CHESIRE RESERVOIR DAM
MA 00211

PHASE 1 INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS. 02154

NOVEMBER 1978
85 5 20 110
Chershire Reservoir Dam is a stone masonry and concrete gravity dam about 50.5 feet long, and about 14 feet high with a dropped center spillway 40.5 feet long and a freeboard of 2.7 feet. Based on the Corps of Engineers guidelines, the dam seems to be in fair condition. Since the dam is classified as intermediate in size with a low hazard potential, the test flood, is 1/2 the Probable Maximum Flood.
Honorable Edward J. King  
Governor of the Commonwealth of Massachusetts  
State House  
Boston, Massachusetts 02133

Dear Governor King:

I am forwarding to you a copy of the Cheshire Reservoir Dam Phase I Inspection Report, which was prepared under the National Program for Inspection of Non-Federal Dams. This report is presented for your use and is based upon a visual inspection, a review of the past performance and a brief hydrological study of the dam. A brief assessment is included at the beginning of the report. I have approved the report and support the findings and recommendations described in Section 7 and ask that you keep me informed of the actions taken to implement them. This follow-up action is a vitally important part of this program.

A copy of this report has been forwarded to the Department of Environmental Quality Engineering, the cooperating agency for the Commonwealth of Massachusetts. In addition, a copy of the report has also been furnished the owner, Hoosac Reservoir Company, c/o Arnold Print Works, Inc., Columbia Street, Adams, Massachusetts 01220. ATTN: Mr. Richard Miller, Plant Engineer.

Copies of this report will be made available to the public, upon request, by this office under the Freedom of Information Act. In the case of this report the release date will be thirty days from the date of this letter.

I wish to take this opportunity to thank you and the Department of Environmental Quality Engineering for your cooperation in carrying out this program.

Sincerely yours,

[Signature]

JOHN P. CHANDLER  
Colonel, Corps of Engineers  
Division Engineer
NATIONAL DAM INSPECTION PROGRAM
PHASE I INSPECTION REPORT

Identification No. MA 00211
Name of Dam: CHESHIRE RESERVOIR DAM
Town: CHESHIRE
State: COMMONWEALTH OF MASSACHUSETTS
Stream: HOOSIC RIVER
Date of Inspection: 26 OCTOBER 1978

BRIEF ASSESSMENT

Cheshire Reservoir Dam is a stone masonry and concrete gravity dam about 50.5 feet long, about 14 feet high with a dropped center spillway 40.5 feet long and a freeboard of 2.7 feet. The spillway is flanked upstream on the left by a low concrete and stone masonry wall which retains a railroad embankment and on the right by a concrete lined slope. The downstream training walls are stone masonry and concrete. Four 2-feet square sluiceways are equipped with manually controlled, damper type gates. Discharges over the spillway and through the sluiceways are into a channel which passes under Massachusetts Route No. 8 and then into the Hoosic River.

Phase I inspection and evaluation of Cheshire Reservoir Dam does not indicate conditions which would constitute an immediate hazard to human life or property. Based on engineering judgment and the performance of the masonry and concrete dam and outlet works, the project appears to be in fair condition. The project, however, does have inadequacies and deficiencies which, if not remedied, have the potential for developing into hazardous conditions.

Because there are no data on Probable Maximum Floods for an area of 15.2 square miles, it was necessary to synthesize a test flood hydrograph for the contributing area. (Since the dam is classified as intermediate in size, with a low hazard potential, the test flood, in accordance with Corps of Engineers guidelines, is one half the Probable Maximum Flood (1/2 PMF). The 1/2 PMF inflow-peak was 28,592 cfs. The adequacy of the spillway was tested by routing the flood through the reservoir using a computer routing technique. The peak outflow from the 1/2 PMF was 11,242 cfs corresponding to El 976.5 or about 2.75 feet above the top of the dam.
Since the dam is expected to be overtopped with an inflow equal to 1/2 PMF, it is considered that the spillway is not adequate from a hydraulic and hydrologic standpoint. However, since the potential hazard as a result of a breach of the dam is low, and it is considered that little increase in hazard would result from an overtopping and failure, further investigations and/or recommendations are not considered necessary at this time.

