LEVEL
HUDSON RIVER BASIN
MYOSOTIS LAKE DAM
ALBANY COUNTY, NEW YORK
INVENTORY NO. 670
PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

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NEW YORK DISTRICT CORPS OF ENGINEERS
SEPTEMBER 1978

79 04 04 071
Honorable Hugh L. Carey  
Governor of New York  
Albany, New York 12224

Dear Governor Carey:

Reference is made to my letter of 2 October 1978 in which clarification of the guidelines used by this office in assessing dams with "seriously inadequate spillways" under the National Program of Inspection of Dams was outlined.

The following dams in your state have been assessed as having seriously inadequate spillways, with capability to pass safely only the percentage of the probable maximum flood as noted in each report. In accordance with revised criteria they are now to be assessed as unsafe:

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<td>Myosotis Lake Dam</td>
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<td>N.Y. 54</td>
<td>Tarrytown Waterworks Dam</td>
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The classification of "unsafe" applied to a dam because of a seriously inadequate spillway is not meant to connote the same degree of emergency as would be associated with an "unsafe" classification applied for a structural deficiency. It does mean, however, that based on an initial screening, and preliminary computations, there appears to be a serious deficiency in spillway capacity so that if a severe storm were to occur, overtopping and failure of the dam would take place, significantly increasing the hazard to loss of life downstream from the dam.

Consequently, it is advisable to implement the recommendations previously furnished in the reports for the above-mentioned dams as soon as practicable.

Sincerely yours,

cc:  
Barbero, Descenza  
Jarrobin (NAD), Exec Ofc  
Engrg File, George Koch, NYS DEC  

CLARK H. BENN  
Colonel, Corps of Engineers  
District Engineer
This report provides information and analysis on the physical condition of the dam as of the report date. Information and analysis are based on visual inspection of the dam by the performing organization.

Myosotis Lake Dam was judged to be unsafe-non-emergency due to a seriously inadequate spillway.
HUDSON RIVER BASIN

MYOSOTIS LAKE DAM

ALBANY COUNTY, NEW YORK

INVENTORY NO. 670

PHASE I INSPECTION REPORT

NATIONAL DAM SAFETY PROGRAM

Prepared by: TIPPETTS-ABBETT-McCARTHY-STRATTON

NEW YORK DISTRICT CORPS OF ENGINEERS

SEPTEMBER 1978
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PHASE I REPORT
NATIONAL DAM SAFETY PROGRAM

Name of Dam: MYOSOTIS LAKE DAM (I.D. No. 670)
State Located: NEW YORK STATE
County Located: ALBANY COUNTY
Stream: TEN-MILE CREEK
Date of Inspection: 31 AUGUST 1978

ASSESSMENT

Examination of available documents and visual inspection of the Myosotis Lake Dam and appurtenant structures did not reveal conditions which are considered to be unsafe. Some existing inadequacies regarding maintenance and operation of the project features were observed.

Using Corps of Engineers screening criteria, the maximum spillway capacity without overtopping the dam is equal to 26 percent of the PMF and 59 percent of the SPF. Under the PMF and SPF discharge the dam would be overtopped by 3.7 feet and 1.3 feet respectively. The spillway is, therefore, adjudged as seriously inadequate and the dam is assessed as unsafe, non-emergency.

The classification of "unsafe" applied to a dam because of a seriously inadequate spillway is not meant to connote the same degree of emergency as would be associated with an "unsafe" classification applied for a structural deficiency. It does mean, however, that based on an initial screening, and preliminary computations, there appears to be a serious deficiency in spillway capacity so that if a severe storm were to occur, overtopping and failure of the dam would take place, significantly increasing the hazard to loss of life downstream from the dam.

It is, therefore, recommended that within three months from the date of notification to the Governor of the State of New York, the owners engage the services of a professional consultant to determine by more sophisticated methods and procedures the adequacy of the spillway. Within twelve months of the date of notification to the governor, appropriate remedial mitigating measures should have been completed. In the interim, a detailed emergency operation plan and warning system should be promptly developed. Also, during periods of unusually heavy precipitation, around-the-clock surveillance should be provided.
No remedial measures are required to assure the safety of the dam at the present time. Certain measures are recommended regarding:

- Repair of the spillway slab and the left side entrance wall of the spillway
- Programs for operation, maintenance and inspection
- Removal of shrubs and saplings from all locations on the dam.

