



## Office of Pipeline Safety

Pipeline and Hazardous Materials Safety Administration

# Accident Investigation Division



**November 7, 2018**  
**Tulsa, OK**



Investigate – Analyze – Prevent

"To protect people and the environment by advancing the safe transportation of energy and other hazardous materials that are essential to our daily lives."





# Objective



- Thank you for what you do!
- Introduce PHMSA
- Introduce PHMSA's Accident Investigation Team
- Discuss recent events & trends

## National Pipeline Incident Coordinator (NPIC)

– NPIC toll-free: (888) 719-9033

- **811**



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# Who is the U. S. Department of Transportation (DOT)



- **National Highway Traffic Safety Administration (NHTSA)**
- **Federal Aviation Administration (FAA)**
- **Office of Inspector General (OIG)**
- **Federal Highway Administration (FHWA)**
- **Federal Motor Carrier Safety Administration (FMCSA)**
- **Federal Railroad Administration (FRA)**
- **Saint Lawrence Seaway Development Corporation (SLSDC)**
- **Federal Transit Administration (FTA)**
- **Maritime Administration (MARAD)**
  
- **Pipeline and Hazardous Materials Safety Administration (PHMSA)**
  - **Office of Hazardous Materials**
  - **Office of Pipeline Safety**



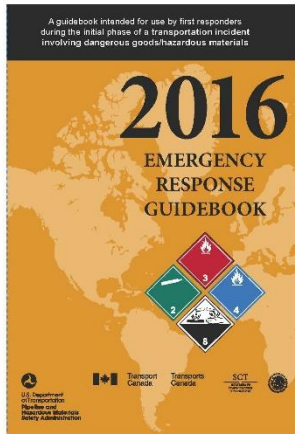
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# Who is PHMSA?



### Transportation Rail Incident Preparedness & Response

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**§ 172.101 Hazardous Materials Table**

Section	Hazardous materials description and proper shipping name	Hazard class or Division	PG	Label Code	Special provisions (CFR 172.102)	Packaging (172.103)			Quantity limitations (172.104)		Vehicle placard	
						Exempt	Non-Bulk	Bulk	Placard amount (kg)	Carry on (kg)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10)
0	Compressed gases, water-reactive, n.s.a.	2	SP0204	1	6.4.3	6E, JF	None	200	200	200	200	1, 1, E
0	Compressed gases, acidic, n.s.a.	2	SP0205	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, acidic, inorganic, n.s.a.	2	SP0206	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, acidic, organic, n.s.a.	2	SP0207	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, basic, inorganic, n.s.a.	2	SP0208	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, basic, organic, n.s.a.	2	SP0209	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, flammable, n.s.a.	2	SP0210	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, flammable, toxic, n.s.a.	2	SP0211	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, non-flammable, non-toxic, n.s.a.	2	SP0212	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, water-reactive, n.s.a.	2	SP0213	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, acidic, n.s.a.	2	SP0214	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, basic, n.s.a.	2	SP0215	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, flammable, n.s.a.	2	SP0216	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, flammable, toxic, n.s.a.	2	SP0217	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, non-flammable, non-toxic, n.s.a.	2	SP0218	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
0	Compressed gases, water-reactive, n.s.a.	2	SP0219	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
D	Corrosive	8	NA3000	1	6.4.3	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E
A	Water-reactive	4.2	SP0300	1	6.4.2	6E, JF, 1B, 1F10	None	200	200	200	200	1, 1, E



### Hazardous Liquid Pipeline

212,635 miles

7,864 b.o.tanks

514 pipeline operators

### Gas Transmission Pipeline

300,324 miles

1033 pipeline operators

### Gas Gathering Pipeline

17,605 miles

367 pipeline operators

### Gas Distribution Pipeline

Mains and Services

2,210,066 miles

1,361 pipeline operators

### Liquefied Natural Gas

152 plants

223 tanks

84 operators

Pipeline Facilities by System Type – CY 2016  
PDM's data as-of 11/1/2017

## Regulated Facilities, Entities and Commodities

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# PHMSA Regional Offices





# Did you know....



- PHMSA does not have response authority
- Regulates interstate pipelines
  - Natural Gas
  - Hydrocarbons
  - Ammonia
  - Carbon Dioxide
  - And more
- Has federal reporting requirements
  - Initial
  - 48-hour







# Did you know....



- Have agreements and partners with States to implement rules
- Made up of primarily field staff
  - Highly technical
  - Engineers and Transportation Specialist
- Call if you have questions
- What is the answer to the unasked question?
- The only silly question is one that is not asked!





