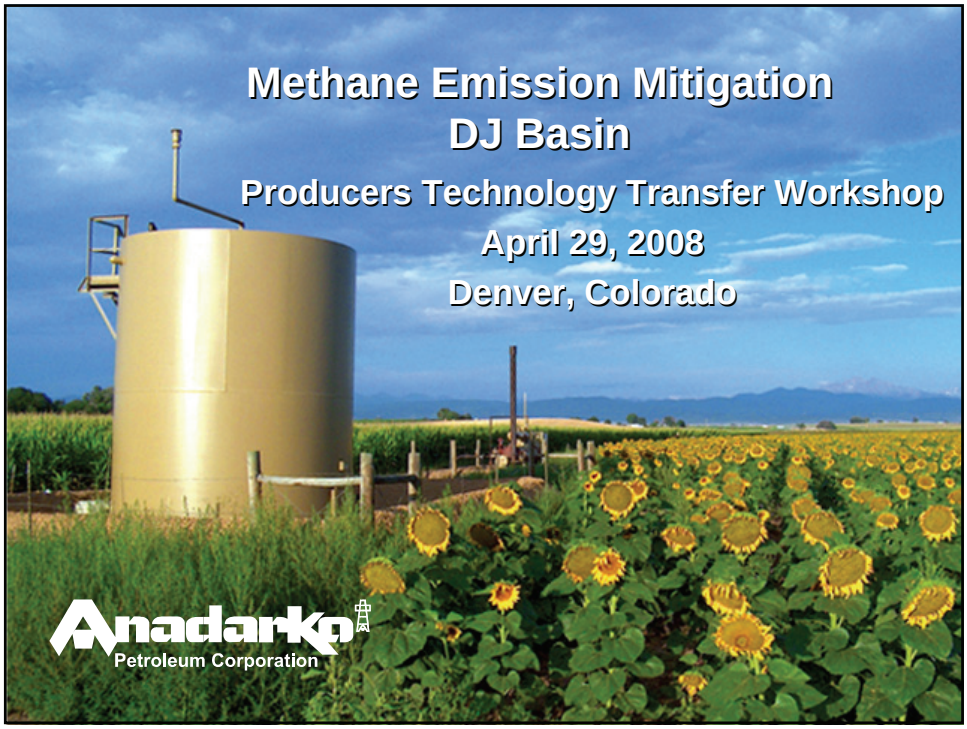

Core Methane Emission Control Strategies

- Pneumatic device retrofit
- Pneumatic device replacement
- Flashing emission controls
- Inspection with IR camera
- Ongoing evaluation of new technology

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Pneumatic Retrofits

- Retrofitted 548 Mizer style valves installed
  - *Recovers approximately 77 MMscf methane per year*
  - *Three-month payout*

Pneumatic Replacement

- Replaced 106 high bleed devices to date
  - *Recovers 82.5 MMscf methane per year*
  - *Three month payout*
- Will replace an additional 264 devices in 2008

Flashing Emission Controls

- **2004-2006 dynamic regulatory changes**
  - *Controlled 360 Production Batteries*
- **Vapor recovery units (VRU) – preferred alternative**
  - *Historic installation configuration – VRU connected directly to storage tanks*
  - *Operational and safety concerns*
    - O_2 intrusion
    - Equipment repairs result in extended down time
- **2007 additional regulatory changes**
  - *Controlled 314 production batteries*
  - *Operational issues pushed controls to combustion devices (ECD)*

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Process Modifications to Reduce Flash Emissions

In 2006 piloted the use of a secondary flash vessel.

