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November 15, 2021

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 (8) and (20) Supplemental

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 (the “Department”) and Bay State Gas Company d/b/a Columbia Gas of Massachusetts (“Bay State Gas”) in the above-captioned matter, Eversource Gas Company of Massachusetts d/b/a Eversource Energy¹ (“EGMA” or the “Company”) hereby provides the supplemental response to address the requirements of Items 8 and 20 of the Consent Order.

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, SS 192.511 and 192.513

Supplemental Response:

In the Company’s original response to Compliance Agreement Requirement (8), it recognized that twelve of the services requiring a re-test had been completed, with two remaining: the services located at 18 Foster Circle and 287 Waverly Road.

On December 10, 2020, the Company provided information to the Division documenting that the service at 18 Foster Circle had been pressure tested for the appropriate amount of time. Please refer to Attachment 19-140-8 Supp. (a) for documentation regarding the pressure test at this location, which was previously provided to the Division.

¹ On October 7, 2020, the Department approved the sale of the business of Bay State Gas to Eversource Energy. The closing on that sale occurred on October 9, 2020. Following closing of the sale, EGMA began serving customers in Bay State Gas’ service territory and operating Bay State Gas’ facilities, and provides this filing today for the Department’s consideration.

Additionally, on October 12, 2021, the Company was able to coordinate with the customer at 287 Waverly Road and complete the service re-test at that location in accordance with State and Federal code requirements. The Company addressed the customer's concerns about potential property damage by abandoning the old service at the main, installing a new service to the house, and pressure testing the new service. The Standard Operating Procedure used to complete this service installation and re-test is provided as Attachment 19-140-8 Supp. (b). Documentation of the service re-test is provided as Attachment 19-140-8 Supp. (c).²

Lastly, in the Company's December 10, 2020 response to the Division, the Company stated that it would perform a monthly leak survey in the vicinity of 287 Waverly Road until this service was able to be tested. The Company conducted these tests throughout the year with the final survey conducted following the October 12, 2021 re-test.

Original 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 (20)

Within 180 days of the effective date of this Order, CMA shall self-audit all LNG facilities and document areas where maintenance and training record are missing in accordance with the records retention requirements of 49 C.F.R. Part 193, § 193.2639 and § 193.2719, and include such documentation in the records for future review.

Supplemental Response:

Please refer to Attachment 19-140-20 Supp. (a) for an updated version of Sanborn Head's summary document. Following the Company's initial response, Sanborn Head updated this document to clarify the steps that Sanborn Head took in approaching and completing the audit. To

² Please note that Attachments 19-140-8 Supp. (a) and 19-140-8 Supp. (c) contain Critical Energy Infrastructure Information and are being provided pursuant to a Statement in Support of a Designation of Critical Energy Infrastructure Information. Redacted copies of the same are being provided for the public record.

easily track these changes, the Company has provided a clean and redlined version of this updated summary document.

Original Response:

In August 2020, Bay State Gas entered a contract with Sanborn Head to audit the maintenance and training records of its Easton, Marshfield, Ludlow, and Lawrence LNG facilities (together the “LNG Facilities”) for the years 2015 through 2019. To support the audit, Bay State Gas provided records of all repetitive maintenance tasks at each facility, for the years being reviewed. Sanborn Head also made site visits to each of the LNG facilities.

Upon the conclusion of the audit, Sanborn Head produced a summary document, included as Attachment 19-140-20(a) as well as a document for each facility, included as Attachment 19-140-20(b). Within the summary document, fifteen recommendations were made to assist the Company in efforts to improve the facility record keeping. Table 1, below, provides a description of how the Company is addressing each of the recommendations, as well as a status update. The audit, the resultant recommendations, and implementation plans associated with those recommendations are also included in the scope of the Comprehensive Safety Assessment & Implementation Plan, and will be reported on both in the initial filing made to the Department on September 1, 2021, and in progress reports to be provided every six months through 2028 pursuant to the Settlement Agreement approved by the Department in D.P.U. 20-59.

Table 1 – Recommendations and Status

<u>Recommendation</u>	<u>Status</u>	<u>Comments</u>
Update the Process Flow and Piping & Instrument Diagrams for all facilities to current conditions to meet the intent of NFPA 59A.	In Progress	The Company is working with Sanborn Head to update the Process Flow and Piping & Instrument Diagrams at the Marshfield and Lawrence LNG facilities. The Company has received proposals for completing the diagrams for the Easton and Ludlow LNG facilities. The final diagrams for all four facilities are expected to be complete by the end of the second quarter in 2022.
Confirm the site plan, electrical area classification, and hazard detection/fire protection plan drawings are representative of current conditions.	In Progress	The Company hired a contractor (CH IV) to complete the electrical area classifications. The Company has also received a proposal from Blue Engineering to complete the hazard detection and fire protection plan drawings. The expected completion of these drawings is December 2021.

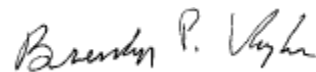
<u>Recommendation</u>	<u>Status</u>	<u>Comments</u>
Develop a plan to improve the required corrosion protection record keeping so the LNG facility has access to the records that are maintained by the corrosion department.	Completed	The Company has implemented a local paper system of record for corrosion protection at each of the LNG facilities. Additionally, the scheduling of corrosion related inspection will also become a managed activity within the Company's maintenance management process.
Develop and maintain a plant employee list at the facility, including hire and termination date, to allow confirmation of initial and every two-year training for the duration of employment, plus two years.	In Progress	In addition to a local system of record at each LNG facility, the Company is in the process of developing a matrix within Excel, which will be used moving forward to track hire and termination date, and allow confirmation of initial and every two-year training.
Improve plant access or ease of obtaining records for employee OQ training records for employees performing corrosion related tasks at the LNG facility.	Completed	The Company has contracted out the performing of corrosion related tasks at EGMA;'s LNG facilities to Mass Tank. Resulting reports will then be reviewed by a qualified member of the Company's corrosion department.
Identify in the plant maintenance manual or procedures how to document/record when components are taken out of service when their respective safety devices are taken out of service for maintenance.	In Progress	The Company has engaged Sanborn Head to complete a revision of the maintenance manual. This recommendation will be addressed as part of the revision.
Identify in the plant maintenance manual or procedures how to document/record confirmation that a minimum amount of fire control equipment is taken out of service at any one time and returned to service in a reasonable period of time.	In Progress	The Company has engaged Sanborn Head to complete a revision of the maintenance manual. This recommendation will be addressed as part of the revision.

<u>Recommendation</u>	<u>Status</u>	<u>Comments</u>
Identify in the plant maintenance manual or procedures how to document/record qualified company or contracted personnel perform each maintenance task.	In Progress	The Company has engaged Sanborn Head to complete a revision of the maintenance manual. This recommendation will be addressed as part of the revision.
Identify and execute plan to conduct an annual generator capacity test under full plant load or alternate load test to meet requirements of 49 CFR 193.2613 and NFPA 59A 11.5.1.4, 11.5.1.5.	Completed	The Company has created a regularly scheduled task within its work management system to conduct an annual generator capacity test under full plant load or alternate load test.
Update scheduled maintenance tasks to ensure compliance with codes and the plant maintenance manual: fire protection control systems components, including manual pull stations, fire panel, and combustible gas detectors, tested at intervals not to exceed 6 months.	In Progress	The Company has compiled an inventory of all scheduled maintenance tasks and records, and has issued a purchase order to Sanborn Head to review the database. The review is expected to be done by the end of 2021. Upon the conclusion of the review, updates will be made as necessary.
Update scheduled maintenance tasks to ensure compliance with codes and the plant maintenance manual: process instrumentation.	In Progress	The Company has compiled an inventory of all scheduled maintenance tasks and records, and has issued a purchase order to Sanborn Head to review the database. The review is expected to be done by the end of 2021. Upon the conclusion of the review, updates will be made as necessary.
Update scheduled maintenance tasks to ensure compliance with codes and the plant maintenance manual: atmospheric corrosion inspections for above grade un-insulated and insulated piping.	In Progress	The Company has compiled an inventory of all scheduled maintenance tasks and records, and has issued a purchase order to Sanborn Head to review the database. The review is expected to be done by the end of 2021. Upon the conclusion of the review, updates will be made as necessary.
Update scheduled maintenance tasks to ensure compliance with	In Progress	The Company has compiled an inventory of all scheduled

