

South Dakota / North Dakota / Wyoming Pipeline Safety Program Gas Operator Qualification 2013



WELCOME!

Agenda

- Introductions
- MidAmerican Energy – Who we are
- Overview of our OQ Program & Best Practices we use



MidAmerican Energy Company

About Us



We are a regional utility formed in 1995 and headquartered in Des Moines, Iowa



We serve over 700,000 natural gas utility customers in Iowa, South Dakota, Nebraska and Illinois



We are one of the fastest growing natural gas utilities in the country, the company provides service to customers in a 10,600-square mile area



In 2002 MidAmerican acquired two interstate natural gas transmission pipelines in the U.S., Kern River and Northern Natural Gas, they serve markets from Wyoming to California and the Upper Midwest

MidAmerican Energy Company



- We enforce a culture of employee accountability from the first day on the job
- Safety, training, OQ and compliance are all number one priorities within MidAmerican Energy
- Supervisors must be engaged, all of our Gas Supervisors are required to be trained and OQ qualified to perform OQ covered tasks

Training & OQ Organization

- Our Training & OQ Organization consists of:
- Support of Gas Engineering
 - Operator Qualifications & Training
 - Manager & Advisor that manage the programs
 - OQ Committee – consists of engineers & subject matter experts – half from the bargaining units – 20 member committee that meets at a minimum of twice a year
 - Compliance Team - Field Auditors
 - Eight Designated Evaluators
 - Three Designated Trainers
 - Training Oversight Committees
 - Incident Review Committees, includes:
(Compliance, Managers, Supervisors, Training & OQ)

Operator Qualification Program

- Governance of OQ Program
 - OQ Committee with final approval by Sr. VP Gas Operations
 - Each task has subject matter experts on the OQ Committee that periodically review the task for performance issues
- Covered Tasks
 - 76 covered tasks
 - Retired tasks – Stab fittings, Soon Maintenance of Cast Iron Pipe
 - All tasks are periodically reviewed to ensure that internal or external changes have not impacted the performance of the task
- Qualification
 - We use written & hands-on (Simulation) for the initial qualifications and written for most re-qualifications

Operator Qualification Program

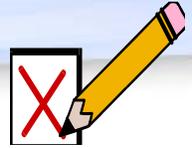
- **Statistics**

- Re-evaluation intervals

Timeframe	Task Re-evaluations
1 Year	8 Tasks
3 Year	68 Tasks
76 OQ Tasks Total	558 Employees

- An average of 7500 evaluations and re-evaluations performed per year
 - 1/3 of employees evaluated yearly on a three year rotation
 - Evaluations performed by 8 in-house designated trained evaluators
- An average of 92 failures/loss of qualifications per year

OQ Program Best Practice



- **We added the following paragraph to our OQ Plan to add flexibility and improve our program**
- All Subsequent Qualifications can be completed within the calendar year when due; this allows flexibility versus a drop dead date of 3 years or 39 months – we have had some state inspectors write us up for missing a date prior to adding this paragraph

Evaluation Intervals Continued

- Any task performed on an infrequent basis that has a risk of high consequences is reviewed with employees and a re-evaluation will take place prior to the employee performing the task to ensure that the employee has the correct knowledge to complete the task correctly.
- **Examples:** Tapping & Stopping using large equipment, uprating, hydro testing pipe, conducting close interval surveys, performing a field bend on large pipe when installing a steel pipeline,



Operator Qualification Program

- Training

- Task specific training is required for all employees
- Evidence of training required for all contractors prior to working on MidAmerican facilities
- Training verified by field audits (~ 100/year) and measured through simulated emergencies

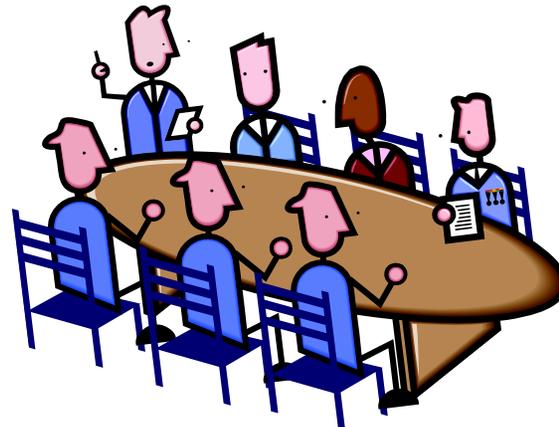
Best Practice -



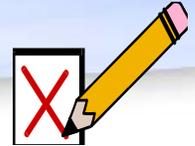
- Abnormal Operating Condition (AOC) posters hung at all field locations to remind employees to recognize, look for existing and new AOC's, and report AOC's to the appropriate person

Identification & Development of Covered Tasks

- MEC adopted the ASME B31Q Standard and covered task list January 1, 2009,
- MEC took additional steps when adopting the B31Q Standard and covered task list by having Subject Matter Experts (SME's) determine which tasks and AOC's from B31Q were applicable to MEC and removing tasks not applicable to MEC and adding tasks and AOC's unique to MEC



OQ Program Best Practice



- By adopting the ASME B-31Q Standard, it allowed us to streamline evaluations by combining several of our tasks into one task **thus creating budgetary reductions and administrative streamlining**
- Before the ASME B-31Q Standard MEC had 116 covered tasks and now we currently have 76 covered tasks
- Also; the OQ Committee, composed of field subject matter experts, recognized that some of the equipment within each equipment group (such as line locators) has enough similarities that each equipment group may be evaluated using the same evaluation tools, even though the equipment may have different brand names; this also streamlined the evaluation process
- Note: **New construction tasks** - MEC requires all new construction be performed by OQ qualified individuals

