Wicked Local	
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WRKO	
WWLP	
WWLP	
WWLP	

REDACTED

LSG20

[redacted]

Fwd: For Media Distribution: 3pm Update

[redacted] Sat, Sep 28, 2019 at 3:02 PM

Bcc: [redacted]

[redacted]

The statement can be attributed to [redacted], spokesman, Columbia Gas of MA

--

[redacted]
President | **Liberty Square Group**
m: 617.571.9595 | **o:** 617.695.0369
4 Liberty Square, 5th Floor, Boston, MA 02109
libertysquaregroup.com | @[redacted]

CMA Media Statement for South Lawrence Gas Service Restoration 9-28-19 3pm FINAL.docx
19K

REDACTED

LSG20

STATEMENT: South Lawrence Gas Leak - 3:00PM Update

1 message

[redacted] Fri, Sep 27, 2019 at 3:46 PM
To: [redacted]
Bcc: [redacted]

REDACTED

[redacted]

South Lawrence Gas Leak – 3:00pm Update

Today's gas leak in South Lawrence was an isolated incident and there are no public safety concerns surrounding the incident at this point. Columbia Gas is continuing to work closely with emergency responders, the city of Lawrence and the Massachusetts Department of Public Utilities to make repairs to the damaged line and restore gas service to our customers in the area. We are working cooperatively with state and local officials to investigate the cause of the incident and will provide additional information as it becomes available.

At this time, residents can return home with the exception of those who live on Wolcott Avenue or on South Broadway or East Carver Street in between Andover and Merrimack Streets. Any resident who has not had gas service restored by this evening can call 1-800-590-5571, and we will work with them to arrange accommodations.

Columbia Gas crews have begun the process of restoring service to all affected homes and businesses. Please visit: https://www.columbiagasma.com/services/alert-center for more information about the natural gas relight process.

Customers can visit https://www.columbiagasma.com/services/alert-center for more information We will provide updates via social media on Facebook (https://www.facebook.com/ColumbiaGasMa/) and Twitter (https://twitter.com/ColumbiaGasMA).

Customers are reminded that if they smell natural gas, they should stop what they are doing, leave the area immediately and move to a safe location and call 911 and Columbia Gas at 1-800-525-8222.

If any affected customers and residents need assistance, the American Red Cross has established an emergency shelter at the Arlington Middle School located at 150 Arlington Street. Affected residents can also contact the American Red Cross at 1-800-564-1234.

BACKGROUND (information previously issued)

On September 27 at approximately 3:00am, Columbia Gas received reports of an odor of gas in the street at South Broadway and Salem streets in the city of Lawrence.

Columbia Gas crews responded immediately, confirmed a leak and shut off the gas to approximately 150 affected homes and businesses. Electricity was also shut off to these residents.

As a safety precaution, all affected residences and business were evacuated. Crews then went door-to-door with emergency responders to check for the presence of gas in all affected homes and businesses.

--

[redacted]
President | **Liberty Square Group**
m: 617.571.9595 | **o:** 617.695.0369
4 Liberty Square, 5th Floor, Boston, MA 02109
libertysquaregroup.com | @[redacted]

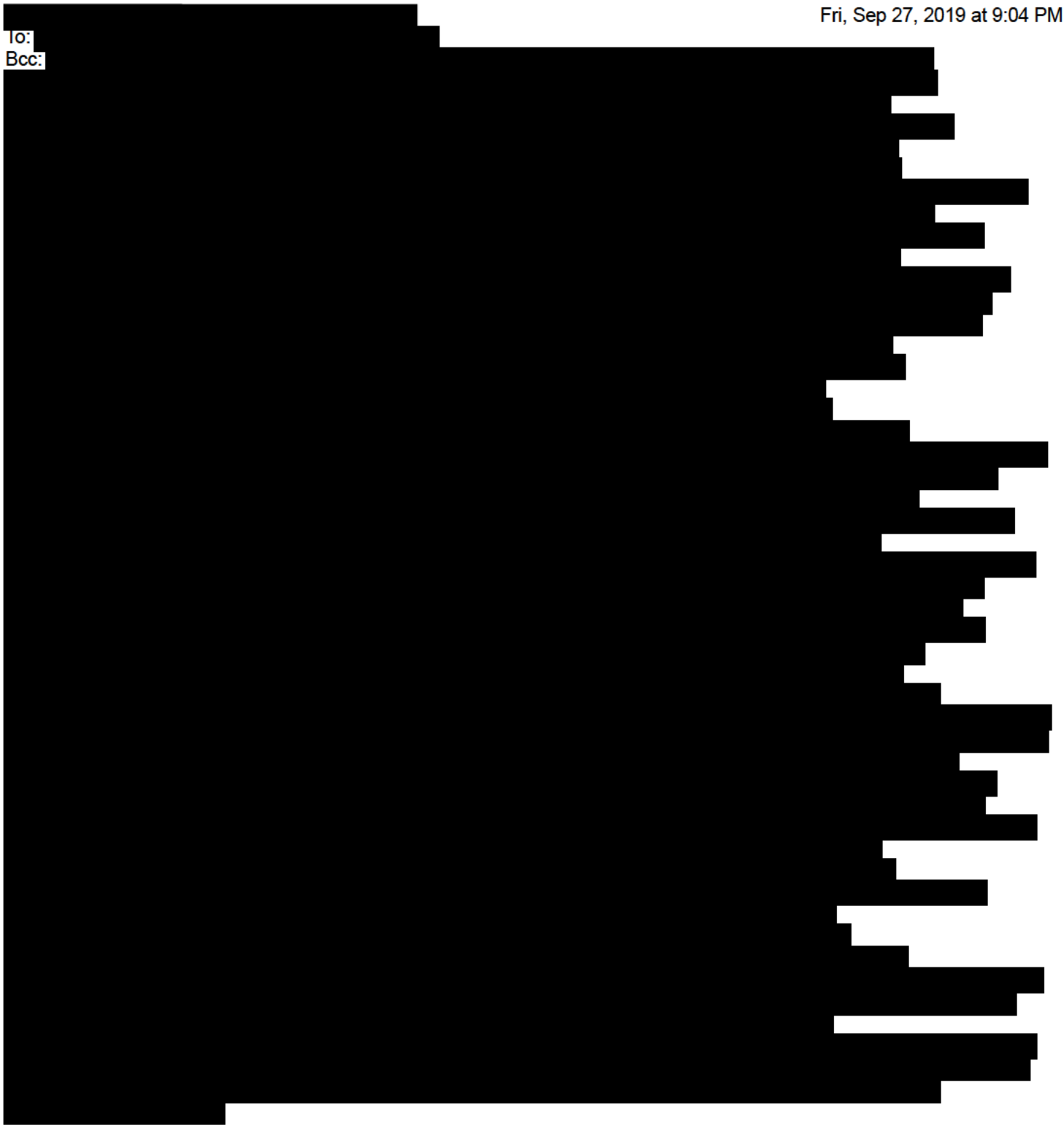
REDACTED

LSG20

South Lawrence Gas Leak – 8:00pm Update

Fri, Sep 27, 2019 at 9:04 PM

To: [redacted]
Bcc: [redacted]



South Lawrence Gas Leak – 8:00pm Update

Columbia Gas crews are working overnight, in close cooperation with the Massachusetts Department of Public Utilities, to restore gas service to the approximately 150 affected homes and businesses whose service was disconnected earlier today. We will provide an update on estimated time for service restoration when it is available.

