

Dam Safety- Fact Sheet

Montana Watercourse and Montana Department of Natural Resources and Conservation
Water Resources Division



Earthen Dam Inspection

Fact Sheet: 2

Regardless of a dam's hazard classification, a detailed inspection is an important part of operation and maintenance of any size dam. Performing a detailed inspection can save the owner money by identifying problems early and by protecting downstream structures and inhabitants. Below is a list of key things to inspect and record observations of when performing an inspection.

General Inspection Methodology

Crest: Walk across the crest from abutment to abutment.

Upstream/Downstream Slope: Walk across the slope in an up and down or zigzag pattern from abutment to abutment.

Embankment-Abutment Contacts: Walk the entire length of the embankment-abutment contacts (groin).

Outlet Conduit: Observe all accessible features of the outlet conduit. An outlet conduit can be either the low level drain or the principal spillway See Fact Sheet #16 and #17.

Spillway: Visually observe the entire length of the spillway or spillways, and all other visible features.

Downstream Channel: Travel the route of the stream below the dam to maintain familiarity with locations of residences and property that can be affected by dam failure. Dam owners should be aware of new downstream development and how this may impact the hazard class of their dam. Go far

enough downstream to cover the area that could be affected by a dam failure.

Downstream Toe: Walk the entire length of the downstream toe.

Reservoir Slopes: Scout the reservoir perimeter in an effort to develop an overall familiarity with its conditions.

Blank inspection forms are available on the DNRC's website at: http://dnrc.mt.gov/wrd/water_op/dam_safety/dam_owners.asp.

Inspection Kit Checklist:

Camera
Measuring Tape
Inspection Forms, Clipboard, Pens, Pencils
Previous Inspection Report to Compare
Buckets
Stopwatch
Ziploc Bags
Flashlight
Hammer

What to Look For During Inspection:

- Settlement
- Turbid Discharge
- Structural Cracking
- Foundation Movement
- Erosion
- Sinkholes
- Vandalism
- Animal Burrows
- Boils
- Depressions
- Voids
- Debris in Gates and Spillways
- Wave Erosion
- Excessive Vegetation

- Seeps
- Soil Displacement on Slopes (Sloughing)



Seepage has severely damaged this embankment.

Record Keeping

To properly maintain a dam from year to year an owner needs to keep all records throughout the life of the dam.

Engineer Inspection

Periodically, dams should be inspected by a licensed dam engineer. A licensed dam engineer will be able to evaluate seepage and structural problems and help develop a plan for repair if necessary.

Important Items to Keep:

Annual Inspection Forms
 Field Sketches
 Ground Photos
 Dated and Position Recorded
 Monitoring Data
 Record Seepage Rates, Settlement,
 Crack Width, Reservoir Level,
 Piezometer Elevation Readings



The area around the metal conduit has been eroded away by seepage along the pipe.



For more questions, comments, additional fact sheets, and area specific information you can contact DNRC or Montana Watercourse at the addresses below or on the web.

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