Challenges in Developing a Spill Prevention and Waste Management Strategy for an Oilwell Field

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Agenda

• General Site Information
• Compliance Issues Identified
• Challenges
• Progress & Improvements
• Waste Disposition
• Conclusions
• Questions

General Site Information

• Onshore oil and gas production facility.
• Located in Fort Peck Indian Reservation in Roosevelt County, Montana.
• Operations began in the 1950s.
• Total oilfield area approximately 18,000 acres.
  –Six saltwater disposal stations, four truck offloading areas, 18 tank batteries.
  –Actively drilling new wells.
General Site Information, Continued


Compliance Issues Identified

- Stained soil.
- Contaminated soil pile.
- Out of service tanks.

Out of service tanks (Photo Date: April 2014)

Compliance Issues Identified, Continued

Severely oil-stained ground (Photo Date: October 2013)

Compliance Issues Identified, Continued

Contaminated soil pile (Photo Date: October 2014)
Compliance Issues Identified, Continued

21,000 gallon tank constructed of redwood (Photo date: May 2014)

Compliance Issues Identified, Continued

Tops of tanks exposed that are currently not in use (Photo Date: October 2013)

Challenges

• Legacy facility
  – Continued to use past practices
• Limited finances
  – Need to think of strategies to reuse materials.
• Short repair/construction period due to cold, windy, and long winters.
  – Proper disposition may be low priority – temporary fixes may occur.
• Lack of employee awareness.
  – Training has been initiated for spill response and control.
• Regular addition/removal of tanks.

Progress & Improvements

• Out of service tank signage for those too large to disassemble and dispose of offsite.
• Many out of service tanks removed and donated.
  – Contents of the tanks are removed.
  – Interior of tanks are cleaned.
  – Tanks donated to farmers in the area.
• Major oil spills/stains cleaned up.
  – Hydrocarbon contaminated soil currently stored in pile.
  – Hydrocarbon contaminated soil spread on haul roads.
Progress & Improvements, Continued

Out of service signage on tank (Photo Date: October 2014)

Progress & Improvements, Continued

Tanks replaced and stained soil removed (Photo Date: October 2014)

Waste Disposition

- Disposal facility options
- Material types
  - Produced Water
  - Drilling muds and wastewater
  - Tanks
  - Hydrocarbon contaminated soil

Waste Disposition – Exploration & Production Waste Facilities
Waste Disposition – Exploration and Production Waste Facilities

- Only three active facilities in Montana that accept Exploration and Production Wastes.
- Oaks Disposal Landfill (2 hours)
- Coral Creek Landfill (3 hours)
- High Plains Sanitary Landfill (5 hours)
- Another option - Williston, North Dakota (1.5 hours)
- Potential to dispose of materials such as filter socks and tank sludges.

Waste Disposition – Produced Water

- Produced water includes drilling fluids, hydraulic fracturing fluids and formation water
- Current Practices:
  - Saltwater injection wells – six saltwater disposal stations located on-site
  - Reuse for irrigation of nearby agricultural properties or wetting of access roads (dependent on MT regulations)
- Alternative Options:
  - Accumulate material in aboveground storage tanks and have third party contractor dispose of produced water
  - Construct evaporation pond systems

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Waste Disposition – Drilling Muds and Wastewater

- Current Practices:
  - Third party contractor hauls material to a proper disposal facility
  - Reuse for irrigation and dust suppression
- Alternative Options:
  - One designated injection well onsite for these materials; however, not currently in use
  - Sample and reclaim onsite

Saltwater Disposal Well (Photo Date: July 2015)
**Waste Disposition – Tanks, Continued**

- **Current Practices:**
  - Donation of tanks to farmers in the area (reusing).

- **Alternative Options:**
  - Properly disposing material at E&P special waste landfill.
  - Constructing boneyard to store materials that may be used in the future.
  - Cut up and recycle materials.

- **Needs Action:**
  - Redwood tank disposal.

**Waste Disposition – Tanks**

Visible stains on redwood tank (Photo Date: July 2015)

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**Waste Disposition – Contaminated Soil**

- **Current Practices:**
  - Placing contaminated soil in a pile without a liner or stormwater diversion.
  - Spreading soil onto access roads and using for earthen berms.

- **Alternative Options:**
  - Properly disposing material at E&P special waste landfill.
  - Constructing disposal area with liner and containment to provide buffer.

- **Needs Action:**
  - Contaminated soil pile.

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**Conclusions**

- Needed to put compliance issues on radar and be patient.
- Challenges include dealing with legacy facility, lack of employee awareness (training implemented), agency jurisdiction (MT oil and gas commission, MDEQ, BLM, BIA, Fort Peck Tribe, EPA).
- Some progress, still more to do!
Conclusions, Continued

- Next Steps
  - Continue to complete compliance tasks.
  - Properly deal with contaminated soil pile and remaining out of service tanks.
  - Make sure equipment is properly maintained—less spills/leaks.

Questions?
Roosevelt County, MT (Photo Date: October 2014)