




Alaska Department of Transportation & Public Facilities

Dalton Highway Flood Response Disaster in the Arctic

AASHTO SCOM 2016

July 2016



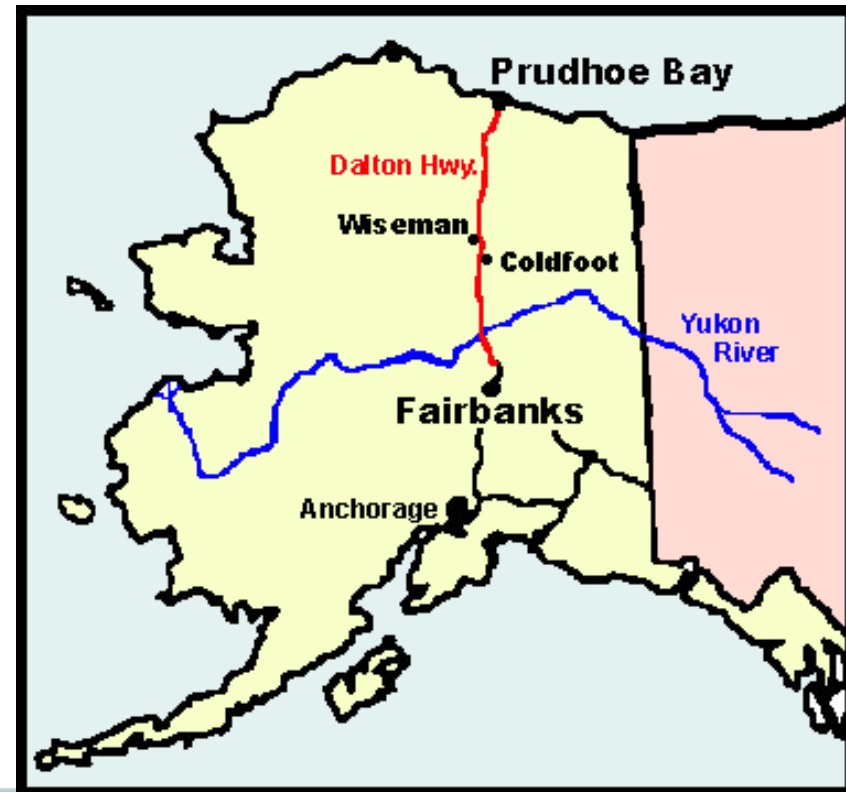
Dalton Highway Flood - Disaster in the Arctic

The impacts of the ice and flooding were dramatic:

- 24 miles of the road were impacted;
- 28 days the road was closed;
- Two state disaster declarations issued; and
- \$17 million for emergency repairs.

The James W. "Dalton" Highway

- Completed in 1975 by Alyeska Pipeline for TAPS construction and to support North Slope development. AKA "The Haul Road"
- 414-mile gravel road stretching from Livengood to Deadhorse.
- Approximately 109 miles are paved.
- State of Alaska took over maintenance in 1978.
- Opened to the public in 1994.
- 300+ vehicles/day near Fairbanks
120/day near Deadhorse









