



**Photograph No. 19:**

**View of the lower portion of the right spillway sidewall. The arrow indicates where the water has eroded around the wall.**



**Photograph No. 20:**

**View of the left spillway sidewall. Note the missing and displaced stones. Also note the undermining of the inlet wall.**



**Photograph No. 21:**

**Water had also undermined the end of the left spillway side wall.**



**Photograph No. 22:**

**Lake drain valve. Unsure if it is operable.**



**Photograph No. 23:**

**Outlet channel.**

# Dam Classification Checklist

Name of Dam: Sippo Creek Reservoir Dam File Number: 0614-012  
 County: Stark Date: May 25, 2010 Engineer: TMG

The classification of a dam is based on three factors: the dam's height, storage capacity, and potential downstream hazard. The height of the dam is the vertical distance from the crest to the downstream toe. The storage capacity is the volume of water that the dam can impound at the top of dam (crest) elevation. The downstream hazard consists of roads, buildings, homes, and other structures that would be damaged in the event of a dam failure. Potential for loss of life is also evaluated. Various dam failure scenarios must be considered, and they include failures when the dam is at normal pool level and failures during significant flood events. Each of the three factors is evaluated, and the final classification of the dam is based on the highest individual factor. Class I is the highest and Class IV is the lowest. The classification of a dam can change based on future development along the downstream channel.

This checklist is intended to establish or verify the appropriate classification in accordance with the Ohio Administrative Code – it does not necessarily show all potential hazards or the full extent of inundation. In addition, elevations are estimated.

<b>HEIGHT CLASSIFICATION</b>	<b>STORAGE CLASSIFICATION</b>	<b>EXEMPT-NON-REGULATED</b>
Dam Height = 18.9 feet	Stor. Capacity (top of dam)= 82.5 acre-feet	
<u>        </u> > 60' - Class I	<u>        </u> > 5000 acre-feet - Class I	<u>        </u> Height ≤ 6 feet
<u>        </u> > 40' - Class II	<u>        </u> > 500 acre-feet - Class II	<u>        </u> Storage ≤ 15 acre-feet
<u>        </u> > 25' - Class III	<u>        </u> <b>X</b> > 50 acre-feet - Class III	<u>        </u> 6 ft. < Height < 10 ft. &
<u>        </u> <b>X</b> ≤ 25' - Class IV	<u>        </u> ≤ 50 acre-feet - Class IV	<u>        </u> Stor. ≤ 50 ac-ft

**Height Class:**          **IV**

**Storage Class:**          **III**

**Hazard Class (see next page):**          **I**      **Estimated Population at Risk:**          **16+**

**Final Class:**          **I**

**Class Changed (Yes, No)**

## POTENTIAL DOWNSTREAM HAZARD

I	II			III		IV	-	-						
Probable loss of human life	Loss of public water supply or wastewater treatment facility, release of health hazardous waste	Flooding of structure or high-value property	Damage to high-value or Class I, II, III dam or levee	Damage to major road (US or state route), disruption of only access to residential or critical facility area	Damage to railroad or public utility	Damage to rural building, not otherwise high-valued property, or Class IV dam or levee	Damage to local road (county and township)	Loss restricted mainly to the dam or agricultural /rural land	No hazard to structure noted	No hazard assessment; further investigation needed	Distance downstream of dam to affected structure (feet)	Vertical distance from streambed to base of affected structure (feet)	Horizontal distance from stream to affected structure (feet)	
				B		A					200	3	0	Upper Park
						C					1500	26	0	SR 241
											2000	3	0	Lower Park
D											5300	4	30	Homes

This checklist is intended to establish or verify the appropriate classification in accordance with the OAC – it does not necessarily show all potential hazards or the full extent of inundation.

### Sketch of Developments Downstream of Dam



## Flood Routing Summary

A dam must be able to safely pass severe flood events. A dam uses a combination of reservoir storage capacity and spillway discharge to prevent floodwater from overtopping the embankment crest. As part of this inspection, the Division of Soil & Water Resources did not thoroughly investigate the ability of this dam to safely pass the required design flood. In 2001 the Division of Soil & Water Resources performed hydrologic and hydraulic calculations to estimate the size of the design flood and the total spillway discharge capacity of the dam. These calculations combined with the reservoir storage capacity were used in the flood routings to determine the maximum water surface elevation in the reservoir for various flood events (see Table I).