Residents who do not have gas service and are unable to return to their homes can call 1-800-590-5571 and we will work with them to arrange accommodations.

There are no public safety concerns surrounding the incident at this point.

Customers can visit https://www.columbiagasma.com/services/alert-center for more information We will provide updates via social media on Facebook (https://www.facebook.com/ColumbiaGasMa/) and Twitter (https://twitter.com/ColumbiaGasMA).

Customers are reminded that if they smell natural gas, they should stop what they are doing, leave the area immediately and move to a safe location and call 911 and Columbia Gas at 1-800-525-8222.

If any affected customers and residents need assistance, the American Red Cross has established an emergency shelter at the Arlington Middle School located at 150 Arlington Street. Affected residents can also contact the American Red Cross at 1-800-564-1234.

KEEGAN WERLIN LLP

ATTORNEYS AT LAW
99 HIGH STREET
BOSTON, MASSACHUSETTS 02110

(617) 951-1400

TELECOPIERS:
(617) 951-1354

June 10, 2020

VIA ELECTRONIC MAIL

Richard Enright
Department of Public Utilities
Pipeline Safety Division
One South Station, 5th Floor
Boston, MA 02110

Re: Columbia Gas of Massachusetts, D.P.U. 20-PL-35

Dear Mr. Enright:

On behalf of Bay State Gas Company d/b/a Columbia Gas of Massachusetts ("CMA" or the "Company"), enclosed for filing in the above-referenced matter are the Company's responses to the First Set of Information Requests issued by the Department of Public Utilities in the above captioned matter on May 29, 2020.

Please contact me with any questions you may have. Thank you for your attention to this matter.

Sincerely,

Brendan P. Vaughan

Enclosures

cc: Michael Conkey
Deborah Hampton
Janine Vargas, Esq.
Mark Kempic, CMA
Kathy Silver, CMA
Shaela Collins, CMA
Meggan Birmingham, CMA

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

RESPONSE OF COLUMBIA GAS OF MASSACHUSETTS TO THE
"FIRST SET OF INFORMATION REQUESTS FROM THE D.P.U.
PIPELINE ENGINEERING AND SAFETY DIVISION"

D.P.U. 20-PL-35, Steel-to-Plastic Transition Fittings Used During the Merrimack Valley Reconstruction Phase

Date: June 10, 2020

Responsible: Chris Mozina – Leader, Engineering Capital Closeout

IR- PL 1-1(INQ- 80 (20-PL-35) Information Request): Please refer to CMA procedure GS 1680.020. Provide the overall number of steel-to-plastic transition fittings used during the reconstruction phase of the Merrimack Valley incident.

Response: There were 68 steel-to-plastic transition fittings installed during the reconstruction phase of the Merrimack Valley incident.

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D.P.U. 20-PL-35, Steel-to-Plastic Transition Fittings Used During the Merrimack Valley Reconstruction Phase

Date: June 10, 2020

Responsible: Chris Mozina – Leader, Engineering Capital Closeout

IR- PL 1-2(INQ-80 (20-PL-35) Information Request): Please refer to CMA procedure GS 1680.020. Provide the number of steel-to-plastic transition fittings broken down by the pipe sizes affiliated with each fitting.

Response: Please see Attachment IR-PL-1-2 for a table identifying the 68 steel-to-plastic transition fittings and their associated pipe sizes used during the reconstruction phase of the Merrimack Valley incident.

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PIPELINE ENGINEERING AND SAFETY DIVISION"

D.P.U. 20-PL-35, Steel-to-Plastic Transition Fittings Used During the Merrimack Valley Reconstruction Phase

Date: June 10, 2020

Responsible: Edward Collins – Senior Standards Engineer

IR- PL 1-3(INQ- 80 (20-PL-35) Information Request): Please refer to CMA procedure GS 1680.020. Provide the manufacturer and model number of all transition fittings used during the reconstruction phase and state if they comply with GS 1680.020 Plastic to Steel Transition Connections.

Response: Table 1 below provides manufacturer and manufacturer part number for all steel to plastic fusion transition fittings used during the reconstruction phase of the Merrimack Valley incident. The steel to plastic fusion transition fittings comply with the material requirements specified in GS 1680.020 "Plastic to Steel Transition Connections."

Table 1: Steel to Plastic Fusion Transition Fittings Used During Merrimack Valley Reconstruction

MANUFACTURER	MANUFACTURER PART NUMBER
GEORGE FISCHER CENTRAL PLASTICS (GFCP)	360002590
PERFECTION	702150
PERFECTION	702351
GFCP	360013916
LYALL	124504506802
GFCP	360013974
LYALL	128638636800

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D.P.U. 20-PL-35, Steel-to-Plastic Transition Fittings Used During the Merrimack Valley Reconstruction Phase

Date: June 10, 2020

Responsible: Edward Collins – Senior Standards Engineer

IR- PL 1-4(INQ-80 (20-PL-35) Information Request): If transition fittings used do not comply with GS 1680.020, please provide the location of where these fittings were used, and any documentation affiliated with the fitting.

Response: All transition fittings used comply with GS 1680.020. Please refer to the Company's response to Information Request IR-PL-1-3.