Eugene O'Brien, P.E.
New York No. 29823

Approved by:

Col. Clark H. Benn
New York District Engineer

Date: 1978 November 7-7
PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
MYOSOTIS LAKE DAM, INVENTORY NO. 670
HUDSON RIVER BASIN
ALBANY, NEW YORK

SECTION 1 PROJECT INFORMATION

1.1 GENERAL

a. Authority
The Phase I inspection reported herein was authorized by the DEPARTMENT OF THE ARMY, NEW YORK DISTRICT, CORPS OF ENGINEERS by letter dated 31 March 1978, in fulfillment of the requirements of the National Dam Inspection Act, Public Law 92-367, 8 August 1972.

b. Purpose of Inspection
The purpose of this inspection and report is to investigate and evaluate the existing conditions of subject dam in order to: identify deficiencies and hazardous conditions; determine if they constitute hazards to human life or property; and notify the State of New York of these results along with recommendations for remedial measures where necessary.

1.2 DESCRIPTION OF PROJECT

a. Description of Dam and Appurtenant Structures
The Myosotis Lake Dam is composed of a 240-foot long rockfill dam and 36.7-foot long ungated spillway located between the dam and the left bank. The low level release consists of a 12-inch pipe controlled by a 12-inch gate valve in the gatehouse at the toe of the dam.

The straight part of the dam crest extends 116 feet from the spillway; then, for 118 feet, it forms a slight downstream curvature. The upstream slope of the dam is approximately 1(V) to 2(H) above the pool level and becomes flatter below the pool level. The width of the crest is 11.5 feet which includes a masonry parapet approximately 1.3 feet wide and 3.5 feet high. The downstream slope is formed by a vertical masonry wall, 7.5 feet of which are exposed. Dumped stone forms a 2-foot wide berm adjacent to the vertical wall; the remainder of the downstream slope below the berm is 1:1.

The spillway is formed by a 37.6-foot wide channel with a broad crest at El. 1691. The approach surface is very flat and is limited by entrance masonry walls: 5-foot and 11-foot high on the left side, and 8.5-foot and 11-foot high on the right side. The provided freeboard is 8.5 feet. The inclined part of the channel, a masonry structure with the
gunited surface over reinforcing steel, is 60 feet long and has 1(V) to 4.7(f)± slope. The channel ends with a horizontal concrete platform which is dotted by 4-inch+ embedded stone for energy dissipation. The masonry side walls of the channel have 1:1.5 slope.

b. **Location**
The dam is located on Ten-Mile Creek, a tributary of the Catskill Creek and the Hudson River. The nearest community, Rensselaerville, is less than one-half mile downstream from the dam.

c. **Size Classification**
The dam is less than 40 feet high and has a storage capacity of less than 1000 acre-feet, therefore it falls under a "small" size category.

d. **Hazard Classification**
The dam is considered to be in the "significant" hazard potential category.

e. **Ownership**
Myosotis Lake Dam is owned and operated by the Edmund Niles Huyck Preserve, Inc., and forms a part of the Biological Research Station.

f. **Use of Dam**
The impoundment provided by the dam served previously to run sawmills. It now provides a water storage reservoir for the town of Rensselaerville.

g. **Design and Construction History**
The lake was impounded around 1800; however, there is no information available on either design or construction.

h. **Normal Operating Procedures**
Water from Myosotis Lake is released through the 12-inch low release gate valve in an amount to ensure a continuing supply to the downstream community of Rensselaerville.

### 1.3 PERTINENT DATA

Elevations are referred to an assumed Datum Plane used in the survey prepared by Frank R. Lanagan, and revised July, 1940; and are 170 feet above USGS Datum.

a. **Drainage Area, sq. miles**
   6.57

b. **Discharge at Dam Site, cfs**
   -Unknown-
   Maximum flood at site
   Maximum regulating gate outlet
   12
Ungated spillway at maximum pool, El. 1699.5 2808
Total discharge capacity at maximum pool, El. 1699.5 2820

c. Elevations
Top of Dam 1699.5
Spillway crest 1691
Invert of 12-inch discharge pipe inlet 1680
outlet 1666

d. Reservoir
Length of pool at El. 1691, miles 0.7
Length of shoreline at El. 1691, miles 1.7
Surface area at El. 1691, acres 98.3

e. Storage, acre-feet
Top of Spillway crest (El. 1691) 1125
Top of Dam (El. 1699.5) 1975

f. Dam
Type: Rockfill and rubble masonry retaining wall
Length: 277± feet including spillway
Height: 22± feet above ground
Top width: 11.5 feet
Side slopes: 1(V) to 2(H) upstream; vertical wall and 1(V) to 1(H) downstream.

g. Spillway
Type: Broad crest
Length: 36.7 feet
Crest elevation: 1691
Gates: Ungated
Upstream channel: None
Downstream channel: 200± - foot long channel in a riverbed, joins Ten-Mile Creekbed.

h. Regulating Outlets
A 12-inch pipe, which has no protection at the inlet, is regulated by a 12-inch gate valve at the downstream end. The invert is at El. 1680 at the upstream end of the pipe and at El. 1666 at the downstream end.
SECTION 2 ENGINEERING DATA

2.1 DESIGN

There is no information available as to when and by whom the dam has been designed.

