What's New in the Gas Industry Safety – Recent Incidents
What’s New in Gas Industry Safety – Recent Incidents

Presented by Curtis “Skip” Blake
Shafer, Kline & Warren
blake@skw-inc.com
Experience

• 40 years Natural Gas Industry Distribution and Transmission
  – Engineering, Corrosion Control, Facilities Planning and Design
  – 6 years Gas Transmission/ Integrity Project Management

• 6 Years as Shafer, Kline and Warren Safety Officer
  – NCCER/Veriforce OQ Trainer & Evaluator
  – OSHA General Industry & Construction Trainer
  – American Red Cross First Aid, CPR, & AED Trainer
National Workplace Statistics

- ~13 People Die Every Day at Work
  - 5,214 Workers Died on the Job in 2008
    - 4551 in 2009 down 11%
    - 4690 in 2010
  - 12 Injuries Every Minute Perspective – Safer at Work

- ~40 Murders Every Day
  - 14,482 Homicides a Year
  - Preliminary Pending Death of Injured 2010
    Nationally, Murder Declined 4.4 Percent, 682 Less
The 5 Leading Causes of Death

- Heart Disease
- Cancer
- COPD
- Stroke
- Accidents (Unintentional Injuries)
What's New in the Gas Industry Safety – Recent Incidents

Recent Trends

Death Rate Indexes (1992=100)

*Deaths per 100,000 population.
## 10 Leading Causes of Injury Deaths by Age Group Highlighting Violence-Related Injury Deaths, United States – 2009

<table>
<thead>
<tr>
<th>Rank</th>
<th>&lt;1</th>
<th>1-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65+</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>Homicide Unspecified 152</td>
<td>Unintentional MV Traffic 362</td>
<td>Unintentional Drowning 119</td>
<td>Suicide Suffocation 151</td>
<td>Homicide Firearm 4,651</td>
<td>Unintentional MV Traffic 5,651</td>
<td>Unintentional Poisoning 4,856</td>
<td>Unintentional MV Traffic 5,448</td>
<td>Unintentional MV Traffic 3,804</td>
<td>Unintentional Poisoning 5,174</td>
<td>Unintentional Poisoning 31,758</td>
</tr>
<tr>
<td>3</td>
<td>Homicide Other Spec., classifiable 97</td>
<td>Unintentional Fire/Burn 169</td>
<td>Unintentional Fire/Burn 86</td>
<td>Homicide Firearm 115</td>
<td>Unintentional Poisoning 3,044</td>
<td>Homicide Firearm 3,300</td>
<td>Unintentional Poisoning 3,574</td>
<td>Suicide Firearm 3,191</td>
<td>Suicide Firearm 4,248</td>
<td>Suicide Firearm 24,792</td>
<td></td>
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<tr>
<td>4</td>
<td>Unintentional MV Traffic 91</td>
<td>Homicide Unspecified 155</td>
<td>Homicide Firearm 53</td>
<td>Unintentional Drowning 90</td>
<td>Suicide Firearm 2,002</td>
<td>Suicide Firearm 2,379</td>
<td>Suicide Suffocation 1,935</td>
<td>Suicide Poisoning 2,015</td>
<td>Unintentional Fall 1,888</td>
<td>Suicide Firearm 4,139</td>
<td></td>
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<tr>
<td>5</td>
<td>Undetermined Suffocation 49</td>
<td>Unintentional Suffocation 125</td>
<td>Suicide Firearm 64</td>
<td>Suicide Suffocation 1,186</td>
<td>Suicide Suffocation 1,793</td>
<td>Suicide Suffocation 1,869</td>
<td>Suicide Suffocation 1,899</td>
<td>Suicide Suffocation 1,231</td>
<td>Suicide Poisoning 3,263</td>
<td>Suicide Suffocation 1,143</td>
<td></td>
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<tr>
<td>6</td>
<td>Unintentional Drowning 45</td>
<td>Unintentional Pedestrian, Other 112</td>
<td>Unintentional Suffocation 26</td>
<td>Unintentional Other Land Transport 34</td>
<td>Unintentional Poisoning 648</td>
<td>Suicide Poisoning 733</td>
<td>Suicide Poisoning 1,383</td>
<td>Suicide Poisoning 1,341</td>
<td>Suicide Suffocation 922</td>
<td>Adverse Effects 1,647</td>
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<tr>
<td>7</td>
<td>Undetermined Unspecified 27</td>
<td>Homicide Other Spec., classifiable 81</td>
<td>Homicide Firearm 53</td>
<td>Homicide Unspecified 20</td>
<td>Homicide Cut/Pierce 419</td>
<td>Undetermined Poisoning 590</td>
<td>Undetermined Poisoning 738</td>
<td>Homicide Poisoning 1,152</td>
<td>Unintentional Poisoning 1,414</td>
<td>Suicide Poisoning 6,396</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Homicide Suffocation 56</td>
<td>Homicide Firearm 45</td>
<td>Unintentional Pedestrian, Other 21</td>
<td>Unintentional Suffocation 41</td>
<td>Suicide Poisoning 324</td>
<td>Homicide Cut/Pierce 453</td>
<td>Unintentional Poisoning 531</td>
<td>Unintentional Poisoning 1,036</td>
<td>Homicide Poisoning 500</td>
<td>Unintentional Poisoning 5,939</td>
<td></td>
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<tr>
<td>9</td>
<td>Unintentional Fire/Burn 25</td>
<td>Unintentional Fall 46</td>
<td>Unintentional Struck by or Against 19</td>
<td>Unintentional Poisoning 37</td>
<td>Undetermined Poisoning 204</td>
<td>Unintentional Drowning 396</td>
<td>Unintentional Drowning 392</td>
<td>Undetermined Poisoning 507</td>
<td>Unintentional Poisoning 484</td>
<td>Suicide Poisoning 676</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Unintentional Poisoning 22</td>
<td>Two Tied*</td>
<td>Unintentional Poisoning 13</td>
<td>Unintentional Other Transport 25</td>
<td>Unintentional Other Land Transport 230</td>
<td>Homicide Cut/Pierce 375</td>
<td>Unintentional Suffocation 497</td>
<td>Unintentional Poisoning 456</td>
<td>Suicide Suffocation 584</td>
<td>Unintentional Drowning 3,517</td>
<td></td>
</tr>
</tbody>
</table>

