New Technology: Forward Looking Infrared (FLIR) Cameras

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Inspections of Volatile Organic Compound (VOC) Sources

- Valley's challenges in meeting federal air quality standards unmatched due to unique geography, meteorology and topography
- As a result, businesses subject to toughest air regulations in the nation including for VOC sources
- The San Joaquin Valley is home to approximately 80% of oil and gas operations as well as a large number of wineries, bulk plants, landfills and other VOC sources
- The District is continually evaluating technology that will improve the quality and efficiency of inspections and complaint investigations

FLIR Camera

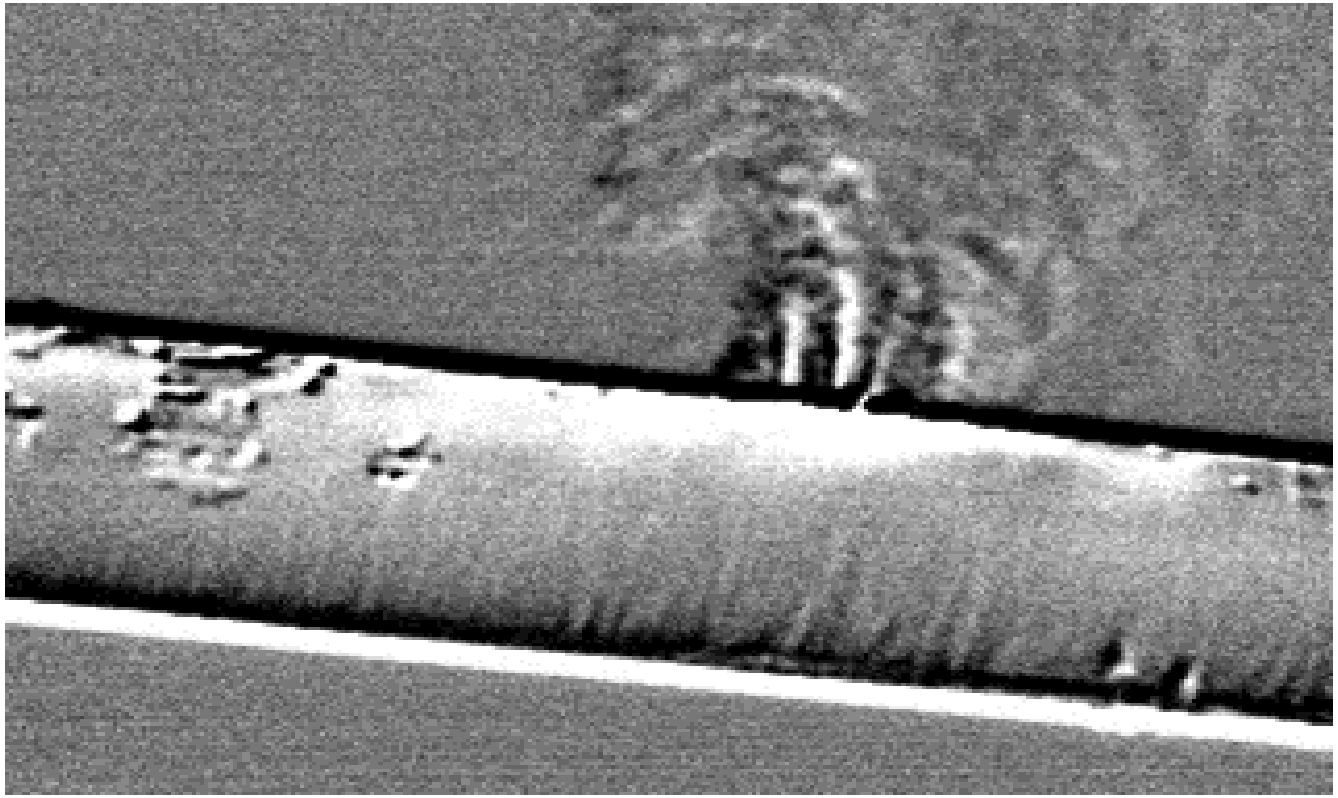
What is the FLIR Camera

- FLIR cameras is a thermographic camera that senses infrared radiation
- Uses sensors that detect infrared radiation to create an image for video output
- Many different types and uses for FLIR cameras
  - The District uses ones that are designed to only detect methane, hydrocarbon and VOCs