Remedial measures are recommended for implementation by the owner, within 12 to 24 months of receipt of this Phase I Inspection Report, to improve overall conditions. These measures, in general, are as follows:

- Repairs to dam and appurtenant structures
- Programs for operation, maintenance and inspection

Eugene O'Brien, P.E.
New York No. 29823
This Phase I Inspection Report on Cheshire Reservoir Dam has been reviewed by the undersigned Review Board members. In our opinion, the reported findings, conclusions, and recommendations are consistent with the Recommended Guidelines for Safety Inspection of Dams, and with good engineering judgment and practice, and is hereby submitted for approval.

JOSEPH W. FINEGAN, JR., MEMBER
Water Control Branch
Engineering Division

CARNEY M. TERZIAN, MEMBER
Design Branch
Engineering Division

JOSEPH A. MCELROY, CHAIRMAN
Chief, NED Materials Testing Lab.
Foundations & Materials Branch
Engineering Division

APPROVAL RECOMMENDED:

JOE B. FRYAR
Chief, Engineering Division
PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation, and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through continued care and inspection can there be any chance that unsafe conditions be detected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aide in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.
# CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LETTER OF TRANSMITTAL</td>
<td></td>
</tr>
<tr>
<td>BRIEF ASSESSMENT</td>
<td></td>
</tr>
<tr>
<td>PREFACE</td>
<td></td>
</tr>
<tr>
<td>OVERVIEW PHOTOGRAPH</td>
<td>i</td>
</tr>
<tr>
<td>VICINITY MAP</td>
<td>ii</td>
</tr>
<tr>
<td>TOPOGRAPHIC MAP</td>
<td>iii</td>
</tr>
<tr>
<td>PROJECT INFORMATION</td>
<td>1-1</td>
</tr>
<tr>
<td>1.1 GENERAL</td>
<td>1-1</td>
</tr>
<tr>
<td>a. Authority</td>
<td>1-1</td>
</tr>
<tr>
<td>b. Purpose</td>
<td>1-1</td>
</tr>
<tr>
<td>1.2 DESCRIPTION OF PROJECT</td>
<td>1-1</td>
</tr>
<tr>
<td>a. Description of Dam and Appurtenances</td>
<td>1-1</td>
</tr>
<tr>
<td>b. Location</td>
<td>1-2</td>
</tr>
<tr>
<td>c. Ownership</td>
<td>1-2</td>
</tr>
<tr>
<td>d. Purpose of Dam</td>
<td>1-2</td>
</tr>
<tr>
<td>e. Design and Construction History</td>
<td>1-2</td>
</tr>
<tr>
<td>f. Normal Operating Procedures</td>
<td>1-3</td>
</tr>
<tr>
<td>g. Size Classification</td>
<td>1-3</td>
</tr>
<tr>
<td>h. Hazard Classification</td>
<td>1-3</td>
</tr>
<tr>
<td>i. Operator</td>
<td>1-3</td>
</tr>
<tr>
<td>1.3 PERTINENT DATA</td>
<td>1-3</td>
</tr>
<tr>
<td>a. Drainage Area</td>
<td>1-3</td>
</tr>
<tr>
<td>b. Discharge at Damsite</td>
<td>1-4</td>
</tr>
<tr>
<td>c. Elevation</td>
<td>1-4</td>
</tr>
<tr>
<td>d. Reservoir</td>
<td>1-4</td>
</tr>
<tr>
<td>e. Storage</td>
<td>1-4</td>
</tr>
<tr>
<td>f. Reservoir Surface</td>
<td>1-4</td>
</tr>
<tr>
<td>g. Dam</td>
<td>1-5</td>
</tr>
<tr>
<td>h. Diversion and Regulating Tunnel</td>
<td>1-5</td>
</tr>
</tbody>
</table>
i. Spillway 1-5
j. Regulating Outlets 1-5

