Minnehaha Academy Accident
DCA-17-MP-007

Party Submission

Prepared by:
CenterPoint Energy Minnesota Gas

Submitted to:
National Transportation Safety Board (NTSB)

November 15, 2019

Introduction

CenterPoint Energy Minnesota Gas (CPEMG) participated as a party to the National Transportation Safety Board's investigation of the tragic gas explosion at the Minnehaha Academy in Minneapolis, Minnesota on August 2, 2017. CPEMG would like to thank the NTSB and the other parties to the investigation for their diligence and commitment to determining the cause of the incident and enhancing public safety.

CPEMG offers the analysis which follows based upon the information that was provided during the NTSB investigation. To the extent that the NTSB's analysis differs, and particularly if any differences are based upon information not available to, or considered by, CPEMG, we welcome the opportunity to discuss those differences.

Safety is one of our core values. Following this incident, CPEMG proactively took steps to improve our processes for commercial in-to-out meter moves, strengthen oversight of contractors, and educate contractors and the public about jurisdictional versus non-jurisdictional equipment. The important lessons learned from the Minnehaha Academy incident have been incorporated in our ongoing operations.

Facts and Analysis

As part of a multiyear program to replace aging indoor natural gas meters with new outdoor meters, CPEMG hired Master Mechanical, Inc. (MMI), an Eagan, Minnesota-based mechanical contractor, to fabricate, install, and connect new customer piping to new outdoor meters that CPEMG would install on an outside wall at Minnehaha Academy's Upper School. MMI had successfully completed over 100 jobs for CPEMG on other meter move projects without incident.[1] MMI was only one of several mechanical contractors that had successfully completed customer piping work for CPEMG on in-to-out meter move projects.[2]

Only Operator-Qualified personnel are authorized to operate CPEMG's DOT-jurisdictional equipment.[3] The dividing line between CPEMG's equipment and customer-owned equipment is at the outlet side of the meter. Figure 1 below shows the equipment configuration in the utility bunker at Minnehaha Academy:

[1] MMI Superintendent interview page 30, lines 1-12
[2] CPEMG Director of Engineering and Technical Field Operations interview page 15, lines 13-19
[3] CPEMG Director of Engineering and Technical Field Operations interview page 36, lines 7-25

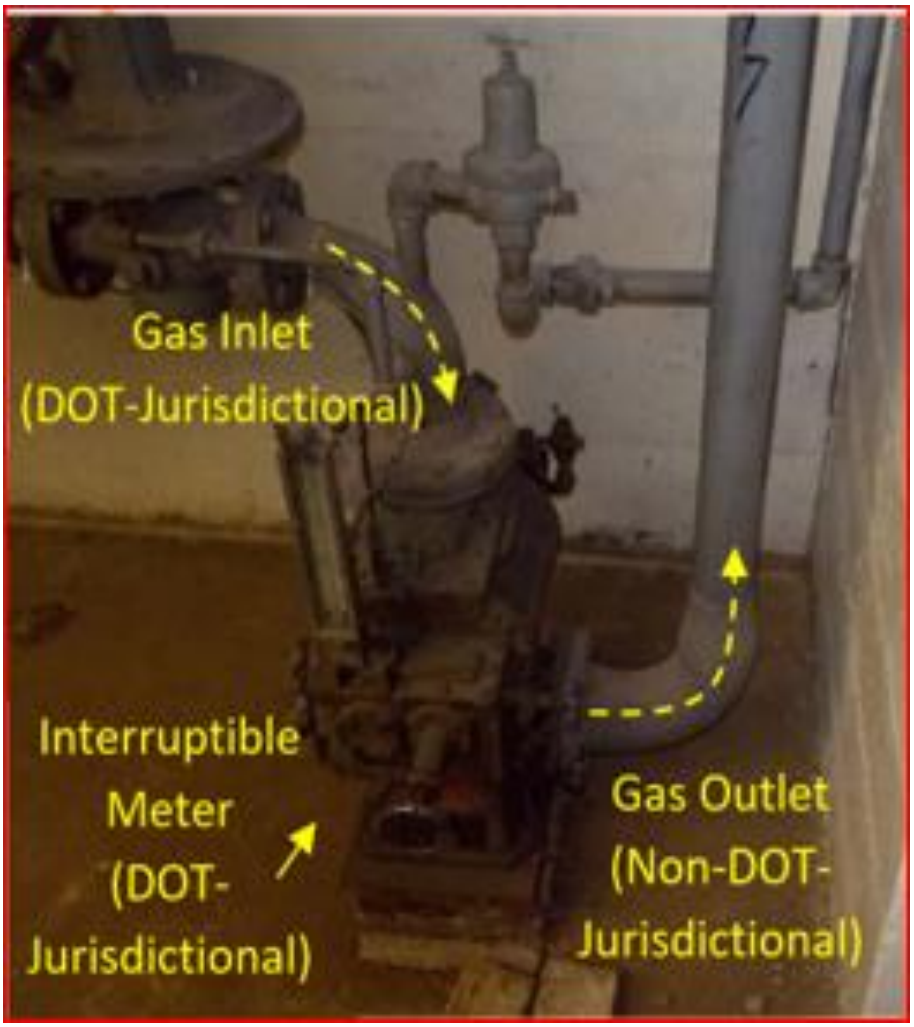
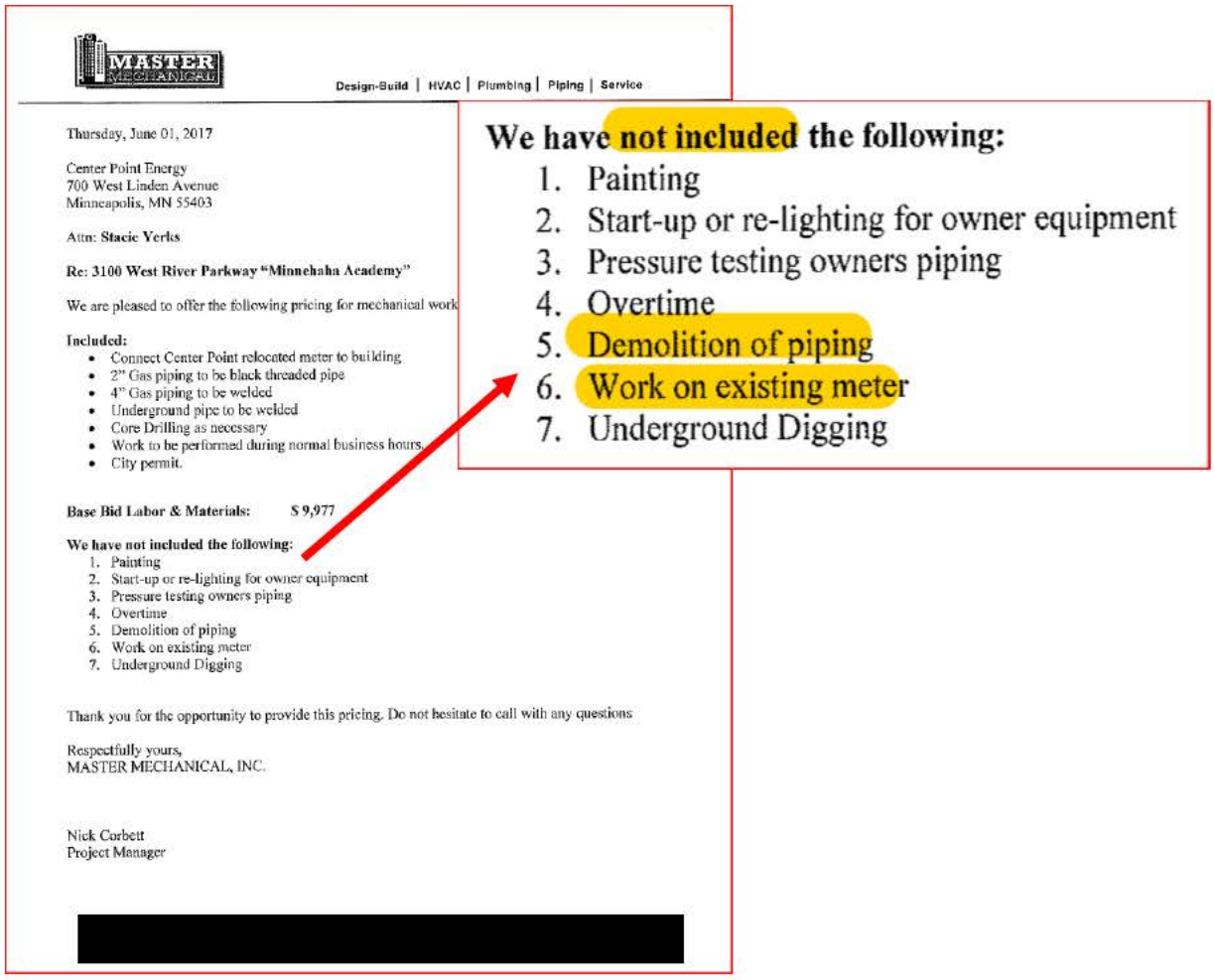


Figure 1: February 2016 photograph taken by CPEMG, with NTSB annotations

MMI's June 1, 2017 bid for the Minnehaha Academy work is shown below:



MASTER MECHANICAL

Design-Build | HVAC | Plumbing | Piping | Service

Thursday, June 01, 2017

Center Point Energy
700 West Linden Avenue
Minneapolis, MN 55403

Attn: **Stacie Yerks**

Re: 3100 West River Parkway "Minnehaha Academy"

We are pleased to offer the following pricing for mechanical work

Included:

- Connect Center Point relocated meter to building
- 2" Gas piping to be black threaded pipe
- 4" Gas piping to be welded
- Underground pipe to be welded
- Core Drilling as necessary
- Work to be performed during normal business hours.
- City permit.