Sippo Creek Reservoir Dam is a Class I dam; therefore, in accordance with OAC Rule 1501:21-13-02, the required design flood is 100% of the Probable Maximum Flood (PMF) or the critical flood. This dam and its spillway system must safely pass the design flood without overtopping the embankment crest. Flood routing calculations indicate that the dam can pass 3% of the PMF; Sippo Creek Reservoir Dam does not appear to be able to safely pass the design flood.

**Table I - Flood Routing Summary**

Flood Event	Maximum Inflow (cubic feet per second)	Maximum WSEL <sup>1</sup> (feet)	Overtopping	
			Depth <sup>2</sup> (feet)	Duration (hours)
PMF	20180	1013.9	13.3	23.7
75% PMF	15135	1010	9.4	22.2
50% PMF	10090	1008.2	7.6	21
25% PMF	5045	1004.6	4	17.3
12% PMF <sup>3</sup>	2421	1003.2	2.6	13

1. WSEL – water surface elevation, in feet above the mean sea level
2. A negative number indicates that the dam does not overtop and represents the elevation difference between the Maximum WSEL and the Top of Dam Elevation (freeboard)
3. 12% PMF is similar to the 100-year flood. The 100-year flood event has a 1% chance of occurring in any given year. This is only an approximation.

Top of Dam Elevation: 1000.60 feet above msl

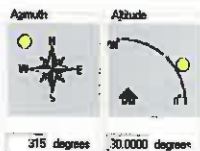
Normal Pool Elevation: 997.00 feet above msl

## History of Sippo Creek Reservoir Dam

Date	Event
Unknown	Dam constructed.
1991	Dam safety inspection by the Division of Soil & Water Resources.
2000	Repair plans and hydrologic and hydraulic study submitted, comments provided, no resubmittal.
2001	Dam safety inspection by the Division of Soil & Water Resources.
2006	Dam safety inspection by the Division of Soil & Water Resources.
May 25, 2010	Dam safety inspection by the Division of Soil & Water Resources.

# LOCATION MAP

## MORELLI POND DAM - 0614-007



Legend	
	Dams
	Cities
	County Boundary
	Quad Boundary



# Dam Inventory Sheet

Name: SIPPO CREEK RESERVOIR DAM

File No: 0614-012

National #: OH02825

Reservoir:

Permit No.: EXEMPT

Class (Ht-Vol): I (IV - III)

## Owner Information

Owner: City of Massillon

Owner Type: Public, Local

Address: Parks & Recreation

Multi-Dams: -

505 Erie St. North

Parcel No.:

City: Massillon

State: OH

Zip: 44646

Contact: Kenneth Kaminski, Director

Phone No.: 330/832-1621

## Location Information

County: Stark

Latitude Deg.: 40 Min.: 48 Sec.: 18

Township: Perry

Longitude Deg.: 81 Min.: 30 Sec.: 30

Stream: Sippo Creek

Nearest Affected Community: Massillon

Community's Distance from Dam (miles): 0

USGS Quad.: Massillon

USGS Basin No.: 05040001

## Design/Construction Information

Designed By: Unknown

Constructed By: Unknown

Completed:

Plan Available: NO

At:

Failure/Incident/Breach:

## Structure Information

Purpose: Recreation, Public

Type of Impound.: Dam And Spillway

Type of Structure: Earthfill

Drainage Area (sq. miles): 14.9

or (acres): 9566

### Embankment Data

Length (ft): 265

Upstream Slope: 2H:1V

Height (ft): 18.9

Downstream Slope: 2H:1V

Top Width (ft): 6

Volume of Fill (cub. yds.):

### Spillway Outlet Works Data

Lake Drain: 24-INCH-DIAMETER GATE VALVE

Principal: 36-FT-WIDE WEIR

Emergency: NONE

Maximum Spillway Discharge (cfs) 753

Design Flood: 1.0 Flood Capacity 0.03

### Dam Reservoir Data

Elevation (ft-MSL)\*

Area (acres)

Storage (acre-feet)

Top of Dam: 1000.6

34

82.5

Emergency Spillway:

Principal Spillway: 997

4.4

21.7

Streambed: 981.7

Foundation:

\*Elevations are not necessarily related to a USGS benchmark

## Inspection Information

Inspection: 5/25/2010 TMG

Phase I:

History: 2/21/2006 TML

Other Visits:

4/26/2001 WDE

12/19/1991

Next Planned Inspection: 2009-2010 C - by Basin

## Operation Information/Remarks

RECEIVED REPAIR PLANS 2000, COMMENTS PROVIDED, NO PROGRESS MADE.

