



Indiana Utility Regulatory Commission  
Pipeline Safety Division

**2010 Master Meter Operator Compliance Seminar**  
**November 4, 2010**

# Gas System Design, Maps and Emergency Plans

Ft. Harrison State Park



# Inspection Process: Gas System Design and Maps

It's your system, know what you have in the ground!

# Inspection Process:

## Gas System Design and Maps

- ⦿ **170 IAC 5-3-2 Section (10)** Subpart L-Operations; General Provisions (49 CFR 192.603, 49 CFR 195).
  
- ⦿ (c) Each operator **shall** maintain a system of records ... its physical plant. These **shall** include records and maps of its ... physical plant in use ... The records **shall be reviewed**, with documentation, ... ***each calendar year*** at intervals not exceeding fifteen (15) months.
- ⦿ Included on the maps **shall** be:
  - ⦿ (1) main;
  - ⦿ (2) sizes;
  - ⦿ (3) materials;
  - ⦿ (4) pressure ranges; and
  - ⦿ (5) location of:
    - (A) mains emergency valves;
    - (B) regulator stations;....



# Inspection Process: Gas System Design and Information

Questions we will ask:

- Who is your gas supplier?
- Who does your gas system maintenance? (*Operator Qualified?*)
- When was the gas system installed?
- Are gas supplier yard lines present?
- Where are the emergency valves?
- What is the gas pipe size?
- What are the pipe materials?

# Inspection Process: Gas System Maps

- Date of Annual Review
- Mains
- Regulators
- Valves (emergency)
- Sizes
- Materials
- Pressure ranges
- Services (may find helpful)
- Anodes (may find helpful)



# Inspection Process: Gas System Design and Information

## What are we finding during inspections?

- No documentation and/or annual review.
- System maintenance performed by personnel non-*Operator Qualified*.
- Infrastructure (i.e. main, materials, sizes, pressures, etc.) of the system is unknown and not indicated on map .

## What do we expect?

- Document and review annually.
- Insure system maintenance is performed by *Operator Qualified personnel only*.
- Know or determine the infrastructure of your system. Maps with the required information.



Inspection Process:

## Gas System Information

- Where can you find this information?
  - Blueprints, as-built maps
  - Previous inspection records
  - Consultant
  - Gas Company
  - Dig it up and take a look

# Emergency Procedures

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# Definitions...Emergency?

- An **emergency** is a situation that poses an immediate *risk* to life, health, property or environment.
- ...a sudden unforeseen crisis (usually involving danger) that requires immediate action; [wordnetweb.princeton.edu/perl/webwn](http://wordnetweb.princeton.edu/perl/webwn)
- An urgent need for assistance or relief. <http://www.merriam-webster.com/dictionary/emergency>



## Inspection Process:

# Emergency Procedures

- 170 IAC 5-3-2- 11(f):
  - Each operator **shall** carry a listing in the current telephone directory of each community which it serves or within which it operates whereby a responsible employee or agent of the operator may be reached on a twenty-four (24) hour basis.
- Annual Review
- 24/7 Contact Number

# Inspection Process: Emergency Procedures

- §192.615(a) Each operator **shall** establish written procedures to minimize the hazard resulting from a gas pipeline emergency. At a minimum, the procedures **must** provide for the following:
  - Receiving, identifying, and classifying notices of events which require immediate response by the operator.



Inspection Process:

## Emergency Procedures

- Gas Detected Inside or Near a Building
- Fire/Explosion near or involving facility
- Natural Disaster



Inspection Process:

## Emergency Procedures

- Personnel, Equipment, Tools, Materials Available
- *Actions Directed toward Protecting People, then Property*



Inspection Process:

## Emergency Procedures

- Emergency Shutdown in any Section to Minimize Hazard
- Making Safe any Potential Hazard
- Notify Fire, Police, Public Officials of Emergency
- Safely Restore Service



Inspection Process:

## Emergency Procedures

- Action(s) after Emergency Directly Related to Investigation
- Provide Appropriate Personnel with Emergency Procedures
- Train Personnel, Verify Effectiveness of Training
- Review Employee Actions during Emergency

# Inspection Process: Emergency Procedures

## ◎ Data Gathering for Reporting Purposes

- ◎ §192.605 (b) Maintenance and normal operations. The manual required by paragraph (a) of **this section must include procedures** for the following, if applicable, to provide safety during maintenance and operations.

