Tale of Two Bakken Spills

Bridger Pipeline Spill
Glendive, MT
epaosc.org/bridgerpipeline

Blacktail Creek Spill
Marmon, ND
epaosc.org/blacktailcreekspill

Paul Peronard – EPA On-Scene Coordinator

Steve Way – EPA On-Scene Coordinator

Bridger Pipeline Spill

OSC Paul Peronard

Bridger Pipeline Break Facts

- Operator: Bridger Pipeline, LLC
- Asset: 12” Poplar Pipeline
- Spilled: 730 bbls of Bakken Crude Oil
- Body of Water: Yellowstone River
- Location: 8 miles southwest of Glendive, MT
- Incident Occurred: 1/17/2015 @ 10:45AM
- NRC Report(s): 1105930, 1105931 and 1105969
- NPFC Case and Ceiling: E15804 - $400,000

Initial Response Actions

Operator

- Shut Down Pipeline
- Investigate and Notify
- Confirm and Respond
- Secure Source Area
- Join Unified Command
- Address Impacts

Unified Command Focus

- Safety of Public & Crews
- Drinking Water System Decontamination
- Removing Threat of Discharge at Source
- Establishing Oil Containment and Recovery Locations
- Identifying and Mitigating Environmental Impacts

T.E.R.A. Site Viewer

Issue: Contaminated Water Supply

- Notification and normal operations initially precluded contamination
- Aging infrastructure and limited analytical capabilities
- Needed to flush system and provide alternative drinking water supplies
- EPA mobile analytical support was invaluable