Base Bid Labor & Materials: $ 9,977

We have not included the following:

1. Painting
2. Start-up or re-lighting for owner equipment
3. Pressure testing owners piping
4. Overtime
5. Demolition of piping
6. Work on existing meter
7. Underground Digging

Thank you for the opportunity to provide this pricing. Do not hesitate to call with any questions

Respectfully yours,
MASTER MECHANICAL, INC.

Nick Corbett
Project Manager

[redacted]

We have not included the following:

1. Painting
2. Start-up or re-lighting for owner equipment
3. Pressure testing owners piping
4. Overtime
5. Demolition of piping
6. Work on existing meter
7. Underground Digging

Figure 2: MMI's June 1, 2017 bid acceptance letter

Working on jurisdictional equipment was not within MMI's scope of work, as evidenced by MMI's own bid. It only covered work on non-jurisdictional customer piping and expressly excluded demolition of piping and work on the existing meter. In their interviews with the NTSB, the MMI Superintendent and MMI Journeyman/Pipefitter stated that MMI works on customer piping and typically does not do any work "ahead" (upstream) of the meter.[4] CPEMG did not request that MMI work on any jurisdictional equipment at Minnehaha Academy.

Before August 2, 2017, CPEMG representatives met with MMI representatives on site at Minnehaha Academy (both pre-bid and after the bid was accepted) to discuss the proposed work. CPEMG representatives showed the MMI Superintendent where the new meters would be installed outside, and the MMI Superintendent also visited the utility bunker where the existing meters were located to determine how MMI would complete the customer piping part of the work. In addition to the new customer piping, MMI's bid provided for core drilling as necessary. Here, core drilling

[4] MMI Journeyman/Pipefitter interview page 56, lines 13-17; MMI Superintendent interview page 83, lines 20-25 and page 84, lines 17-19

would be needed to run the new customer piping through the building wall to connect to the outlets of the new outside meters.[5]

The MMI Superintendent assigned the Minnehaha Academy job to a licensed Journeyman/Pipefitter who would be assisted by his college-age son working as a helper for MMI.[6] MMI's work plan for Wednesday, August 2 was to complete the core drilling after CPEMG personnel used a vacuum truck to excavate in the area where the core drilling was to occur. Due to a delay with the vacuum truck that morning, the MMI Journeyman/Pipefitter and MMI Helper decided to go in the utility bunker and perform pre-work to be ready for the final tie-in on Friday, August 4.

The MMI Journeyman/Pipefitter told the NTSB "originally on that day, we weren't going to do anything inside." The MMI Helper described the change of plan as going to "Plan B".[7] They did not inform the CPEMG personnel waiting outside for the vacuum truck of their change of plan or what they would be doing inside. The MMI Journeyman/Pipefitter was aware that CPEMG personnel would turn off gas at the street on Friday, August 4 so that CPEMG could install a new service line and MMI could complete the tie-in of the new customer piping. In fact, the MMI Journeyman/Pipefitter changed his vacation day, originally scheduled for Friday, August 4 to Monday, August 7 to accommodate the final tie-in date. Thus, the MMI Journeyman/Pipefitter knew that gas was still on to the building on Wednesday, August 2.[8]

Despite the MMI Journeyman/Pipefitter's statement to the NTSB that MMI does not "do anything ahead of the meter,"[9] once in the utility bunker, the MMI Journeyman/Pipefitter and MMI Helper unilaterally decided to disconnect the utility-owned jurisdictional pipe going to the interruptible meter and move the meter to make room for the new customer piping. The MMI Journeyman/Pipefitter said he observed the handle of the valve in the "off" position when he entered the room and that the handle did not move when he pulled on it. The MMI Journeyman/Pipefitter found the valve in what he thought was a stuck closed position.[10] He did not examine the markings on the valve which clearly indicated the valve to be in the open position.

Based on his assumption the valve was closed, the MMI Journeyman/Pipefitter assumed gas was off to the interruptible meter and started to loosen the bolts to see if any gas was leaking past the valve. No attempt was made to purge the gas in the jurisdictional pipe between the valve and the meter safely outside the utility bunker. Instead, hearing and smelling nothing, the MMI

[5] MMI Superintendent interview page 19, line 6 and following (describing pre-bid meeting); MMI Journeyman/Pipefitter interview page 10, line 21 and following (describing August 1 walk-through); MMI bid acceptance letter

[6] MMI Superintendent interview page 52, lines 9-25

[7] MMI Journeyman/Pipefitter interview page 22, lines 1-9; MMI Helper interview page 11, lines 13-21

[8] MMI Journeyman/Pipefitter interview page 15, lines 18-23 and page 27, line 23 through page 28, line 8

[9] MMI Journeyman/Pipefitter interview page 56, line 13-17

[10] MMI Journeyman/Pipefitter interview page 29, lines 8-14 and page 40, lines 25 through page 41, line 2; MMI Helper interview page 14, line 23 through page 15, line 6

Journeyman/Pipefitter instructed the MMI Helper to remove all the bolts, and he left the utility bunker.[11] The MMI Helper proceeded to remove all of the bolts and used a screwdriver to pry the flange and gasket apart. At that point, gas began to escape the completely-open 3-inch pipe at 10 psig. The MMI Helper went outside to get the MMI Journeyman/Pipefitter. Together, they were still unable to push the flanges back together, and the MMI Journeyman/Pipefitter told the MMI Helper to leave while he continued to try to stop the gas flow. There was no attempt to stop the gas by closing the valve. The MMI Journeyman/Pipefitter eventually left the building and was on his way to ask the CPEMG personnel to shut off the gas at the street when the explosion occurred.[12]

After the explosion, the valve handle was found perpendicular to the valve body. See figure 3 below:

Figure 3: NTSB photograph taken August 6, 2017, with CPEMG annotations

However, a photograph taken in February 2017 shows the valve handle parallel to the pipe, indicating gas is flowing. See figure 4 below:

[11] MMI Journeyman/Pipefitter interview page 29, line 14 through page 30, line 21 and page 31, lines 21-24; MMI Helper interview page 15, lines 23-25

[12] MMI Helper interview page 16, line 16 through page 17, line 11; MMI Journeyman/Pipefitter interview page 31, line 23 through page 32, line 23 and page 39, lines 5-25