*...(4) Gathering of data needed for reporting incidents under Part 191 of this chapter in a timely and effective manner.*

# San Bruno

## Sequence of pipeline's failure

Events on Sept. 9, when a PG&E gas transmission line exploded, according to investigators:



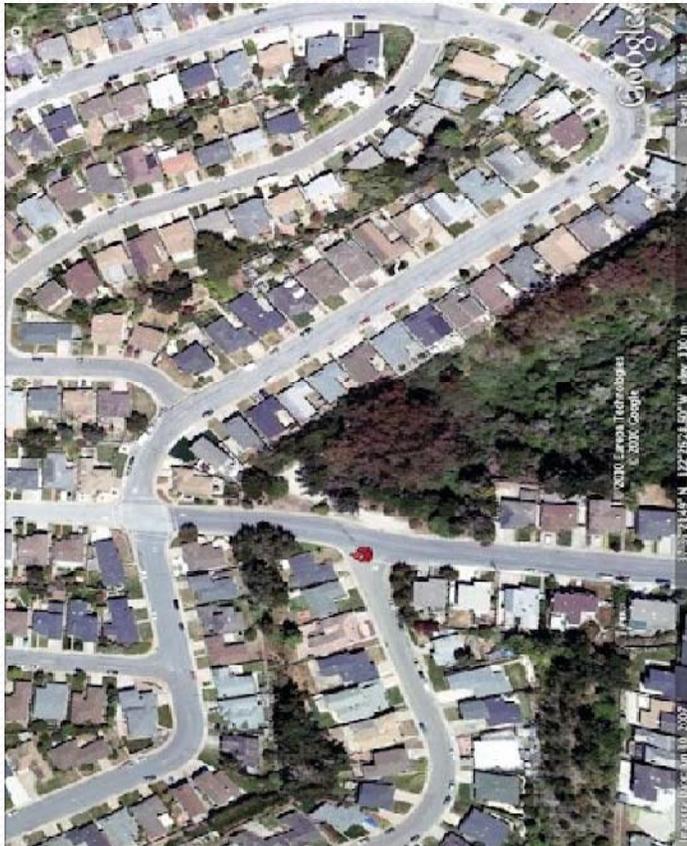
Sources: National Transportation Safety Board, U.S. Pipeline and Hazardous Materials Safety Administration

- 1 Sept. 9** Power supply at Milpitas Terminal malfunctions during PG&E maintenance work. Electronic signal to regulating valve is lost, causing valve to move to "full open" position.
- 2 5:45 p.m.** Pressure spike detected at Martin Station in Daly City, reaching 390 pounds per square inch at 6 p.m. PG&E's maximum operating pressure for the pipe is 375 psi, but the pipe is rated at a maximum allowable operating pressure of 400 psi.
- 3 6:11 p.m.** Blast occurs in San Bruno.
- 4 6:45 p.m.** PG&E sends crew.
- 5 7:20 p.m.** Upstream valve closed.
- 6 7:40 p.m.** Downstream valve closed.
- 7 11:30 p.m.** Distribution lines serving residences are shut off. Fires from escaping gas extinguished one minute later.

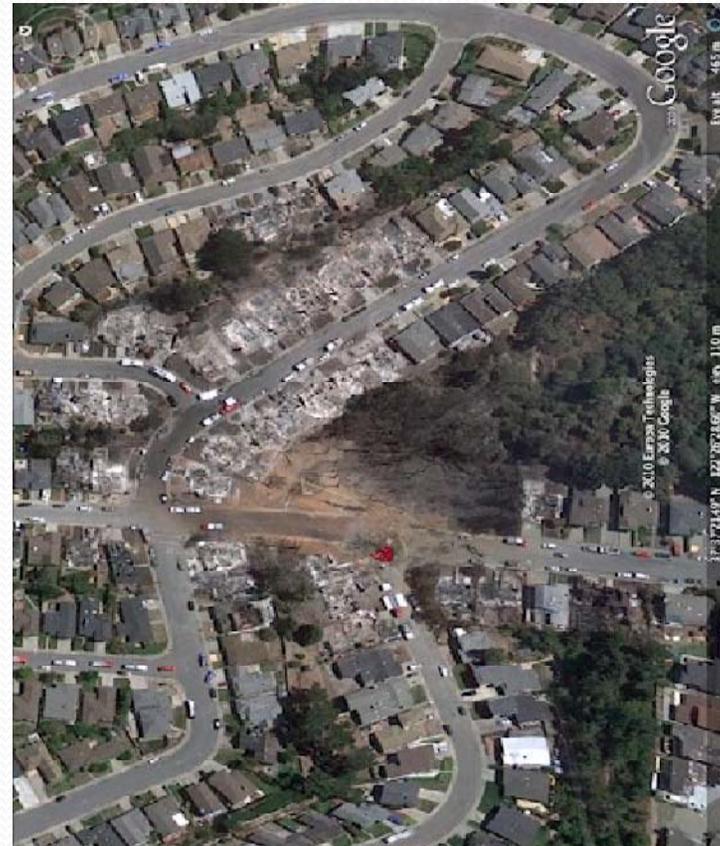
MERCURY NEWS

# San Bruno

Before



After



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## Inspection Process:

# Emergency Procedures



- **September 28, 2010 Cairo workmen dies in gas line fire.**
- CAIRO — A member of a City of Cairo gas crew was killed while performing his job Tuesday when a gas line he was helping repair ignited.

