



# EPRI's SF<sub>6</sub> Program

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Ben Damsky


EPRI

[bdamsky@epri.com](mailto:bdamsky@epri.com)

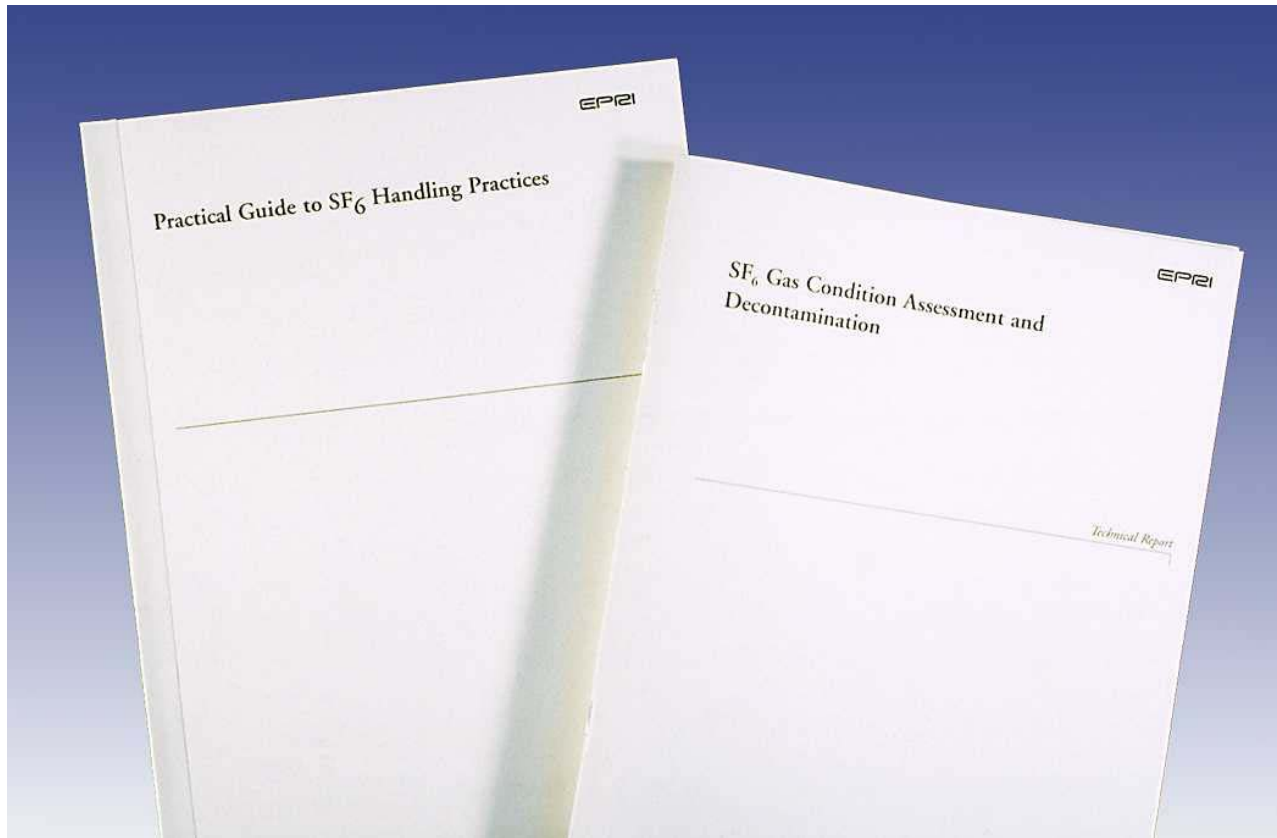
(650) 855-2385

Fax -8997

# EPRI's Role

- 
- Bringing technology to utilities to help in any aspect of the handling of SF<sub>6</sub>
  - Developing suggested procedures for safe and effective handling of SF<sub>6</sub>
  - Offering inspection services at utility sites

# EPRI Reports



# SF<sub>6</sub> Management Reports



- Reports available from EPRI Report Center  
(800) 313-3774
- Practical Guide to SF<sub>6</sub> Handling Practices:  
TR-113933
- SF<sub>6</sub> Gas Condition Assessment & Decontamination:  
1000131

# Sample Contents of Handling Guide

5

## HANDLING PROCEDURES .....

### 5.1 Commissioning of Equipment

1. Gas Handling Apparatus
2. Filling with SF<sub>6</sub> from a Gas Handling Apparatus
3. Filling or Topping Up with SF<sub>6</sub> from a Cylinder


### 5.2 Maintenance of Equipment

1. Normal Maintenance Functions
2. Decontamination

### 5.3 Test Procedure for SF<sub>6</sub> Gas

1. SF<sub>6</sub> Gas Content Measurements
2. Moisture Content Measurements
3. Oxygen Content Measurements
4. On Site SF<sub>6</sub> Decomposition Product Detection

# Workshops on SF<sub>6</sub> Practices

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- Four EPRI workshop on handling methods:  
New York, Fort Worth, Birmingham, Raleigh
  - Includes presentations and discussions
  - Minutes posted on EPRI's web site

# Laser Camera in Lab



# Field Trial First Generation Camera





# Field Trial Second Generation Camera



# Alternative Technology?



Planned for 2001:

Comparison of the sensitivity of laser camera  
with FTIR camera

Use calibrated leaks

Try different distances

**EPRI/Powertech  
detector for SF<sub>6</sub>  
decomposition  
products**



# Features of Gas Quality Detector

Field portable, battery operated

Flow rate: 100 mL/min.