Employee Job Profiles

- Employees who perform covered tasks on MidAmerican Energy Company gas systems are assigned qualifications associated with the covered task categories based upon the employee's job title and the duties associated with the job title.
- These job duties are negotiated with the bargaining units.
- A covered task category may have several qualifications associated with it, however the job duties associated with a job title may vary due to location in the company and bargaining unit or local union involved
- **MEC works with 4 different bargaining units throughout our gas territories**



Changes & Modifications to Covered Tasks

- Specific procedures for certain covered tasks may change over time due to new or revised company policies and procedures, new equipment, new vendor recommendations, new safety considerations, and/or new regulations.
- The OQ Administrator in conjunction with the OQ Committee, MEC Gas Engineering and other field personnel will ensure these changes are developed and communicated to the appropriate OQ qualified personnel according to the appropriate MEC policy.
- The OQ Administrator, along with the appropriate SME's, and OQ Committee will also determine if the changes are substantive enough to require re-qualification of OQ qualified individuals already performing the task being modified

OQ Program Best Practice



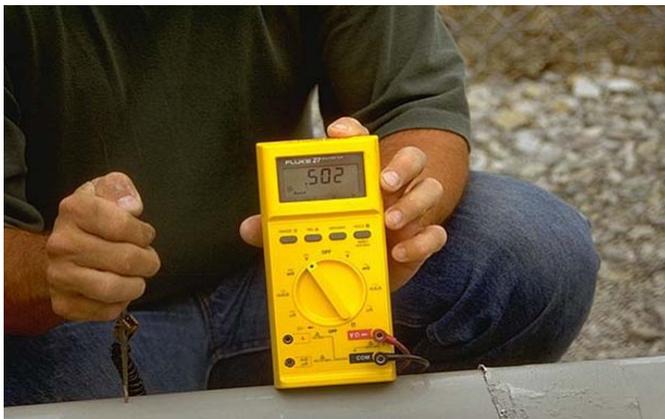
- MEC requires individuals to know and test on MEC Gas Operating Standards
- All of our OQ evaluations include performance and questions on MEC Gas Operating Procedures and company specific information **including filling out compliance documentation fully and correctly**
- An individual will be OQ disqualified for not completing compliance documentation fully and correctly and maybe disciplined accordingly
- When performing field audits we also ensure the OQ Task being performed is tied correctly to one of our gas operating standards



QUALIFICATION ON AOCs

- We have a separate AOC's test that all employees must take; covering specific MEC AOC's, task specific AOC's and generic AOC's
- Also all AOC;s are incorporated into OQ task tests and field qualifications
- Each task has a list of AOCs linked to it.

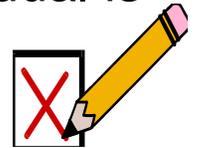
AOC's!



AOC's!

Performance of a Covered Task by a Non-qualified Individual Span of Control

- Only qualified Individuals will perform covered tasks unless the Individual is directed and observed by a qualified Individual who is able to take immediate corrective action
- MEC will consider reducing span of control when actual jobsite conditions i.e. language barriers, weather conditions, excess noise, limit the qualified individual's ability to direct and observe nonqualified individuals.



OQ Evaluation Centers

- We have five evaluation centers for simulating up to forty construction, O&M and leak investigation covered tasks including:
 1. Service and main installation
 2. Regulator and valve maintenance
 3. Inside/outside leak investigation
 4. Tapping, stoppering, and bypass
 5. Pipe joining by welding, fusion, or mechanical methods
- Locations were selected geographically to maximize task simulations and to reduce travel expenses

MEC (5) Evaluation Centers Include

Trench Scenarios



Evaluations include:

1. Install plastic pipe and services
2. Leak & strength test pipe
3. Purging
4. Backfilling
5. Tapping plastic and steel
6. Pipeline shut down and start up
7. Casing installation
8. Underground clearances
9. Coating maintenance
10. Take pipe to soil reads
11. Install anodes
12. Area for trenching and plowing
13. Backhoe area
14. Etc.

MEC (5) Evaluation Centers Include

Inside – Outside Leak Scenarios



Valve Box to create different leak scenarios'

Evaluations include:

1. Inside / Outside leak investigations – we have 5 runs of 1" pipe with 1/16" leak holes drilled – and valves to create different leak scenarios
2. Props in building include working water heater, stove, doorbell, light and light switch, and a floor drain
3. Individuals can perform locating
4. We use mockups for testing regulators and relief valves

Examples of Evaluation Mock-ups at Our Evaluation Centers

Used for Meter & Regulator Evaluations



Used for Tap & Stop Evaluations



Examples of Evaluation Mock-ups at Our Evaluation Centers



Used for testing & training individuals on the type of pipe they may encounter in the field

Examples of Evaluation Mock-ups at Our Evaluation Centers



Used for evaluation & training on setting the regulator pressure & reading the meter