<u>Recommendation</u>	<u>Status</u>	<u>Comments</u>
codes and the plant maintenance manual: tank foundation surveys.		maintenance tasks and records, and has issued a purchase order to Sanborn Head to review the database. The review is expected to be done by the end of 2021. Upon the conclusion of the review, updates will be made as necessary.
Develop or identify plan for where to save/upload test results for contractor performed maintenance tasks to improve record keeping and plant access or ease of obtaining records such as relief valve testing reports.	Completed	The Company has created a system of paper records that will be locally managed to track test results for contractor performed maintenance tasks.
Perform and document required fire drills at all facilities.	Completed	Documentation of fire drills at each facility is included in the Company's annual LNG Facility Fire Prevention filing.

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
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**EVERSOURCE GAS COMPANY OF MASSACHUSETTS d/b/a
EVERSOURCE ENERGY’S STATEMENT IN SUPPORT OF A FINDING OF
CRITICAL ENERGY INFRASTRUCTURE INFORMATION**

I. INTRODUCTION

Eversource Gas Company of Massachusetts d/b/a Eversource Energy (“EGMA” or the “Company”) hereby requests that 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, between the Department’s Pipeline Safety Division (the “Division”) and Bay State Gas Company d/b/a Columbia Gas of Massachusetts (“Bay State Gas”) in accordance with G.L. c. 25, § 5D and G.L. c. 4, §7 cl. 26 (n).¹

Specifically, the Company requests that the Department protect from public disclosure certain detailed maps and diagrams that contain and constitute Confidential Energy Infrastructure Information (“CEII”) produced as Attachment 19-140-8 Supp. (a) and Attachment 19-140-8 Supp. (c) (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 impact the safety and security of the Company’s system.

The Company is contemporaneously providing redacted versions of the CEII

¹ On October 7, 2020, the Department approved the sale of the business of Bay State Gas to Eversource Energy. The closing on that sale occurred on October 9, 2020. Following closing of the sale, EGMA began serving customers in Bay State Gas’ service territory and operating Bay State Gas’ facilities.

Attachments for the public record 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

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

The Department has plain and unambiguous statutory authority to keep CEII information contained in Attachment 19-140-8 Supp. (a) and Attachment 19-140-8 Supp. (c), 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. The CEII Attachments contain the detailed diagrams and schematics of the Company's distribution system, the public exposure of which could reveal sensitive information to bad actors and jeopardize public safety. Specifically, these attachments contain diagrams relating to services at specific locations and valves which if disclosed could allow bad actors to detailed information about the Company's distribution infrastructure, and should be protected from public disclosure. The Company respectfully requests that that Department afford protective treatment for the CEII Attachments.

IV. CONCLUSION

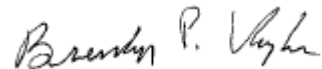
The Company respectfully requests that the Department grant the Company's motion and provide protective treatment for the CEII Attachments. Furthermore, given that the CEII Attachments are not likely to change at any time or to lose their confidential nature, the Company respectfully requests the CEII 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,

**Eversource Gas Company of
Massachusetts d/b/a Eversource Energy**

By its attorneys,



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

Dated: November 15, 2021

REDACTED

18 6488996 00
Form GS 3020.012-1 (11/2016)

SERVICE LINE RECORD (SLR)

FORM WILL BE SCANNED - PRINT USING BLACK INK

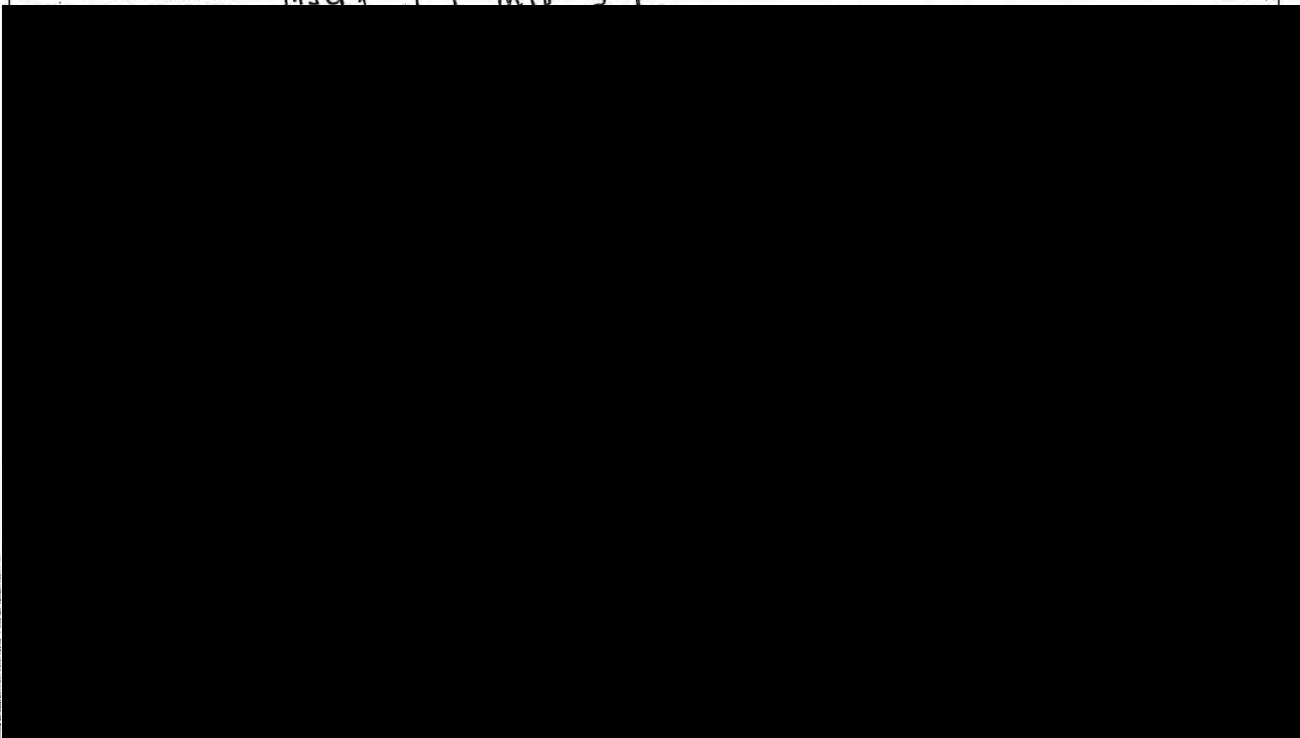
JOB ORDER # 18 6450172-00

FORM COMPLETED BY: Robert Seeburger

NEW (N) REPLACE (R) ABANDON (A) REPAIR (F) SURVEY (S) ~~REPAIR~~/REC (TR)