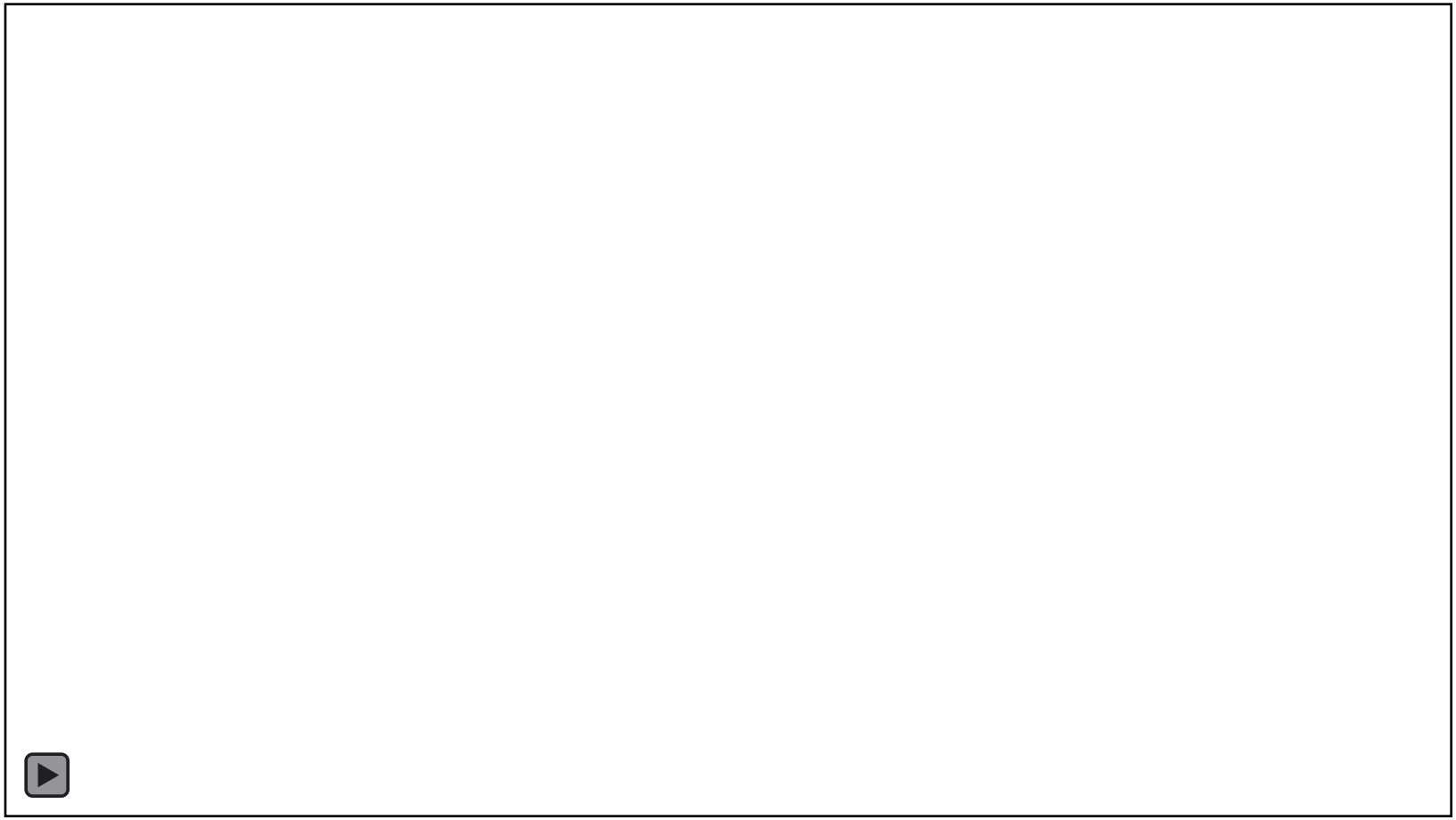
Issue: Dissolved Phase VOCs

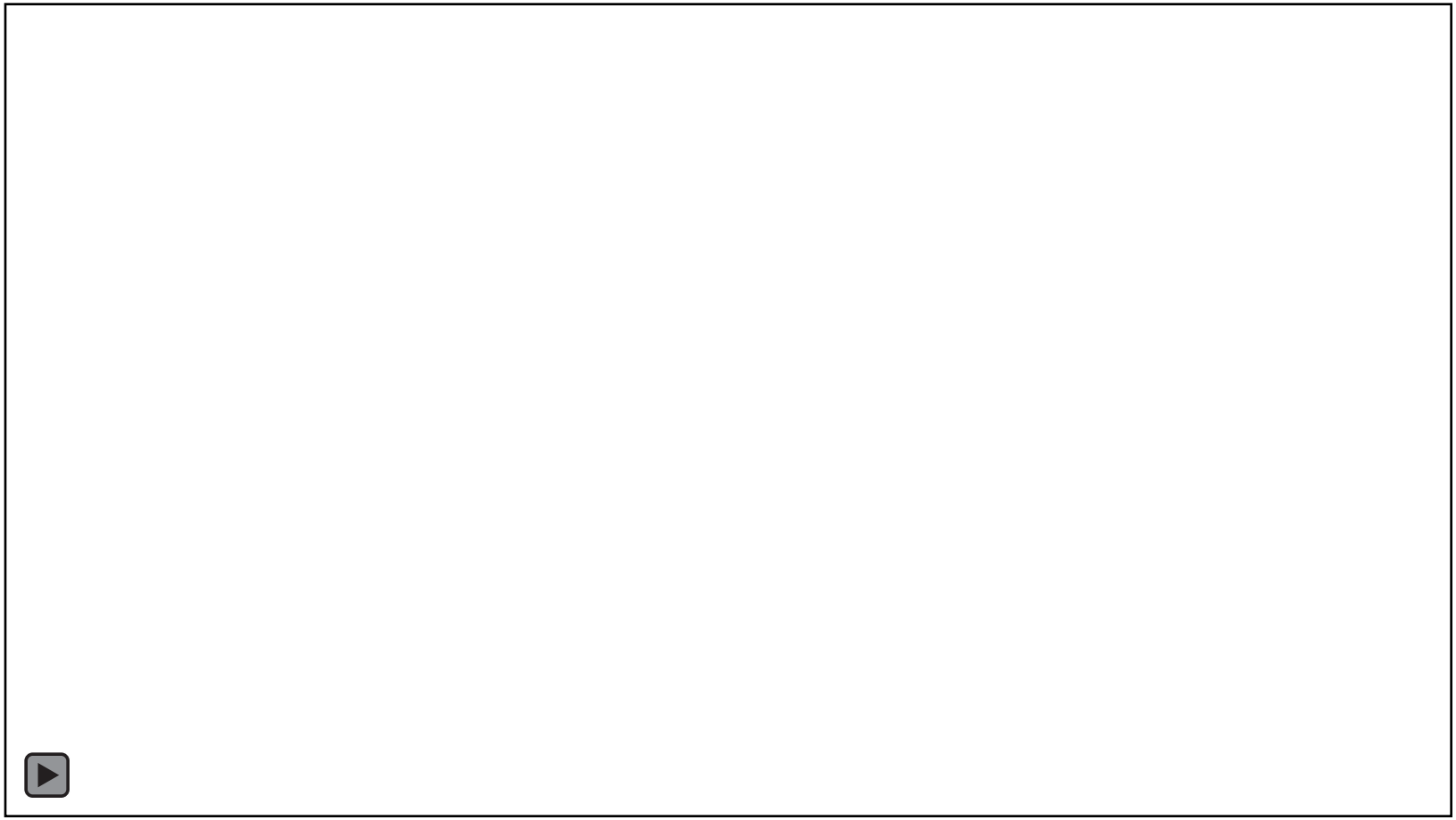
- Environmental conditions vs. fate/transport of oil
- Turbulent flow and vertical mixing at depth due to ice cover
- Invalid assumptions about buoyancy, travel times and evaporation

