



Did you know that the gasoline, oil, and natural gas we use every day can originate thousands of miles away? These resources are transported from refineries and natural gas plants to communities all over the nation through underground pipelines. While many forms of transportation are used to move other products to marketplaces, pipelines are the safest, most efficient and economical way to move these natural resources.

**200,000 MILES
OF LIQUID PETROLEUM PIPELINES**

**2.5 MILLION
MILES OF NATURAL GAS PIPELINES**

America depends on an extensive network of pipelines to safely and efficiently move energy and raw materials to fuel our nation's economic engine and almost every activity of everyday life.

These pipelines are the unsung heroes of many utilities – water, sewer, telephone lines, liquid petroleum pipelines and natural gas pipelines – tucked under our streets. They safely go through neighborhoods and communities, stretch across farms, forests, deserts, and everywhere in between. These same pipelines provide fuel to generate electricity and the building blocks for fertilizers to increase crop production.

BUILT TO LAST

Today's oil and natural gas pipelines are made to ensure the safe transport of energy resources for decades to come. America's pipelines are built using proven technologies with the highest quality materials and construction standards under strict adherence to federal, state and local regulations. Pipes are inspected to assure that they meet stringent safety standards before ever leaving the mill. The material, design and manufacturer are selected specifically for their intended location in the pipeline system. This is because specific locations may have different requirements due to varying soil conditions, geographical features or nearby population densities. During the construction phase, the following steps are taken to ensure safety:

- Epoxy-coated, high-grade steel promotes safety and integrity.
- Additional protective coatings are applied to prevent corrosion and minimize leaks.
- X-rays of field welds are taken on-site to ensure integrity after construction.
- Hydrostatic testing (high water pressure) verifies that the pipeline is without defects.

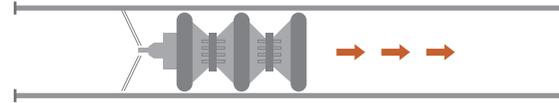


MONITORING AND MAINTENANCE

Oklahoma pipeline companies are constantly improving ways to advance their safety and prevention measures. New technologies are being adopted for monitoring the integrity of pipelines across the state. Aerial integrity management is a progressive technique to measure pipeline integrity via airplane or helicopter. Even drones are being tested in certain areas of the country. RealSense™ technology gathers pipeline information through an airborne remote gas sensing system. This makes early detection of potential threats to the pipeline possible.



Fiber optic monitoring is another way pipeline companies can track the health of a pipeline without disturbing production or the environment. Fiber optic cables are run along side the pipeline to detect early stages of threats to the integrity of the pipeline and are able to efficiently communicate the information.



PIPELINE INTERVENTION GADGET ALSO KNOWN AS “PIG”

A PIG is a maintenance tool used to check pipeline integrity without interrupting the flow of product.

Pigs are launched into the pipeline to clear any debris or buildup by scraping the sides of the pipeline. This process results in a squealing noise – thus the term “pigging.”

A variety of pigs have been developed with more advanced technologies to accommodate the different needs of each pipeline’s size, operating conditions and layout. “Smart Pigs” gather pipeline information and report back to companies data such as: pipeline diameter, curvature, bends, temperature/pressure, corrosion or metal loss. The smart pig transmits this information to operators who then dispatch a crew to fix the problem as needed.

Oklahoma’s oil and natural gas producers play an important role in keeping the nation’s fuel supply flowing both efficiently and safely.

STRINGENT REGULATION REQUIREMENTS

In addition to periodic monitoring, there are a variety of pipeline regulations and laws in place to ensure the safety of Oklahoma communities and the environment. Every pipeline company in Oklahoma reports the integrity of their pipeline on a regular



basis and must abide by meticulous safety guidelines and report any incidents immediately. The Pipeline and Hazardous Materials Safety Administration (PHMSA) sets strict regulatory standards to ensure the shipment of oil and natural gas are handled safely and reliably. Oklahoma pipeline companies comply with all

regulations set by PHMSA to be sure they are protecting the environment in every way possible.

Pipelines will remain a vital part of America's infrastructure for the foreseeable future.

LEARN MORE

Pigging:

http://www.tulsaworld.com/business/energy/squealing-pigs-work-to-keep-pipelines-safe/article_7c78ee77-93d0-5ec6-946e-aaa80e59187c.html

http://www.rigzone.com/training/insight.asp?c_id=19&insight_id=310

<http://oilprice.com/Energy/Energy-General/New-Technology-Could-End-The-Debate-Over-Pipeline-Safety.html>

State and National Regulations:

<http://phmsa.dot.gov/about/agency>

Technologies:

<http://www.synodon.com/partnership-with-us-pipeline-services-company/>

<http://www.gatewayok.com/services/pipeline-construction/>

http://www.fortmorgantimes.com/fort-morgan-local-news/ci_28519098/540-mile-pipeline-gets-ok-pass-through-county

<http://www.omnisens.com/ditest/3411-pipelines-pim.php>