Attachment IR-PL-1-2

Unique ID	Fitting SubType	Fitting SubType GISID	Associated Pipe Size(s) - Inches
1	Transition	201923796	2
2	Transition	201931820	2
3	Transition	201935250	2
4	Transition	201924204	2
5	Transition	201927820	2
6	Transition	201933167	2
7	Transition	201934881	2
8	Transition	201936821	8
9	Transition	201936885	2
10	Transition	201938611	2
11	Transition	201938859	2
12	Transition	201947866	4
13	Transition	201929632	2
14	Transition	201934292	2
15	Transition	201936260	4
16	Transition	201936870	2
17	Transition	201937692	2
18	Transition	201938924	2
19	Transition	201924213	2
20	Transition	201929352	2
21	Transition	201930577	2
22	Transition	201933388	2
23	Transition	201934328	2
24	Transition	201937518	2
25	Transition	201937388	2
26	Transition	201922794	2
27	Transition	201930958	2
28	Transition	201937377	2
29	Transition	201924186	2
30	Transition	201928710	2
31	Transition	201929302	2
32	Transition	201933316	2
33	Transition	201935727	2
34	Transition	201938807	2
35	Transition	201938943	2
36	Transition	201949327	4
37	Transition	201949055	2
38	Transition	201921246	2
39	Transition	201929561	2
40	Transition	202143240	4
41	Transition	201938747	2
42	Transition	201949328	4
43	Transition	201921698	2
44	Transition	201921823	2
45	Transition	201922287	2

46	Transition	201923365	2
47	Transition	202143368	6
48	Transition	201931320	2
49	Transition	201931509	2
50	Transition	201936824	2
51	Transition	201926319	2
52	Transition	201932317	2
53	Transition	201937102	2
54	Transition	201933475	2
55	Transition	201935027	6
56	Transition	201937685	2
57	Transition	201924113	2
58	Transition	201931150	8
59	Transition	201949218	6
60	Transition	201937365	2
61	Transition	201923832	4
62	Transition	201935113	8
63	Transition	201940829	8
64	Transition	201935589	2
65	Transition	201936727	2
66	Transition	201936587	2
67	Transition	201936884	2
68	Transition	201923921	6

Columbia Gas of Massachusetts
A NiSource Company

Columbia Gas of Massachusetts High Level Overview of Additional Pressure Testing Analysis:

Pursuant to requests for more detailed pressure testing information than Columbia's current processes or system of record provides, Columbia conducted additional work to match its electronic mapping system against its as-built drawings and corresponding pressure test records. Columbia has done this for each of the 63 project areas associated with the Merrimack Valley Restoration Project, and cross referenced these processes to produce a foot-by-foot analysis. 99.5% of the system was able to be fully confirmed via tracking and traceability verification. The remaining 0.5% was verified via other records, as described below. Based on this analysis, Columbia remains confident that 100% of the mains in the Merrimack Valley Restoration project were tested at the appropriate pressure and duration.
At a high level, this tracking and traceability analysis included:

1) Added all 2,495 unique Merrimack Valley restoration Object IDs (OID's) from Columbia's electronic mapping system to an Excel document, so that the document reflected electronic mapping footage for the total 57.8 miles of tested mains.

2) Reviewed all Merrimack Valley restoration pressure test record documents to align them with each OID and populate relevant information on pressure tests in the Excel document. If a particular OID was covered by multiple pressure tests, that record was split and properly allocated to each test.

3) Summed the footage for each pressure test document and compared to the sum of the footages for the associated OIDs.

4) Recorded and investigated any exceptions. All mains were determined to have an acceptable pressure test based on available pressure test forms combined with pressure test maps.

    a. A separate pivot table (labeled Exceptions on Attachment CMA_MV 15.07 Supplemental #3 (a)) was prepared in order to identify by pressure test (Column A) where the sum of the footage listed on the Pressure Test form (Column E) is not equal to or more than the sum of the GIS length (Column D). In 36 instances, totaling 0.5% of the project footage or 1,398 feet, the pressure test form had a noted exception. A list of these exceptions and a reference to the supporting documents used to support the pressure test are provided in Attachment CMA_MV 15.07 Supplemental #3 (a).

5) Gathered supporting pressure test documents into file folders for reference.

6) Updated a Geographic Information System (GIS) shapefile to model the associations made between the pressure tests and OIDs in the excel document

Dynamic Risk's assessment has indicated an opportunity for Columbia to enhance its processes and procedures around documenting and recording pressure testing information. Columbia is currently evaluating an enhanced method for capturing pressure test start and end points, allowing for improved reconciliation of the length of pipe pressure tested against the as-built drawings.

Attachment CMA_MV 15.07 Supplemental #3 (a)

Pressure Test Document	Sum of GIS (OIDs) Length	Sum of PT Form Pipe Length	Difference Footage	Confidence Statement	Supporting Document
18-0842474-00_21 PDF	1151	1147	-4	Fittings detail not included in PT form, but included in pressure test	Pressure Test Layout
18-0843146-00_62 PDF	316	314	-2	Pressure Test form omits short segments but shows as tested	Pressure Test Layout
18-0843154-00_78 PDF	1152	1131	-21	Fittings detail not included in PT form, but included in pressure test	Tie In Document
18-0843164-00_89 PDF	30	20	-10	Conflicting footage between Pressure test form and as built sketch but pressure test layout shows as tested	Pressure Test Layout
18-0843166-00_93 PDF	838	834	-4	Fittings detail not included in PT form, but included in pressure test as per pressure test layout	Pressure Test Layout
18-0843174-00_120 PDF	1458	1451	-7	Fittings detail not included in PT form, but included in pressure test as per pressure test layout	Pressure Test Layout
18-0843176-00_129 PDF	1225	1150	-75	Segment of pipe omitted from pressure test form	Detail Sketch
18-0843178-00_132	2385	2352	-33	Conflicting footage between Pressure test form and as built sketch but pressure test layout shows as tested	Pressure Test Layout
18-0843186-00_152	2329	2328	-1	Fittings detail not included in PT form, but included in pressure test as per pressure test layout	Pressure Test Layout
18-0843188-00_156 1	4689	4683	-6	Fittings detail not included in PT form, but included in pressure test as per pressure test layout	Pressure Test Layout
18-0843190-00_157 PDF	934	900	-34	Conflicting footage between Pressure test form and as built sketch but pressure test layout shows as tested	Pressure Test Layout

Pressure Test Document	Sum of GIS (OIDs) Length	Sum of PT Form Pipe Length	Difference Footage	Confidence Statement	Supporting Document
18-0843192-00_254_255	1881	1767	-114	Conflicting footage between Pressure test form and as built sketch but pressure test layout shows as tested	Pressure Test Layout
18-0843192-00_256	507	500	-7	Conflicting footage between Pressure test form and as built sketch but pressure test layout shows as tested	Pressure Test Layout
18-0843192-00_259_260	1642	1637	-5	Pressure Test form short footage, but pressure test layout shows full extent of pipe tested	Pressure Test Layout
18-0843194-01_265	33	30	-3	Pressure Test form short footage, but pressure test layout shows full extent of pipe tested	Pressure Test Layout
18-0843194-01_267	1566	1563	-3	Pressure Test form short footage, but pressure test layout shows full extent of pipe tested	Pressure Test Layout and Tie-In document
18-0843194-01_274	536	500	-36	Pressure Test form short footage, but pressure test layout shows full extent of pipe tested	Pressure Test Layout
18-0843196-00_284_285	445	443	-2	Fittings detail not included in PT form, but included in pressure test as per pressure test layout	Pressure Test Layout
18-0843200-00_212 PDF	1186	1177	-9	Fittings detail not included in PT form, but included in pressure test as per pressure test layout	Pressure Test Layout
18-0843212-00_237	2098	1992	-106	Pressure Test form short footage, but pressure test layout shows full extent of pipe tested	Pressure Test Layout
18-0843212-00_240	946	939	-7	Fittings detail not included in PT form, but included in pressure test as per pressure test layout	Pressure Test Layout