Picture of One of Our Labs For Leak Investigation & Light Up School



Picture of One of Our Training Boards For Light Up School



Picture of Regulator Cut Outs For Training Use

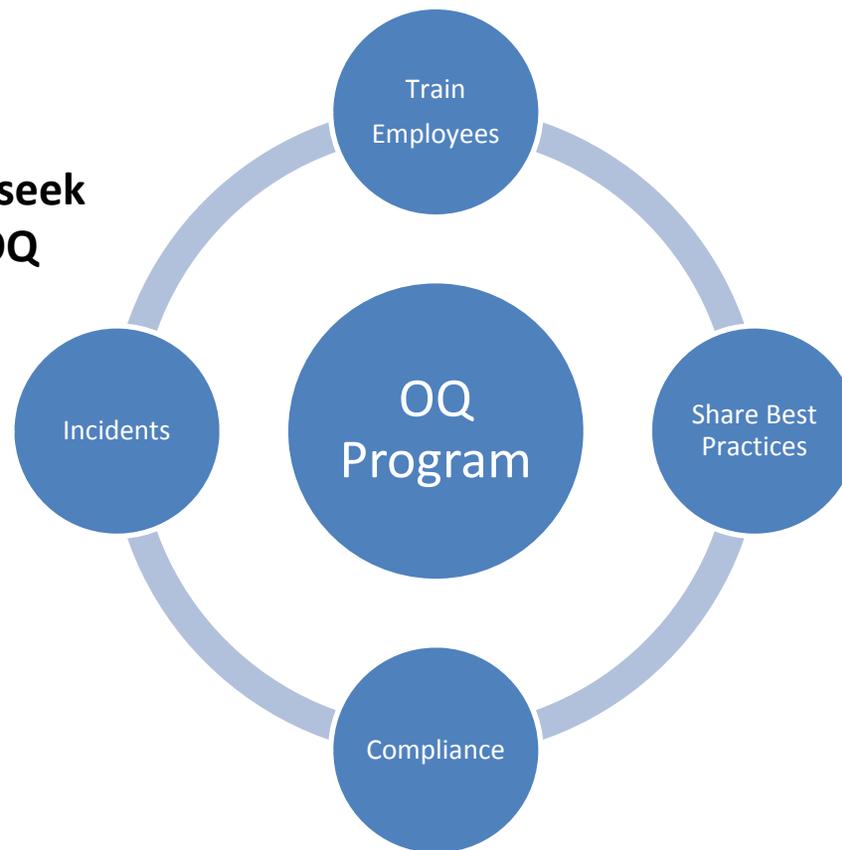


OQ Program Performance Improvement Model



The four components that we use to seek improvement opportunities for our OQ Program Include:

- Training
- Compliance
- Sharing of Best Practices
- Incident – Audit Reviews



OQ Program Best Practice Training



New Employees

- We have formal training programs including:
 - 3 & 4 year DOL Registered Apprenticeship Training Programs
- The training is OQ task related training
- Minimum training includes:
 - 144 Hours of Lecture Classroom Training Yearly
 - 1800 Hours of OJL - Practical Training Yearly
 - Review of Monthly Technical Gas TIPS
 - Compliance Requirements, Natural Gas Characteristics
 - Abnormal Operating Conditions
 - Gas Leaks Including Response