Emergency Action Plan: NO  
Annual Fee: \$219.00

Format: OMI: No  
Last Entry: 6/7/2010

# Dam Safety Inspection Checklist

## Complete All Portions of This Section (Pre-inspection)

Name of Dam: Sippo Creek Reservoir Dam

Stark County

Date of Inspection: MAY 25, 2010

Required Action

File Number: 0614-012

None Mon. Maint. Eng.

Class: I

Design Flood: 1.0 Flood Capacity: 0.03

### Interview with Owner (at the site):

Owner/Representative present: (Yes, No) Name(s): THEY WERE SCHEDULED TO BE THERE

Owner's Name(s): City of Massillon BUT NO ONE SHOWED UP.

Address: Parks & Recreation, 505 Erie St. North,

City: Massillon State: OH

Zip (+4): 44646

Contact Person: Kenneth Kaminski, Director

Telephone: 330/832-1621

Email Address:

Purpose of dam: Recreation, Public

### Owner Dam Safety Program

Emergency Action Plan

EAP (document): NO Up-to-date? (yes, no)

Exercised:

Downstream development:

Security:

### Operation, Maintenance, and Inspection

OMI (document): No Up-to-date? (yes, no)

Operation of drains/gates

All operable? (yes, no) UNKNOWN IF LAKE DRAIN IS OPERABLE.

Normal rate of drawdown: UNKNOWN

Emerg. rate of drawdown: UNKNOWN

Accessibility for operation:

### Maintenance

Frequency of mowing: UNKNOWN - AT LEAST 3 TIMES.

Other maintenance: REMOVED LARGE TREES OFF THE D/S SLOPE SINCE LAST INSPECTION. BUT THE STUMPS REMAIN.

### Inspection

Frequency and thoroughness of day-to-day & routine inspections: UNKNOWN

Frequency and thoroughness of event-driven inspections: UNKNOWN

Problems found during inspections:

### Field Information

Pool Elevation (during inspection): NORMAL POOL

Time: 10 (a.m./p.m.)

Site Conditions(temp., weather, ground moisture): 75° SUNNY, DRY

Inspection Party: TINA GRIFFIN + MATT HOOK

Maximum Height: 18.9 Feet (measured or inventory appears correct)

Normal Pool Surface Area: 4.4 Acres (measured or inventory appears correct)

Brick cutoff walls runs across length of crest;  
Lake drain valve is in the stilling basin.

Received Repair Plans 2000, Comments Provided, No Progress Made.



UPSTREAM SLOPE

Gradient: Horizontal:

2

Vertical:

1

(est, meas.)

Required Action

None  
Minor  
Major  
Emergency

VEGETATION [no problem]

Trees: Quantity: (<5, sparse, dense)

Diameter: (<6", 6-12", >12")

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)

Notes:

Brush: Quantity: (sparse, dense)

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)

Notes: LOCATED AT SHORELINE MOSTLY.

Ground Cover: Type: (grass, crown vetch) Other:

Quantity: (bare, sparse, adequate, dense)

Appearance: (too tall, too short, good)

Notes: SOME AREAS ON THE SLOPE WERE BARE OF VEGETATION.

THESE AREAS ARE AROUND BOTH SIDES OF SPILLWAY ENTRANCE

SLOPE PROTECTION [no problem, could not inspect thoroughly]

None

Riprap: Average Diameter: BROKEN CONCRETE SLABS

(adequate, sparse, displaced, weathered, vegetation) (bedding/fabric noted - yes, no)

Notes: SLOPE PROTECTION WAS NOT PROPERLY INSTALLED AND HAS BEEN DISPLACED IN THE LAKE

Wave Berm:

Vegetation: (adequate, bare, sparse, improper vegetation)

Notes:

Concrete Slabs: (cracked, settlement, undermined, voids, deteriorated, vegetation)

Notes:

Other:

Notes:

EROSION [no problem, could not inspect thoroughly]

Wave Erosion (Beaching): Scarp: Length:

Height: 8"

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)

Notes: ACTIVE WAVE EROSION IS OCCURRING ON SLOPE. EROSION HAS GONE INTO CREST ON BOTH SIDES OF SPILLWAY.

