

LDAR for Other Industries

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Introductions



► Christoff Orr, PE

- Joined Trinity in 2019 (Tulsa, OK)
- Mechanical Engineer, University of Tulsa
- Focused primarily on air permitting and oil and gas and refining industries in OK, TX & IN
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Agenda

1. What is LDAR?
2. Current Applications
3. Implications for the Future

What is Leak Detection and Repair (LDAR)?

What is LDAR?

- ▶ Finding and repairing fugitive components (valves, flanges, etc.)
- ▶ Mainly used in oil and gas but has far reaching implications
- ▶ Potential for regulatory drivers in other industries

Detection Methods (Method 21)



Detection Methods (Optical Gas Imaging)

Per EPA and API recommended testing guidelines, GF300/320 cameras can detect:

- Benzene
- Butane
- Ethane
- Ethylbenzene
- Ethylene
- Heptane
- Hexane
- Isoprene
- Methyl Ethyl Ketone (MEK)
- Methane
- Methanol
- MIBK
- Octane
- Pentane
- 1-Pentane
- Propane
- Propylene
- Toluene
- Xylene

*GF300 and GF320 offer identical optical gas imaging capabilities.
However, only GF320 is calibrated for temperature measurement.

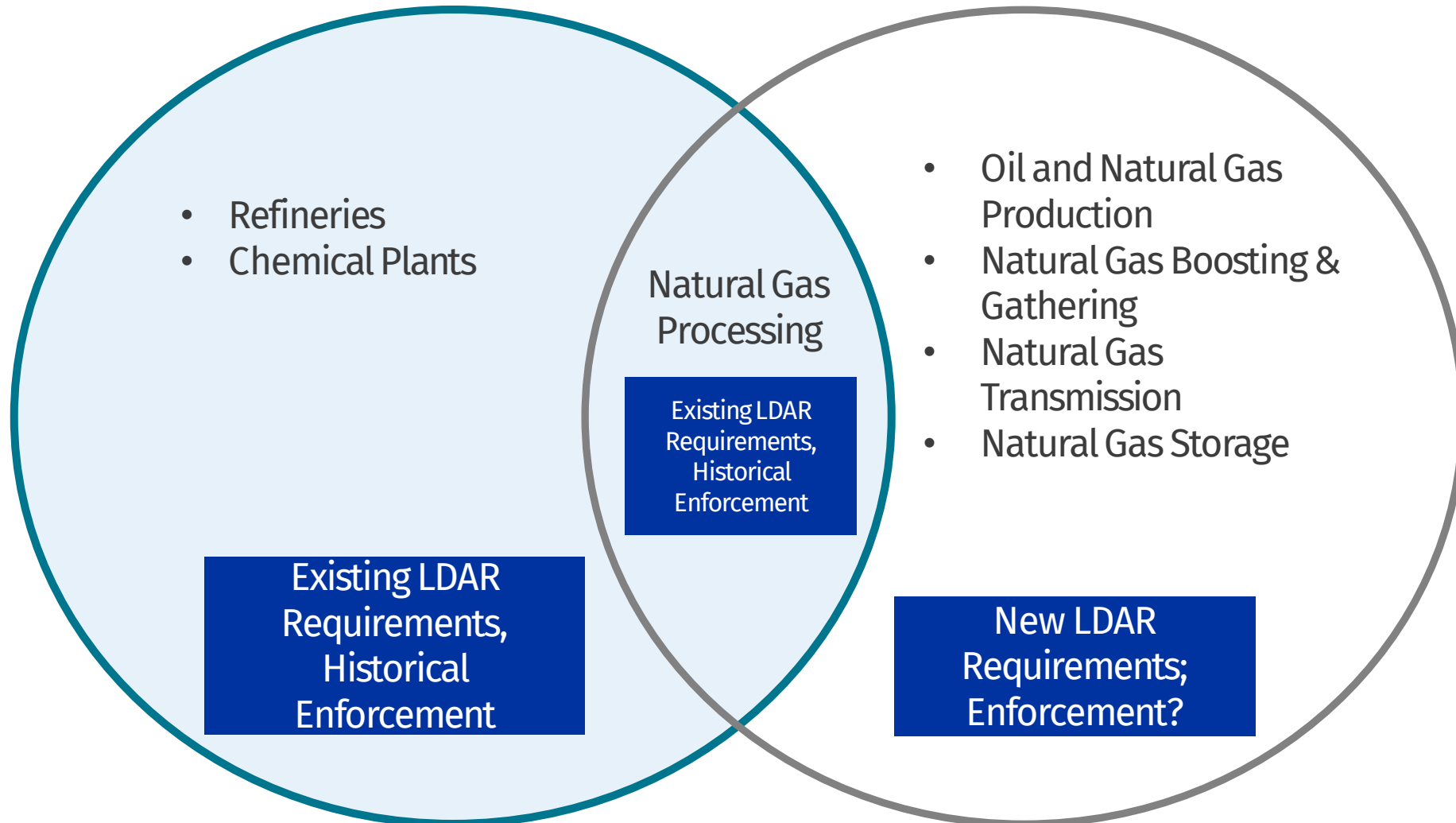


OGI / FLIR



Current Applications

LDAR: Relatively New Requirements, Historical Enforcement



Applicable Federal Regulations

- ▶ The Chemical, Refining, and Oil & Gas Industries (both large and small) have been hit by LDAR-related enforcement including:
 - Hazardous Organic NESHAP (HON)
 - MACT GGG (Pharma MACT)
 - NSPS VV/NSPS VVa
 - NSPS KKK
 - NSPS GGG/NSPS GGGa
 - NSPS OOOO/NSPS OOOOa/NSPS OOOOb (proposed)/NSPS OOOOc (proposed)
- ▶ Enforcement is an increasing priority

Implications for the Future

Enforcement Beyond O&G, Refining

- ▶ Applications for manufacturing, chemical
- ▶ Paints, coatings, solvents, etc.
- ▶ Potential to be considered BACT/RACT
- ▶ Supplemental proposal to OGI protocol (Appendix K) leaves possibility for use in other industries

Public Participation



Conclusions

- ▶ LDAR already prevalent in applicable industries
- ▶ Regulators have intentionally allowed for more widespread use
- ▶ Can be used to demonstrate compliance even when no regulations apply

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