2.2 CONSTRUCTION RECORDS

No construction records are available. However, the following drawings are available:

1. Proposed Reconstruction of Spillway, Myosotis Lake Dam, July 1913
2. Dam and Spillway at Outlet of Myosotis Lake - Proposed Riprap for Increased Stability, August 1933

2.3 OPERATION RECORDS

There does not exist any written record of operation of the gate valve at the dam, and also no records of maintenance and repair work orders. Also there does not exist an operation and maintenance manual for the project. No records of pool elevation and rainfall at the site are available. The only operational function of the dam is the change in opening of the low-level control. This function is performed by the Director of the Preserve.

2.4 EVALUATION OF DATA

The available data reviewed in conjunction with the visual inspection were considered adequate for this Phase I inspection and evaluation of safety.
SECTION 3 VISUAL INSPECTION

3.1 FINDINGS

a. General
A visual inspection of Myosotis Lake Dam was made on Thursday, August 31, 1978. The weather was rainy; the temperature was in the 70-75° range.

b. Embankment Dam
There were no visible signs of sloughing, erosion, cracking or other distress on the crest and slopes of the embankment.

The crest is grass-covered. The upstream slope from the crest down to the approximate elevation of the spillway crest is covered by grown trees, bushes and saplings. The downstream slope in the central part of the dam is clear of all vegetation; toward both abutments the slope is covered by brush and some grown trees.

Due to the prevailing rainy weather on the day of inspection, the seepage, if any, was not detectable. However, Dr. Dalgleish, Executive Director of the Preserve, reported that no seepage or wet areas had been observed by him at any part of the dam or the abutments during his frequent visits to the dam.

c. Spillway
At the time of inspection water level was approximately 2.5 feet below the spillway crest, i.e., at El. 1688.5±. The sloped portion of the spillway floor has been gunited previously over the reinforcing steel mesh. At the time of inspection there were cracks and erosion in several places of it. Some cracks have been patched recently. The lower horizontal portion with embedded stones for energy dissipation was in good shape. Scouring downstream from the spillway was localized and of a limited significance.

A 5-foot high retaining wall at the left entrance shoulder of the spillway was cracked and upper layers of masonry were dislocated under soil pressure.

d. Regulating Valve
The 12-inch gate valve is housed in a gatehouse built from concrete blocks at the toe of the dam. The valve appeared to be in good operable condition. A small leak around the stem and slight corrosion of the valve body do not preclude a normal functioning of the valve.
e. **Downstream Channel**
   Although the channel downstream of the spillway tailrace contained trees and bushes, its present condition would not impede discharges from the dam. The channel enters, after a short run, the Ten-Mile Creek valley.

f. **Reservoir Area**
   In the vicinity of the dam, there was no evidence of sloughing, potentially unstable slopes or other unusual conditions which would adversely affect the dam.

3.2 **EVALUATION OF OBSERVATIONS**

Visual observations made during the course of inspection did not indicate any serious problems which would adversely affect the safety of the dam and require either immediate investigation or immediate remedial action. However:

a. The growth of heavy unmanaged vegetation, especially trees, on slopes of the embankment should be discouraged.

b. Cracking and erosion of gunite surfaces in the spillway slab are not considered to represent a danger to the safety of the dam. However, a permanent solution should be found to provide a stable surface for the spillway slab.

c. The masonry retaining wall at the left entrance shoulder of the spillway should be repaired.
SECTION 4 OPERATIONAL AND MAINTENANCE PROCEDURES

4.1 PROCEDURES

The amount of water released from the lake is governed solely by the needs of the town of Rensselaerville. The release is effected through the 12-inch pipe. Since 1966, the fluctuation of the lake surface was reported to be up to 30 inches above the spillway crest during springtime rain, with the maximum observed being 36 inches, and a minimum drawdown of 10 feet below the spillway crest. The latter level corresponds to the top of the inlet of the 12-inch water release pipe.

4.2 MAINTENANCE OF THE DAM

There is no operation and maintenance manual for the project. The reservoir is frequently visited by Dr. Dalgleish; however, he does not necessarily examine the dam or other project features at the time of his visits. There is no formally established program of inspection visits by the State engineers. Repairs to the dam and spillway are made when required. No regular maintenance procedures are established for the dam and spillway.

