



# **CPUC Public Agenda 3276**

**Thursday, June 23, 2011, 9:00 a.m.**  
**505 Van Ness Ave, San Francisco**



**Commissioners:**  
**Michael R. Peevey**  
**Timothy Alan Simon**  
**Michel Peter Florio**  
**Catherine J.K. Sandoval**  
**Mark J. Ferron**

[www.cpuc.ca.gov](http://www.cpuc.ca.gov)





# CPSD Utilities Safety and Reliability Branch



***Raymond Fugere, Program and Project Supervisor***

**California Public Utilities Commission**

June 23, 2011





# Presentation Overview

- Definition of Reportable Incidents
- Basics of Incident Investigations
- Types of Underground Equipment
- Underground Explosion Investigation Procedures
- Utility and USRB Actions





# Incident Reporting Requirements

Incidents are events that involve electric facilities and result in either:

- Overnight in-patient hospitalization
- Death
- \$50,000 worth of damage
- Significant media attention

Within 2 hours of a reportable incident during normal working hours or within 4 hours of a reportable incident outside of normal working hours, the utility shall provide notice to designated CPUC staff of the general nature of the incident, its cause and estimated damage





# Basis of Investigations

- Compliance with Commission General Orders 128 and 165
- Compliance with the Public Utilities Code
- Failure to follow acceptable industry standards
- Failure to follow company's procedure/policy
- Failure to follow other agencies safety requirement





# Type of Underground Structures

- Underground Vaults
- BURD (Buried Underground Residential Distribution)
- Padmounted Structures
- Handholes
- Manholes
- Walk-in Vaults
- Above Ground Enclosures





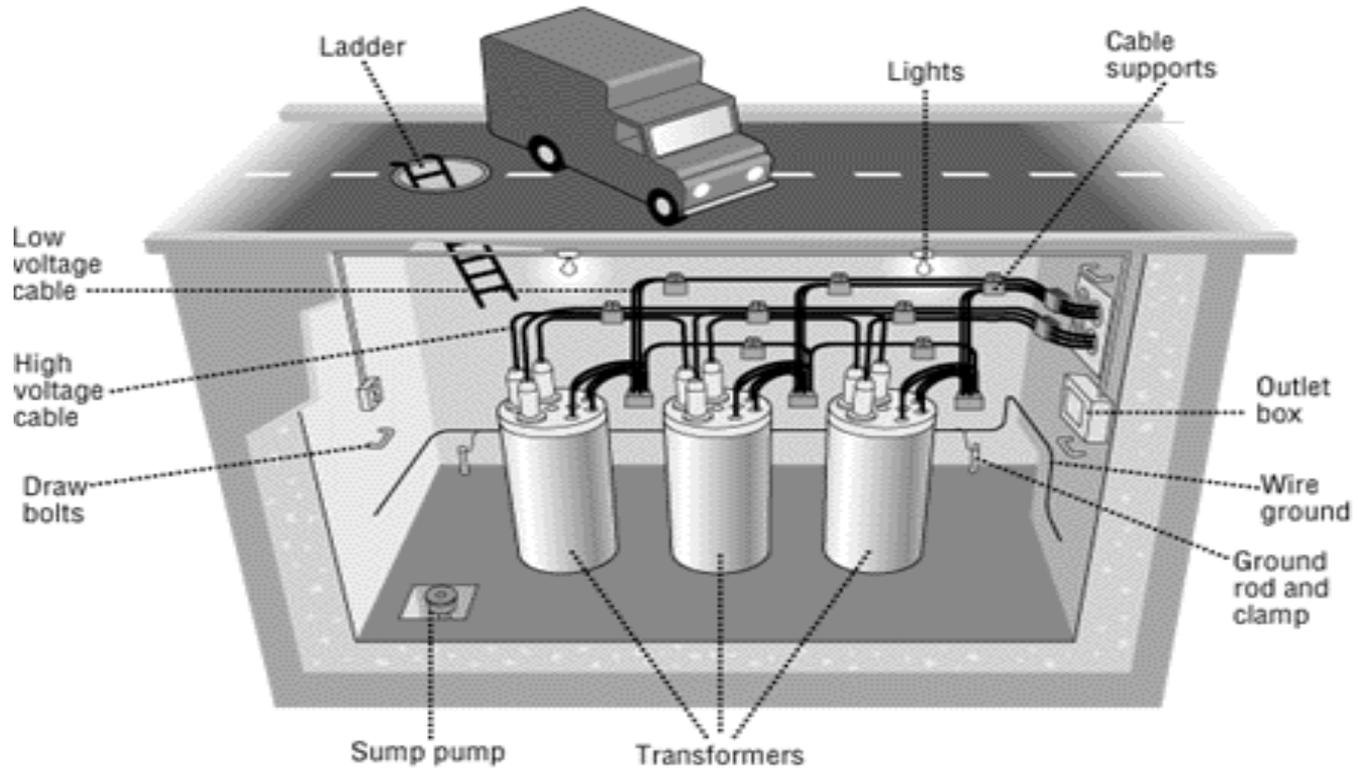
# Underground Equipment

- Cover
- Ladder
- Transformers
- Switches (oil or gas)
- Conductors
- Ground Rods
- Racks
- Capacitors
- Breakers
- Fuses
- Blowers
- Sump Pumps
- Elbows
- Light Fixtures
- Other Hardware





# Typical Underground Vault





# Typical Handhole





# BURD Structures





# Typical Padmounted Structures





# Investigation of Underground Electric Facilities Failures and Explosions





# Underground Explosion Investigation Procedure

## Field Work

- Immediate contact with the utility
- Meet with the utility representative at the site
- Interview Utility's personnel
- Interview witnesses who observed the incident
- Take pictures of the site and facilities (equipment, conductors,...)
- Examine evidence (transformers, conductors, switches,...)

## Office Work

- Review and analyze construction and maintenance records
- Review and analyze inspection records
- Review the utility's response to the incident
- Generate data requests as necessary
- Arrange to interviews of utility's personnel as needed (including the utility's employees who actually did the last inspection)





# Utilities Actions To Prevent Underground Electric Facilities Failures and Explosions

- Conduct inspections
  - Visual
  - Thermal
  - Oil sampling
- Examine trends of outages
- Prioritize replacement of equipment
  - Transformer replacement program
  - Condition-based maintenance programs
- Venting manhole cover program
- Developing methods to improve field identification of cables needing replacement





# USRB Actions