Pressure Test Document	Sum of GIS (OIDs) Length	Sum of PT Form Pipe Length	Difference Footage	Confidence Statement	Supporting Document
18-0843214-00_248 PDF	460	455	-5	Pressure Test form short footage, but pressure test layout shows full extent of pipe tested	Pressure Test Layout
18-0843218-00_252 PDF	1813	1767	-46	Pressure Test form short footage, but pressure test layout shows full extent of pipe tested	Pressure Test Layout
18-0843218-00_256 PDF	527	525	-2	Fittings detail not included in PT form, but clearly included in pressure test, as per pressure test layout document	Pressure Test Layout
18-0843220-00_267 PDF	1058	1055	-3	Fittings detail not included in PT form, but clearly included in pressure test, as per pressure test layout document	Pressure Test Layout and Valve Sheet
18-0843228-00_276	1147	847	-300	Pressure Test form short footage, but pressure test layout shows full extent of pipe tested	Pressure Test Layout
18-0843236-00_299.1 PDF	119	115	-4	Fittings detail not included in PT form, but clearly included in pressure test, as per pressure test layout document	Pressure Test Layout
18-0843236-00_306 PDF	366	365	-1	Fittings detail not included in PT form, but clearly included in pressure test, as per pressure test layout document	Pressure Test Layout
18-0843242-00_336 PDF	902	901	-1	Pressure Test form short footage, but pressure test layout shows full extent of pipe tested	Pressure Test Layout
18-0843244-00_347	529	509	-20	Pressure Test form short footage, but pressure test layout shows full extent of pipe tested	Pressure Test Layout
18-0843244-00_354	466	0	-466	Pressure Test form missing footage, but pressure test layout shows extent of pipe tested	Pressure Test Layout

Pressure Test Document	Sum of GIS (OIDs) Length	Sum of PT Form Pipe Length	Difference Footage	Confidence Statement	Supporting Document
18-0843246-00_320 PDF	2177	2167	-10	Pressure Test form short footage, but pressure test layout shows full extent of pipe tested	Pressure Test Layout
18-0843283-00_360 PDF	999	993	-6	Fittings detail not included in PT form, but clearly included in pressure test.	Pressure Test Layout
18-0843415-00_19 PDF	566	560	-6	Fittings detail not included in PT form, but clearly included in pressure test.	Pressure Test Layout
18-0843803-00_260 PDF	925	894	-31	Fittings detail not included in PT form, but clearly included in pressure test.	Pressure Test Layout
18-0843170-00_104 PDF	798	790	-8	Fittings detail not included in PT form, but included in pressure test as per pressure test layout	Pressure Test Layout
36 Test Discrepancies			**(1,398)**		

SERVICE LINE PRESSURE TEST PROCEDURE
FOR SELECT PLASTIC SERVICE TEES OFF PLASTIC MAINS

Description of Project:

The purpose of this procedure is to disconnect and pressure test a live gas service line that currently does not have complete pressure test documentation. In addition, some services will be excavated to verify that the materials used and installation procedures are compliant with Columbia Gas of Massachusetts company standards. A new Service Line Record (SLR) will be completed for the service line at the completion of the work.

If an Excess Flow Valve does not exists and/or a curb valve is required but does not exist it is to be installed.

An excavation will be made at the service tap, inspecting the service tee installation, EFV, locate wire, and connection point to service piping. The meter set assembly and riser will be inspected for proper installation. Any newly installed materials will be recorded on a new SLR.

The pressure test will be completed following the below steps. A Construction Supervisor should be contacted for further instructions, if the below steps cannot be followed or if materials or original installation does not appear compliant with company standards.

References:
Columbia Gas of Massachusetts Gas Standard GS 3020.010, GS 3020.012, GS 1500.010-ma
Service Tee Pressure Test

1. Excavate to expose the main with appropriate and valid Dig Safe ticket and facilities mark out. Refer to applicable GS 1100 Series gas standards.
2. Close riser valve and disconnect meter assembly;
3. Remove completion cap at service tee and ensure that the perforator is turned firmly to the fully closed position;
4. Purge the service line at the riser by opening the riser valve;
5. Cap the riser;
6. Cut and separate service downstream of the EFV (as close as practical to the EFV allowing for reconnect after the air test is complete) and attach air test adapter to the cut end of the service line and pressure test from point of separation to the riser valve and riser cap; if no EFV is installed, install correct EFV;
7. Pressure test the service line at a minimum of 150 PSIG for at least 15 minutes as required by company GS 1500.010MA;
8. Reconnect the original service tee and EFV with a new connecting fitting;
9. Purge the line back into service by raising the perforator in the service tee and vent gas at the riser;
10. Soap test all exposed fittings on the tee and any additional connections and take photos of all said fittings/connections;
11. Text photos to Construction Specialist;
12. Reconnect meter set, soap test connections and relight customer if possible;
13. Complete and endorse the new Service Line Record (SLR) as required by company GS 3020.012; include a detailed sketch calling out all joints that were soap tested;
14. Return new Service Line Record to Construction Office for review;
15. Upload new Service Line Record into SLR and file hard copy in Maps and Records;
16. End of procedure.

MERRIMACK VALLEY SERVICE LINE PRESSURE TEST PROCEDURE

FOR SELECT STEEL SERVICE TEES OFF STEEL MAINS

References:
Columbia Gas of Massachusetts Gas Standard GS 3020.010, GS 3020.012, GS 1500.010-ma

Description of Project:

The purpose of this procedure is to address six live gas service lines with steel service tees off steel mains installed during the Merrimack Valley Restoration Project that currently do not have complete pressure test documentation. This procedure in intended to supplement, and not to be used in lieu of, all applicable gas standards (e.g., GS 3020.010, GS 3020.012, GS 1500.010-ma) for the activity to be performed. Those performing the procedure are expected to possess the necessary Operator Qualifications for the tasks to be performed. Those performing the procedure are expected to follow all relevant Health, Safety and Environmental gas standards (i.e., relevant and applicable GS 4000 through 4400 Series). If the individuals performing the test are also performing the excavation, facilities must be marked out and located in accordance with the GS 1100 Series gas standards. Those who are excavating must secure and possess a valid Dig Safe ticket prior to commencing excavation. In addition, a Pre-Job Briefing & Hazard Assessment should be completed and documented before beginning this test procedure.

