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September 11, 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 (15) and (22)

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 15 and 22 of the Consent Order. Also enclosed is the Company's Statement in Support of a Finding of Critical Energy Infrastructure Information.

Compliance Agreement Requirement (15)
Within 30 days of the effective date of this Order, CMA shall provide an incident report highlighting and addressing key failures with the April 16, 2019 Palmer Overpressurization and the March 31, 2020 Chicopee Outage.

Response:
Please see Attachment 19-140-15(a) for the Incident Report for the Palmer Overpressurization, and Attachment 19-140-15(b) CONFIDENTIAL for the Incident Report for the Chicopee Outage.

In the case of the April 16, 2019 Palmer Overpressurization, an Incident Review form was utilized to conduct the incident review. In the case of the March 31, 2020 Chicopee Outage, an Apparent Cause Analysis Cause Map format was utilized to conduct the incident review. Either form, or both forms, may be used in order to conduct reviews of specific unplanned events consistent with the requirements of 192.617 – Investigation of Failures. While the documents vary in format, both documents include a summary of events, key data and facts, an analysis of causal factors, and recommendations to prevent similar events from occurring in the future.

Compliance Agreement Requirement (22)
Within 30 days of the effective date of this Order, CMA shall provide the Department with evidence that the support systems, protective enclosure washout, plant perimeter lighting, and emergency shut down violations in all LNG facilities have all been remedied as stated in the Company's February 27, 2020 response.

Response:

Please refer to Attachments 19-140-22(a) through (h) for documentation evidence that the above issues have been remedied. These attachments are summarized and described in the table below:

Issue Source	Issue	Attachment	Description
Marshfield Exit Letter / NOPV	LNG Pipe Support	Attachment DPU 19-140-22(a)	Photo of Marshfield LNG Pipe Support Repair; Pipe Support Repair Invoice
Marshfield Exit Letter/ NOPV	Protective Enclosure Washout	Attachment DPU 19-140-22(b)	Photo of Marshfield LNG remedied protective enclosure washout
Marshfield Exit Letter / NOPV	Plant Perimeter Lighting	Attachment DPU 19-140-22(c)	Invoice for Marshfield LNG 4 LED light work
Marshfield Exit Letter	Marshfield Emergency Exits	Attachment DPU 19-140-22(d)	Photos of installed crash gates (2) at Marshfield
Marshfield Exit Letter / NOPV	Emergency Shut Down Device violation – desk and button labels	Attachment DPU 19-140-22(e) CONFIDENTIAL	Marshfield: Photos of desk returned to normal location (out of the way of the Emergency Shut Down (ESD) device; photo of ESD device buttons; photo of map showing ESD device location
Easton Exit Letter	Emergency Shut Down Device violation	Attachment DPU 19-140-22(f) CONFIDENTIAL	Easton: Photos of ESD buttons; photo of map showing ESD locations
Easton NOPV	Update facility map to no longer consider the eastern gate an "exit", or replace the gate with a "crash gate"	Attachment DPU 19-140-22(g) CONFIDENTIAL	Easton: Photo of eastern gate with "exit" sign removed, photo of updated facility map which no longer shows the eastern gate as an "exit"
Lawrence Warning Letter	Correct the opening at the gate at back of plant	Attachment DPU 19-140-22(h)	Photo of corrected opening at the gate at back of Lawrence LNG plant. Issue corrected by installing chain link fence in place of gate.

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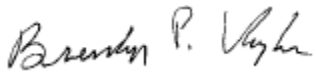
Thank you very much for your attention to this matter. Please contact me with any questions.

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 detailed maps, schematics, and photographs containing Confidential Energy Infrastructure Information ("CEII") produced as Attachment 19-140-15(b), Attachment 19-140-22(e), Attachment 19-140-22(f), and Attachment 19-140-22(g) (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 maps, schematics and photographs of the Company's distribution system, regulator stations, and LNG Facilities, 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

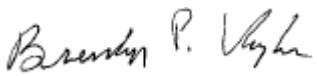
The Company respectfully requests that the Department grant the Company's motion and provide protective treatment for the CEII Attachments. Furthermore, given that the CEII Attachments are likely to change at any time or to lose their confidential nature, the Company respectfully requests the CEII Attachments 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 11, 2020

Incident Review
4/16/2019, South Main St., Palmer - Excursion

Nature of incident and Type of work: Excursion of S Main St @ Stone Regulator Station

Location of Incident: S. Main St., Palmer - Station 0011464

Date of Incident: 4/16/2019

Time of Incident: 12:48

Number of Customers Involved: 0

Scope of Review:
Analyze the incident, determine root cause, and put in place measures to prevent reoccurrence.

Name of Manager: System Operations - Dana Argo, Operations Center Manger- Dave Nelson

Name of Facilitator: Compliance Manager- Kathy Silver

Field Personnel including leadership involved in the incident:
Dana Argo - System Operations Manager
Jeff Croke - Measurement and Regulation (M&R) Leader
Jim Clement - Maintenance Mechanic M&R
Mike Brunelle - Maintenance Mechanic M&R
Peter Decoteau - Front Line Leader Leakage
Dave Nelson - Operations Center Manager
William Wert - Field Operations Leader
Veena Kothapalli - Leader Field Engineering
Randy Humberston - Gas Controller
Judreta Smith - Assigner
Cheryl Breece - IC Team Leader
Jeff Tiffner - IC Manager
Martin Poulin - Director Regulatory Policy
Kathy Silver - Compliance Manager
Corey Underwood - Leakage Technician
Phil Watson - Leakage Technician
Evan Lowe - Leakage Technician
T.J. Spencer - Leakage Technician
Todd Silvia - Technical Support Specialist
Anthony Eichstaedt - Locate/Leakage Technician
Jim Soares - Locate/Leakage Technician
Anthony Rogers - Service Technician A
Dave Harris - Maintenance Mechanic M&R
Steve Sottile - M&R Specialist 1
Charles Docherty - Maintenance Mechanic M&R

Name of Employees Attending Review:
Adam J. Roorda - Manager Gas Control, Aimee Henderson - Manager Communication, Dana Argo - System Operations Manager, Dave Mueller - Manager Engineering, David Nelson - Operations Center Manager, Frank Davis - VP Safety Management, James D Clement - Maintenance Mechanic M&R, Jamie Staiti - Compliance Specialist, Jeff Tiffner - Manager IC, Jeffery B. Croke - Leader M&R, Maggie Cousineau - Manager System Operations, Mark Kempic - Chief Operating Officer, Martin Poulin - Director Regulatory, Matthew J. Mongeon - Lead Distribution Operator, Michael Crochier – Sr. Leader Field Operations, Michael J Brunelle - Maintenance Mechanic M&R, Peter Decoteau - Front Line Leader Leakage, Shaela Collins- Sr. Counsel, Sheila Doiron - Director Communications, Stella Deiana - Sr HR Consultant, Veena Kothapalli - Leader Field Engineering, William Wert - Leader Field Operations, Khristina Armstrong - Standard and Compliance Admin., Kim Cuccia - VP and General Counsel, Mark Dwight - Lead Auto Mechanic, Cheryl Breece - Team Leader IC

Did this incident merit review according to 49 CFR 192, Subpart L? Yes

Did this incident merit review according to circumstance or performance related issues?
Yes

Was Preliminary Report, Telephonic Notification Completed? Yes – State Reportable
Description of the system/asset impacted:

- 50,063 feet of high density plastic main.
- 186 feet of coated steel main.
- Approximately 163 services/271 customers.
- MOP = 60 psig.
- Regulators at station are two Flex Flo 2” 900TE.

Description of Incident – What actually happened from field prospective

- The Maintenance Mechanic M&R technician stopped to shut off a catalytic heater at S. Main Street Palmer station at approximately 12:20. He conducted a leak test around the door, and around the pit; climbed into the pit; and tried to shut off catalytic heater. He shut off a green knob to one heater and noticed no shut off to other heater. He traced the line to a shut off valve and turned it off, accidently shutting off gas to the control regulator pilot. The valve that was shut off was tagged with “DO NOT OPERATE”. He left the pit and closed the doors. The technician received a call approximately 2-3 minutes later from his Leader that there was a spike in pressure at the pit. He turned around and went back to the site. The technician opened the pit door and re-entered. The technician turned the valve back on to the pilot. He put a gauge in to check pressure and found the pressure was at 65 psig. He requested a hose from his trainee. The technician verified paperwork and released pressure to 60 psig. The technician received a call from his Leader advising him not to make any further adjustments. The technician had lowered pressure to 54 and waited for his Manager to arrive.
    - At the conclusion of the after action review, the investigation identified the Pre Job Safety Briefing form, and the Vault and Pit Entry Checklist that were completed by Jim Clements. In discussions with Jim, he confirmed that he filled out both forms by himself and that the trainee was not observing the work at the regulator pit during the incident.