*The two causes are: Unintentional Natural/Environmental and Unintentional Poisoning.

Data Source: National Center for Health Statistics (NCHS), National Vital Statistics System.

Produced by: Office of Statistics and Programming, National Center for Injury Prevention and Control, CDC using WISQARS™.
2009 Prescription painkiller overdoses responsible for 15,500 deaths

- Exceeds deaths from heroin and cocaine combined.

- Adults in their 40's and 50's.
Top 10 Lost Time Injuries

- Strain or Sprain of the Lumbar (Lower) Region of the Back
- Sprain or Strain of the Neck
- Sprain or Strain of the Lumbo-sacral (Lower Including the Base of the Backbone) Region of the Back
- Sprain of the Shoulder or Upper Arm
- Sprain of the Leg And Knee
- Sprain or Strain of the Thoracic (Middle) Region of the Back
- Lumbar Disc Displacement
- Sprain of the Ankle
- Contusion (Bruise) of the Knee
- Tear of the Medial Meniscus (Shock-absorbing Tissues Between the Bones of the Knee)
The Industry Believes

• Employees are our Most Valuable Asset

• “Everyone Goes Home Safe”

• No Job is so Important that we Can’t Take the Time to do it Safely
Typical Incident Pyramids

Oil and Gas Pyramid

General Workforce Pyramid

Fatality
Workmen’s Comp.
Injuries
First Aid & Property
Damage
Near Misses

Major Incidents
Moderate Incidents
Incidents with no negative consequences
The Most Important Factor in Safety

• Routine Activities are the Most Dangerous
• Repetition Causes Complacency
• You’re not Expecting Something Different when You have Done it a Hundred Times
• Don’t Shortcut Dangerous Processes
• Be Aware of Change
• Stick to What Works
Here’s All The Excuses

I don’t have the time

I don’t need a harness, I won’t fall

It will only take a minute

I’m no sissy!

