

**EXHIBIT NO. \_\_ (SML-7)**  
**DOCKET NO. PG-041624**  
**WITNESS: SUSAN MCLAIN**

**BEFORE THE  
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,**

**Complainant,**

**v.**

**PUGET SOUND ENERGY, INC.,**

**Respondent.**

**Docket No. PG-041624**

**SIXTH EXHIBIT TO THE PREFILED DIRECT TESTIMONY OF  
SUSAN MCLAIN (NONCONFIDENTIAL)  
ON BEHALF OF PUGET SOUND ENERGY, INC.**

**AUGUST 15, 2005**

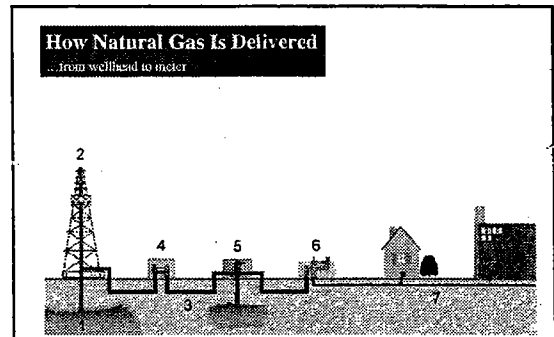
## Natural Gas Safety Frequently Asked Questions

### 1. Where does natural gas come from?

Natural gas is a combustible fossil fuel composed almost entirely of methane. It is found in deep **underground reservoirs (1)** formed by porous rock. From the **wellhead (2)**, natural gas can be transported thousands of miles through large-diameter **interstate pipelines (3)**.

### 2. How does natural gas get to a home or business?

Along the interstate pipeline, **compressor stations (4)** are located every 50 to 60 miles to restore gas pressure lost through friction. Natural gas often is stored in large underground **reservoirs (5)** to help meet spikes in demand. Gas eventually reaches a **city gate station (6)**, where it is metered and delivered to customers through a **distribution network (7)** of local gas mains, small-diameter service lines and, ultimately, customer meters.



### 3. Why does natural gas have such a strong odor?

Natural gas, on its own, is colorless and odorless. What you smell is a harmless but sour-smelling odorant called "mercaptan" that utilities inject into natural gas at the city gate stations to make it easily and quickly noticeable if a leak occurs.

### 4. What do I do if I smell natural gas in or around my home or business?

If you smell natural gas or have other reason to suspect a gas leak, quickly **alert everyone in or near the dwelling of the potential danger, evacuate the immediate area, and call 911.**

Here are some other important safety tips if you smell natural gas:

- Immediately extinguish all open flames, such as candles, cigarettes, kerosene lamps, and heaters.
- While evacuating, don't touch any light switches, don't use the phone (call 911 from a neighbor's phone), and don't use a flashlight as you leave. Avoid any actions that could cause a spark.
- Stay away from the area until emergency personnel arrive to make conditions safe.

### 5. Are all gas-distribution lines made of steel?

No. Originally, cast iron commonly was used because of its excellent resistance to corrosion. Steel generally replaced cast iron in the 1950s because of its strength and flexibility. In the late 1950s, gas companies began using wrapped steel to help prevent pipe corrosion. For the past 30 years, plastic pipe has become the material of choice for low-pressure service lines because it is strong, flexible, and corrosion-resistant.

### 6. How long do gas lines normally last? How often do they need replacement?

Unless they're somehow damaged, gas lines will perform safely for many decades – even longer. In urban areas, PSE and other utilities have replaced most of their original cast-iron gas lines because steel and plastic pipe can operate safely under higher pressures, and thus serve more customers. (PSE will complete the replacement of all its cast-iron pipe by the end of 2007.) At any time, if there is concern over system safety, the equipment in question is promptly repaired or replaced.