- The Leader of M&R received a call from Gas Control at 12:49 with regard to pressure at Palmer Station. Palmer HIHI reading was at 68 psig; Monson HIHI reading was 56 psig. The M&R Leader starting calling in other M&R technicians.
  - 12:50 called Maintenance Mechanic M&R technician (Doherty) to head to Palmer.
  - 12:51 called Maintenance Mechanic M&R technician (Clement) to return to Palmer.
  - 12:57 called Gas Control, informed them the technicians on their way and thought technician may have shut off incorrect valve.
  - 13:03 notified System Operations Manager.
  - 13:20 pressure back to normal.
  - 13:24 called M&R Specialist to site to confirm pressure readings.
  - 16:00 Maintenance Mechanic M&R technicians sent for drug test.

- Gas Control received an alarm at 12:48 at S. Main St. Palmer. Pressure reading was at 68.15 psig. Gas Controller called M&R Leader at 12:49. At 12:50, Gas Control received Hi pressure alarm at Monson Line and a HIHI pressure alarm at 12:51. At 12:57, M&R Leader called into Gas Control to inform them that the M&R technician (Clement) was at the station prior to the alarms. At 13:06, HIHI pressure alarms cleared at both stations. At 13:08, Hi pressure alarms cleared at both stations - See Figure 1. Figure 2 depicts the Activity Report maintained by the Gas Control group for the incident.

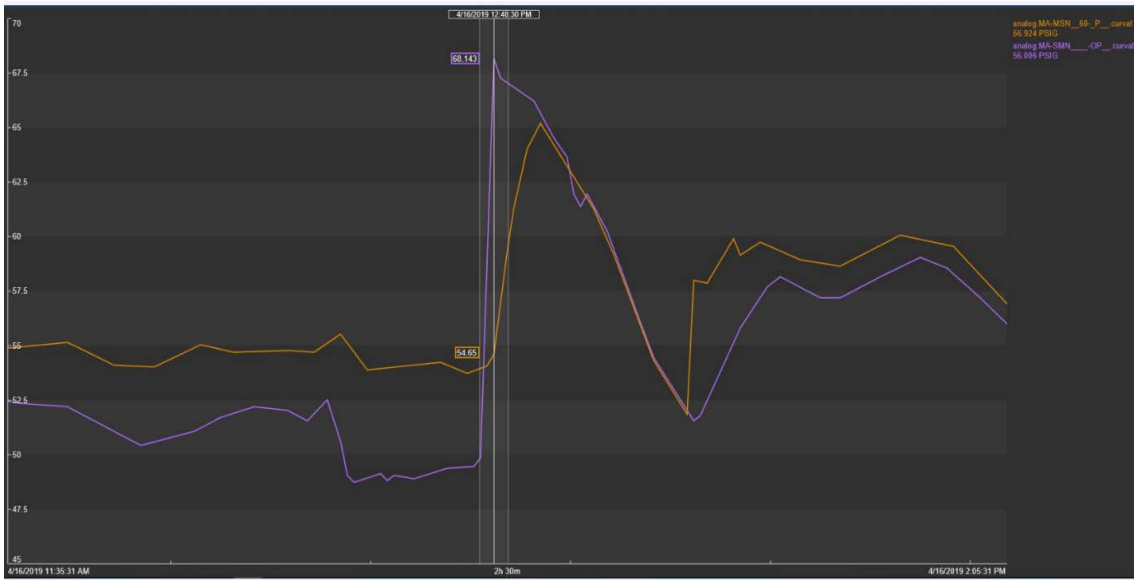


Figure 1: SCADA TREND 4.16.19 Palmer and Monson Stations

Activity Number: A190416-1423-53

Activity Report

AOR: NORTH

Search for Location

Site: MN-MONSON GATE

Select Location

Market: MONSON

SCADA AOR:NORTH

ACTIVITY STATUS: CLOSED on 04/17/2019 10:21:44 AM

	Date	Time	
OCCURRENCE:	04/16/2019	12:48:29 PM	04/16/2019 12:48:29 PM EDT
NOTIFICATION:	04/17/2019	09:07:00 PM	04/17/2019 09:07:00 PM EDT
RESOLUTION:	04/17/2019	09:07:00 PM	04/17/2019 09:07:00 PM EDT

ACTIVITY DEFINITION

Date Logged: 04/16/2019 02:23:53 PM **Logged By:** Randy Humberston

Severity: ○ SEV 1 ○ SEV 2 ○ SEV 3 ○ SEV 4 ○ SEV 5

Activity Type: ☐ ENOC ☐ Scada Support ☒ Point-to-Point ☐ HelpDesk ☐ Field

ENOC/HelpDesk Ticket Number:

Notification: IC Group and GC Management

Notify Comments:

RTU Name: MA-MNSN-BSG_

PTP & RTU IDs: PTP-6707

To **READ** a PTP or RTU Change request listed below: click on the **Read PTP/RTU** button.
To **UPDATE** an **OPEN** PTP or RTU Change request: click on EDIT button at top of this form, then click on the **EDIT PTP/RTU** button.
To **CREATE** a PTP or RTU Change request, click on EDIT button at top of this form, then click on the **Create New POINT-to_POINT Request** button.

Read PTP / RTU

Total # of PTP's & RTU's: 1

While reading this Activity, below you will only see the list PTP's & RTU's that were updated by this Activity.

ID	RTU Name	Site	Market	Created On	Related Activity	Status	Assigned To
PTP-6707	MN-MONSON GATE	MONSON	MA-MNSN-BSG_	04/17/2019	A190416-1423-53	Completed	(Closed)

ACTIVITY

04/16/2019 12:48:29 PM RANDY HUMBERSTON ~ Rec'd High High on the OP at 68.152#. I contacted Jeff Croke @ 1249. He will get someone headed that way. Also rec'd a High at 1250pm and High High at 1251pm on the 60# system from the Monson Gate station.

04/16/2019 01:06:29 PM RANDY HUMBERSTON ~ Both the 60# line came down to 59.18# and South Main and Palmer OP came down to high at 59.53#. Jeff Croke & Chuck Docherty both called to notify chuck was at the station prior.

04/16/2019 01:08:28 PM RANDY HUMBERSTON ~ The 60# line is now back to normal at 57.46# and the South Main OP is at normal at 57.76#

04/16/2019 01:19:44 PM RANDY HUMBERSTON ~ The 60# system line is going in and out of High

04/16/2019 01:30:41 PM RANDY HUMBERSTON ~ South Main and Palmer OP now into High at 58#. This system also continues to chatter in and out of High

04/16/2019 01:49:43 PM RANDY HUMBERSTON ~ Monson 60# line back into High High at 60.06#

04/16/2019 01:50:29 PM RANDY HUMBERSTON ~ 60# line back to High just under 60#

04/16/2019 01:59:29 PM RANDY HUMBERSTON ~ South Main and Palmer back to normal at 57.92#

04/16/2019 02:02:28 PM RANDY HUMBERSTON ~ 60# Line back to normal at 57.73#

04/16/2019 02:40:38 PM RANDY HUMBERSTON ~ M&R Chuck Docherty 413.221.6464 is on site. Will be checking things out.

04/16/2019 03:35:56 PM RANDY HUMBERSTON ~ I spoke to Jeff Croke. Jim Clement had stopped at South Main and Palmer station to turn the heater off for the summer and shut the control line valve instead. Jeff said Jim was still close by and responded back. He says the monitor should have caught the pressure at about 59# so they are investigating what happened there.

04/16/2019 07:02:44 PM MICHAEL W MYERS ~ Called IC/ Cindy to verify they were notified about this issue. She said they were notified and had techs onsite.

04/16/2019 09:04:42 PM MICHAEL W MYERS ~ M&R Chuck Docherty (413.221.6464) called, said corrosion crew was enroute to do a survey. He asked about if we wanted a P2P, advised yes. He said he'll call back & do it.

