

# Petroleum Vapor Release Inspection: Assessment of PVR Sources

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Andrew Shively  
VT Dept of Environmental Conservation  
[andy.shively@anr.state.vt.us](mailto:andy.shively@anr.state.vt.us)

# Presentation Goals

- Provide a approach for assessing petroleum vapor releases (PVRs) from UST features.
- Present examples of features that are contributing sources in PVR scenarios.
- Promote inspection diligence for and preventative measures of PVRs.

# UST System Features

(What leaks and why)

- What
  - Tank top and tank top connections
  - UST risers, caps and fittings
  - UST Vent and Stage II piping
- Why
  - UST ullage system pressurization
  - Installation
  - Operations and Maintenance

# System Features



# Effects

- VOC Impact to sensitive receptors
- Emergency response
- Additional investigation
- Extended monitoring
- Remedial inefficiency
- UST System deficiencies

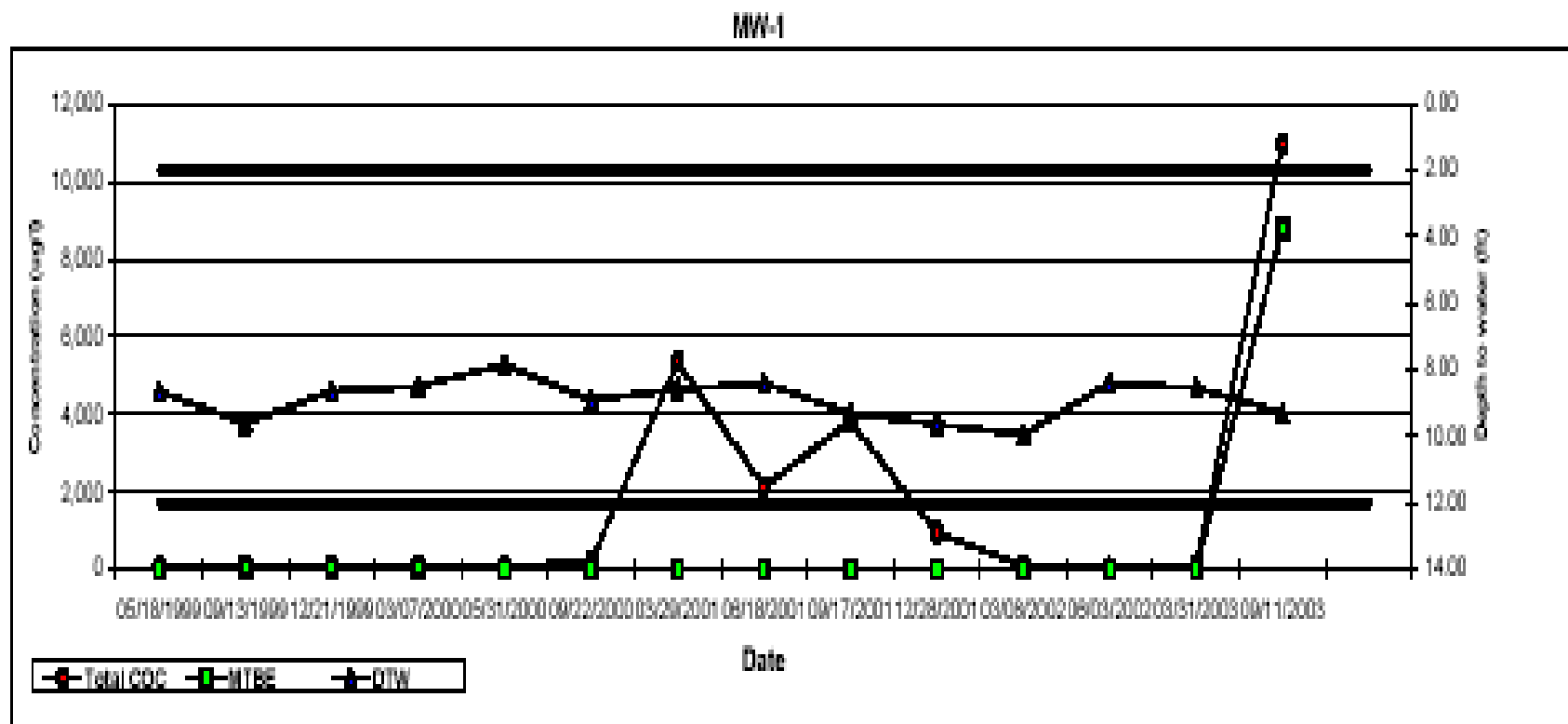
# PVR Inspection and Assessment Approach

- Discovery
- Site Background
- Tools and Methods
- Site Specifics
- Inspection and Assessment
- Repairs and Results