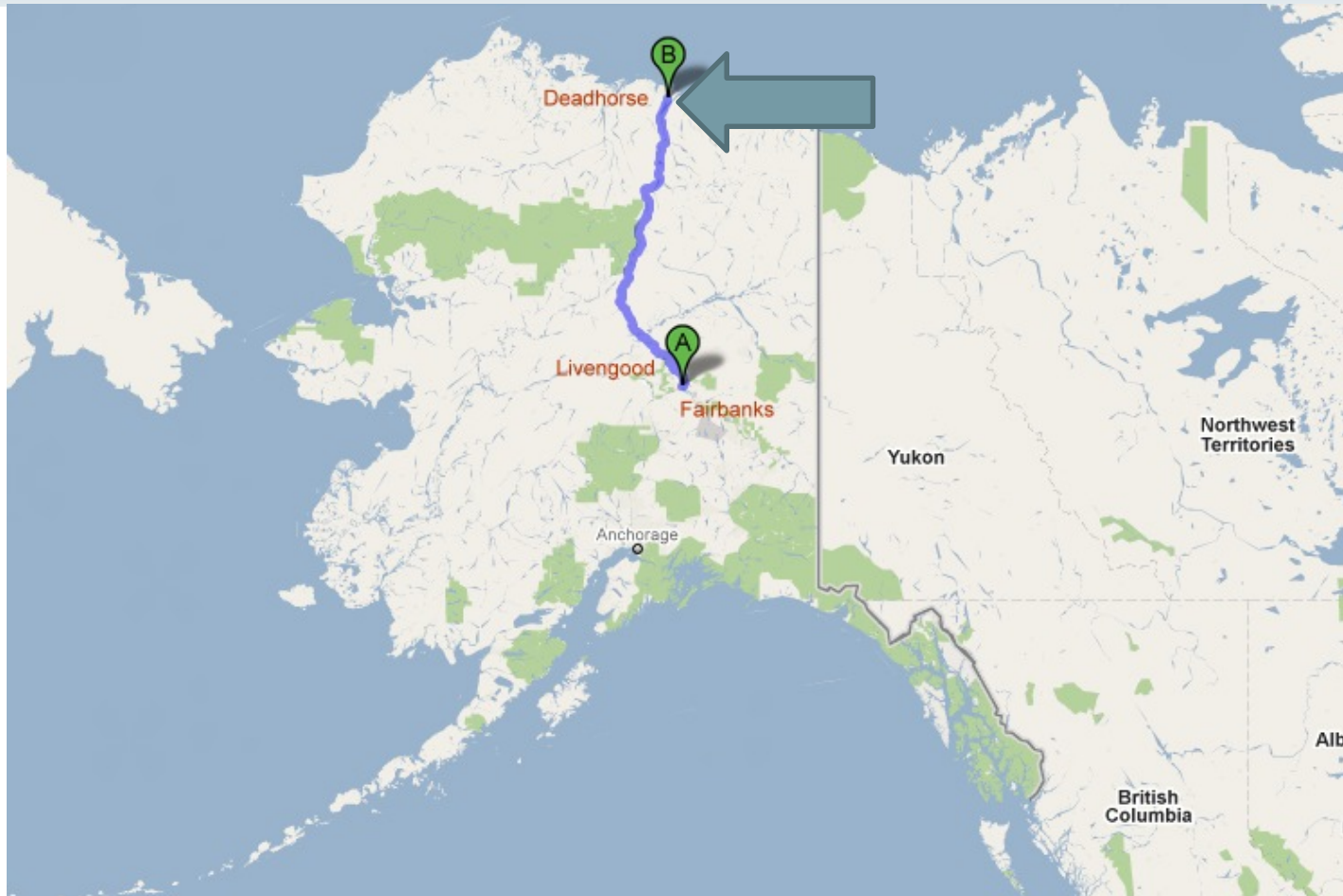








2015 Dalton Highway Flood



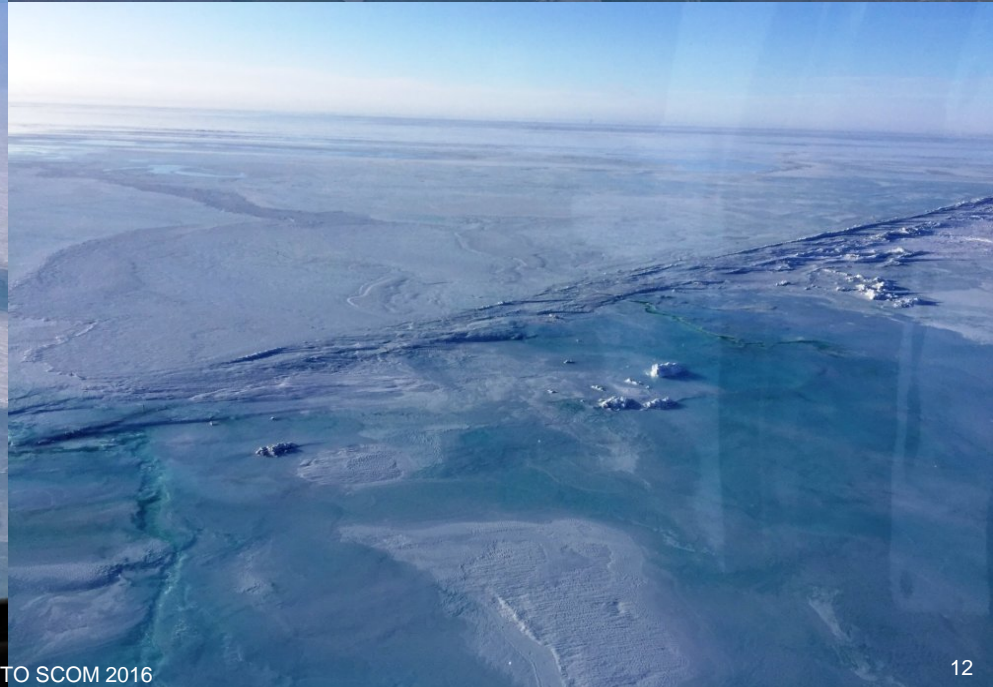


The Aufeis Flood – Cause and Effect

Hydrology

- Heavy rain events in the Brooks Range - Fall 2014
- Sag River frozen all the way to the bottom
- Water pushed to surface, expanded beyond typical flood plain
- “A perfect sequence of snowfall, temperatures and winds lined up to create a massive sheet of ice that expanded for miles”