DATE: 10/5/18

SERVICE ADDRESS <u>18 Foster Cr</u>						CITY <u>AND</u>				
PSID/SITE ID <u>558723005</u>		LOC NUM <u>8400</u>		TAXING DISTRICT		MAIN NUM <u>80001004</u>		OP PRESS <u>HP</u>		
MAP NUM <u>25</u>		MAIN SIZE-MATL <u>4" HP HD</u>		MAIN REFERENCE (LOCATION) <u>11 ECLP</u>		SPECIAL CONDITION CODES <u>LEGJK</u>				
EFV INSTALLED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		EFV MANUF & MODEL <u>700</u>			GPS COORD					
MAIN TO PROPERTY LINE OR CURB VALVE	LENGTH <u>12</u>	SIZE <u>1"</u>	MATERIAL <u>P</u>	DEPTH (IN) <u>34</u>	OP PRESS <u>HP</u>	DATE INSTLD/ABN <u>10/5/18</u>	INSTALL MTHD <u>PI</u>	REPAIR DATE	REPAIR KIND	
PROPERTY LINE OR CURB VALVE TO METER	LENGTH <u>49</u>	SIZE <u>1"</u>	MATERIAL <u>PI</u>	DEPTH (IN)	OP PRESS <u>HP</u>	DATE INSTLD/ABN <u>10/5/18</u>	INSTALL MTHD <u>PI</u>	REPAIR DATE	REPAIR KIND	
RETIRED PIPE (CMA ONLY)	LENGTH	SIZE	MATERIAL	DEPTH (IN)	DATE INSTALLED	DATE ABN	NEW PIPE FTG INSTALLED (CMA ONLY)	LENGTH	SIZE	MATL
MT	MASTER TAP REFERENCE (ADDR AND/OR PSID/SITE ID)			CURB BOX LOCATION <u>NCV-EFV</u>		TAP LOCATION <u>37FFB 4RLJ</u>		RISER CODE <u>HE 10</u>		
PULL BACK CAMERA USED AND VIDEO VERIFIED CLEAR WITH SITE INVESTIGATION PERFORMED: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO BY:						SEE RELATED SEWER LOCATE CARD <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		POST SEWER CAMERA REQUIRED TO BE SCHEDULED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
PRESSURE TESTED PER GAS STANDARD						BY (SIGNATURE; THEN PRINT NAME & EMPLOYEE NUM & COMP NAME)				
<input checked="" type="checkbox"/> SRV LINE M-PL/CV	<u>15</u>	MINS @	<u>150</u>	PSIG	<input type="checkbox"/> Soap Test	<u>Jason Paulen (RHW)</u>				
<input checked="" type="checkbox"/> SRV LINE PL/CV-MTR	<u>15</u>	MINS @	<u>150</u>	PSIG	<input type="checkbox"/> Soap Test					
ADDITIONAL INFORMATION <u>Insect 1" pipe into 2" P</u>										



PERSONS MAKING WELDS, FUSIONS, AND MECHANICAL FITTING JOINTS

EMPL NUM & CO <u>Jason Paulen (RHW)</u> <input type="checkbox"/> W <input checked="" type="checkbox"/> EF <input type="checkbox"/> SF <input type="checkbox"/> BF <input type="checkbox"/> M		EMPL NUM & CO <input type="checkbox"/> W <input type="checkbox"/> EF <input type="checkbox"/> SF <input type="checkbox"/> BF <input type="checkbox"/> M	
EMPL NUM & CO <input type="checkbox"/> W <input type="checkbox"/> EF <input type="checkbox"/> SF <input type="checkbox"/> BF <input type="checkbox"/> M		EMPL NUM & CO <input type="checkbox"/> W <input type="checkbox"/> EF <input type="checkbox"/> SF <input type="checkbox"/> BF <input type="checkbox"/> M	
POST INSTALL LOCATING <input type="checkbox"/> PAINT <input type="checkbox"/> FLAGGED <input type="checkbox"/> LOCATED		OFFICE USE ONLY: REVIEWED BY AND DATE	

SKETCH THE SERVICE LINE IN THE SPACE ABOVE; INDICATE NORTH

COMPLETE BOTH SIDES OF FORM

REDACTED

Form GS 3020.012-1 (11/2016)

SERVICE LINE RECORD (SLR)
COMPLETE BOTH SIDES OF FORM

FORM WILL BE SCANNED - USE BLACK INK

MATERIAL							
SSN	DESCRIPTION	SIZE	QTY INST	SSN	DESCRIPTION	SIZE	QTY INST
	4x1 TT	4x1	1				
43-04-810	EF Coupl	1"	3				
16-03-822	EFV 700	1"	1				
	Riser	1"	1				
44.84.8101	HP Setting	425	1				

FOR MORE INFORMATION, CONSULT GS 3020.012

REFERENCE CODES

OP PRESSURE

- LP LOW PRESSURE
- IP INTERMEDIATE PRESSURE
- MP MEDIUM PRESSURE
- HP HIGH PRESSURE

MASTER TAP

LEAVE BLANK IF ONLY 1 CUST ON SL
(KY, MD, OH, PA, VA)

USE DASH (-) IF ONLY 1 CUST ON SL
(MA)

- * PRIMARY REF BY CB
- + OTHER DOWNSTR CUST
- P SPLIT SERVICE; PRIM SL
- S SPLIT SERVICE; SEC SL

MAIN REFERENCE (LOCATION)

EXAMPLE: 010 S NCU

WHERE:
010 = DISTANCE IN FEET
S = SOUTH OF
NCU = REF OBJECT; NORTH CURB

FOR ROOFTOP, ADD "RT"

DESIGNATING CB & OTHER LOCATIONS

EXAMPLE: 32 FFB 5 RRB
32 FT FRONT OF FRONT BLDG EDGE
5 FEET RIGHT OF RIGHT BLDG EDGE

RISER CODES

USE RISER CODE PROVIDED BY VENTYX OR WMS; OR
CONTAINED IN DIS CONTROL TABLES

INSTALLATION METHOD

- OC OPEN CUT
- TO TIE OVER
- PI PLASTIC INSERT
- TT TRENCHLESS TECH

DATE FORMAT

ALL DATES TO BE IN MM-DD-YYYY FORMAT
EXAMPLE: 01-31-2007
EXAMPLE: 11-12-2019

OBJECT CODES

- B BLDG EDGE
- BK BACK
- C CORNER
- CB CATCH BASIN
- CEL CENTER OF EB LANE
- CLP CENTER OF PAVEMENT
- CLR CENTER OF RT OF WAY
- CNL CENTER OF NB LANE
- CO CLEANOUT (SEWER)
- COP CENTER OF PROPERTY
- CSL CENTER OF SB LANE
- CU CURB
- CWL CENTER OF WB LANE
- D DRIVEWAY EDGE
- DS DOWNSPOUT
- EP EDGE OF PAVEMENT
- ES EDGE OF SIDEWALK
- F FRONT
- G GARAGE EDGE
- L LEFT
- LAT LATERAL (SEWER)
- M METER
- MH MANHOLE
- P PORCH EDGE
- PAD TRAILER PAD
- PL PROPERTY LINE
- R RIGHT
- RW RIGHT OF WAY
- SAN SANITARY SEWER
- ST STORM SEWER
- W WATER VALVE
- Y WYE FITTING

MATERIAL CODES

- CI CAST IRON
- CU COPPER
- OT OTHER
- P PLASTIC
- PI PLASTIC INSERT
- S STEEL
- ST STEEL, TREATED
- WI WROUGHT IRON

JOINT TYPES

- BF BUTT FUSION
- EF ELECTROFUSION
- SF SOCKET FUSION
- M MECHANICAL FITTING
- W WELDED (STEEL)

