7th Annual HazMat Symposium
Florida's "Big 3" Natural Gas Transmission Pipelines


Gulfstream
Natural Gas System


Sabal Trail
TRANSMISSION®


Florida Gas Transmission Company
An Energy Transfer/Kinder Morgan Affiliate


HAZARDOUS • MATERIAL • SYMPOSIUM • FLORIDA •

Safety – Emergency

Safety Moment

Deep Vein Thrombosis (or blood clots in the leg) is a medical condition that can be attributed to prolonged periods of inactivity caused by space limitations that may slow circulation and produce edema (leg swelling). In addition, bent knees compress the popliteal vein (the deep vein behind the knee), can create a potential site for clot formation over time.

What are the causes?

Restricted flow of due to:

- Other medical issues
- Traveling long distances
- Sitting for long hours at a time
- Heredity

What are the symptoms?

- Swelling
- Pain
- Warmth and redness in the involved leg

How can you prevent blood clots?

- Stand up & walk around every 1 to 2 hours
- Do not smoke before your trip
- Wear loose comfortable clothing
- Shift your position while seated, and move your legs and feet often
- Drink plenty of fluids
- Avoid or limit your intake of alcohol and medicines that make you sleepy
- Wear knee-high compression stockings

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Natural Gas Pipeline Emergency Response

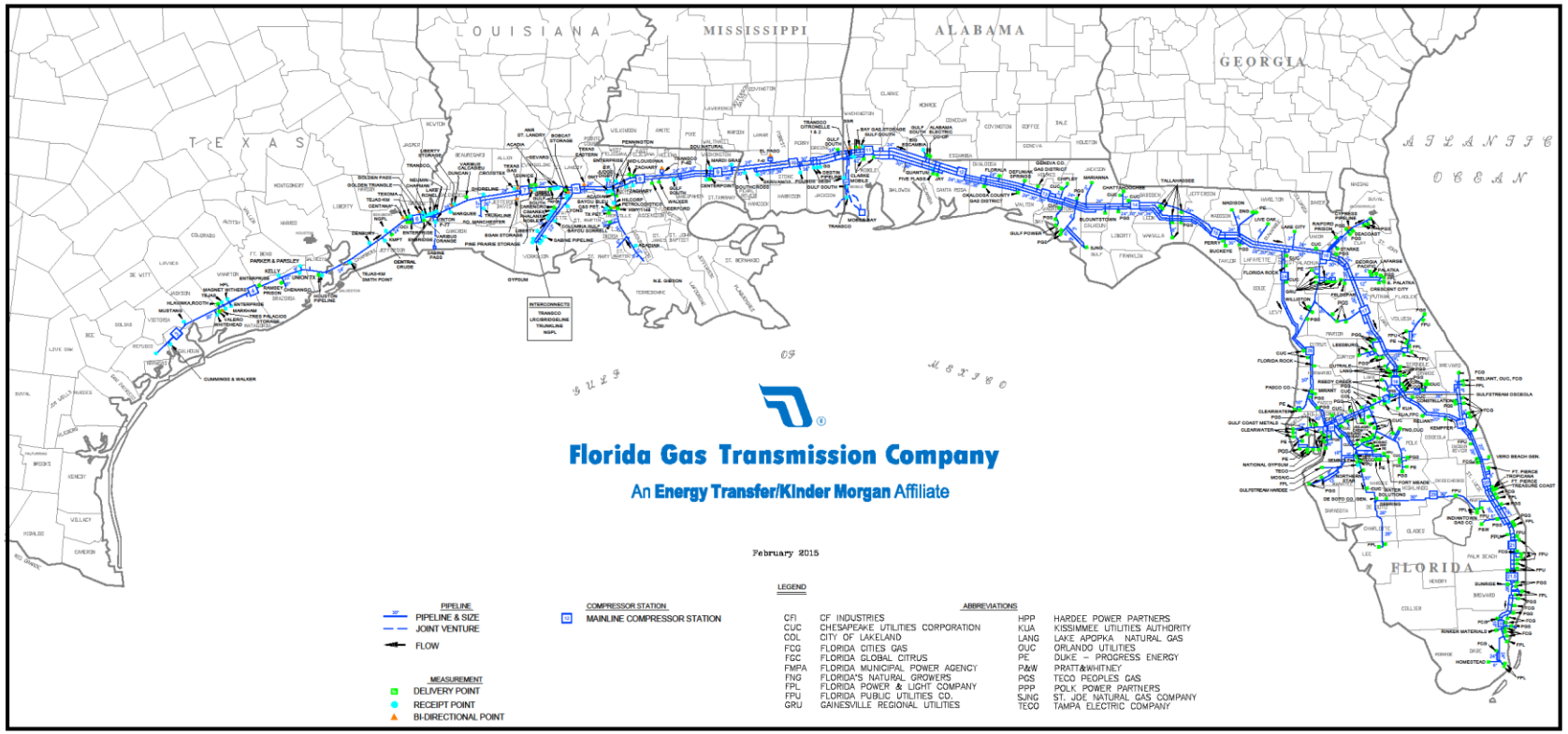
Who is Florida Gas Transmission?