Runoff Erosion (Gullies): Quantity:

Depth:

Width:

Length:

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)

Notes/Causes:

INSTABILITIES [no problem, could not inspect thoroughly]

Slides: Transverse Length:

Longitudinal Length:

Scarp: Width:

Length:

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)

Crack: Width:

Depth:

Notes/Causes:

Cracks:  Transverse  Longitudinal  Other

Quantity:

Length:

Width:

Depth:

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)

Notes/Causes:

None  
Minor  
Major  
Emergency

Required Action

{Upstream Slope, Crest, Downstream Slope, Seepage, Principal Spillway, Emergency Spillway, Lake Drain}

Required Action

None  
Minor  
Maintenance  
Emergency

Cracks:  Transverse  Longitudinal  Other  
Quantity: Length: Width: Depth:  
Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)  
Notes/Causes:

Bulges  Depressions  Hummocky  
Size: Height: Depth:  
Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)  
Notes/Causes:

Bulges  Depressions  Hummocky  
Size: Height: Depth:  
Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)  
Notes/Causes:

OTHER [no problem, could not inspect thoroughly]

Rodent Burrows: (few, numerous)  
Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)  
Notes: **MUSKRAT DAMAGE EXASPERATES THE WAVE EROSION.**

Ruts:  
Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)  
Depth: Width Length:  
Notes/Causes: (truck/auto, motorcycle, ATV, animals, pedestrian)

Other:  
Notes:

CREST Length: 265' Width: 6' (est. meas.)

VEGETATION [no problem]

Trees: Quantity: (<5, sparse, dense)  
Diameter: (<6", 6-12", >12")  
Location: (adj. to structure, entire crest, lt end, rt end, middle, see dwg)  
Notes:

Brush: Quantity: (sparse, dense)  
Location: (adj. to structure, entire crest, lt end, rt end, middle, see dwg)  
Notes:

Ground Cover: Type: (grass, crown vetch) Other:  
Quantity: (bare, sparse, adequate, dense)  
Appearance: (too tall, too short, good)

Notes: **SOME EROSION ON BOTH SIDES OF SPILLWAY HAS LEFT BARE AREAS.**

EROSION [no problem, could not inspect thoroughly]

Runoff Erosion (Gullies): Quantity: Depth: 2' Width: ENTIRE Length: 25' ON (R)  
Location: (adj. to structure, entire crest, lt end, rt end, middle, see dwg)  
Notes/Causes:

None  
Minor  
Maintenance  
Emergency

Required Action

{Upstream Slope, Crest, Downstream Slope, Seepage, Principal Spillway, Emergency Spillway, Lake Drain}

Required Action

None  
Minor  
Moderate  
Major

ALIGNMENT [no problem, could not inspect thoroughly]

Vertical:  Low Area:

Location: (adj. to structure, entire crest, lt end, rt end, middle, see dwg)

Elevation Difference: 2'

Length: 2 40' (L)  
25' (R)

Notes/Causes:

Horizontal:  
Notes/Causes:

WIDTH [no problem]

Too Narrow

Location: (adj. to structure, entire crest, lt end, rt end, middle, see dwg)

Notes/Causes:

INSTABILITIES [no problem, could not inspect thoroughly]

Cracks:  Transverse  Longitudinal  Other

Quantity: Length: Width: Depth:

Location: (adj. to structure, entire crest, lt end, rt end, middle, see dwg)

Notes/Causes:

Cracks:  Transverse  Longitudinal  Other

Quantity: Length: Width: Depth:

Location: (adj. to structure, entire crest, lt end, rt end, middle, see dwg)

Notes/Causes:

Bulges  Depressions  Hummocky

Size: Height: Depth:

Location: (adj. to structure, entire crest, lt end, rt end, middle, see dwg)

Notes/Causes:

Bulges  Depressions  Hummocky

Size: Height: Depth:

Location: (adj. to structure, entire crest, lt end, rt end, middle, see dwg)

Notes/Causes:

OTHER [no problem, could not inspect thoroughly]

Rodent Burrows: (few, numerous)

Location: (adj. to structure, entire crest, lt end, rt end, middle, see dwg)

Notes:

Ruts:

Location: (adj. to structure, entire crest, lt end, rt end, middle, see dwg)

Depth: Width: Length:

Notes/Causes: (truck/auto, motorcycle, ATV, animals, pedestrian)

Other:

Notes:

A CUT-OFF WALL IS LOCATED IN THE CREST.  
EROSION HAS EXPOSED THE CUT-OFF WALL BY  
2'. THE EXPOSED WALL IS CRUMBLING.