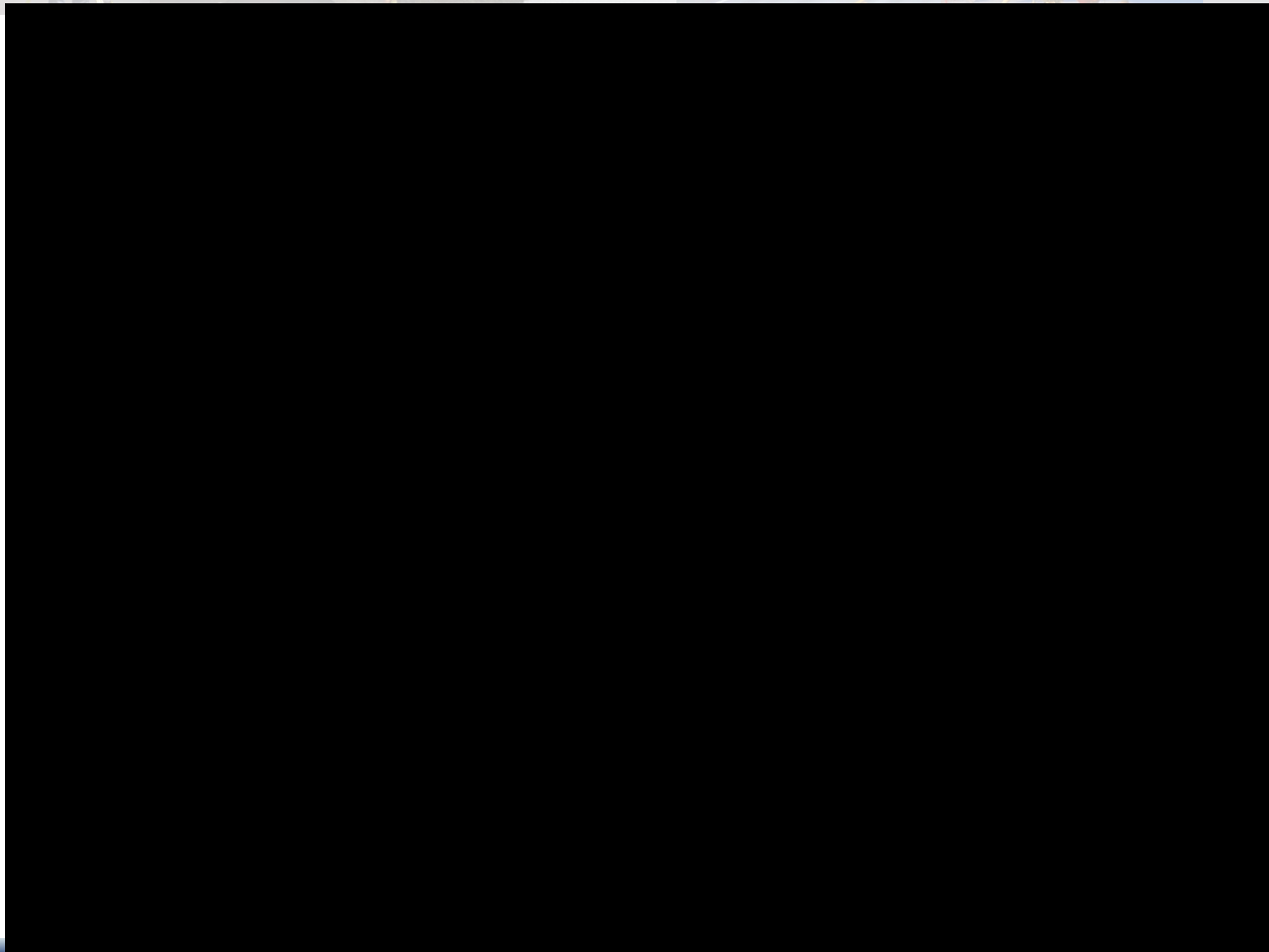






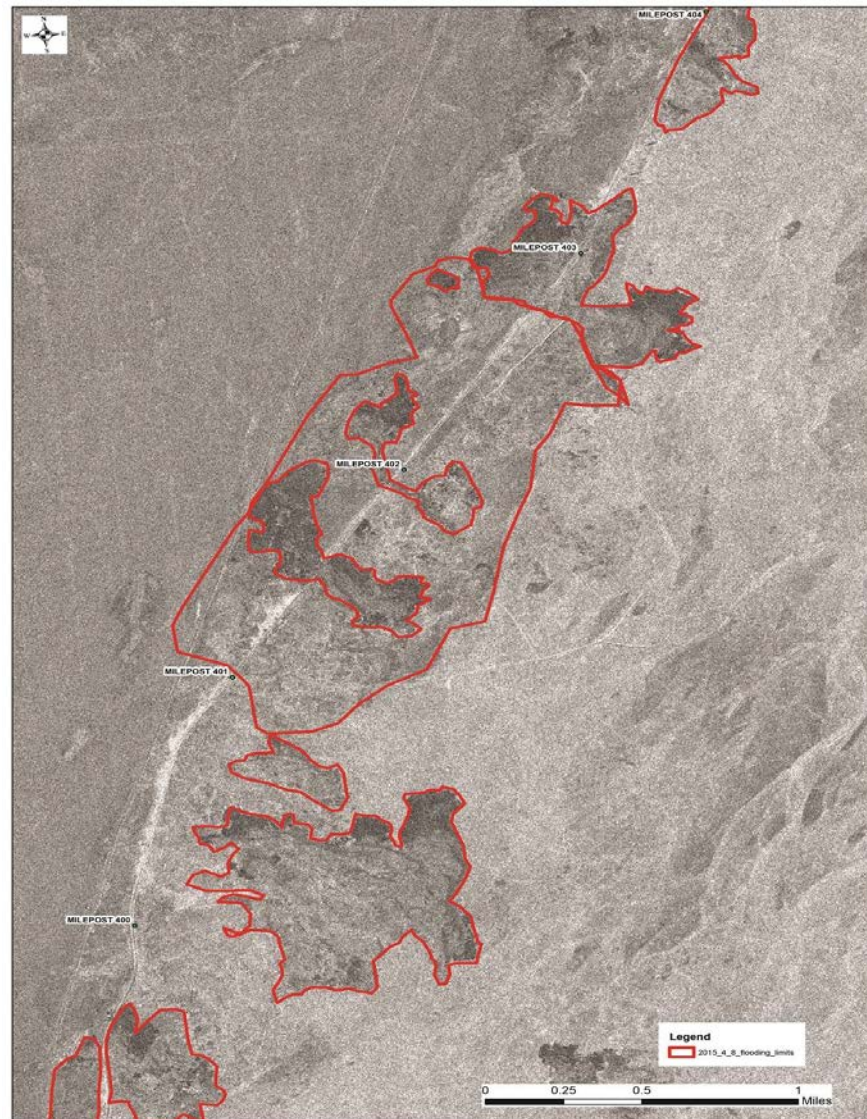


Flood Video





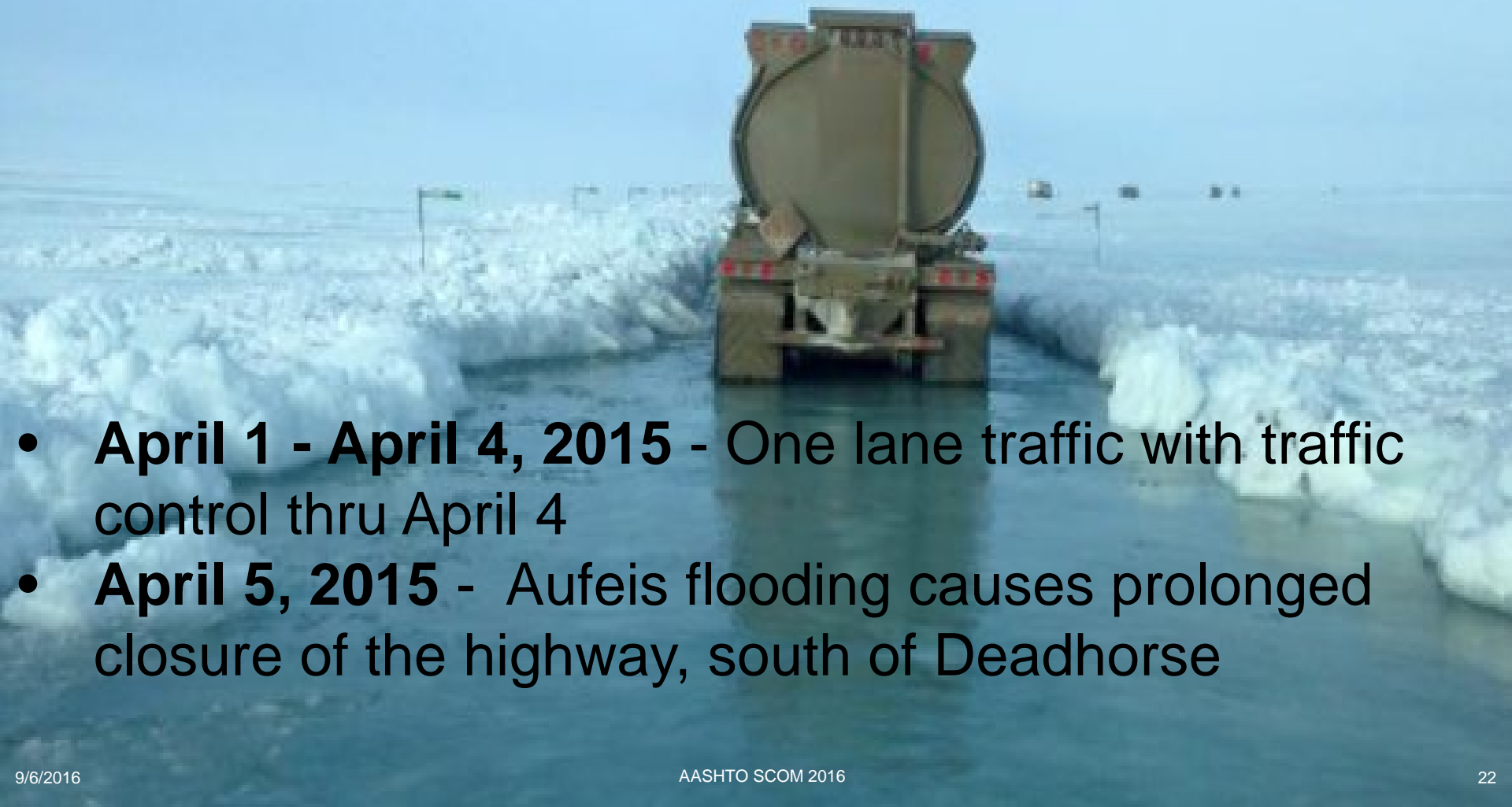
Synthetic Aperture Radar (SAR) Images





Timeline

- **March 20, 2015** – First water on road, eight locations, the largest spot is 12 inches deep and 200 feet long
- **March 30, 2015** – Overnight closure due to storm



- **April 1 - April 4, 2015** - One lane traffic with traffic control thru April 4
- **April 5, 2015** - Aufeis flooding causes prolonged closure of the highway, south of Deadhorse

As many as 1,100 truck
loads backlogged





Impact to North Slope Operations

- Busiest construction season in recent years
- Ice road dependent drill sites - less than one month to go
- High levels of North Slope activities - fuel at minimum levels
- Disruption in the supply of specialty chemicals - threat to production
- Shortage of drilling fluids - potential to shut down rig operations
- Supplies of groceries getting low

Air Operations Resources

Lynden Air Cargo C-130/L-382



Everts Air Cargo DC-6



Rolligon Operations







Stieger Operations







The DOT&PF Response

- Find the Road
- Find the Sag River Channel
- Divert the Water
- Open the Dalton Highway
- Prioritize the Traffic

..... Keep the water out and the trucks moving

Where is the Dalton Highway?