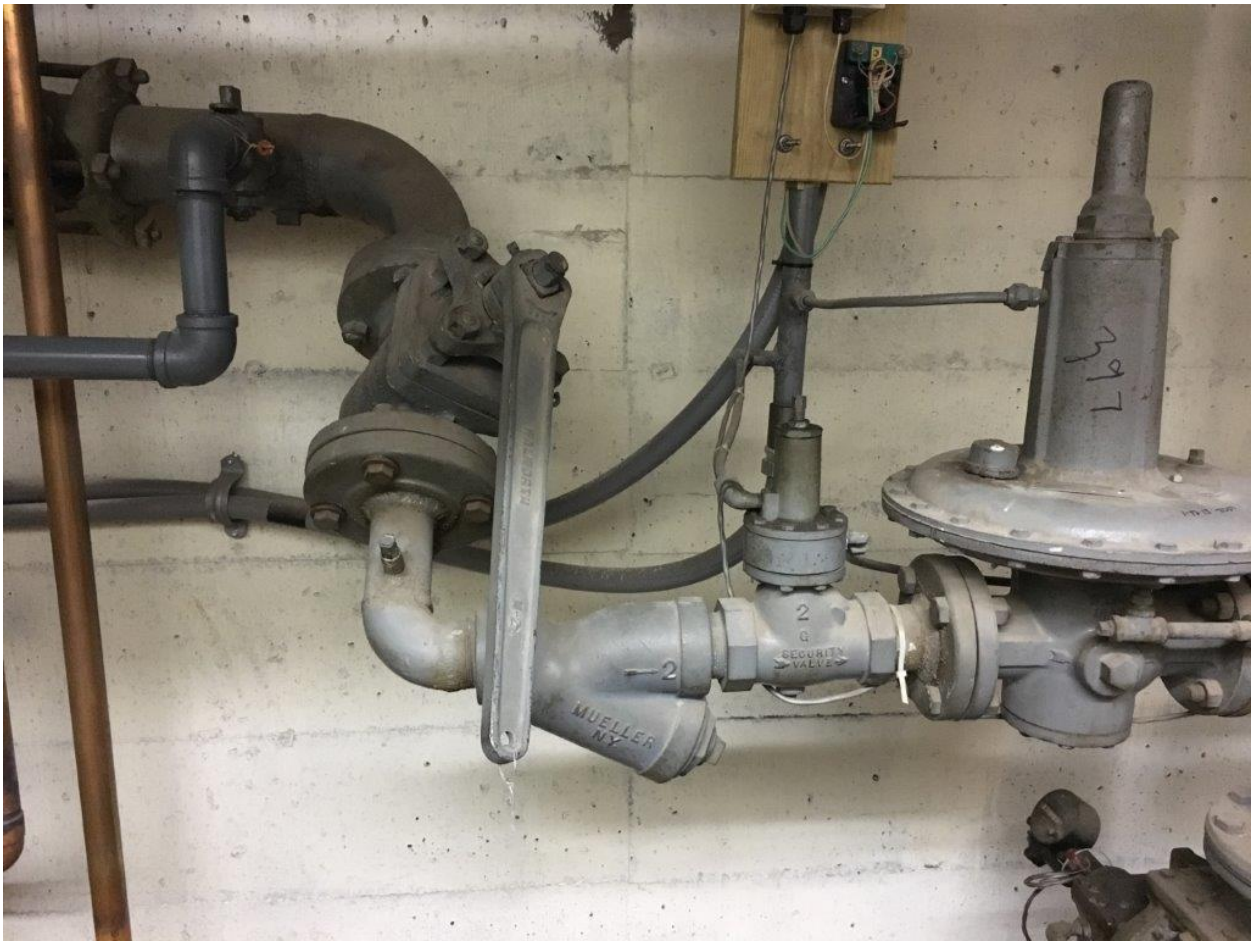


Figure 4: February 2017 photograph taken by CPEMG

There is no evidence of when the valve handle was moved after February 2017 or who may have moved it. CPEMG is unaware of anyone else who may have repositioned the valve handle or had a reason to do so. But, even if the MMI Journeyman/Pipefitter and MMI Helper thought the valve was in the off position on August 2, the MMI Journeyman/Pipefitter made no provisions to purge any gas that might have been remaining in the system or to verify through other means if the line was under pressure.[13] Two other available means to verify pressure/gas on the line (through the test port and/or through the clean out bolt on the strainer) are visible in figure 5 below:

[13] MMI Journeyman/Pipefitter interview page 29, line 14 through page 30, line 22

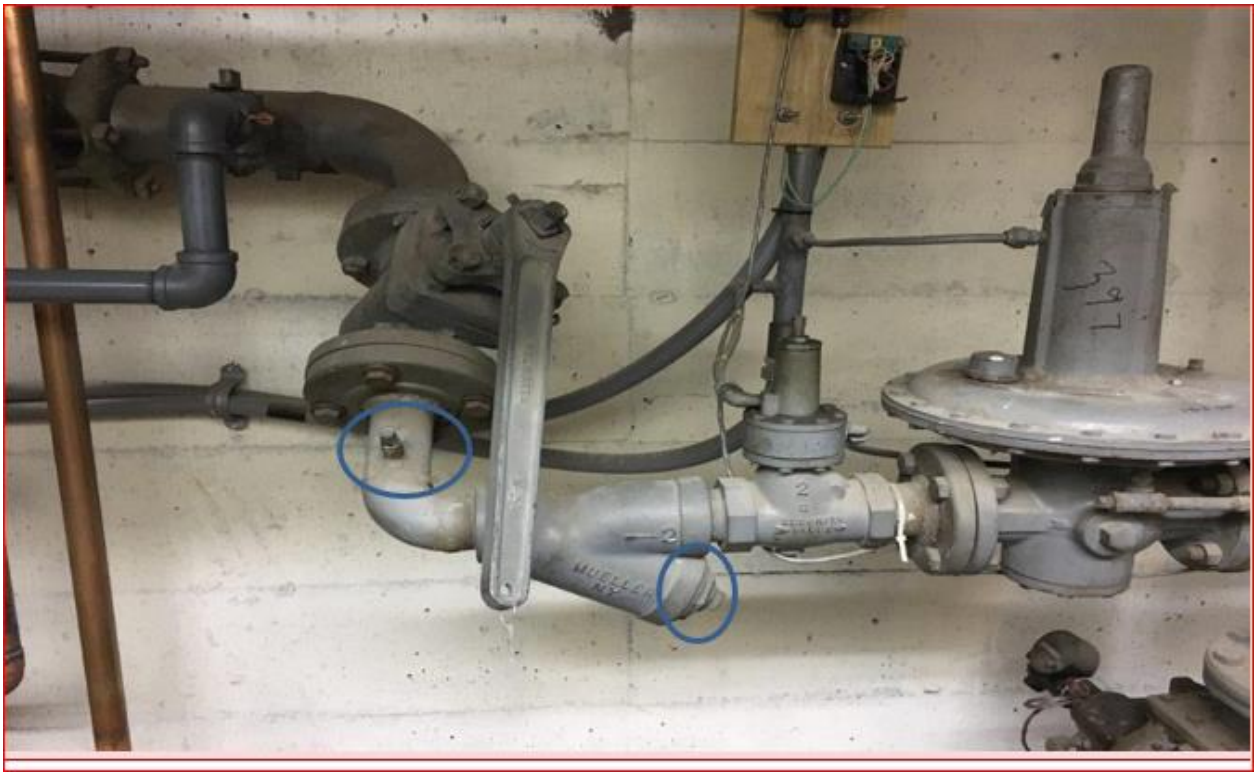


Figure 5: February 2017 photograph taken by CPEMG, with CPEMG annotations

In assuming the valve was closed based solely on the position of the valve handle, the Journeyman/Pipefitter disregarded multiple visual indicators that the valve was actually open. Post-incident photographs of the valve stops and "OPEN" arrow confirm that the valve is in the open position. See figure 6 below:

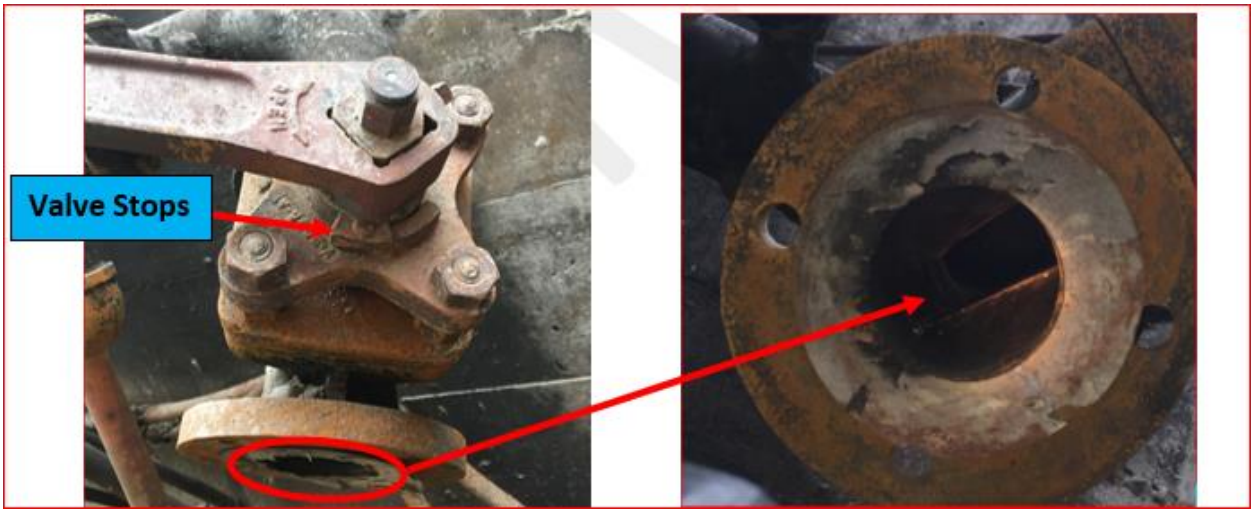


Figure 6: NTSB photographs taken August 6, 2017, with CPEMG annotations

The MMI Journeyman/Pipefitter also acknowledged he was not sure whether the handle was detachable or that it was in the right position.[14] Despite these uncertainties, he proceeded to loosen the bolts. In fact, the valve handle was not in the correct position, and by pulling down on the handle, the MMI Journeyman/Pipefitter ensured the valve remained fully open, not closed. There is no evidence that maintenance or lubrication of the valve was a factor, because no attempt was made to close the valve.