# PHMSA Reporting requirements



- PHMSA has NRC reporting requirements for pipeline systems
  - Initial (within earliest practical moment following discovery but no later than 1 hour
    - Gas
      - An event involving a release of gas
        - » A death, or personal injury necessitating in-patient hospitalization
        - » Greater than \$50,000 estimated property damage
        - » Unintentional estimated gas loss of 3 million cubic feet or more
      - An event that results in an emergency shutdown of an LNG facility or natural gas storage facility
      - **An event that is characterized as significant by operator**
    - Hazardous Liquids
      - An event involving the release of a liquid
        - » A death, or personal injury necessitating in-patient hospitalization
        - » Incident involved a fire or explosion
        - » Greater than \$50,000 property damage including the cost of the cleanup, value of product
        - » Resulted in pollution of any stream, river, lake, reservoir or similar body of water
        - » **An event that is characterized as significant by operator**
  - **48-hour**
    - **Must provide an update to confirm/revise initial information reported.**





# Available PHMSA OPS resources



- Have agreements and partners with States to implement rules
- PHMSA has PREP guidelines
- PHMSA regulates pipeline operators readiness and response effectiveness
- PHMSA has FRP repository for pipelines
  - Often fixed facilities are also regulated by EPA and/or USCG
  - Available to OSCs by request
- Made up of primarily field staff
  - Highly technical
  - Engineers and Transportation Specialist





# PHMSA Accident Investigation Division (AID)



Motto: Investigate – Analyze – Prevent

Established April 1, 2017





# PHMSA Accident Investigation Division



- **PURPOSE**

- Evaluates all reports of incidents/accidents
  - Investigates all PHMSA regulated pipeline incidents
    - Consider details of report
- Conducts Accident Investigations
- Conducts Root Cause Determinations to determine causal and contributing factors to pipeline and liquefied natural gas facility incidents
- Captures and actively shares lessons learned safety finding with internal and external stakeholders.
- Conducts education and outreach to help advance pipeline safety
- Evaluates and identify emerging safety trends
- Coordinates incidents with state and federal partners





# AID Priorities



- Readiness and Deployments
- National Pipeline Incident Coordinator (NPIC)
  - NRC Reports
  - Deployment Coordination
- 30-Day Reports
- Internal and External Outreach
- Data Analysis
- Report Generation



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# 30-Day Report Update

(thru August 2018)



- 307 New Incident/Accidents Reports
  - Over 60% are already closed
- 727 Modified reports
- 583 Reports closed
- 268 Open Reports remain in ODES

***☑ We are very close to steady-state operations***





# 30-Day Report Update

(continued)



- Every report has/does receive a detailed review.
- Review, validation, and reporting requirements are applied consistently.
- Quick review of submitted reports.
  - Majority within a day.
  - Dramatic reduction in the time to finalize.
- Data is current, accurate, and consistent.







# Internal and External Outreach

- Internal outreach
  - Cross-Divisional/Regional outreach
  - State Program Quarterly Meeting
  - TQ training
  - Other opportunities?
    - Quarterly Roundtables, VTC w/inspectors, Brown bags
- External outreach
  - Industry Conferences
  - Regional Response Team meetings
  - NACE conferences
  - Standards Development