The service line should have either an excess flow valve or a curb valve installed in accordance with GS 3020.100(MA). If an Excess Flow Valve is not present or a curb valve is required but does not exist, one will need to be installed. A supervisor must be contacted for direction.

An excavation will be made at the service tap, inspecting the service tee installation, EFV, locate wire, and connection point to service piping. The meter set assembly and riser will be inspected for proper installation. Any newly installed materials will be recorded on a new Service Line Record (SLR) Form GS 3020.012-1. The pressure test will be completed following procedure A or B. A Construction Supervisor should be contacted for further instructions, if the below steps cannot be followed or if materials or original installation does not appear compliant with company standards.

Procedure A below describes the test procedure for testing six steel service tees off of steel mains utilizing natural gas as the test medium and operating the service tee perforator (also referred to as a punch or cutter) to achieve 100 percent shut off between the main and service line. Procedure A is not intended to be used for non-punch style steel tees such as the Mueller H-17500, H-17650 and H-17700 tees. Non-punch style tees will require specialized tapping and stopping equipment (e.g., new rubber stoppers on the H-17500 tee and using a reseating reamer for the H-17650 and H-17700 for most effective stop).

Procedure B below describes the test procedure for testing six steel service tees off of steel mains utilizing air or nitrogen as the test medium and separating the service line if 100 percent shut off between the main and service cannot be achieved. Procedure B can also be used for non-punch style steel tees. However, for non-punch style steel tees, specialized tapping and stopping equipment will need to be used and procedures for such equipment followed to achieve 100 percent stopping of the flow of gas into the service tee, before cutting and separating the service line.

Attachment A (CMA Steel Tee Configurations (July 2020)) should be reviewed prior to beginning Procedure A or B as the type of tee installed will determine whether Procedure A or B is the appropriate procedure to begin with.

MERRIMACK VALLEY SERVICE LINE PRESSURE TEST PROCEDURE

FOR SELECT STEEL SERVICE TEES OFF STEEL MAINS

PROCEDURE A- Testing service line with natural gas, and the service tee punch stopping flow of gas to the service

1. Expose the steel service tee.
2. Identify manufacturer and part number/tee style based upon the service tee documents provided as Attachment A. Do not proceed if the punch type tee exposed is not shown in the documents. Contact Gas Standards.
3. Confirm that the steel service tee is a punch style tee (i.e., the tee has a punch (also known as cutter)) that perforates the steel main. If it is not a punch type tee, STOP and contact supervisor or Gas Standards for direction.
4. Expose all points on the service where joints are present (for example, the service tee to main joint, service tee to EFV joint, EFV to service line joint, service line to riser joint).
5. Leak survey the entire service line (from gas main to end of meter set assembly) to ensure there are no connection leaks. In addition, apply leak detection fluid to all connections and visually inspect for any leakage. Address any leaks found before proceeding.
6. Confirm the service line to be tested is not fed by a low pressure main. This can be done by closing the riser valve, separating the meter set assembly from the riser valve at the insulated union, installing a pressure gauge and opening the riser valve. Observe and document the service line pressure which essentially will be the main pressure. At this point, keep the service line separated from the meter set assembly.
7. Slowly remove the steel cap from the service tee to expose the steel perforator punch. Always use caution whenever removing steel caps from tees. Follow the tee manufacturer's instructions to operate the punch to stop the flow from the gas main. For example, if the tee is a Mueller Autoperf tee, attach a Mueller H-18090 operating wrench to the tee body by first engaging the tool shaft with the hex socket in the perforator, then attaching the tool body to the body of the tee wrench tight. Then ratchet the tool shaft in the clockwise direction until the perforator contacts the main. Then, continue turning to tighten the perforator until a positive shut-off is made.
8. Check for natural gas bleed by at the punch with a combustible gas indicator. Any positive readings would be indicative that 100% seal has not been achieved at the punch. If 100% seal cannot be achieved, stop at this step and proceed to PROCEDURE B.
9. Install a pressure gauge in proximity to the service tee so that any increase in main pressure during the service line retest will be able to be noticed.
10. Open the riser valve to release any line pressure.
11. Purge the service line of natural gas using nitrogen.
12. Reinstall the service tee cap and install a Kuhlman gauge on service line. Observe for any pressure increase for 15 minutes. Any increase in pressure would be indicative that the punch is not sealed 100 percent. If 100 percent seal cannot be achieved, stop at this step and proceed to PROCEDURE B.
13. Install a pressure test configuration in the riser. The configuration should allow one to (1) introduce natural gas into the service line at a pressure of 150 psig and (2) observe the service line test pressure with a calibrated gauge with an appropriate range, with 2 psig increments. This must be achieved by isolating the Natural Gas supply from the bottle with a valve. If no gas bleed by was observed during the preceding steps, slowly introduce natural gas into the service line. Regulate natural gas to a pressure 10 psig less than the gauge measuring main line pressure. Leak survey the service line again and check for any joint leaks. If any leaks occur, safely bleed down service line pressure, address the leak and repeat Step 14. If 100 percent seal cannot be achieved, stop at this step and proceed to PROCEDURE B.
14. Increase natural gas pressure into the service line to a pressure of 150 psig while at the same time observing the main pressure on gauges installed in Step 7. Once the pressure in the service line has

stabilized at 150 psig, isolate the natural gas supply from the service line being tested by closing the natural gas supply valve and hold the pressure at 150 psig for at least 20 minutes. Observe pressure gauges on the main and the service line during this time.

If the pressure remains constant and does not drop, document the test pressure and duration on the Service Line Record. The pressure test is complete. Continue to steps 16-24 of this PROCEDURE A.

If service line pressure drops, do NOT add more natural gas and do NOT increase the natural gas supply pressure. Any drop in service pressure is an indication of leakage somewhere, (e.g., at the punch, at any joint on service line or pressure test apparatus) and an incomplete pressure test. STOP at this step in proceed to PROCEDURE B.

15. If the pressure test was complete and successful, safely bleed down the service line test pressure to atmospheric pressure.
16. Purge the service line of natural gas using nitrogen.
17. Retract service tee punch per tee manufacturer's installation instructions and purge the service line back into gas service.
18. Soap test all exposed fittings on the tee and any additional connections and take photos of all said fittings/connections.
19. Text photo to Construction Specialist.
20. Reconnect meter set, soap test connections and relight customer if possible. If not possible to relight all customer appliances, leave gas to customer shut off.
21. Complete and endorse the new Service Line Record (SLR) Form GS 3020.012-1, as required by company GS 3020.012. Include a detailed sketch identifying all joints that were soap tested.
22. Return new Service Line Record to Construction Office for review by a Construction Specialist.
23. The Construction Operations Coordinator is responsible for uploading the new Service Line Record into Open Text SLR and filing the hard copy SLR in Maps and Records.
24. End of procedure.

