OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES

DAM SAFETY INSPECTION REPORT

ECHO LAKE DAM

FILE NUMBER: 0142-002

INSPECTED: OCTOBER 23, 2014

MIAMI COUNTY

CLASS I

2045 MORSE ROAD, BUILDING B-3
COLUMBUS, OHIO 43229-6693
WWW.DNR.STATE.OH.US

Dam Safety
Legal Obligations and Responsibilities in Ohio

In accordance with Ohio Revised Code (ORC) Section 1521.062, the owners of dams must monitor, maintain, and operate their dams safely. Negligence of owners in fulfilling these responsibilities can lead to the development of extremely hazardous conditions to downstream residents and properties. In the event of a dam failure, dam owners can be subject to liability claims and potential criminal charges.

The Chief of the Division of Water Resources has the responsibility to ensure that human life, health, and property are protected from the failure of dams. Conducting periodic safety inspections and working with dam owners to maintain and improve the overall condition of Ohio dams are vital aspects of achieving this purpose.

Representatives of the Chief conducted this inspection to evaluate the condition of the dam and its appurtenances under authority of Ohio Revised Code Section 1521.062. This inspection does not take the place of the owner's responsibility for performing dam inspections, nor does it provide any guarantee of the safety of the dam.

In accordance with Ohio Administrative Code (OAC) Rule 1501:21-21-03, the owners of dams must implement all remedial measures listed in the enclosed report.

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REQUIRED REMEDIAL MEASURES

The requirements listed below are based on observations made during inspection, calculations performed, and requirements of the Ohio Administrative Code (OAC). A checklist noting all observations made during the inspection is included as an appendix of this report. References to right and left in this report are oriented as if you were standing on the dam crest, looking downstream.

ENGINEER REPAIRS AND INVESTIGATIONS

The owner must retain the services of a registered professional engineer to address the following items. Plans, specifications, investigative reports, and other supporting documentation, as necessary, must be submitted to the Division of Water Resources for review and approval prior to construction. These items have been noted previously and the appropriate time period for completion has already been exceeded. A record of all repairs should be included in the operation, maintenance, and inspection manual. Please refer to the fact sheets included in the Dam Safety Fact Sheet Booklet for additional information.

1. The dam's discharge/storage capacity must be sufficient to safely pass the required design flood without overtopping the embankment. Prepare plans and specifications as necessary to increase the discharge/storage capacity to pass the required design flood. In accordance with OAC Rule 1501:21-13-02, the minimum design flood for Class I dams is 100% of the Probable Maximum Flood or the critical flood. See the Flood Capacity section for additional information.

2. The embankment crest alignment must be uniform. Investigate the variable vertical alignment of the crest of the dam and canal and, as necessary, prepare plans and specifications for the correction of any problems. This item should be completed in coordination with Item 1 above. See Discussion Item A of this section for additional information.

3. This dam must have a device to permit draining of the reservoir within a reasonable period of time in accordance with OAC Rule 1501:21-13-06. Investigate the ability of the valve at the canal spillway to adequately lower the water level in Echo Lake and document in an Operation, Maintenance, and Inspection Manual for the dam. Or, prepare plans and specifications for the installation of such a device. See the "Lake Drains" fact sheet for additional information. The owner must complete this item and implement all engineered plans for improvement within 5 years.

OWNER REPAIRS AND MONITORING

The dam owner must address the items below as part of the required dam maintenance. The owner may perform the work or hire a contractor. Repair activities should be documented in the Operation, Maintenance, and Inspection Manual (OMI). Please refer to the fact sheets included in the Dam Safety Fact Sheet Booklet for additional information.

The monitoring items in this section must also be incorporated in the OMI. Information in the OMI must include inspection frequency, method of assessing the condition, and documentation of observations. See the Owner Dam Safety Program section of this report for additional information regarding an OMI.

Owner Repairs

1. Remove the trees and brush from the embankment of the dam and the canal. Seed all disturbed areas to establish a proper grass cover. See the "Trees and Brush" fact sheet for additional information.

2. Mow all vegetation on the embankment to maintain a maximum height of 12 inches. See the "Ground Cover" fact sheet for additional information.

3. Remove the pipe and hose from the dam embankment. Backfill the area with impermeable fill.

4. Investigate the standpipe and the opening at the base of the spillway wall in-line with the standpipe. Include a description in an Operation and Inspection Manual for the dam.

5. Investigate the dam and canal embankment ownership. See Discussion Item B for more information.

Monitoring Items

None – no monitoring items.

Resolving all Engineering Repair and Investigation items as well as Owner Repair items listed in the sections above makes a dam eligible to receive a 15% discount off the annual fee for the dam. The Engineering items must be resolved as directed in this report. The Owner Repair items may be resolved by submitting a description of the repairs and photographs. There are no partial discounts available.

