Overview

This document provides the proper procedures for responding to gas pipeline production fluid leaks.

Governing Document

Utility Standard S4710, "Gas Pipeline Production Fluid and Liquid: Leak Response and Contaminated Soil Handling Requirements," dated December 2007.

Safety

Production fluid and pipeline liquid constituents can enter the body by absorption (through skin contact), inhalation (breathing vapors), or ingestion (as a result of swallowing). Control employee exposure to these elements by training employees in the proper use of personal protective equipment (PPE) before they perform work that requires such equipment.

Material Safety Data Sheets (MSDS) for chemical additives are available by phone from the producer. The MSDS for natural gas condensate (production fluids) is available from Pacific Gas and Electric Company (the Company).

When responding to pipeline leaks, employees must follow all applicable precautions and requirements described in Utility Standard Practice (USP) 22, "Safety and Health Program," and the *Code of Safe Practices*.

Only trained and qualified Company employees are authorized to perform these procedures.

Pipeline Leak Response Procedures

1. Pipeline Leaks – Initial Notification and Assessment

If a pipeline leak is suspected or known to have occurred, take the following actions:

A. Notify the District Operating Supervisor

If necessary, the district operating supervisor establishes an incident command center in accordance with Gas Emergency Plan – Part III, *Gas Emergency Quick Reference Handbook*, "Levels of Emergency."

B. Check Combustible Vapor Level

A person trained to use air quality monitoring instrumentation must use a GasTech combustible gas meter (or comparable instrument) to check the combustible vapor levels in the vicinity of the fluid leak to determine whether the leak can be approached safely.

Do not approach the leak if combustible vapors exceed 20% of the lower explosive limit (LEL) or if oxygen is displaced to below 19.5%. Use an explosion-proof fan to ventilate combustible vapors.

Do not proceed with work if the combustible vapors cannot be reduced and/or oxygen cannot be replenished.

If a confined space situation exists, follow the guidelines in UO Standard S-4414, "CGT Confined Space Entry Program."

C. Secure the Leak Site

Secure the area with barricades. Post a sign on each side of the barricade to warn personnel of the hazards.

The district operating supervisor, in consultation with the Gas Control department, determines if the leak is severe enough to warrant a shut down of the line.

D. Assess the Leak

When it is safe to do so, properly trained personnel must approach the area to mitigate or contain the leak and assess the extent of the release. Proper training includes: (1) general awareness training about the proper handling of hazardous materials and hazardous wastes; and (2) hazard communication training that specifically covers production fluids and pipeline liquids. (See UO Standard S-4710, "Gas Pipeline Production Fluid and Liquid Leak Response and Contaminated Soil Handling Requirements," for employee training requirements).

If possible, estimate the volume of production fluid or pipeline liquid released. Estimate volumes by observing the area of stained soil or the quantity of liquids present in holes or puddles in the vicinity of the leak.

Assess the extent of environmental impact, if any, by noting stains on the ground, signs of stressed vegetation, or visible hydrocarbon sheen on water.

Contact the appropriate Gas Engineering field personnel as soon as possible to communicate the following information:

- Location of the fluid leak or release.
- Any injuries or safety concerns.
- Any action taken to mitigate the leak.
- Cause of the leak.
- Material involved (production fluids or pipeline liquids).

- Date and time the leak occurred (if known).
- Date and time the leak was discovered.
- Name of the person who discovered the leak.
- Estimated volume of liquid released.
- Estimated volume of soil affected.
- Any other observations of environmental impact (water, vegetation, etc.).
- Agencies notified.

Contact Environmental Field Services (EFS) for assistance in making required regulatory agency notifications. A list of EFS group contacts is located at: http://uo/ssos/ENV/FieldServices / under the Environmental Field Specialist Phone List link.

2. Air Quality Monitoring

Before beginning pipeline repair work or removing contaminated materials, perform air quality testing to ensure that the work area is safe to enter. Repeat testing every 15 minutes until air quality hazards are eliminated.

If the line is dry (no production fluids or pipeline liquids are present), test the air quality for:

- Upper explosive limit (UEL)
- Lower explosive limit (LEL)
- % oxygen (if a confined space potential exists)
- Mercury

If production fluids or pipeline liquids are present, test the air quality for:

- Upper explosive limit (UEL)
- Lower explosive limit (LEL)
- % oxygen (if a confined space potential exists)
- Petroleum hydrocarbons
- Benzene
- Mercury

If petroleum hydrocarbons are at or below the permissible exposure limits (PELs) of 300 parts per million (ppm), the PELs for toluene, ethylbenzene, and xylene are not exceeded, and it is not necessary to test for these compounds.