April 7, 2015

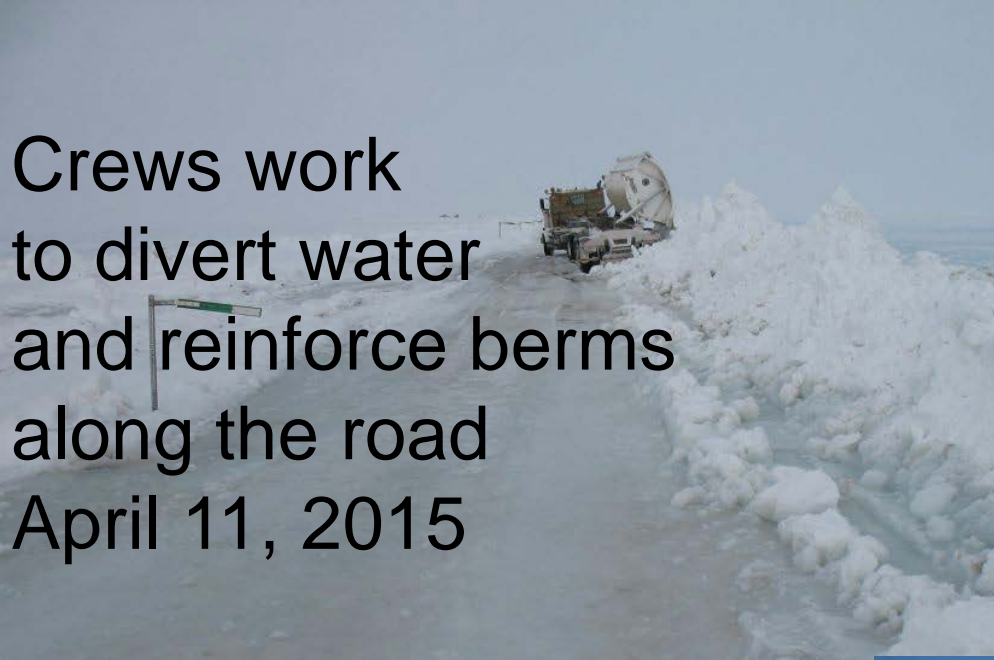


Gov. Walker declares a state disaster

April 7, 2015



Crews work
to divert water
and reinforce berms
along the road
April 11, 2015

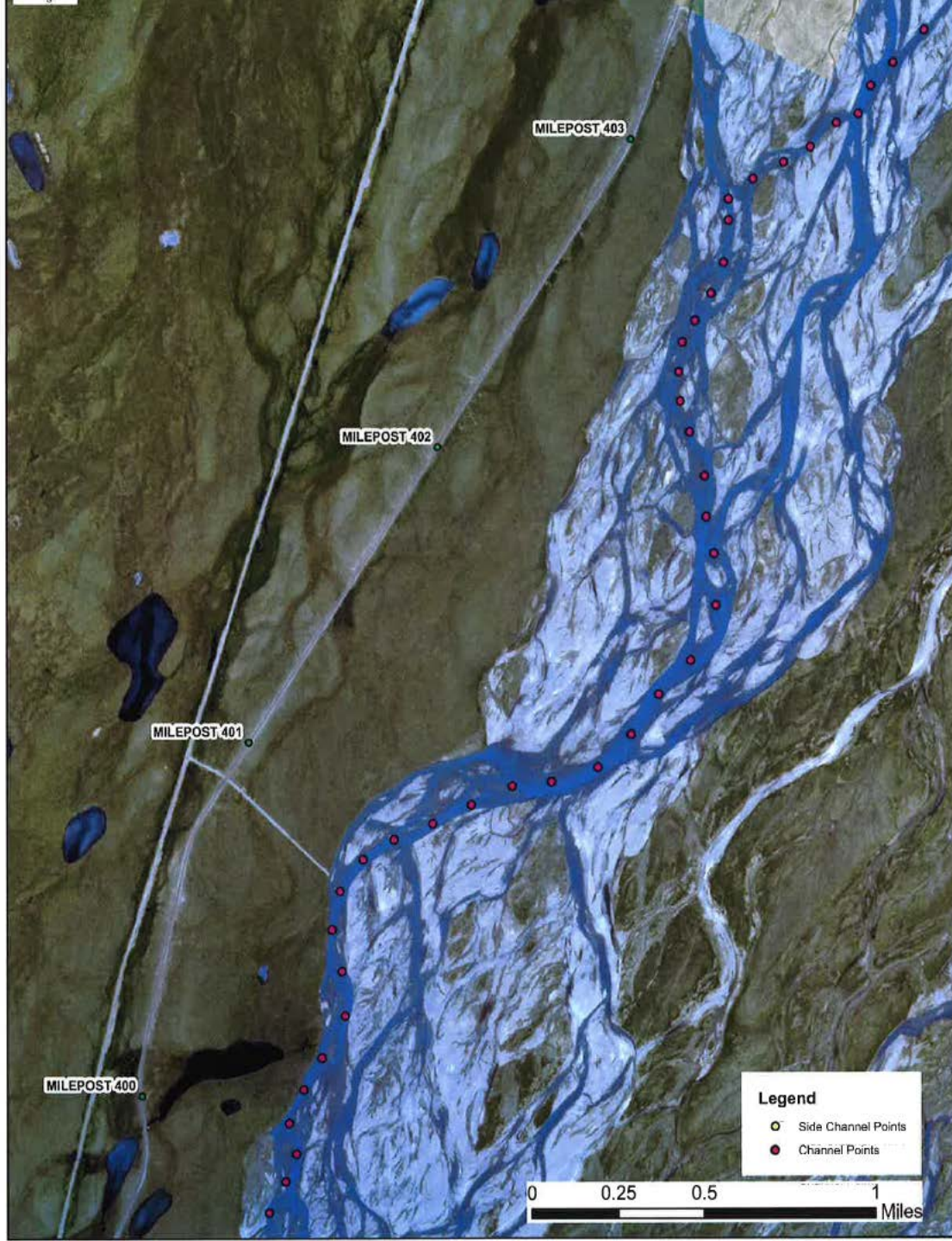






Trench operations divert
water away from the road











Aerial Sanding







UIC Ramps Up April 10

- ADOTPF
- ConocoPhillips
- BP
- Alyeska Pipeline Service Company
- ExxonMobil
- North Slope Borough





Unified Incident Command Goals

- Keep all responders and the public safe;
- Re-establish Dalton Highway traffic flow;
- Ensure accurate and timely release of information to stakeholders and the public;
- Coordinate to optimize highway traffic flow;
- Develop a logistics plan to support North Slope needs; and
- Protect infrastructure and the environment.





UIC Communications



- Daily public stakeholder meetings in Deadhorse
- Daily SITREPs



- Issued numerous Press Releases
- Numerous Media Events






Highway reopens to limited, pre-authorized traffic

April 13, 2015



An aerial photograph showing a long, single-file line of semi-trucks traveling along a narrow, cleared road that cuts through a vast, flat, snow-covered landscape. The trucks are of various colors, including white, yellow, and red. The surrounding terrain is covered in deep snow with some tracks and small depressions. The perspective is from a high angle, looking down the length of the road.

Road opens progressively
to all loads. Pilot car
operations end April 28
April 13 - April 28, 2015