OWNER DAM SAFETY PROGRAM

Assuring the safety of dams is a cooperative effort between owners, consultants and the Division of Water Resources - Dam Safety Program, with the most important role being that of the owner. The owners see the dam regularly and through their surveillance and monitoring, can detect changing and/or deteriorating conditions.

The scope of a particular owner's dam safety program should be commensurate with the size, type, and complexity of the owner's dam(s). There is no "one size fits all" dam safety program. At a minimum, the owner's dam safety program must include:

- A person (owner or owner's designated representative) responsible for dam safety (Dam Safety Officer) with the authority to maintain dam safety (clear designation of responsibility, oversight, and authority).
- Access to sufficient technical resources and expertise.
- A proactive and informed owner inspection and engineering evaluation program.
- Adequate on-site presence and/or remote monitoring capability.
- An approved Operation, Maintenance, and Inspection Manual that is kept up-to-date, requirements and recommendations followed, and proper records kept.
- An approved Emergency Action Plan that is kept up-to-date and is well coordinated with the local emergency management agencies.

Operation, Maintenance, and Inspection Manual (OMI)

A dam, like any other infrastructure, will change and deteriorate over time. Appurtenances such as gates and valves must be routinely exercised to ensure their operability. Inspection and monitoring of the dam identifies changing conditions and problems as they develop, and maintenance prevents minor problems from developing into major ones. Dam owners must have these procedures documented in an OMI.

1. Echo Lake Dam does not have an OMI on file. Prepare an OMI and submit for approval. Guidelines for the preparation of this document can be found online at: http://water.ohiodnr.gov/safety/dam-safety#ADD.

Emergency Action Plan (EAP)

Despite efforts to provide sufficient structural integrity and to perform inspection and maintenance, dams can develop problems that can lead to failure. Early detection and appropriate response are crucial for maintaining the safety of the dam and downstream people and property. The ORC requires the owner to fully and promptly notify the Division of Water Resources of any condition which threatens the safety of the structure. A rapidly changing condition may be an indication of a potentially dangerous problem. The Division of Water Resources - Dam Safety Program can be contacted at 614/265-6731 during business hours or at 614/799-9538 after business hours. Dam owners must have emergency preparedness procedures documented in an EAP. All contact names and phone numbers in the EAP must be verified on an annual basis. Any revisions to the EAP must be submitted to the Division of Water Resources and the local county Emergency Management Agency (EMA).

1. Echo Lake Dam has an approved, up-to-date emergency action plan (EAP) on file with the Division of Water Resources.

Having an approved OMI and EAP on file with Division of Water Resources makes a dam eligible to receive a 10% discount off the annual fee charged to the dam.

Discussion Items

A. It is assumed that the dam and canal embankment act as one hydraulic structure. However, the elevation of the crest of the dam and canal is variable due to road crossings, bridges, pedestrian paths, etc. Investigate how the dam and canal system will operate during flooding conditions.

B. It is the opinion of the Ohio Department of Natural Resources (ODNR) that the dam owner is considered to be the owner of the property on which the dam is located, unless another legal arrangement has been made. It is possible to have multiple owners of a single dam. Having more than one owner can complicate performing maintenance and repairs to the dams as well as other responsibilities. It is therefore important to be aware of all the property owners. Please investigate the ownership of the embankments and provide that information to ODNR.

Representatives of the Chief of the Division of Water Resources conducted this inspection to evaluate the condition of the dam and its appurtenances. The owner(s) of the dam must implement all remedial measures listed in the report.

Dena C. Barnhouse 9-15-16

Dena C. Barnhouse, P.E. Date
Program Manager
Dam Safety Program
Division of Water Resources