RESOLUTION

04/16/2019 09:07:00 PM KEVIN MAYES ~ Chuck Docherty (413-221-6464) called in, they are done at the station and are packing up to leave. I completed a best practices P2P with Chuck.

	Field	SCADA
IP	616.9	618.29
OP	474.2	477.31
Line 60 Pressure	53.1	53.65

04/17/2019 10:21:24 AM DANIEL HECKENDORN ~ P2P entered.

Resolved Date/Time: 04/17/2019 10:21:44 AM Closed by: Daniel Heckendorn

Figure 2 – SCADA Activity Report 4.16.19 Palmer and Monson Stations

- System Operations Manager received a call at 13:03 advising of overpressure at S. Main St. Palmer Station. Advised M&R Leader to make safe, and not to work or touch anything in pit prior to investigation. Arrived onsite around 15:00. Spoke with M&R Leader, and the two Maintenance Mechanics M&R to review what had happened. The Manager then directed the technicians to confirm operating pressure, and to test monitor regulator for lock up. The initial indication was that the regulator was not bubble tight. After verification, the regulator was bubble tight, but the outlet valve has minimal leak by. The regulator was rebuilt, pilot was upgraded, old equipment removed and tagged for further investigation. Then a lock up test was performed on control regulator, which performed correctly. This regulator was also rebuilt, but did not replace the pilot as it has previously been upgraded. Manager notified Engineering to give them an update of incident. Manager called Leakage Leader – requesting system survey at 13:57.

- Leakage Leader received a call at 13:57 requesting system survey of the overpressure area in Palmer and Monson. Leader contacted his Manager at 14:07. At 14:15, the leader received the maps and customer listing. At 15:06, he called the Compliance Manager with regard to the survey area. At 16:30, Leakage Leader arrived on site; leakage technician and contractor were already on site. At 17:00, the leakage survey of main commenced. At 17:30, the service line survey began. At 03:10, on April 17th, the survey was completed with two Can't Get In (CGI), due to a locked gate, which were completed that morning.

- At 14:18, the Operations Center Manager (OCM) spoke with the System Operations Manager. The OCM reviewed the Emergency Manual with his team of Field Operations Leaders. The OCM received a call from the Leakage Leader asking for locators on scene. At 14:35, the locators headed out to the area. The OCM secured all first shift service technicians for continuous daily work and had two street crews on standby staged in Wilbraham if needed. The OCM also sent a Field Operations Leader onsite to assist. At 18:30, the two service technicians were released. At 19:30, the remaining service technicians were released along with the street crews.

- Communications was notified at 14:01 by the System Operations Manager. Communications notified the Monson Fire Department at 16:06 of the situation and that leak surveys would be conducted in the area. At 16:18, an email with the street listing was sent to Monson Fire. The Monson Fire Department sent out a reverse 911 to local residents at 16:35. The Palmer police were notified at 16:23 after attempts to notify the Palmer Fire Department. A street listing was sent to Palmer police at 16:42.

- At 13:41, Columbus Integration Center (IC) Assigner was notified by the System Operations Manager and advised of a possible excursion on S. Main Street in Palmer Massachusetts, with Maintenance Mechanic M&R on site and the Leader M&R and System Operations Manager en route. At 13:55, Manager of IC contacted System Operations Manager to confirm details. IC Manger and Team lead contacted Director of Regulatory Policy to discuss details and agreed that a State DPU notification should be made. Assigner made notification to DPU at 14:28. At 15:05, the Springfield OCM contacted the IC to arrange for front line worker response and integration center support. At 15:47, a Pre-Emergency Notification System (ENS) was sent out. At 15:56, the initial ENS was submitted.

Timeline of Events

April 16, 2019
12:20 – Maintenance Mechanic M&R technician arrive at S Main Street Palmer Station to turn off catalytic heaters
12:46 – SCADA readings 49.7 psig
12:47 – SCADA readings 54.6 psig
12:48 –Gas Control received Hi-Hi Alarm 68.15 psig.
12:49 - Gas Control contacted M&R Leader.
12:50 –M&R Leader contacted Maintenance Mechanic M&R Tech to return to Palmer.
12:51 –M&R Leader contacted additional Maintenance Mechanic M&R Tech to head to Palmer.
12:54 – SCADA readings at 65.8 psig
12:57- M&R Leader contacted Gas Control to inform Techs on their way.

13:03 –System Ops Manager notified.
13:06 –Pressure dropped below 60 psig.
13:16- System Operations Manager Notified Compliance Manager.
13:22 - Compliance Manager notified Director Regulatory Policy.
13:41- System Operations Manager notified Integration Center Assigner.
13:46 –Operations Center Manager notified.
13:55 - IC Manager contacted System Operations Manager.
13:57 –System Operations Manager called Leakage Leader requesting System Survey.
14:01 –Communications notified by Systems Ops Manager.
14:15 –Leakage received maps and customer list.
14:18 –OCM spoke with Systems Ops Manager.
14:28 - IC notified DPU.
14:35 –Locators sent out.
15:05 - M&R Leader onsite.
15:06 –Leakage Leader notified Compliance Manager.
15:47 - PRE-ENS submitted.
15:56- ENS submitted.
16:00 –FOL onsite.
16:18 –Communications contacted Monson Fire Chief via email.
16:30 –Leakage Leader and Leakage Contractors onsite.
16:35 –Reverse 911 sent out from Town of Monson.
16:42 –Street list sent to Palmer via Fax.
16:45 –Police and Fire Department advised of the situation (extra gas personnel in area).
17:00 –Started leakage survey of main.
17:30 –Started leakage survey of services
18:30 –First Service techs released.
19:15 –Remaining Service Techs released.
19:30 –Plant Crews released.
20:00 –Approx arrival of DPU onsite.

April 17, 2019
03:10 –Survey completed.
03:00 –FOL released.
*** - OCM & Michael Kane met with Town officials the next day.

Post Incident Steps and Results:

- Mobile Survey was complete on 4/16/2019.
- 163 services surveyed, complete on 4/17/2019. Fifteen non-hazardous meter fit leaks were found and entered into NIFAST for future repair.
- Monitor Regulator rebuilt and pilot upgraded on 4/16/2019.
- Control Regulator rebuilt. Was completed on 4/16/2019.
- Reset pressures – monitor – 55 psig, control – 53 psig on 4/16/2019.
- Engineering – reviewing station design and capacity.
- OCM and Director of Government Affairs met with Towns of Monson and Palmer on 4/17/2019.
- Springfield Operations reviewed service line records for the impacted distribution system. Completed on4/23/2019
- Gathering and reviewing information if available from instruments commercial meters to get pressure readings? Can we download information?

What was done well?

- Response time to the high high alarm by system operations. Team worked very well.
- Leakage techs arrived quickly and surveys done with efficiency considering conditions different from normal everyday surveys.
- M&R technicians worked very well under pressure/stress.
- Great communications from upper management to all of CMA.

Conclusion: The technician shut off a valve clearly identified, "DO NOT OPERATE". See Figure 3 for picture of new Tag installed on 4/16/2019 by Maintenance Mechanic M&R Technician, because the old tag was dirty but still legible. While there is no known standard operating procedure governing "Do Not Operate" tags, such failure to recognize the risk of turning the valve in light of the "Do Not Operate" tag was a root cause of this situation. Technician failed to follow Gas Standard 1750.010-MA (1/17/2019) and Gas Standard 1170.040 (1/1/2018) in regards to notifying Gas Control before and after performing work at a station. If Gas Control had been notified there would have been more visibility, and the situation may have been mitigated. On 4/19/2019 a revision to GS 1750.010 was published no longer requiring a call to Gas Control unless work is performed on monitored or controlled equipment. The effective date of the revised gas standard is 4/12/2019. The due date in LMS for the review of the change to the standard is June 30, 2019.

When the revised GS 1750.010(MA) "Pressure Regulating Station Operation and Maintenance" is reviewed with individuals, it becomes the effective operating standard for those individuals. The M&R technician has not completed this assignment, and has to June 30, 2019 to do so. Since the M&R technician has not yet completed assignment he is still governed by the original standard dated 1/17/2019, this was a contributing factor.