The MMI Superintendent agreed that the MMI Journeyman/Pipefitter should have purged residual gas out of the line "to make sure the line is empty" and confirmed whether the valve was open or closed before proceeding further.[15]

Q. Would you say it's safe to just assume that the valve was closed and start loosening bolts downstream?

A. No, I don't think I would do that.

Q. You wouldn't do that because you wouldn't consider it to be safe?

A. Correct.[16]

Proposed Probable Cause

The probable cause of this incident is the MMI Journeyman/Pipefitter's failure to recognize that CPEMG's jurisdictional valve was in the open position, and his failure to purge the jurisdictional piping downstream of the valve, before he and the MMI Helper disassembled that piping. Contributing to the accident was the repositioning of the valve handle to a position normally indicating that the valve would be closed.

Post-Incident Actions

Following the incident, CPEMG suspended Company-initiated commercial meter moves from inside to outside. Over a period of several months, a cross-functional team including representatives from operations, engineering, purchasing, and compliance reviewed the existing process and recommended the following actions to improve project oversight, project documentation, and internal and external project communications. CPEMG implemented these

[14] MMI Journeyman/Pipefitter interview page 69, lines 5-17
[15] MMI Superintendent interview page 76, lines 1-12
[16] MMI Superintendent interview page 80, lines 17-22

recommendations and has used the revised process to successfully complete Company-initiated commercial meter moves from inside to outside.[17]

- Formally document the process for Company-initiated commercial meter moves from inside to outside, beginning with identification of project need through completion in the field and assigning responsible parties for each step in the process, with oversight provided by a project manager who is accountable for the project (see documents attached as Exhibit A).
    - The revised process includes written and verbal communications to affected customers throughout the project, multiple checkpoints with customers and mechanical contractors to coordinate work, defining the demarcation point between utility facilities and customer piping, and discussing when, where, and how gas will be turned off.
    - Based on feedback from the customer and through engineering review, a plan is tailored to meet the customer's unique needs and to carry out the work at each location.
    - On the tie-in day, a group safety meeting will be held at the worksite involving all parties (CPEMG, customer, and mechanical contractor) to go over the plan, review each parties' responsibilities, and clarify any questions.

- Train CPEMG management, engineering, and field personnel on the revised process, the Company's expectations, and their respective roles and responsibilities and update and refresh training as needed.

- Send a letter annually to Minnesota licensed mechanical contractors regarding the demarcation point between CPEMG facilities and customer piping and reiterating they are not authorized to work on or operate CPEMG facilities (see documents attached as Exhibit B).

- For residential customers, information about the demarcation point between utility facilities and customer piping has also been published on the Company's external website: https://www.centerpointenergy.com/en-us/residential/safety/meter-safety?sa=mn.

CPEMG is committed to safety and continuous improvement and incorporating the lessons learned from this tragic incident for the benefit of our customers, employees, communities, and other stakeholders.

[17] The Minnesota Office of Pipeline Safety was on site with CenterPoint Energy several times when the revised process was used and witnessed its execution.

Exhibit A

CenterPoint Energy

Date

Name
Company
Address
Address

Re: Relocate Gas Meter

Dear CenterPoint Energy customer:

CenterPoint Energy is planning to move the gas meter and piping serving your facility to the outside of the building. This work is being done to insure available access to our gas metering equipment. This work will be performed at no charge to you. CenterPoint Energy will coordinate the work so that it is performed in a safe and efficient manner.

Construction methods will be used to minimize disturbance to your property and every effort will be made to restore the work area back to former condition. Prior to construction, a site visit will be required to obtain the gas appliance usage data so the proper metering equipment can be installed at the new outside location. A mechanical contractor will need to be involved to reconnect your inside gas piping to the new outside meter location.

This construction will require temporary interruption to your service while switching service over to the new meter location. This will require our service technician to check gas appliances and equipment for the re-lighting of pilots, as needed. The schedule of this work will be coordinated with you.

We appreciate your assistance and patience with us on this project and we apologize in advance for any inconvenience that you may experience.

Below is a summary of some of the steps that will occur during this project process:

1. I will be contacting you to schedule a site visit
2. During the site visit, I will point out the gas metering equipment that will be part of the meter relocation project. We will show you what gas piping equipment belongs to CenterPoint Energy and where your gas piping ownership begins.
3. An installation date will be agreed upon between CenterPoint Energy and yourself.
4. We will coordinate this work so that it provides the least amount of impact to you.

If you have any questions, please do not hesitate to contact me at [redacted].

Thank you,

Name
Engineering Specialist

CNP Initiated Large Scale** Commercial/Industrial Meter Moves – In to Out

Primary Oversight of Project – Project Manager (PM): Engineering Department

Project is identified – Engineering — **Owner:** Engineering Dept.

- Public improvement project (street reconstruction)
- System improvement (main being replaced; service line being replaced)
- Meter age change or other CNP originated work

1. Project is assigned to Engineering Specialist in Engineering — **Owner:** Engineering Specialist
   - Existing meter station records research
   - Existing service line records research
   - Determine scope of work
   - Create an "investigate work order" and a "notification" in SAP for documentation purposes. (Notification is the record keeper of all notes for this meter move process - once notes are entered and saved, they cannot be changed)

Control Point #1 – communicate scope of project to PM, tentative timeline and possible work to be done - PM to document communication

2. Customer notification — **Owner:** Engineering Specialist
   - *Contact customer*
     - *Contact Energy Sales and New Market Development- if applicable*
     - Jointly identify the primary contact at customer premise for all communication
     - Communicate CNP primary contact -email, cell phone with customer
       - CNP documents information in notification
       - Take pictures of inlet, meter, outlet, proposed cut point(s)/tie-in point(s), and obtain loads and pressures. Discuss timeline for construction
       - Customer notification letter sent to customer/hand delivered (copy saved to electronic file for future upload to FileNet – electronic folders are on shared drive under "REHAB IC SERVICES" and are organized by city and address)

Control Point #2- notify PM of activity – communicate what was learned - PM to document communication

3. Engineering Specialist contacts CNP Meter Installation and/or Construction & Maintenance (C&M), CNP Operator Qualified (OQ) Contractor, and Mechanical Contractor
   Owner: Engineering Specialist
   - Individual discussions with CNP Meter Foreperson, CNP OQ Contractor, Mechanical Contractor and CNP C&M
     - Reviews information, recent work (date, type, etc.)
   - Scope of work is further discussed

4. CNP site visit to update or verify facilities — **Owner:** Engineering Specialist
   - Contact customer to set up site visit
   - Invite CNP Meter Foreperson, CNP OQ Contractor, Mechanical Contractor and C&M to meet at project site
   - Document in notification
     - project details
   - Site visit tasks:
     - Identify isolation valve(s) – indicate on picture
     - Identify demarcation point - wrap with yellow tape and indicate on picture
     - Gather information to properly size (load)
     - Discuss if/when gas will be turned off for work to begin

        - Example: firm to remain on and interruptible to be shut off
    - Pictures of existing facilities - CNP & Customer - identify hazards
    - Service line running line, identify/coordinate locates for private utilities
    - Identify new meter set location
    - Determine cut points/tie-in point on customer piping with Mechanical Contractor
    - Exercise service line valves by C&M in order to verify valve is operable, if applicable
    - Exercise meter set valves by CNP Meter Foreperson
    - Hang sign – "Danger Natural Gas"
    - Complete checklist - part 1
- Schedule additional on-site meetings, as necessary

5. Project is designed **Owner:** Engineering Specialist
    - Reviews information (i.e., meter specs, regulator specs, pictures, connected load)
    - New meter station
    - New service line (if applicable)
    - Materials are specified in work order
    - Proposed/approximate installation date range is established
    - Work order is released to CNP fabrication shop
    - Bundle all outstanding work orders in SAP
    - Obtain permits and traffic control plan/obstruction permits, as needed
    - Write Gas Service Control Plan (GSCP)

6. Design approved by Engineering **Owner:** Engineering Specialist
    - Approve design by peer Engineering Specialist
    - Approve GSCP by PM
    - Coordinate schedule

Control Point #3 – Approval of design and GSCP. Discuss schedule with all involved parties

7. Distribution to internal departments **Owner:** Engineering Specialist
    - Checklist:
        - Excavation permits
        - Materials
        - Fabrication
        - Meter Shop
        - Revised drawing, if applicable
        - All documents saved to work orders and remarked

8. CNP internal departments build meter station **Owner:** Engineering Specialist
    - Materials sourced and pulled
    - Meter piping fabrication is completed to support work
    - Meter regulation is completed to support work

9. Send order to Scheduler Router to route to contractor, if required **Owner:** Engineering Specialist

10. Preconstruction meeting with all involved parties **Owner:** CNP Engineer (PM)
    - Final walk through of project details including:
        - Schedule
            - Customer piping
            - Service line or riser installation
            - Meter station
        - GSCP steps and roles