4.3 MAINTENANCE OF OPERATING FACILITIES

The gate valve is manually operated and appeared to be operable insofar as equipment was visible. It was reported that the maintenance was done 3 times in the last 14 years, the last one several years ago.

4.4 WARNING SYSTEM IN EFFECT

There is no warning system in effect or in preparation.

4.5 EVALUATION

The maintenance of the Myosotis Lake Dam is considered less than adequate in the following areas:

a. Control of heavy brush and saplings on the surface of the dam.
b. Disrepair of the spillway slab.
c. Disrepair of the spillway left side entrance wall.
SECTION 5 HYDRAULIC/HYDROLOGIC

5.1 DRAINAGE BASIN CHARACTERISTICS

Myosotis Lake is located on Ten-Mile Creek, about one-half mile west of Rensselaerville in Albany County, New York. The drainage basin, of 6.57 square miles, is rectangular in shape with a length to width ratio of about 2.5. Approximately 75% of the basin is natural and reforested woodlands, and 25% farmsteads and orchards.

5.2 SPILLWAY CAPACITY

Discharge from Myosotis Lake is possible through a 12-inch diameter low level outlet and a spillway channel 36.7 feet wide. It is estimated that the discharge capacity of the spillway is 2808 cfs when the lake level is at the top of the dam (El. 1699.5). The computed discharge of the low level outlet with the water level at spillway crest elevation is 12 cfs.

5.3 RESERVOIR CAPACITY

The capacity of Myosotis Lake (supplied by the Edmund Niles Huyck Preserve, Inc.) is 366.5 million gallons or 1125 acre-feet. The computed surcharge storage between spillway crest elevation and top of dam is 850 acre-feet, which is equivalent to about 2.4 inches of runoff over the entire basin.

5.4 FLOODS OF RECORD

There are no records of floods.

5.5 OVERTOPPING POTENTIAL

The project discharge capacity was compared with both the Probable Maximum Flood (PMF) and the Standard Project Flood (SPF).

The Probable Maximum 6-hour rainfall for the Myosotis Lake area was determined as 22.2 inches, and based on EC 1110-2-27 was reduced 20% to 17.76 inches. The distribution of the rainfall was based on data in a publication of the World Meteorological Organization.

Based on the Soil Conservation Service curve number method the rainfall excess was determined as 16.49 inches. Because of the physical features of the basin, with two streams flowing into the lake, the basin was divided into two sub-basins. Triangular unit hydrographs were developed for each sub-basin and subsequently used to compute their respective PMF.
runoff hydrographs. The hydrograph was formed by adding the PMF runoff hydrographs from each sub-basin to the runoff resulting from the rainfall directly on the lake surface, and resulted in a flood inflow peak of 10,918 cfs.

The potential of the water overtopping the dam was investigated on the basis of the available surcharge storage and spillway discharge capacities to meet a potential emergency inflow. It was assumed that the lake level at the start of the flood inflow was at El. 1691 (spillway crest). The PMF caused the level of the lake to rise to a maximum elevation 1703.2, 3.7 feet above the top of the dam. The peak discharge was 10,598 cfs or 3.8 times the outflow capacity. The SPF, usually taken as one-half PMF, produced a maximum lake level elevation of 1700.8 and a peak discharge of 4740 cfs, 1.7 times the spillway capacity.

The low level conduit was assumed inoperable during floods.

5.6 EVALUATION OF HYDROLOGY/HYDRAULICS

Using Corps of Engineers screening criteria, the maximum spillway capacity without overtopping the dam is equal to 26 percent of the PMF and 59 percent of the SPF. Under the PMF and SPF discharge the dam would be overtopped by 3.7 feet and 1.3 feet, respectively.


SECTION 6 STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITY

a. Visual Observation
   Visual observation did not indicate either existing or potential problems with the dam or spillway sections.

b. Design and Construction Data
   There exist no design computations or other data regarding the structural stability of the dam.

   On the basis of the performance experience of the dam, as well as engineering judgment, the dam is considered to be stable.

   Performance experience with the maximum observed water level 3 feet above the spillway crest level is good.

c. Operating Records
   Operating records were not maintained.

d. Post-Construction Changes
   Minutes of the Preserve record that in 1934 "1475 loads (or yards) of stone were added to the face of the dam". Besides this, under the same year: "The twelve-inch diameter discharge pipe was extended and a new valve installed, and gatehouse constructed". In 1962 the present spillway was enlarged, eliminating an arch bridge which crossed the spillway. The increased clearance permits ice to pass through unobstructed. No subsequent ice jams have been observed.

e. Seismic Stability
   The dam is located in Seismic Zone No. 1, therefore no seismic analyses are warranted.
7.1 DAM ASSESSMENT

a. Safety

Examination of available documents and visual inspection of the Myosotis Lake Dam and appurtenant structures did not reveal conditions which are considered to be unsafe. Some existing inadequacies regarding maintenance and operation of the project features were observed.