- Florida Gas Transmission (FGT) operates nearly 5,300-miles of interstate natural gas transmission pipelines, a system that extends from South Texas to South Florida.
- Florida's original natural gas transmission pipeline operator – in-service since 1959.
- Operating in all but 13 counties in Florida.
- Capability of our system to flow 3.2 BCF/D.

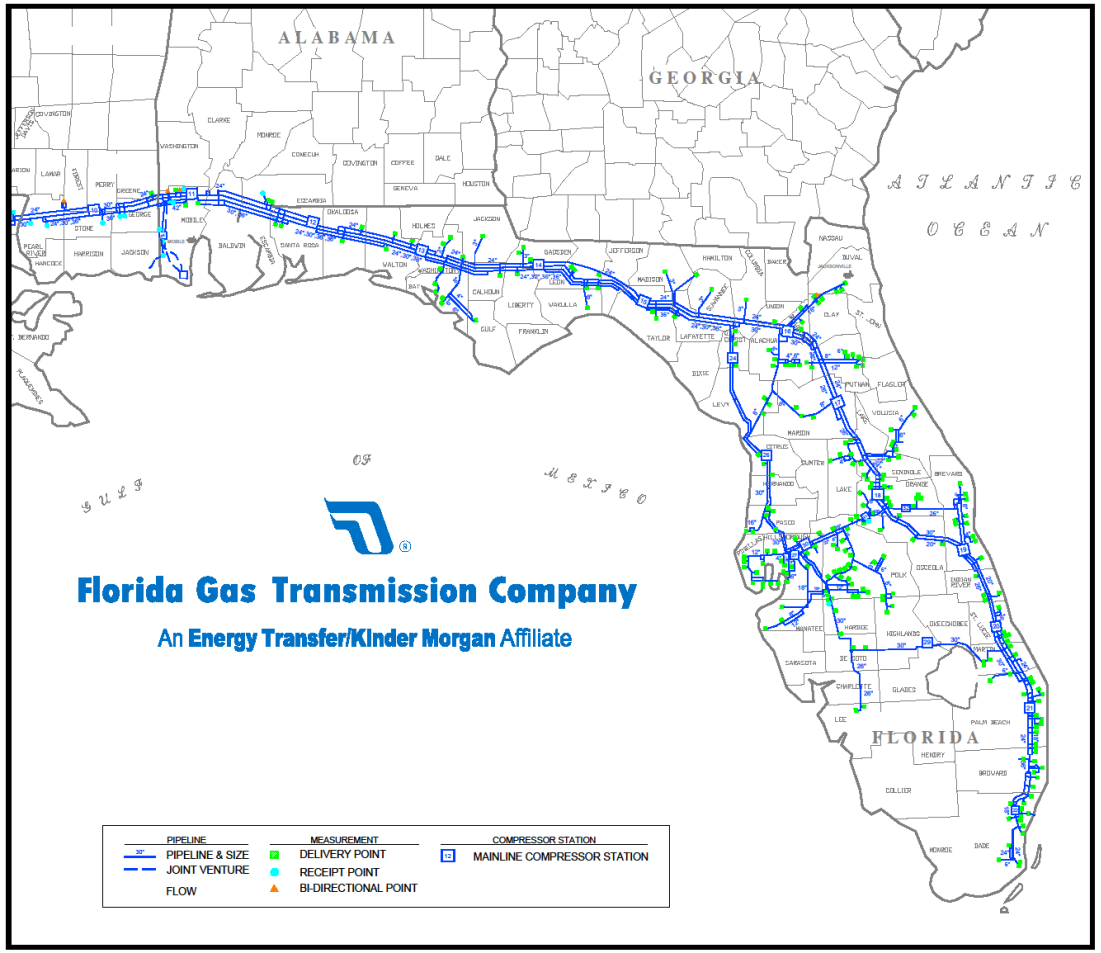
Florida Gas Transmission Company

An Energy Transfer/Kinder Morgan Affiliate

Florida Gas Transmission Overview



Florida Gas Transmission Overview



Who is Gulfstream?

- The Gulfstream Natural Gas System was placed into service in May of 2002, Gulfstream is partnership between Williams, legacy Spectra Energy (Enbridge) and