



Delaware Dam Safety Program Visual Inspection Checklist

This general checklist should be used as an aid when examining all dams. This checklist may not, however, include all features or conditions found at a specific dam that are relevant to the safety of that dam. All features integral to the safety of the dam being examined should be inspected and their condition reported.

TYPE OF INSPECTION: (Regular, Formal or Informal):

DE INSPECTION YEAR:

DAM NAME:

NID ID:

STATE ID:

LOCATION:

OWNER:

OPERATOR:

DATE OF INSPECTION:

RESERVOIR INFORMATION

Normal Reservoir Elevation (ft):

Reservoir Elevation at time of inspection (ft):

WEATHER CONDITIONS (including recent rainfall):

INSPECTION PERSONNEL

Delaware Licensed Professional Engineer(s):

Name

Affiliation

Assisted By:

Name

Affiliation

DNREC Dam Safety Program Representative(s):

Name

Affiliation

Dam Owner Representative(s):

Name

Affiliation

Others:

Name

Affiliation

2008 DELAWARE DAM INVENTORY INFORMATION (provided by DNREC if available):

HISTORY

Date Constructed:

Dates(s) Reconstructed:

Designer:

Constructed By:

Owner & Address:

Owner/Operator present during inspection (yes or no):

PREVIOUS INSPECTIONS

Last Inspection:

Last Regular Inspection:

Phase I Inspection:

Last Formal Inspection:

List all recommendations from previous inspection reports and note whether those items have been completed:

EMERGENCY ACTION PLAN (Required for all High and Significant Hazard dams)

Date of Approved Plan:

Date of Plan Revision:

Is the notification flowchart complete and current? *(If the notification flow chart is not complete and current, all modifications, corrections, and additions must be made and replacement pages submitted with this report)*

Is inundation mapping or a description included?

Are emergency materials and equipment identified?

When was the plan last tested?

DOWNSTREAM HAZARD CLASSIFICATIONS

Present Hazard Classification:

Changes in Downstream Land Use and Habitation:

Is present classification appropriate?

OPERATION AND MAINTENANCE

Date of Operation and Maintenance Plan:

Are instructions adequate?

Do operating personnel follow instructions?

What are operating personnel capabilities?

EXAMINATION OF EMBANKMENT DAMS

DESCRIPTION OF STRUCTURE

Embankment Material:

Cutoff Type:

Impervious Core:

Internal Drainage System:

Movement (Horizontal and Vertical Alignment):

Junctions with Abutments or Embankments:

Miscellaneous:

CREST

Vertical Alignment:

Horizontal Alignment:

Surface Cracks:

Settlement:

Unusual Conditions:

UPSTREAM SLOPE

Slope (Estimate) (H:V):

Trees, Undesirable Growth or Debris, Animal Burrows:

Sloughing, Subsidence or Depressions:

Slope Protection:

Surface Cracks or Movement at Toe:

Unusual Conditions:

DOWNSTREAM SLOPE

Slope (Estimate) (H:V):

Trees, Undesirable Growth or Debris, Animal Burrows:

Sloughing, Subsidence or Depressions:

Surface Cracks or Movement at Toe:

Seepage:

External Drainage System (Ditches, Trenches, Blanket):

Condition Around Outlet Structure:

Unusual Conditions:

ABUTMENTS AND TOE AREA

Erosion at Contract:

Seepage or Wet Area Along Contract:

Signs of Movement:

Depressions, Sinkholes:

Unusual Conditions:

SEEPAGE OR TOE DRAIN FLOW MEASUREMENTS

Location

Estimated Flow

Color (Turbidity)

OTHER CONDITIONS/OBSERVATIONS

EXAMINATION OF SPILLWAYS AND OUTLET WORKS

TYPE(S) AND DESCRIPTION OF SPILLWAY(S)

Primary:

Secondary (auxiliary):

Emergency:

Low Level Outlet (flashboards, operable gates, etc.):

Other:

FOR EACH SPILLWAY THE FOLLOWING ASPECTS MUST BE EXAMINED WHERE APPROPRIATE

ENTRANCE CHANNEL

Description:

Vegetation (Trees, Bushes):

Debris:

Channel Side-Slope Stability:

Slope Protection/Erosion:

Unusual Conditions:

SPILLWAY CREST

Description:

Condition of Material:

Signs of Movement:

Joints:

Unusual Conditions:

DROP BOX

Description:

Condition of Material:

Signs of Movement:

Joints:

Floor:

Unusual Conditions:

SPILLWAY WING WALLS

Description:

Condition of Material:

Signs of Movement:

Joints:

Drains:

Unusual Conditions:

DOWNSTREAM APRON

Description:

Condition of Material:

Signs of Movement:

Unusual Conditions:

CULVERTS

Description:

Condition of Material:

Joints:

Signs of Movement:

Seepage:

Location

Estimated Flow

Turbidity

Unusual Conditions:

TRASH RACKS

Description:

Condition of Material:

Unusual Conditions:

CHUTES

Description:

Condition of Material:

Signs of Movement:

Unusual Conditions:

STILLING BASIN

Description:

Condition of Material:

Signs of Movement:

Erosion:

Unusual Conditions:

EXIT CHANNEL

Vegetation (Trees, Bushes):

Debris:

Channel Side-Slope Stability:

Erosion:

Unusual Conditions:

LOW LEVEL OUTLET

Description:

Condition:

Trash Rack:

Leakage:

Location

Estimated Flow

Unusual Conditions:

Was the low level outlet operated during the inspection?