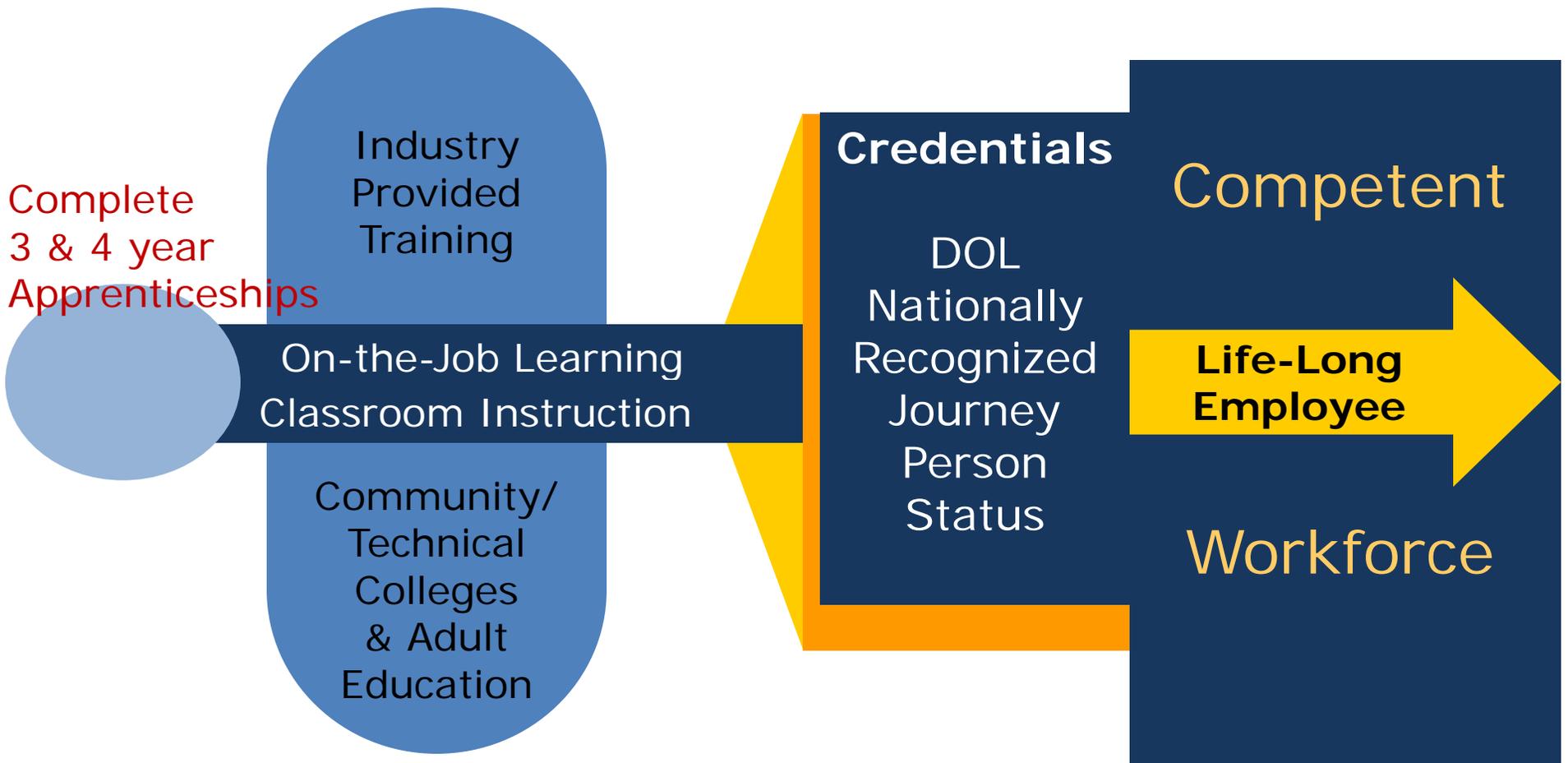


Training to produce highly skilled workers to provide high-quality work

New Employees



Goal



OQ Program Best Practice Training

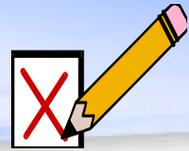


Existing Employees

- We provide yearly refresher training on the following subjects:
 - MEC Gas Operating Standards review
 - Tap & Stopping large pipelines – equipment operation Mueller C 136
 - Prevention of accidental ignition
 - Compliance requirements – including reporting & documentation
 - Safety
 - Review of monthly TIPS covering compliance issues
 - Review of any new equipment

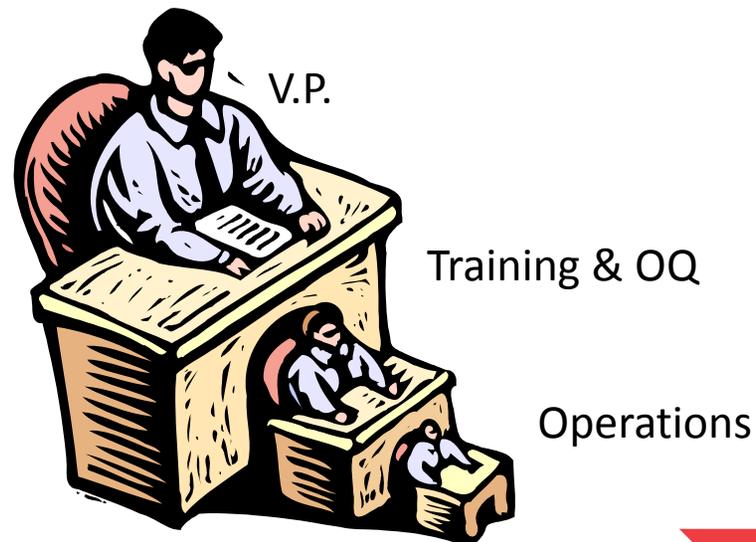


OQ Program Best Practice



Hierarchy of OQ Organization

- Our training department which includes OQ, reports directly to the V.P. of Gas Operations
- This gives us front line exposure to get things done quickly without having to go through a bureaucracy of management



OQ Program Improvement Point Sharing Best Practices



- Our training department which includes OQ, participates yearly with the following groups to exchange company practices that are designed to integrate performance improvement into the safe and reliable delivery of natural gas through our OQ Program

American Gas Association (AGA)

Mid West Energy Association (MEA)

Southern Gas Association (SGA)

Associated companies:

Northern Natural Gas and

Kern River

OQ Program Best Practice Compliance



- **MEC set up an compliance department** for institutionalizing organizational discipline when it comes to compliance
- This is a standalone department with oversight of all compliance within MidAmerican Energy
- This group performs internal audits at all of our gas locations, on all compliance issues – this gives us a heads up on potential problems
- The compliance group also provides support at external audits and incidents