# Discovery

- General Reporting
  - Complaints, Release Notification, Emergency Response
- Referral from LUST
  - Groundwater Concentration, Remedial Effectiveness
- Referral from APC
  - Stage II Test Results, Technical Assistance
- Inspections and Observed Tests
  - Damaged Equipment, Inadequate O&M, Poor Installation

# LUST Site Referral



# APC Referral



# Inspections

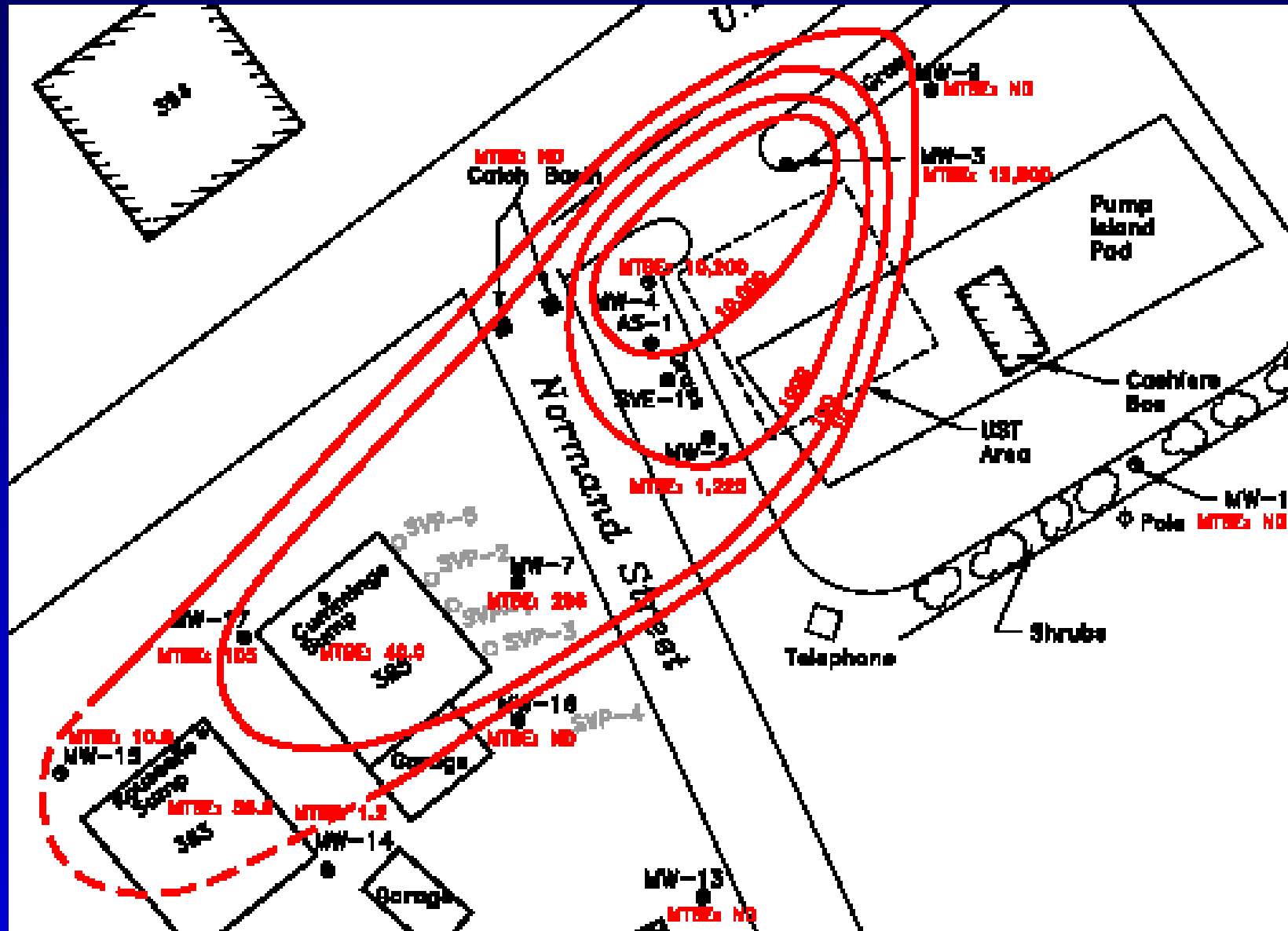


# Site Background

## Documents to review

- UST
- LUST
- Spill Response
- Air Pollution Control
- Hazardous Waste

# Site Background



# Tools

- Photoionization Detector
- Combustible Gas Indicator
- Sample collection w/ laboratory analysis
- Observations