# Readiness



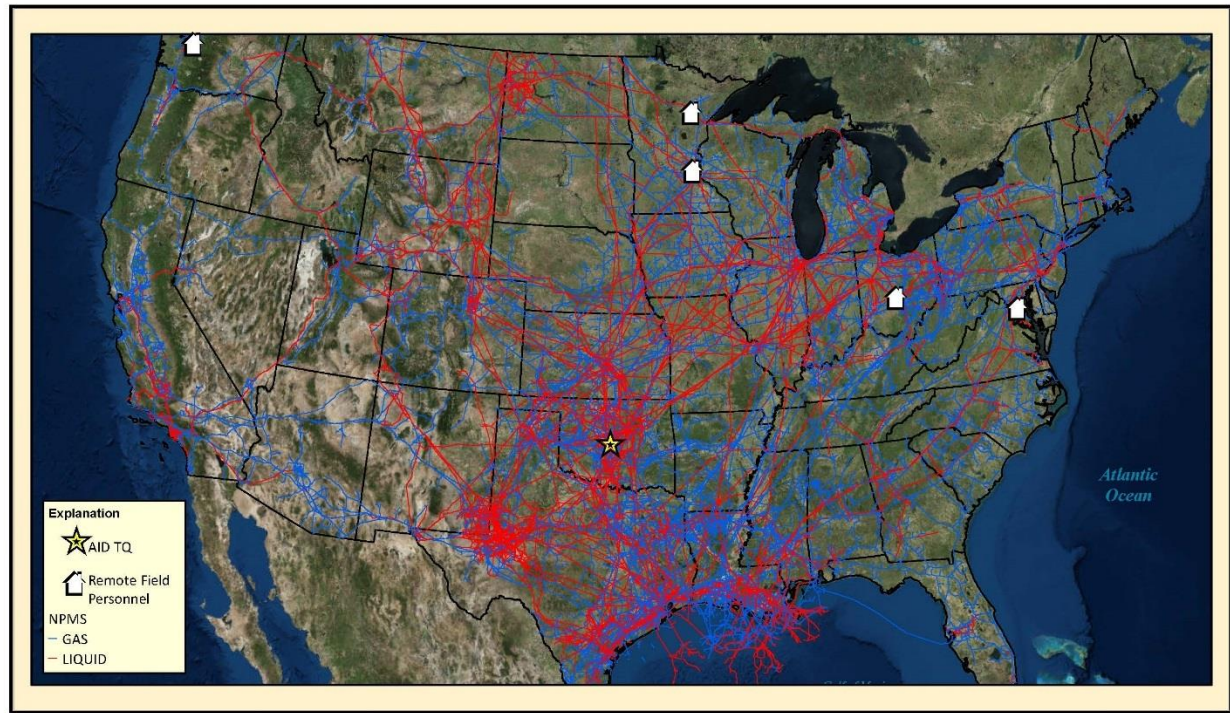
- 8 Accident Investigators
  - 3 located in OKC
  - 2 located in Minnesota
  - 1 located in Ohio
  - 1 located in Washington DC
  - 1 located in Washington State
- PHMSA SMEs in Accident Investigation: Tanks, Welding, Propane, Corrosion and LNG
- Cold weather response gear
- Training program
  - Includes TQ and Hazmat Training
  - Includes outside training
    - Latent Cause
    - Leadership, Conflict Resolution and Emotional Intelligence
    - Crisis communication
    - NTSB courses
  - OSHA HAZWOPER 40 HR trained
  - Incident Command



# AID Deployment Considerations



- Availability
- Location
- Expertise
- Complexity
- Severity
- Likely Duration
- Recent History with Line/Operator
- All PHMSA & States could be the 1<sup>st</sup> to respond.



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# How Do I contact the AID?



## National Pipeline Incident Coordinator (NPIC)

- NPIC toll-free: (888) 719-9033
- PHMSAAccidentInvestigationDivision@dot.gov





# Deployment Criteria



A release of product and one or more of the following:

- Death
- Personal injury necessitating hospitalization
- Property damage exceeding \$500K
- Hazardous liquid spill of 500 or more barrels
- Fire or explosion
- Major spill into a body of water
- Pipeline systems with recent failure history
- Significant media attention
- Release impacted:
  - an HCA
  - High Population Area
  - Other Populated Areas
  - Commercially navigable waterway, or major waterbody
  - Unusually Sensitive Area (USA) - (drinking water resource, ecological, threatened species)





