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 0 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

Activit A19041	y Number: 6-1423-53				tivity Report	AOR:	NORTH
Search	for Locatio	n Site ≤ Selec Locatio	t m	SON GATI	E Market: MONS	SON	
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Severity	:	O SEV 1	O SEV 2 O S	SEV 3 🔿 S	EV 4 O SEV 5		
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Read PTP Total # of While read	<mark>/ RTU</mark> f PTP's & RTU's:	: 1 elaw yay will a	nly see the list DT	D'e & RTI i'e th	ut were undated by this Artivity		
ID	RTU Name	Site	Market	Created On	Related Activity	Status	Assigned 1
PTP-6707	MN-MONSON GATE	MONSON	MA-MNSN-BSG_	04/17/2019	A190416-1423-53	Completed	(Closed)
				ACT			
04/16/20	19 12:48:29 PM	RANDY HUM	BERSTON ~ Re	c'd High Higl	h on the OP at 68.152#. I cont	acted Jeff Croke	e @

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 Heckendom

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.
- o 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	GM	30 days
gas standards at all times, and continually remind all		
employees of importance of doing so		
QA/QC the M&R technicians to determine if they are	CJ Anstead	30 days
following procedure and or require additional		
training		
Review Outcome of Station Audit and items		
identified for follow up	Dana Argo	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	Jeff Croke	30 Days
Compliance with Batch sheets.		

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	Jeff Croke	30 days
to be submitted) expanding on procedures (gauges).		
Submit SEAS to review GS 1750.010, 1170.040 and	Jeff Croke	30 days
1750.210. Correct any conflict between them. (Calling		
Gas Control)		
	Jeff Croke	30 days
GS 1750.010 modified 4/12/2019 removing language	Gas Standard	
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.		

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	Jeff Croke	6 months
on and off catalytic heater. Work with Engineering for	D. Mueller	
appropriate times during the year.	R. Poe	
Is there other work that should be included? Review types		
of work that need specific jo for station work.		

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	Jeff Croke	30 days
parties on-site to review risks.	Dana Argo	
Create a checklist for jobs within regulation stations	Jeff Croke	60 days
	D. Mueller	
	R. Poe	

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

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	J Tiffner	60 DAYS		
(Over/Under Pressurization).	A. Roorda			
	R.Poe			

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	Communications	90 Days
911, town notifications).		
Proactive – secure the cell phone numbers for all Fire	Communications	30 Days
Chiefs in territory.		

9. Monitor took time to respond.

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