I’ve been doing it this way for years.
## 2012 All Incidents
(As of 9/26/2012) PHMSA Data

<table>
<thead>
<tr>
<th></th>
<th>Year to Date</th>
<th>3 Year Average</th>
<th>5 Year Average</th>
<th>10 Year Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidents</td>
<td>385</td>
<td>603</td>
<td>617</td>
<td>644</td>
</tr>
<tr>
<td>Fatalities</td>
<td>7</td>
<td>16</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Injuries</td>
<td>31</td>
<td>78</td>
<td>68</td>
<td>61</td>
</tr>
</tbody>
</table>
Historical Root Cause of Incidents

All Reported Incident Cause Breakdown
National, All Pipeline Systems, 1992-2011

- CORROSION: 19.7%
- EXCAVATION DAMAGE: 25.6%
- INCORRECT OPERATION: 16.1%
- MAT'L/WELD/EQUIP FAILURE: 7.1%
- NATURAL FORCE DAMAGE: 6.8%
- OTHER OUTSIDE FORCE DAMAGE: 6.8%
- ALL OTHER CAUSES: 6.8%

Source: PHMSA Significant Incidents Files May 31, 2012
Please Pay Attention

If you See Something **SAY SOMETHING**

**Plastic gas line failures**

- **Rock impingement failure**

**Local gas distribution network**

- **Service gas line**
  - ½-inch to 1¼-inches pipe size plastic, 25 to 100 psig*

- **Main gas line**
  - 2 to 12 inches pipe size, plastic, 25 to 100 psig*

**Common slow-crack failure sites on plastic pipes**

- **Rock impingement**
  - Rock or rocks cause stress underneath buried pipe

- **Fittings & joints**
  - Improper heat fusion of pipes or mechanical connections

- **Squeeze-off**
  - Pinching of pipe to control amount of gas flow

**Failures caused by slow-cracking in plastic gas lines** (polyethelyne)

- Pipe 35%
- Fittings 53%
- Joints 10%
- Other 2%

*Pound-force per square inch

Sources: Plastic Pipe Database Committee; NTSB; Dr. Gene Palermo, Plastics Pipe Consulting; Integrity Management for Gas Distribution Pipelines study, Dec. 2005

John Blanchard / The Chronicle
## Gas Distribution
(As of 9/26/2012) PHMSA Data

<table>
<thead>
<tr>
<th></th>
<th>Year to date</th>
<th>3 Year Average</th>
<th>5 Year Average</th>
<th>10 Year Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidents</td>
<td>61</td>
<td>133</td>
<td>139</td>
<td>143</td>
</tr>
<tr>
<td>Fatalities</td>
<td>4</td>
<td>11</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Injuries</td>
<td>20</td>
<td>50</td>
<td>47</td>
<td>45</td>
</tr>
</tbody>
</table>
Incidents /Pipeline Mile

- **Liquid Transmission Pipelines**: 77%
- **Gas Transmission Pipelines**: 18%
- **Gas Distribution Pipelines**: 5%
### Gas Transmission Statistics

<table>
<thead>
<tr>
<th></th>
<th>Incidents</th>
<th>Fatalities</th>
<th>Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2012 YTD</strong></td>
<td>63</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td><strong>2011</strong></td>
<td>108</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>3 Year Average</strong></td>
<td>95</td>
<td>3</td>
<td>24</td>
</tr>
<tr>
<td><strong>5 Year Average</strong></td>
<td>93</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td><strong>10 Year Average</strong></td>
<td>90</td>
<td>2</td>
<td>11</td>
</tr>
</tbody>
</table>
Liquids Incidents Are Double the Gas
## Kansas Statistics

<table>
<thead>
<tr>
<th></th>
<th>Incidents</th>
<th>Fatalities</th>
<th>Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total 10 Years</strong></td>
<td>7</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>2012 YTD</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>3 Year Average</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>5 Year Average</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>10 Year Average</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

PHMSA Generated: 10/07/12 08:24:48 AM
What's New in the Gas Industry Safety – Recent Incidents

Where Are We Most Vulnerable

<table>
<thead>
<tr>
<th>Injury event</th>
<th>No. of fatal injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway crash</td>
<td>110</td>
</tr>
<tr>
<td>Struck by object</td>
<td>68</td>
</tr>
<tr>
<td>Explosion</td>
<td>36</td>
</tr>
<tr>
<td>Fall to lower level</td>
<td>30</td>
</tr>
<tr>
<td>Fire</td>
<td>27</td>
</tr>
<tr>
<td>Caught or compressed in moving machinery or tools</td>
<td>26</td>
</tr>
<tr>
<td>Electric current</td>
<td>20</td>
</tr>
<tr>
<td>Aircraft crash</td>
<td>18</td>
</tr>
<tr>
<td>Other</td>
<td>49</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>404</strong></td>
</tr>
</tbody>
</table>

**TABLE 2. Number of fatal injuries among oil and gas extraction workers, by type of injury event — United States, 2003–2006**

* Data for 2006 are preliminary.