Warmer temperatures start to melt snow and ice on the road

May 5, 2015







Breakup arrives with another round of flooding

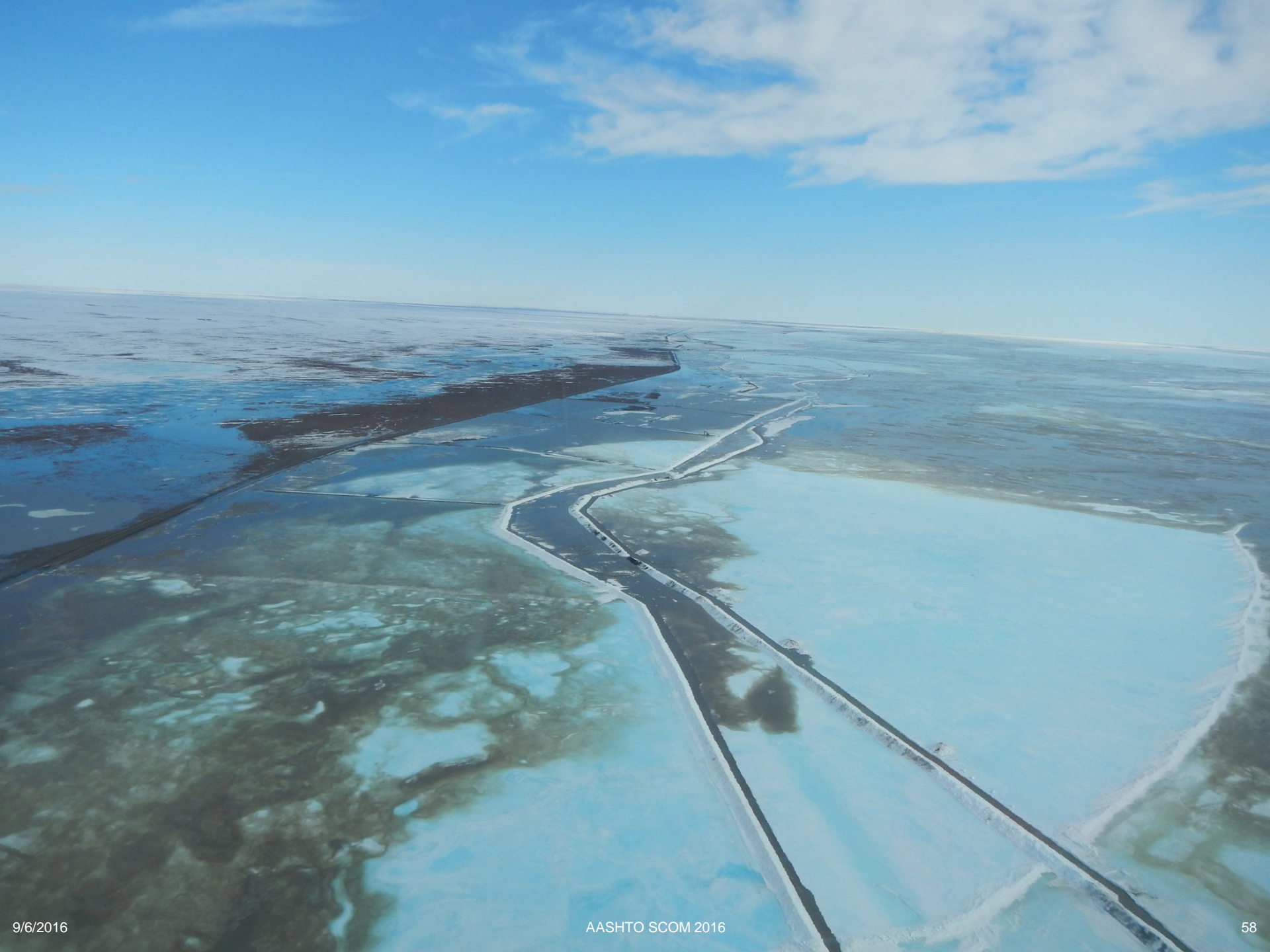
May 17, 2015



Highway closes again

May 17, 2015













9/6/2016



AASHTO SCOM 2016



Flooding begins in Deadhorse;
Gov. Walker declares a 2nd state disaster

May 21, 2015



Water Relief Trenches







Water recedes
dramatically
in a day, near
Mile 394

May 24-25, 2015



Repair work begins

May 28, 2015



Emergency Repairs



Rolling....

June 5, 2015





Dalton Flood After Action Review





Dalton Flood After Action Review

- What actions had a positive outcome and should be replicated in future responses?
- What actions produced a negative outcome and should be avoided in future responses?
- What actions could be improved to be more efficient or effective?





Dalton Flood After Action Review



- Communication
- Internal and External Coordination
- Logistics
- Emergency Response/Unified Incident Command
- Procurement

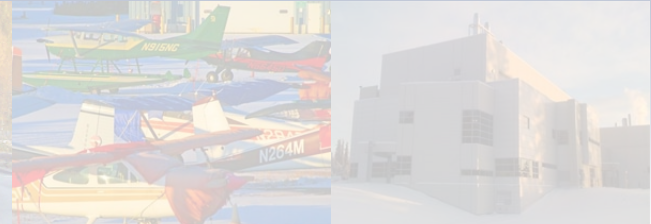
2016 Update



45.33 x 25.50 in



Thank You



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