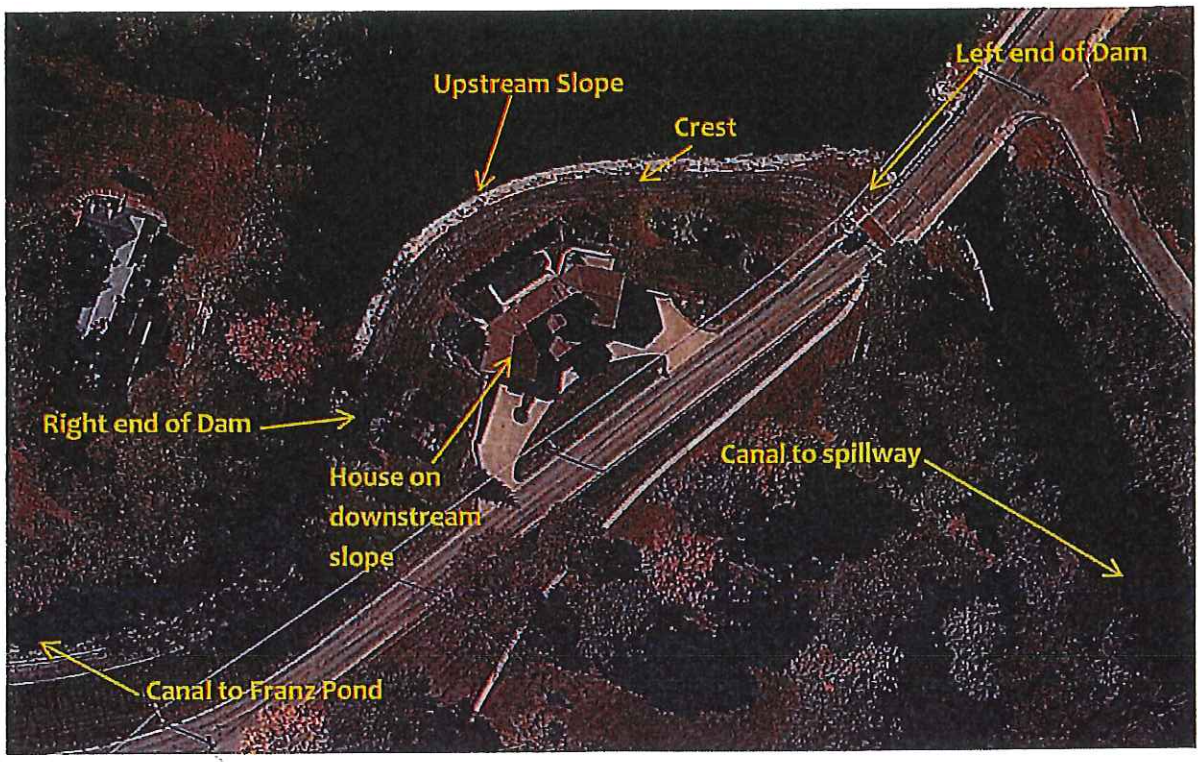
This inspection was performed pursuant to the authority granted to the Chief of the Division of Water Resources in ORC Section 1521.062.

Mia Kannik 9/15/16

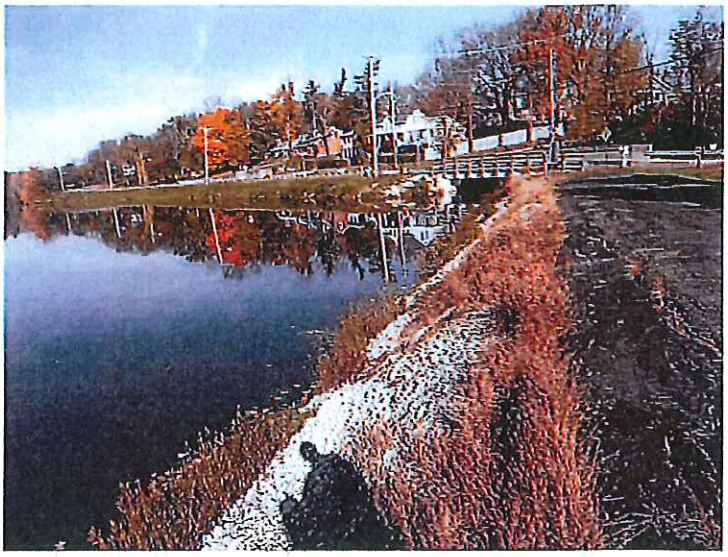
Mia P. Kannik, P.E. Date
Program Manager
On behalf of Andrew D. Ware, Acting Chief
Division of Water Resources

SITE MAP

See next page for close-up of dam


Upstream Slope
Crest
Left end of Dam
Right end of Dam
House on downstream slope
Canal to spillway
Canal to Franz Pond

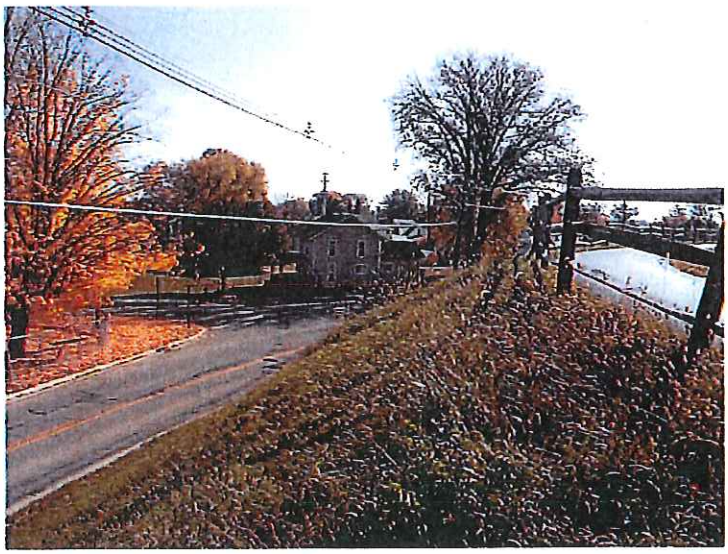
PHOTOGRAPHS



1. Upstream slope looking towards the left end of the dam. Note the light brush in the riprap.

2. Downstream slope and crest. Note the house and the mature trees on the downstream slope.

3. Buried hose encased in a PVC pipe on the upstream slope. It appears to be a hose used to fill a swimming pool for the house on the downstream slope.