#1 Pipeliner Hazard

2 hours to job site

10 Hour Days + Overtime

2 Hours Back

Equals

Exhaustion
Coke Driver Stops For Some Wild Turkey (and Coke?)
Would you believe 71 Highway South of Kansas City Deer Collisions are not the Only Road Hazard
Trucker’s Hate Texter’s

Don’t Text and Drive
Yours may be on the next shipment
I learned to text today

Now He can call Text His Dad and Ask for A Ride Home
Safety Circle

We Use a Safety Circle Magnet Instead of a Cone
Distracted Walking

Emergency Room Visits have Quadrupled in the Past 7 Years
Top 10 Most Recently Cited OSHA Standards Violated in FY2011

- Scaffolding, General Requirements, Construction (29 CFR 1926.451)
- Fall Protection, Construction (29 CFR 1926.501)
- Control of Hazardous Energy (lockout/tagout), General Industry (29 CFR 1910.147)
- Powered Industrial Trucks, General Industry (29 CFR 1910.178)
- Ladders, Construction (29 CFR 1926.1053)
President Obama at an oil rig repair shop in Gulf area –

When everyone around you is wearing gear –

You better go get some unless you are in the Federal Executive Branch.
2010 Constructions “Fatal 4”

- Falls – (34%)
- Electrocutions – (10%)
- Struck by Object – (8%)
- Caught-in/between – (4%)
Can We Get A Little Help Here?

We Need To Learn From Our Mistakes
OSHA Eye Candy

We Don’t Need No Fall Protection
Traumatic Brain Injuries

Children, older adolescents, and adults ages 65 years and older are more likely to sustain a TBI.
Cranes Are Dangerous Places

Never Stand Between the Pipe and the Ditch
Construction Dangers

Friday January 27, 2012

Horseshoe Casino
Concrete Pour Support collapsed

Minor Cuts and Bruises
BP Compression Station -

Pinion, CO

1 Dead

2 Injured

Pneumatic Overpressure During the Launching of a Maintenance Device
Pneumatic Test failure

1 Died
3 Injured
Three companies (Same Incident) were cited by OSHA for exposing workers to hazards during the construction of a gas pipeline meter station

Lesson – STOP
Bleed it down – Start Again
Follow the Best Practices
PRESSURE TESTING BEST PRACTICES

For Personnel Conducting the Test

PRE-TEST

- Obtain written test procedure and verify proper test medium.
- Collect all equipment and material needed to complete the Pressure Test.
- Verify that test equipment and materials are rated to withstand the test pressures.
- Wear appropriate personal protective equipment (PPE) as required by the task being performed and as required per OSHA regulations.
- Place signs, barricades, or protective barriers at the adequate distance to protect personnel from unanticipated pressure release or equipment failure.
- Check and secure all supply lines and hose connections with retaining device(s).
- Ensure valves are in proper location and valve openings are set as per written test procedure requirements.

TEST

- Check all visible connections for leaks.
- Never tighten connections that are under pressure. If a leak develops, you must depressurize to a safe level and then re-tighten.
- Ensure unauthorized personnel are kept out of the test area.
- Conduct test according to written test plan procedure.
- Confirm acceptance of test by authorized Operator representative.

POST TEST
Purging & Testing Best Practices

• The Danger - Whenever Gas Piping is Repaired, Extended, or Newly Installed it Must be Purged, Tested and Purged Again
  - Ignition Sources- Trucks, Welders, Cell Phones, Passersby, Smoking

• The Law - OSHA 1910.147 LO/TO NFPA 54, and NFPA 85 or NFPA 86.

