

# Issues in Distribution Pipeline Safety, Security and Surveillance, Part 2B

## Leak management, investigations and data reporting

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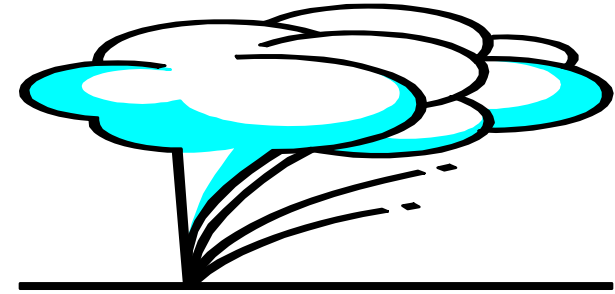
Oklahoma City, Oklahoma USA

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New Delhi, India



Presentation 5, Issues in Distribution Pipeline Safety, Security and  
Surveillance, Part 2B - Leak management, investigations and data reporting



# Distribution Systems: Leakage Surveys and Procedures



# LEAKAGE SURVEY

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**Reasons for conducting "leak surveys":**

**CODE REQUIREMENTS**

**Section: 192.723**

**OTHER REASONS**

**Unaccounted for gas**

**Incident or failure**

**Leak Complaint**



**NOTE: All Reported Leaks Must Be Investigated!!!!**

# LEAKAGE SURVEY

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## *Warning signs of a leak:*



**ODOR**



**VEGETATION**



**INSECTS (flies, roaches, spiders)**



**FUNGUS-LIKE GROWTH**



**SOUND**



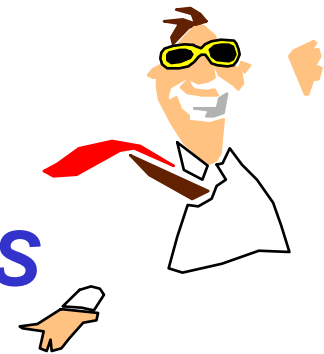
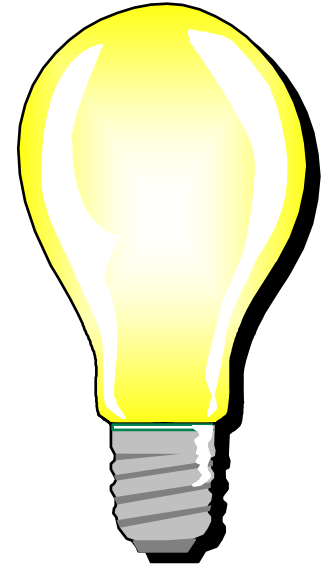
**UNACCOUNTED FOR GAS**



**SOAP BUBBLES**



**LEAK DETECTION INSTRUMENTS**



# 192.723 Distribution Leakage Surveys

- (a) Requires Periodic Leakage Surveys
- (b) Leakage Control Program determined by the Operator but meet **minimum requirements** of:
  - (1) Leak Survey with **Leak Detector equipment** must be conducted in business districts...at intervals **not exceeding 15 months**, but at least **once each calendar year**.

# 192.723 Distribution Leakage Surveys

- (b)(2) Leak Survey with **Leak Detector equipment** must be conducted outside business districts as frequently as necessary, but at least once every 5 calendar years **not exceeding 63 months**

# 192.723 Distribution Leakage Surveys

- However, for cathodically unprotected distribution lines subject to 192.465(e) on which electrical surveys for corrosion are impractical, a leakage survey must be conducted at least once every 3 calendar years at intervals not exceeding 39 months.

# 192.723 Distribution Leakage Surveys

- Section IV Small Operator Handbook
- Table 3A-Leak Classification and Action Criteria on page IV-15
- Grade 1 leak requires immediate repair or continuous action until conditions are no longer hazardous
- **WHERE ?**

# 192.723 Distribution Leakage Surveys

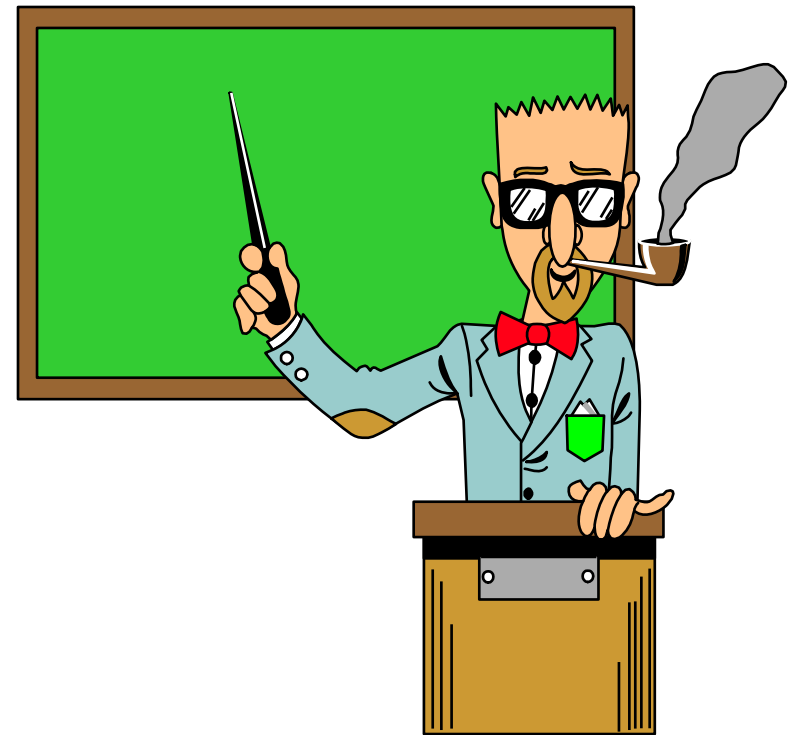
- **W**here is the gas? (Use a detector to confirm gas is present)
- **H**ow much is there? (Take readings on the CGI)
- **E**xtent of the spread? (Determine the migration pattern)
- **R**elation to other structures? (Is gas detected in or near buildings or in manholes?)
- **E**valuate/evacuate? (Classify the leak and take appropriate action)

# Grading Criteria

GPTC

(Gas Piping Technology Committee)

Company defined



# O & M Requirements

- Manual should specify:
  - Type of survey
  - Frequency of surveys
  - Frequency of equipment calibration
  - Recordkeeping
  - Grading criteria
  - Implementation of emergency procedures

# THE FOUR DIMENSIONS OF GAS LEAK CLASSIFICATION

# EXTENT

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Where is the Gas migrating?

This is the most important criterion in evaluating an underground leak.

# LOCATION

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Is it Downtown  
(Business District),  
Residential,  
or in a rural area?

# PERCENTAGE

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The reading taken from the CGI.  
In the classification process, the location and migration of the gas leak is more critical than the quantity of gas.

# EVALUATION

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Consider the:

- Extent
- Location
- Percentage of gas

# ***LEAK DETECTION EQUIPMENT***

# Equipment

- Flame Ionization Units (FI)
  - Designed as search instruments.
  - Detection levels in PPM.



# Equipment

## Combustible Gas Indicator (CGI)



# Gas Sentry



# *Sensit*



# *Gas-Trac*

*Equipment used must be able to detect all leaks*

