

# Incident Investigations

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Manager Pipeline Safety

# §191.3 and 191.5 Definitions

## Incident and Notification

- (a) At the earliest practicable moment following discovery, each operator A person who engages in the transportation of gas, shall give notice in accordance with paragraph (b) of this section of each incident any of the following events:

# Incident Definition

- (1) An event that involves a release of gas from a pipeline, or of liquefied natural gas, liquefied petroleum gas, refrigerant gas, or gas from an LNG facility, and that results in one or more of the following consequences:
  - (i) A death, or personal injury necessitating inpatient hospitalization;
  - (ii) Estimated property damage of \$50,000 or more, including loss to the operator and others, or both, but excluding cost of gas lost;
  - (iii) Unintentional estimated gas loss of three million cubic feet or more;

# Incident

- (2) An event that results in an emergency shutdown of an LNG facility. Activation of an emergency shutdown system for reasons other than an actual emergency does not constitute an incident.
- (3) An event that is significant in the judgment of the operator, even though it did not meet the criteria of paragraphs (1) or (2) of this definition.

# §191.5 Immediate notice of certain incidents

- (b) Each notice required by paragraph (a) of this section must be made to the National Response Center either by telephone to 800-424-8802 (in Washington, DC, 202 267-2675) or electronically at <http://www.nrc.uscg.mil> and must include the following information:
  - (1) Names of operator and person. Any individual, firm, joint venture, partnership, corporation, association, State, municipality, cooperative association, or joint stock association, and includes any trustee, receiver, assignee, or personal representative thereof, making report and their telephone numbers.
  - (2) The location of the incident.
  - (3) The time of the incident.
  - (4) The number of fatalities and personal injuries, if any.
  - (5) All other significant facts that are known by the operator that are relevant to the cause of the incident or extent of the damages

# Reportable to Non-reportable

- If an incident report has been made and further investigation reveals that the event was not an "incident," and therefore not reportable, the report should be nullified with a letter.
- This letter should be sent to the Information Resources Manager at the address specified in §[191.7](#) within 30 days of the event.
- The letter should reference the NRC incident report number issued when the initial notification was made and briefly explain why the incident report is being nullified. Incident reports cannot be removed from the database, but the letter may help ensure accurate PHMSA-OPS records

# Incident Reporting

- Operators should consider making an additional report if there is a significant change in the data previously provided to the NRC.
- A significant change may include an increase or decrease in the number of injuries or fatalities previously reported, or a revised estimate of property damage that is at least 10 times that previously reported.

# Incident Reporting

- Consideration should be given to making an additional report up to 48 hours following the initial report. The operator should clearly report to the NRC that additional information is being provided and give the NRC the initial report's assigned NRC Report Number.
- However, any report following the initial report will result in an additional NRC Report Number being created for the same event. All related NRC Report Numbers should be referenced in the PHMSA-OPS electronic or written incident report (see §§191.9 and 191.15).

# Incident Investigation

- Communication Pathway
  - How does reportable incident notification function in your Agency
  - Who receives the calls and directs investigation implementation
  - Pennsylvania Emergency Management Agency
  - Notification to your Commissioners/Agency Heads

# Incident Investigation

- Response time
- PPE
- Know the incident environment
- Team Investigation

# Incident Investigation –Arriving on Site

- Notify the Incident Commander and Identify yourself
- Notify the person you report to
- Find the Pipeline Operator supervisor in charge and receive an immediate update
- First question to the operator: **“Has the Site been made safe and how was that accomplished”**

# Incident Investigation

- Pipeline Operator should have a liaison to the Regulators during a reportable incident
- What should the regulator be briefed on:
  - What time and how was the incident site made safe
  - If not safe, what actions are the operator taking to make safe
  - Are there any injuries or deaths
  - How often will the operator provide an update to you and where

# Incident Investigation

- **YOU ARE ON SITE TO INVESTIGATE AND MONITOR COMPLIANCE**
- Do not get in the way
- Observe the operator's performance
  - Request a copy of the Operator's Emergency Procedures – they should be on site or accessible immediately
  - If the Emergency Procedures are not accessible, find out why later, but then observe and note all actions of the operator and include a time note

# Incident Investigation

## What Actions Are Being Taken Currently

1. Leak Surveys and Leak Migration
  - What levels of gas are in the ground
  - Where is the gas levels focused - main, services, near structure
  - Is the gas migrating – show you charts and time line of leak migration
2. Squeeze Off on Plastic, system shut down, valves turned (emergency valves?)
3. How many operator crews are on site and what task are they performing