Issue: Oil Recovery on Frozen River

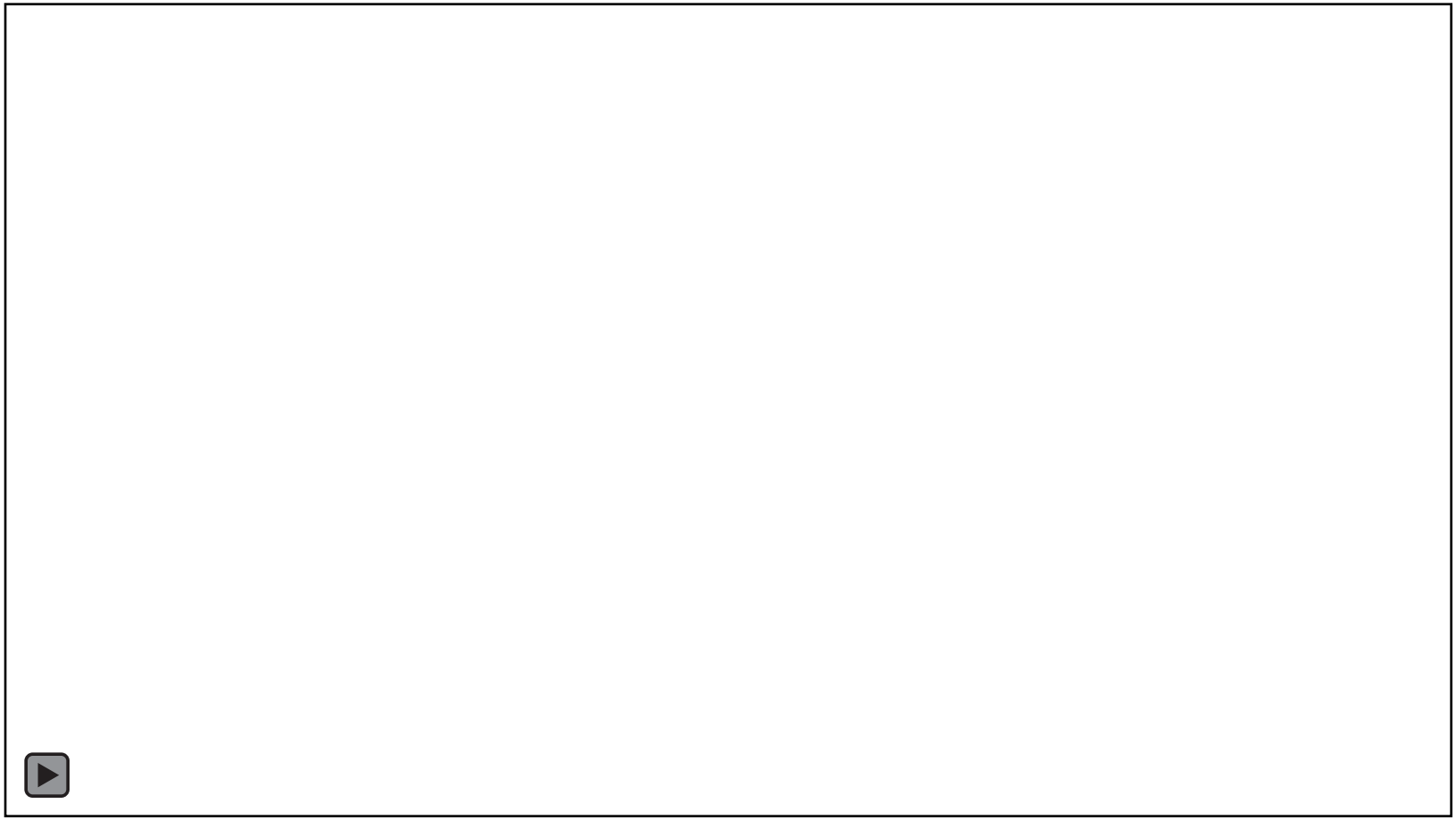
- Specialized equipment and tactics for oil recovery on ice
- Limited number of experienced contractors capable
- Environmental factors and response time limited efficacy of these tactics

