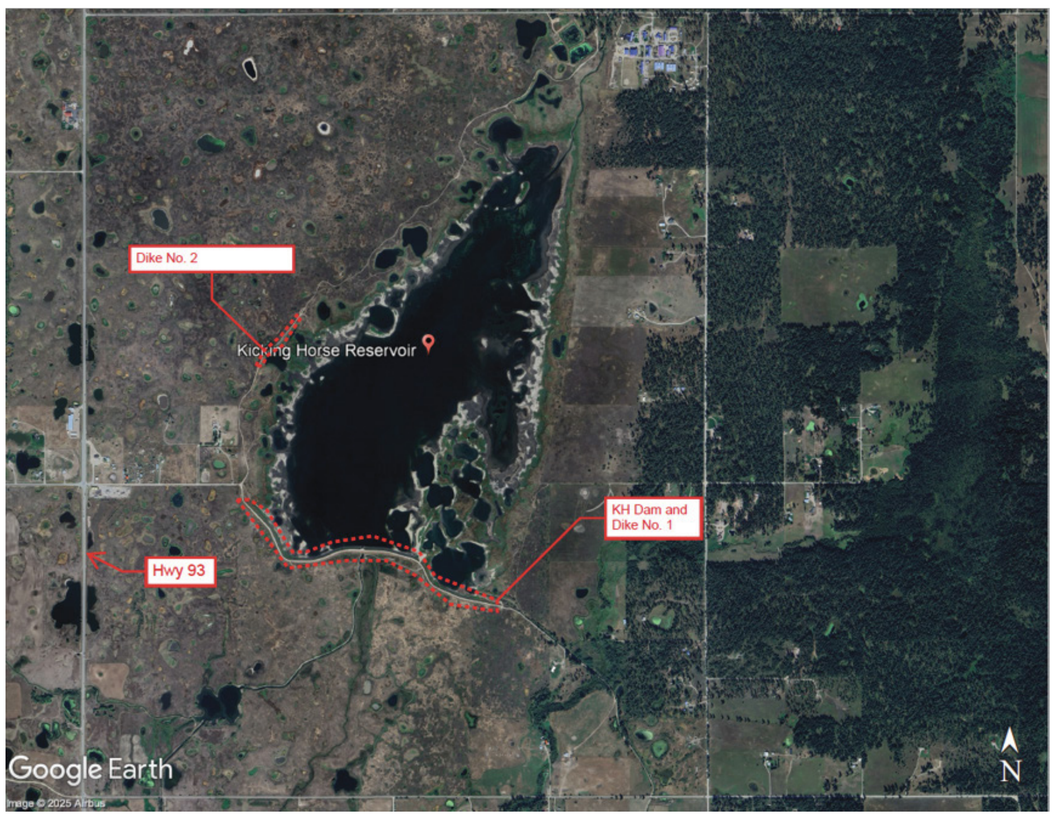
KICKING HORSE DAM:
UNDERSTANDING THE CHALLENGES

Improving Long-Term Safety & Reliability

PROJECT OVERVIEW

Built in 1930, Kicking Horse Reservoir is an important part of the Mission Valley irrigation system. The off-stream reservoir stores water for irrigation deliveries throughout the valley. Beyond its role in irrigation, the reservoir is located within a landscape of cultural and environmental significance to the Confederated Salish and Kootenai Tribes, making its long-term safety, reliability, and sustainability important for future generations.



Dike No. 2 is one of several embankments that help contain water within the reservoir. Planned improvements include constructing a cutoff wall within the dike to reduce seepage and improve long-term safety.

PROJECT CHALLENGES

Aging Infrastructure:

Built nearly 100 years ago, Kicking Horse Dam was designed and constructed using standards common at the time. As the facility ages, many components require modernization to improve safety, reliability, and long-term performance.

Water Moving Through the Dam and Foundation:

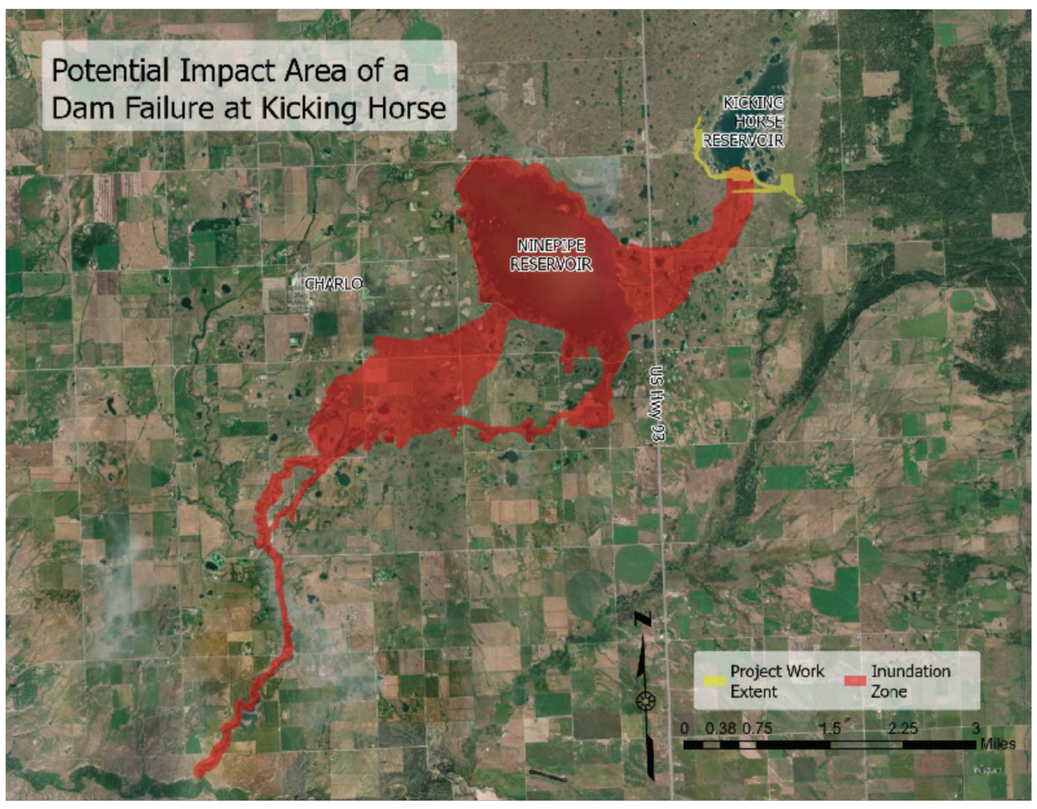
Water moves through and beneath portions of the dam and surrounding soils. Over time, this seepage can slowly carry away soil and weaken the dam's foundation. Dam Safety evaluations identified seepage as a key concern.

Aging Outlet Works:

The outlet works that release water from the reservoir are aging and showing signs of wear. These structures are important for safely managing reservoir operations and require replacement.

Complex Ground Conditions:

The dam sits on layers of clay, sand, and silt deposited by ancient lakes and glaciers. These conditions influence how groundwater moves beneath the reservoir and create unique engineering challenges.



- Studies show increasing potential of failure.
- Approximately 1500 acres impacted excluding Ninepipes Reservoir
- Approximately 42 residences impacted.
- Highway 93, and Eagle Pass, Olsen, Kern, Ninepipe, Logan , Herak, Dublin Gulch, Curlew roads impacted.
- 13' water depth when it reaches Hwy 93.

KEY PROJECT GOAL

Reduce seepage, replace aging infrastructure, and improve long-term dam safety while maintaining irrigation deliveries.

CSKT Natural Resources Department

Division of Engineering & Water Resources (DEWR)