their respective affiliates. The 745-mile interstate transmission pipeline delivers clean-burning natural gas across the Gulf of Mexico to meet Florida's rapidly growing residential and power needs.

Williams

The Company's gas pipeline businesses consist primarily of Transcontinental Gas Pipe Line Company, LLC (Transco) and Northwest Pipeline LLC (Northwest Pipeline). Transco and Northwest Pipeline owned and operated a combined total of approximately 13,600 miles of pipelines.

ENBRIDGE

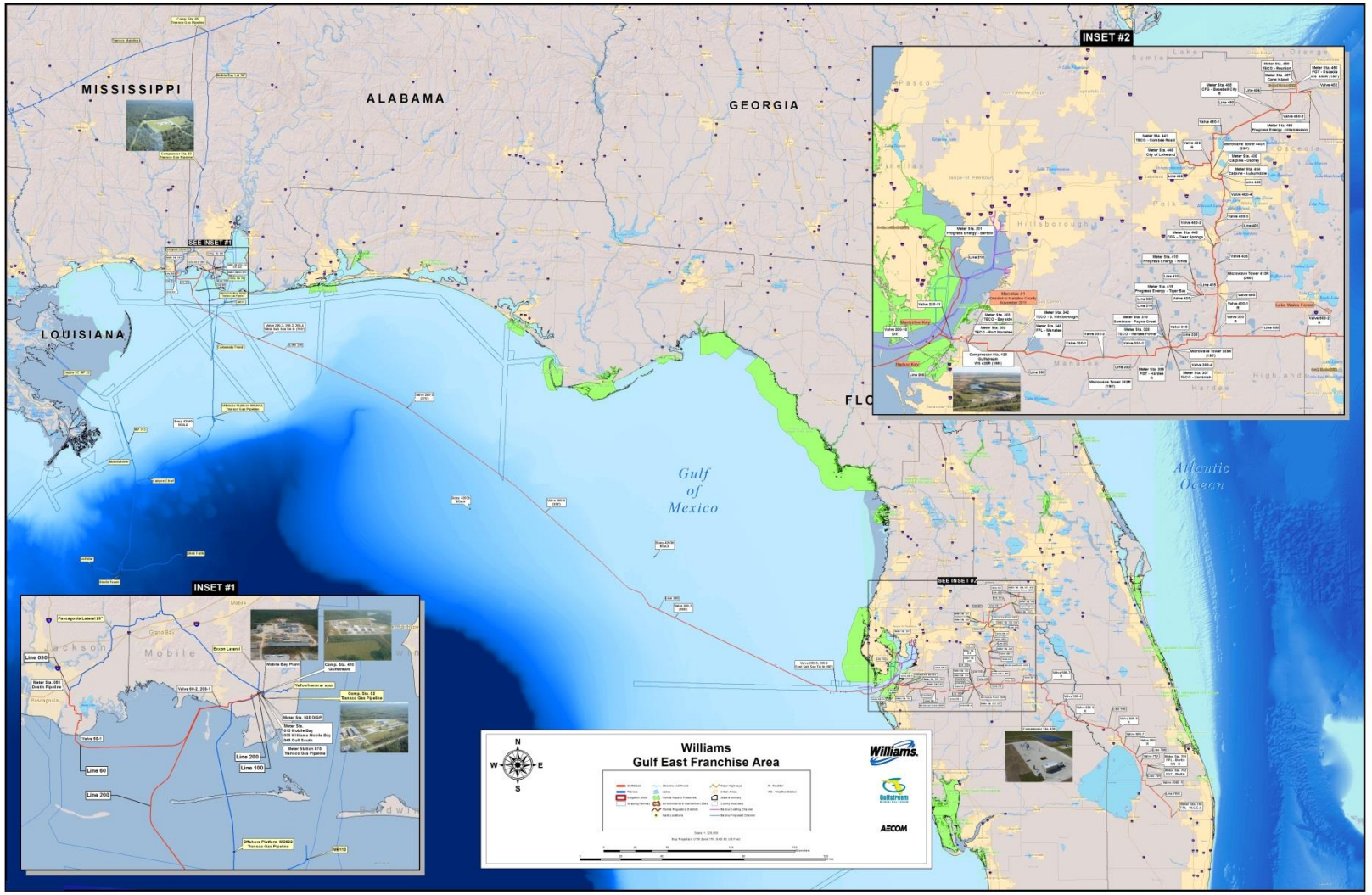
In February 2017, Enbridge Inc. and Spectra Energy Corp closed their merger transaction. They currently operate over 34,410 miles of interstate/international natural gas pipelines.