The trainee did not enter the station with the M&R technician. The M&R technician completed both the Pre-Job Briefing Form and the Vault and Pit Entry Checklist, by himself. If the M&R tech had filled out both forms with trainee, and taken the trainee to observe and participate at the job site, there may have been opportunity to avoid the situation.

The station design as well as the use of the monitor regulator at the 58 psig set point did not keep the downstream pressure below the MAOP plus the 10% allowable build up permissible pursuant to the regulations. While the monitor regulator worked to mitigate the downstream impact, the set point of the monitor regulator, the reaction time before it lowered pressure, as well as the station configuration all contributed to the pressure excursion since the system as a whole did not adequately compensate for human error.

Figure 3 – New "Do Not Operate" Tag

What is being done to prevent reoccurrence/lessons learned?

1. Failure to follow gas standards led to improper valve being turned.

Action Item	Responsible Party	Timeline
Senior management to reinforce obligation to follow gas standards at all times, and continually remind all employees of importance of doing so	GM	30 days
QA/QC the M&R technicians to determine if they are following procedure and or require additional training • Review Outcome of Station Audit and items identified for follow up	CJ Anstead Dana Argo	30 days 30 days

2. Entering a station monitored by SCADA requires a call to Gas Control before entering and exiting. All technicians should have a clear understanding of Gas Standard 1750.010 and Gas Standard 1170.040.

Action Item	Responsible Party	Timeline
1750.010 & 1170.040 Gas Standard Review – Supply Compliance with Batch sheets.	Jeff Croke	30 Days

3. Expand on procedures in Gas Standard 1750.010 and Gas Standard 1170.040 to reduce risk when working at a station (gauges).

Action Item	Responsible Party	Timeline
Submit modification to GS 1750.010 (SEAS request needs to be submitted) expanding on procedures (gauges).	Jeff Croke	30 days
Submit SEAS to review GS 1750.010, 1170.040 and 1750.210. Correct any conflict between them. (Calling Gas Control)	Jeff Croke	30 days
GS 1750.010 modified 4/12/2019 removing language about contacting Gas Control when performing work "onsite". Include in SEAS request to add language back in requiring a call to Gas Control when work is performed on site of a SCADA monitored station. (1) Establish communications between control room representatives, operator's management, and associated field personnel when planning and implementing physical changes to pipeline equipment or configuration; (2) Require its field personnel to contact the control room when emergency conditions exist and when making field changes that affect control room operations; and (3) Seek control room or control room management participation in planning prior to implementation of significant pipeline hydraulic or configuration changes.	Jeff Croke Gas Standard	30 days

4. There was no Job order for the shutting off of the catalytic heater at this station. Require a job order when work is performed at a station.

Action Item	Responsible Party	Timeline
Verify RTs created/dates appropriate/process for turning on and off catalytic heater. Work with Engineering for appropriate times during the year. Is there other work that should be included? Review types of work that need specific jo for station work.	Jeff Croke D. Mueller R. Poe	6 months

5. A pre-job briefing was not completed with both technicians on-site. The trainee did not enter the station with the technician. Reviewing the work with the second person and having a second set of eyes to see the "Do not operate" sign would have reduced risk.

Action Item	Responsible Party	Timeline
Create a Pre-Job briefing for M&R Work. Require all parties on-site to review risks.	Jeff Croke Dana Argo	30 days
Create a checklist for jobs within regulation stations	Jeff Croke D. Mueller R. Poe	60 days

6. Although the valve was tagged with "Do Not Operate" it was still turned as the technician thought it was for the catalytic heater.

Action Item	Responsible Party	Timeline
Tagging (possible other methods) of control lines and Painting or other visual indicators on valves, so as to more clearly identify the equipment and operations of the equipment within the station.	Jeff Croke Dana Argo	90 days
Verify and tag catalytic heater valves locations at stations.	Jeff Croke D. Mueller R. Poe	60 days
Review and Modify Training Document CDOPM4H.1 Operating and Maintaining Catalytic Heater Installations to include Seasonal Shut off steps.	Jeff Croke Marie Walker	90 days
Review training material for the proper procedure for proceeding forward on a "DO NOT OPERATE" tag.	Jeff Croke Marie Walker	90 days

7. Notification of event from Gas Control should include the Integration Center

Action Item	Responsible Party	Timeline
Review process with Gas Control and notification to IC (Over/Under Pressurization).	J Tiffner A. Roorda R.Poe	60 DAYS

8. Could not contact Palmer Fire Department. Review municipal and after hour communications protocol.

Action Item	Responsible Party	Timeline
Educate on Municipalities practices on incidents (reverse 911, town notifications).	Communications	90 Days
Proactive – secure the cell phone numbers for all Fire Chiefs in territory.	Communications	30 Days

9. Monitor took time to respond.

Action Item	Responsible Party	Timeline
Comprehensive review of station. Reconfigure control system.	D. Mueller D. Argo	90 days
Review 3 additional district stations with same cut and reconfigure them if possible.	D. Mueller D. Argo	
Develop plan to investigate and remediate if needed any Gate Stations that also may have similar large cuts in pressure.	D. Mueller D. Argo	

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APPARENT CAUSE ANALYSIS
Low Pressure System Outage
Chicopee, Massachusetts

Incident Date: March 31, 2020

Full Report Publication Date: 4/17/20

Revision 1 Publication Date: 4/20/20

Full Report

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DEFINITION

- **Apparent Cause Analysis (ACA)**

“The ACA process is designed to identify the dominant reasonable cause of an incident that management has the control to fix through effective corrective actions. An ACA should aim to identify the apparent cause of the incident, as well as any contributing factors. Cause is a condition that produces an effect; eliminating a cause(s) will eliminate the risk of an incident.”

- Source: *NiSource SMS Process - Incident Investigation and Lessons Learned v28 draft*

Table of Contents

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EXECUTIVE SUMMARY

Purpose Statement

Purpose Statement: To identify the apparent cause of the low pressure system outage resulting from the shut in of the regulator station at Olivine St. @ Chicopee St., Chicopee MA on March 31, 2020.

Key Data & Facts

- M&R technicians were performing annual compliance work on the control regulator at the Olivine & Chicopee regulator station.
- Control regulator was on bypass and system pressure was maintained correctly. The pressure was lost during the process of re-activating the control regulator.
- During the course of restoring the station to normal operations, the pressure of the low pressure system downstream of the regulator station dropped to approximately .5'' water column.
- Upon learning of the loss of system pressure, CMA management directed the station to be "shut in" in the interest of safety.
- Station shut in resulted in a 227 customer outage.

Cause Map Results

Apparent Cause Themes
Inadequate Process / Procedure – No detailed checklist for performing this maintenance activity
Operator Error - Failure to properly bring the control regulator back into operation

Possible Preventive Solutions Identified by ACA Team

- **Checklist**
  - Create step by step list of items to be completed (and consider requiring signoff on each step) for this type of maintenance activity
  - Create a rigorous field culture of following step by step procedures when executing routine maintenance activities