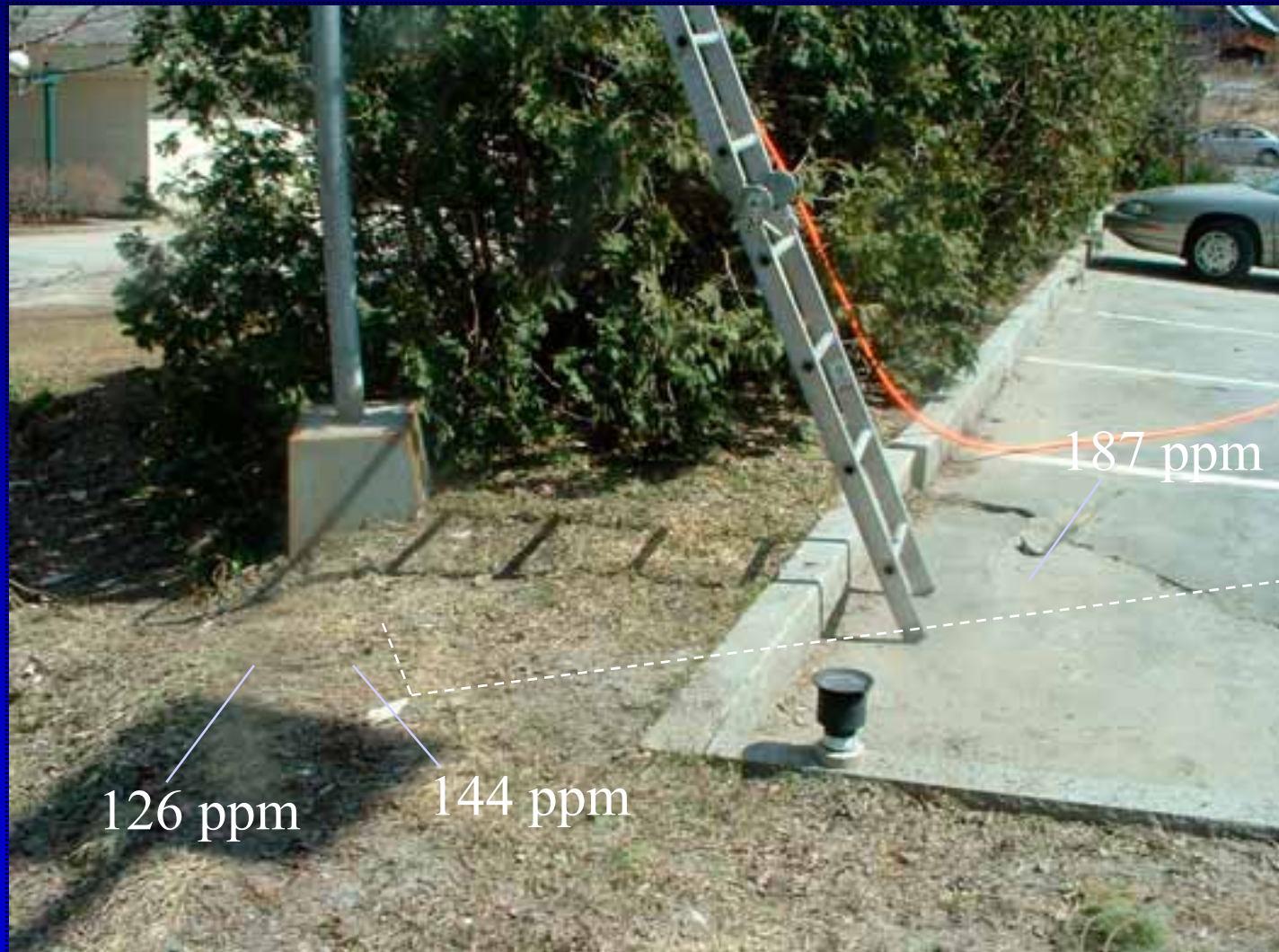
# Tools



# Methods

- Inspection and Assessment
  - With or without Instrumentation
  - Organized access of features
  - Detailed evaluation of feature condition
  - Hands on approach
- Events Assessment
  - Stage II testing (pressure decay)
  - Observed Delivery

# Methods



# Site Specifics

- Environmental data
- Installation information
- System Features
- Site Features
- Site Layout

# Site Specifics



# Inspection and Assessment

- **Site Layout**
- **System Features**
- **Background Ambient VOC**
- **Surface Feature Access**
- **Direct Read Measurement**
- **Return Access Feature**



# Inspection and Assessment

- **Surface Feature Access**
- **Direct Read Measurement**
- **Equipment Status**
- **Observed Conditions**
- **Dynamic Testing**