- In 2002, Gulfstream became the first new natural gas pipeline to serve Florida in more than 40 years, with a total cost of over $2 billion including expansions.

Gulfstream
Natural Gas System

HAZARDOUS MATERIAL SYMPOSIUM FLORIDA

Gulfstream Overview



HAZARDOUS MATERIAL SYMPOSIUM FLORIDA

Gulfstream Overview

- Pipeline:
  - 419 miles of offshore pipeline to Tampa Bay
  - 294 miles of onshore pipeline across Florida
  - Compression in Alabama and Florida
- Mainline placed in-service June 1, 2002, flowing pressure up to 1480 psi
- Largest pipeline in Gulf of Mexico, flowing pressure up to 2180 psi in the gulf
- Provide 1.31 billion cubic feet of gas per day
  - Enough natural gas to meet electricity needs of over 4.5 million Florida homes

Gulfstream Overview

Who is Sabal Trail Transmission?

- Sabal Trail Transmission, LLC (“Sabal Trail”), a joint venture of Spectra Energy Partners, NextEra Energy, Inc. and Duke Energy, is a 517-mile interstate natural gas pipeline providing transportation services for power generation needs to Florida Power and Light ("FPL") and Duke Energy of Florida ("DEF").
- Sabal Trail is capable of transporting over 1 billion cubic feet per day or more of natural gas to serve local distribution companies, industrial users and natural gas-fired power generators in the Southeast markets.
- Sabal Trail's Phase I facilities were placed into full commercial service on July 3, 2017. The full Phase I capacity of the Sabal Trail pipeline is 830,000 Dth/day over nearly 517 miles of interstate natural gas pipeline. The Sabal Trail pipeline route encompasses four counties in Alabama, nine counties in Georgia and 13 counties in Florida.

Sabal Trail
TRANSMISSION®

HAZARDOUS MATERIAL SYMPOSIUM FLORIDA

Sabal Trail Overview

Sabal Trail Overview

Today's Agenda

- Pipeline Facilities
- Locating Pipelines
- Hazardous Conditions
- Excavator Responsibilities
- Pipeline Personnel

Natural Gas Pipelines

- Transmission pipelines known as the “interstate highway” for natural gas.
- High-strength, large-diameter steel pipe.
- Range in diameter from 3 to 42 inches.
- Safely moves trillions of cubic feet of natural gas from producing regions to market.
- Supply natural gas to local distribution companies, public utilities, and power plants.