2 ENGINEERING DATA 2-1

2.1 DESIGN 2-1

2.2 CONSTRUCTION RECORDS 2-1

2.3 OPERATING RECORDS 2-1

2.4 EVALUATION OF DATA 2-1
   a. Availability 2-1
   b. Adequacy 2-1
   c. Validity 2-1

3 VISUAL INSPECTION 3-1

3.1 FINDINGS 3-1
   a. General 3-1
   b. Dam 3-1
   c. Appurtenant Structures 3-1
   d. Abutments 3-1
   e. Downstream Channel 3-1
   f. Reservoir Area 3-2

3.2 EVALUATION OF ObservATIONS 3-2

4 OPERATION AND MAINTENANCE PROCEDURES 4-1

4.1 PROCEDURES 4-1

4.2 MAINTENANCE OF DAM 4-1

4.3 MAINTENANCE OF OPERATING FACILITIES 4-1

4.4 WARNING SYSTEM IN EFFECT 4-1

4.5 EVALUATION 4-1

5 HYDRAULIC/HYDROLOGIC 5-1

5.1 EVALUATION OF FEATURES 5-1
### Page No.

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Design Data</td>
<td>5-1</td>
</tr>
<tr>
<td>b. Experience Data</td>
<td>5-1</td>
</tr>
<tr>
<td>c. Visual Inspection</td>
<td>5-1</td>
</tr>
<tr>
<td>d. Overtopping Potential</td>
<td>5-2</td>
</tr>
<tr>
<td>5.2 EVALUATION OF THE ANALYSIS</td>
<td>5-3</td>
</tr>
<tr>
<td>6 STRUCTURAL STABILITY</td>
<td>6-1</td>
</tr>
<tr>
<td>6.1 EVALUATION OF STRUCTURAL STABILITY</td>
<td>6-1</td>
</tr>
<tr>
<td>a. Visual Observations</td>
<td>6-1</td>
</tr>
<tr>
<td>b. Design and Construction Data</td>
<td>6-1</td>
</tr>
<tr>
<td>c. Operating Records</td>
<td>6-1</td>
</tr>
<tr>
<td>d. Post-Construction Changes</td>
<td>6-1</td>
</tr>
<tr>
<td>e. Seismic Stability</td>
<td>6-1</td>
</tr>
<tr>
<td>7 ASSESSMENT, RECOMMENDATIONS &amp; REMEDIAL MEASURES</td>
<td>7-1</td>
</tr>
<tr>
<td>7.1 DAM ASSESSMENT</td>
<td>7-1</td>
</tr>
<tr>
<td>a. Conditions</td>
<td>7-1</td>
</tr>
<tr>
<td>b. Adequacy of Information</td>
<td>7-1</td>
</tr>
<tr>
<td>c. Urgency</td>
<td>7-1</td>
</tr>
<tr>
<td>d. Necessity for Additional Investigations</td>
<td>7-2</td>
</tr>
<tr>
<td>7.2 RECOMMENDATIONS</td>
<td>7-2</td>
</tr>
<tr>
<td>7.3 REMEDIAL MEASURES</td>
<td>7-2</td>
</tr>
<tr>
<td>a. Alternatives</td>
<td>7-2</td>
</tr>
<tr>
<td>b. Operating &amp; Maintenance Procedures</td>
<td>7-2</td>
</tr>
</tbody>
</table>

### APPENDICES

A. VISUAL INSPECTION CHECKLIST

B. DRAWINGS, PAST INSPECTION REPORTS AND OTHER DATA
   Cheshire Reservoir Dam, Plan and Sections
   Past Inspection Reports
   Field Data

C. PHOTOGRAPHS

D. HYDROLOGIC DATA AND COMPUTATIONS

E. INFORMATION AS CONTAINED IN THE NATIONAL INVENTORY OF DAMS
1. GENERAL OVERVIEW OF DAM.
The Probable Maximum 6-Hour rainfall over ten square miles was obtained from Weather Bureau sources\(^4\) and reduced according to the Corps of Engineers recommendations.\(^5\) It was assumed that there would be a loss of 0.2 inches per hour, resulting in an excess rainfall of 16.56 inches in 6 hours and distributed in accordance with the data published by the World Meteorological Organization.\(^6\)

The design storm was first applied to the 1.56 square mile drainage area of the Berkshire Pond and the resulting hydrograph routed through the pond using a computerized technique. The outflow from the Berkshire Pond was then added to the computed inflow hydrograph of the Cheshire Reservoir basin to form the one half Probable Maximum Flood, and resulted in a peak inflow of 28,592 cfs.