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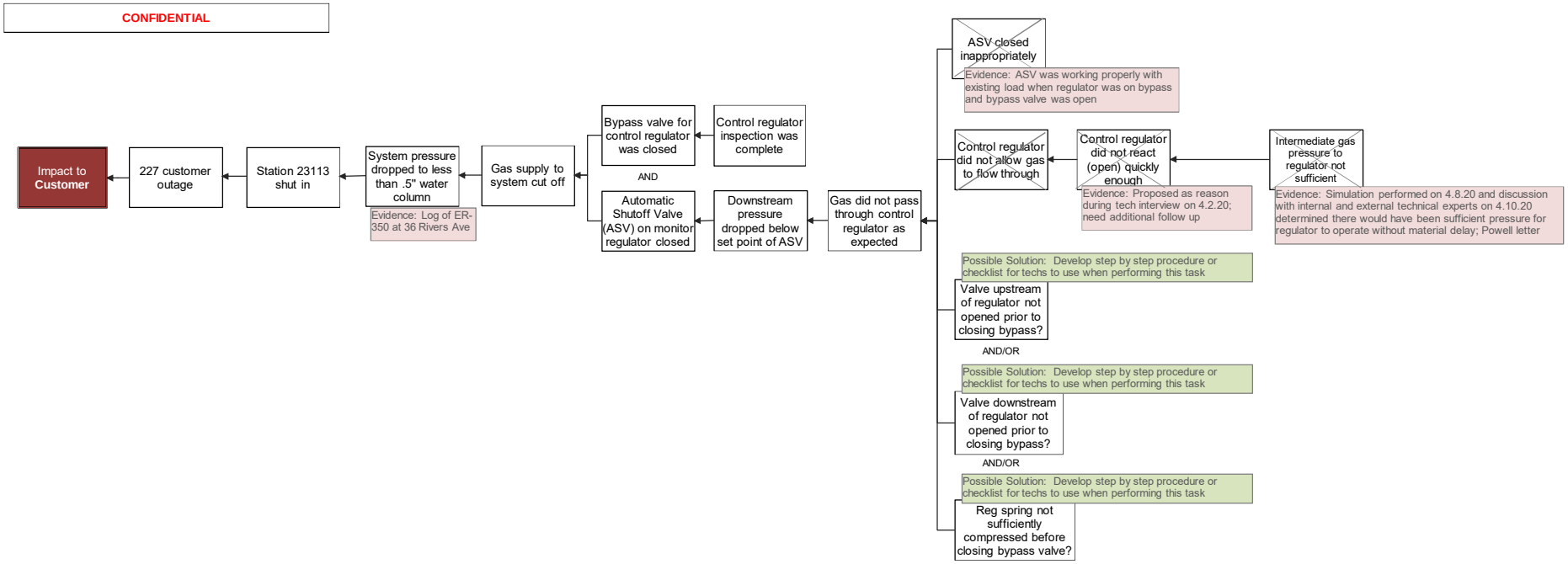
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Impact to Customer
227 customer outage
Station 23113 shut in
System pressure dropped to less than .5" water column
Evidence: Log of ER-350 at 36 Rivers Ave
Gas supply to system cut off
Bypass valve for control regulator was closed
Control regulator inspection was complete
AND
Automatic Shutoff Valve (ASV) on monitor regulator closed
Downstream pressure dropped below set point of ASV
Gas did not pass through control regulator as expected
ASV closed inappropriately
Evidence: ASV was working properly with existing load when regulator was on bypass and bypass valve was open
Control regulator did not allow gas to flow through
Control regulator did not react (open) quickly enough
Evidence: Proposed as reason during tech interview on 4.2.20; need additional follow up
Intermediate gas pressure to regulator not sufficient
Evidence: Simulation performed on 4.8.20 and discussion with internal and external technical experts on 4.10.20 determined there would have been sufficient pressure for regulator to operate without material delay; Powell letter
Possible Solution: Develop step by step procedure or checklist for techs to use when performing this task
Valve upstream of regulator not opened prior to closing bypass?
AND/OR
Possible Solution: Develop step by step procedure or checklist for techs to use when performing this task
Valve downstream of regulator not opened prior to closing bypass?
AND/OR
Possible Solution: Develop step by step procedure or checklist for techs to use when performing this task
Reg spring not sufficiently compressed before closing bypass valve?

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March 31, 2020 Chicopee Outage
Apparent Cause Analysis Cause Map Narrative

On March 31, 2020 Measurement and Regulation (M&R) technicians were performing annual compliance work (performing a regulator lock-up test) on the control regulator at the Olivine St. @ Chicopee St. Regulator station, which feeds a low pressure system. In order to perform maintenance on the control regulator (Grove), the technician placed the regulator on bypass. At this time, the bypass valve was open and system pressure was maintained adequately with the pressure being controlled by the monitor regulator (Pietro Fiorentini) approximately 15 to 20 feet upstream. During the course of restoring the station to normal operations, the pressure of the low pressure system downstream of the station dropped to approximately 0.5'' water column. This indicated that gas supply to the downstream system was cut off - a result of the bypass valve being closed and then the automatic shutoff valve (ASV) on the monitor regulator closing due to the downstream pressure dropping below the minimum set point of the ASV. It is important to note that the ASV was working properly with existing system load when the regulator was on bypass and the bypass valve was open. The ASV closed after the bypass valve was closed, which indicates that gas did not pass through the control regulator as expected.

In an effort to understand why gas did not flow through the control regulator as expected, the Company interviewed the technicians who performed the work. The technicians indicated that the control regulator did not allow gas to flow through because it did not react (open) quickly enough. The technicians believed that the cause was insufficient intermediate gas pressure to allow the control regulator to function properly.

In an effort to rule out equipment issues that would need to be remediated at this and other similarly configured and equipped regulator stations, the Company performed a simulation of the event at it's training center in Shrewsbury, MA. To execute the simulation, the Company utilized the same kinds of equipment and same configuration as the Olivine @ Chicopee station. During the simulations, performed by a number of Company M&R experts, the Company was unable to replicate a failure of the control regulator to open quickly enough. For a more comprehensive analysis, the Company consulted with Powell Controls, Inc. (Bob Powell, President). Powell Controls, Inc. sells and maintains the type of regulator in question across the US Northeast region. Powell Controls, Inc. provided a letter, which states in part:

> *The opening of the monitor as the bypass valve is closed should be instantaneous. With the 893 tube material in the worker a 5psi minimum is required to begin flow. The monitor will keep opening as the bypass is further closed. Once the bypass is fully closed, the pressure into the worker is dictated by whatever differential pressure is required to keep it open enough to satisfy the load. It will definitely be above 5psi and could be as high as 23psi as the rollup curve shows at 23psi the worker is wide open.*

Therefore based on this expert analysis, the Grove working (control) regulator would have had more than enough pressure available (e.g., 5 psi or greater) as the by-pass valve was closed, to immediately open following the closure of the by-pass.

Thus the conclusions of the simulation and the consultation with internal and external experts led the Company to determine that there were no equipment issues contributing to this event.

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The Company, therefore, has determined that there are three remaining possible reasons to explain why gas did not flow through the control regulator. 1) The valve upstream of the control regulator was not opened prior to closing the bypass; 2) the valve downstream of the control regulator was not opened prior to closing the bypass; or 3) the control regulator spring was not sufficiently compressed prior to closing the bypass valve. *It is important to note that while there is a gas standard covering this maintenance activity and CMA's employee was trained on this gas standard, there was no step by step checklist for this type of maintenance activity.*

As a result of the findings of this Apparent Cause Analysis, the following apparent causes are identified:

1) Inadequate process / procedure - *No detailed checklist for performing this regulator maintenance activity.*
2) Operator Error – *Failure to properly bring the control regulator back into normal operation.*

Further, the following possible mitigating actions are being presented to Company management to evaluate for implementation, in order to prevent a similar outage from occurring in the future:

1) Create a step-by-step checklist of items to be completed (and consider requiring signoff on each step) for this type of maintenance activity.
2) Create a rigorous field culture of following step by step procedures when executing routine maintenance activities.

APPENDIX

-Maps/Diagrams

-Letter From Powell Controls Inc.