Natural Gas Pipelines

- **High-priority subsurface installations** are underground transmission or distribution pipelines used to transport any refined petroleum / hydrocarbon products / gases or hazardous / highly volatile liquids.
- **Positive response code "2C Marked with Exceptions"** is often used if excavation is within 15ft of a high priority subsurface installation.

Compressor Stations

- Gas is transported at high pressure using compression (up to 1480 psi).
- Located approximately every 75 miles.
- Large turbines, motors or engines pressurize the gas and move it through the pipeline.
- 19 compressor stations in Florida.

Compressor Stations

- All compressor stations are monitored – and some are even controlled remotely – by highly trained personnel at a centralized gas control center.
- Compressor stations use a variety of systems to protect the public. Every station has an emergency shutdown system that stops the compressor units and isolates and vents the station gas piping.
- Regulations require that compressor stations periodically test or perform maintenance on the emergency shutdown system to ensure reliability.

Compressor Stations

Meter Stations

- The “city gate” is the point where a distribution company receives gas from a transmission pipeline.
- Local utility reduces the operating pressure and typically adds odorant bringing natural gas service to homes and businesses.

Mainline Valves

- Shut-off devices designed to stop the flow of gas.
- Some are manually operated, while others are either automatic or operated by remote control.
- Located about every 15 miles along the pipeline.
- **Valves should only be operated by qualified company personnel only.**

Lateral Line Block Valve

- Approximately 15 miles apart.
- Allows isolation of pipe section.
- Allows blow down “venting”.

Pipeline Markers

- Transmission pipelines normally follow well-defined easements, and some share the same utility corridor.
- Pipeline markers alert you to the presence of pipeline.
- Markers contain the name of the ***operator, emergency contact information, product and caution***.
- Markers are located near road, rail, fence, water crossings & curbs.
- Markers do not necessarily represent the exact location of the pipeline facilities within the easement.
- Markers or signs should never be removed or relocated by anyone other than company personnel.

Pipeline Markers

HAZARDOUS MATERIAL SYMPOSIUM FLORIDA

Locating Pipelines

- Free service – that we do every day.
- Assists excavators in marking the location of underground pipelines as well as other utilities.
- Notification is required by state law. Failure to notify could result in fines. Requires two (2) full business days notice
- Transmission gas lines are designated: “High Priority Subsurface Installations.”

Sunshine811:
(800) 432-4770 or 811

811 Know what’s below. Call before you dig.

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Natural Gas

Composition

- Natural gas is a naturally-occurring hydrocarbon mixture.
- After processing, it is composed mostly of methane (about 94-98%) and also contains ethane (about 1-4%).

Properties

- ***Non-Toxic***: Natural gas is non-toxic. The fuel is listed as a "hazardous material" due to its flammability, not due to its toxicity.
- ***Lighter than Air***: Natural gas is 40 percent lighter than air. When natural gas escapes into an open area, it rises into the air and dissipates, although gas odorant is heavier than air and may still sink to the ground.
- ***Odorless***: Natural gas is a colorless, odorless substance in its natural state. The smell of rotten egg often associated with natural gas is normally due to an odorant (mercaptan) that is added by the pipeline company or local distribution company.

Natural Gas

Properties

- ***Asphyxiant***: Suffocation can occur if natural gas displaces the oxygen in an enclosed area where it will collect first near the ceiling.
- ***Ignition Temperature***: Natural gas has a very high ignition point - nearly 1200 degrees Fahrenheit. However, static electricity, pilot lights, matches, and sparks from telephones, electric motors and internal combustion engines can easily reach this temperature and ignite natural gas.
- ***Combustion Products***: There are no significant releases of harmful compounds as a result of natural gas combustion. However, incomplete combustion may produce carbon monoxide and warrant the use of self-contained breathing apparatuses by emergency response teams.