CTEH Videos

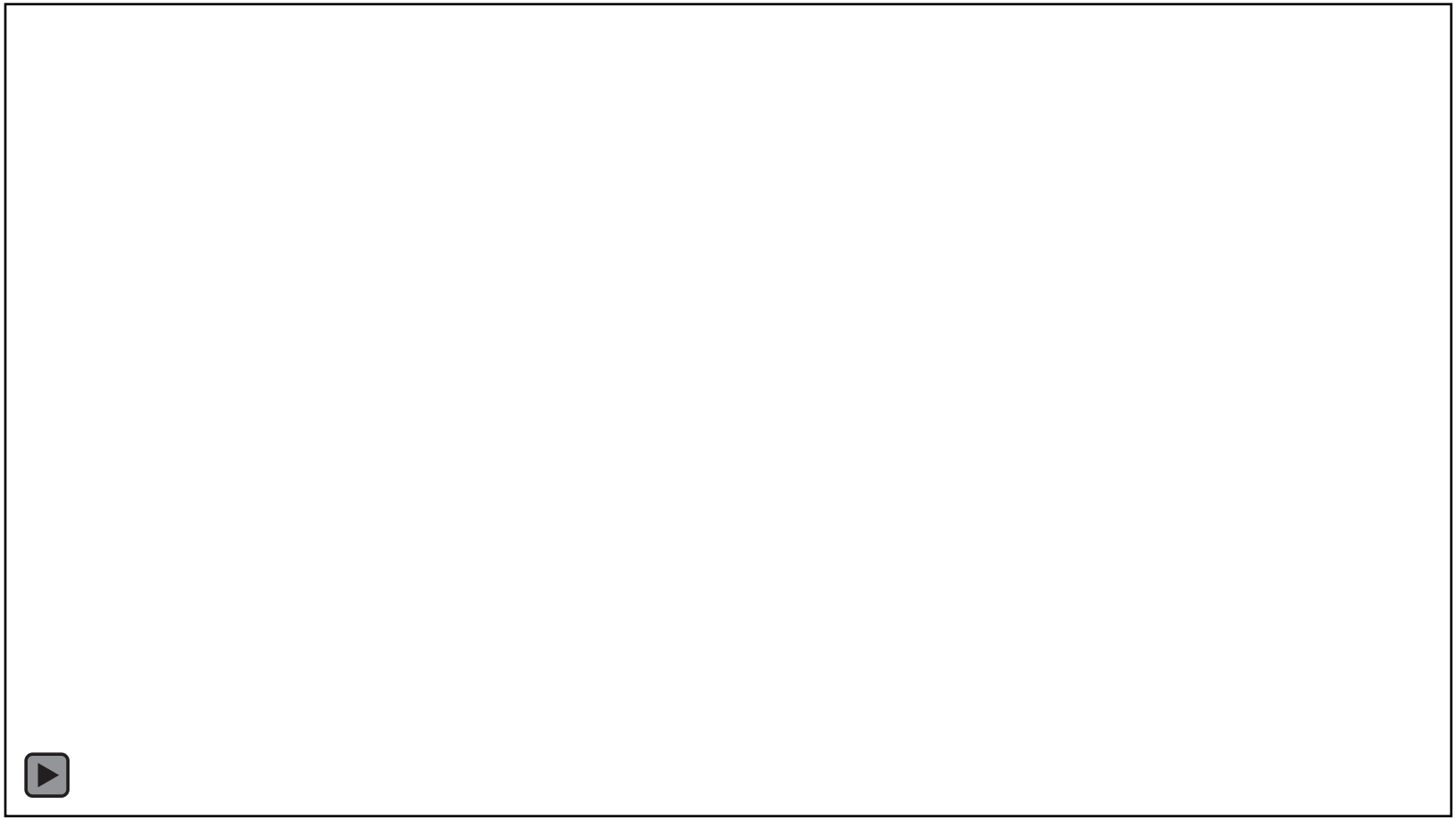




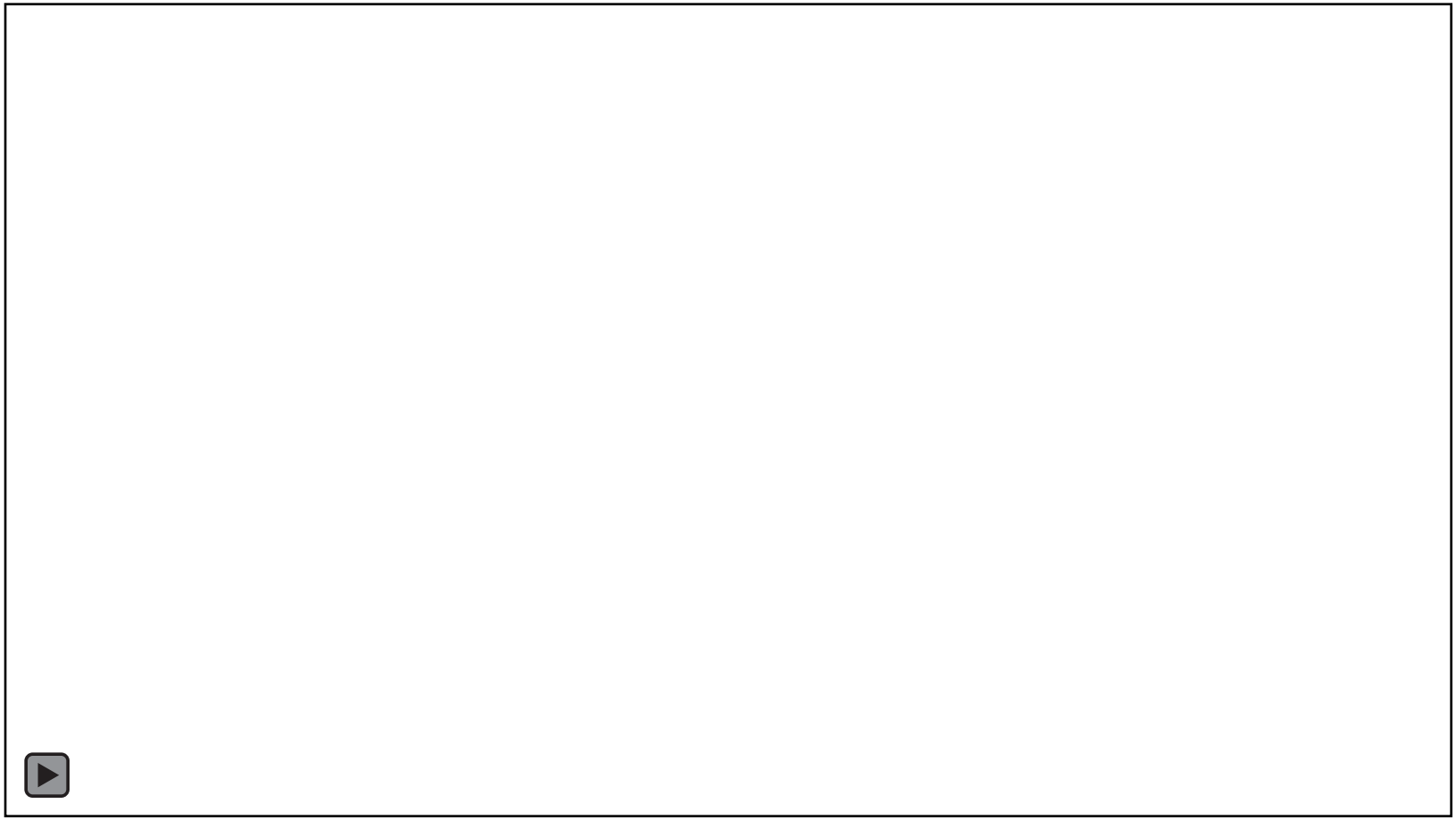
March 15, 2015
River Conditions – No Ice