OQ Program Best Practice

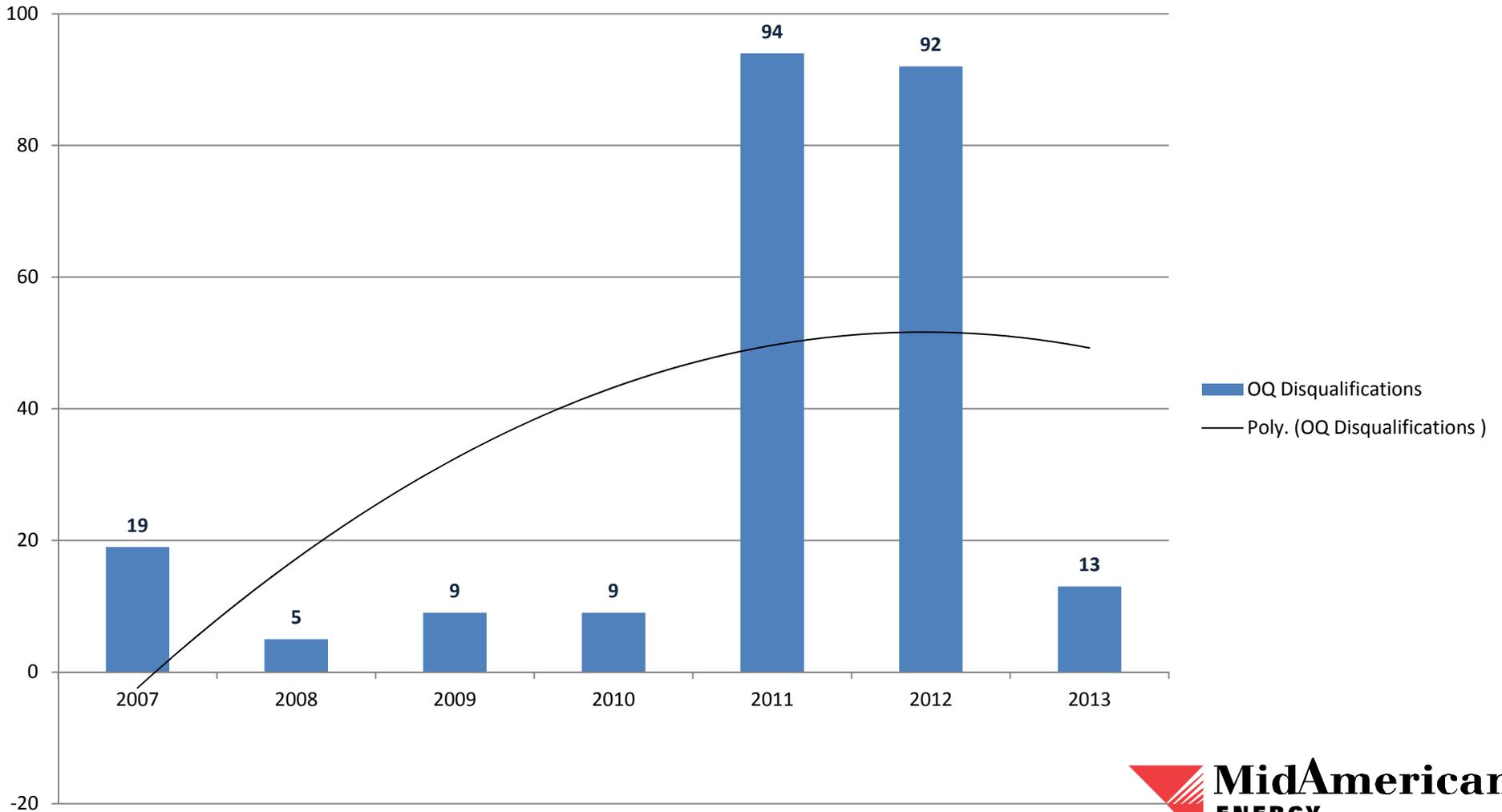
OQ Benchmarking



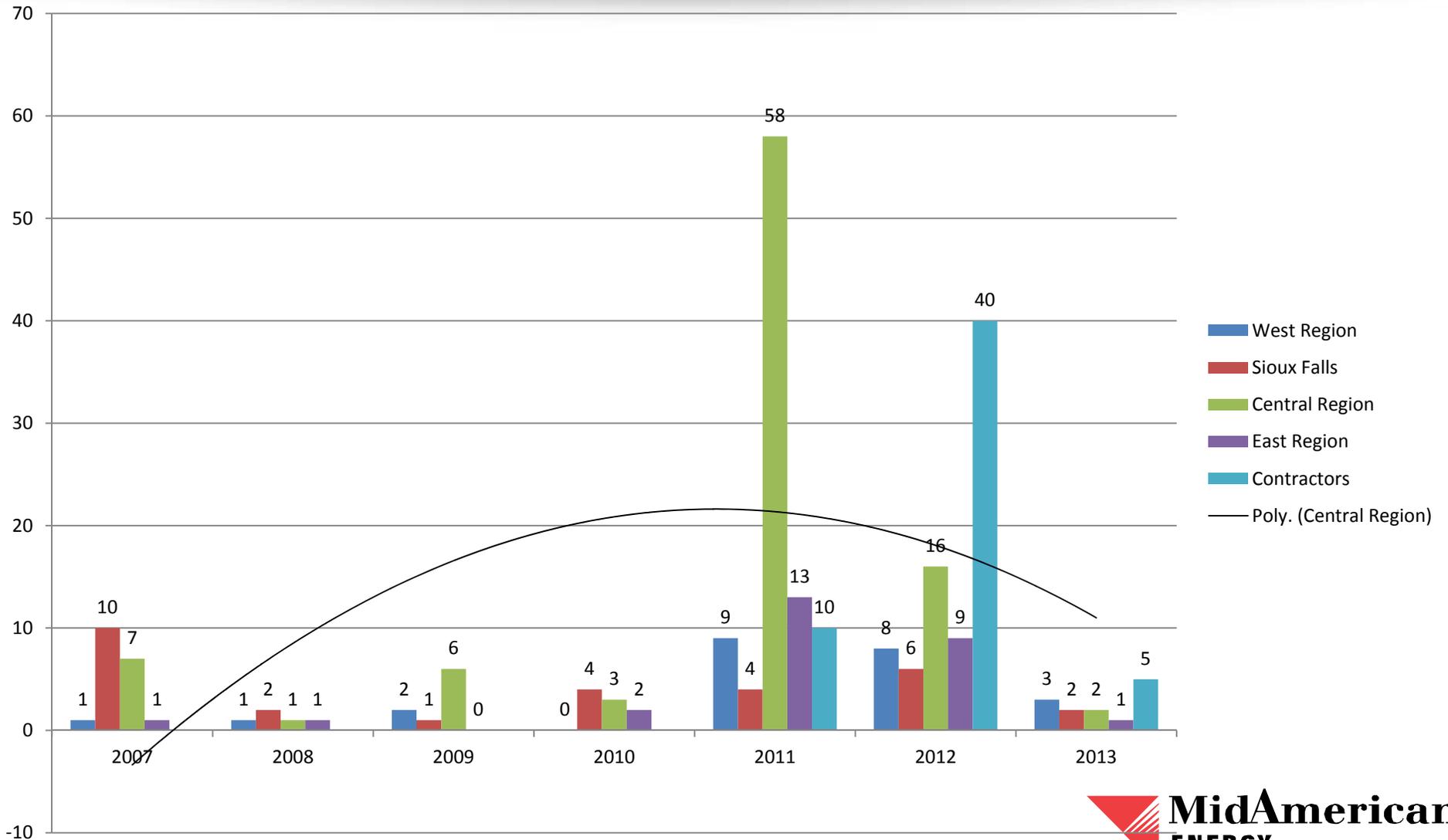
- We started performing trend analysis on our OQ disqualifications by year, job classification, type of task being performed and by location
- This has enabled us to identify any potential problems in any one area by job, task or if we have a problem at any one location