    - Demarcation point – CNP facilities to be operated/worked on by CNP qualified personnel or CNP OQ Contractor only.
    - Party responsibilities
- Discuss communication chain and methods
    - Establish method of communication between parties involved (cell phone/radios/etc.)
    - Communicate to all parties when gas will be turned off/on
- Document in notification
- Establish installation date(s)
- Complete checklist - part 2

Control Point #4 – PM to document activity

11. Service line work to be performed (if applicable) **Owner**: CNP Inspector
    - Locates are called
    - Obstruction permits are obtained
    - Directional bore rig scheduled, if needed
    - Service Line crew completes SAP work order
    - Complete checklist - part 3

12. Meter station installation day **Owner:** Meter Foreperson
    - Group safety meeting prior to start of work to go over plan, review each parties' responsibilities (customer, CNP OQ Contractor, Mechanical Contractor and CNP), emergency response protocols and clarify any questions
    - Install meter station and customer piping
        - Documentation in SAP
            - Meter Installer completes SAP work order
    - Complete Equipment Maintenance Program (EMP) Form for newly installed meter station
    - Communicate current state - existing system is still energized/active/in service
    - Complete checklist - part 4

Control Point #5 - notify PM of activity

13. Tie-in Day **Owner:** Meter Foreperson
    - Group safety meeting prior to start of work to go over plan, review each parties' responsibilities (customer, CNP OQ Contractor, Mechanical Contractor and CNP), emergency response protocols and clarify any questions
    - Follow design and written GSCP
    - Communicate when existing system has been blown down and purged of gas
    - Removal of purged, existing meter station coordinated by Meter Foreperson
    - Complete service line installation and restore service per GSCP
    - Communicate current state - new system is energized/active/in service
    - Inspection of meter station and new customer piping installed by CNP contractor
    - Mark demarcation point with yellow tape
    - Complete checklist - part 5

Control Point #6 - notify PM of activity

14. Project Completion **Owner:** Meter Foreperson
    - Work orders are completed
    - Engineering is contacted to inform work is done
    - Pictures are taken of new meter station and inlet to customer piping

15. CNP OQ Contractor to perform any abandonment/removals of the old service line, if applicable
Owner: CNP OQ Contractor

16. Restoration and, if needed, guard posts

Owner: CNP Inspector or Engineering Specialist

- Take pictures of new meter set with guard post
- Complete checklist - part 6

17. Audit project and checklist by Engineering

Owner: CNP Engineer (PM)

- Complete checklist - part 7
    - Verify notification notes are complete
    - Upload necessary documentation from electronic file into FileNet

**CNP Initiated Large Scale Commercial/Industrial Meter Moves – In to Out

Minimum requirements for inclusion in this meter move process are:

- More than 25' of customer piping per meter being replaced by CNP

OR

- Above 2", welded, customer piping

OR

- An approved licensed mechanical contractor, in addition to a CNP OQ Contractor, is needed to design, size, and install customer piping to meet all required codes and standards.

OR

- Engineering's discretion.
  Not all conditions can be specified beforehand. Consideration shall be given by the Engineering Department to each project allowing additional, complex projects to be added to this process.

Other considerations:

- Any identified environmental hazards (asbestos, etc.)
- Below grade entrance with customer piping
- Multiple crews needing to coordinate their work

Notification #: _____

W/O#: _____

CNP Initiated Large Scale Commercial/Industrial Meter Moves – In to Out
Checklist of Activities

Project Manager/Engineer: _____

Engineering Specialist: _____

Meter Foreperson: _____

Energy/NMD Sales: _____

CNP Inspector: _____

CNP OQ Contractor: _____

Mechanical Contractor: _____

Job Address: _____

Customer contact/phone number: _____

Date Step Completed	Task to Complete
	1. CNP site visit to update or verify facilities **Owner: Engineering Specialist** ☐ Contact Customer to set up site visit o Invite Meter Foreperson, CNP OQ Contractor, Mechanical Contractor, and C&M to meet at site ☐ Customer notification letter sent to Customer/hand delivered Site visit tasks: ☐ Identify isolation valve(s), proposed cut point(s)/tie-in point(s), demarcation point (wrap with yellow tape), and proposed meter location - indicate on picture(s) ☐ Gather information to properly size (load) ☐ Discuss if/when gas will be turned off ☐ Pictures of existing facilities - CNP & Customer - identify hazards ☐ Service line running line, identify/coordinate locates for private utilities ☐ Exercise meter set valves by Meter Foreperson ☐ Hang sign – "DANGER NATURAL GAS" ☐ Set up time for C&M to do maintenance on the service valve to verify it is operable, if applicable Office tasks: ☐ Pull existing service and meter records ☐ Project designed, approved, and permitted ☐ Gas Service Control Plan (GSCP) written and approved ☐ Document site visit and office tasks in notification
	2. Preconstruction meeting with all involved parties **Owner: Engineering Specialist** ☐ Set up site meeting to discuss project scope and final walk through Meeting tasks: ☐ Discuss schedule of customer piping, service line installation and meter station installation ☐ Discuss GSCP and go over step by step responsibilities ☐ Discuss demarcation point – CNP facilities to be operated/worked on by CNP qualified personnel or CNP OQ Contractor only. ☐ Discuss communication chain and method of communication (cell phone/radios/etc.) Office tasks: ☐ Document in notification • attendees (names and titles) • project details • agreed upon schedule ☐ **Control Point #4 completed in system**

Notification #: _____

W/O#: _____

	3. Service line work to be performed: **Owner: CNP Inspector** ☐ Customer, CNP Inspector, and CNP OQ Contractor meet on site to install new gas service line ☐ Complete CenterPoint Energy Meeting Roster document and give to Project Manager ☐ Communicate current state -existing and new system is energized/active/in service ☐ Complete required forms such as Equipment Maintenance Program (EMP) Form ☐ Complete SAP service work order
	4. Meter station installation day: **Owner: Meter Foreperson** ☐ Customer, CNP OQ Contractor, Mechanical Contractor, and CNP meets on site to install meter, and customer piping ☐ Complete CenterPoint Energy Meeting Roster document and give to Project Manager ☐ Complete SAP work orders ☐ Complete required forms such as Equipment Maintenance Program (EMP) Form ☐ Communicate current state -new and existing system is energized/active/in service ☐ **Control Point #5 - notify Project Manager of activity**
	5. Tie in Day **Owner: Meter Foreperson** ☐ Group safety meeting prior to start of work o to go over plan, review each parties' responsibilities (Customer, CNP OQ Contractor, Mechanical Contractor, and CNP), emergency response protocols and clarify any questions ☐ Complete CenterPoint Energy Meeting Roster document and give to Project Manager ☐ Complete installation and restore service per GSCP ☐ Communicate to all parties when existing system has been blown down and purged of gas ☐ Removal of purged, existing meter station coordinated by Meter Foreperson ☐ Tie-in customer piping to new meter set and place in service ☐ Communicate to all parties when new system is energized/active/in service ☐ Coordinate re-lights, check for leaks/clock meter ☐ Mark demarcation point with yellow tape and take photos of new meter set and new customer piping ☐ Go over completed work with Customer ☐ Close out customer piping permit and provide Project Manager with documentation ☐ **Control Point #6 - notify Project Manager of activity**
	6. Project Completion **Owner: CNP Inspector** ☐ Restoration ☐ Guard Post (take picture of new meter set with guard posts) ☐ C&M to abandon existing service line
	7. Audit project and checklist by Engineering **Owner: Engineering PM** ☐ Verify notification notes are complete ☐ Upload necessary documentation from electronic file into FileNet