Air quality monitoring instrumentation capable of detecting UEL, LEL, and oxygen (such as GasTech monitors) are available at district headquarters.

Note: Special air quality monitoring equipment is required to test petroleum hydrocarbons, benzene, and mercury.

To test for these constituents, contact the Technical and Land Services (T&LS) Chemistry section at: Company number 8-251-5223, outside number (925) 866-5223; or Company number 8-251-5421, outside number (925) 866-5421.

3. Pipeline Repairs

Before proceeding with pipeline leak repairs, obtain the gas district operating supervisor's authorization.

A. Air Quality

Check the air quality in the area around the leak to make sure it is safe before beginning repair work. Recommended monitoring parameters include LEL, UEL, benzene, hydrocarbon vapor, and mercury (see Section 2, "Air Quality Monitoring" above). Do not begin repair work until the threat of fire and explosion is eliminated. Employees are not required to work in areas where air quality monitoring parameters are above their respective PELs unless they are qualified to wear and equipped with proper respiratory protection.

B. Welding Precautions

Perform air quality monitoring before beginning welding operations. **Do not** perform welding if: (1) combustible vapors equal or exceed 20% of the LEL as indicated by a properly calibrated air quality monitoring device; or (2) PELs for benzene, hydrocarbon vapor, or mercury are exceeded and the welders are not qualified to wear, or are not equipped with proper respiratory protection. Provide welders wearing respirators with frequent breaks (15-minute work intervals are recommended). Use a welding exhaust unit to remove fumes or vapors that may accumulate during welding operations.

Welders must wear protective leather clothing to reduce clothing penetration from weld slag. Place clean dirt, sand, or other non-flammable material below the welding area to prevent the slag from melting the plastic sheeting used to line the excavation trench.

C. Removing Groundwater

If necessary, pump groundwater from the trench into a portable tank during repairs. If the groundwater is known or suspected to contain hydrocarbons, contact a member of the EFS group for proper disposal instructions.

4. Environmental Field Services Contacts

Contact at least one of the EFS employees in the list located at the following web address: http://uo/ssos/ENV/FieldServices / under the Environmental Field Specialist Phone List link if either of the following conditions exist:

- A production fluid or pipeline liquid leak or release involves a Company gas pipeline or facility.

- Management of contaminated materials and waste associated with a leak or release is necessary.

The individuals listed in the EFS contacts list are also available to answer questions regarding this procedure and the management and handling of gas pipeline production fluids and pipeline liquids.

Note: Report leaks or releases involving gas transmission piping or facilities maintained or operated under a Memorandum of Understanding (MOU) to EFS personnel.

5. Gas System Maintenance Notifications

Notify the appropriate Gas Transmission and Distribution (GT&D) area superintendent in the event of a gas production fluid or pipeline liquid leak or release as follows:

Title	Company Phone	PTT Phone	Pager
Gas Transmission Northern Area Superintendent	[redacted]	[redacted]	[redacted]
Gas Transmission Southern Area Superintendent	[redacted]	[redacted]	[redacted]

Definition of Terms

LEL: Lower explosive limit

PEL: Permissible exposure level

UEL: Upper explosive limit

Recision

This is a new work procedure.

Reference Documents

Code of Safe Practices

Gas Emergency Plan – Part III, *Gas Emergency Quick Reference Handbook*, "Levels of Emergency"

UO Standard S 4414, "CGT Confined Space Entry Program"

UO Standard S 4710, "Gas Pipeline Production Fluid and Liquid: Leak Response and Contaminated Soil Handling Requirements"

Utility Standard Practice (USP) 22, "Safety and Health Program"

Work Procedure WP4710-02, "Contaminated Soil and Material Handling Procedures" – *Expected publication 2008*

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Date Issued March 2008

Approved by [redacted]
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Revision History

Chg No.	Date	Description	By (LAN ID)
01	August 2007	This work procedure was created from information extracted from Recommended Practice RP4710, "Production Fluid/Pipeline Liquid - Leak Response and Contaminated Soil Handling Procedure," which has been revised.	[redacted]