

# Sources and Causes of Leaks

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# Sources and Causes Underground Storage Tanks (UST)

- Report due to the Environmental Protection Agency (EPA) each December
- Sources – Tank, Piping, Dispenser, Submersible Turbine Pump, Delivery Problem, Other, Unknown
- Causes – Spill, Overfill, Physical or Mechanical Damage, Corrosion, Installation Problem, Other, Unknown

# Sources and Causes (UST)

- Found 90 UST releases
- 13 “new” releases from operational issues/inspections
- Two inspection/complaint findings of historic contamination
- 75 from historical contamination found during Phase II or tank closure

# Sterling Enterprise ST2488/ R9005

- Source – Piping
- Cause – Physical or mechanical damage
- Quantity – Approximately 100 gallons
- Site characterization activities ongoing

# Sterling Enterprise ST2488/ R9005 (cont.)

- Environmental Emergency Response (EER) notified of strong vapors in sewer
  - Some manways pegged the air monitor
- Electronic monitoring system alarms
- Premium line tightness test fail
- Helium test confirm premium fail
- Line excavated- failure at fiberglass elbow

Clearance 13' 0"

Food Mart

DISCOUNT  
SMOKES & LIQUOR

E-CIG  
OUTLET

DISCOUNT

Car Wash

OPEN

FLAVOR  
99¢

DECADE  
CARTON  
2 FOR \$2.50  
21.59





Soft Bubble at joint

# Flying J ST3838/ R9000

- Source – Dispenser
- Cause – Physical or mechanical damage
- Quantity – Approx. 1200 gallons according to inventory records
- Truck hit dispenser
- Site characterization
- Free product recovery



# Lambert International Airport- ST10020/ R9004

- Product sheen in nearby creek
- Airport responded
- Booms at creek
- Started testing lines
- Active remediation
- Site characterization



# Lambert International Airport- ST10020/ R9004 (cont.)

- Fuel hydrant system
- Flange rusted - corrosion



# Chambers Conoco ST4501/ R8990

- EER contacted- vapors in sewer
- Nearby station investigated
- Product found in wells
- Tank and line tightness testing conducted
- Piping on unleaded system failed test
- Free product recovery, site characterization ongoing



09/18/2014

# Loves-Neosho ST22029/ R9016

- New installation- July 2014
- New installation inspections:
  - July 20, Sept. 9, Sept. 22
  - Tank and piping passing tests
- March 2015- Line tests failing, product in sewers
- EER was notified

# Loves-Neosho ST22029/ R9016 (cont.)

- Newly installed piping
- Damaged by backhoe
- Damage not reported
- Line pressurized- damage unknown
- Approx. 6000 gallons of product released
- NFA issued in June 2015









Conduit  
a rea  
Orien Denton  
March - 6

Pipe at  
Curb  
a rea  
Orien Denton  
March - 6

# Wildcat Corner-Neosho ST4609/ R8994

- Owner called in failing line tightness test
- Found leak- replaced flexible connector leaking threads
- Conducted sampling
- Results submitted
- Site characterization
- Free product recovery







# MPC 51-Rolla ST8306/ R9055

- Product noted in two tank top areas during Oct. 29, 2014, inspection
- Feb. 4, 2015, re-inspection to check areas
  - Product again found
- The department requested investigation





# MPC 51-Rolla ST8306/ R9055

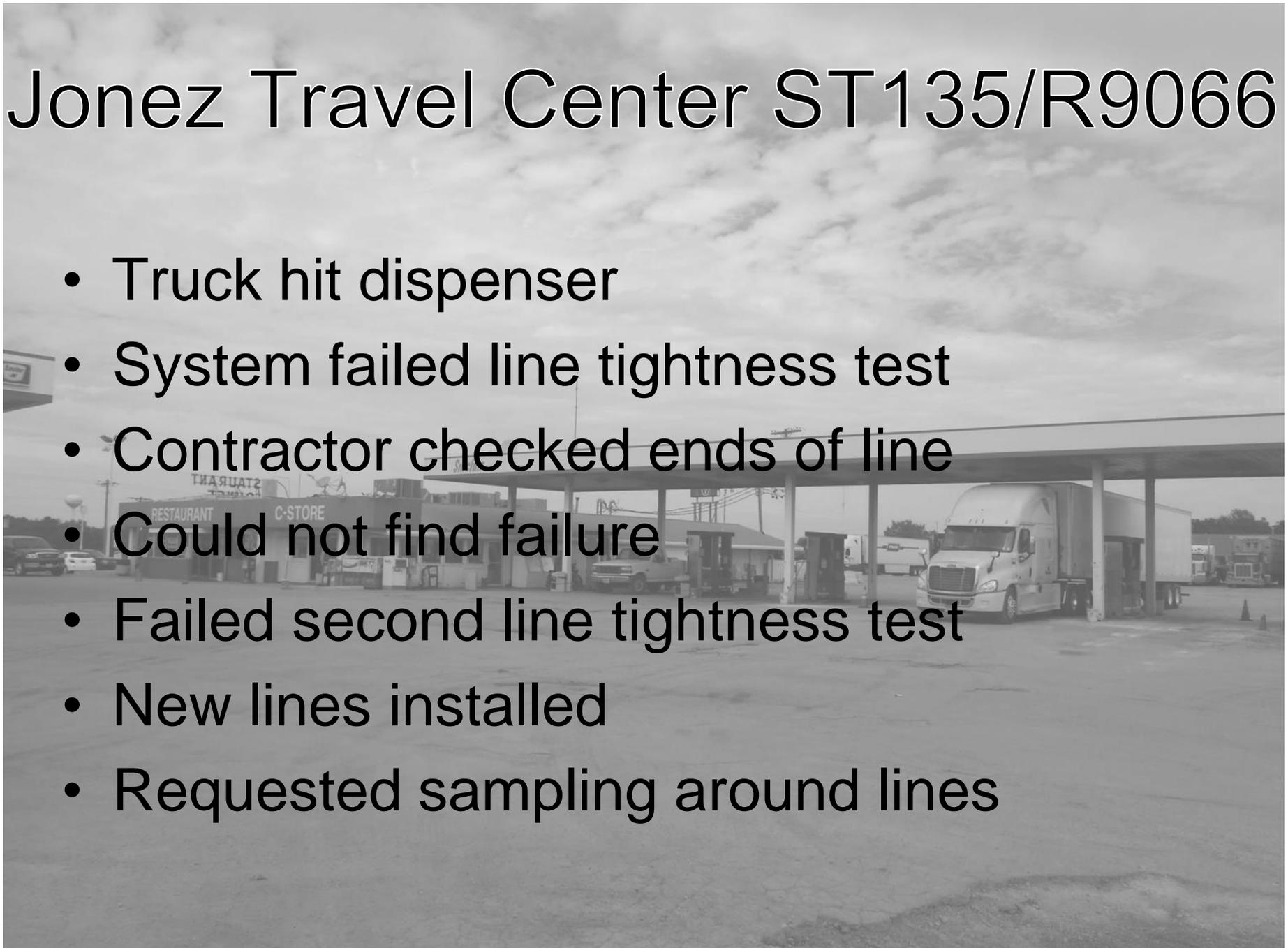
(cont.)