Notification #: _____

W/O#: _____

CENTERPOINT ENERGY MEETING ROSTER

CUSTOMER NAME	LOCATION
PROJECT MANAGER	DATE/TIME

NAME/EMAIL/PHONE #	COMPANY	TITLE	SIGNATURE

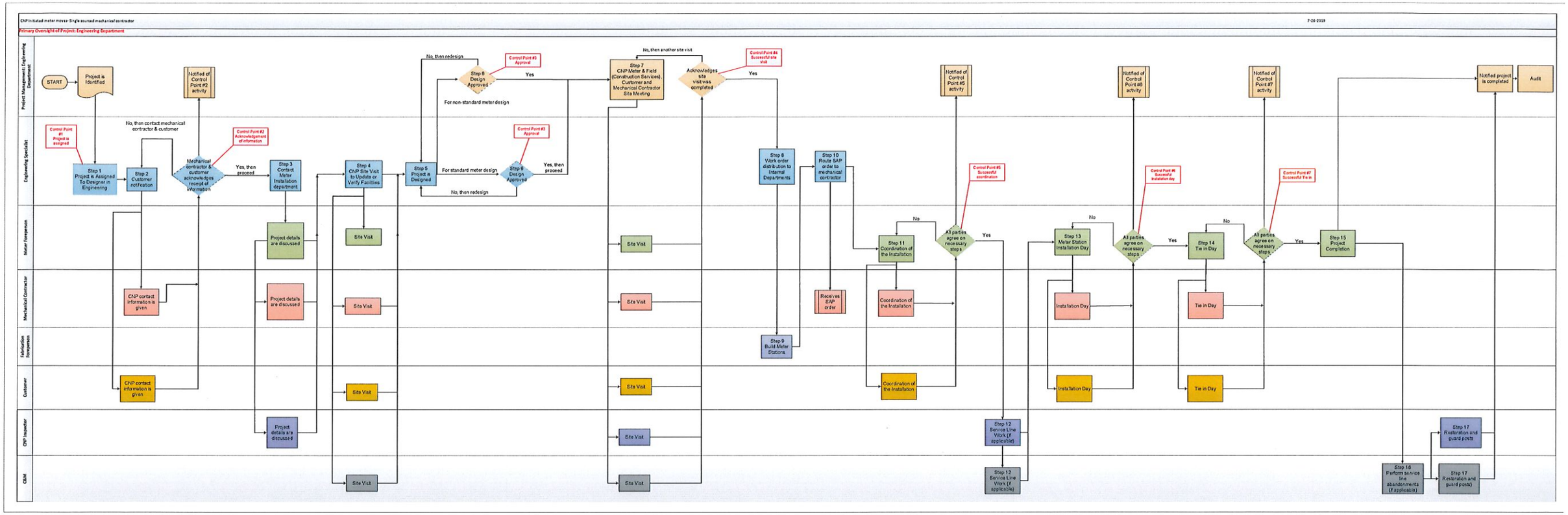

CNP Initiated meter moves- Single sourced mechanical contractor
7-26-2019
Primary Oversight of Project: Engineering Department
Project Management/ Engineering Department
Engineering Specialist
Meter Foreperson
Mechanical Contractor
Fabrication Foreperson
Customer
CNP Inspector
CBM
START
Project is Identified
Notified of Control Point #2 activity
Control Point #1 Project is assigned
Step 1 Project is Assigned To Designer in Engineering
Step 2 Customer notification
No, then contact mechanical contractor & customer
Mechanical contractor & customer acknowledges receipt of information
Control Point #2 Acknowledgement of information
Yes, then proceed
Step 3 Contact Meter Installation department
Project details are discussed
Project details are discussed
Project details are discussed
CNP contact information is given
CNP contact information is given
Step 4 CNP Site Visit to Update or Verify Facilities
Site Visit
Site Visit
Site Visit
Site Visit
Step 5 Project is Designed
No, then redesign
Step 6 Design Approved
Control Point #3 Approval
Yes
For non-standard meter design
For standard meter design
Step 6 Design Approved
Control Point #3 Approval
Yes, then proceed
No, then redesign
Step 7 CNP Meter & Field (Construction Services), Customer and Mechanical Contractor Site Meeting
No, then another site visit
Acknowledges site visit was completed
Control Point #4 Successful site visit
Yes
Site Visit
Site Visit
Site Visit
Site Visit
Site Visit
Step 8 Work order distribution to Internal Departments
Step 9 Build Meter Stations
Step 10 Route SAP order to mechanical contractor
Receives SAP order
Step 11 Coordination of the Installation
Coordination of the Installation
Coordination of the Installation
All parties agree on necessary steps
No
Yes
Control Point #5 Successful coordination
Notified of Control Point #5 activity
Step 12 Service Line Work (if applicable)
Step 12 Service Line Work (if applicable)
Step 13 Meter Station Installation Day
Installation Day
Installation Day
All parties agree on necessary steps
No
Yes
Control Point #6 Successful installation day
Notified of Control Point #6 activity
Step 14 Tie in Day
Tie in Day
Tie in Day
All parties agree on necessary steps
No
Yes
Control Point #7 Successful Tie in
Notified of Control Point #7 activity
Step 15 Project Completion
Step 16 Perform service line abandonments (if applicable)
Step 17 Restoration and guard posts
Step 17 Restoration and guard posts
Notified project is completed
Audit

Exhibit B

Dean Headlee
Pipeline Safety and Compliance Manager
CenterPoint Energy
Regional Gas Operations

505 Nicollet Mall
Minneapolis, MN 55402
[redacted]

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RE: ***Boundary between CenterPoint Energy Equipment and Customer-Owned Equipment***

June 2018

Dear Licensed Mechanical Contractor:

Safety is CenterPoint Energy's top priority. CenterPoint Energy operates nearly 14,000 miles of pipelines in Minnesota and serves over 850,000 customers in the state. As a licensed mechanical contractor in Minnesota who may be hired by customers to work on customer-owned natural gas piping, you are receiving this reminder about **the dividing line between CenterPoint Energy's equipment and the customer's equipment**. As illustrated by the diagram enclosures:

- CenterPoint Energy owns the natural gas meter and the piping that comes into it;
- Customers own the piping that runs from the meter to the natural gas appliances and other natural gas-operated equipment in the customer's facility or residence;
- In some locations, CenterPoint Energy's natural gas meter(s) and piping to the meter(s) are located *inside* a customer's facility or residence. In locations with inside meters, CenterPoint Energy continues to own the natural gas meter(s) and equipment on the inlet side of the meter.

Regardless of where CenterPoint Energy's equipment is located, customers and mechanical contractors are not authorized to work on or operate any of CenterPoint Energy's equipment, including but not limited to pipelines, meters, valves, regulators, and associated pipe fittings. For your own and others' safety, do not attempt to work on or operate CenterPoint Energy's equipment. Do not tamper with the meter or attempt to service or maintain the meter itself. In the event of an emergency, call 911 immediately.

If you are replacing an appliance (stove, range, water heater, central heater, dryer, etc.) while the gas service remains active, the isolation valve near or behind the appliance (which is customer-owned) must be turned off prior to disconnecting the appliance. If there is no isolation valve between your appliance and your gas piping, please call [redacted] so the natural gas service can be turned off prior to the appliance being replaced.

Similarly, if the work you are performing on customer piping requires natural gas to be shut off completely or other modifications to CenterPoint Energy's equipment, you must contact CenterPoint Energy in advance so that CenterPoint Energy can coordinate any necessary work involving the company's equipment. Please contact CenterPoint Energy at [redacted] to make arrangements.

Dean Headlee
Pipeline Safety and Compliance Manager
CenterPoint Energy
Regional Gas Operations

505 Nicollet Mall
Minneapolis, MN 55402
[redacted]

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RE: ***Boundary between CenterPoint Energy Equipment and Customer-Owned Equipment***

For more information about natural gas safety, visit **CenterPointEnergy.com/PipelineSafety**.

Thank you for your cooperation and commitment to safety.

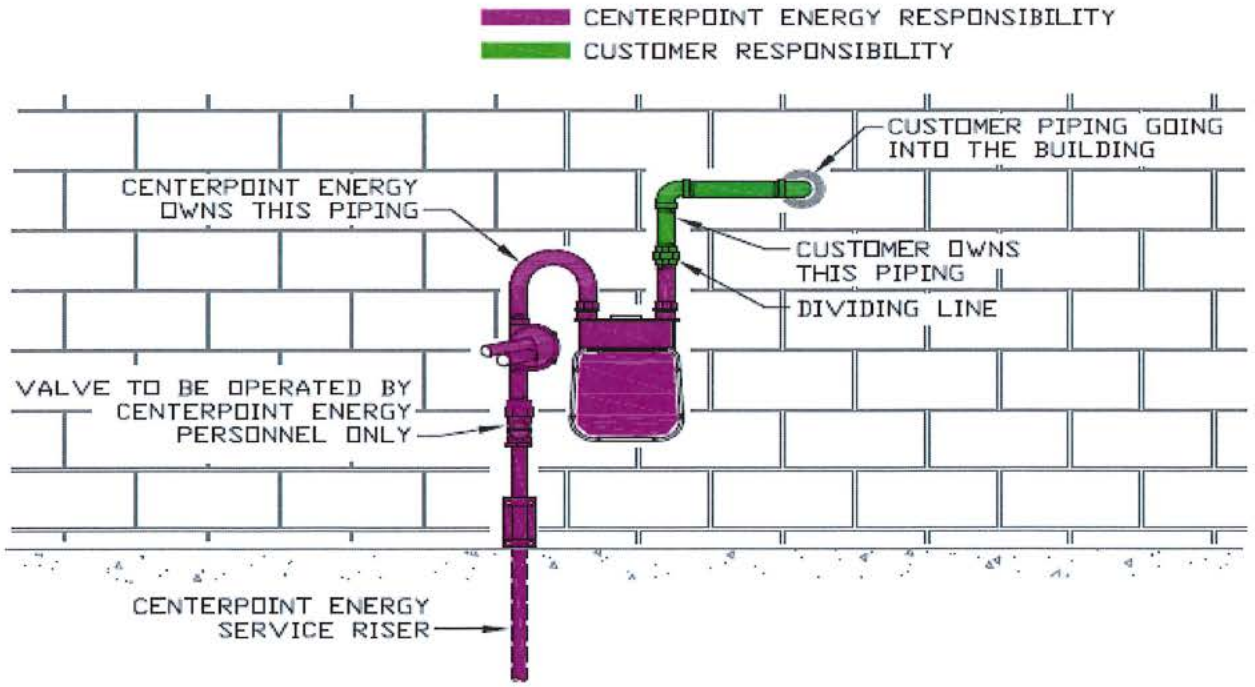
Sincerely,

[redacted]