### 7. What makes a gas line leak?

Most leaks result from construction contractors, homeowners, or others accidentally damaging a line while excavating. (People are required by law to notify utilities before digging more than 1 foot deep into the ground. An important step for your safety is to make a line-location appointment before digging: call 1-800-424-5555.) Severe corrosion of a gas line can also cause a leak.

**8. Is there a way to slow or prevent the corrosion of metal gas lines?**

Yes. Special coatings on the outside of buried metal pipes help to prevent corrosion. In addition, PSE and other utilities use various "cathodic protection" methods to block the electrochemical reaction between steel pipe and surrounding soil that causes oxidization, or rusting.

**9. How does cathodic protection work?**

There are two basic methods of cathodic protection: the "galvanic anode" (or sacrificial anode) system, and the "impressed current" (or rectifier) system. Both systems cause a direct current of electricity to flow onto the pipe – from either the sacrificial anode or the rectifier. A sufficient flow of DC current on the pipe reduces corrosion. The rectifier's current reverses the electrochemical reaction that can corrode the pipe surface in contact with surrounding soil. The sacrificial-anode system, meanwhile, involves burying certain metals (magnesium, for example) near the gas line. A wire connects the anode electrically to the pipe. Current flows onto the pipe from the anode (similar to the rectifier-system process). The anode then corrodes – or "sacrifices" itself – to protect the pipe.

**10. Do all the gas lines serving PSE customers have cathodic protection?**

No, most but not all PSE gas lines have cathodic protection. The purpose of cathodic protection is to protect steel pipes from corroding. Although PSE has steel pipelines that are protected by some type of cathodic protection, we also have plastic (polyethylene) gas lines that do not require cathodic protection at all. Approximately 97 percent of PSE pipelines that serve homes and businesses are either plastic or cathodically protected steel. The remaining 3 percent are metallic pipelines made of a material that doesn't require cathodic protection to be safe.

**11. How often does PSE inspect its gas-distribution system?**

In accordance with federal and state law, PSE uses sophisticated electronic equipment to inspect *every* neighborhood's gas system – block by block, and house by house. Areas with cast-iron and bare-steel lines are surveyed, at minimum, every 6 months. Areas with high-occupancy structures, business districts, or gas-transmission mains are surveyed annually. Cathodically protected steel and plastic gas lines are surveyed every 5 years, at minimum. In addition, the cathodic-protection systems themselves are inspected, depending on their type, anywhere from every two months (e.g., rectifiers) to every 10 years. Moreover, during the course of daily activities, PSE technicians and other field employees monitor the gas system for anything out of the ordinary, including construction activity in the vicinity of gas lines.

**12. When did PSE last inspect its gas system in southeast Bellevue?**

The last *scheduled* inspection was in 2002. Immediately following the September 2 house fire, however, PSE performed a house-by-house inspection of the approximately 2,600 gas customers in the affected neighborhood. A second complete survey was done in late September. Moreover, further surveys of the entire area will be conducted every 30 days until a definitive cause for the fire is found and PSE, state regulators, and the Bellevue Fire Department are certain that no other remediation steps are needed.

**13. Should customers check their own buried gas lines for leaks or corrosion?**

No! Digging above or around buried gas lines can damage or break the lines (or their protective wrap) and create a hazardous condition for property owners. If you smell natural gas in or around your home or business, you should leave the property immediately and call 911. Please do not attempt to uncover or repair gas lines! Also, never try to fix a leaking natural gas pipe inside *or* outside your home, and never try to extinguish a natural gas fire yourself; leave your property immediately and call 911.

**14. Who regulates the safety standards of natural-gas utilities?**

The Washington Utilities and Transportation Commission (WUTC) regulates gas distribution companies through a certification with the U.S. Department of Transportation, Office of Pipeline Safety. The WUTC regulates local distribution companies through state gas-safety laws and has adopted the federal standards. PSE's gas-operating standards not only reflect all federal and state regulations, but also contain additional safety requirements.