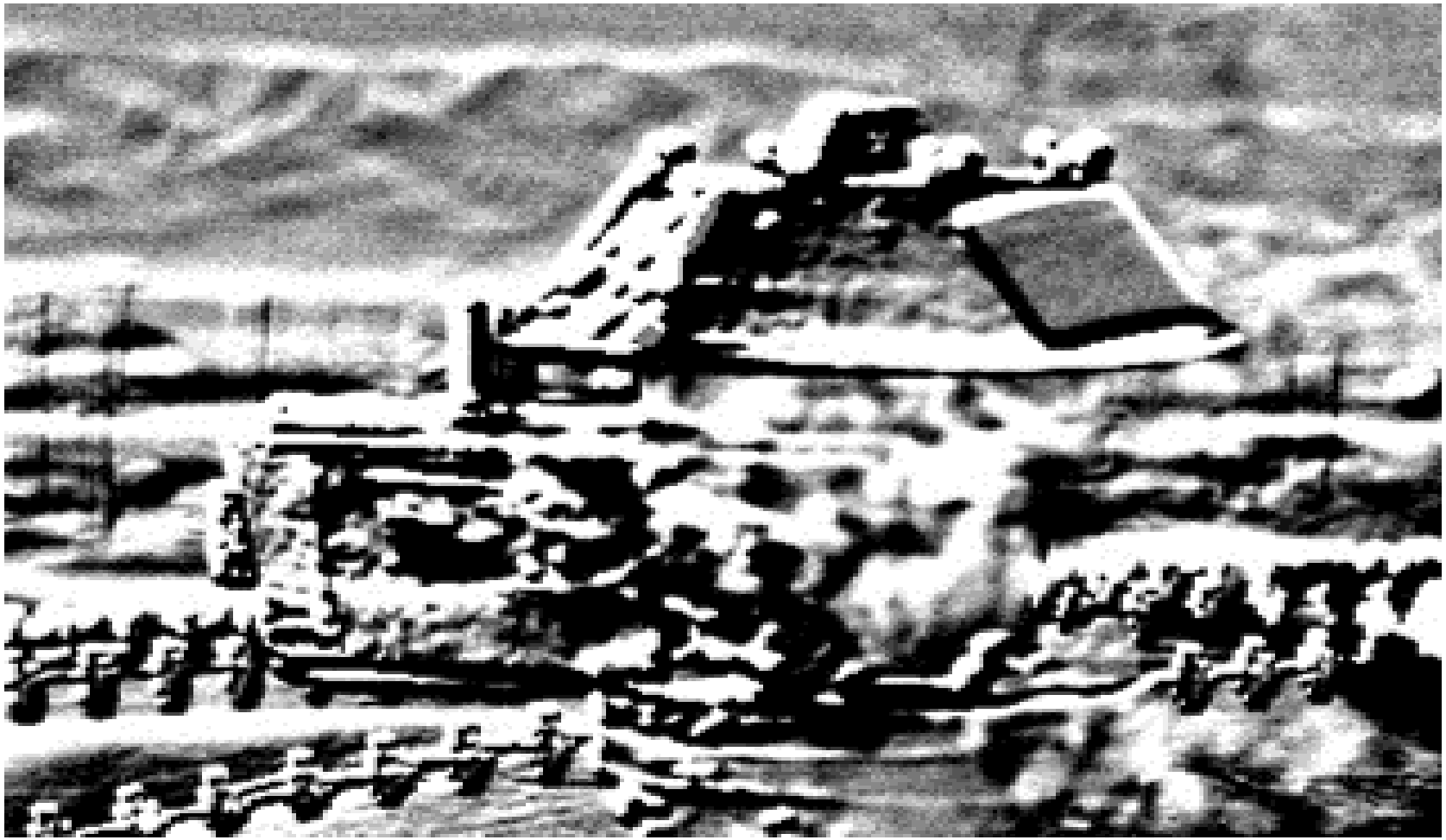
Benefits of Using FLIR

- Ease of use
- Small and lightweight
- Allows faster surveys of large areas
  - Oil and gas facility may have tens of thousands of inspection points
  - Ability to see leaks from areas that would otherwise be inaccessible
- Visualize gas leaks in real-time
- Ability to capture and record photos and video