The incident occurred around 11:30 a.m. and three other workers were injured, according to Cairo City Manager Chris Addleton.

The crew had been conducting leak detection surveys around the city, and was repairing a pinhole leak in the metal line, located at the intersection of Fourth Avenue and Fourth Street Northwest.



Inspection Process:

# Emergency Procedures

**What are we finding during inspections?**

- No documentation of annual reviews.
- Incomplete written Emergency Procedures.

**What do we expect?**

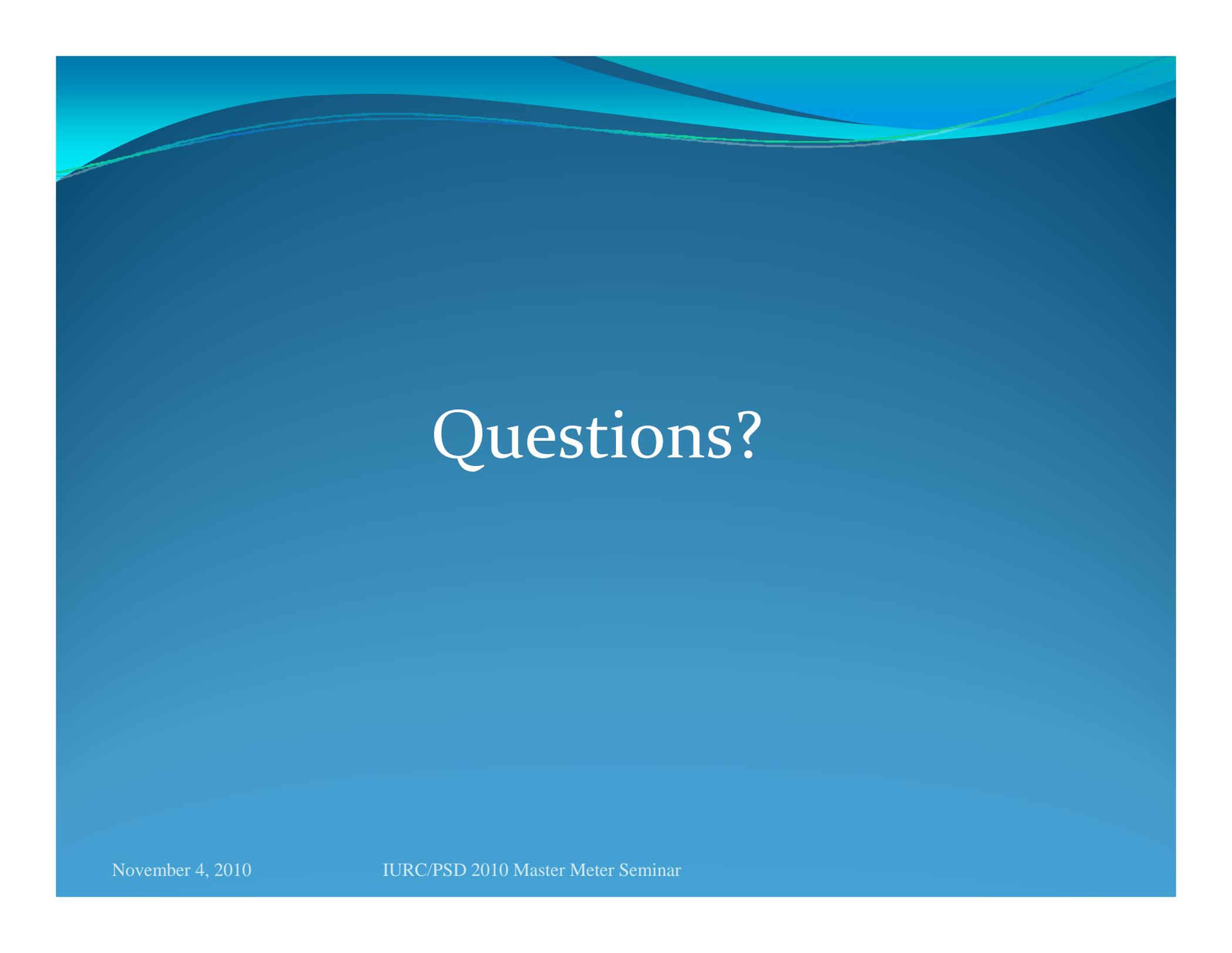
- Document annual reviews.
- Emergency Procedures that, at minimum, provide for prompt and effective responses in all of the required/identified types of emergencies.



Inspection Process:

## Emergency Procedures

- **What are we finding during inspections?**
  - Lack of prioritization and ownership.
- **What do we expect?**
  - This is a “living” document that the operator (not your consultants) must take ownership.
  - Demonstrate a commitment to adequately train personnel for understanding and review purposes.
  - A commitment must be made that insures if an emergency occurs you proactively, as the operator, have taken every reasonable precaution to insure the safety of people first then property are (“in fact”) protected. This could be another definition for compliance.



# Questions?

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