SERVICE LINE PRESSURE TEST PROCEDURE

FOR SELECT STEEL SERVICE TEES OFF STEEL MAINS

PROCEDURE B - Testing service line with air or nitrogen, the service tee punch stopping flow of gas to the service, and the service line will be separated from the service tee assembly

Procedure B is to be followed only if while performing PROCEDURE A, steps 13, 14 or 15 have directed one to Procedure B. Essentially, Procedure B involves
(a) physically separating the plastic portion of the service line at a point downstream of the excess flow valve, (b) pressure testing the service line from the point of disconnection to the outlet of the meter set assembly and (c) leak testing the portion of the service line from the base of the service tee at the steel main to the point of disconnection with leak detection soap at operating pressure.

1. Close riser valve. Disconnect meter assembly.
2. Remove steel service tee cap at service tee and ensure that the perforator is turned firmly to the fully closed position.
3. Purge the service line at the riser by opening the riser valve.
4. Cap the riser.
5. Cut and separate service downstream of the EFV (as close as practical to the EFV allowing for reconnect after the air test is complete). Either attach air test adapter to the cut end of the service line and pressure test from point of separation to the riser valve and riser cap; Or, remove cap and attach the test tree to the steel threaded riser, install a cap or plug at the cut service line and then pressure test from the test tree to the service line at the cut. If no EFV is installed, install correct EFV.
6. Pressure test the service line at a minimum of 150 PSIG for at least 15 minutes as required by company GS 1500.010MA.
7. Reconnect the original service tee and EFV with a new connecting fitting.
8. Purge the line back into service by raising the perforator in the service tee and vent gas at the riser.
9. Soap test all exposed fittings on the tee and any additional connections and take photos of all said fittings/connections.
10. Text photo to Construction Specialist.
11. Reconnect meter set, soap test connections and relight customer if possible.
12. Complete and endorse the new Service Line Record (SLR) Form GS 3020.012-1, as required by company GS 3020.012. Include a detailed sketch identifying all joints that were soap tested.
13. Return new Service Line Record to Construction Office for review by a Construction Specialist.
14. The Construction Operations Coordinator is responsible for uploading the new Service Line Record into Open Text SLR and filing the hard copy in Maps and Records.
15. End of procedure.

TEES FROM CDC SOUTH - MRC SSN CATALOG CDC SSN 44-78-003

SSN	WMS SHORT Description	McJ Part No.	McJunkin Part Number Description
44 78 - 003	3/4X1CONT SVTEE WE	63205827	3/4 X 1 CONTINENTAL 1302-09-0814 CS PUNCH VALVE SERVICE TEE WELD

THE ULTIMATE CONNECTION FOR QUALITY PRODUCTS AND SERVICE CONTINENTAL® INDUSTRIES, INC.

PUNCH TEES

1201 & 1302 STYLE STEEL SERVICE PUNCH TEES Weld Outlets

OUTLET	INLET	PART NUMBER	PUNCH SIZE
1/2" IPS Butt Weld or 3/4" IPS Fillet Weld	1/2"Weld	1201-09-0612-00	3/8"CR
	1/2"Threaded	1201-12-0612-00	
1/2" IPS Socket Weld	3/4"Weld	1302-09-0712-00	3/8"CR
	3/4"Threaded	1302-12-0712-00	
3/4" IPS Socket Weld	3/4"Weld	1302-09-0713-00	3/8"CR
	3/4"Threaded	1302-12-0713-00	
3/4" IPS Plain for Butt Welding	3/4"Weld	1302-09-0813-00	3/8"CR
	3/4"Threaded	1302-12-0813-00	
1" IPS Plain for Butt Welding	3/4"Weld	1302-09-0814-00	3/8"CR
	3/4"Threaded	1302-12-0814-00	

- **For sizes not listed, contact Continental Industries.**
- Weld Outlets rated at 500 psig.
- For optional punch sizes, see page 20.
- Recommended accessories;
  - 23-3691-00 ~ 5/16" Hex Drive Key, Bushing and Socket Adapter for 1201 Style Tees (pg 21)
  - 23-3692-00 ~ 3/8" Hex Drive Key, Bushing and Socket Adapter for 1302 Style Tees (pg 21)
  - 23-1644-00 ~ Test Plug Adapter for 1201 Style Tees (pg 21)
  - 23-1645-00 ~ Test Plug Adapter for 1302 Style Tees (pg 21)
- For additional Accessories, see page 21.

OTHER ACCESSORIES	
0000-23-1644-00	TEST PLUG ADAPTER FOR 1201 STYLE PUNCH TEES
0000-23-1645-00	TEST PLUG ADAPTER FOR 1302 STYLE PUNCH TEES
0000-08-3206-00	REPLACEMENT O-RING FOR 0000-23-1644-00 TEST PLUG ADAPTER
0000-08-1554-04	REPLACEMENT O-RING FOR 0000-23-1645-00 TEST PLUG ADAPTER

Non Punch type tee

TEES FROM CDC SOUTH - MRC SSN CATALOG

CDC SSN 44-78-048

SSN	WMS SHORT Description	McJ Part No.	McJunkin Part Number Description
44-78-048	1.25X1 CONTSVTE THXW	63207125	1-1/4 X 1 CONTINENTAL 1521-11-0814 SERVICE TEE THD W/VLV

CONTINENTAL® INDUSTRIES, INC. **THE ULTIMATE CONNECTION FOR QUALITY PRODUCTS AND SERVICE**

SAFE-T VALVE TEES

1319, 1420 & 1521 STYLE
STEEL SERVICE SAFE-T VALVE TEES
Weld Outlets

OUTLET	INLET	PART NUMBER
3/4" IPS Socket Weld	3/4" Weld	1319-10-0713-00
	3/4" Threaded	1319-11-0713-00
3/4" IPS Plain for Butt Welding	3/4" Weld	1319-10-0813-00
	3/4" Threaded	1319-11-0813-00
1" IPS Plain for Butt Welding	1" Weld	1420-10-0814-00
	1" Threaded	1420-11-0814-00
1 1/4" IPS Plain for Butt Welding	1 1/4" Weld	1521-10-0814-00
	1 1/4" Threaded	1521-11-0814-00

- **For sizes not listed, contact Continental Industries.**
- Weld Outlet Saddle Tees rated at 300 psig.
- Recommended accessories;
  - 23-0549-00 ~ Adapter and Key for H-17045 Completion Machine (pg 25)
  - 23-0673-00 ~ Adapter and Key for use with E4, D4, DH2 and T Drilling Machines (pg 25)
  - 23-0473-00 ~ Completion Tool–250 psi max. (pg 25)
- For additional Accessories, see page 25.