Ice Slotting – Mile 3.3
Under Construction



Ice Slotting – Crane, MT Complete



Blacktail Creek Spill

OSC Steve Way

Blacktail Creek Spill Facts

- Operator: Summit Midstream Partners, LLC
- Asset: 4” Disposal Pipeline
- Spilled: >70,000bbls of Produced Water/Emulsified Oil
- Water Impacted: Blacktail & Little Muddy Creeks
- Location: 10 miles north of Williston, ND
- Incident Date: Unknown
- NRC Report(s): 1105105, 1105983, 1106269
- NPFC Case and Ceiling: E15805 - $15,000

Initial Response Actions

Operator

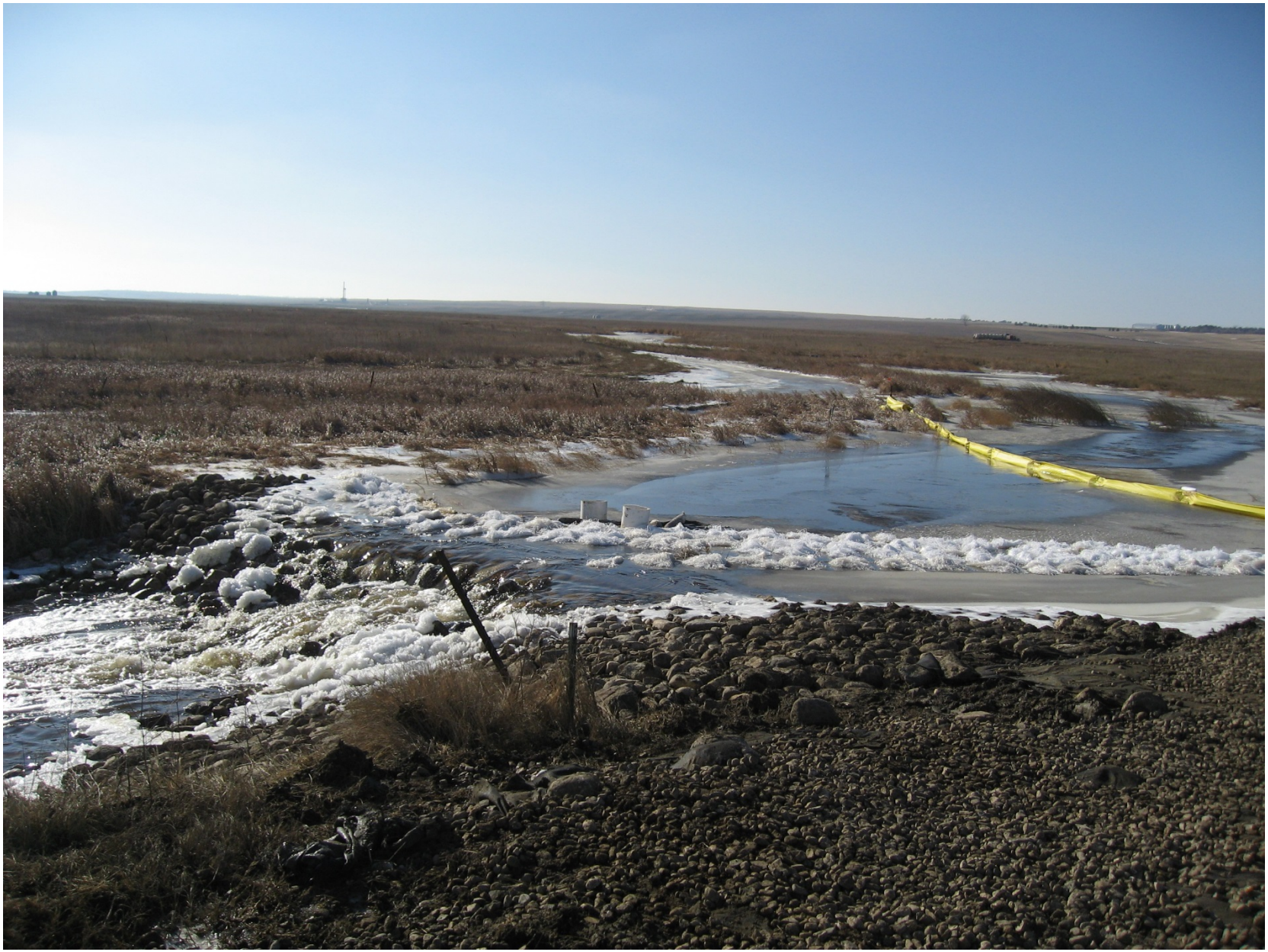
- Shut Down Pipeline
- Investigate and Notify
- Confirm and Respond
- Clean-Up/Mitigate
- Revise Estimates
- Coordinate Response Actions with Regulators