Hazardous Conditions

- Due to the large volumes and high pressures, accidents involving natural gas transmission pipelines can be dangerous.
- There are two primary hazardous conditions you should be aware of:
  - → Encroachment (excavation activities)
  - → Rupture

Hazardous Conditions could lead to …

Hazardous Conditions could lead to …

Encroachment

- If you notice excavation near a pipeline right of way, check to see if the contractor has notified the pipeline company or one-call about their work.

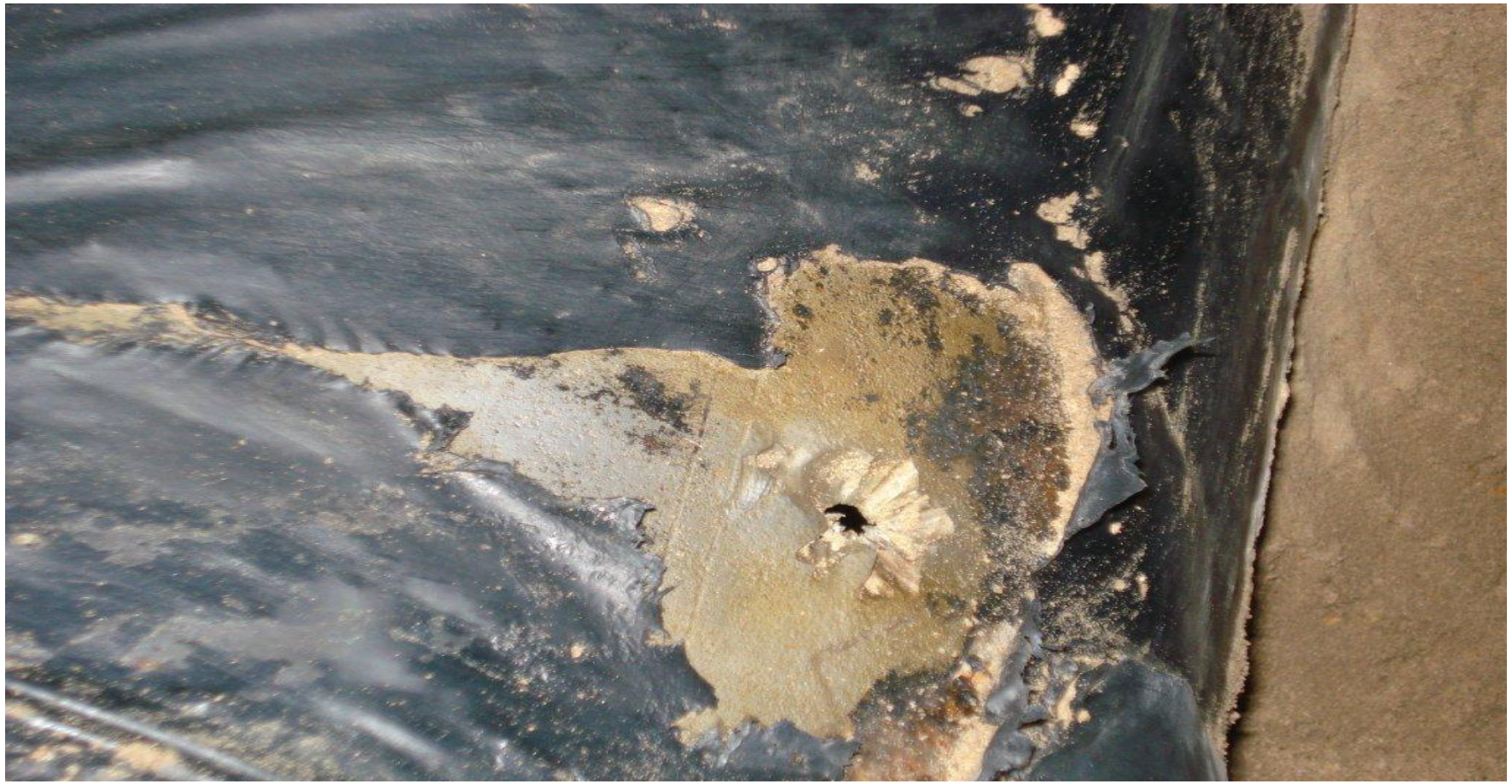
Nearly 2/3 of fatalities involving pipelines are due to damage from outside forces.