EFV MANUF & MODEL

- UMAC 300
- UMAC 400
- UMAC 700
- UMAC 1100
- UMAC 1800
- UMAC 2600
- UMAC 5500
- UMAC 10,000

IF NOT ON LIST, WRITE IN
MANUF & MODEL USED

SPECIAL CONDITIONS

- A ANODE INSTALLED
- B BURIED REGULATOR
- C CUST ANODE; CO INSTALL
- E ELECTRONIC MARKER
- F COMPR FITTING ON TIES
- G GAS FLOW LIMITER/EFV
- H TAP BLW HARD SURFACE
- I INSULATOR INSTALLED
- J FIT (METER SETTING) INSTALLED
- K EFV TAGGED
- L LOC WIRE TIED TO PLASTIC MAIN WIRE
- M MULT SRV, 1 SL 1 MTR
- N MTR BARRIER INSTALLED
- P PLASTIC VALVE
- Q FARM TAP
- S TEST STATION
- T TAP TEE IS MECH PLASTIC
- V VLV BRASS MUELLER INSTA-TITE
- W METER MOVED OUT
- * SEE ADDL INFORMATION

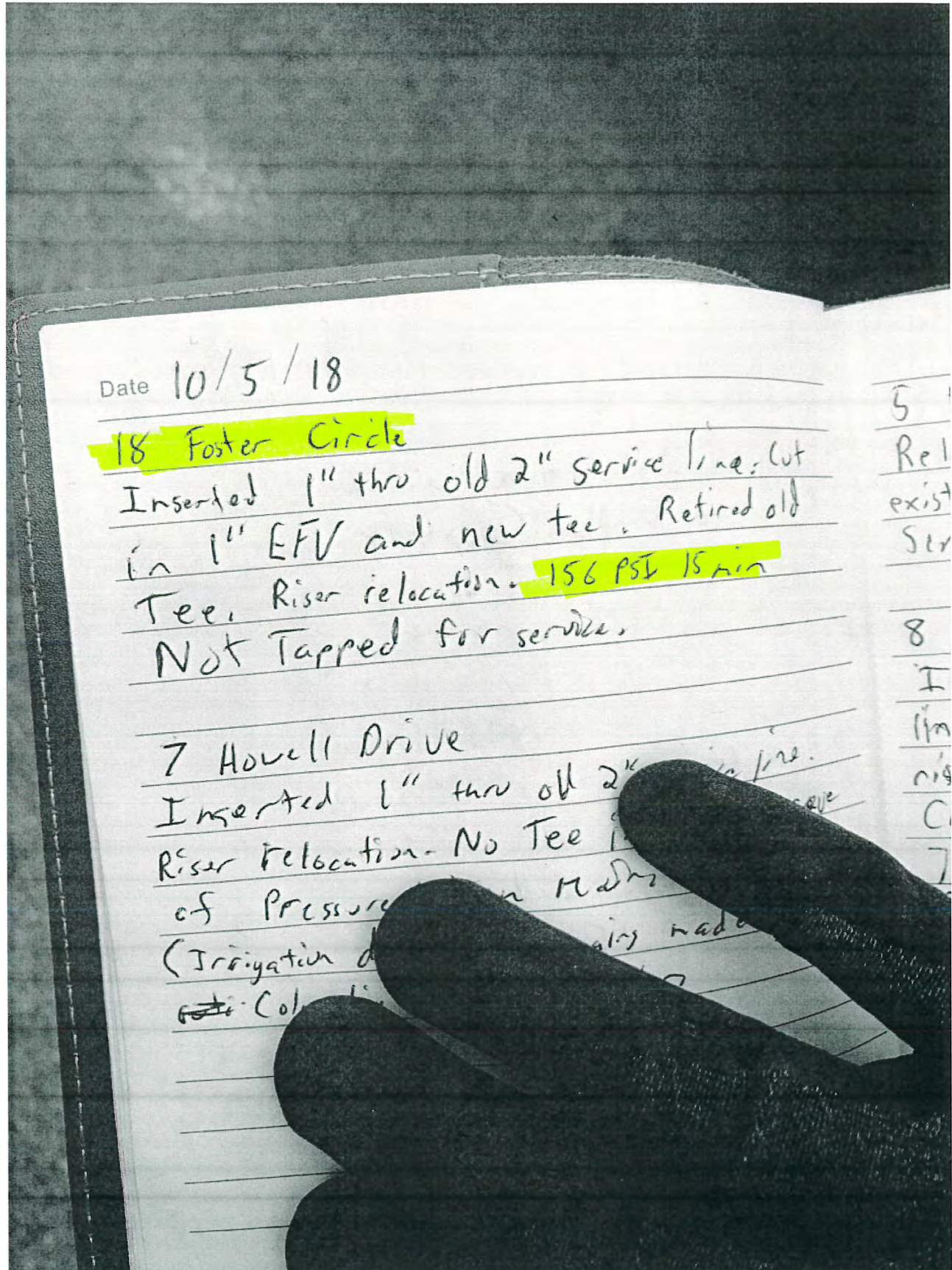
SIZE CODES (LARGER SIZES SIMILAR)

- 005 1/2"
- 007 3/4"
- 010 1"
- 012 1-1/4"
- 015 1-1/2"
- 020 2"
- 030 3"
- 040 4"

REDACTED

11/25/2020

Mail - ANGELARI, JENNY - Outlook



Date 10/5/18

18 Foster Circle

Inserted 1" thru old 2" service line, cut
in 1" EFV and new tee. Retired old
Tee. Riser relocation. 156 PSI @ 15 min
Not Tapped for service.

7 Howell Drive

Inserted 1" thru old 2" service line.
Riser relocation - No Tee
of Pressure
(Irrigation
Col

5
Rel
exist
Str
8
I
lim
ris
C
7

MERRIMACK VALLEY SERVICE LINE PRESSURE TEST PROCEDURE

FOR SELECT STEEL SERVICE TEES OFF STEEL MAINS

References:

Eversource Gas Standard OM-150, OM-050 and OM-210

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 is intended to supplement, and not to be used in lieu of, all applicable gas standards (e.g., OM-150, OM-050 and OM-210) 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. If the individuals performing the test are also performing the excavation, facilities must be marked out and located in accordance with OM-150. 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 an excess flow valve and a curb valve installed in accordance with OM-260 and CS-200. If an Excess Flow Valve and a curb valve is not present, 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 or DAR per OM-050. 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 (EGMA, formerly 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) or DAR as per OM-050. 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 OM-210.
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 or DAR per OM-050. 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.

REDACTED

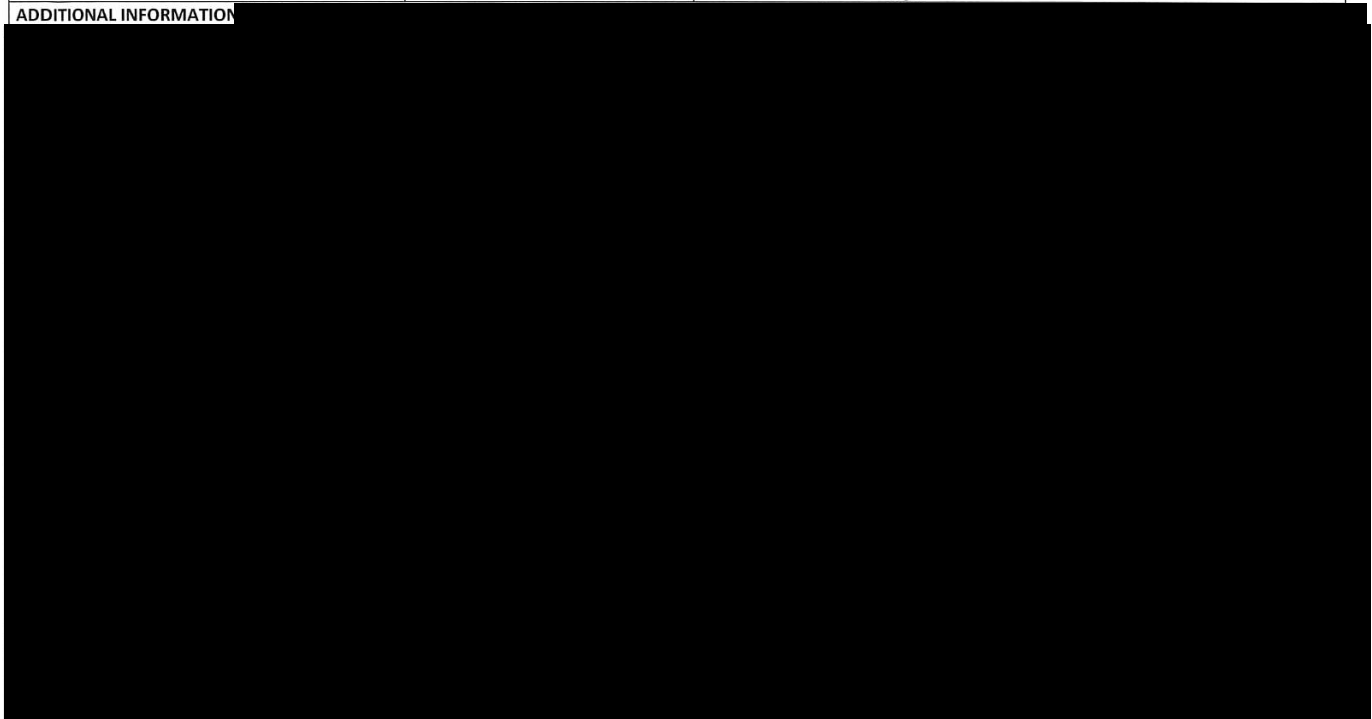
Form GS 3020.012-1 (04/2019)