Using Corps of Engineers screening criteria, the maximum spillway capacity without overtopping the dam is equal to 26 percent of the PMF and 59 percent of the SPF. Under the PMF and SPF discharge the dam would be overtopped by 3.7 feet and 1.3 feet, respectively. The spillway is, therefore, adjudged as seriously inadequate and the dam is assessed as unsafe, non-emergency.

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It is, therefore, recommended that within three months from the date of notification to the Governor of the State of New York, the owners engage the services of a professional consultant to determine by more sophisticated methods and procedures the adequacy of the spillway. Within twelve months of the date of notification to the governor, appropriate remedial mitigating measures should have been completed. In the interim, a detailed emergency operation plan and warning system should be promptly developed. Also, during periods of unusually heavy precipitation, around-the-clock surveillance should be provided.

b. Adequacy of Information

The information and visual inspection were adequate for performance of this investigation. However, there is inadequate information with regard to operation and maintenance of the project as follows:

1. Record drawings of the project
2. Operation and maintenance
3. Record of inspections.
c. **Necessity for Additional Investigations**

Additional investigations are required to determine the adequacy of the spillway, as recommended in Section 7.1a above.

### 7.2 REMEDIAL MEASURES

No remedial measures are required to assure the safety of the dam at the present time.

Certain measures are recommended as follows:

a. Remove heavy shrubs and saplings from all locations on the dam.
b. Repair the spillway slab.
c. Repair the left side entrance wall of the spillway.
d. Prepare operation and maintenance manual for the project.
e. Maintain the record of operation and maintenance.
f. Establish a program of periodic inspections of the project features.
Proposed Reconstruction of Spillway
Myosotis Lake Dam, Rensselaer, N.Y.

Scale 1" = 1'
DAM AND SPILLWAY
AT OUTLET OF MYOSOTIS LAKE
DAM AND SPILLWAY
AT OUTLET OF MYOSOTIS LAKE
RENSSELAERVILLE, N.Y.

PROPOSED RIP RAP FOR INCREASED STABILITY

PREPARED FOR
THE EDMUND NILES HUYCK PRESERVE, INC.
FRANK R. LANAGAN, CIVIL ENGINEER

SCALE 1" = 20'ET

AUGUST 1933
Elevations are referred to a benchmark of assumed elevation.
Slopes 1 ft. vertical to 1 ft. horizontal

Present valve house to be removed

Present valve to remain open after installation of new

12" C.I. Outlet pipe extension

Section "A-A" of Dam at Myosotis Lake, Rensselaer

PROPOSED RIP RAP FOR INCREASED STABILITY

PREPARED FOR THE EDMUND NILES HUYCK PRESERVE, INC.
FRANK R. LANAGAN, CIVIL ENGINEER

SCALE 1" = 4 Ft.
Tisk Lake, Rensselaerville, N.Y.

For increased stability

Huyck Preserve, Inc.