# 2018 Deployments Since January 1, 2018



Date	Operator	City, State	Summary
1/23/18	Tennessee Natural Gas	Batesville, MS	Wrinkle bend crack; SR Assist
1/23/18	Cheniere LNG	Cameron, LA	LNG leaking storage tank(s) SWR Assist
2/18/18	Centurion Pipeline	Oklahoma City	3300 BBLs crude oil spill – 2 <sup>nd</sup> Party Damage
2/23/18	ATMOS Energy	Dallas, TX	NTSB, Fatality house explosion (TX-RRC)
4/3/18	Andeavor Pipeline (Formerly Tesoro)	Twin Falls, ID	160 BBLs of diesel WR led; rock impingement
5/14/18	Magellan Pipeline	Independence, KS	600 BBLs gasoline spill - The release was found to be in a girth weld.
7/3/18	Southern Star Natural Gas	Hesston, KS	Natural gas release and fire (probable Environmental Cracking)
6/6/18	Columbia Gas Natural Gas – 36” Leech Xpress	Moundsville, WV	Began operation in 2018; Subsidence/Land Movement/Extreme Rain
6/10/18	Dominion Energy	Cleveland, OH	House explosion & Fatality; not regulated piping
6/26/18	Sunoco Pipeline	Essington, PA	Multi agency response; crack in a bend (PA-PUC Assist)
7/23/18	Buckeye Pipeline Jet Fuel	Miami, FL	FL-PSC assisted; 3 <sup>rd</sup> Party Damage - incorrect alignment sheets & Marking
7/27/18	Targa Natural Gas	Monahans, TX	Non PHMSA regulated; 1 Fatality; OSHA and TXRRC investigated (Sphere Injector Malfunctioned – Contractor Opened Valve)
8/1/18	El Paso Natural Gas	Midland, TX	Non-regulated gathering line initiated event; PHMSA regulated GT line failed second - 1 fatality, 6 injured, multi-agency investigations (TX-RRC Assist)
8/6/18	BP Breakout Tank	Peosta, IA	1450 BBLs diesel release; tank recently brought back into service issues with tank repair and containment
8/8/18	Southern Star	Buffalo, OK	100’ of pipe ejected from ground; Unknown Cause



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# 2018 Deployments (continued)



Date	Operator	City, State	Summary
8/12/18	Enterprise Crude	Freeport, TX	3500 BBLs Offloading barge – Originally Unknown Jurisdiction – SWR Assistance – PHMSA regulated – Internal Under Deposit Corrosion
9/6/18	Buckeye Pipeline	Port Reading, NJ	1800 BBLs Ultra Low Sulphur Fuel/200 BBLs into Arthur Kill River – Non-Operating Pump Case Failed – ER Assist
9/7/18	Buckeye Pipeline	Decatur, IN	195 BBLs Jet Fuel into St. Mary’s River – Coordinated w/EPA
9/13/18	Columbia Gas of Massachusetts	Lawrence, MA	NTSB – 1 Fatality – 25 Injuries, Numerous Fires and Explosions - Over Pressure of a Low Pressure Distribution System (MA-DPU, ER & CL Assist)

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# Identified Trends



- OQ Problems
- RV Failures > 3 MMcf
- 1<sup>st</sup> & 2<sup>nd</sup> Party Damage (2016 Colonial to 2017 Long Horn +4)
- Injuries/Fatalities post release/During ER
- Regulator Failures
  - 4 in ID within months due to debris
- Low Pressure Components
  - System MAOP = 300 psig. A 6-inch HP steel main with a bull plug end connected by a Style 700 Posi-hold compression coupling (rated @ 150 psig) separated from the main. As a result of the separation, gas service to 452 customers was interrupted to make repairs to the main. Prior to the separation, the main associated with the Posi-Hold compression coupling experienced an increase in pressure approximately 10 psig above 110% of MAOP. Based on independent lab review, probable cause was under inflation of Posi-hold fitting resulting in reduced pipe restraint.







# Columbia Gas of Massachusetts Lawrence, Andover and North Andover Natural Gas Distribution over pressurization, 1 fatality, 25 injuries, 120+ structure fires



NTSB Investigating

Occurred Sept. 13, 2018  
150,000 residents affected  
Est. restoration is Nov. 19, 2018





- 8/7/17, Minneapolis, MN
- 3<sup>rd</sup> Party Damage
- 100+ people evacuated (60 kids)
- Stub knocked off by bulldozer 3' below grade. Pipeline was marked earlier in the day.



U.S. Department of Transportation  
Pipeline and Hazardous Materials  
Safety Administration

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# Natural Gas Pipeline Explosion

Dixon, IL

Occurred when agricultural equipment struck pipeline  
2 fatalities, 2 injuries



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# Columbia Gas Transmission Navarre, OH Fatality Incident October 23, 2017



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Pipeline and Hazardous Materials  
Safety Administration

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# PHMSA

## Emergency Contact Information

**NPIC toll-free: (888) 719-9033**

**[PHMSAAccidentInvestigationDivision@dot.gov](mailto:PHMSAAccidentInvestigationDivision@dot.gov)**

**DOT Crisis Management Center (202) 366-1863**

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