Response time: <1 min.

Warm up time: 1 min.

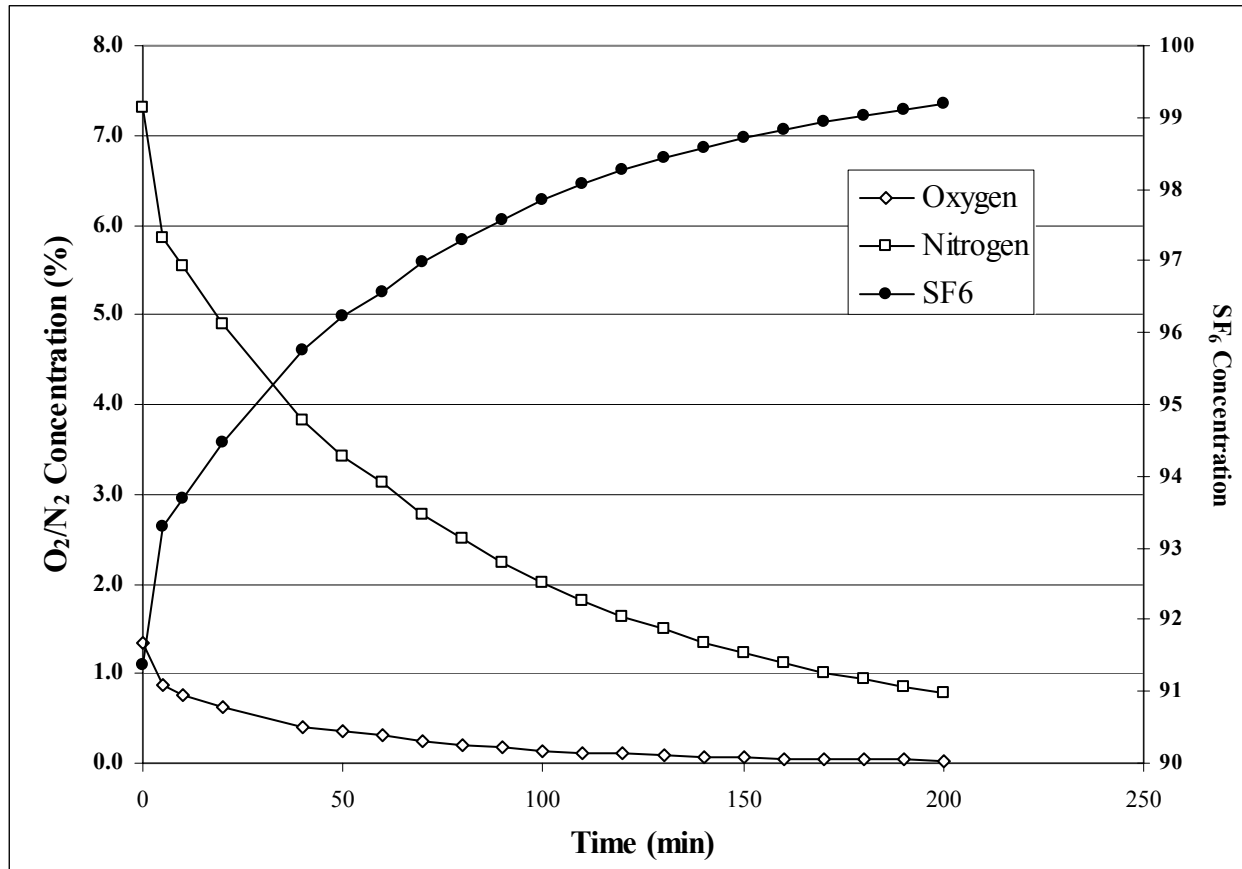
Detection limit: 1 ppmv  $\text{SO}_2$ ,  $\text{SF}_4$

Limited response to:  $\text{SO}_2\text{F}_2$ , COS,  $\text{SOF}_4$

Lab test of purification or recovery of SF<sub>6</sub> mixed with air



# Performance of Membrane Separator



# Research on New Gas

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- $\text{SF}_5\text{CF}_3$  has been reported in atmosphere
  - EPRI is funding Powertech Labs to make tests
  - Initial work indicates circuit breakers not source