# What Actions Are Being Performed by the Operator

4. Is the operator maintaining a safety zone
5. Does the operator's work crew have the proper PPE
6. Is the operator following emergency procedures and other pertinent procedures
7. Has the operator determined which work crew members should be drug tested (if any)
8. How is the operator maintaining chain of custody of the evidence

# What Actions Should the Pipeline Safety Investigator Be Performing

1. Take notes and include all your observations with time notations
2. Have your proper PPE on
3. Take Pictures of operator's response, structure, failed pipe, debris field, fire marks – record the time and location of the pictures
4. Don't speak to the media – you are investigating
5. Begin a list of written questions for the operator

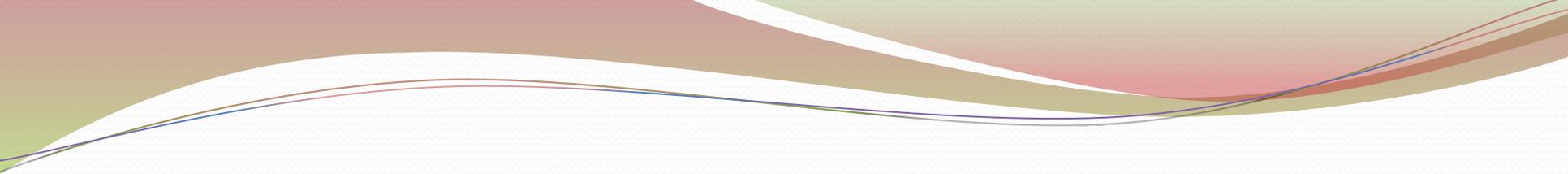
# What Actions Should the Pipeline Safety Investigator Be Performing

6. Start a list of operator crew members that you want to interview
7. Start a list of interview questions
8. When the scene is safe, get into the structure and take pictures and note the fire and destruction
  - Was the fire along walls and high in the building
  - Where was the ignition source and what was the potential ignition source

**Failure Investigation Documentation Log**

Operator: Unit #: NRC# Date:

Appendix Number	Documentation Description	Date Received	FOIA	
			Yes	No
1	General map of pipeline facilities of explosion area			
2	Service line cards for the affected homes; show sketch, materials			
3	main data on street; installation/construction information			
4	main routine leak survey information (last two surveys)			
5	Frost/cold weather surveys 2010/2011 all cycles			
6	Leak survey service line (last 2 surveys);			
7	Cathodic protection test data (if applicable) (last 2 surveys) include service lines;			
8	Pressure information – station(s) feeding pressure charts and location			
9	Regulator station(s) inspections; last 2			
10	Valve information nearest incident site include inspections last 2			
11	Odorant tests in this area (routine, this years testing)			
12	Odorant tests day of explosion			
13	Sketch of explosion site showing bar hole testing and results			
14	Records of leak instrument survey performed after explosion			
15	Calibration records of instruments used for bar hole tests at site, include leak instrument equipment of mobile survey			
16	List of all respondents and duties performed for explosion & OQ records			
17	NRC report time and number & reported by			
18	response info emergency dispatch log, arrival times for all respondents			
19	All leak history of all area, all pipe inspection reports, leak reports; plot leaks on map			
20	2010/2011 odor complaints area			
21	Service history include meter read info & consumption for last year			
22	12 months of PA One Call history in immediate vicinity (adjacent & cross houses)			
23	Company time line of events			
24	Procedures for removing, transporting, and testing the failed section of pipe.			
25				
26	Positive odor call-ins for			
27	Type of odorant used in system			
28				
29	Names, ages, addresses of fatalities/ injuries, and residents destroyed homes.			
30	Type of riser/fittings in all affected homes			
31				
32				
33				
34				
35				
36				



[generic data request.doc](#)

# Interviews

- Always perform interviews as a team
- One person take notes and one person ask the questions
- Be a good listener – if the work crew member is freely speaking and is very detailed, let him/her speak
- Never perform an interview if the operator's legal counsel is present and yours is not
- Never perform an interview if the work crew member has legal counsel and you don't

# Interviews

- Ensure that you note the work crew members time line on the site and all actions that were performed
- Be prepared – Don't wing interviews – have your questions written prior to the interviews
- Be detailed
- Perform the interviews immediately – Don't let the work crew member go home or take time off – time is critical
- Don't let anyone else ask questions – this is your investigation