Encroachment

Encroachment

Encroachment

Encroachment



Encroachment

Leak(s)

- Odorant is added at only certain places along the pipeline, so you may not always be able to detect a leak by smell.
- Odorant is heavier than air, therefore ***the strong smell of natural gas does not always mean that methane is present***. Always use a detection instrument to determine if natural gas is present.

Leak(s)

- The following signs can be an indication of a natural gas pipeline leak:
  - Dust, water, or vegetation blowing around a pipeline
  - Discolored or dead vegetation near a pipeline
  - A hissing sound
  - Bubbling in a wet area, marshland, river or creek
  - A dry spot in a moist field

Leak(s)

- If you become aware of a leak, look for the nearest pipeline marker and call the emergency phone number listed.

Rupture

- More dramatic indicators.
- Loud ***roaring*** sound of escaping gas.
- Doesn't always lead to a fire, but if it does, the resulting explosion produces large flames burning at high temperatures.
- Fire and emergency officials should be aware of the potential for ***secondary fires*** and disturbed earth in the vicinity of a rupture.

Incident Command Center

The Incident Command System (ICS) is a standardized approach to the command, control, and coordination of emergency response. It is a component of the National Incident Management System (NIMS) in the US, where it is used in all-hazards situations, including HazMat. The Incident Command System comprises five major functional areas: Command, Operations, Planning, Logistics, and Finance/Administration.

Incident Command Center

In response to a pipeline emergency, our focus when an emergency occurs is to secure the safety of the public as well as our assets and equipment.

We are the people on site to handle the gas in a safe manner and supply incident command with information of plans during an incident.

Response

- Park vehicles a safe distance from the incident and turn off engines.
- Clear the area around the site and evacuate people to an upwind location.
- Provide first aid and call for additional emergency medical assistance if needed.
- Barricade the area and keep onlookers a safe distance away.
- Keep roads to and from the site clear for emergency and pipeline personnel.

Response

- Do not attempt to extinguish the gas fire with water or other chemicals ***(high probability of re-ignition and explosion).***
- The best method to control a gas-fed fire is to stop the flow of gas.
- ***Never attempt to operate pipeline valves.***
- Extinguish perimeter fires and wet down exposed flammable areas in the vicinity. Radiant heat from the gas fire is intense and can cover a large area.

Response

Response

Minimum Evacuation Distances

FIGURE 2.3-1 - RECOMMENDED MINIMUM EVACUATION DISTANCES

Pressure (psig)	Pipeline Size (inches)												
	4	6	8	10	12	16	20	22	24	30	36	42
100	91	137	182	228	274	365	456	502	547	684	821	958
200	129	193	258	322	387	516	645	709	774	967	1161	1354
300	158	237	316	395	474	632	790	869	948	1185	1422	1659
400	182	274	365	456	547	730	912	1003	1094	1368	1642	1915
500	204	306	408	510	612	816	1020	1122	1224	1529	1835	2141
600	223	335	447	558	670	894	1117	1229	1340	1675	2011	2346
700	241	362	483	603	724	965	1206	1327	1448	1810	2172	2534
800	258	387	516	645	774	1032	1290	1419	1548	1935	2322	2709
900	274	410	547	684	821	1094	1368	1505	1642	2052	2462	2873
1000	288	433	577	721	865	1154	1442	1586	1730	2163	2596	3028
1100	302	454	605	756	907	1210	1512	1664	1815	2269	2722	3176
1200	316	474	632	790	948	1264	1580	1738	1896	2369	2843	3317
1300	329	493	658	822	986	1315	1644	1809	1973	2466	2959	3453
1400	341	512	682	853	1024	1365	1706	1877	2047	2559	3071	3583
1500	353	530	706	883	1060	1413	1766	1943	2119	2649	3179	3709
1600	365	547	730	912	1094	1459	1824	2006	2189	2736	3283	3830
1700	376	564	752	940	1128	1504	1880	2068	2256	2820	3384	3948
1800	387	580	774	967	1161	1548	1935	2128	2322	2902	3482	4063
1900	398	596	795	994	1193	1590	1988	2186	2385	2981	3578	4174
2000	408	612	816	1020	1224	1631	2039	2243	2447	3059	3671	4283
2100	418	627	836	1045	1254	1672	2090	2299	2508	3134	3761	4388
2200	428	642	856	1069	1283	1711	2139	2353	2567	3208	3850	4492