-Revision Log

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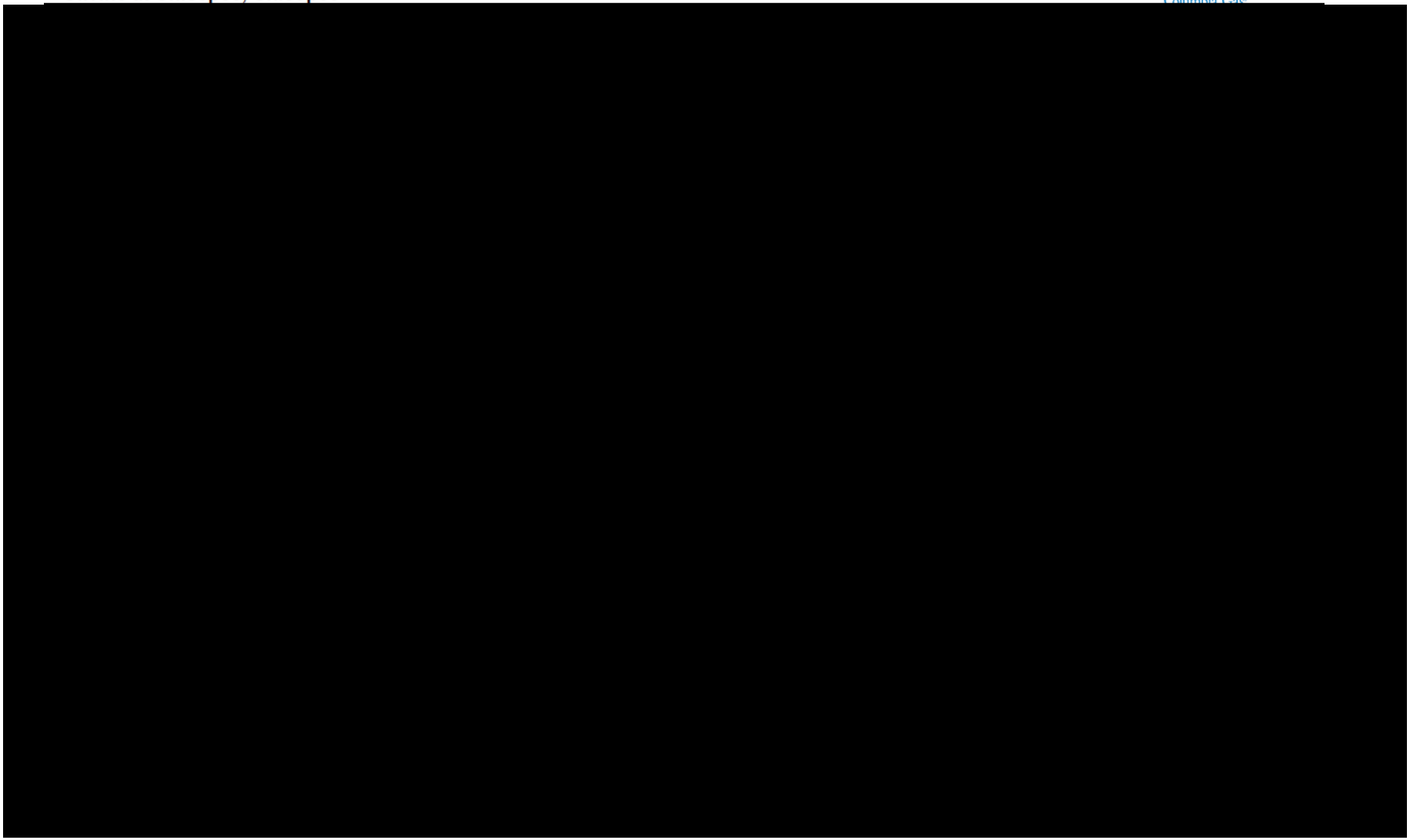
MAPS / DIAGRAMS
GIS map of affected area

Olivine at Chicopee, Chicopee



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MAPS / DIAGRAMS
Olivine at Chicopee Station Isometric Drawing

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LETTER FROM POWELL CONTROLS INC.

- Place holder for letter from Powell

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powell controls, inc.

April 14, 2020

Dana Argo
Columbia Gas of Massachusetts
55 Foundation Ave.
Haverhill, MA 01835

Dear Dana,
As you know, Powell Controls is the factory representative for Grove, Mooney, and Becker pressure regulators. I started my career in 1989 and immediately attended factory training sessions at each manufacturer. I continue to attend these sessions as do all our outside sales people. Our corporate philosophy simply "if you buy it we will come". We do not charge for training, troubleshooting, nor commissioning assistance and we would rather be there than have you looking for us. This philosophy has exposed us to mostly every situation possible. Coupling this experience with the factory training gives us a certain level of expertise. That being said, please see the following procedure:

Procedure for turning on a working regulator after maintenance has been performed and it is by-passed. Slowly refers to an action taken while watching the manometer.

Assumptions:
1. Working regulator inlet and downstream block valves are closed.
2. Monitor regulator is in service controlling the downstream pressure.

Procedure:
1. Back out working regulator pilot so there is no spring compression.
2. Slowly open working regulator inlet valve.
3. Open a blow off valve between the outlet of the working regulator and the downstream block valve to verify lock-up.
4. Close the blow off.
5. Slowly open the downstream block valve.
6. Slowly turn the pilot adjusting screw clockwise to begin compressing the spring. Wind in all the way.
7. Slowly close the bypass valve.
8. Back out working regulator pilot to desired set pressure.

Corporate Office: Three Baldwin Green Common, Suite 201Woburn, MA 01801
Telephone: 781-939-6960 Fax: 781-939-6962
Field Office: 95 Beacon St. Lowell, MA 01850
Telephone: 978-455-6152 Fax: 978-455-6153
www.powellcontrolsinc.com

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powell controls, inc.

This procedure is used by all gas utilities in New England. I personally do the regulator inspections in Wakefield, MA (WMGLD) and this is the procedure I use.

A recent event in Chicopee, MA has directed new focus onto this procedure. I will try to fill in some numbers to help clarify. Please remember I am the representative for Grove, Becker, and Mooney. This is how things work with these 3 brands. The monitor at the station in question is a brand I am not familiar with so I really cannot comment on its performance.

The station was flowing fine with the monitor regulator in control and the worker by-passed. The outlet pressure was approximately 14" water column. When the inlet to the working regulator was opened, the pressure going into the working regulator was 14" as well. This is not enough pressure to open the working regulator. As the by-pass valve is closed, the monitor will sense a drop in outlet pressure and open more and build pressure into the worker causing it to open. Remember the monitor sense line is downstream of the worker and that is the point where the 14" is being maintained. The opening of the monitor as the bypass valve is closed should be instantaneous. With the 893 tube material in the worker a 5psi minimum is required to begin flow. The monitor will keep opening as the by-pass is further closed. Once the bypass is fully closed, the pressure into the worker is dictated by whatever differential pressure is required to keep it open enough to satisfy the load. It will definitely be above 5psi and could be as high as 23psi as the rollup curve shows at 23psid the worker is wide open.

Please call should there be any questions.

Robert Powell
President

Corporate Office: Three Baldwin Green Common, Suite 201Woburn, MA 01801
Telephone: 781-939-6960 Fax: 781-939-6962
Field Office: 95 Beacon St. Lowell, MA 01850
Telephone: 978-455-6152 Fax: 978-455-6153
www.powellcontrolsinc.com

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Revision Log

Revision	Revision Date	Description
1	4/20/20	Clarified that the work being performed on regulator was annual compliance work. Update on Executive Summary slide and on Cause Map Narrative

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LOCATION: Marshfield LNG Facility

ISSUE RESOLVED: Pipe Support Repaired

DATE OF PHOTO: 9/2/2020

fraserengineering
65 Court Street
P.O. Box 9142
Newton, MA 02460-9142

617-332-3700 (office) 617-332-5706 (fax)
www.fraserengineering.com

I N V O I C E

BILL TO: BAY STATE GAS COMPANY
290 W NATIONWIDE BLDV
COLUMBIA OH MA 43215

WORK DONE AT: REPAIR PIPE BRACKETS
MARSHFIELD, MA

CUST# 21933

JOB NO.	CUST ORDER#	TERMS	INVOICE NUMBER	DATE
200044-000		RECEIPT	10479	4/21/20

DATE	DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
	GAS CO REPAIR PIPE BRACKET			
2/25/20	ADAM DIPASQUALE	8.00 RT	99.00	792.00
2/25/20	PHILIP V MASSE	8.00 RT	99.00	792.00
	CONSUMABLES (5% LABOR)			79.20
	INVOICE TOTAL			$1,663.20

LOCATION: Marshfield LNG Facility

ISSUE RESOLVED: Corrected protective enclosure washout.

DATE OF PHOTO: 9/2/20

Murphy Electric & Industrial Control, LLC.
7 Riverside Drive
Pembroke, MA 02359
Phone (781) 826-6423 / Fax (781) 826-6435
Website: www.murphy-electric.com

INVOICE

Invoice #: 20201330
Invoice Date: 2/27/2020
Due Date: 4/12/2020
Terms: 45
Job #: CGAS115X
Job Description: Marshfield LED Lights
P.O. #:

Bill To:
Columbia Gas
Brendan Duffy ID #U131789
995 Belmont St.
Brockton MA 02301

Ship To:
Columbia Gas
Brendan Duffy ID #U131789
995 Belmont St.
Brockton MA 02301

Description of Work: Columbia Gas - T&M Electrical Work 2/5/2020: Installed 4 LED lights at the plant in Marshfield using the bucket truck.