# A CALL FOR ACTION

- San Bruno, California
- Allentown, PA
  
- Changed the natural gas pipeline industry forever

# The Allentown Incident

- At approximately 10:48 PM on February 9, 2011, a natural gas explosion occurred at 542 and 544 North 13<sup>th</sup> Street, Allentown, PA killing all five occupants of the two residences. The explosion also injured a patron at a car wash that is located on Allen Street. The subsequent fire destroyed or significantly damaged six other residences, which were part of the same structure as 542 and 544 North 13<sup>th</sup> Street

# Dealing with the Media

- The Communication Media are not your friend
- Politicians love the Media
- Your field actions will be recorded, act appropriately
- Do not speak to the Media, your Commission has Communication people for that job
- Speaking to the Media is not your job
- You are Investigating
- Don't guess as to what occurred, even with your Commission's Communication people

# Dealing with the Media

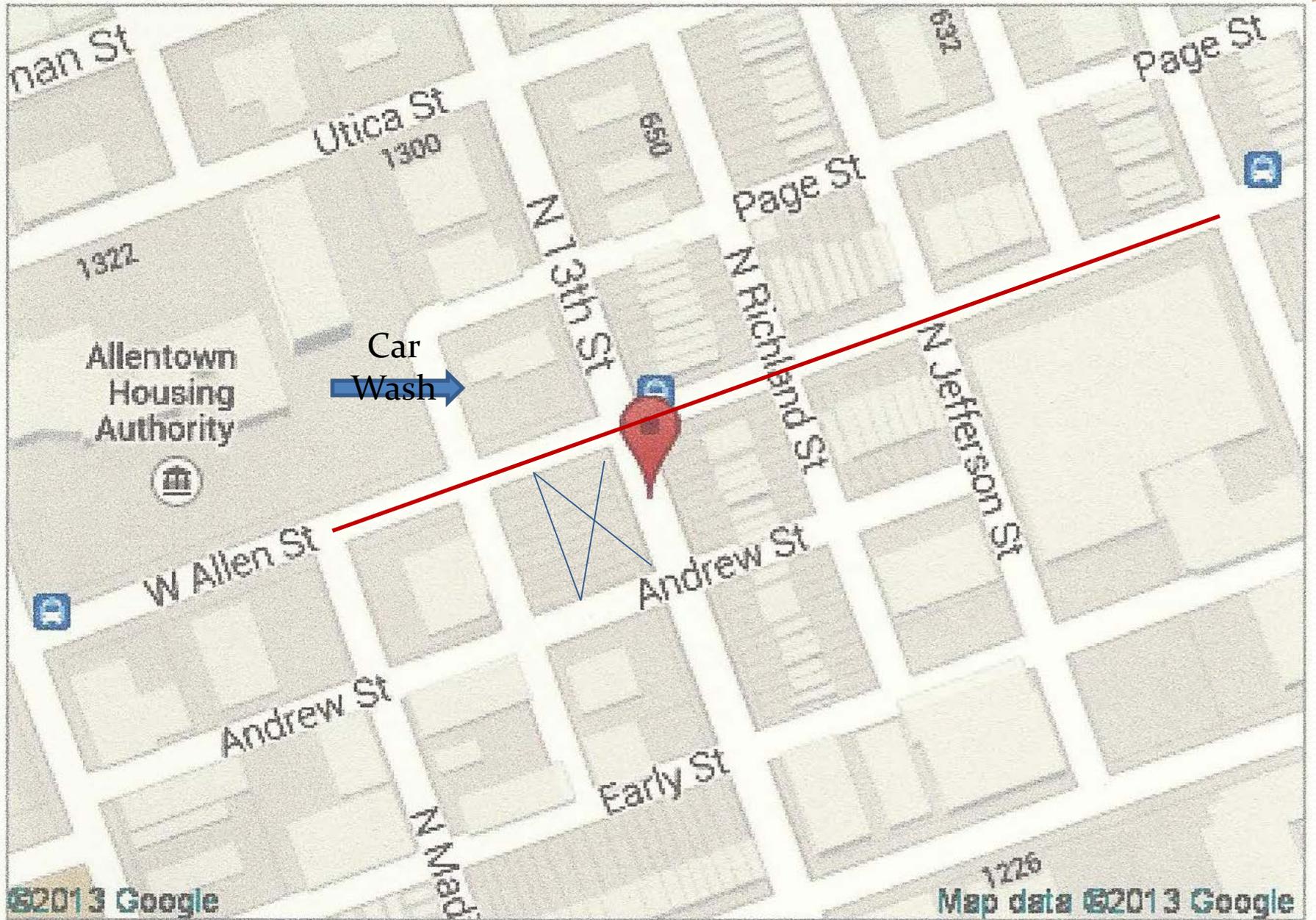
- If you absolutely have to give a statement, the statement should be “We are investigating”
- The Media doesn’t care about facts, they want to sell airtime and papers
- Be Prepared for an onslaught
- Keep the Chain of Command involved and updated
- You can’t control speculation, don’t become part of the story