• The Hazards-
  - Remember Plug Valves Bleed by 60-80% Industry
  - Nitrogen Poisoning
  - Catastrophic Failure – Pneumatic Testing
PRE-TEST (APCA)

- Develop written test procedure and share w/all stakeholders
- Verify proper test medium.
- Do equipment / materials ratings meet/exceed the test pressures.
- Wear all required (PPE) for the task
- Place signs, barricades away from failure perimeter
- Check all supply lines and connections with retaining device(s)
- Ensure valves are in proper location and valve openings are set as per written test procedure requirements.
• Check all visible connections for leaks.
• Never tighten connections that are under pressure.
• If a leak develops, depressurize then re-tighten.
• Ensure unauthorized personnel are kept out of the test area.
• Conduct test according to written test plan procedure.
• Confirm acceptance by authorized Operator representative.
Post Test

• Properly discharge and dispose of the test medium as per Operator requirement.
• Remove all warning signs, flagging, and barricades.
• Notify all personnel that the area is all clear.
Purging & Testing Best Practices

- Design – Purge (Loading) Points, Isolation Points, Piping Support, Gaskets, Material Specifications, Nitrogen, Purge Blowdown/Discharge Locations, Multi-Gas Detectors, Piping Integrity (Pre-testing/documentation), Emergency Isolation Attended 100%

- Procedures - Written Procedures, Job Site Hazard Communication, Pre-purge/test Tailgate

- Isolate Workspace – If You are Not Essential to the Task Evacuate the Area – Distance is Your Best Friend
Looks Good On TV

Fun At The Beach – But On The Job 400 Lbs. Per Sq. Ft. If You’re Buried
Excavation Safety Program

- Competent Person Training
- Hazard recognition – water atmosphere
- Soil Type Classification – Clay, Sand, Rock
- Shoring Guidelines – Trench Boxes, Shields
- Sloping Guidelines ¾:1 sides, 1:1
- Regulatory Requirements for Access & Egress
Quick Disconnect Buckets
Coal Slag Abrasive has Dangerous Levels of Beryllium, which has been Linked to Cases of Cancer

Coal Slag Abrasive is Used to Prep Pipelines for Coating and Painting
OMB’s 1 Year hold up on Silicosis

• According to OSHA’s risk assessment, the delay in approving the silica dust rule could have prevented 60 worker deaths and 2,400 cases of silicosis in the last year. It should only take 45 days to review and initiate a public comment period. Lobbyists want to kill the rule.
What’s New in the Gas Industry Safety – Recent Incidents

New GHS Pictograms

- Flammable
- Respiratory Health Hazard
- Acute toxicity
- Environmental
- Oxidizers
- Toxic
- Corrosives
- Compressed Gases
- Explosives
**New Label Awareness Required by 2013**

GHS Chemical

**Danger!**
Toxic If Swallowed, Flammable Liquid and Vapor

Do not eat, drink or use tobacco when using this product. Wash hands thoroughly after handling. Keep container tightly closed. Keep away from heat / sparks / open flame - No smoking. Wear protective gloves and eye / face protection. Ground container and receiving equipment. Use explosion-proof electrical equipment. Take precautionary measures against static discharge. Use only non-sparking tools. Store in a cool / well ventilated place.

**IF SWALLOWED:** Immediately call a POISON CONTROL CENTER or doctor / physician. Rinse mouth.

In case of fire, use water fog, dry chemical, CO2 or “alcohol” foam.

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**Chemical Name**

CAS# 55-55-5

**Health Hazards / Target Organ Effects**

Irritant to: Eye, Respiratory system and mucos membranes, Liver, Kidney, Eyes, Skin, Lungs and/or Respiratory System

**Physical Hazards**

Flammable Liquid

**Route of Entry:** Inhalation, Skin, Eye, Ingestion
OSHA now Requires 10 Question Test on Each 10 HR Training Segment and a Final Exam

Go to http://www.osha.gov/Publications/ for training materials
Production and Gathering
What's New in the Gas Industry Safety – Recent Incidents

API Just Adopted These 8 Pipeline Safety Principles

- Zero Incidents
- Organization Wide Commitment
- A Culture of Safety
- Continuous Improvement
- Learn from Experience
- Systems for Success
- Employ Technology
- Communicate with Stakeholders
What's New in the Gas Industry Safety – Recent Incidents

OSHA Safety Topics

- General Safety
- Safety and Health Program
- Hot Work-Welding
- Hydrogen Sulfide Gas H2S
- Special Precautions
- Site Preparation
- Conductor Hole, Rathole and Mousehole
- Transporting Equipment to the Site
- Drilling
H2S Prevalent Around Wells
Shell’s Methane Migration
BP Horizon

April 20, 2010
11 Dead
12 Injured
Gas Well Explosion

January 5, 2012

A Rig Drilling for a Company in Oklahoma Burned Thursday Night after Hitting a Shallow Gas Pocket and Suffering a Blowout Before Key Safety equipment was Rigged Up, the Company Said

