INVESTIGATION OF OIL & GAS FACILITIES
CITY OF LONGMONT COLORADO

APRIL 17TH, 2018
Presented by:
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AGENDA

• History of Site Investigations
• Scope of Site Investigations
• Investigation Costs
• Investigation Results
• City of Longmont Available Information
INVESTIGATION OF OIL & GAS SITES IN LONGMONT

• 2012 City conducted historical records investigation into all P&A wells within city limits
  • P&A Research Summary Report issued in 2013
  • Report located on City website
• 2013 City conducted site investigations of active wells and installed water quality monitoring wells
• Site investigations now being conducted on all P&A wells
• City hired Terracon to conduct thorough investigation
• City partnering with local universities and researchers to develop new real-time monitoring tools
SCOPE OF OIL & GAS SITE INVESTIGATIONS

• Locating wellhead, flow lines, former location of production equipment, circulation pits, etc.
• 2 soil vapor points (permanent feature)
• 3 groundwater monitoring wells (permanent feature)
• 3 soil sample tests
• 2 soil vapor tests
• 3 groundwater sample tests
INVESTIGATION COSTS

- 9 Active Wells
- 18 Plugged and Abandoned
- 5 Dry and Abandoned
- 4 Tank Batteries
- 3 Pit Locations
- Average cost of $16,000/site
- Total Expected Cost: ~ $500k
CONTAMINANTS BEING TESTED FOR

- TPH (total petroleum hydrocarbons)
- VOCs (volatile organic compounds)
  - Benzene
  - Toluene
  - Ethylbenzene
  - Xylene
- Methane
- Chlorides
- Sulfates
- Many other constituents...
MONITORING WELL DIAGRAM
Drilling Rig
SOIL BORINGS

Contaminated Soil
MONITORING WELL
REAL TIME MONITORING

Power Source/Telemetry

Methane Sensor

Well Head
Rider #1

- Records investigation complete
- Site investigation complete
- Soil, groundwater, and soil gas at the site **HAS BEEN** impacted by a potential release...further investigation is required

**INVESTIGATION RESULTS TO DATE**
**INVESTIGATION RESULTS TO DATE**

Rider #1

- Soil impacted by TPH, concentration of 1,490 mg/kg (500)
- Groundwater impacted by
  - Ethylbenzene 738 µg/L (700)
  - Naphthalene 140 µg/L (140)
  - Xylenes 5,460 µg/L (1,400-10,000)
- Soil vapor impacted by VOCs
  - Ethylbenzene 49.1 µg/m³ (37)
  - 2-Propanol (isopropyl alcohol) 62,800 µg/m³ (7,000)
George Mayeda #1

• Records investigation complete
• Site investigation complete
• Results are pending, further investigation is required
• Ground Penetrating Radar (GPR) used to locate any remnants of flow/gathering lines
INVESTIGATION RESULTS TO DATE

Maruyama #1

• Records investigation complete
• Site investigation complete
• Soil, groundwater, and soil gas DO NOT appear to have been impacted by potential constituents of concern
INVESTIGATION RESULTS TO DATE

Longmont #8-10k

• Well recently plugged & abandoned
• Records investigation complete
• Site investigation complete
• Soil, groundwater, and soil gas **DO NOT** appear to have been impacted by potential constituents of concern
EXISTING WELLS ON LANDS CURRENTLY BEING ANNEXED

Tabor #7
- Active well
- Records investigation complete
- Site investigation complete
- Soil, groundwater, and soil gas DO NOT appear to have been impacted by potential constituents of concern

Tanaka #1-11
- Plugged & Abandoned
- Annexation recently approved by Council
Abandoned Wells and Locations

There are currently 17 plugged and abandoned wells, five dry/drilled and abandoned wells, and 21 abandoned locations (never drilled) within the City limits. The City retained Terracon Consultants, Inc. to assess abandoned wells within the City - see map below (use the plus and minus symbols to zoom in and out of the map):

- Longmont oil and gas wells map
- Terracon's report addresses 14 plugged and abandoned wells and three dry/drilled and abandoned wells.

Oil and Gas Historical Reviews and Site Investigations

- George Maveda #1 OG Historical Review Final
- George Maveda #1 OG Site Investigation Report Final
- Longmont 8-10K Historical Write Up Final
- Longmont 8-10K OG Site Investigation Report Final
- Manuyma #1 OG Site Investigation Report Final
- Manuyma #1 OG Historical Review Final
- Rider #1 OG Historical Review Final
- Rider #1 OG Site Investigation Report Final
- Tabor #7 OG Historical Review Final
- Tabor #7 OG Site Investigation Report Final

Ground Water and Air Quality Monitoring Reports

- 2017 Ground Water Qual Monitoring Report
- 2016 Ground Water Qual Monitoring Report
- 2015 Ground Water Qual Monitoring Report
- 2014 Ground Water Qual Monitoring Report
- 2013 First Q Monitoring Report
Questions?