	4. Note the landscaping on the downstream slope.
	5. Crest and downstream slope as viewed from the canal to the right of the dam.
	6. Downstream slope of the canal leading from Echo Lake to Franz Pond.

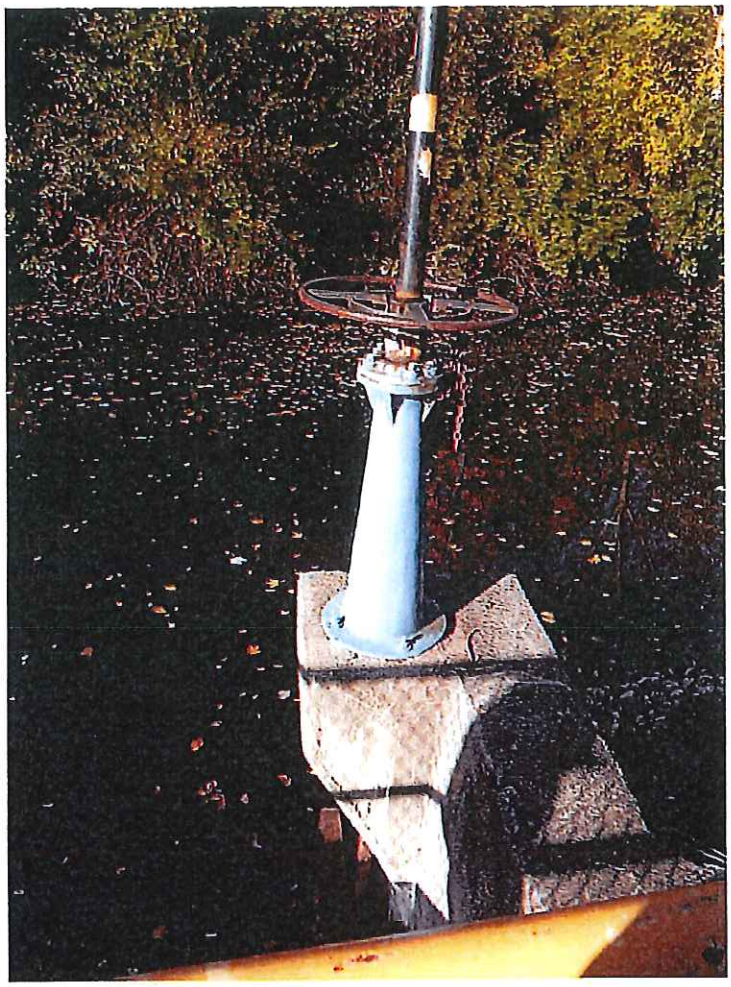
	7. Downstream side of the bridge over the canal at the left end of the dam. The canal leads to the spillway about mid-way between Echo Lake and Swift Run Lake.
	8. Spillway located on the canal. This is the only outlet for Echo Lake and Franz Pond.
	9. Left sidewall of the spillway.

10. Right sidewall of the spillway.

Note the standpipe to the left of the sidewall and the opening at the base of the sidewall. It was unclear if these two were related or what purpose either serve.

11. Staff gauge found on the right sidewall of the spillway inlet.

12. Outlet channel for the spillway.



13. Lake drain operator located on the left wingwall of the spillway inlet.

14. Lake drain outlet on the left spillway outlet sidewall.

CLASSIFICATION

Echo Lake Dam

		Class
Height	14.20 ft.	IV
Storage	142.00 ac-ft.	III
Potential Downstream Hazard		I
	Final Class:	**I**

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 top of dam (crest) elevation to the lowest point along the downstream toe. The storage capacity is the total volume of water that the dam can impound at the top of dam (crest) elevation. The potential 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 or other changes along the downstream channel or from changes made to the dam.

HEIGHT AND STORAGE CRITERIA

Class	Height (ft.)		Storage (ac-ft.)
I	> 60		> 5000
II	> 40		> 500
III	> 25		> 50
IV	≤ 25		≤ 50
Exempt	< 10	and	< 50
Exempt	< 6	or	< 15

POTENTIAL DOWNSTREAM HAZARD

The following table shows the structures such as homes, businesses, roads, etc. that have been identified as part of the potential downstream hazard investigation. The letter in the table corresponds to the structure on the aerial photograph. The table 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. Furthermore, in the event of dam failure, property owners in addition to those identified in the table should be made aware of the situation. This potential downstream hazard investigation is based on field observations and 2015 aerial photography from Google.