Labor

Date	Full Name	Trade Description	Hours	Billing Rate	Amount
2/5/2020	Sardano, Richard J	Foreman	8.00	123.60	988.80

Total Labor: $ 988.80

Job Materials

Date	Vendor Name	Amount
1/31/2020	Graybar	2,865.00

Total Material: $ 2,865.00

Owned Equipment

Cost Code Description	Quantity	Unit Price	Price
Bucket Truck Charges	8.00	95.00	760.00

Total Equipment: $ 760.00

Thank You For Your Business

Total Amount Due: $ 4,613.80

LOCATION: Marshfield LNG Facility

ISSUE RESOLVED: Installed Crash Gates

DATE OF PHOTOS: 9/2/20

REDACTED

LOCATION: Marshfield LNG Facility

ISSUE RESOLVED: Emergency Shut Down Device Issues – Desk returned to normal location away from front of ESD, ESD Buttons with Clear Labelling, Map Showing ESD Location

DATE OF PHOTOS: 9/2/2020

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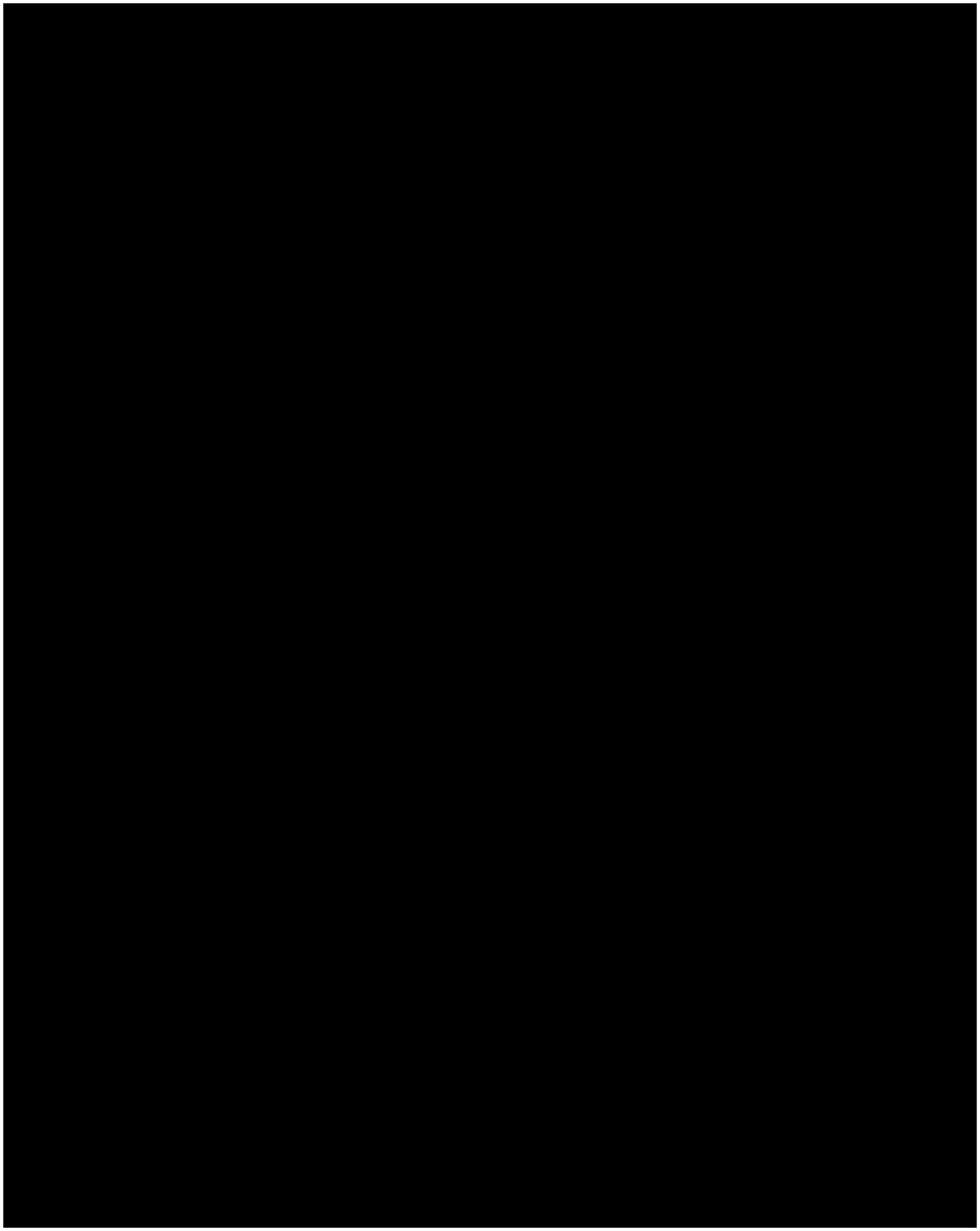

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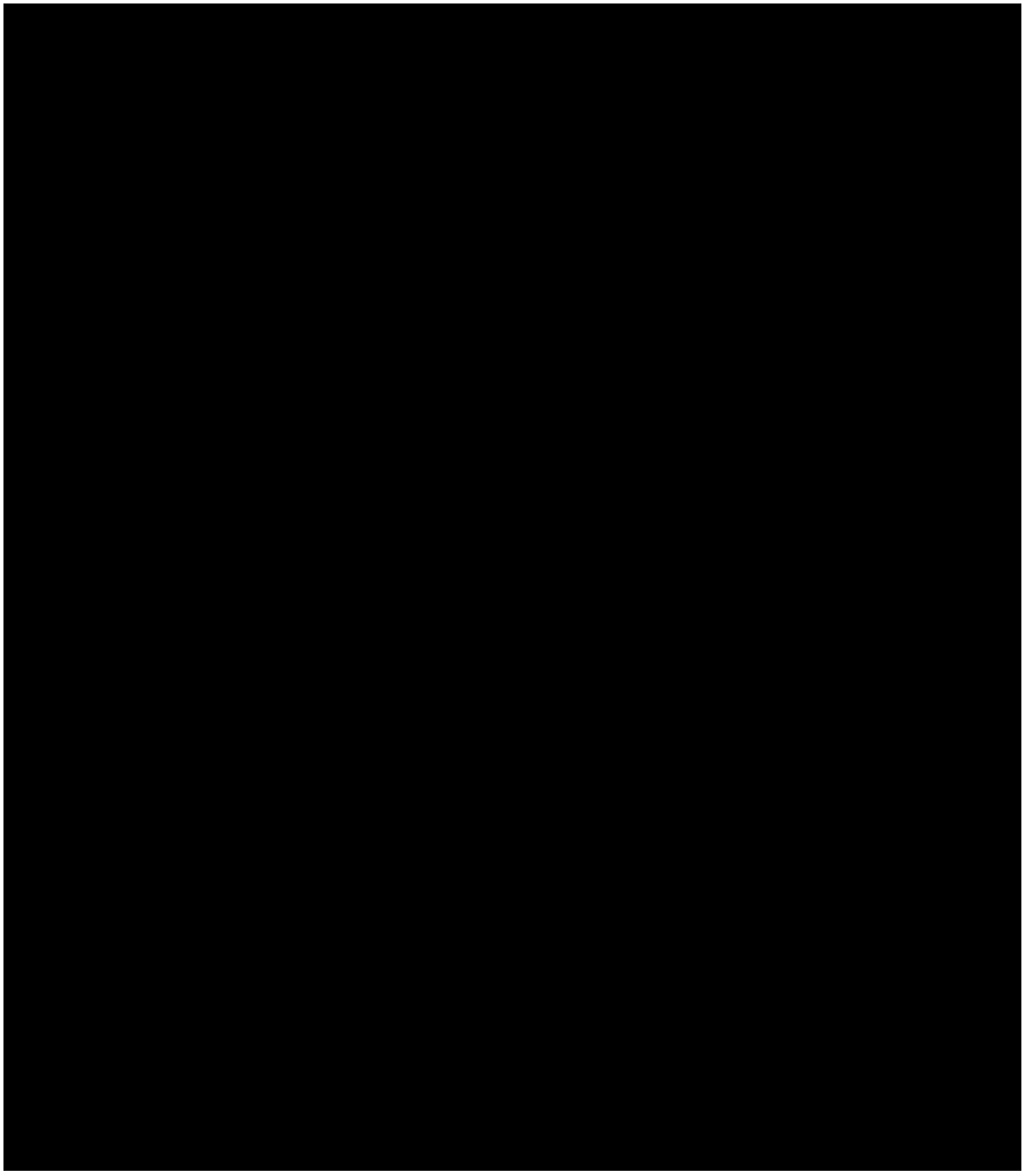

