

Water Crossings from a Pipeline Surveillance Perspective

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Overview

- What is Surveillance?
- Why do Surveillance?
- Types of Water Crossing Surveillance
- Examples



What is Pipeline Surveillance?

- Regular inspection of Pipelines
- Looking for:
 - Erosion
 - Slumping of earth
 - Signs of leaks
 - Missing Pipe Warning Signage
 - Unauthorized construction or disturbance along the ROW
 - Overgrown Vegetation in the ROW
 - Exposed Pipeline



Why do Surveillance?

- Regulatory Requirements
 - Alberta Energy Regulator (AER)
 - National Energy Board (NEB)
- Production Incentive to reduce loss of product
- Moral Obligation and Social License
- Multi-Use Data
 - Prevent leaks and loss of product
 - For repair and new development planning



Types of Water Crossing Surveillance

Mode of Inspection

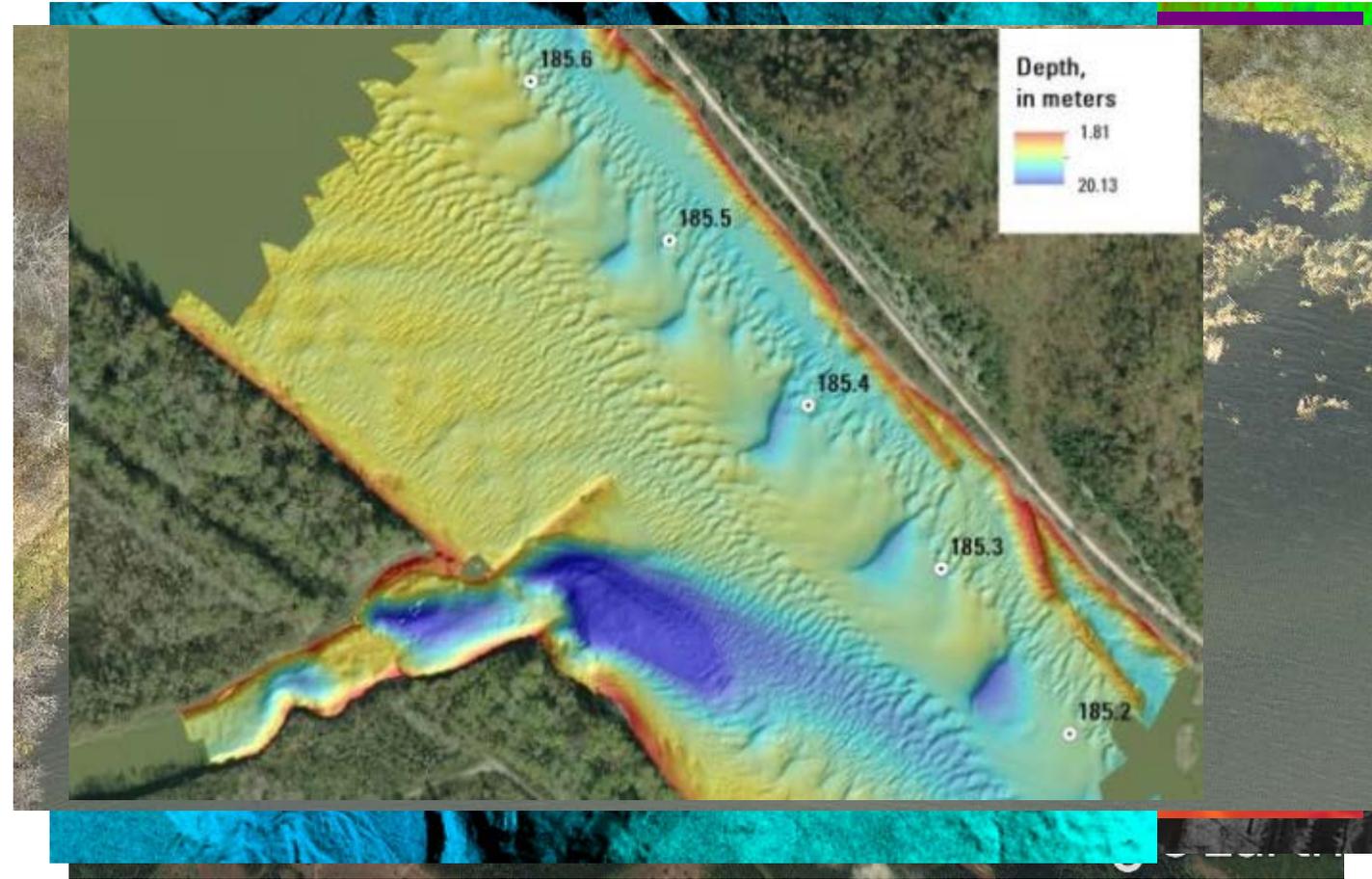
- Ground Assessments
- Drone
- Aerial
 - Helicopter
 - Airplane
- Underwater / Boat



Types of Water Crossing Surveillance

Technology

- Visual Inspection/GPS points
- Video and Image Collection
- Thermal
- Hyperspectral Sensor
- Lidar Scanning
- Photogrammetry
- Underwater Sonar or scanning technology



Example Water Crossing Imagery

- Some energy companies ID their crossings and track them from year to year
- Watercrossings include any type of waterbody within close proximity to the pipeline right of way



..Watercourses of All Sizes



Example of an Exposed Pipe



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Sample Hyperlink to an Image