Echo Lake Dam Potential Downstream Hazard Classification

Hazard Class:	I	II					III		IV	—		Distance (ft.)		
Potential Hazard	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	Downstream - Dam to affected structure	Vertical - Streambed to base of affected structure	Horizontal – Stream to affected structure
House	A											0	0	0
Town of Piqua	B											85 feet +	0	varies

Downstream Map

Refer to the EAP for a full inundation map of affected structures.

FLOOD CAPACITY

A dam must be able to safely pass severe flood events. A dam uses a combination of spillway discharge capacity and the reservoir's ability to store floodwater (storage capacity), known as discharge/storage capacity, to prevent floodwater from overtopping the embankment crest and destabilizing the dam. When a dam has inadequate discharge/storage capacity, floodwater will overtop and most likely erode the embankment. This can cause severe damage and dam failure.

As part of this inspection, the Division of Water Resources did not thoroughly investigate the ability of this dam to safely pass the required design flood. However, in 2005, a consultant 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 estimate the maximum water surface elevation in the reservoir for various flood events (see Table).

Echo Lake 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 12% of the PMF; Echo Lake Dam does not appear to be able to safely pass the design flood.

Flood Routing Summary

			Overtopping	
Flood Event	Maximum Inflow (cubic feet per second)	Maximum WSEL[1] (feet)	Depth[2] (feet)	Duration (hours)
PMF	10863	913.57	5.87	4.0
75% PMF	8147	912.00	4.30	3.0
50% PMF	5431	910.60	2.90	2.0
25% PMF	2715	908.50	0.80	1.0
12% PMF[3]	1303	907.00	- 0.70	0.0