Dean Headlee
Pipeline Safety and Compliance Manager - Regional Gas Operations

Enclosures: Meter Figure Examples

Figure 1: Example of outdoor residential meter installation



Dean Headlee
Pipeline Safety and Compliance Manager
CenterPoint Energy
Regional Gas Operations

505 Nicollet Mall
Minneapolis, MN 55402
[redacted]

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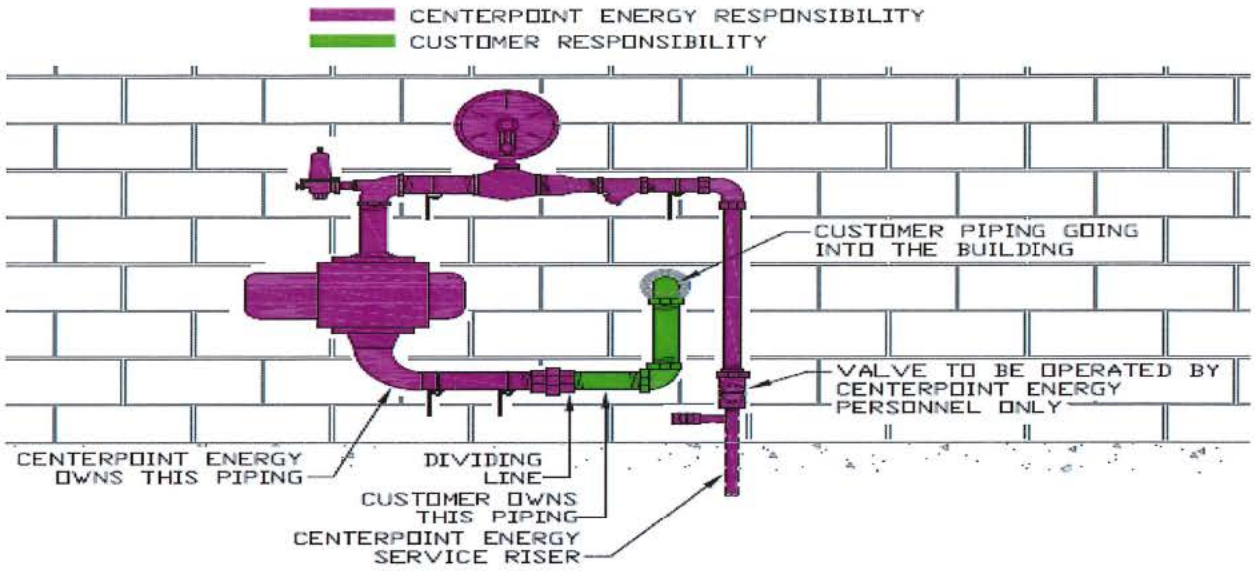
RE: ***Boundary between CenterPoint Energy Equipment and Customer-Owned Equipment***

Figure 2: Example of outdoor commercial meter installation



The above diagrams show two typical meter installations, but other types of meter installations exist and may look different. If you have questions about the dividing line between CenterPoint Energy's equipment and customer-owned equipment, please contact us at [redacted].

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December 3, 2018

Dear Licensed Mechanical Contractor:

Safety is CenterPoint Energy's top priority. CenterPoint Energy operates nearly 14,000 miles of pipelines in Minnesota and serves over 850,000 customers in the state. As a licensed mechanical contractor in Minnesota who may be hired by customers to work on customer-owned natural gas piping, you are receiving this reminder about **the dividing line between CenterPoint Energy's equipment and the customer's equipment**. We sent you this letter earlier this year, but we have updated the phone numbers for getting in touch with CenterPoint Energy and wanted to provide you with the information.

As illustrated by the diagram enclosures:

- CenterPoint Energy owns the natural gas meter and the piping that comes into it;
- Customers own the piping that runs from the meter to the natural gas appliances and other natural gas-operated equipment in the customer's facility or residence;
- In some locations, CenterPoint Energy's natural gas meter(s) and piping to the meter(s) are located *inside* a customer's facility or residence. In locations with inside meters, CenterPoint Energy continues to own the natural gas meter(s) and equipment on the inlet side of the meter.

Regardless of where CenterPoint Energy's equipment is located, customers and mechanical contractors are not authorized to work on or operate any of CenterPoint Energy's equipment, including but not limited to pipelines, meters, valves, regulators, and associated pipe fittings. For your own and others' safety, do not attempt to work on or operate CenterPoint Energy's equipment. Do not tamper with the meter or attempt to service or maintain the meter itself. In the event of an emergency, call 911 immediately.

If you are replacing an appliance (stove, range, water heater, central heater, dryer, etc.) while the gas service remains active, the isolation valve near or behind the appliance (which is customer-owned) must be turned off prior to disconnecting the appliance. If there is no isolation valve between your appliance and your customer-owned gas piping, please call [redacted] to request that natural gas service be turned off prior to the appliance being replaced.

Similarly, if the work you are performing on customer piping requires natural gas to be shut off completely or other modifications to CenterPoint Energy's equipment, you must contact CenterPoint

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Energy in advance so that CenterPoint Energy can coordinate any necessary work involving the company's equipment. Please contact CenterPoint Energy at [redacted] to make arrangements.

For more natural gas safety information, please visit www.centerpointenergy.com/safety.

Thank you for your cooperation and commitment to safety.

Sincerely,

[redacted]

Dean Headlee
Pipeline Safety and Compliance Manager - Regional Gas Operations

Enclosures: Meter Figure Examples

Figure 1: Example of outdoor residential meter installation

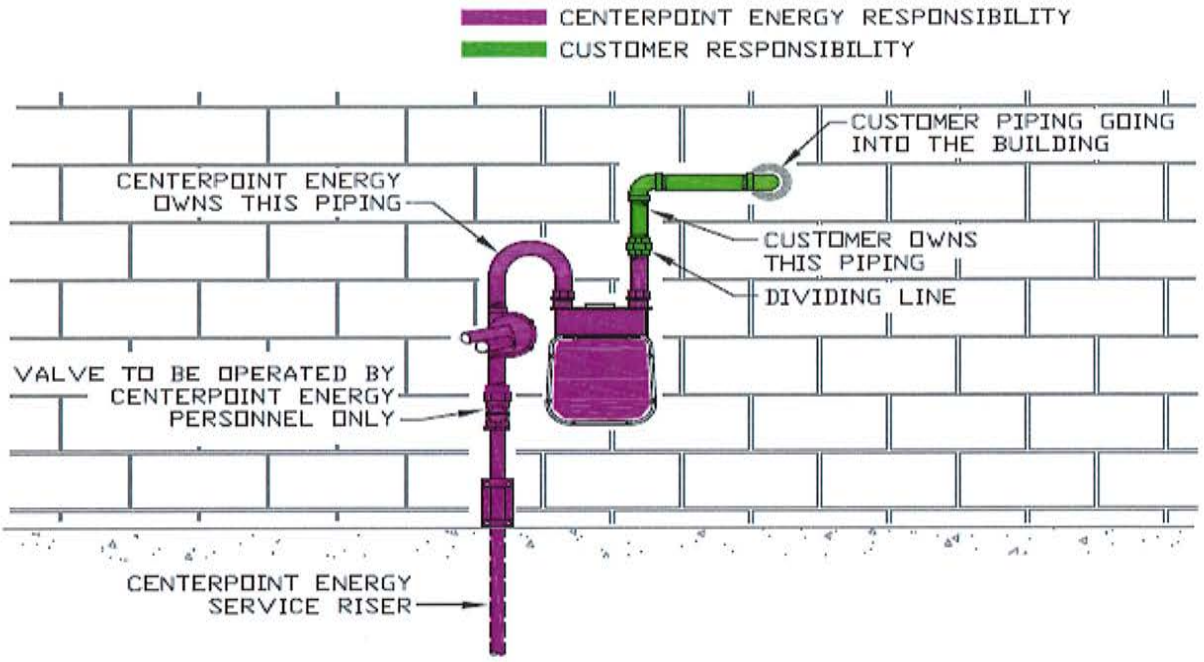
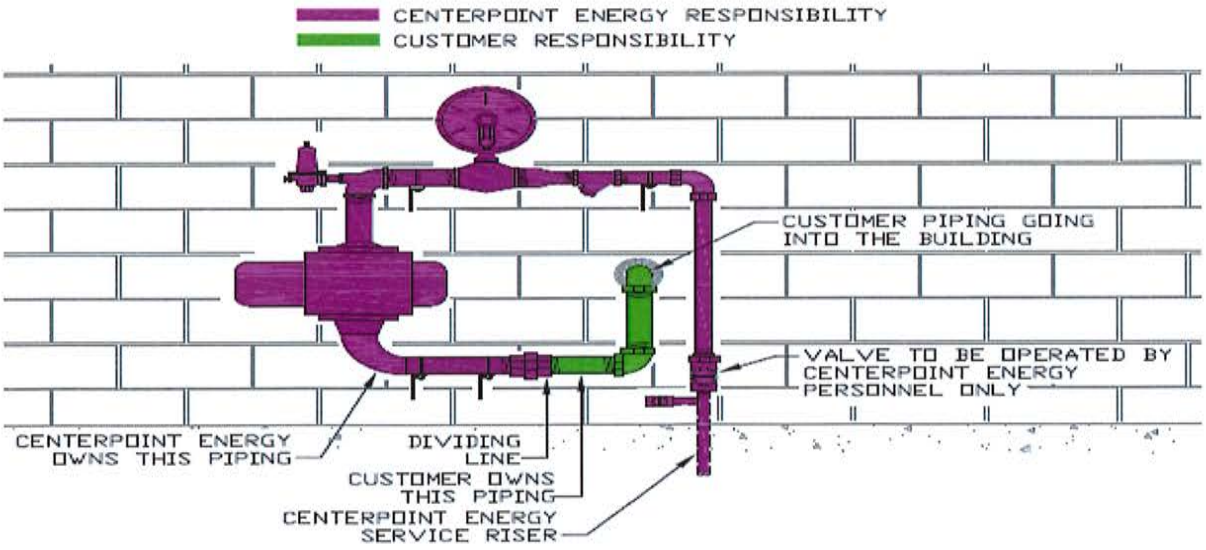