OQ Disqualifications By Year

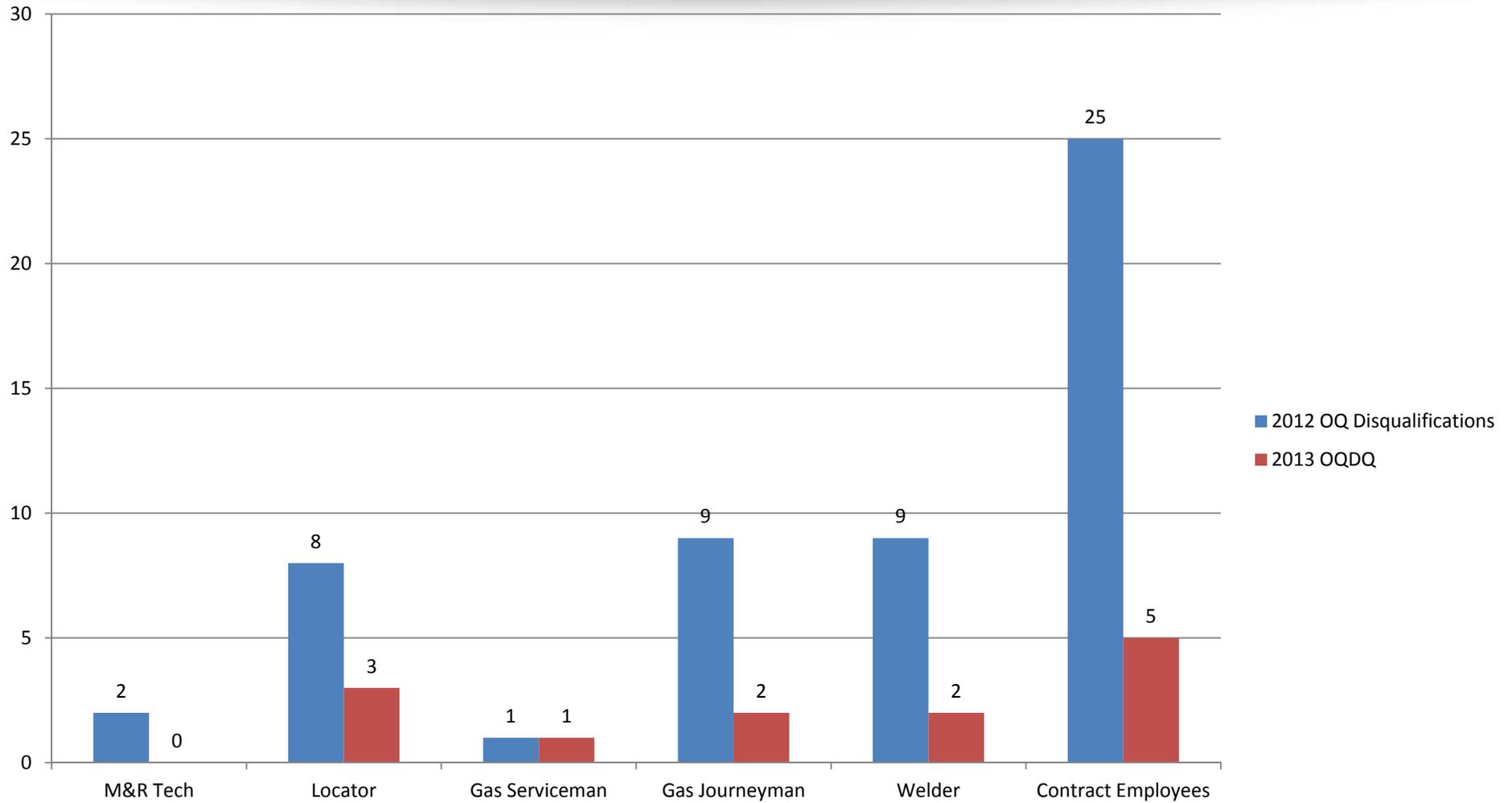
OQ Disqualifications Due to OQ Related Incidents