The computed discharge capacity of the Cheshire Reservoir Dam spillway with the water level at El 974.2 (the top of the training walls) is 583 cfs. In addition, the total computed discharge capacity of four sluiceways with water level at El 971.5 and El 974.2 is 178 cfs and 208 cfs, respectively. It is assumed that the remnant of the old bridge pier located at the downstream face of the spillway is not expected to affect the discharge capacity of the spillway. The available surcharge storage between the spillway crest El 971.5 and the top of the Dam El 974.2 is estimated to be 1858 acre-feet.

5.2 EVALUATION OF THE ANALYSIS

The Test Flood (1/2 PMF), routed through the reservoir using a computer technique, results in a rise of the reservoir level to a maximum El 976.95, with a corresponding outflow discharge of 11,242 cfs. The dam is overtopped by 2.75 feet and the spillway capacity is only 5.2% of the Test Flood outflow. The spillway is considered inadequate from a hydrologic and hydraulic viewpoint.

References


2 Recommended Guidelines for Safety Inspection of Dams, Appendix D, U.S. Corps of Engineers.

condition of the channel floor. The natural channel is in good condition. It is reported that the operating mechanisms of the sluice gates are in good condition with the handles removed to prevent vandalism. At the time of inspection, it is reported that two sluice gates were open.

For further details see Section 3.1c.

d. Overtopping Potential

The potential for overtopping the dam was investigated on the basis of the adequacy of the spillway and the available surcharge storage to meet a potential emergency inflow. The dam, with a maximum storage capacity of 4000 acre-feet is classified as intermediate in size. In order to estimate the downstream hazard potential in the event of a dam failure, the U.S. Corps of Engineers' "Rule of Thumb" guidance was used. The estimate assumes: (a) the reservoir surface is at the top of the dam at the time of the breach, (b) a breach of 40% of the dam length (20.2 feet) occurs and (c) the channel has an average roughness coefficient (n) of 0.07. The estimated flood wave heights are as follows:

<table>
<thead>
<tr>
<th>Distance Below Dam Feet</th>
<th>Peak Elevation Feet</th>
<th>Depth Feet</th>
<th>Discharge cfs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1400</td>
<td>963.2</td>
<td>3.2</td>
<td>1769</td>
</tr>
<tr>
<td>2500</td>
<td>960.2</td>
<td>3.2</td>
<td>1757</td>
</tr>
<tr>
<td>4000</td>
<td>962.0</td>
<td>8.0</td>
<td>1746</td>
</tr>
</tbody>
</table>

The relatively small flood wave is expected to cause very little damage. The visual inspection, corroborated by the information on USGS Quadrangle Map for Cheshire, Mass., indicates no development in the "flooded area" except the Church Street bridge, located about 4000 feet downstream of the dam could be damaged. The dam, therefore, is classified as a low hazard dam. Based on the size and hazard classification, one-half the Probable Maximum Flood was selected as the Test Flood.

For the analysis of the overtopping potential, it is assumed that (a) the entire reservoir acts as one unit, because the sub-basins are similar in size and physical features, and it is expected that the flood inflows would be simultaneous causing the level to rise as if there were no dividing dikes, (b) reservoir is at the spillway crest elevation at the start of the test flood, and (c) the four sluiceways are closed during the test flood. Two triangular unit hydrographs were developed. One to represent unit runoff from the Berkshire Pond sub-basin and the second, using weighted length of water-course and elevation difference, for the Cheshire Reservoir basin.
5.1 EVALUATION OF FEATURES