The Rig Burned for 3 Days
Enid, OK Oil Well Explosion

January 20, 2012

4 Workers Injured
Eagle Ford Shale

January 20, 2012

OSHA issues 10 Safety Violations

While Offloading Saltwater with Skim of Oil - Welders Working in the Area Ignition the Source
Marshall, MI

July 26, 2010

30” Oil Pipeline Rupture Releases 20,000 Barrels into Tallmadge Creek

2,000 People Involved in Cleanup
30 Homes Purchased
The Houston limited partnership incurred $595 million of emergency response and environmental expenses and provisions for third-party claims related to that incident and to a subsequent release on Sept. 9, 2010, from its Lakehead 6A line near a Romeoville, Ill., industrial area, EEP said in its 2010 10-K filing with the US Securities and Exchange Commission.

7/2/2012 Contact Nick Snow at nicks@pennwell.com.
San Bruno, CA

Sep 9, 2010

8 Dead
15 Injured

53 Homes Destroyed
120 Homes Damaged

Feb 2012 PG&E
Fines at $200,000,000 Estimated
San Bruno Financial Judgment

• A California State Supreme Court Judge ruled that

• PG&E will have to pay about 55% of the estimated $2.2 billion it will cost to upgrade the utility’s natural gas transmission pipelines.

• 45% to the ratepayers
PG&E Integrity Projects

In 2012, PG&E has Eight “Smart Pig" Projects Inspecting up to a Total of 206 Miles.

Replace about 39 Miles of Transmission Pipelines

Strength-test About 170 Miles of Pipelines

Automating 46 Valves, for Remote Control and Automatic Shutoff

PennEnergy Petroleum Daily News
Profits Pay for New Pipelines

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[Graph showing natural gas price fluctuations from 2007 to 2012]
July 3, 2012

$386,000 Fine
PUC Blame Placed
On Gas Company
for Low Odorant
Levels and
Failure to Replace Mains

Company Disputes Findings
1 Lightning Bolt Follows Tracer

Apple Valley, MN
June 11, 2012

Hit Tree First

House in Between Not Damaged
Dangerous Weather Facts

Weather Fatalities

- **Flood**: 103 (2010), 71 (10 Year Average), 56 (30 Year Average)
- **Lightning**: 92 (2010), 29 (10 Year Average), 25 (30 Year Average)
- **Tornado**: 92 (2010), 55 (10 Year Average), 47 (30 Year Average)
- **Hurricane**: 56 (2010), 0 (10 Year Average), 47 (30 Year Average)
- **Heat**: 138 (2010), 116 (10 Year Average), 115 (30 Year Average)
- **Cold**: 34 (2010), 25 (10 Year Average), 37 (30 Year Average)
- **Winter**: 42 (2010), 33 (10 Year Average), 41 (30 Year Average)
- **Wind**: 64 (2010), 43 (10 Year Average), 43 (30 Year Average)

*9 Year Average*
When Thunder Roars Go Indoors!

Lightning Strikes More than 400 People in the United States Each Year, Causing Devastating and Permanent Disabilities for those Who Survive
Turn Around Don’t Drown
Get the Word Out

Don’t Delay – Get Away

Call 911
What's New in the Gas Industry Safety – Recent Incidents

Sensationalism Sells
And Everybody Has A Camera

Naturalgaswatch.Org

Headline

400% Increase in Natural Gas Explosions
• According to (PHMSA,)

Two Serious or Significant Incidents in New York City’s Natural Gas Distribution Pipelines in 2010

• In 2011, that Number Increased to Eight.
Incidents September 2011

- **Encinitas (Calif.):** McDonald’s Destroyed, No Reported Injuries
- **Bakersfield (Calif.):** One Home Damaged, One Severely Injured
- **Norfolk (Va.):** One Home Destroyed, No Injuries Reported
- **Blacksburg (Va.):** Gas Leak, Evacuations, No Injuries
- **Long Island (N.Y.):** One Home Leveled, Three Firefighters injured
- **Plainfield (N.J.):** One Home Destroyed, One Severely Burned
- **Murphysboro (Ill.):** Three Homes Destroyed, No Injuries
- **Girard (Ill.):** One Home Destroyed, One Killed
- **Kenedy (Texas):** Well Head Explosion, One Killed, Three Injured
- **Mont Belvieu (Texas):** Natural Gas Plant Fire, One Killed
- **Leavenworth (Kansas):** Faulty Regulator Caused Gas Leak and Evacuation of a School, No Injuries Reported
- **Philadelphia:** One Killed, Six Injured
- **Fairport (Ohio):** Nine Buildings Destroyed, Safe Evacuations, No Injuries Reported
- **Hanovertton (Ohio):** Two Homes Damaged, One Injured. (1,6,8)
January 12, 2012