- Feb. 12, 2015- The department, contractor and owner on-site
- Small leak found at FRP coupling
- Repairs made
- Sampling conducted
  - Above DTLs
- Site characterization needed



# Jonez Travel Center ST135/R9066

- Truck hit dispenser
- System failed line tightness test
- Contractor checked ends of line
- Could not find failure
- Failed second line tightness test
- New lines installed
- Requested sampling around lines



# Jonez Travel Center ST135/ R9066 (cont.)

- Piping in contamination
- Delamination/deterioration
- Site characterization needed



# Circle K #1628 ST3450/ R9006

- Leak found during Oct. 9, 2014, inspection (video provided)
- Product in well
- Pumped well
- Sheen in well
- Sampling required
- Site characterization ongoing



# Main Street Shell ST3090/ R9051- Part 1

- May 1, 2015- EER report gas vapors in sewer
- Continued to receive complaints
- Found fresh product
- Investigated nearby station
- Reviewed site's monitoring records
- “Complications”

# Main Street Shell - Part 1 (cont.)

- ATG- old, outdated, may not be functioning?
- Losses after delivery?
- Tank tightness test conducted- FAIL
- Found holes in bottom of Tank #3 (4k)
- Tank emptied
- *New ATG not installed until October 2015*

# Main Street Shell - Part 1 (cont.)

- Sampling required
- Active remediation
- EER involvement
- Residences in area still impacted
- Mitigation of vapor issues and site characterization ongoing

# Main Street Shell ST3090- Part 2

- Tank #3 – Tank with holes in bottom
- Was not locked
- Received a load of fuel
- Leaked... again

# C Store #2- ST13523/ R9060

- Inspection Sept. 4, 2015 - found product bubbling up through water filled sump



# C Store #2- ST13523/ R9060 (cont.)

- Owner immediately contacted contractor
- Pumped out sump
- Found pinhole leak in flex connector
- Replaced within hours of inspection
- Sampling requested
- Free product recovery and site characterization work plan needed

# MOGA Stop- 20298/ R9039

- Spill/overflow of approx. 700 gallons
- Sampling conducted
- Contamination found
- Site characterization  
risk assessment  
underway



# Ozark Oil Company ST4651/ R9058

- Complaint called in
- Dead vegetation
- Pipe from tank pit to back of property
- Owner will conduct sampling



# Ozark Oil Company ST4651/ R9058 (cont.)



- Some staining
- Uncertain if it was the source
- Excavation of soils approved

# Pump N Pete's - ST986/ R9015

- Small weeps in 2009- fixed
  - Vent tube at line leak detector
- Jan. 27, 2012, inspection noted small leak at line leak detector
  - Feb. 23, 2012, re-inspection found clear water in area and no signs of a leak



# Pump N Pete's - ST986/ R9015 (cont.)

- Oct. 20, 2014, inspection
  - Product in tank top area
  - Absorbent pads in tank top area
- Oct. 21, 2014, the department's re-inspection
  - 12 inch product (weathered) in well
  - Absorbent materials in a well
  - Did not observe off-site impacts
- Required sampling



# Pump N Pete's - ST986/ R9015 (cont.)

- Passing tank and line tightness tests
- Passing release detection
- Not requiring additional system check *at this time*
- Required sampling
- Site characterization, free product recovery



# What is causing our new leaks?

- Five metal components
  - Two flex connectors, two fittings, one tank
  - Corrosion? Wear and Tear? Install?
- Three fiberglass piping couplings
  - Installation?
- Three “accidents”- vehicle/construction
  - One involved weakened piping
- One spill/overflow

# So what about aboveground storage tanks (ASTs)?

- 11 total AST releases
- One overfill
- 2 physical or mechanical damage
- 8 historical releases from Phase II assessments/investigations

# Questions?

- [http://www.dnr.mo.gov/env/hwp/tanks/epa\\_sourceandcause.htm](http://www.dnr.mo.gov/env/hwp/tanks/epa_sourceandcause.htm)