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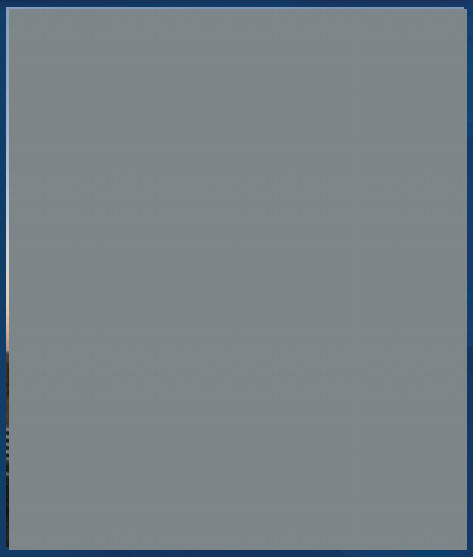
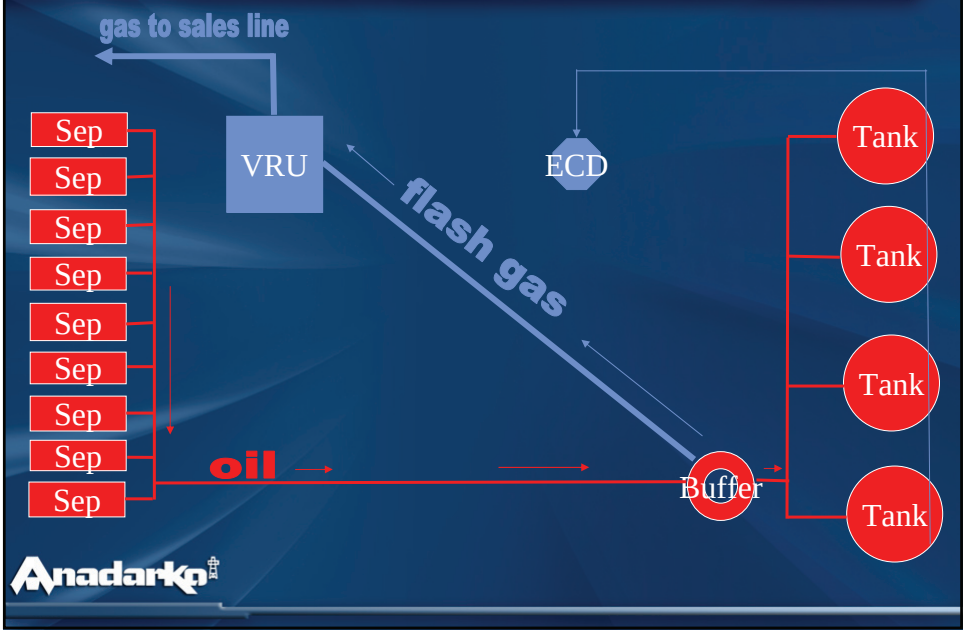
Process Modifications to Reduce Flash Emission

In 2007, modified the design to a larger buffer tank.



Flash Vessel



Flash Vessel (buffer tank)

- **Benefits**
  - *Reduces methane emissions*
  - *Reduces products of combustion to atmosphere*
  - *Increased safety due to lower pressure seen at tank*
  - *Gas from buffer tank is compressed back into sales line*
  - *This vessel also eliminates O_2 intrusion*

Flash Vessel

- **Economic evaluation:**
  - *Average of 1-2 MCF for every 10 bbls oil*
  - *Price of buffer tank $7,700*
  - *40~50 bbl location = 4 Mcf a day*
  - *Pay out on buffer tank is 1 year*
- **In 2008, all new pad locations will receive a buffer tank, VRU and ECD.**

IR Camera Inspections – DJ Basin

Implemented IR camera inspections in summer 2007

- *Two cameras in E&P service*
- *One camera in midstream service*

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IR Camera Inspections – DJ Basin

- Initial findings led to the formation of maintenance teams to incorporate the use of the IR camera and facilitate repairs.
- Goal was to inspect every separator, tank and wellhead in the Wattenberg Field.
- Developed simple recordkeeping and maintenance log to facilitate data trending in the future.
- Most significant finding:
  - *Thief hatch seals*