a. Design Data

No design data or records of flood flows are available for the Cheshire Reservoir area. It was therefore necessary to synthesize a test flood for the contributing area of 9728 acres (15.2 square miles). The reservoir area at El 971.5 is 601 acres (0.94 square miles) or 6.2% of the basin. The reservoir is about 3.7 miles long with an average width of 0.25 miles and is divided into three storage areas by two roadway embankments. There are interconnecting culverts (5.0 feet diameter) beneath the roadways and the reservoir level is the same in these storage areas. The reservoir level is shown as El 970.0 on the USGS Quadrangle sheet for Cheshire, Mass., but the normal level equivalent to the spillway crest elevation is given as 971.5 (MSL). The drainage basin is approximately 5 miles long by 3.5 miles wide and borders the reservoir on three sides. The weighted stream length and elevation difference of the basin is 2.1 miles and 1043 feet, respectively. This gives an average basin slope of 9.4% and is indicative of floods with large peaks and short times of concentration. The lake is 3/4 the length of the basin with simultaneous inflow from at least 8 brooks. This feature increases the probability of very high flood peak discharges of relatively short duration.

The basin is approximately 80% wooded with well established hardwood forests. The storage available in Berkshire Pond which is upstream of the Cheshire Reservoir controls flow from approximately 15% of the basin. The swamp in the Muddy Brook sub-basin also provides some storage. It is probable that the combined storages of about 30% of the basin would modify storm runoffs.

b. Experience Data

It is reported by persons interviewed that during the 1938 flood the water level in the reservoir reached the edge of the Massachusetts Route 8 roadway. During the March 1977 flood, the water was flowing slightly above the railroad track.

c. Visual Inspection

At the time of inspection, the pond level was at El 971.0, six inches below the spillway crest. The spillway is in fair condition. The upstream approaches and the downstream training walls are in good and fair condition respectively. The presence of water made it impossible to observe the

* See end of Section for References.
SECTION 4 - OPERATION AND MAINTENANCE PROCEDURES

4.1 PROCEDURES

There are no formal operation procedures for the project.

4.2 MAINTENANCE OF DAM

There is no formal maintenance manual for the project. Maintenance is carried out as needed. The dam is visited two or three times a week by personnel from Arnold Prints Works, who "look at" the dam, operate the sluice gates as required, and clear out any accumulated trash. There is also a statewide program of inspection established several years ago by the Department of Environmental Quality Engineering, Division of Waterways. Copies of the Department's inspection reports, dated March 28, 1978, October 28, 1977 and December 11, 1972 are given in the Appendix. Prior to this, the County of Berkshire conducted the inspections, a copy of the County's report, dated September 17, 1968, is also included in the Appendix.

4.3 MAINTENANCE OF OPERATING FACILITIES

There is no established maintenance program for the operating facilities.

4.4 WARNING SYSTEM IN EFFECT

There is no warning system in effect.

4.5 EVALUATION

The maintenance and operating procedures for the dam and appurtenant structure are considered inadequate. Measures to improve these inadequacies are given in Section 7.
f. Reservoir Area

In the vicinity of the dam, there is no evidence of 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 the inspection revealed several deficiencies which at present do not adversely affect the adequacy of the dam. However, these deficiencies do require attention and should be corrected before further deterioration leads to a hazardous condition. Recommended measures to improve these conditions are given in Section 7.
SECTION 3 - VISUAL INSPECTION

3.1 FINDINGS

a. General

The visual inspection of Cheshire Reservoir Dam was made on 26 October 1978. The weather was rainy with temperature about 60°F. The reservoir level at the time of inspection was at El 971.0, six inches below the spillway crest.

b. Dam

The sill and downstream face of the spillway are in fair condition. There is no evidence of distress or movement. Several leaks were observed on the downstream face. The water was spurting out from most of the leaks. (See Photograph No.2). A remnant of a 2.5 feet wide Massachusetts Route 8 old stone bridge pier is located in the center of and extending 10 feet downstream from, the face of the spillway. The headwalls of the spillway are in generally good condition. The presence of tailwater in the plunge pool made it impossible to observe the condition of the base of the dam or the existence of any underseepage.

c. Appurtenant Structures

The visible portion of the upstream left training wall and concrete lined approach slope is in generally good condition except at a few places on the wall the mortar is missing and the concrete is spalled. Both downstream training walls are in fair condition with spalled concrete and missing mortar at several places. The downstream left training wall is leaking at several locations.

