



## DAM INSPECTIONS BY OWNERS

Although all Hazard Potential Category 1 or 2 (i.e., “High Hazard”) dams must be inspected annually by a registered professional engineer, dam owners in Pennsylvania are required to inspect their dam(s) at least once every three months. A manual entitled *The Inspection, Maintenance and Operation of Dams in Pennsylvania* is available upon request from the Division of Dam Safety.

### The Inspection

It is helpful to prepare an inspection route in advance to assure that every part of the dam will be observed. The following is a recommended sequence to assist you in your inspection:

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.

SPILLWAY - Walk along the entire length of the spillway in a back and forth manner.

ABUTMENTS - Traverse abutments in a practical manner so as to gain a general feel for the conditions which exist along the valley sidewalls.

DOWNSTREAM CHANNEL - Travel the route of the stream below the dam to maintain familiarity with locations of residences and property which can be affected by 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.

### What To Look For

The following is a partial list of some of the conditions a dam owner may discover. This list does not cover all of the problems which may be encountered.

SETTLEMENT

STRUCTURAL CRACKING

EROSION

SINKHOLES

ANIMAL BURROWS

DEPRESSIONS

SEEPS

EXCESSIVE VEGETATION

BOILS

TURBID DISCHARGE

FOUNDATION MOVEMENT

VANDALISM

### Keeping Records

It is important for the dam owner/operator to keep records throughout the existence of the dam. Accurate records can better illustrate the dynamic nature of the structure.

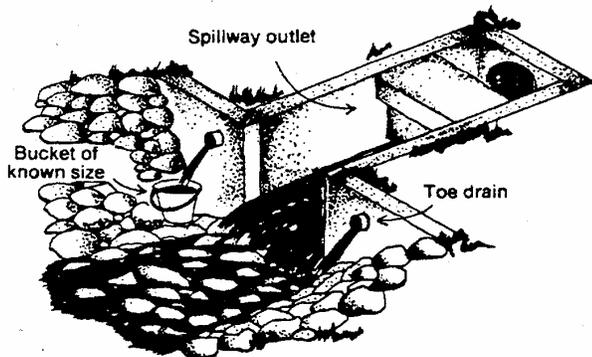
DEP requires the dam owner to establish a permanent file to retain inspection records including records of actions taken to correct conditions found in such inspections. The following items will aid the dam owner/operator in keeping good records.

**Inspection Checklist** - A convenient way of compiling inspection observations is by recording them directly onto an inspection checklist. The checklist should be attached to a clipboard and carried by the dam inspector as he/she traverses the entire structure. Copies of the checklist can be obtained by contacting DEP.

A good practice to follow along with filling out the inspection checklist is to draw a field sketch of observed conditions. The field sketch is intended to supplement the information recorded on the inspection checklist, however, it should never be used as a substitute for clear and concise inspection checklists.

**Photographs** - Inspection photographs can be vitally important. Over time, photographs serve to provide a pictorial history of the evolving characteristics of a dam. The dam owner/operator often finds them to be great money savers because they can illustrate that some observed conditions (seepage, foundation movement, etc.) have existed for many years and may have reached a state of equilibrium. With this knowledge, quick and economical remedial actions can be developed and implemented. Photographs should be dated on the back and provided with brief descriptions of the locations shown in the pictures.

**Monitoring Data** - As previously indicated, it may become necessary to make measurements of various items during the course of a dam inspection. This may include measurements of seepage rates, spillway discharge rates, settlement, and for some dam owners, readings from instruments such as piezometers. It is important that this data also be compiled in a systematic manner and placed in a permanent file.



### **Accompany Your Engineer During Annual Inspections**

Many engineers encourage dam owners or operators to accompany them, or even assist them, on annual dam inspections. Also, many owners accompany department engineers during our periodic inspections. Owners can learn many things from experienced inspectors such as:

- What to look for;
- How to photograph certain features of a dam;
- What records to keep; and
- How to read different types of instrumentation.

### **For more information contact:**

Department of Environmental Protection  
Bureau of Waterways Engineering  
Division of Dam Safety  
P.O. Box 8554  
Harrisburg, PA 17105-8554  
(717) 787-8568

For more information, visit DEP's Web site at [www.depweb.state.pa.us](http://www.depweb.state.pa.us), keyword: Dam Safety.