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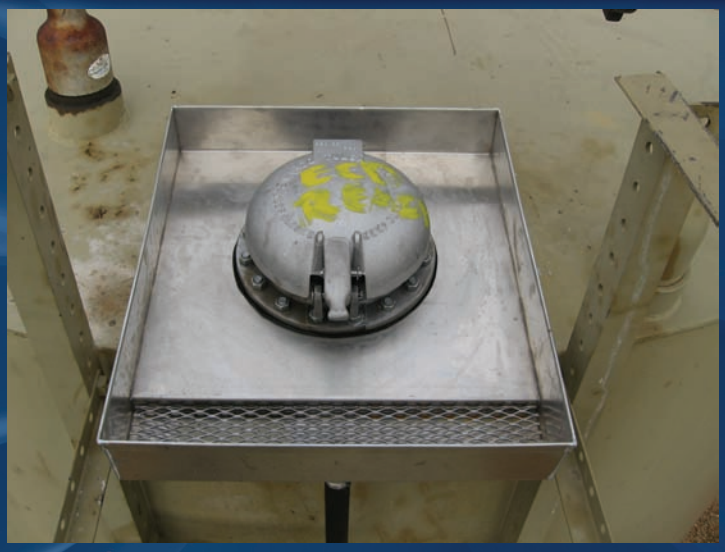
IR Camera Inspections – DJ Basin



IR Camera Inspections – DJ Basin

Based on the IR camera findings, Anadarko began a gasket material replacement and longevity program for Enardo and Jayco thief hatches.

- *Original equipment was outfitted with Buna-N gaskets*
- *Retrofitted with Viton*
- *Now evaluating Fluorosilicone rubber gaskets*

Conducting additional pilot studies with teflon vaccum gaskets

IR Camera Inspections – DJ Basin

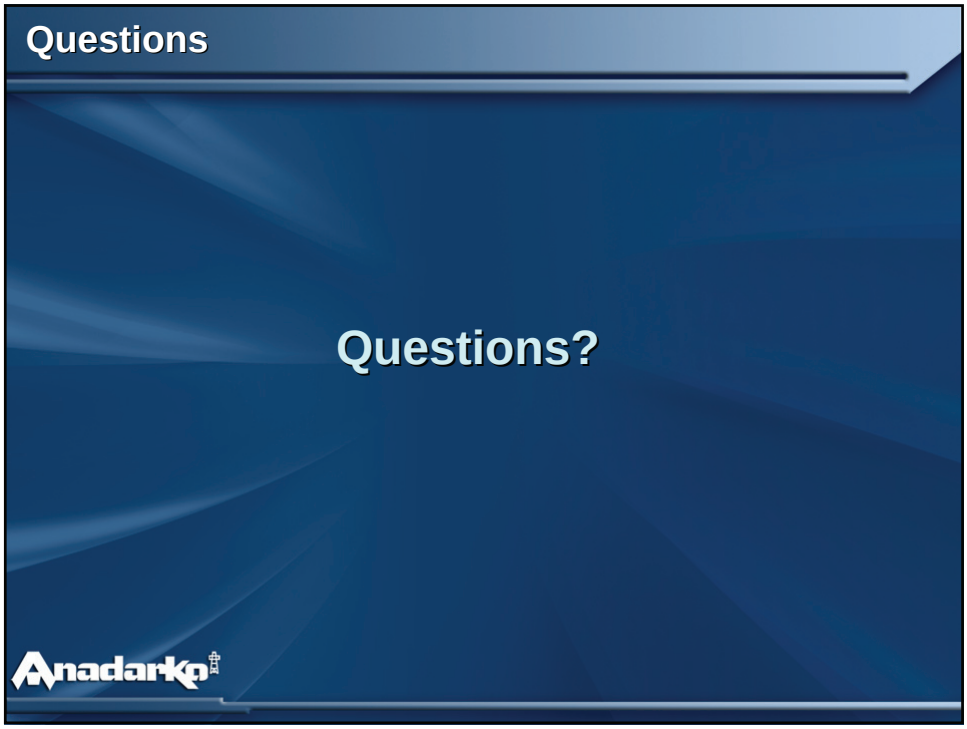
Use of the IR Camera has allowed for the repair of leaks there were otherwise not detectible

- *Thermostats*
- *Fittings*
- *Regulators*
- *Gaskets*
- *Valves*

Result – less methane vented to atmosphere.

Ongoing Evaluation of New Technology

- **Solar powered production separators**
  - *Cost prohibitive for retrofit*
  - *Evaluating pilot for new purchases*
- **Compressed ambient air-driven separators**
  - *Solar powered compressor*
  - *Replaces field gas with compressed ambient air to drive pneumatics*
  - *Initial pilot underway*


Questions
Questions?
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