The visible portion of the sluice gate operating stems are in good condition. It was reported that the gates are in operating condition, the operating handles are removed to prevent vandalism. The access foot bridge is in generally good condition.

d. Abutments

Except for the leakage noted on the downstream left training wall, no other seepage or unusual conditions were apparent at the abutments.

e. Downstream Channel

The downstream channel of the dam is in generally good condition, except where leakage is noted on the downstream left training wall. There is minor debris and few overhanging trees about 2000 feet downstream from the bridge crossing.
SECTION 2 - ENGINEERING DATA

2.1 DESIGN

There are no design data, drawings or specific memoranda available covering the construction of the original dam. A sketch of the dam section and plan, given in the Appendix was drawn from rough field measurements made at the time of the visual inspection. The elevations shown are approximate. Sketches showing a section of the dam are attached to field data obtained from U.S. Department of Agriculture, Soil Conservation, and included in the Appendix.

There is no information available on subsurface conditions.

2.2 CONSTRUCTION RECORDS

There are no construction records available.

2.3 OPERATING RECORDS

No records are kept by the owner of rainfall, pool elevation or gate operations.

2.4 EVALUATION OF DATA

a. Availability

Existing information was made available by Arnold Print Works, Inc. Adams, Mass.; Department of Public Works District No. 1, Commonwealth of Massachusetts, Pittsfield, Massachusetts; Department of Environmental Quality Engineering, Division of Waterways, Boston, Mass. and U. S. Department of Agriculture, Soil Conservation Service, Amherst, Mass.

b. Adequacy

The lack of in-depth engineering data did not allow for a definitive review. Therefore, the adequacy of this dam could not be assessed from the standpoint of reviewing design and construction data, but is based primarily on visual inspection; past performance history and sound engineering judgment.

c. Validity

In general, the information obtained from above mentioned sketches and personal interviews is consistent with observations made during the inspection and therefore considered reliable.
g. **Dam** (See Spillway)

h. **Diversion and Regulating Tunnel**

<table>
<thead>
<tr>
<th>Type</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Closure</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Access</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Regulating facilities</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

i. **Spillway**

<table>
<thead>
<tr>
<th>Type</th>
<th>Broad-crested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of weir, feet</td>
<td>40.5</td>
</tr>
<tr>
<td>Crest elevation, feet</td>
<td>971.5</td>
</tr>
<tr>
<td>Gates</td>
<td>None</td>
</tr>
<tr>
<td>U/S channel</td>
<td>None</td>
</tr>
<tr>
<td>D/S channel</td>
<td>See description in Sections 1.2 and 3.1</td>
</tr>
</tbody>
</table>

j. **Regulating Outlets**

The regulating outlets consist of an uncontrolled spillway and four sluiceways.

The stone masonry spillway is 40.5 feet in length, with a 2 feet wide flat stonesill, 2.7 feet below the top of dam.

The four sluiceways, each 2 feet square are reported to have inverts at El 960.5, 961.0, 961.5 and 962. Sluiceway discharges are through damper type gates which are manually controlled from the spillway crest. It is reported that the gates are operable.
b. **Discharge at Damsite**

Discharge from the Cheshire Reservoir is over a stone masonry, concrete spillway and through four sluiceways. The total computed sluiceway discharge capacities are 178 cfs and 208 cfs with the water level at El 971.5 (spillway crest) and El 974.2 (top of dam) respectively.

The stone masonry spillway is 40.5 feet wide and has a crest width of 2.0 feet. The computed maximum discharge with a head equivalent to the top of dam, El 974.2, is 583 cfs. The total discharge at El 974.2 is 791 cfs.

