

# The Life of a **Pipeline**

The following is a brief overview of the people and processes involved that allow us to safely develop and produce natural gas and minimize environmental impact

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## Introduction

Modern pipeline construction involves proven work practices deployed over multiple steps. Long before the first shovel of earth is even moved, our employees and contractors are hard at work on the many technical issues to ensure that we have the best construction plan in place.

The following is a brief overview of the processes involved that allow us to safely move natural gas from the wellhead to the marketplace – while minimizing environmental impact.

The Life of a Pipeline

## **Questions and Answers** about Pipeline Construction

National Fuel Gas Company (NYSE: NFG) is a diversified energy company that operates an integrated collection of natural gas and oil assets across five business segments: Exploration & Production, Pipe-line & Storage, Gathering, Utility, and Energy Marketing.

Planning for any pipeline project begins months and even years in advance of actual construction. Initial steps in the planning process include determination of demand from customers, pipeline design, route alternatives and selection, environmental assessments, public consultation, landowner negotiations and regulatory permitting. Once these steps are completed, the construction process begins.

#### Q: What types of pipelines exist in our region and who has oversight?

**A:** Pipelines generally fall into three categories in Pennsylvania: Gathering Systems that may be regulated by the Pennsylvania Public Utility Commission and / or the United States Department of Transportation (Pipeline and Hazardous Materials Safety Administration); Distribution System lines that are under the jurisdiction of the Pennsylvania Public Utility Commission; and Interstate Pipeline Systems that are regulated by the Federal Energy Regulatory Commission and the United States Department of Transportation (Pipeline and Hazardous Materials Safety Administration).

## **Q:** What environmental and safety measures does National Fuel take during pipeline design, construction and operation?

**A:** National Fuel is committed to protecting the environment. With more than 100 years of experience in building and operating natural gas pipelines in Appalachia, National Fuel and its predecessor companies have traditionally worked alongside regulatory agencies to foster a culture of respect for and protection of the environment. We use modern construction and land restoration techniques, and our design meets or exceeds industry standards and federal pipeline safety regulations. Some safety steps include the use of 100% weld x-ray, modern high strength steels, robust pipe coatings, hydrotesting and cathodic protection.

#### Q: What is a right-of-way or easement?

**A:** A pipeline right-of-way (ROW) is the right to use a strip of land that is usually between 50 to 120 feet wide (depending on the proposed project) and that may contain one or more pipelines. National Fuel will use existing ROWs when possible to limit land impacts. The right-of-way is acquired from landowners, other utilities or government entities by obtaining an easement, permit or license. Easements are legal agreements between landowners and National Fuel companies. Landowners retain surface ownership of the right-of-way, and in return for compensation, National Fuel is granted the right to construct, operate and maintain the pipeline along this strip of land.

#### Q: What is eminent domain?

A: Eminent Domain is the power of the state or federal government to utilize private property for public facilities and pay the market value for the affected property. This term generally applies to federally regulated projects (interstate pipelines) and PA public utilities (distribution lines). It currently does not apply to gathering lines.

#### Q: Can I use the land after the pipeline is installed?

**A:** Most landowners will have the same access to their property that they did prior to the pipeline installation, except the easement agreement restricts the building of structures and planting of trees within the permanent right-of-way. There are no restrictions against operating normal farming equipment on the easement. National Fuel will make every effort to accommodate a landowner's individual needs to cross the pipeline easement, dig post holes or excavate.

#### **Q:** Are there any special considerations to protect sensitive areas?

**A:** Underground pipelines exist in many kinds of ecosystems, including under wetlands, rivers, residential and recreational areas in both rural and urban settings. National Fuel deploys best management practices in collaboration with regulatory agencies to avoid long-term impacts to sensitive areas.

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## How National Fuel **BUILDS PIPELINES**

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**1.** After preliminary routing of a proposed pipeline is completed, generally, National Fuel hires third party firms to perform civil, environmental and cultural surveys along a proposed route to understand the impacts of any potential project.

**2.** The company will work with landowners, the community, regulatory agencies, elected limits are marked to prevent accidental officials and other stakeholders to develop a plan that meets our needs and has reasonable impacts.

••••• **3.** Before construction begins, National Fuel will perform final environmental, cultural and civil surveys along the proposed pipeline segment and the corresponding work corridor will be marked with stakes / flagging. This civil survey will ensure utility lines, foreign line crossings, environmental features (wetlands and water bodies), proposed pipeline centerline and work corridor damage during the course of pipeline construction and to provide clear guidance to facilitate the work. In addition, local roads are studied for their ability to provide access to the construction corridor with heavy

equipment. Roads that are capable of sustaining construction traffic are chosen to provide such access. Where required, roads with weight limits may be bonded by National Fuel. In these cases, the appropriate governing officials are contacted and the necessary agreements signed. Pre-existing road damage is documented by videotaping before construction and afterward. Any damage caused by construction is repaired by National Fuel. All private water wells within 150 feet of the construction are tested at National Fuel's expense. They will be retested again after construction to ensure that they have not been impacted.

••••• **4.** Crews begin to prepare for construction by installing temporary erosion control measures, removing trees and other vegetation, and grading the right-of-way to prepare the corridor. Topsoil is removed and segregated in agricultural, residential and most forested areas and carefully stockpiled within the construction work corridor for later restoration.