1. WSEL – water surface elevation, in feet
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.

Dam and Spillway Elevations

Top of Dam	907.70
Emergency Spillway	none
Normal Pool	903.20

HISTORY

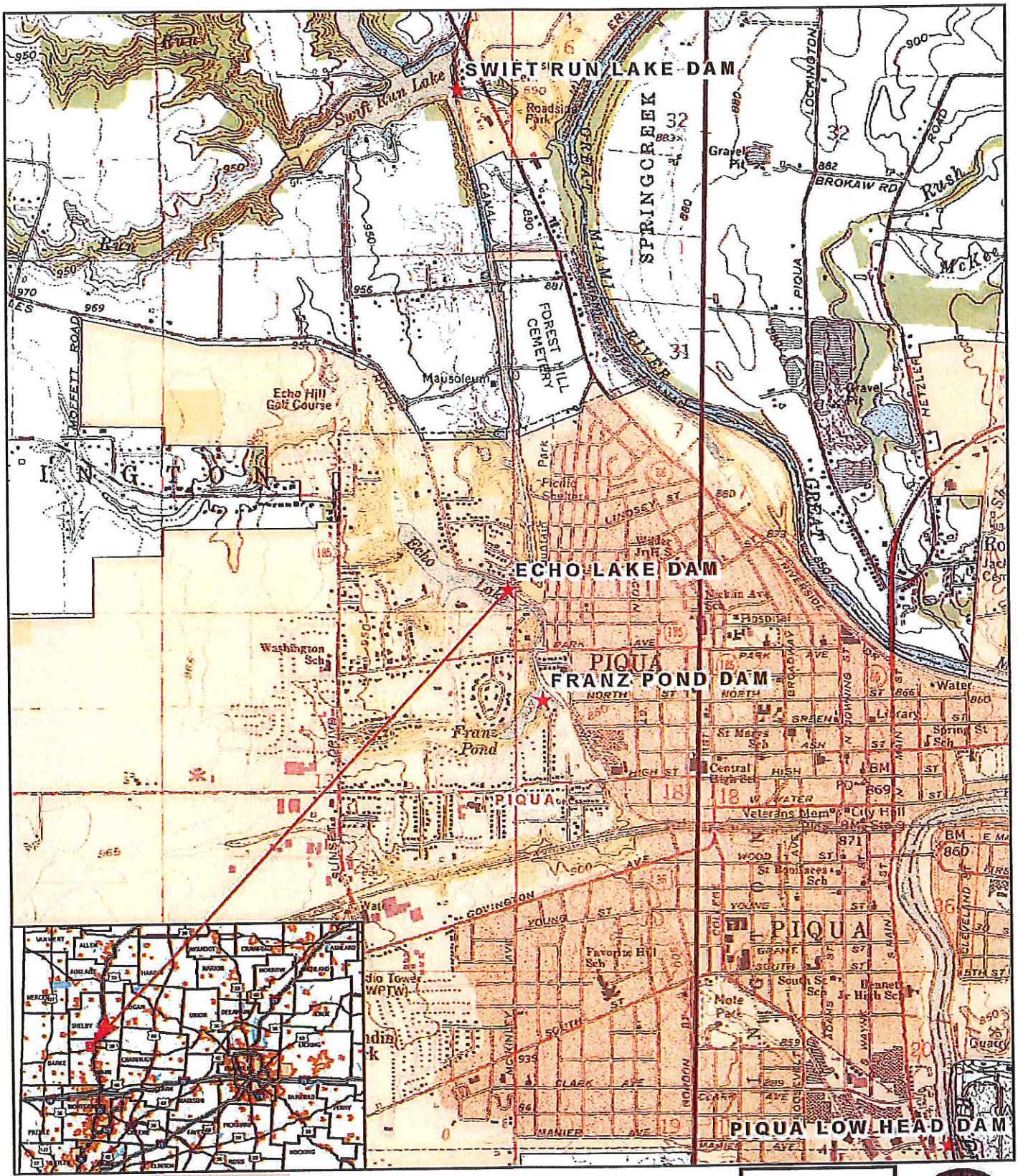
Echo Lake Dam

Date	Event
1865	Construction began.
1870	Dam and canal structures sold to the City of Piqua by the Piqua Hydraulic Company.
1876	Dam construction completed.
1924	Failure of the canal embankment due to overtopping.
1924	Embankment repairs and the addition of spillways #1 & #3.
1925	Water plant and river pump station constructed.
1936	Canal embankment failure at Forest Hill Cemetery due to overtopping.
1961	Failure of the right end of Swift Run Lake Dam due to the installation of additional pipe to the water plant.
1975	Canal embankment failure due to utility pipe installation under the canal.
1980	All 3 spillways rehabilitated. Concrete repair and the addition of rock channel protection in the outlet channel.
1980	Phase I inspection and report completed by the Corps of Engineers.
1984	Leak developed at the toe of the canal between Echo Lake and Franz Pond.
1984-1985	Leak repaired by relining the canal.
1989	Downstream slope of Echo Lake flattened and house built into the slope.
1990	Dam safety inspection by the Division of Water Resources.
1995	Division of Water Resources site visit made after heavy rain and slide development on the canal south of Echo Lake.
2000	Division of Water Resources site visit made after heavy rain. Seepage area developed on the toe of the canal embankment between Echo Lake and Franz Pond.
2001	Seepage area repaired by relining the canal with a geosynthetic clay liner.
February 6, 2002	Dam safety inspection by the Division of Water Resources.
2005	Hydrologic and hydraulics study performed by Bowser Morner for all three dams and canal and approved by ODNR
April 2007	Leak detected and repaired on the canal north of Echo Lake.
August 29, 2007	Dam safety inspection by the Division of Water Resources.
November 16, 2009	Dam safety inspection by the Division of Water Resources.
October 23, 2014	Dam safety inspection by the Division of Water Resources.
January 12, 2015	Emergency Action Plan (EAP) approved by the Division of Water Resources.
2015	EAP exercised.

APPENDIX - LOCATION MAP, INVENTORY, INSPECTION CHECKLIST, OTHER AGENCIES

LOCATION MAP

ECHO LAKE DAM - 0142-002



Feb 28, 2007

Dam Inventory Sheet

Name: ECHO LAKE DAM
Reservoir:
File No: 0142-002
National #: OH02103
Permit No.: N/A
Class (Ht-Vol): I (IV - III)

Owner Information

Owner: City of Piqua
Address: 201 West Water Street
City: Piqua **State:** OH **Zip:** 45356
Contact: Don Freisthler **Phone No.:** 937/778-2090
Owner Type: Public, Local
Multi-Dams: Yes: 4, Class I:3
Parcel No.:

Location Information

County: Miami
Township: City Of Piqua
Stream: Tributary To Swift Run
USGS Quad.: Piqua West
Latitude Deg.: 40 **Min.:** 9 **Sec.:** 22
Longitude Deg.: 84 **Min.:** 15 **Sec.:** 37
USGS Basin No.: 05080001

Design/Construction Information

Designed By: Unknown
Constructed By: Piqua Hydraulic Company
Completed: 1876 **Plan Available:** YES **At:** ODNR - DOW
Failure/Incident/Breach:

Structure Information

Purpose: Water Supply, Public
Type of Impound.: Dam And Spillway
Type of Structure: Earthfill
Drainage Area (sq. miles): 2 **or (acres):** 1280

Embankment Data

Length (ft): 660
Height (ft): 14.2
Top Width (ft): 8
Upstream Slope: 2H:1V
Downstream Slope: 4H:1V
Volume of Fill (cub. yds.):

Spillway Outlet Works Data

Lake Drain: NONE
Principal: 93-FT-WIDE CONCRETE WEIR ON THE CANAL TO SWIFT RUN LAKE
Emergency: NONE
Maximum Spillway Discharge (cfs): 926 **Design Flood:** 1.0 **Flood Capacity:** .12