SERVICE LINE RECORD (SLR)

FORM WILL BE SCANNED - PRINT USING BLACK INK

JOB ORDER # 20831112500 FORM COMPL BY: Joseph Fiorante CONSTR COORD: _____
 NEW REPLACE ABANDON REPAIR SURVEY TIE-OVER/RECONNECT DATE: 10/12/2021

SERVICE ADDRESS <u>287 Waverley RD</u>						CITY <u>N Andover</u>			TCC <u>M22</u>			
PSID/SITE ID <u>233233006</u>		MT <u>-</u>	MASTER TAP REF (ADDR &/OR PSID/SITE ID) <u>233233006</u>			CURB BOX LOCATION <u>35 FFG 39LR4</u>			TAP LOCATION <u>50 FFG 39LR4</u>		OP PRESS <u>HP</u>	
MAIN TO PROPERTY LINE OR CURB VALVE		LENGTH <u>17</u>	SIZE <u>010</u>	MATL <u>P</u>	DEPTH (IN) AT INSTALL <u>28</u>	OP PRESS <u>HP</u>	DATE INSTLD/ABN <u>10/12/2021</u>	INSTALL MTHD <u>OC/TO</u>	CASING MATL	REPAIR DATE <u>10/12/2021</u>	REPAIR KIND <u>REC</u>	
PROPERTY LINE OR CURB VALVE TO METER		LENGTH <u>42</u>	SIZE <u>010</u>	MATL <u>P</u>	DEPTH (IN) AT INSTALL <u>28</u>	OP PRESS <u>HP</u>	DATE INSTLD/ABN <u>10/08/2021</u>	INSTALL MTHD <u>OC/TO</u>	CASING MATL	REPAIR DATE	REPAIR KIND	
RETIRED PIPE (CMA ONLY)		LENGTH <u>3'</u>	SIZE <u>010</u>	MATL <u>P</u>	DATE INSTLD <u>10/8/18</u>	DATE ABN <u>10/12/21</u>	MAIN INFO (CMA ONLY)	MAIN SIZE-MATL <u>5T 080</u>	NEW PIPE FTG INSTLD (CMA ONLY)	LENGTH <u>17</u>	SIZE <u>010</u>	MATL <u>P</u>
PULL BACK CAMERA USED AND VIDEO VERIFIED CLEAR WITH SITE INVESTIGATION PERFORMED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO BY:						SEE RELATED SEWER LOCATE CARD <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			POST SEWER CAMERA REQUIRED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
PRESSURE TESTED PER GAS STANDARD						PRESSURE TEST BY (SIGNATURE; THEN PRINT NAME & EMPL NUM & CO NAME)						
<input checked="" type="checkbox"/> SRV LINE M-PL/CV <u>30</u> MINS @ <u>156</u> PSIG <input checked="" type="checkbox"/> Soap Test						<u>Joseph Fiorante</u> <u>204362</u>						
<input checked="" type="checkbox"/> SRV LINE PL/CV-MTR <u>30</u> MINS @ <u>156</u> PSIG <input checked="" type="checkbox"/> Soap Test						<u>ESG</u>						
PRESSURE VERIFICATION <u>89</u> <input type="checkbox"/> "w.c." <input checked="" type="checkbox"/> PSIG						CONTENT VERIFIED: <input checked="" type="checkbox"/>			PRESSURE/CONTENT VERIFICATION BY (PRINT NAME & EMPL NUM) <u>Joseph Fiorante</u> <u>204362</u>			



PERSONS MAKING WELDS, FUSIONS, AND MECHANICAL FITTING JOINTS											
EMPL NUM & CO <u>204362 ESG</u> <input type="checkbox"/> W <input type="checkbox"/> EF <input type="checkbox"/> SF <input type="checkbox"/> BF <input checked="" type="checkbox"/> M				EMPL NUM & CO _____ <input type="checkbox"/> W <input type="checkbox"/> EF <input type="checkbox"/> SF <input type="checkbox"/> BF <input type="checkbox"/> M							
EMPL NUM & CO <u>204717 ESG</u> <input type="checkbox"/> W <input type="checkbox"/> EF <input type="checkbox"/> SF <input type="checkbox"/> BF <input checked="" type="checkbox"/> M				EMPL NUM & CO _____ <input type="checkbox"/> W <input type="checkbox"/> EF <input type="checkbox"/> SF <input type="checkbox"/> BF <input type="checkbox"/> M							
POST INSTALL LOCATING <input checked="" type="checkbox"/> PAINT <input checked="" type="checkbox"/> FLAGGED <input checked="" type="checkbox"/> LOCATED											
MATERIAL											
SSN	DESCRIPTION	SIZE	QTY INST	SSN	DESCRIPTION	SIZE	QTY INST	SSN	DESCRIPTION	SIZE	QTY INST
<u>21-65-8093</u>	<u>1" Lyco</u>	<u>1</u>	<u>3</u>								
<u>42-31-8528</u>	<u>1716 Ancide</u>	<u>17</u>	<u>1</u>								
<u>16-08-847</u>	<u>1" CV</u>	<u>1</u>	<u>1</u>								
<u>16-03-826</u>	<u>1" 700 EFV</u>	<u>1</u>	<u>1</u>								
<u>17-79-818</u>	<u>3/4x1 Tee</u>		<u>1</u>								
QA/QC REVIEW BY: <u>Jenny Angelari</u>								QA/QC REVIEW DATE: <u>10/15/2021</u>			

REDACTED

Form GS 3020.012-1 (04/2019)

SERVICE LINE RECORD (SLR)
FOR MORE INFORMATION, REFER TO GS 3020.012 "SERVICE LINE RECORDS"

REFERENCE CODES

DATE FORMAT

ALL DATES TO BE IN MM-DD-YYYY
OR MM/DD/YYYY FORMAT
ACCEPTABLE: 01-31-2007 or 01/31/2007
UNACCEPTABLE: 01-31-07 (MUST USE 4-DIGIT
YEAR)

MASTER TAP

LEAVE BLANK IF ONLY 1 CUST ON SL
(KY, MD, OH, PA, VA)

USE DASH (-) IF ONLY 1 CUST ON SL
(MA)

* PRIMARY REF BY CB
+ OTHER DOWNSTR CUST
P SPLIT SERVICE; PRIM SL
S SPLIT SERVICE; SEC SL

DESIGNATING CB & OTHER LOCATIONS

EXAMPLE:
32 FFB 5 RRB
32 FT FRONT OF FRONT BLDG EDGE
5 FEET RIGHT OF RIGHT BLDG EDGE

For service lines installed with no curb
valve or excess flow valve, enter "NCV."