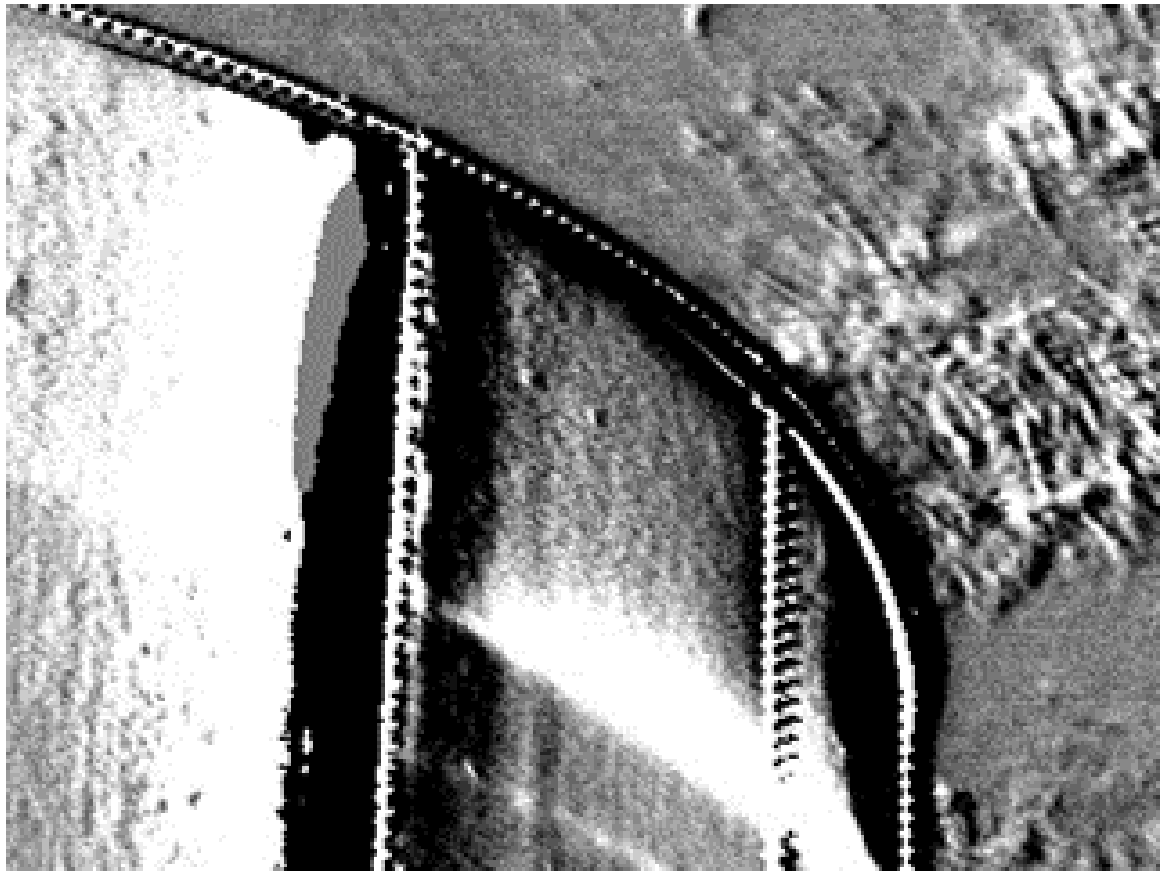
Fugitive Emissions



Pressure-Vacuum Relief Valve



Riveted Tanks



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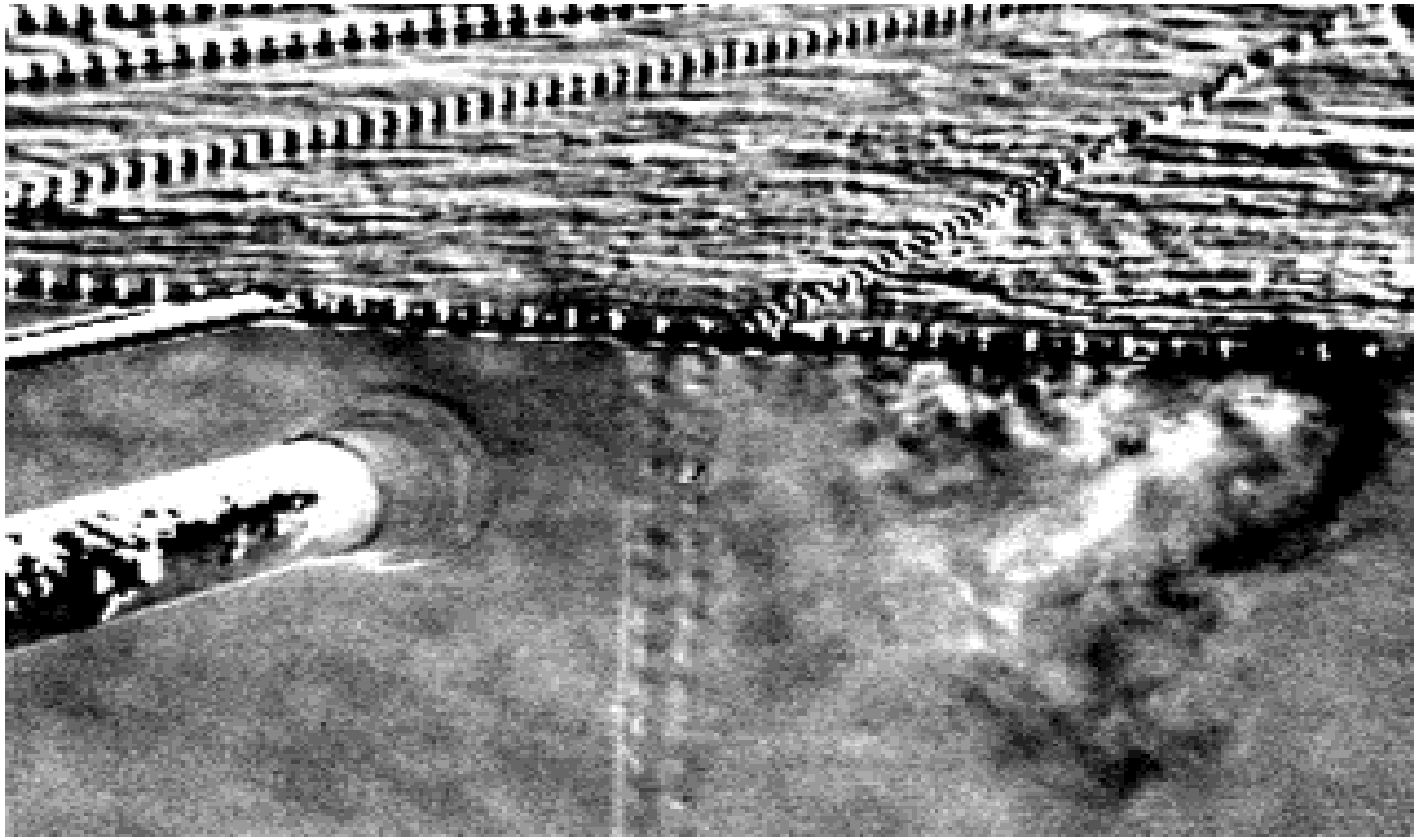
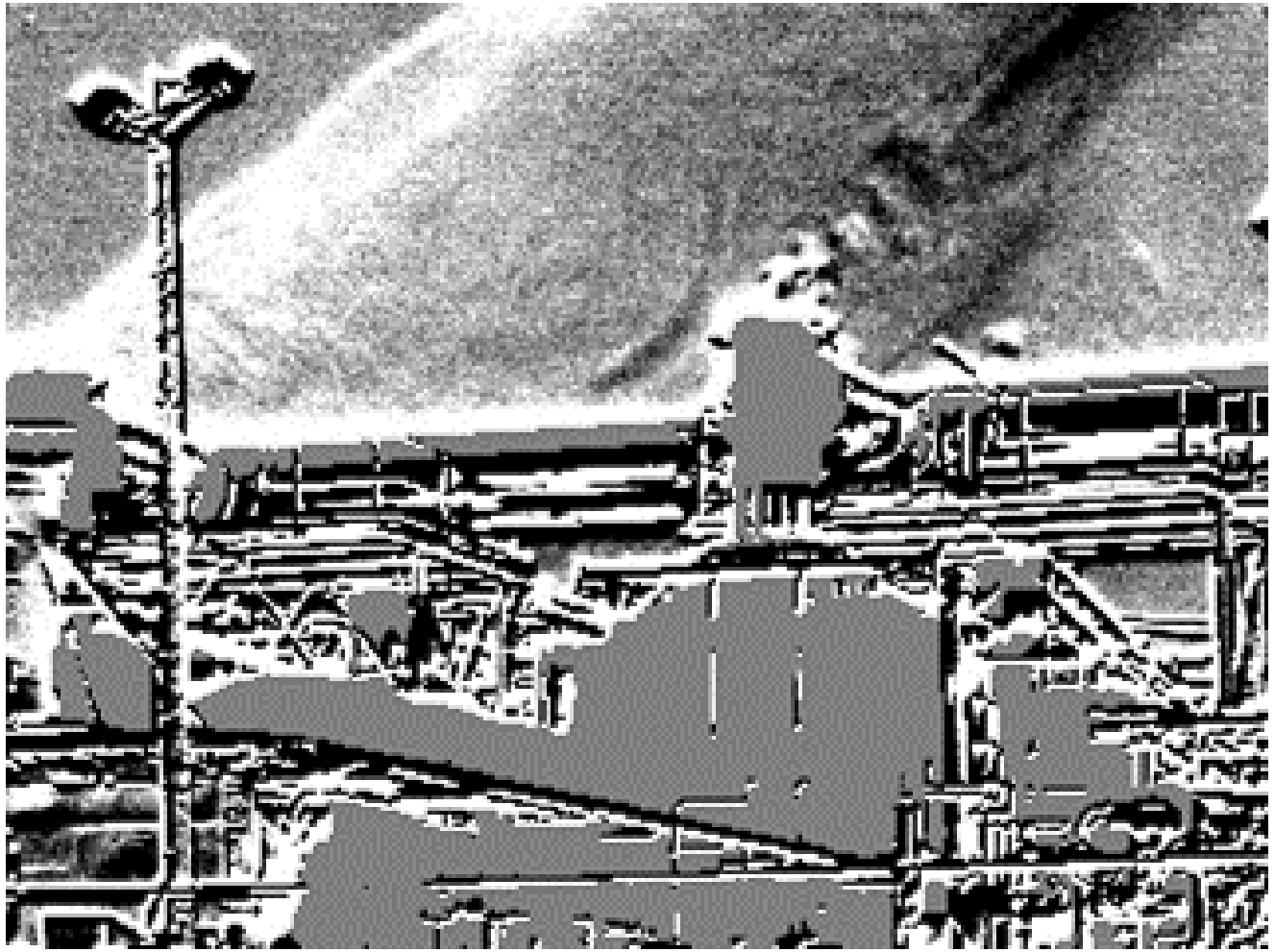


Effluent Scrubbers



Considerations and Limitations

- FLIR cameras are costly, approximately $100,000 per device
- Depending on use, may need to have multiple lenses (long and short range)
- It is a qualitative device and for documentation of leaks under District rules, need to verify with a quantitative device in accordance with EPA Method 21
- Some of the devices are not intrinsically safe
  - District recently purchased a newer version that is intrinsically safe, however, cannot change out the lens of the intrinsically safe unit

Questions?

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