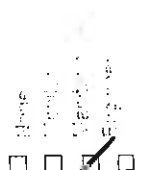
None  
Minor  
Moderate  
Major

Required Action

Required action

DOWNSTREAM SLOPE Gradient: Horizontal: 2

Vertical: 1 (est. meas.)



VEGETATION [no problem]

Trees: Quantity: (<5, sparse, dense)

Diameter: (<6", 6-12", >12")

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)

Notes: TREES HAVE BEEN REMOVED SINCE LAST INSPECTION. HOWEVER, LARGE STUMPS REMAIN.

Brush: Quantity: (sparse, dense)

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg) BOTH SIDES.

Ground Cover: Type: (grass, crown vetch) Other:

Quantity: (bare, sparse, adequate, dense)

Appearance: (too tall, too short, good)

Notes: SOME SPARSE AREAS DUE TO EROSION!

EROSION [no problem, could not inspect thoroughly]

Runoff Erosion (Gullies): Quantity: 2 Depth: 24" Width: 6" Length:

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)

Notes/Causes: LOCATED ON RIGHT HALF OF DAM NEXT TO SPILLWAY. (POSSIBLE OVERTOPPING?)

INSTABILITIES [no problem, could not inspect thoroughly]

Slides: Transverse Length: Longitudinal Length:

Scarp: Width: Length:

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)

Crack: Width: Depth:

Notes/Causes:

Cracks:  Transverse  Longitudinal  Other

Quantity: Length: Width: Depth:

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)

Notes/Causes:

Cracks:  Transverse  Longitudinal  Other

Quantity: Length: Width: Depth:

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)

Notes/Causes:

Bulges  Depressions  Hummocky

Size: Height: Depth:

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)

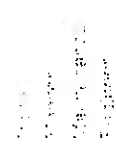
Notes/Causes:

Bulges  Depressions  Hummocky

Size: Height: Depth:

Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)

Notes/Causes:



Required action

Required Action

None  
Repair  
Replace  
Remove

OTHER (no problem, could not inspect thoroughly)

- Rodent Burrows: (few, numerous)
- Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)
- Notes:

~~Ruts~~ PLANTERS - LOCATED ON BOTH SIDES OF D/S SLOPE. NEED REMOVED.

- Location: (adj. to structure, entire slope, lt end, rt end, middle, see dwg)
- Depth:                      Width                      Length:
- Notes/Causes: (truck/auto, motorcycle, ATV, animals, pedestrian)

Other: THE SLOPE ON THE RIGHT HALF OF DAM ADJACENT TO SPILLWAY IS STEEPER THAN 1H:1V.

Notes: SPILLWAY IS STEEPER THAN 1H:1V.

SEEPAGE (no problem, could not inspect thoroughly)

- Wet Area     Flow     Boil     Sinkhole
- Flow Rate                      Size:
- Location:
- Aquatic Vegetation             None
- Rust Colored Deposits         None
- Sediment in Flow                 None
- Other:
- Notes/Causes:

- Wet Area     Flow     Boil     Sinkhole
- Flow Rate                      Size:
- Location:
- Aquatic Vegetation             None
- Rust Colored Deposits         None
- Sediment in Flow                 None
- Other:
- Notes/Causes:

EMBANKMENT DRAINS (none found, no problem, could not inspect thoroughly)

- Type:  Toe Drain     Relief Wells     Other:
- Flow Rate:                      Size:                      Number:
- Location:
- Notes:

MONITORING INSTRUMENTATION (none found, no problem, could not inspect thoroughly)

- None Found     Piezometers             Weirs/Flumes             Other
- Periodic Inspections by:
- Notes:

None  
Repair  
Replace  
Remove  
Required Action

### PRINCIPAL SPILLWAY

#### GENERAL INLET [no problem, could not inspect thoroughly]

Anti-Vortex Plate [None] Dimensions: (adequate, too small, )