Source: Pipeline Association of Public Awareness

High Consequence Area (HCA)

A High Consequence Area (HCA) for natural gas transmission pipelines focuses solely on populated areas.

US Pipeline safety regulations use the concept of “High Consequence Areas” (HCAs), to identify specific areas where a leak could have the most significant consequences. Once identified, operators are required to devote additional focus, efforts, and analysis in HCAs to ensure the integrity of pipelines.

Pipeline Personnel

- Trained for pipeline emergencies - can supply you with information regarding the facilities involved in the incident.
- Pipeline response team will stop the flow of gas to the accident site.
- Damaged section is isolated by closing valves on either side of the rupture.
- Any fire will burn itself out once the fuel is consumed and the remaining gas will be ***vented to the atmosphere***.

Coordinated Response

- Pipeline emergencies require coordination of information and resources among the various players in order to safely and efficiently resolve the situation.
- Florida Gas Transmission, Gulfstream Natural Gas and Sabal Trail Transmission system's response protocol are all based on the National Incident Management System.

Things to Remember

- LEL-UEL of Natural Gas is ~ 4%-16%
- Stopping the flow of gas is the BEST method of controlling a gas-fed fire
- DO NOT attempt to operate pipeline valves
- Florida Gas Transmission's 24-Hour Emergency Gas Control Center 800-238-5066
- Gulfstream Natural Gas System's 24-Hour Emergency Gas Control Center 800-440-8475
- Sabal Trail Transmission's 24-Hour Emergency Gas Control Center 888-568-7269
- Always refer to your agency's Policies and Procedures for Emergency Response guidance
- Know what pipelines are operating in your AO

To Learn More

…about pipelines operating in your jurisdiction

- Visit the National Pipeline Mapping System (NPMS) at www.npms.phmsa.dot.gov
- Created by the Department of Transportation / Pipeline
- and Hazardous Material Safety Administration (PHMSA)
- Local and state emergency response officials can access data pertaining to interstate and intrastate gas and hazardous liquid transmission pipelines.

Our Commitment

We are strongly committed to operating a safe, reliable pipeline system. As part of that commitment, we strive to strengthen and expand our relationships with Emergency Responders.

Emergency Preparedness

If you are interested in other training opportunities, please let us know…

- Conducting Safety Meetings on a Regular Basis
- Participating in Table Top Exercises and Mock Drills
- Investigating Incidents, Focus on “Lessons Learned”
- Enhancing Incident Management Training

Emergency Contacts
FLORIDA GAS TRANSMISSION (FGT)

In case of emergency, contact our 24-Hour Gas Control group

1-800-238-5066

Operations

Rick Barrett, South Florida Region
407-468-6851
Rick.Barrett@energytransfer.com

Emergency Contacts
GULFSTREAM

In case of emergency, contact our 24-Hour Gas Control group

1-800-440-8075

Operations

James Villarreal, Operations Technician Lead
941-232-2412 (cell)
James.P.Villarreal@Williams.com

HAZARDOUS MATERIAL SYMPOSIUM FLORIDA

Emergency Contacts
SABAL TRAIL TRANSMISSION

In case of emergency, contact our 24-Hour Gas Control group

1-888-568-7269

Operations

Paul Lanius
407-966-2930 (office)
Paul.Lanius@enbridge.com

HAZARDOUS MATERIAL SYMPOSIUM FLORIDA

Questions?

Thank you for attending. We would be happy to answer any questions you may have.