For service lines installed with no curb
valve and with one or more excess flow
valves, enter "EFV-NCV" or "NCV-EFV."

OP PRESS

LP LOW PRESSURE
IP INTERMEDIATE PRESSURE
MP MEDIUM PRESSURE
HP HIGH PRESSURE

SIZE CODES

(LARGER SIZES SIMILAR)

005 1/2"
007 3/4"
010 1"
012 1-1/4"
015 1-1/2"
020 2"
030 3"
040 4"

MATERIAL CODES

CI CAST IRON
CU COPPER
OT OTHER
P PLASTIC
PI PLASTIC INSERT
S STEEL
ST STEEL, TREATED
WI WROUGHT IRON

INSTALLATION METHOD

OC OPEN CUT
TO TIE OVER
PI PLASTIC INSERT
TT TRENCHLESS TECH

CASING MATERIAL

S BARE STEEL
ST COATED STEEL
P PLASTIC
PVC PVC
OT OTHER
NA NOT APPLICABLE

REPAIR KIND

CUBOX – curb box
CUST – repair on customer-owned piping
EFV – install/replace EFV
FACDAM – facility damage
LEAK – leak repair
RCLASS - reclassification
REC – plastic reconnect was made
REINSP – negative reinspection
RISER – replaced riser
TEE – replaced or repaired tee
VALVE – curb valve changed

OBJECT CODES FOR SKETCH

B BLDG EDGE
BK BACK
C CORNER
CB CATCH BASIN
CEL CENTER OF EB LANE
CLP CENTER OF PAVEMENT
CLR CENTER OF RT OF WAY
CNL CENTER OF NB LANE
CO CLEANOUT (SEWER)
COP CENTER OF PROPERTY
CSL CENTER OF SB LANE
CU CURB
CWL CENTER OF WB LANE
D DRIVEWAY EDGE
DS DOWNSPOUT
EP EDGE OF PAVEMENT
ES EDGE OF SIDEWALK
F FRONT
G GARAGE EDGE
L LEFT
LAT LATERAL (SEWER)
M METER
MH MANHOLE
P PORCH EDGE
PAD TRAILER PAD
PL PROPERTY LINE
R RIGHT
RW RIGHT OF WAY
SAN SANITARY SEWER
ST STORM SEWER
W WATER VALVE
Y WYE FITTING

JOINT TYPES

BF BUTT FUSION
EF ELECTROFUSION
SF SOCKET FUSION
M MECHANICAL FITTING
W WELDED (STEEL)



Raymond MacWhinnie
Manager LNG/LPG
Eversource Energy
157 Cordaville Road, Suite 3158
Southborough, MA 01772

10/4/21
File No. 4784.01/05

Re: Maintenance and Training Records Audit Summary – Easton, Marshfield, Ludlow & Lawrence LNG Facilities, Rev 1

Dear Ray:

Sanborn Head has completed the Maintenance and Training Records Audit of the Eversource Gas of Massachusetts (EGMA) Easton, Marshfield, Ludlow, and Lawrence LNG facilities for the years 2015 to 2019 when owned and operated by Columbia Gas of Massachusetts (CMA), a division of NiSource. The audit was conducted per the requirements of 49CFR193 and NFPA 59A, 2001 edition. The following provides a summary of the audit approach, identified record gaps, additional observations, and a list of recommendations to assist Eversource in efforts to improve the facility record keeping. Please refer to the attached detailed facility audit documents for additional information.

AUDIT APPROACH

Sanborn Head conducted the facility audits per the following approach for each facility:

- Conducted initial audit per review of record documents submitted by NiSource electronically and developed an initial record gap list.
- Transmitted the initial record gap list to NiSource with a request for information to address the gaps.
- Updated the initial audit and record gap list per the additional documentation provided electronically, transmitted an updated record gap list to NiSource with a request for a site visit to work to gather the missing records.
- Physically visit the facility to meet with plant personnel and review on-site files to gather any additional available documentation. Discuss with plant personnel other avenues to gather missing records such as the corrosion department and other departments who may hold the missing records or other documents to support confirmation that the records were complete.
- Receipt of final available records received by the NiSource team from other departments, finalize the audit, and prepare a summary report to outline the audit findings and recommendations.

IDENTIFIED RECORD GAPS

- Records are not available to provide evidence that components are taken out of service when their respective safety devices are taken out of service for maintenance.

However, although records do not support, it does appear the required action occurs per the following:

- Easton, Marshfield, and Lawrence plant personnel confirm they do lockout/tagout and isolate components when removing their safety devices from service for maintenance.
- Ludlow plant personnel indicate that although the equipment/component in question is isolated and taken out of service, they do not record a lockout/tagout of the component or equipment protected by the safety device.
- For Easton & Marshfield, records are not available to support the requirement that a minimum amount of fire control equipment is taken out of service at any one time and returned to service in a reasonable period of time.
- Some gaps identified are related to the length of time for which records are required to be maintained:
 - Corrosion related records are not available for the life of the facilities, as required by 49 CFR 193. This should include all cathodic protection conducted by the corrosion department and atmospheric corrosion inspections conducted or coordinated by plant personnel.
 - Retention of initial and every two-year training records for the duration of employment, plus one year, are not available for all employees as identified below. Other than the listed exceptions, detailed training records were available for all plant personnel every 2 years and no training gaps were noted.
 - Easton & Marshfield training records are only available from 1990 to the present date. One employee who retired within the last two years, and one current employee, began working at the Easton and/or Marshfield plants prior to 1990.
 - For Lawrence & Ludlow, employee NiSource start dates were not provided for employees, so verification of initial training was not possible. Additionally, the training binder for one former employee was not available. It is unclear if this employee falls under the purview of this audit, because their employment termination date was not provided.
 - For Easton & Marshfield, OQ Training records for employees performing maintenance tasks were not retained prior to 2010. OQ Training records for employees performing maintenance tasks were not available for Lawrence & Ludlow.
- Generator capacity tests are not performed under full plant load for Easton or Marshfield, as is required annually by 193.2613 (NFPA 59A 11.5.1.4, 11.5.1.5).
- Some gaps in plant maintenance records requiring a 5-year retention were identified. The maintenance record review was primarily based upon a review of the repetitive task (RT) records for each facility with plant daily inspection sheets filling in some gaps. Although most of the maintenance records appear to be present, indicating maintenance was largely performed as required by both CMA maintenance procedures and 49 CFR 193, there were some gaps identified for a limited number of items. The following provides a sampling:
 - Gaps in records for 1 year out of the 5 year required such as:
 - Easton

- UV/IR checks missing for 2 months in 2015
- Annual tank foundation survey record is missing for 2016
- Annual safety valve inspections for two SVs are missing in 2017.
- Marshfield
 - Monthly odorizer inspection missing for 1 month in 2015
 - Monthly vacuum pump test is missing for 1 month in 2015
- Lawrence
 - Documentation/tracking of relief valve retirements/replacements via WMS indicates three relief valves are unaccounted for in 2019
 - Monthly fire extinguisher inspections are missing in 2015 and 2016
- Ludlow
 - Annual safety valve inspections for five SVs are missing; three for 2018 only, and two for 2016 through 2019.
 - Monthly odorizer inspection missing for 1 month in 2015.
- Manual pull stations do not appear to be tested. These should be tested at the same intervals as other fire protection control systems at the facilities, not to exceed 6 months.
- The following fire protection control system components at Easton appear to be tested annually so do not meet the not to exceed 6-month requirement.
 - Fire panel
 - Combustible gas detectors
- A variety of process instrumentation did not have records available to meet the requirements of the CMA maintenance procedures such as orifice plates, and plant valves.
- Tank foundation survey records were incomplete for Marshfield, Ludlow, and Lawrence.
 - Marshfield - No record of tank survey for 2016, 2017, or 2018.
 - Ludlow - No records of tank survey for 2017.
 - Lawrence - No records for plant surveys were available.
- Completed commissioning forms for the generator replacement project in Ludlow were not available. This is required by 193.2619(b) (NFPA 59A 11.5.5.1) for systems out of service for 30 days or more.
- Marshfield, Lawrence, and Ludlow do not have records available for the atmospheric corrosion inspections of piping under insulation. This is required at intervals of every 3 years with retainage for the life of the facility.
- A written procedure for corrosion control for Ludlow was not available. This procedure is required for compliance with O&M Procedure requirements.
- Fire drills do not appear to be performed regularly at the Marshfield or Lawrence facilities.