Dam Reservoir Data

	Elevation (ft-MSL)*	Area (acres)	Storage (acre-feet)
Top of Dam:	907.7	27.5	142
Emergency Spillway:			
Principal Spillway:	903.2	16.5	46
Streambed:	893.5		
Foundation:			

*Elevations are not necessarily related to a USGS benchmark

Inspection Information

Inspection History:
10/23/2014 DCB
11/16/2009 MBO
8/29/2007 DCB
2/6/2002 DCB
1/16/1990
10/28/1980

Phase I: 10/28/1980
Other Visits:
Inspection Year: C

PIQ

Operation Information/Remarks

Emergency Action Plan: Approved
Format: ICODS
OMI: No
Last Entry: 9/12/2016

Dam Safety Inspection Checklist

Complete All Portions of This Section (Pre-inspection)

Name of Dam: Echo Lake Dam

Date of Inspection: 10-23-2014

File Number: 0142-002

Class: I

Design Flood: 1.0 Flood Capacity: ~~.099~~ 0.12

Miami County Required Action — None Mon. Maint. Eng. ✓

Interview with Owner (at the site):

Owner/Representative present (Yes) No) Name(s): DON FREISTHLER

Owner's Name(s): City of Piqua

Address: 201 West Water Street, ,

City: Piqua State: OH Zip (+4): 45356

Contact Person: Don Freisthler Telephone: 937/778-2090

Email Address:

Purpose of dam: Water Supply, Public

Owner Dam Safety Program

Emergency Action Plan

EAP (document): Approved ICODS Up-to-date? (yes) no) ✓

Exercised: YES IN 2015

Downstream development: Town of Piqua

Security: Public walking trail on the crest.

Operation, Maintenance, and Inspection

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

Operation of drains/gates

All operable? (yes) no) The only valve is located at the spillway on the canal.

Normal rate of drawdown: Can lower 2'to 3' Emerg. rate of drawdown: Unknown

Accessibility for operation: From canal crest. It is unclear whether this drain can effectively lower water in Echo Lake

Maintenance

Frequency of mowing: There is a house on the downstream slope w/ well-maintain grass.

Other maintenance: None

Inspection

Frequency and thoroughness of day-to-day & routine inspections: No formal inspection process

Frequency and thoroughness of event-driven inspections: Inspected during large rainfall

Problems found during inspections: None

Field Information

Pool Elevation (during inspection): About normal pool Time: 10:30 (a.m.) p.m.)

Site Conditions(temp., weather, ground moisture): 55°F, Sunny, Dry

Inspection Party: Dena Barnhouse, Akram Faqu'h

Maximum Height: 14.2 Feet (measured or inventory appears correct)

Normal Pool Surface Area: 16.5 Acres (measured or inventory appears correct)

House built into embankment. The spillway is located about one mile to the north on the canal embankment to which this dam is connected. Pipe buried about a foot below the crest into the embankment for the purpose of filling the in-ground swimming pool located in the downstream slope. H&H study completed in 2005 in response to the requirement in the 2001 inspection report. The study was accepted for use in further repair design.	

Required Action

Upstream Slope

☑ Gradient: 2H:1V

Typical Problems: shoreline erosion, trees & brush, surface erosion, ruts, rodent burrows, earth slides, cracks

None	Monitor	Repair	Engineer
✓			
		✓	
		✓	

Small riprap (size D or smaller) on the slope. No signs of erosion
Light brush throughout slope. Continue to cut or spray.
A hose was found about 2' below the crest. It appeared to be encased in a PVC pipe and buried in the embankment. May be used to fill a swimming pool at the house located on the downstream slope.

Crest

☑ Width (ft): 8 ☑ Length (ft): 660 ☑ Total Freeboard (ft): 4.50

Typical Problems: low areas, trees & brush, surface erosion, ruts, cracks

None	Mon.	Rep.	Eng.
✓			
			✓

Asphalt walking path on the crest. No problems.

The crest on the dam appeared to be mostly level. However, as it connects to the canal, the crest was not level. Unclear how the dam will operate in overtopping conditions.

Downstream Slope

☑ Gradient: 4H:1V

Typical Problems: trees & brush, surface erosion, ruts, rodent burrows, earth slides, cracks, seepage

None	Mon.	Rep.	Eng.
			✓

There is a house with a swimming pool on the slope. There ~~are~~ also mature trees and bushes. Remove the trees and brush.

Principal Spillway

☑ Canal To Swift Run Lake

Typical Problems: Inlet obstructed, unsatisfactory trashrack/anti-vortex plate, material deterioration, misalignment, open joints, outlet erosion, outlet overgrown, undermining

None	Mon.	Rep.	Eng.
✓			
			✓

The spillway appeared to be in good condition.