Type: (steel, concrete, aluminum, stainless steel, corrugated metal wood, other):

Deterioration: (missing sections, rusted, collapsed)

Notes:

Downstream  
Crest  
Upstream  
Slope  
Seepage

Flash Boards [None]

Type: (metal, wood):

Deterioration:

Notes:

Trashrack [None] Opening Size: (adequate, too small, too large)

Type: (metal bars, fence, screen, concrete, baffle, other):

Deterioration: (broken bars, missing sections, rusted, collapsed)

Notes:

#### INLET OBSTRUCTION [no problem, could not inspect thoroughly]

Debris: (leaves, trash, logs, branches, ice)

Trees: Quantity: (<5, sparse, dense)

Diameter: (<6", 6-12", >12")

Location: (entire inlet, lt side, rt side, middle, see dwg)

Notes:

Brush: Quantity: (sparse, dense)

Location: (entire inlet, lt side, rt side, middle, see dwg)

Notes:

Other: (beaver activity, trashrack opening too small, partially/completely blocked, i.e.)

Notes:

#### INLET MATERIALS [no problem, could not inspect thoroughly]

Metal

(loss of coating/paint, surface rust, corrosion (pitting, scaling), rusted out, pipe deformation)

Dimensions:

Location:

Notes/Causes:

#### Concrete **MASONRY STONE**

(bug holes, hairline crack, efflorescence) **WEATHERED, DISPLACED, MISSING,**

(spalling, popouts, honeycombing, scaling, craze/map cracks) **UNDERMINED.**

(isolated crack, exposed rebar, disintegration, other)

Dimensions/Location:

Notes/Causes:

(bug holes, hairline crack, efflorescence)

(spalling, popouts, honeycombing, scaling, craze/map cracks)

(isolated crack, exposed rebar, disintegration, other)

Dimensions/Location:

Notes/Causes:

Plastic

(deterioration, cracking, deformation)

Dimensions:

Location:

Notes/Causes:

(Upstream Slope, Crest, Downstream Slope, Seepage, Principal Spillway-Inlet, Emergency Spillway, Lake Drain)

Downstream  
Crest  
Upstream  
Slope  
Seepage

Required Action  
 None  Monitor  Replenish  Repair

- Earthen
  - Ground Cover: Type: (grass, crown vetch) Other: \_\_\_\_\_  
 Quantity: (bare, sparse, adequate, dense) \_\_\_\_\_  
 Appearance: (too tall, too short, good) \_\_\_\_\_  
 Notes: \_\_\_\_\_
  - Erosion: (wave, surface runoff) \_\_\_\_\_  
 Description (height/depth/length/etc): \_\_\_\_\_  
 Notes: \_\_\_\_\_
  - Ruts: \_\_\_\_\_  
 Location: (entire inlet, lt side, rt side, middle, see dwg) \_\_\_\_\_  
 Depth: \_\_\_\_\_ Width: \_\_\_\_\_ Length: \_\_\_\_\_  
 Notes/Causes: (truck/auto, motorcycle, ATV, animals, pedestrian) \_\_\_\_\_
  - Riprap: Average Diameter: \_\_\_\_\_  
 (adequate, sparse, displaced, weathered, vegetation) (bedding/fabric noted - yes, no) \_\_\_\_\_  
 Notes: \_\_\_\_\_
  - Rock-Cut (weathered, erosion) \_\_\_\_\_  
 Description: \_\_\_\_\_  
 Notes: \_\_\_\_\_
  - Other: \_\_\_\_\_

- OTHER INLET PROBLEMS** [no problem, could not inspect thoroughly]
  - Mis-Alignment:(pipe, chute, sidewall, headwall)       Pipe Deformation  
 Location/Description: \_\_\_\_\_  
 Notes/Causes: \_\_\_\_\_
  - Separated Joint     Loss of Joint Material  
 Location/Description: \_\_\_\_\_  
 Notes/Causes: \_\_\_\_\_
  - Undermining:      **OF SPILLWAY SIDEWALLS @ INLET.**  
 Location/Description: \_\_\_\_\_  
 Notes/Causes: \_\_\_\_\_
  - Other: \_\_\_\_\_