Year to Year OQ Disqualification by Area Trend



OQ Disqualifications By Job Title



OQDQ Form

Employee OQ Suspension Notice

- Notice of suspension of OQ Qualifications on the specific OQ covered tasks identified below due to receipt of "reason to believe" improper work performance involving OQ Covered Task(s)
- The Individual will not be permitted to perform the "covered task(s)", unless observed and directed by an Individual who is qualified to perform the Covered Task
- The suspension will continue until an investigation has determined the individual DID NOT contribute to a Work Performance Issue or it was determined the individual DID contribute to a Work Performance Issue and subsequent re-fresher training and assessment has been completed –

Individual: Jeremy Phillips Employee T#: T34074 Location: SF

Copy of Notice to:

Supervisor: Don Freitag - Regional Manager: Denny VanRuler - GM

Incident Investigation Results: The test duration was incorrectly documented in the Pressure Test, Report

Incident Date: 10-22-2012 - Incident Location: Sioux Falls

Suspension of the following OQ Covered Tasks - qualification number and Strength Test Less Than or Equal to 100 PSIG

Methods used to Re-qualify employee: Review of MEC Gas Operation evaluation

Employee Reinstated: Date: _____

Employee Re-qualified: Date: _____

OQ Administrator Sign: [Signature]

Information Entered Into the MLS System Date: _____

Copy sent back to supervisor Date: _____



Learning Needs Group By Supervisor (MEHC)

Supervisor

Supervisor Name : ALBRECHT, KEVIN J
Supervisor ID : T50026

User

User Name : OBERHELMAN, LARRY L User ID : T52419

Item

Item	Title	Assignment Type	Assignment Date	Required Date	Expiration Date
ASSESS OQG0130104	Leak and Strength Test - Service Lines, Mains and Transmission Line: Test at Operation Pressure (Soap test)	INT_REQ (Internal Required)	9/29/2010	3/21/2013	3/21/2013
ASSESS OQG0140201	Backfilling	INT_REQ (Internal Required)	9/29/2010	3/21/2013	3/21/2013
ASSESS OQG0140401	Casings - Vents & Seals	INT_REQ (Internal Required)	9/29/2010	3/20/2013	3/20/2013
ASSESS OQG0140800	Installation of Plastic Pipe	ELECTIVE (Elective)	9/29/2010	3/20/2013	
ASSESS OQG0140900	Installation of Steel Pipe	ELECTIVE (Elective)	9/29/2010	3/20/2013	
ASSESS OQG0141101	Inspection of Materials and Compliance with Procedures, Standards & Materials	INT_REQ (Internal Required)	9/29/2010	3/20/2013	3/20/2013
ASSESS OQG0141300	Line Markers	INT_REQ (Internal Required)	9/29/2010	3/21/2013	3/21/2013

OQ Program Best Practice

Monthly Compliance TIPS



- Another component we use for OQ Program performance improvement is providing all of our gas employees monthly TIPS that they are required to review
- The TIPS provide information, reminders or clarifications on our Gas Operating Standards including OQ Task performance
- We also encourage posting tips and mandatory notices on bulletin boards for energy delivery personnel with responsibilities in gas operations for their reference.

Focus on Safety

- **Example next slide** 

TIPS

Installation & Purging of AY McDonald Service Shut-off Valves

Reminder

Purpose of Tip

The purpose of this TIP is to provide information to minimize any damage to the shut-off valve during installation and prevent leaks. Gas Standards continues to receive shut-off valves that are broken due to overstressing since the first TIP on this topic was issued in November 2000.

Background

AY McDonald developed a 20 minute video on the proper installation and purging of a shutoff valve. In November 2000, the operations manager of each workcenter received a copy of this video. Please take the time at your all hands meetings or on inclement weather days to view this video again.

The video shows a demonstration given by Bill Thill and Tony Althaus, both of AY McDonald, on the proper installation of service shut-off valves and a recommended procedure for purging the service shut-off valves.

If you have questions regarding the information they present, you may contact them at the telephone number they provided in the video: **800-292-2737 ext. 215.**

Continued



Valve Installation Caution

- Iron body valves will crack if stressed enough.
- Use crescent wrenches with smooth jaws. It is recommended that pipe wrenches with serrated jaws **not** be used because they concentrate the stress applied to the iron body.
- The anodeless risers used to be made with schedule 40 or schedule 80 pipe, but now they are made with heavy wall steel. The tapered pipe threads on the riser act like a wedge to crack the hex on the iron body valve.
- Pipe sealant works as a lubricant and while facilitating the installation, it also allows the installer to increase the stress applied to the iron body hex.
- Torque recommendations for installations
 - ¾" valve: 360 to 600 in.-lb.
 - 1" valve: 430 to 720 in.-lb.
- On inclement weather days, practice installing some valves on risers using a torque wrench to "get a feel" for the proper torque.

Valve Installation Procedure

- Use a thread sealant / lubricant on the riser threads and hand tighten the valve on the riser.
- Use a wrench with smooth jaws to tighten the valve body hex to the recommended torque ratings.

Proper Purging Procedures

The proper purging procedure to protect the layer of grease that creates the gas-tight seal is:

- With the shutoff valve closed, install a second (closed) valve with a lever handle after the shutoff valve.
- First open the shutoff valve; then open the lever-handled valve to purge the air, debris, etc. Close the shut-off valve. Remove the lever-handled valve.

