

## Operational Safety

To ensure our pipelines remain in safe and reliable operating condition, we employ a number of techniques – from high-tech monitoring at our gas control centers, to foot patrols of pipeline easements.

### Gas Control

Gas Control, our high-tech computer control center, monitors the flow of gas throughout our approximately 13,000 miles of U.S. pipelines. Staffed 24 hours a day, seven days a week, the center collects data from all of these pipelines so that we will always know what is happening along our system.

In addition to monitoring the flow of the natural gas with the use of Supervisory Control and Data Acquisition (SCADA), we monitor pressures and temperatures as well as the operating status of all the pipeline facilities. Gas Control monitors and reacts to equipment malfunctions, and, when necessary, dispatches our employees who live and work along the pipeline to respond to a malfunction or alarm. As an added safety measure, remote control equipment is installed along the pipeline system, enabling us to operate valves remotely from Gas Control.

### Gas Measurement

We precisely measure the quantity of natural gas when it is received at thousands of points along the pipeline from producers and at interconnections with other cross-country pipeline operators. We also measure the gas when it is delivered to local distribution companies, power plants, large industrial facilities, and at interconnections with other cross-country pipeline operators. We also constantly sample the natural gas at many sites to identify potential corrosive components and to ensure the high standard of quality is maintained.

### Compressor Station Operations

As natural gas flows through a pipeline, the pipeline pressure will decrease due to friction and elevation differences. To maintain pipeline flow and pressure, compressor stations are located every so often along the pipeline route. Our experienced and well-trained employees operate over 100

compressor station sites around the clock – with nearly two million horsepower in the United States.

### Painting of Aboveground Facilities

Aboveground pipeline facilities are routinely painted to inhibit corrosion. This corrosion could affect the integrity of the facilities. Painting our aboveground facilities also makes them more visible.

### Corrosion Protection

Providing the pipeline and related facilities with protection from corrosion is an important task for us. Corrosion is a significant factor that can impact pipeline integrity.

### Rectifiers

Rectifiers are devices that transfer a regulated amount of current flow to the pipelines. Rectifiers receive electric current from AC sources like the power lines that come to your home. We check all rectifiers along the pipeline system every two (2) months to ensure they are operating properly.

### Routine Current Monitoring for Cathodic Protection

Proper electric current flow along the surface of a pipeline impedes corrosive activity and prolongs the useful life of pipelines for many decades. The amount of current applied to the pipelines is harmless to humans, animals, and other forms of life. We monitor the current level on the pipeline at thousands of locations every year.

### Above/Below Ground Coating Maintenance

Pipeline facilities above and below ground are protected by a coating applied under very exacting conditions. Routine visual inspection of all above ground facilities is conducted to determine if any coating damage or deterioration has occurred, and, if so, to repair the coating. When underground pipeline facilities are exposed, usually due to excavation or maintenance activities, we always inspect the coating for damage or deterioration.

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## **Internal Pipe Maintenance**

Maintenance of the inside of the pipeline is as important to a prudent natural gas pipeline operator as the maintenance of the outside. We perform internal pipeline maintenance using a number of proven methods.

### **Cleaning**

Our pipeline facilities are cleaned to minimize internal corrosion and maintain high flow efficiencies ensuring reliability of delivery. Cleaning is conducted using devices called “pigs” that remove liquids and debris from inside the pipe. The vast majority of the company’s pipelines are configured to allow this type of pigging to occur.

### **Inline Inspection**

Our pipelines pioneered many of the inline inspection techniques in use in the industry today. These inline inspections are performed with “smart pigs” – mechanical tools – that enable us to examine the pipelines from the inside. Smart pig inspections provide us with valuable information, locating possible internal and external corrosion or other irregularities of the pipeline, so they can be monitored and repaired as needed.

### **Ground Surveys**

We patrol pipeline easements in populated areas and some other areas of interest on foot. Ground surveys can reveal leaks and other potential problems, enabling us to quickly repair the problem and minimize the impact.

### **Leak Surveys**

We perform leak surveys on all of our facilities on a routine basis. Leak surveys look for fugitive emissions of natural gas so we can take action to eliminate them. Many miles of the pipeline are surveyed with ground survey techniques and aerial patrol is also used. Our records show that natural gas leaks rarely occur on our pipelines.

### **Aerial Patrols**

Company planes conduct aerial patrols of the main pipeline rights-of-way at least once a week (in some places, as often as three times a week). Aerial patrols provide a bird’s-eye view of the pipeline and surrounding community. The pilots look for ground changes, construction activities, or other conditions that could affect the pipelines.

## **Waterway Inspections**

Locations where the pipeline crosses waterways are inspected at the surface every year by our employees to check for bank erosion, visible pipeline exposure, and natural gas leaks indicated by bubbles. Many waterway crossings are inspected at the bottom of the waterway each year by contract divers under our direction. These divers determine if the pipeline is adequately covered. If the pipeline does not have adequate cover, any coating damage is repaired and the pipe is re-covered with grout bags or other suitable material.

### **Right-of-Way Maintenance**

Right-of-way maintenance is important to us because it makes the location of our pipelines clearly apparent to the public and to any other individuals that might consider excavation in the area.

### **Mowing**

Mowing and clearing the right-of-way allows us to patrol the area by ground and air to discover activity that could lead to pipeline damage. It also allows the company to easily discover leaks and natural earth movement that could lead to damage of the pipeline facilities.

### **Sign/Marker Maintenance**

We place markers and signs along the pipeline right-of-way to inform the public of the presence of the natural gas pipelines. The markers are placed at road crossings, railroad crossings and other significantly visible points along the right-of-way to reduce the possibility of damage to or interference with the pipelines. In densely populated areas, we frequently place the markers within “line of sight” proximity – this means the markers are so close together that you can see from one marker to the next. Signs are placed where the pipelines cross major waterways. The markers and signs include our name and the phone numbers to call if any abnormal condition or suspicious activity is detected that would threaten the integrity of the pipeline.