Were there difficulties operating the low level outlet?

When was the low level outlet last operated and did this conform with the Operation and Maintenance procedures?

Miscellaneous:

STILLING BASIN FOR LOW LEVEL OUTLET

Description:

Condition of Material:

Signs of Movement:

Erosion:

Unusual Conditions:

EXIT CHANNEL FOR LOW LEVEL OUTLET

Description (Trees, Bushes):

Debris:

Channel Side-Slope Stability:

Slope Protection Erosion:

Unusual Conditions:

EXAMINATION OF CONCRETE AND MASONRY DAMS

DESCRIPTION OF STRUCTURE

Type of Dam (Gravity, Arch, etc.):

Internal Drainage System:

Movement (Horizontal and Vertical Alignment):

Miscellaneous:

UPSTREAM FACE

Condition of Concrete or Masonry:

Cracking:

<u>Location</u>	<u>Orientation</u>	<u>Length</u>	<u>Width</u>	<u>Type</u>
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DOWNSTREAM FACE

Condition of Concrete or Masonry:

Cracking:

<u>Location</u>	<u>Orientation</u>	<u>Length</u>	<u>Width</u>	<u>Type</u>
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Leakage through Dam (Location and Estimated Flow):

CREST

Condition of Concrete or Masonry:

Cracking

<u>Location</u>	<u>Orientation</u>	<u>Length</u>	<u>Width</u>	<u>Type</u>
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Signs of Movement:

Differential Movement (Joint or Crack Separation or Offset):

GALLERIES

Cracking

<u>Location</u>	<u>Orientation</u>	<u>Length</u>	<u>Width</u>	<u>Type</u>
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Differential Movement (Joint or Crack Separation):

Leakage into Galleries (Location and Estimated Flow):

Condition of Gallery Drains:

FOUNDATION

Condition of Rock or Concrete Lining:

Cracking:

Signs of Movement:

Seepage (Location and Estimated Flow):

ABUTMENTS AND TOE AREA

Seepage or Wet Areas:

Signs of Movement:

Cracking:

Erosion:

Unusual Conditions:

EXAMINATION OF OTHER FEATURES

INSTRUMENTATION (Monumentation/Surveys, Observation Wells, Weirs, Piezometers, etc.) location, condition:

(A separate report including instrument readings, condition of instruments, observations, and conclusions based upon the collected data should be attached.)

RESERVOIR

Slopes:

Sedimentation:

Unusual Conditions Which Affect Dam:

Other Unusual Conditions:

APPURTENANT STRUCTURES

Description and Condition of Each:

RECOMMENDATIONS

THE FOLLOWING REPAIRS SHOULD BE MADE IMMEDIATELY:

THE FOLLOWING NON-IMMEDIATE REPAIRS/IMPROVEMENTS SHOULD BE MADE:

THE FOLLOWING MAINTENANCE ITEMS SHOULD BE COMPLETED:

THE FOLLOWING ENGINEERING ANALYSIS/STUDIES SHOULD BE PERFORMED:

- Hydrologic and Hydraulic Analysis
- Embankment Stability Analysis
- Dam Failure Analysis/Inundation Mapping
- Other:
- None

CONDITION ASSESSMENT

_____ (dam name) _____ was personally inspected by me and was found to be in the following condition (**select one only**):

SATISFACTORY

No existing or potential dam safety deficiencies are recognized. Acceptable performance is expected under all loading conditions (static, hydrologic, seismic) in accordance with the applicable regulatory criteria or tolerable risk guidelines.

FAIR

No existing dam safety deficiencies are recognized for normal loading conditions. Rare or extreme hydrologic and/or seismic events may result in a dam safety deficiency. Risk may be in the range to take further action.

POOR

A dam safety deficiency is recognized for loading conditions which may realistically occur. Remedial action is necessary. POOR may also be used when uncertainties exist as to critical analysis parameters which identify a potential dam safety deficiency. Further investigations and studies are necessary.

UNSATISFACTORY

A dam safety deficiency is recognized that requires immediate or emergency remedial action for problem resolution.

Delaware Registered Professional Engineer Performing Condition Assessment:

Name _____ DE PE License Number _____

Affiliation (Agency/Company) _____

Signature _____ Date _____

Delaware Dam Safety Program Concurrence with Condition Assessment:

Name _____ DE PE License Number _____

Signature _____ Date _____

Dam Owner Acknowledgement of Condition Assessment:

Name _____ Title _____

Signature _____ Date _____