••••• **5.** Individual joints of pipe are strung along the construction work corridor and placed on temporary supports, called pipe skids. They are arranged so they are accessible to construction personnel. A mechanical pipe-bending machine bends individual joints of pipe to the desired angle at locations where there are significant changes in the ground contour or where the pipeline route changes direction.



**6.** Individual sections of pipe, that had been factory coated to prevent corrosion, are welded together. Each weld is inspected by x-ray and then coated. In some cases, a durable plastic mesh is wrapped around the pipe to protect against debris and rock damage during backfilling and against problems caused by certain soil conditions after pipe installation.

**7.** Excavators and/or trenching machines are used to dig the pipeline trench and the subsoil is temporarily stockpiled within the construction work corridor for careful replacement following the installation of the pipeline.

**8.** The pipe coating is inspected one more time before the pipe is lowered into the trench.

**9.** The pipe is lowered onto sand bags in the trench and verified that it's installed at the proper depth.



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**10.** The trench is then carefully backfilled.

**11.** The pipeline is pressure tested, typically with water, to verify the structural integrity of the pipe and welds before the line is put into operation. The test is performed at a pressure significantly higher than the operating pressure to ensure that the pipeline is fit for the intended service. Tested water is disposed of in accordance with applicable regulations.

**12.** National Fuel's policy is to restore the work area as soon as possible. The right-of-way and workspace is re-graded, any saved topsoil is redistributed across the surface and vegetated according to agency requirements and landowner agreements. Temporary environmental control measures are maintained until the area is restored, as closely as possible, to its original condition.

#### Conclusion:

The construction process usually takes less than two to three months to complete on an individual landowner's property, depending on weather conditions. Throughout the many phases of pre-planning and construction, National Fuel representatives or contractors will work closely with communities and individuals along the route to provide information, seek input and answer questions.

NOTE: These illustrations are conceptual and general in nature; specific construction and restoration techniques could vary depending on circumstances.

### Q: Why is it the right-of-way so wide?

A: The pipeline construction area consists of both temporary work space needed for equipment during pipeline construction and the permanent right-of-way required to operate and maintain the pipeline safely. During construction, additional temporary work space is required beyond the width of the permanent right-of-way to provide room for subsoil, topsoil, pipe welding and two lanes of construction equipment traffic. Landowners will be compensated for the use of any temporary work space in addition to the permanent right-of-way. The amount of temporary work space and permanent right-of way will vary depending on the number, size and type of pipeline, location, community development plans, soil conditions, terrain and regulatory requirements. National Fuel representatives will provide more specific information during discussions with affected landowners.

#### Q: How will construction crews gain access to the right-of-way?

**A:** National Fuel will improve and use existing roads when possible, but in some cases, will create an access road to allow heavy equipment to reach the work location. If additional access is needed, National Fuel representatives will negotiate agreements with landowners and regulatory agencies as necessary.



#### Q: How will I know if a pipeline project is being proposed near me?

**A:** Landowners with property along a proposed pipeline route will be individually contacted by a National Fuel representative via mail and / or in person. Obtaining landowner input and addressing questions early in the process is a priority.

#### Q: Will my land be restored to its original condition?

**A:** We are committed to restoring the property to a level that is compliant with agreements entered into with the landowners and regulatory agencies. The permanent right-of-way must be kept clear of trees to allow for pipeline inspection and maintenance. Some areas are unique and may require special restoration methods. National Fuel representatives will work with landowners throughout the process to confirm that the restoration was completed and/or that the landowner is compensated according to their agreement.

#### Q: Will I be compensated for crop or timber damages?

A: National Fuel will compensate landowners for damage to crops along the right-of-way. Compensation is determined by inspecting the type of crop, area of the right-of-way affected, yield and value based on current market value of the crop. Landowners will be compensated for crop losses using a formula that assumes 100 percent loss during the year of construction. Usually, a third-party forester is used to determine the fair-market value of crops, including timber. The National Fuel representative will then negotiate with the landowner for compensation accordingly.

#### Q: What happens after construction is complete?

**A:** After the pipeline is tested, it is placed into service. National Fuel has a comprehensive pipeline integrity management program that includes regular inspection and preventive maintenance on our pipelines. To allow for regular patrol and maintenance access, rights-of-way will be kept clear of structures, trees and brush. National Fuel will install line markers in close proximity to the pipeline alignment and may install access gates. Periodic mailings are sent to those who own property along the pipeline corridor regarding 811, the national "CALL BEFORE YOU DIG" telephone number and also the 24-hour National Fuel emergency contact information. These periodic mailings are coupled with informational meetings, which are held with first responders and interested stakeholders.



National Fuel Gas Company's midstream operations are carried out by its pipeline, storage and gathering subsidiaries, including National Fuel Gas Supply Corporation, Empire Pipeline, Inc. and subsidiaries of National Fuel Gas Midstream Corporation. National Fuel provides natural gas gathering, processing, transportation and storage services through an integrated system of more than 2,800 miles of pipeline and 31 underground storage fields. We have more than 100 years of experience in building and operating natural gas facilities in Appalachia, and we are committed to safely constructing pipeline systems through proven best management practices to minimize environmental and community impacts.

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