



# FACT SHEET

## Moose Creek Dam

### *Interim Risk Reduction Measures*



US Army Corps  
of Engineers  
Alaska District

#### **Background**

The U.S. Army Corps of Engineers owns and operates more than 600 dams serving a variety of purposes including navigation, flood damage reduction, water supply, irrigation, hydropower, recreation, and environmental enhancement.

To ensure acceptable public safety levels for its dams, the Corps is using a risk-informed process to prioritize and address dam safety deficiencies on a nationwide basis.

As part of this process, the Corps is screening its dams and assigning safety classification ratings.

#### **History**

In 1979, Moose Creek Dam and Floodway were completed as a part of the Chena River Lakes Flood Control Project in North Pole, Alaska. The dam is an earth-filled embankment with a crest height of 50 feet above the streambed and extends 7.5 miles from a ridge on the north to the Tanana River on the south. It includes concrete control works with four gated bays to regulate flows on the Chena River.

As necessary, the dam impounds and diverts water that would flow into the Chena River below the dam. When the water surface upstream of the dam reaches an elevation of 495 feet Mean Sea Level (MSL), water begins to flow over the natural river banks and into the floodway toward the Tanana River. If water rises to 506.7 feet MSL, the impounded water flows over a control sill and into the Tanana River. Diverting water helps reduce potential flood damage to Fairbanks and adjacent downstream areas bordering the Chena River.

The dam last impounded water in 2008 when water behind the dam rose to 495.5 feet MSL.

The most significant event in the project's history occurred in 1992 when the dam impounded water to 507.6 feet, which is approximately 19 percent of its capacity. This is the only occurrence when water spilled over the control sill and flowed into the Tanana River.

#### **Dam Safety Screening and Interim Risk Reduction Measures**

On May 31, 2007, the Corps released Engineer Circular 1110-2-6064, "Interim Risk Reduction Measures (IRRM) for Dam Safety," which provides



Located 17 miles east of Fairbanks, Moose Creek Dam manages seasonal flood flows to protect local citizens and their property.



Since Moose Creek Dam began operations in 1981, the Corps has successfully managed 20 flood events. The largest impoundment occurred in 1992 when the flow in the Chena River was reduced for 18 days.

guidance on the Dam Safety Action Classification (DSAC) rating system.

Moose Creek Dam screening listed it as “urgent and compelling” indicating that the risk to the public is unacceptable under certain conditions.

Typically, there is no risk to the public because there is no water impounded behind the dam, except during flood events on the Chena River. However, to address unacceptable risks when water is impounded, the Alaska District has developed Interim Risk Reduction Measures (IRRM) to improve public safety and reduce economic consequences associated with failure.

These interim measures are short-term efforts implemented while we pursue long-term solutions.

**What We Are Doing Now**

To minimize risk to public safety, the Alaska District is actively pursuing implementation of the following Interim Risk Reduction Measures in coordination with stakeholders to include the public, as well as federal, state and local governments:

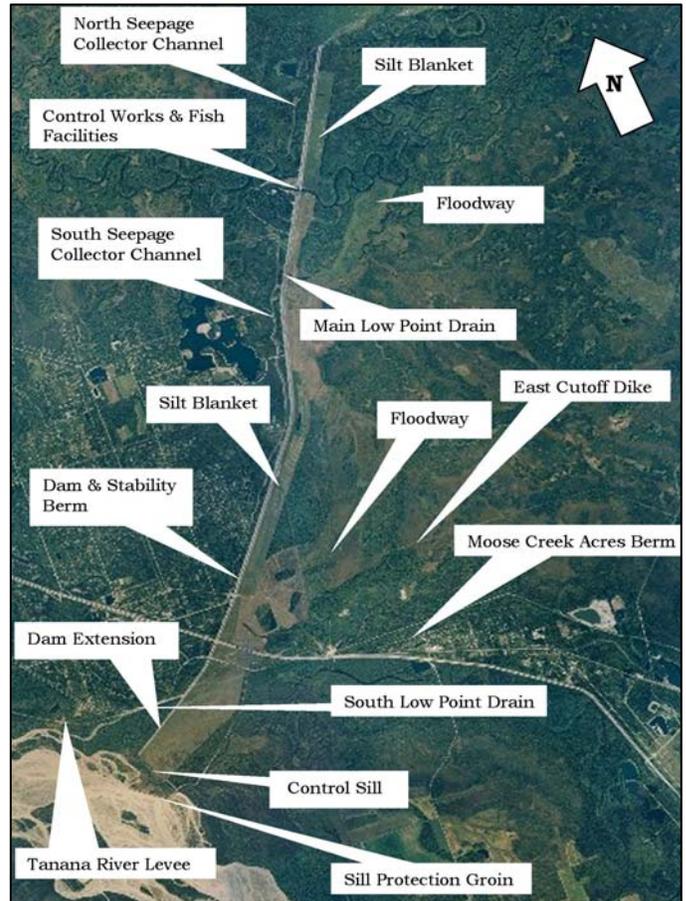
1. Evaluate and implement the lowering of the control sill.
2. Revise flood control operations.
3. Revise the Emergency Action Plan.
4. Identify an Alternative Incident Command Center.
5. Increase monitoring and surveillance.
6. Stockpile additional materials, procure equipment and pre-arrange emergency contracts.
7. Provide lighting for flood monitoring.
8. Improve relief well capabilities.
9. Remove vegetation in compliance with new regulations.
10. Conduct a potential failure mode analysis.

**Specific Deficiencies**

1. The absence of a cut-off beneath the embankment allows for the migration of impounded water through the pervious soil dam foundation.
2. Relief wells are subject to damaging frost action, requiring continual maintenance or replacement.
3. Additional vegetation removal downstream of the dam is required.

**Potential Failure Modes**

1. Seepage and piping in the foundation.
2. Global stability of the control works structure from both flood and seismic loadings.
3. Seepage and piping potential along or through the low point drains.



4. Instability of the embankment during a seismic event.
5. Foundation liquefaction during a seismic event.

**Follow-On Actions**

The Corps is developing long-term alternatives and solutions that will require funding to implement.

The Alaska District is committed to keeping the public informed of safety issues related to the Moose Creek Dam and of our progress in implementing risk reduction measures.

**For More Information**

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