TEES FROM CMA - MRC SSN CATALOG

CMA SSN	Description	MRC Description
21-83-8402	2 STL X 1/2 CTS .090 COMP W/CAP CONTINENTAL SADDLE TEE #1315-17-1004-00, 3/4" BODY	3/4 BDY CONTI 1315-17-1004-00 STL SERV TT 2 SADDLE X 1/2 CTS .090 COMP W/CAP
21-83-8403	3 STL X 1/2 CTS .090 COMP W/CAP CONTINENTAL SADDLE TEE #1315-19-1004-00, 3/4" BODY	3/4 BDY CONTI 1315-19-1004-00 STL SERV TT 3 SADDLE X 1/2 CTS .090 COMP W/CAP
21-83-8404	4 STL X 1/2 CTS .090 COMP W/CAP CONTINENTAL SADDLE TEE #1315-21-1004-00, 3/4" BODY	3/4 BDY CONTI 1315-21-1004-00 STL SERV TT 4 SADDLE X 1/2 CTS .090 COMP W/CAP
21-83-8406	6 STL X 1/2 CTS .090 COMP W/CAP CONTINENTAL SADDLE TEE #1315-24-1004-00, 3/4" BODY	3/4 BDY CONTI 1315-24-1004-00 STL SERV TT 6 SADDLE X 1/2 CTS .090 COMP W/CAP

Continental Industries steel punch tee with 1" CTS (0.101 wall) compression outlets **with the outlet perpendicular to the main direction**. These tees would allow CMA to install 1" CTS (0.101 wall) EFV sticks and service lines without welding the tee to the main. Only available in 2, 3, 4 and 6 inch nominal steel main sizes.

CONTINENTAL® INDUSTRIES, INC. THE ULTIMATE CONNECTION FOR QUALITY PRODUCTS AND SERVICE

SADDLE PUNCH TEES

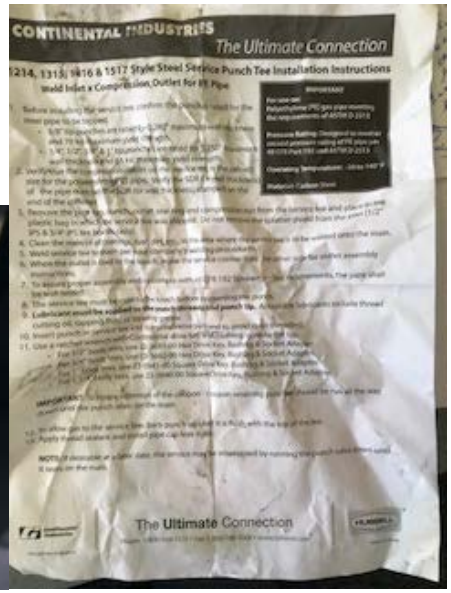
1214, 1315, 1416 & 1517 STYLE
STEEL SERVICE SADDLE PUNCH TEES
Plastic Compression Outlets

1" CTS (1 1/8" OD)	.099/.101	3/4"	3/4"	3/8" CR	1315-13-1008-00
		3/4"	1"	3/8" CR	1315-14-1008-00
		3/4"	1 1/4"	3/8" CR	1315-15-1008-00
		1"		3/4" CR	1416-15-1008-00
		3/4"	1 1/2"	3/8" CR	1315-16-1008-00
		1"		3/4" CR	1416-16-1008-00
		3/4"	2"	3/8" CR	1315-17-1008-00
		1"		3/4" CR	1416-17-1008-00
		3/4"	3"	3/8" CR	1315-19-1008-00
		1"		3/4" CR	1416-19-1008-00
		3/4"	4"	3/8" CR	1315-21-1008-00
		1"		3/4" CR	1416-21-1008-00
		3/4"	6"	3/8" CR	1315-24-1008-00
		1"		3/4" CR	1416-24-1008-00
		3/4"	3/4"	3/8" CR	1315-13-1008-0A

Below is a tee used by National Grid that was provided by a NEUCO distribution service installation crew that was submitted for CMA consideration. It is a steel service tee from Continental Industries. It is laser etched with Continental part number 991599011900. It has a Nicopress sleeve brazed on the body for an anode wire crimp connection. We have no reason to believe these were installed, unless NEUCO installed National Grid inventory in CMA's system.







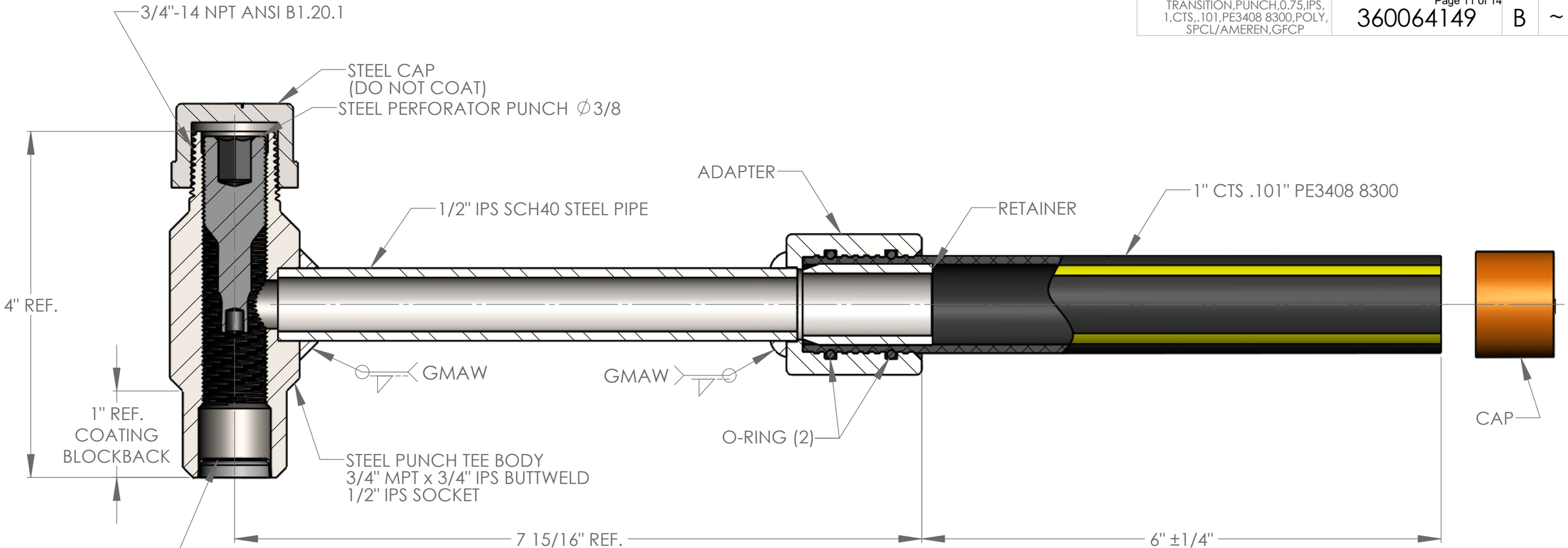
MRC #	NiSource SSN	Description	MRC UOM
63208732	17-79-813	3/4" WELD INLET SERVICE TEE WITH 1-1/4" IPS WELD OUTLET WITH 1/2" CUTTER CONTINENTAL #1315-09-0815-G0 DRESSER #0090-0001-910	EA