# Investigation Reports

- Media will request all written reports, notes, pics
- Right to Know Requests
- Use the PHMSA Investigation Form
- Keep notes detailed and brief

# Technology

- Take advantage of all technology
- Use the media
- Use Google Maps/World



Madison Street

Mercer Street

N. 13th Street

12" steel 1980

W Allen Street

12" C.I. 1928

2" steel service 1966

4" C.I. 1925

544 service

542 service

540 service

536 service

534 service

532 service



2/9/2011 5:16:01 PM.370



2/9/2011 10:46:43 PM.982



2/9/2011 10:49:09 PM.575









# Background

- The source of the natural gas that led to the explosion was a 12-inch cast-iron main with a circumferential crack located under Allen Street.
- The 12-inch cast-iron main was installed in 1928 and was located approximately eight feet north of the curb line adjacent to 544 North 13<sup>th</sup> Street.
- UGI records indicate that at the time of installation in 1928, the main was a high pressure main, although the exact pressure was not documented. At the time of the explosion on February 9, 2011, the main was part of a low pressure distribution system.









- On February 9, 2011, the temperature was 27 degrees Fahrenheit. There was approximately four to five inches of icy snow along the curb line of Allen Street and some melted and refrozen ice along the roadway.
- The soil and grass below the refrozen and icy snow had an 18-inch frost layer.
- At no time did UGI receive calls complaining of the odor of gas in the hours prior to the explosion

- The 12-inch cast-iron main was supported by wooden blocks. After excavating the pipe, 80% wall loss of the main just above the wood was discovered due to corrosion that occurred on the cast-iron main.
- The Pipe Failure Analysis Reports, dated August 15, 2011, at PUC Reference # L-2-11 and L-5-11, concluded that the fracture began in the graphitized area on the bottom of the pipe. Because the presence of water is the primary source of oxygen underground and because the wood cribbing supporting the pipe is a repository for any migrating ground water, the wood cribbing accelerated the graphitization/corrosion of the cast-iron above the area where the wood cribbing is situated.



# Lessons Learned Gas Operator

- 1. “its not a meth lab”
- 2. Its your natural gas – prove that it’s not!
- 3. PLAN, PLAN, PLAN
- 4. Where are those emergency valves when I need them?
- 5. It’s a natural gas explosion, deal with it!
- 6. Set up a neighborhood location to answer questions
- 7. The public needs to have info
- 8. Meet twice a day with emergency responders, regulators, police, mayor

# Lessons Learned Gas Operator

- 9. Assign someone to the regulators full time
- 10. Have a public meeting within 36 hours to answer questions
- 11. Start pulling records – no delays
- 12. Someone has to clean up this mess
- 13. Meet with the Commissioners

# Lessons Learned - Regulator

- 1. Is the site made safe?
- 2. It's a natural gas explosion, it's the gas operator's responsibility to prove wrong
- 3. Standard Data Requests
- 4. Notify Commissioners immediately and update twice daily
- 5. Bring Commissioners to the site
- 6. Have your communication coordinator on site to speak to media – only allow trained media specialists speak to the media

# Lessons Learned Regulator

- 7. Review the leak data base and pipeline replacement software
- 8. Meet with the gas operate Operations VP at least 3 time per day
- 9. Don't allow inspectors/engineers on site for more than 18 hours at a time – rotate staff
- 10. PHMSA and NTSB – you have to work with them
- 11. Dealing with attorneys and insurance reps
- 12. You are the lead investigator, its your site
- 13. Plan for 600 plus hours of investigation

# Summary

- No one is prepared for a major incident like Allentown or San Bruno
- Be prepared to testify in front of your Commission and Legislature
- Chain of events lead to the catastrophic incident
- If you need help, ask for it