Sunoco Logistics 8”
Leaked 116,760 Gallons of Gasoline
from a 30” Split – 70 Homes evacuated for Over a Week
The Incidents Continue

January 16, 2012
West Havershaw, NY
Topeka, KS Jan 30, 2012

Contractor Installing Irrigation Nicks Gas Line
One died – Homeowner Rescued Alive but Died Later
East Prairie, MO

- February 21, 2012
- 4.0 Earthquake Just North of New Madrid
Galloway Township, NJ

Smelled Gas but it Dissipated-

Then the Crawl Space Exploded

Naturalgaswatch.org/Press of Atlantic city
Charlotte, NY

July 16, 2012 - A Leak in the Basement

Minor Injuries to Residents

Natural Gas Watch.org - Atlantic City Press
Well Tied to Quakes

• A Northeast Ohio Well Used to Dispose of Wastewater from Oil and Gas Drilling Almost Certainly Caused a Series of 11 minor Quakes in the Youngstown Area Since Last Spring
  – Seismologist Investigating the Quakes Said Monday

• It Might Take a Year for the Wastewater-related Rumblings in the Earth to Dissipate
  – said John Armbruster of Columbia University’s Lamont-Doherty Earth Lab
Earthquake Drill 2012

February 7, 2012

EMA Suggests a Wrench
Emergency Action Plan

• Shelter in Place Locations – Not just in the Office

• Fines

• Every Employee Rule
Let Your Family Know You’re Safe

• If Your Community has Experienced a Wild Fire, or any Disaster, Register on the American Red Cross Safe and Well Web Site Available Through RedCross.org to Let Your Family and Friends Know about Your Welfare.

• If You Don’t have Internet Access, call 1-866-GETINFO to Register Yourself and Your Family
Stroke - to Recognize Symptoms

FAST

Face
Arms
Smile or Speech
Time or Tongue
Inner Ear Comparison

Healthy Inner Ear
Lined with Cilia

Damaged Inner Ear -
Inner Ear Showing Damage to the Cilia

Cilia - Tiny Hair Cells that Help You Hear
Wildfire Dangers are a Potential Risk With All This Dry Weather
Wildfire Maps from NOAA

Check Your Destination
Heat / Humidity Stress

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

- Caution
- Extreme Caution
- Danger
- Extreme Danger
Heat App

What's New in the Gas Industry Safety – Recent Incidents

OSHA QuickTakes
The First Years Brand from TOMY International has an Alert System that Calls Smartphone to Warn of Faulty car Seat Restraint, Excessive Heat or if Child Left Behind
What's New in the Gas Industry Safety – Recent Incidents

There’s an App for That

2012 EMERGENCY RESPONSE GUIDEBOOK
A Guidebook for First Responders During the Initial Phase of a Dangerous Goods/Hazardous Materials Transportation Incident

FLAMMABLE LIQUIDS (Non-Polar Immiscible)

POTENTIAL HAZARDS

- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a “P” may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
St. Louis, MO

July 12, 2012 - Apartment

Naturalgaswatch.org/St, Louis Today
Beware of Vicious Dogs

- May 20-26 is National Dog Bite Prevention Week
- Dogs Bite More than 4 million People Each Year
- Most of These Victims are Children and Senior Citizens.
Computer Fatigue – The 3 R’s

• Readjust
  – The Screen Make Sure You are Looking Down

• Refocus
  – Look 20’ Away at Least Once Every ½ Hour

• Remove
  – Your Whole Body at Least Once an Hour

And Don’t Forget to Blink
Tool Safety

Machetes and Brush Hooks Need Scabbards
Hazardous Plants

- Poison Ivy Creeper
Hazardous Insects

Ticks
Recluse Spider

• About ½ Inch Long
• A Distinct Violin-Shaped Patch on its Head and Mid-Region
Questions

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