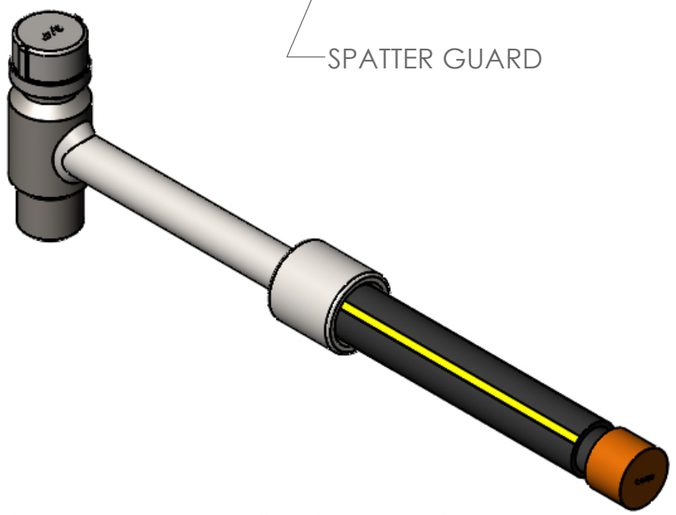
MRC #	NiSource SSN	Description	MRC UOM
63206881	17-79-815	1 1/4" WELD INLET SERVICE TEE W/ 1 1/4" WELD OUTLET, WITH 1" CUTTER CONTINENTAL #1517-09-0815-00 (25 PER CARTON) EACH CARTON	EA

NON PUNCH TYPE TEE

MRC #	NiSource SSN	Description	MRC UOM
63208741	17-79-816	SAFE-T-VALVE TEE 1-1/4" MPT X 1-1/4" FPT #1521-11-1515-00	EA

TITLE:	DRAWING NUMBER:	SIZE:	REV:
STEEL SERVICE TEE, TRANSITION,PUNCH,0.75,IPS, 1,CTS,.101,PE3408 8300,POLY, SPCL/AMEREN,GFCP	360064149	B	~





REV: NO.	MADE BY: CHKD BY:	DATE:	REVISIONS

TOLERANCE UNLESS NOTED:
COATING: 8 MIL AVG MIN
ANGULAR: ±1°
FRACTIONS: ±1/8
DECIMALS:
.XX ±.015
.XXX ±.005
PART WEIGHT:
SCALE: 1:1.125

GF CENTRAL PLASTICS, LLC
39605 INDEPENDENCE, SHAWNEE, OKLA. 74804 USA

TITLE: STEEL SERVICE TEE,TRANSITION,PUNCH,0.75,IPS, 1,CTS,.101,PE3408 8300,POLY,SPCL/AMEREN,GFCP

MATERIAL:

DRAWN BY:	CHECKED BY:	DRAWING NUMBER:	SIZE:	REV:
RHESTER		360064149	B	~
DATE: 12/14/17	APPROVED BY:			

T:\360064149\Engineering\Models\360064149

MRC #	NiSource SSN	Description	MRC UOM
63427275	17-79-807	3/4" X 1/2" DRESSER TAP-N-VALVE WELD TEE W/ARMORED GSKT AND 3/8" CUTTING TOOL	EA

MRC #	NiSource SSN	Description	MRC UOM
63427267	17-79-808	3/4" X 1/2" DRESSER WELD TAP TEE W/COMP END AND 3/8" CUTTING TOOL #0501-0130-064	EA

MRC Part #	NiSource SSN	Description	MRC UOM
63202247	17-79-809	3/4" X 1/2" WELD TEE / FLO LMTR STL-PE SELF TAPPING TEE ON INLET AND 5/8" OD .090W COMPRESSION ADAPTER ON OUTLET, 14" LONG UMAC KIT# 40056 SERIES 400	EA

Non Punch Type Tee

MRC #	NiSource SSN	Description	MRC UOM
63420225	44-78-8501	1-1/4" NO-BLO SERVICE TEE 1-1/4" WELD OUTLET W/ COMPLETION PLUG, FORGED STL W/250 PSI CI CAP MUELLER #H-17500	EA
63420199	44-78-8005	2" NO-BLO SERVICE TEE 2" WELD OUTLET W/ COMPLETION PLUG, FORGED STL W/250 PSI CI CAP MUELLER #H-17500	EA

NON PUNCH TYPE TEE

MRC #	NiSource SSN	Description	MRC UOM
63420229	44-78-8004	1-1/4" NO-BLO SERVICE STOP TEE 1-1/4" WELD OUTLET W/ STEM AND BUSHING, FORGED STL W/250 PSI CI CAP MUELLER #H-17650	EA
63420207	44-78-8502	2" NO-BLO SERVICE STOP TEE 2" WELD OUTLET W/ STEM AND BUSHING, FORGED STL W/250 PSI CI CAP MUELLER #H-17650	EA

NON PUNCH TYPE TEE

MRC #	NiSource SSN	Description	MRC UOM
63420198	44-78-8503	2" NO-BLO SERVICE TEE W/ 2" WELD OUTLET, FORGED STL W/ 250 PSI CI CAP MUELLER #H17724	EA

Town of North Andover
Office of the Town Manager
North Andover Town Hall
120 Main Street
North Andover, MA 01845
mrodrigues@northandoverma.gov

Melissa Murphy-Rodrigues, Esq. *Telephone (978)688-9510*
Town Manager *Fax (978)688-9556*

Doreen DeShaies
287 Waverly Road
North Andover, MA 01845

Dear Doreen,

I hope this letter finds you well.
Columbia Gas needs to retest the gas service line to your home to document that it has been properly tested. The company is not aware of any safety concerns with the line -- the retesting is approved by the Department of Public Utilities and is necessary to ensure the company has a full set of records for every installed service line.

The testing involves digging at the street and at the meter and temporarily shutting off gas service while a work crew conducts a pressure test to complete records. Upon successful completion of the test, a Columbia Gas technician will need brief access to enter the home to relight natural gas appliances. The work crew will practice COVID-19 safety protocols, restore the property after the test is completed, and be off the lawn within a few hours.

They reached out to me because they have been unable to reach you. If you have any questions please feel free to call my office.

Sincerely,
M. M. Rodrigues

Melissa Rodrigues
Town Manager