Gan, Civil Engineer

August, 1933.
PHOTOGRAPHS

APPENDIX A
CREST OF THE DAM
SPILLWAY ENTRANCE, LOOKING DOWNSTREAM

SPILLWAY EXIT, LOOKING UPSTREAM
ENGINEERING DATA CHECKLIST

APPENDIX B
**CHECKLIST**  
**ENGINEERING DATA**  
**DESIGN, CONSTRUCTION, OPERATION**  
**PHASE I**

**NAME OF DAM**: **MYOSOTIS LAKE**  
**ID #**: 670

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<td>REGIONAL VICINITY MAP</td>
<td>USGS</td>
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<td>POST-CONSTRUCTION SURVEYS OF DAM</td>
<td>Not available</td>
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<td>BORROW SOURCES</td>
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<tr>
<td>ITEM</td>
<td>REMARKS</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>MONITORING SYSTEMS</td>
<td>Not available</td>
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<tr>
<td>MODIFICATIONS</td>
<td>In 1962 spillway was enlarged</td>
</tr>
<tr>
<td>HIGH POOL RECORDS</td>
<td>None available</td>
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<tr>
<td>POST CONSTRUCTION ENGINEERING, STUDIES AND REPORTS</td>
<td>None available</td>
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<tr>
<td></td>
<td>In 1934 stone was dumped on face of dam, discharge pipe was extended, and a gatehouse was built; a new valve was installed</td>
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<tr>
<td>PRIOR ACCIDENTS OR FAILURE OF DAM</td>
<td>None reported</td>
</tr>
<tr>
<td>DESCRIPTION REPORTS</td>
<td></td>
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<td>MAINTENANCE</td>
<td>No formal program or schedule available</td>
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<tr>
<td>OPERATION RECORDS</td>
<td>Little operation to provide water for users</td>
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<tr>
<td></td>
<td>None available</td>
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<tr>
<td>ITEM</td>
<td>REMARKS</td>
</tr>
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<td>----------------------</td>
<td>-------------------------------</td>
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<tr>
<td>SPILLWAY PLAN</td>
<td>See list of drawings</td>
</tr>
<tr>
<td>SECTIONS</td>
<td></td>
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<tr>
<td>DETAILS</td>
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<td>OPERATING EQUIPMENT</td>
<td>No data available</td>
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<td>PLANS &amp; DETAILS</td>
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</tr>
</tbody>
</table>
VISUAL INSPECTION CHECKLIST
VISUAL INSPECTION CHECKLIST

1. Basic Data
   a. General
      Name of Dam: Lake Mysotes
      Hazard Category: Significant
      County: Albany
      ID#
      Stream Name: Ten-mile Creek
      Tributary of Catskill Creek and the Hudson River
      Location: Albany County Nearest Town (P.O.): Rensselaerville
      Longitude: 74°08'45"
      Latitude: 42°31'0"
      Other Directions: 0.5 mi NNW of Rensselaerville
      Date of Insp: 30 Aug 1978
      Weather: Rainy
      Temperature: 70-75°
      Anatol Lange, Structural Eng.
      With TAMS
   c. Persons Contacted: Robert C. Dagleish, Ph.D., Executive Director of the Edmund Niles Huyck Preserve, Inc.
   d. History: Date Constructed: Lake Mysotes impounded ca. 1800
      Present Owner: The Edmund Niles Huyck Preserve, Inc.
      Designed by: Not known
      Constructed by: Not known
      Recent History: Spillway enlarged in 1962

2. Technical Data
   Type of Dam: Stone
   Drainage Area: ____________ Acres
   Height: ____________ ft
   Length: ____________ ft
   Upstream Slope: 1(v) : 2(H)
   Downstream Slope: Vertical (71 ft), Then (1v) 11(H)
   Crest Width: ____________ ft
   Freeboard at Spillway Crest: ____________ ft
Low Level Control: (Type and Size) 12 inch gate valve
Valve Condition Operable; Minor Leak at Flanges

Emergency Spillway Type (Material) Ungated, New wing width 36.7 ft
Only one source spillway, no emergency spillway
Side Slopes Vertical
Height (Crest to Top) 8.5 ft
Exit Slope 1 (v); 4.6 (h)
Exit Length 78.2 ft
Ponded Surface Area 98.3 Acres
Capacity (Normal Level) 1124 Acre Feet
Capacity Emergency Spillway Level — Acre Feet

3. Embankment

240 ft

a. Crest 11.5 ft wide, incl. 1.3 ft parapet; El '69.5

(1) Vertical Alignment Uniform

(2) Horizontal Alignment 116 ft straight; 118 ft slightly curved downstream

(3) Longitudinal Surface Cracks None visible

(4) Transverse Surface Cracks None visible

(5) General Condition of Surface Grassed surface in good condition

(6) Miscellaneous Earth layer on top of rock, thickness unknown
### Upstream Slope (V) : 2 (H)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
</table>

1. Undesirable Growth or Debris: Growth of trees, bushes, and saplings.

2. Sloughing, Subsidence, or Depressions: None observed.

3. Slope Protection: Damaged stones averaging 18 inches (9 inches min to 2 ft max).
   - Condition of Riprap: Good
   - Durability of Individual Stones: Good
   - Adequacy of Slope Protection Against Waves and Runoff: Apparently good, no damage visible
   - Gradation of Slope Protection - Localized Areas of Fine Material: None

4. Surface Cracks: None

### Downstream Slope

1. Undesirable Growth or Debris: Central part - cleaner vegetation; left and right parts covered by saplings and bushes.
(2) Sloughing, Subsidence, or Depressions; Abnormal Bulges or Non-Uniformity

None observed

(3) Surface Cracks on Face of Slope

None observed

(4) Surface Cracks or Evidence of Heaving at Embankment Toe

None observed

(5) Wet of Saturated Areas or Other Evidence of Seepage on Face of Slope; Evidence of "Piping" or "Bolls"

Not detectable in rainy weather. However, according to Dr. Dalglish, who provides frequent observation, no seepage has been evident on downstream face of the dam.