**OPEN CHANNEL CONTROL SECTION** [no problem, could not inspect]    Width (est., ms.)    Brdth (est., ms.)  
 Notes: \_\_\_\_\_

- OUTLET OBSTRUCTION** ~~(no problem)~~ could not inspect thoroughly]
    - Debris: (leaves, trash, logs, branches, ice) \_\_\_\_\_
    - Trees:    Quantity: (<5, sparse, dense) \_\_\_\_\_  
 Diameter: (<6", 6-12", >12") \_\_\_\_\_  
 Location: (entire outlet, lt side, rt side, middle, see dwg) \_\_\_\_\_  
 Notes: \_\_\_\_\_
    - Brush:    Quantity: (sparse, dense) \_\_\_\_\_  
 Location:(entire outlet, lt side, rt side, middle, see dwg) \_\_\_\_\_  
 Notes: \_\_\_\_\_
    - Other:(beaver activity, partially/completely blocked, i.e.) \_\_\_\_\_  
 Notes: \_\_\_\_\_
- {Upstream Slope, Crest, Downstream Slope, Seepage, Principal Spillway-Inlet/Outlet, Emergency Spillway, Lake Drain}

Required Action  
 None  Monitor  Replenish  Repair

Required Action

None  
Minor  
Moderate  
Major  
Required Action

**OUTLET MATERIALS** [no problem, could not inspect thoroughly]

- Metal (loss of coating/paint, surface rust, corrosion (pitting, scaling), rusted out, pipe deformation )
- Dimensions:
- Location:
- Notes/Causes:

~~Concrete~~ **MASONRY STONE**

- (bug holes, hairline crack, efflorescence)
- (spalling, popouts, honeycombing, scaling, craze/map cracks)
- (isolated crack, exposed rebar, disintegration, other)
- Dimensions/Location:
- Notes/Causes: **SEE "INLET MATERIALS". SAME PROBLEMS.**

- (bug holes, hairline crack, efflorescence)
- (spalling, popouts, honeycombing, scaling, craze/map cracks)
- (isolated crack, exposed rebar, disintegration, other)
- Dimensions/Location:
- Notes/Causes:

- Plastic (deterioration, cracking, deformation )
- Dimensions:
- Location:
- Notes/Causes:

**Earthen**

- Ground Cover: Type: (grass, crown vetch) Other:
- Quantity: (bare, sparse, adequate, dense)
- Appearance: (too tall, too short, good)
- Notes:

- Erosion: (other, surface runoff)
- Description (width/depth/length/etc):
- Notes:

- Ruts:
- Location: (entire inlet, lt side, rt side, middle, see dwg)
- Depth:                      Width                      Length:
- Notes/Causes: (truck/auto, motorcycle, ATV, animals, pedestrian)

- Riprap: Average Diameter:
- (adequate, sparse, displaced, weathered, vegetation) (bedding/fabric noted - yes, no)
- Notes:

- Rock-Cut (weathered, erosion)
- Description/Notes:

- Other:

**OTHER OUTLET PROBLEMS** [no problem, could not inspect thoroughly]

- Mis-Alignment: (pipe, chute, sidewall, headwall)                       Pipe Deformation
- Location/Description:
- Notes/Causes:

- Separated Joint                       Loss of Joint Material
- Location/Description:
- Notes/Causes:

None  
Minor  
Moderate  
Major  
Required Action

- Undermining:
- Location/Description:
- Notes/Causes:

- Other:
- (Upstream Slope, Crest, Downstream Slope, Seepage, Principal Spillway-Outlet, Emergency Spillway, Lake Drain)

Required Action



Required Action  
 None  
 Repair  
 Replace  
 Upgrade

**OUTLET EROSION CONTROL STRUCTURE (Stilling Basins)**

- None  
 (endwall/headwall, plunge pool, impact basin, flip bucket, USBR, baffled chute, rock lined channel)  
 Notes:

Components (baffle blocks, chute blocks, endsill)

**MATERIAL** [no problem, could not inspect thoroughly]

- Riprap: Average Diameter:  
 (adequate, sparse, displaced, weathered, vegetation) (bedding/fabric noted - yes, no)  
 Notes:

- ~~Concrete~~ **MASONRY STONE**  
 (bug holes, hairline crack, efflorescence) **WEATHERED AND ERODED**  
 (spalling, popouts, honeycombing, scaling, craze/map cracks)  
 (isolated crack, exposed rebar, disintegration, other)  
 Dimensions/Location:  
 Notes/Causes:

(bug holes, hairline crack, efflorescence)  
 (spalling, popouts, honeycombing, scaling, craze/map cracks)  
 (isolated crack, exposed rebar, disintegration, other)  
 Dimensions/Location:  
 Notes/Causes:

**OTHER** [no problem, could not inspect thoroughly]

- Mis-Alignment: (sidewall, headwall, entire struct.)  
 Location:  
 Description:  
 Notes/Causes:

- Separated Joint       Loss of Joint Material  
 Location:  
 Description:  
 Notes/Causes:

- Undermining:  
 Location:  
 Description:  
 Notes/Causes:

- Other:

**DRAINS** (none none found, no problem, could not inspect thoroughly) (See SEEPAGE Section for Toe Drains & Relief Wells)

- Type:  Weep Holes       Relief Drains       Other:  
 Flow Rate:                      Size:                      Number:  
 Location:  
 Notes:

- Type:  Weep Holes       Relief Drains       Other:  
 Flow Rate:                      Size:                      Number:  
 Location:  
 Notes:

Required Action

## GUIDELINES FOR AN OPERATION, MAINTENANCE AND INSPECTION MANUAL

- I. **INTRODUCTION** - State or list pertinent facts about the dam and reservoir; height, freeboard, lake area, drainage area, elevations, spillway sizes, etc.... Indicate purpose of reservoir and any special pertinent information. The Ohio Division of Water Inventory form includes much of this information.
- II. **INSPECTION** - This section should indicate who, how frequent, and what is involved in an inspection. A form or forms should be included which can be used for each type of inspection or items to be monitored. Each dam should have specific problem areas which will require monitoring. These areas will be specified or outlined in past inspection reports either performed by ODNR or the owner's engineer.

<u>FREQUENCY</u>	<u>PERSONNEL</u>	<u>ITEMS TO INSPECT/MONITOR</u>	<u>FORM NO.</u>
As needed	Damtender	Rainfall	
Weekly	Damtender	Seepage / wet areas Toe drain flow Pool Level Trash rack debris Slides/cracks Rodent activity Vandalism	
Once Every 3 months	Damtender	Piezometer	
Yearly	Engineer/ Damtender	Slope protection/riprap Erosion Condition of vegetal cover Spillway condition Embankment condition Lake drain conditions Settlement monuments	
Periodic 3 to 5 years	ODNR/Engineer	Engineer's Safety Inspection	

- III. **MAINTENANCE** - Indicate items which will require periodic maintenance. Each dam should have specific items addressed (see examples). Conditions specified on past inspection reports should be included.

## **VI. EMERGENCY ACTION PLAN (EAP)**

The Interagency Committee On Dam Safety (ICODS) EAP Guidelines for Dam Owners, is recommended for consistency and uniformity. The format also serves as a checklist for completeness. When completed, the EAP should have two distinct sections: the basic EAP and the appendices.

### Title Page/Cover Sheet/Table of Contents

- I. Notification Flowchart
- II. Statement of Purpose
- III. Project Description
- IV. Emergency Detection, Evaluation, and Classification
- V. General Responsibilities
  - A. Dam Owner
  - B. Notification
  - C. Evacuation
  - D. Termination and follow-up
  - E. EAP coordination
- VI. Preparedness
- VII. Inundation Maps
- VIII. Appendices
  - Appendix A: Investigation and Analyses of Dam Break Floods
  - Appendix B: Plans for Training, Exercising, Updating, and Posting the EAP
  - Appendix C: Site-Specific Concerns
  - Appendix D: Approval of the EAP

For more information on the ICODS Emergency Action Plan Guidelines, please contact the Division of Water, Dam Safety Engineering Program at 614/265-6731 or visit our website at [www.dnr.state.oh.us/odnr/water](http://www.dnr.state.oh.us/odnr/water).

## **VII. APPENDIX (POSSIBLE ITEMS)**

- 1. Inspection forms
- 2. Past inspection reports
- 3. Reduced size as-built drawings
- 4. Stage-storage-area curve
- 5. Spillway rating curve
- 6. Drain rating curve
- 7. Pictures
- 8. ODNR inventory form