# Inspection and Assessment

- **Dynamic Testing**
- **Passive Testing**
- **Mid Test Repair**
- **Measured results**



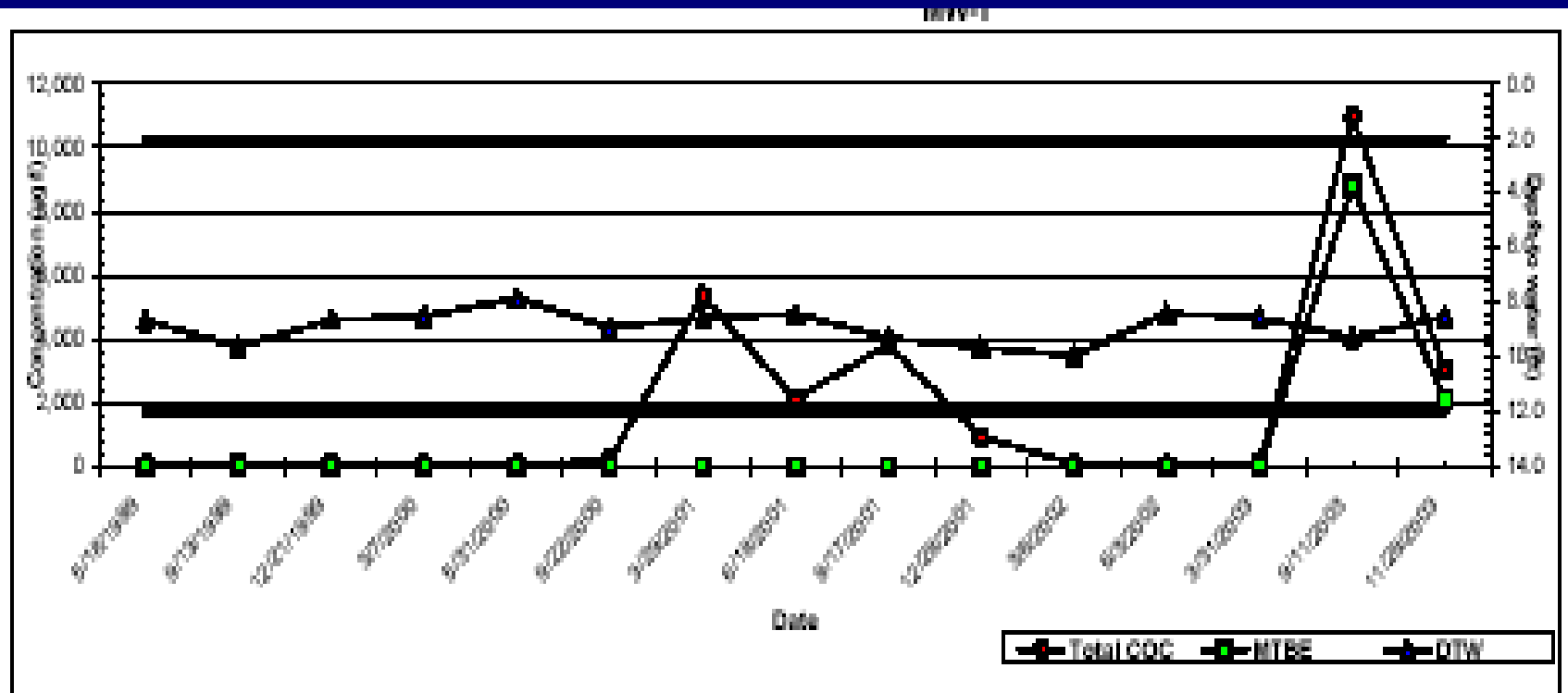
# Repairs *and* Results

Improper installation  
Physical damage  
Inadequate O&M

Instant repair  
Measured VOC reduction  
Increased confidence



# Measured Results



# Common Sources

- Contained Features
  - Broken spill buckets
  - Poorly sealed sump lids
- Uncontained Features
  - Stage I Vapor Recovery Poppets
  - Threaded risers (Loose or Lack of pipe dope)
  - Loose, broken or corroded caps
  - Poor or misaligned seals (caps, ITM wiring)
  - Fracture vent of stage II lines
  - Compromised tank top or riser feature

# Prevention

- Technical Recommendations
- UST Inspector Training
- Programmatic Relations
- Legislation / Rule or Permit changes

# Wrap up

- Check those seals
- Follow up on VR testing
- Provide issue specific outreach
  - Regulated community
  - Industry
  - Consultants & Contractors
- Work w/ APC and LUST to better understand PVRs.
- Provide technical recommendations to Owner and Operators to help prevent PVRs.

Thank you