Figure 2: Example of outdoor commercial meter installation



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The above diagrams show two typical meter installations, but other types of meter installations exist and may look different. If you have questions about the dividing line between CenterPoint Energy's equipment and customer-owned equipment, please contact us at [redacted].

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November 15, 2019

Dear Licensed Mechanical Contractor:

Safety is CenterPoint Energy's top priority. CenterPoint Energy operates nearly 14,000 miles of pipelines in Minnesota and serves more than 860,000 customers in the state. As a licensed mechanical contractor in Minnesota who may be hired by customers to work on customer-owned natural gas piping or gas appliances, you are receiving this reminder about **the dividing line between CenterPoint Energy's equipment and the customer's equipment.**

As illustrated by the diagram enclosures:

- CenterPoint Energy owns the natural gas meter and the piping that comes into it.
- Customers own the piping coming out of the meter to the natural gas appliances and other natural gas-operated equipment in the customer's facility or residence.
- In some locations, CenterPoint Energy's natural gas meter(s) and piping to the meter(s) are located *inside* a customer's facility or residence. In locations with inside meters, CenterPoint Energy continues to own the natural gas meter(s) and equipment on the inlet side of the meter.

Regardless of where CenterPoint Energy's equipment is located, customers and mechanical contractors are not authorized to work on or operate any of CenterPoint Energy's equipment, including but not limited to pipelines, meters, valves, regulators, and associated pipe fittings. For your own and others' safety, do not attempt to work on or operate CenterPoint Energy's equipment. Do not tamper with the meter or attempt to service or maintain the meter itself. In the event of an emergency, call 911 immediately.

If you are replacing a gas appliance (stove, range, water heater, central heater, dryer, etc.) while the gas service remains active, the isolation valve near or behind the appliance (which is customer-owned) must be turned off prior to disconnecting the appliance. If there is no isolation valve between the appliance and the customer-owned gas piping, there may be an isolation valve at the outlet of the gas meter on customer piping. This valve can be turned off to completely shut off natural gas. If no isolation valve is available, please call [redacted] to request that natural gas service be turned off prior to the appliance being replaced.

If modifications are required to CenterPoint Energy's equipment, you must contact CenterPoint Energy in advance so that we can coordinate any necessary work involving the company's equipment. Please contact CenterPoint Energy at [redacted] to make arrangements.

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For more natural gas safety information, please visit www.centerpointenergy.com/safety.

Thank you for your cooperation and commitment to safety.

Sincerely,

[redacted]

Dean Headlee
Pipeline Safety and Compliance Manager - Regional Gas Operations

Enclosures: Meter Figure Examples

Figure 1: Example of outdoor residential meter installation

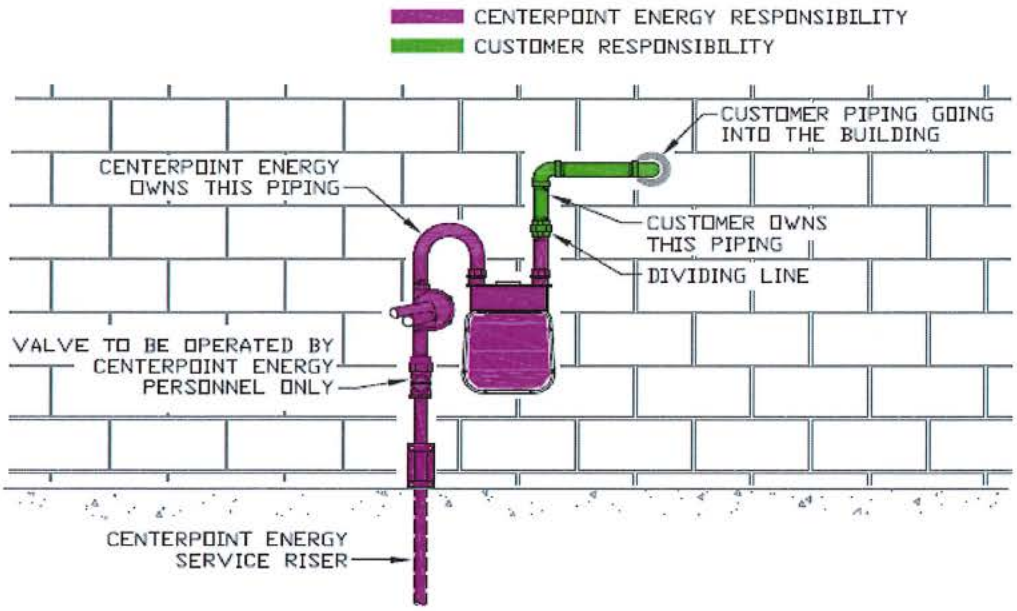
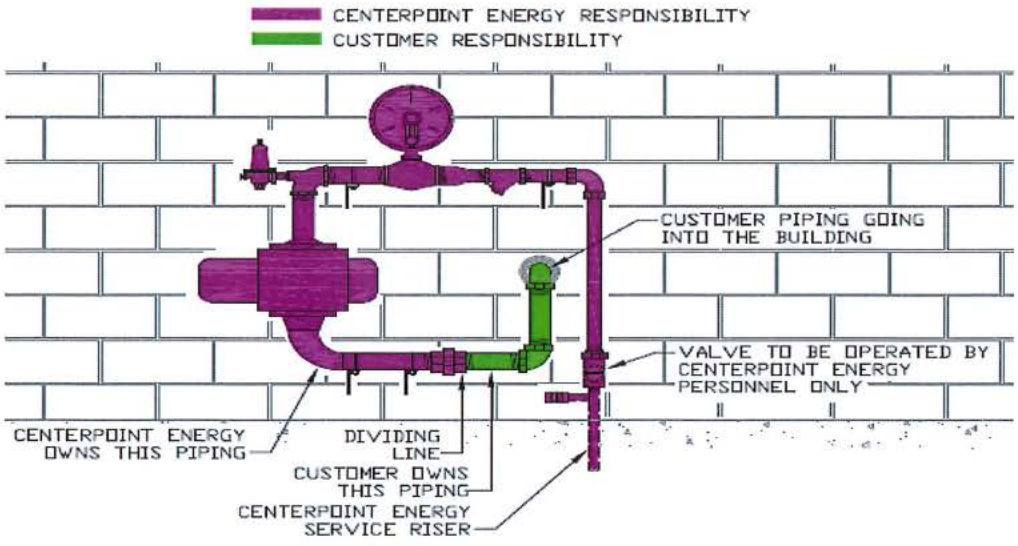


Figure 2: Example of outdoor commercial meter installation



The diagrams show two typical meter installations, but other types of meter installations exist and may look different. If you have questions about the dividing line between CenterPoint Energy's equipment and customer-owned equipment, please contact us at [redacted].