There was a standpipe to the right of the right spillway outlet wall. There was also an opening at the base of the spillway wall in-line w/ the standpipe. Investigate these 2 items and include a description in an OMI for the dam.

✓ Sufficient measurements to perform hydraulics (dimensions, riser depth, outlet elevation)

Required Action

Emergency Spillway

- [x] None
- [ ] Freeboard (to normal pool, feet)

Typical Problems: Flowpath obstructed, material deterioration, erosion, misalignment, overgrown, undermining

Not required.

None	Monitor	Repair	Engineer
✓			

- [ ] Sufficient measurements to perform hydraulics (dimensions, breadth, side slopes)

Lake Drain

- [x] ~~None~~ Valve on the canal spillway

Typical Problems: Poor operating access, inoperable, deteriorated/missing components, outlet erosion

It is unclear whether the valve would be able to lower the water in Echo Lake. Investigate or provide an adequate lake drain device.

None	Mon.	Rep.	Eng.
			✓

Other

Clear the canal embankment of trees and brush.

Mow grass on the canal embankment.

Investigate the dam and canal embankment ownership

None	Mon.	Rep.	Eng.
		✓	
		✓	
		✓	

- [x] All Field Data Gathered (inspector's inititals): DCB

Site Sketch

- [x] Investigate Downstream Hazard

Agencies Associated with Dams and Lakes

The Division of Soil & Water Resources has the responsibility to ensure that human life, health, and property are protected from dam failures. The division provides fact sheets and dam safety information for dam owners on the division's web site: www.dnr.state.oh/water. Other governmental agencies are involved with the lakes and streams associated with dams, but have other responsibilities. Listed below are several relevant agencies that dam owners may be interested in contacting.

County Emergency Management Agency

County Emergency Management Agencies (EMAs) serve the public in disaster preparedness, public safety, and emergency management at the county level. County EMAs are responsible for coordinating relief efforts related to manmade and natural disasters. In the case of a dam emergency, the County EMA is one of the dam owner's first contacts.

Telephone: 937 332-8560

State Web Site: http://ema.ohio.gov/index.aspx

Soil & Water Conservation District

County soil and water conservation districts (SWCDs) serve communities by providing assistance to urban and agricultural land users. SWCDs specialize in soil erosion prevention and water management. Some of services offered by county SWCD offices include survey and design of grassed waterways, erosion control structures, surface and subsurface drainage, farm ponds, and livestock waste management facilities. SWCDs also sponsor a number of information and education programs. In addition to these services, SWCDs may utilize assistance from the USDA Natural Resources Conservation Service (NRCS) for some technical matters.

http://www.dnr.state.oh.us/H_Nav2/OFFICESSWCDS/DistrictOffices/tabid/9093/Default.aspx

937-335-7645 - Telephone

Natural Resources Conservation Service

Since 1935, the Natural Resources Conservation Service (originally called the Soil Conservation Service) has provided leadership in a partnership effort to help America's private landowners and managers conserve their soil, water, and other natural resources. NRCS employees provide technical assistance based on sound science and suited to a customer's specific needs. NRCS provides financial assistance for many conservation activities.

Web Site: http://www.nrcs.usda.gov/

Division of Wildlife

The Division of Wildlife within the Ohio Department of Natural Resources manages fish and wildlife of the state. The division offers assistance in stream improvement and pollution investigations and provides fishery information and publications on pond stocking. Information regarding pest and rodent control can be obtained by visiting the division website or by contacting the regional office. The Division of Wildlife should be contacted before starting any construction activity where loss of aquatic life is anticipated.

937-372-9261 - District Office 5

http://ohiodnr.com/Home/ContactUs/tabid/18270/Default.aspx - Web Site

Ohio Environmental Protection Agency

The Ohio Environmental Protection Agency (EPA) establishes environmental guidance and enforcement standards for the state. In particular, the Division of Surface Water provides assistance for matters pertaining to rivers, lakes, and streams in Ohio. The Division of Surface Water can provide information and assistance in developing best management practices for the control of point and non-point pollution sources and spills. Suspected pollution spills can be reported directly by using the Ohio EPA Spill Hotline at 1-800-282-9378.

District Office Southwest: 937-285-6357

State Web Site: http://www.epa.state.oh.us/

OSU Extension

The Ohio State University (OSU) Extension utilizes knowledge and research developed by the Ohio Agricultural Research and Development Center, Ohio State, and other land-grant universities to assist communities, businesses, and individuals. In addition to a wide variety of community leadership and agricultural services for all ages, county OSU Extension offices offer information and assistance in agricultural water resource conservation and management, farm pond management, and safety, Ohio hydrologic cycles and non-point source pollution management. Information regarding dry hydrant fire protection and legal liabilities associated with farm ponds in Ohio can be found on the extension website.

614-688-8330 - Extension Region: West

http://extension.osu.edu/locate-an-office - Web Site