Objectives

- Pump and Dispose of Impacted Water
- Contaminated Soil Removal
- Underflow Dam Construction
- Interceptor Trench Construction
- Address Downstream Impacts


HATZ-DIESEL


VOLVO
VOLVO

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VOLVO


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T.E.R.A. Viewer

Issue: Produced Water/Brine

- Extremely high concentrations of chlorides and other dissolved solids
- Emulsified oil transported in aqueous solution and surface flows
- NPFC support hinged on recoverable oil at the site

Issue: Oil/Water Recovery Approach

- Initial response consisted of pumping fluids from Blacktail Creek and hauling to disposal facility
- During snowmelt, flows were excessive and the contaminants diluted
- Interception trenches were installed to capture groundwater flows before Blacktail Creek

Issue: Produced Water Response ?

- Reportable as discharge of oil because generally some potential for sheen
- Generally not recoverable oil but contains miscible and dissolved phase hydrocarbons
- “Crude oil and petroleum” are exempt from federal regulation under CERCLA;
- CERCLA response may be an option depending on chemical constituents and threat posed
- “Oil field wastes” are exempt from the Resource Conservation and Recovery Act
- Clean Water Act and NPDES viable for enforcing produced water spills
- EPA response funding and cost recovery remain an issue

Takeaways

Bridger Pipeline Spill

Glendive, MT

- Improve downstream water user spill notification systems
- Take precautions for dissolved phase VOC plumes in all spills
- Add winter response tactics to sACPs and increase local capabilities

Blacktail Creek Spill

Marmon, ND

- Develop a coordinated approach to produced water/oil spill response
- Increase inspections/enforcement on upstream production facilities
- Improve regulatory standards for operations

Bakken Spill Prevention Activities

- Spill Prevention, Control and Countermeasures (SPCC) Inspections
- Facility Response Plan (FRP) Inspections
- SPCC and FRP Enforcement
- State Regulatory Authorities
  - MT Department of Environmental Quality
  - MT Department of Natural Resources
  - ND Department of Health
  - ND Department of Mineral Resources

Bakken Spill Preparedness Actions

- Region 8 sub-Area Contingency Plans (sACPs)
- Government-Initiated Unannounced Exercises (GIUEs)
- Preparedness for Response Exercise Program (PREP)
- Industry Oil Spill Cooperatives
  - Sakakawea Area Spill Response, LLC
  - Montana Wyoming Oil Spill Control Cooperative, LLC
- Oil Spill Response Trainings and Tabletop Exercises
- Oil Spill Removal Organization (OSRO) Classification

Bakken Oil Spill Behavior and Fate/Transport Study

- EPA ERT, EPA Regions, DOI, and OHMSETT
- Study Goals:
  - Evaluate benzene and other VOC emissions from a discharge of Bakken oil to support H&S decisions
  - Evaluate physical properties of Bakken oil, including as weathering progresses, to better predict fate/transport
  - Evaluate recoverability of fresh and weathered Bakken oil using standard methods

Bakken Oil Spill Behavior and Fate/Transport Study

- Findings:
  - 40% volumetric evaporative loss in a week
  - Recovery with skimmers is effective, increasingly after loss of light ends
  - Rapid dispersion will be an issue in rivers
  - VOC concentrations lower than expected near spill, especially after 6 hours
- See OHMSETT report for more details

Questions?

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