(6) Fill Contact with Outlet Structure

Good

(7) Condition of Grass Slope Protection

Not applicable

d. Abutments

(1) Erosion of Contact of Embankment with Abutment from Surface Water Runoff, Upstream or Downstream

None visible

(2) Springs or Indications of Seepage Along Contact of Embankment with the Abutments

None observed by Dr. Dalglish
(3) Springs or Indications of Seepage in Areas a Short Distance Downstream of Embankment - Abutment Tie-in

None observed by Dr. Dalgleish

---

e. Area Downstream of Embankment, Including Tailrace Channel

This area includes Ten-mile Creek Valley

---

(1) Localized Subsidence, Depressions, Sinkholes, Etc.

None visible

---

(2) Evidence of "Piping" or "Boils"

None observed by Dr. Dalgleish

---

(3) Unusual Presence of Lush Growth, such as Swamp Grass, etc.

None

---

(4) Unusual Muddy Water in Downstream Channel

None

---

(5) Sloughing or Erosion

None visible

---

(6) Surface Cracks or Evidence of Heaving Beyond Embankment, Toe

None visible
(7) Stability of Tailrace Channel Sideslopes

Natural slopes of the creek with trees and brush, no erosion visible

(8) Condition of Tailrace Channel Riprap


(9) Adequacy of Slope Protection Against Waves, Currents and Surface Runoff


(10) Miscellaneous


f. Drainage System Unknown

(l) Condition of Relief Wells, Drains and Appurtenances

No relief wells or drains

(2) Unusual Increase or Decrease in Discharge from Relief Wells

Not applicable

4. Instrumentation

(1) Monumentation/Surveys None
(2) Observation Wells  None

(3) Weirs  None

(4) Piezometers  None

(Other)

5. Reservoir

   Inspected in the field and from bathymetric map, surveyed by J. Makarewicz and D. Prentice in 1976

   a. Slopes

      1'(V) : 10'(H) at the dam and lateral sides;

      1'(V) : 100(H) at the U/S part of the reservoir
6. Spillways

Only one spillway, which is in service spillway

a. Principal Spillway: Inlet Condition

Pipe Condition

General Remarks (include information such as recently repaired, potential for debris accumulation, special items of note, etc.)

Spillway was enlarged in 1962, which allowed ice to pass through unobstructed

b. Emergency Spillway: General Condition


b. Emergency Spillway: General Condition

Tree Growth

Erosion

Other Observations

7. Structural (if required) See Attached Appendix

See attached Appendix for structural comments
8. **Downstream Channel**

D/S channel is Ten-mile Creek Valley

a. Condition (obstructions, debris, etc.)

   No major debris which would be considered unusual

b. Slopes

---

c. Approximate No. Homes and Population

   Unoccupied saw-mill building (historical)
   Highway bridge on N.Y. R+85; residential house

   [Signature]
   Team Captain
STRUCTURAL INSPECTION CHECKLIST

PHASE I DAM INSPECTION

1. Concrete Surfaces: Masonry of vertical exposed 1/8 face of dam is in good condition. Masonry spillway slab was provided with re-bar and grouted facing, which has been washed away in several places.

2. Structural Cracking: None visible

3. Movement - Horizontal and Vertical Alignment: None visible

4. Junctions with Abutments or Embankments

5. Drains - Foundation, Joint, Face

6. Water Passages, Conduits, Sluices

7. Seepage or Leakage

8. Monolith Joints - Construction Joints

9. Foundation
10. Abutments: Masonry 5-ft high approach wall on the left side of the spillway has cracks, slight dislocation under soil pressure.

11. Control Gates: 

12. Approach and Outlet Channels: 

13. Stilling Basin: 

14. Intake Structure: 

15. Settlement: No differential settlement visible at structures. 

16. Stability: 
   a. Overturning: Calculations not required for Phase I. 
   b. Sliding: 
   c. Seismic: 

17. Instrumentation: No instrumentation. 
   a. Alignment: 
   b. Uplift: 
   c. Seismic: 

18. Miscellaneous: 

HYDROLOGIC DATA AND COMPUTATIONS

APPENDIX D
Job No. 1487-16
Project MYOSOTIS LAKE DAM
Subject DRAINAGE AREAS

1" = 2000'

TOTAL DRAINAGE BASIN AREA

0.101
\[ \frac{0.101}{143990 \text{ m}^2} = \frac{x}{\text{ m}^2} \]

9.23
461
462

1.615 = 6.57 \text{ m}^2

LARGE DRAINAGE AREA

6.80
2.39
3.41

3.40 = 4.82 \text{ m}^2

2000 = 0.379

SMALL DRAINAGE AREA

2.27
1.13
1.14

1.85 = 1.60 \text{ m}^2

MYOSOTIS LAKE AREA

0.30 = \frac{x}{143980 \text{ m}^2}

2.05
1.02
1.03

1025 = 0.62 \text{ m}^2

LAKE LENGTH OF DAM

1.4" = 0.531 \text{ m}.