ADDITIONAL OBSERVATIONS

- Up-to-date legible P&ID's were not available for the facilities. This prevented the confirmation that all components to be maintained were included in the records,

such as relief valves, without a lengthy facility walkdown. More importantly, P&ID documentation is an important and necessary support document to meet the operations, maintenance and training requirements of 49CFR193 and NFPA 59A (by reference).

- NFPA 59A, 2001 edition, specifically requires drawings to be maintained at the facility. The intent of this requirement are up-to-date drawings that support the requirements listed above which are a site plan, process flow diagram, P&ID's, electrical area classification, hazard detection/fire protection plan, and any other drawings necessary for operations, troubleshooting, maintenance, and training.
- NFPA 59A, 2019 edition, includes additional language that confirms the intent for the drawings to be up-to-date. Although the 2019 edition is not incorporated by reference, it is expected to be soon, and the only changes made between 2001 and 2019 are related to clarifying the original intent.

Supporting Code Excerpts:

NFPA 59A, 2001 edition

11.2 Basic Requirements. Each operating company shall meet the following requirements:

- (1) Have documented procedures covering operation, maintenance, and training
- (2) Maintain drawings, charts, and records of plant equipment
- (3) Revise the plans and procedures as experience dictates and as changes in operating conditions or plant equipment require
- (4) Establish a documented emergency plan
- (5) Establish liaison with appropriate local authorities such as police, fire department, or municipal works and inform them of the emergency plans and their role in emergency situations
- (6) Analyze and document all safety-related conditions for the purpose of determining their causes and preventing the possibility of recurrence

NFPA 59A, 2019 edition

18.2.2 The operating company shall meet all of the following procedures:

- (1) Document procedures and plans covering operation, maintenance, training, and security
- (2) Maintain up-to-date drawings, charts, and records of LNG facility equipment
- (3) Revise plans and procedures when operating conditions or LNG facility equipment are revised or as a result of lessons learned from an incident investigation
- (4) Ensure cooldown of components in accordance with 18.3.5
- (5) Establish a documented emergency plan
- (6) Establish liaisons with local authorities such as police, fire department, or municipal works to coordinate the emergency plans and their roles in emergency situations

(7) Analyze and document all safety-related incidents to determine their cause and prevent the possibility of recurrence

RECOMMENDATIONS

The following recommendations are offered for Eversource consideration to improve plant documentation and record keeping requirements.

- Update the Process Flow and Piping & Instrument Diagrams for all facilities to current conditions to meet the intent of NFPA 59A.
- Confirm the site plan, electrical area classification, and hazard detection/fire protection plan drawings are representative of current conditions.
- Develop a plan to improve the required corrosion protection record keeping so the LNG facility has access to the records that are maintained by the corrosion department.
- Develop and maintain a plant employee list at the facility, including hire and termination date, to allow confirmation of initial and every two-year training for the duration of employment, plus one year.
- Improve plant access or ease of obtaining records for employee OQ training records for employees performing corrosion related tasks at the LNG facility.
- Identify in the plant maintenance manual or procedures how to document/ record the following:
 - When components are taken out of service when their respective safety devices are taken out of service for maintenance.
 - Confirmation that a minimum amount of fire control equipment is taken out of service at any one time and returned to service in a reasonable period of time.
 - Qualified company or contracted personnel perform each maintenance task.
- Identify and execute plan to conduct an annual generator capacity test under full plant load or alternate load test to meet requirements of 49CFR193.2613 and NFPA 59A 11.5.1.4, 11.5.1.5.
- Update scheduled maintenance tasks for the following to ensure compliance with codes and the plant maintenance manual:
 - Fire protection control system components, including manual pull stations, fire panel, and combustible gas detectors, tested at intervals not to exceed 6 months.
 - Process instrumentation
 - Atmospheric corrosion inspections for above grade un-insulated and insulated piping.
 - Tank foundation surveys
- Develop or identify plan for where to save/upload test results for contractor performed maintenance tasks to improve record keeping and plant access or ease of obtaining records such as relief valve testing reports.
- Perform and document required fire drills at all facilities.

October 4, 2021
20211004 EAS-MAR-LUD-LAW LNG Records Audit Summary Letter, Rev 1

Page 6
4784.01/05

Thank you for the opportunity to support Eversource on this effort. Please feel free to contact us with any questions.

Very truly yours,
SANBORN, HEAD & ASSOCIATES, INC.



Eric Bettencourt
Project Engineer



Heather James
Project Director

EDB/HNJ: edb

Encl. Marshfield and Easton Records Audits, Revision E, dated 1/19/21
Ludlow and Lawrence Records Audits Revision B, dated 1/19/21

cc: Larry Guy, Brian Normoyle, Craig Fonseca, Jessica Crosby



Raymond MacWhinnie
Manager LNG/LPG
Eversource Energy
157 Cordaville Road, Suite 3158
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10/4/21
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- Conducted initial audit per review of record documents submitted by NiSource electronically and developed an initial record gap list.
- Transmitted the initial record gap list to NiSource with a request for information to address the gaps.
- Updated the initial audit and record gap list per the additional documentation provided electronically, transmitted an updated record gap list to NiSource with a request for a site visit to work to gather the missing records.
- Physically visit the facility to meet with plant personnel and review on-site files to gather any additional available documentation. Discuss with plant personnel other avenues to gather missing records such as the corrosion department and other departments who may hold the missing records or other documents to support confirmation that the records were complete.
- Receipt of final available records received by the NiSource team from other departments, finalize the audit, and prepare a summary report to outline the audit findings and recommendations.

IDENTIFIED RECORD GAPS

- Records are not available to provide evidence that components are taken out of service when their respective safety devices are taken out of service for maintenance.