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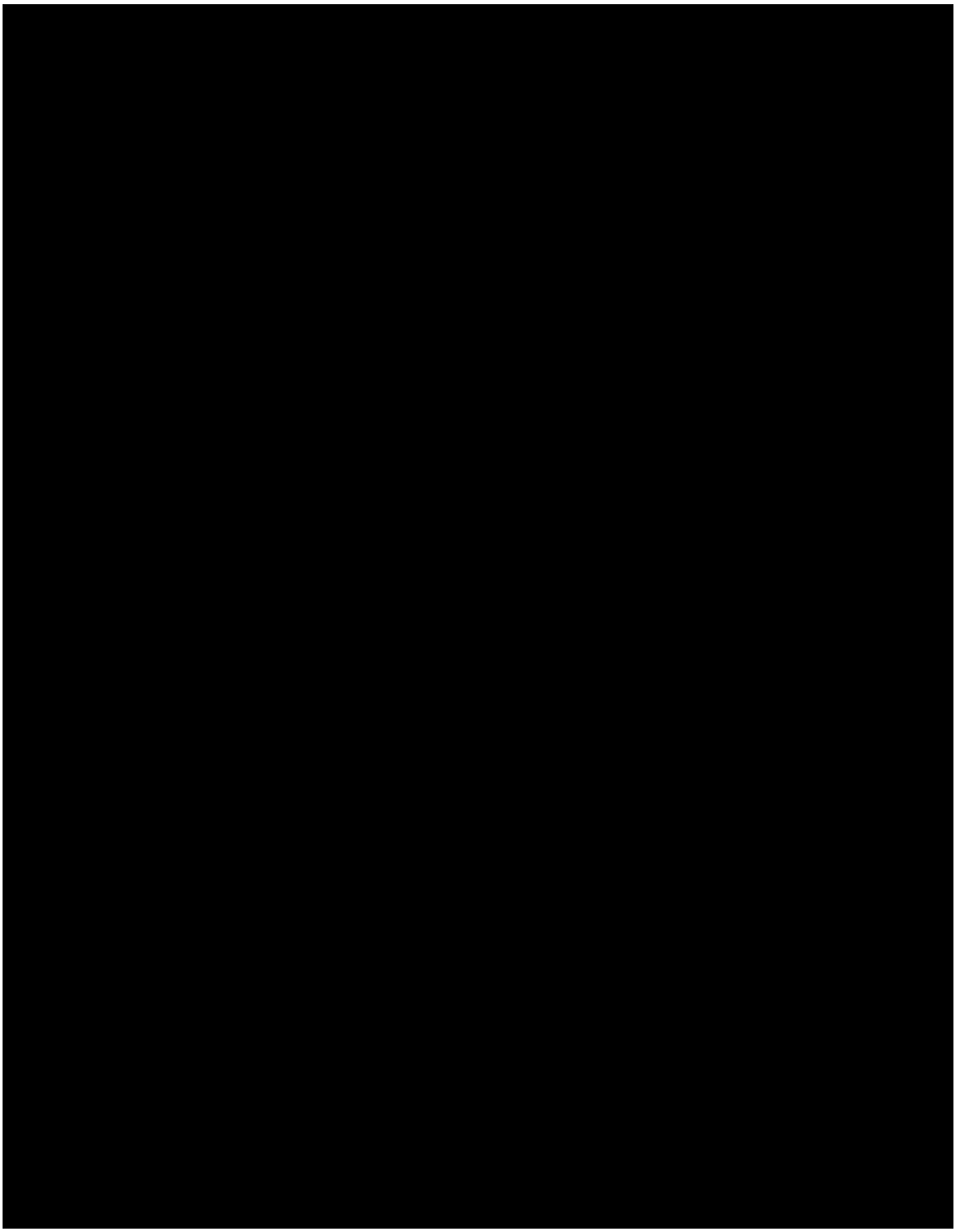
LOCATION: Easton LNG Facility

ISSUE RESOLVED: Emergency Shut Down Device Issues – Button Labelling, Map Showing ESD Location

DATE OF PHOTO: 9/4/2020



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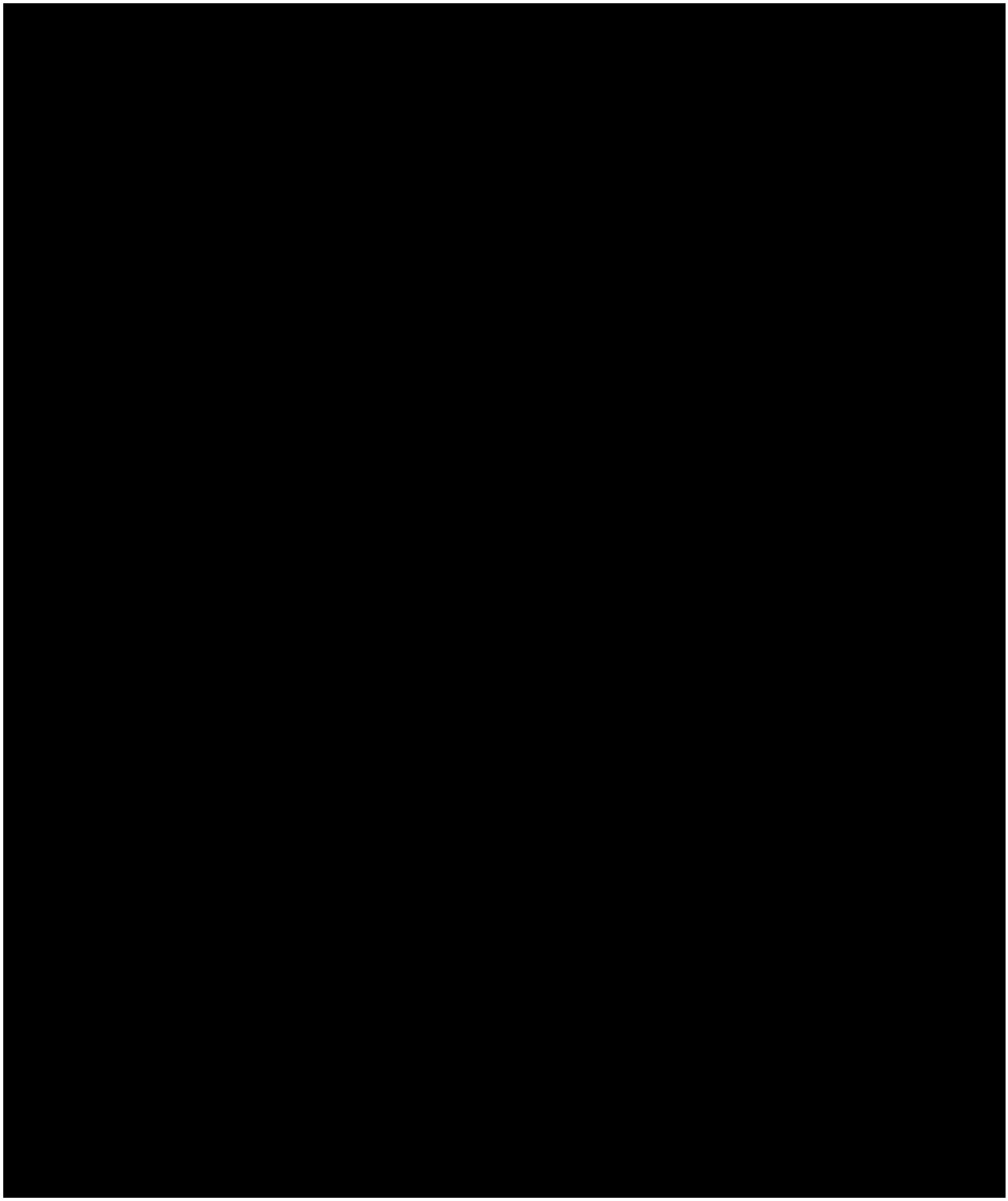

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LOCATION: Easton LNG Facility

ISSUE RESOLVED: “Exit” sign removed from eastern gate; eastern gate no longer shown as “exit” on facility map

DATE OF PHOTOS: 9/4/20

REDACTED

[redacted]

LOCATION: Lawrence LNG Plant

ISSUE RESOLVED: Corrected opening at back gate by replacing with section of chain link fence, pictured here.

DATE OF PHOTO: September 8, 2020