SILAO FOOD STREAM LENGTH

7.05" = 2.676 \text{ m}

1540' (CONTINUOUS AREA AROUND) LAKE

2.78
1.37
1.36

1.365 = 0.20 \text{ m}^2

LARGE AREA STREAM LENGTH

10.5" = 3.980 \text{ m}

\[ \text{AH BETWEEN LAKE @ HIGH PLTS} \]

LARGE AREA 2160' AH = 630'

SMALL AREA 2146' AH = 625'

* Based on USGS Datum, which is 170 ft below an arbitrary Datum Plane, used in the survey prepared by Frank R. Langum, and revised July, 1980.
(1.)

\[ L_{ca} = 1.33 \text{ miles} \]
\[ L = 3.98 \text{ miles} \]
\[ A = 4.82 \text{ sq. mi.} \]
\[ t_p = \left( \frac{C_e}{L L_{ca}} \right)^{0.5} = 3.3 \text{ hours} \]
\[ T_n = \frac{t_p}{5.5} = 0.6 \text{ hours} \]
\[ q_p = \frac{640 C_p}{t_p} = 121.2 \text{ cfs} \]
\[ Q = 121.2 \times 4.82 = 584 \text{ cfs} \]

Assume \( C_e = 2 \).

\[ 640 C_p = 400. \]

(2.)

\[ L_{ca} = 2.14 \text{ miles} \]
\[ L = 2.67 \text{ miles} \]
\[ A = 1.6 \text{ sq. mi.} \]
\[ t_p = \left( \frac{C_e}{L L_{ca}} \right)^{0.5} = 2.8 \text{ hours} \]
\[ T_n = \frac{t_p}{5.5} = 0.5 \text{ hours} \]
\[ q_p = \frac{640 C_p}{t_p} = 142.9 \text{ cfs} \]
\[ Q = 142.9 \times 1.6 = 229 \text{ cfs} \]
TAMS

Job No. 1487-16
Project Myosotis LAKE
Subject

Unit Graph ①

Unit Graph ②

Discharge (cfs)

Time (hours)

Date 6/7 6/78
By
Ch’k. by

Sheet 3 of
**TAMS**

Job No. 1487-16

Project MYCOH LAKE

Subject ELEVATION VS. SURFACE AREA

Date 9/14/72

By GJ

Ch’k. by

---

**Graph:**

Contour 1521' (Lake) = 154.2 acres

Contour 1540' = 20.4 acres = 126.1

**Axes:**

Elevation (ft)

Area (Acres)
# TAMS

**Job No.** 1487-16  
**Project** Myosotis Lake  
**Subject** Elevation vs. Surcharge Storage  
**Date** 9/24/78  
**By**  
**Ch’k. by**  

<table>
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<tr>
<th>Elevation (ft)</th>
<th>Area (Aces)</th>
<th>Mean Area (Aces)</th>
<th>Vol (Acre ft)</th>
<th>Total Vol (Acre ft)</th>
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<td>95.1</td>
<td>95.95</td>
<td>95.05</td>
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<tr>
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<td>203.20</td>
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<td>1540</td>
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**Surcharge Storage Chart**
**TAMS**

**Job No.** 1487-16  
**Project** Inspection  
**Subject** MYOSOTIS LAKE  
**Date** Sep 20, 78  
**By**  
**Ch’k. by**

Length of run: 971.64 ft

<table>
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<th>Elevation</th>
<th>Levee</th>
<th>Bottom</th>
<th>Q_5</th>
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<td>10489</td>
<td>1250</td>
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</table>
SOIL TYPE - GLACIAL TILL - GROUP C

SOIL COVER
75% Forest
75% Farm

EN - 70
EN - 85

MEAN CN = 74
AMC II

FOR AMC III CN = 50

S = \frac{1000 - 10}{10} = 99

Q = \frac{(P - 0.25)^2}{P + 1.50}
\bar{c} = 0.22
2 = 0.89
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<th>RESERVOIR LEVEL (FT)</th>
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<th>RESERVOIR OUTFLOW (CFS)</th>
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**HYOSOTIS LAKE DAM**
**JOB #1607-10**
**DAM INSPECTION**
**FULL PQF**