However, although records do not support, it does appear the required action occurs per the following:

- Easton, Marshfield, and Lawrence plant personnel confirm they do lockout/tagout and isolate components when removing their safety devices from service for maintenance.
- Ludlow plant personnel indicate that although the equipment/component in question is isolated and taken out of service, they do not record a lockout/tagout of the component or equipment protected by the safety device.
- For Easton & Marshfield, records are not available to support the requirement that a minimum amount of fire control equipment is taken out of service at any one time and returned to service in a reasonable period of time.
- Some gaps identified are related to the length of time for which records are required to be maintained:
 - Corrosion related records are not available for the life of the facilities, as required by 49 CFR 193. This should include all cathodic protection conducted by the corrosion department and atmospheric corrosion inspections conducted or coordinated by plant personnel.
 - Retention of initial and every two-year training records for the duration of employment, plus one year, are not available for all employees as identified below. Other than the listed exceptions, detailed training records were available for all plant personnel every 2 years and no training gaps were noted.
 - Easton & Marshfield training records are only available from 1990 to the present date. One employee who retired within the last two years, and one current employee, began working at the Easton and/or Marshfield plants prior to 1990.
 - For Lawrence & Ludlow, employee [NiSource](#) start dates were not provided for employees, so verification of initial training was not possible. Additionally, the training binder for one former employee was not available. It is unclear if this employee falls under the purview of this audit, because their employment termination date was not provided.
 - For Easton & Marshfield, OQ Training records for employees performing maintenance tasks were not retained prior to 2010. OQ Training records for employees performing maintenance tasks were not available for Lawrence & Ludlow.
- Generator capacity tests are not performed under full plant load for Easton or Marshfield, as is required annually by 193.2613 (NFPA 59A 11.5.1.4, 11.5.1.5).
- Some gaps in plant maintenance records requiring a 5-year retention were identified. The maintenance record review was primarily based upon a review of the repetitive task (RT) records for each facility with plant daily inspection sheets filling in some gaps. Although most of the maintenance records appear to be present, indicating maintenance was largely performed as required by both CMA maintenance procedures and 49 CFR 193, there were some gaps identified for a limited number of items. The following provides a sampling:
 - Gaps in records for 1 year out of the 5 year required such as:
 - Easton

- UV/IR checks missing for 2 months in 2015
- Annual tank foundation survey record is missing for 2016
- Annual safety valve inspections for two SVs are missing in 2017.
- Marshfield
 - Monthly odorizer inspection missing for 1 month in 2015
 - Monthly vacuum pump test is missing for 1 month in 2015
- Lawrence
 - Documentation/tracking of relief valve retirements/replacements via WMS indicates three relief valves are unaccounted for in 2019
 - Monthly fire extinguisher inspections are missing in 2015 and 2016
- Ludlow
 - Annual safety valve inspections for five SVs are missing; three for 2018 only, and two for 2016 through 2019.
 - Monthly odorizer inspection missing for 1 month in 2015.
- Manual pull stations do not appear to be tested. These should be tested at the same intervals as other fire protection control systems at the facilities, not to exceed 6 months.
- The following fire protection control system components at Easton appear to be tested annually so do not meet the not to exceed 6-month requirement.
 - Fire panel
 - Combustible gas detectors
- A variety of process instrumentation did not have records available to meet the requirements of the CMA maintenance procedures such as orifice plates, and plant valves.
- Tank foundation survey records were incomplete for Marshfield, Ludlow, and Lawrence.
 - Marshfield - No record of tank survey for 2016, 2017, or 2018.
 - Ludlow - No records of tank survey for 2017.
 - Lawrence - No records for plant surveys were available.
- Completed commissioning forms for the generator replacement project in Ludlow were not available. This is required by 193.2619(b) (NFPA 59A 11.5.5.1) for systems out of service for 30 days or more.
- Marshfield, Lawrence, and Ludlow do not have records available for the atmospheric corrosion inspections of piping under insulation. This is required at intervals of every 3 years with retainage for the life of the facility.
- A written procedure for corrosion control for Ludlow was not available. This procedure is required for compliance with O&M Procedure requirements.
- Fire drills do not appear to be performed regularly at the Marshfield or Lawrence facilities.

ADDITIONAL OBSERVATIONS

- Up-to-date legible P&ID's were not available for the facilities. This prevented the confirmation that all components to be maintained were included in the records,

such as relief valves, without a lengthy facility walkdown. More importantly, P&ID documentation is an important and necessary support document to meet the operations, maintenance and training requirements of 49CFR193 and NFPA 59A (by reference).

- NFPA 59A, 2001 edition, specifically requires drawings to be maintained at the facility. The intent of this requirement are up-to-date drawings that support the requirements listed above which are a site plan, process flow diagram, P&ID's, electrical area classification, hazard detection/fire protection plan, and any other drawings necessary for operations, troubleshooting, maintenance, and training.
- NFPA 59A, 2019 edition, includes additional language that confirms the intent for the drawings to be up-to-date. Although the 2019 edition is not incorporated by reference, it is expected to be soon, and the only changes made between 2001 and 2019 are related to clarifying the original intent.

Supporting Code Excerpts:

NFPA 59A, 2001 edition

11.2 Basic Requirements. Each operating company shall meet the following requirements:

- (1) Have documented procedures covering operation, maintenance, and training
- (2) Maintain drawings, charts, and records of plant equipment
- (3) Revise the plans and procedures as experience dictates and as changes in operating conditions or plant equipment require
- (4) Establish a documented emergency plan
- (5) Establish liaison with appropriate local authorities such as police, fire department, or municipal works and inform them of the emergency plans and their role in emergency situations
- (6) Analyze and document all safety-related conditions for the purpose of determining their causes and preventing the possibility of recurrence

NFPA 59A, 2019 edition

18.2.2 The operating company shall meet all of the following procedures:

- (1) Document procedures and plans covering operation, maintenance, training, and security
- (2) Maintain up-to-date drawings, charts, and records of LNG facility equipment
- (3) Revise plans and procedures when operating conditions or LNG facility equipment are revised or as a result of lessons learned from an incident investigation
- (4) Ensure cooldown of components in accordance with 18.3.5
- (5) Establish a documented emergency plan
- (6) Establish liaisons with local authorities such as police, fire department, or municipal works to coordinate the emergency plans and their roles in emergency situations

(7) Analyze and document all safety-related incidents to determine their cause and prevent the possibility of recurrence

RECOMMENDATIONS

The following recommendations are offered for Eversource consideration to improve plant documentation and record keeping requirements.

- Update the Process Flow and Piping & Instrument Diagrams for all facilities to current conditions to meet the intent of NFPA 59A.
- Confirm the site plan, electrical area classification, and hazard detection/fire protection plan drawings are representative of current conditions.
- Develop a plan to improve the required corrosion protection record keeping so the LNG facility has access to the records that are maintained by the corrosion department.
- Develop and maintain a plant employee list at the facility, including hire and termination date, to allow confirmation of initial and every two-year training for the duration of employment, plus one year.
- Improve plant access or ease of obtaining records for employee OQ training records for employees performing corrosion related tasks at the LNG facility.
- Identify in the plant maintenance manual or procedures how to document/ record the following:
 - When components are taken out of service when their respective safety devices are taken out of service for maintenance.
 - Confirmation that a minimum amount of fire control equipment is taken out of service at any one time and returned to service in a reasonable period of time.
 - Qualified company or contracted personnel perform each maintenance task.
- Identify and execute plan to conduct an annual generator capacity test under full plant load or alternate load test to meet requirements of 49CFR193.2613 and NFPA 59A 11.5.1.4, 11.5.1.5.
- Update scheduled maintenance tasks for the following to ensure compliance with codes and the plant maintenance manual:
 - Fire protection control system components, including manual pull stations, fire panel, and combustible gas detectors, tested at intervals not to exceed 6 months.
 - Process instrumentation
 - Atmospheric corrosion inspections for above grade un-insulated and insulated piping.
 - Tank foundation surveys
- Develop or identify plan for where to save/upload test results for contractor performed maintenance tasks to improve record keeping and plant access or ease of obtaining records such as relief valve testing reports.
- Perform and document required fire drills at all facilities.

October 4, 2021
20211004 EAS-MAR-LUD-LAW LNG Records Audit Summary Letter, Rev 1 (redlined)

Page 6
4784.01/05

Thank you for the opportunity to support Eversource on this effort. Please feel free to contact us with any questions.

Very truly yours,
SANBORN, HEAD & ASSOCIATES, INC.



Eric Bettencourt
Project Engineer



Heather James
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EDB/HNJ: edb

Encl. Marshfield and Easton Records Audits, Revision E, dated 1/19/21
Ludlow and Lawrence Records Audits Revision B, dated 1/19/21

cc: Larry Guy, Brian Normoyle, Craig Fonseca, Jessica Crosby