Following this procedure will prevent valve grease from being blown out of the lubricated area of the valve and prevent contamination of the lubricated areas of the valve.

OO Impact

The following covered tasks are also related to this Tip

CTS#	Description
OQG0080300	Inspection for Damage
OQG0201100	Prevention of Accidental Ignition
OQGAOC0001	Identifying Abnormal Operating Conditions

TIPS

July 27, 2007

Subject: **Gas Standards Mandatory Notice Topic: Electric Service Disconnect During Gas Leak Responses**

Who Needs to be Trained?

Please review the attached Mandatory Notice with all of your company and contractor employees who may be involved in gas leak responses.

Electric Service Disconnect During Gas Leak Responses

Purpose of Mandatory Notice

The purpose of this mandatory notice is to provide information on how an electric service is to be safely turned off when a gas leak investigation indicates a hazardous natural gas accumulation within a building.

Safety Issue

For electric meters attached to buildings, removing an electric meter to eliminate ignition sources is an unsafe practice.

Gas from inside the house may have migrated into the electric service conduit. When the electric meter is pulled from its socket, the gas may ignite.

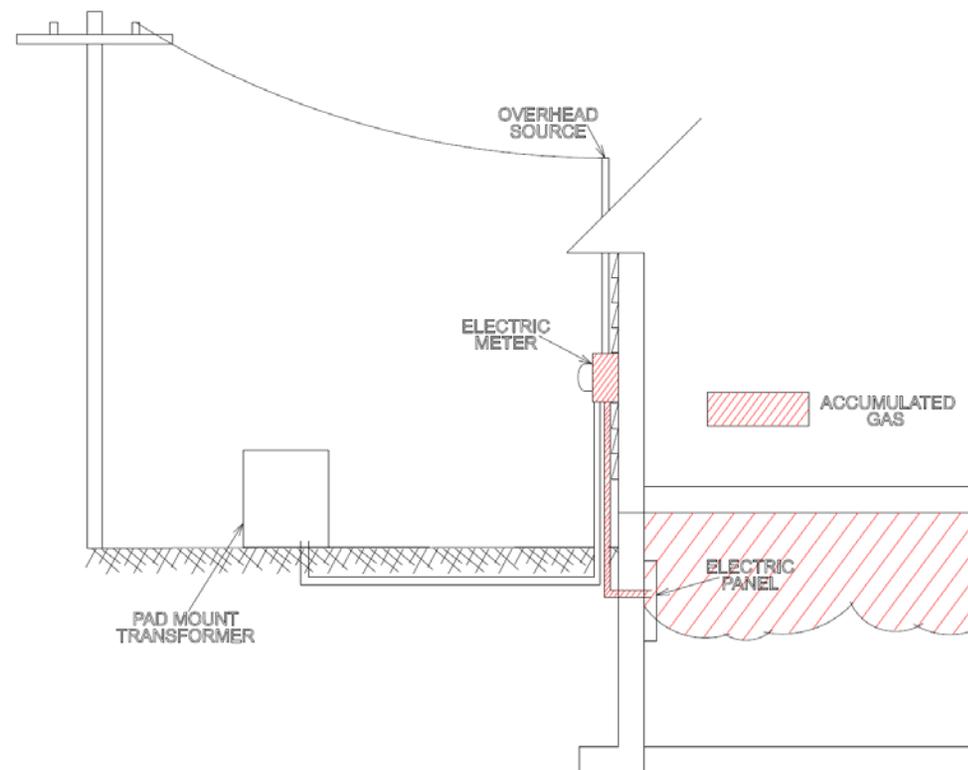
Caution

When gas leak investigations indicating hazardous natural gas accumulations within buildings require employees to respond to calls to cut off electric service, they should **never remove an electric meter from its socket.**

The electric service to the building should **only** be disconnected at the pole or at the padmount transformer.

Refer to the drawing.

This drawing depicts two types of electric services.
A building will have only one of these types of services.



OO Impact

The following covered tasks are related to this Mandatory Notice.

CTS#	Description
OQG1202.01	Outside Gas Leakage Investigation, Pinpointing and Grading
OQG1203.01	Inside Gas Leakage Investigation
OQG1414.04	Pipeline Shutdown, Startup or Pressure Change (Operating Identified Valve(s))
OQG2011.00	Prevention of Accidental Ignition

If you have any questions, contact Roger Lorenzen at extension 7678.

OQ Program Best Practice Audit / Incident Results



- Another component we use for OQ Program performance improvement is reviewing incidents and audit results internal and external
- An Incident Review Committee is formed using in-house and external resources
- We will perform a root cause analysis of every incident and report back directly to the V.P. of Gas Operations & the Compliance Department



OQ Program Best Practice



OQ Plan / Program Review / Change / Revision Log 2001 - 2013

Summary				Scope Change Definition	Impact – Approval or Denial Resolution		
ID	Change / Revision Request Date	Requested By	Plan Reviewed By	Change / Revision Description	Impact – Low Medium - High	Approved or Denied Date	Action Taken
# 27	December 11, 2009	OQ Committee	OQ Committee & Gas Standards	DOT OQ Program Advisory	Medium	Approved 12-11-2009	<p>Add Significant & Observation of On The Job Performance definitions to the MEC OQ Plan as outlined by the DOT advisory to MEC definitions</p> <hr/> <p>Annual O&M review as required by 192.605(a) should specifically note that the OQ Plan was included in the review along with name of reviewer and dates of review</p>

Not Your Grandfather's Compliance Issues



Questions?