c. **Elevation (ft. above MSL)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top of dam</td>
<td>974.2</td>
</tr>
<tr>
<td>Maximum pool-design surcharge</td>
<td>Unknown</td>
</tr>
<tr>
<td>Maximum pool-test flood surcharge</td>
<td>976.95</td>
</tr>
<tr>
<td>Full flood control pool</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Recreation pool</td>
<td>971.5</td>
</tr>
<tr>
<td>Spillway crest (gated)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Upstream portal invert diversion tunnel</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Downstream portal invert diversion tunnel</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Streambed at centerline of dam</td>
<td>960 (est)</td>
</tr>
<tr>
<td>Maximum tailwater</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

d. **Reservoir (feet)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of maximum pool</td>
<td>19,000</td>
</tr>
<tr>
<td>Length of recreation pool</td>
<td>18,480</td>
</tr>
<tr>
<td>Length of flood control pool</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

e. **Storage (acre-feet)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreation pool (gross)</td>
<td>2142</td>
</tr>
<tr>
<td>Flood control pool</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Design surcharge</td>
<td>Unknown</td>
</tr>
<tr>
<td>Test flood surcharge (net)</td>
<td>4054</td>
</tr>
<tr>
<td>Top of dam (gross)</td>
<td>4000</td>
</tr>
</tbody>
</table>

f. **Reservoir Surface (acres)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top of dam</td>
<td>754.5</td>
</tr>
<tr>
<td>Test flood pool</td>
<td>890</td>
</tr>
<tr>
<td>Flood control pool</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Recreation pool</td>
<td>621.0</td>
</tr>
<tr>
<td>Spillway crest</td>
<td>621.0</td>
</tr>
</tbody>
</table>
f. **Normal Operating Procedures**

There are no operating procedures. It is reported that the pond level is maintained at spillway crest except in winter, when it is kept at about one to two feet below the spillway crest. The sluice gates are operated as needed.

g. **Size Classification**

The dam is less than 40 feet high and has a maximum storage capacity of more than 1,000 acre-feet, but less than 50,000 acre-feet. It is, therefore, classified as an "intermediate" dam.

h. **Hazard Classification**

The dam is in the "low" hazard potential category because analysis indicates that a shallow depth flood wave would result from a dam failure. The wave would cause damage to the Church Street bridge. For details on selection of hazard potential category, see Section 5.1d.

i. **Operator**

The individual responsible for the day-to-day operation of the dam is:

Mr. Richard Miller, Plant Engineer  
Arnold Prints Works, Inc.  
Columbia Street  
Adams, Mass. 01220  
Telephone Number: (Home) 413-458-5837  
(Office) 413-743-2600

1.3 **PERTINENT DATA**

a. **Drainage Area**

The drainage area contributing to the Cheshire Reservoir Dam is rectangular in shape, about 5 miles by 3.5 miles, with an area of 9728 acres (15.2 square miles). The reservoir is about 3.5 miles long by 0.25 miles wide, almost dividing the drainage area in two. The reservoir area is 6.2% of the total basin area. The reservoir is fed by numerous short brooks, entering at several different locations. The sub-basins of the brook are similar in physical features, with steep wooded slopes and little natural storage. These are expected to peak simultaneously during a basin-wide rain storm.
The dam is a stone masonry gravity structure about 50.5 feet long and at least 14 feet high; it has a 40.5 feet long ungated dropped center spillway with a 2 feet wide, flat stone sill 2.7 feet below top of dam. The downstream face has two steps. It is reported the regulating outlet system is composed of four 2-foot square sluiceways with intake inverts reported at El 960.5, 961.0, 961.5 and 962.0. Discharges through the sluiceways are manually controlled by damper type gates. The gate controls are located on the crest of the spillway with access provided by a 4-foot wide foot bridge which spans the spillway.

The dam is flanked upstream on the left by a railroad embankment and on the right by a concrete-paved natural slope. The railroad embankment in the vicinity of the dam is retained by a low, stone masonry wall. The downstream training walls are stone masonry and concrete. Extension of the wall form the concrete abutments of a bridge which carries Massachusetts Route 8 over the spillway channel. Downstream of the bridge the flow continues in the natural stream bed of the Hoosic River.

b. Location

The dam is located on the Hoosic River, about 0.4 miles south of the intersection between Massachusetts Route No. 8 and Lanesborough Road in the southern section of the Town of Cheshire.

c. Ownership

Cheshire Reservoir Dam is owned by Hoosac Reservoir Company. The day-to-day operation and maintenance is managed by Hoosac Reservoir Company with assistance from Arnold Print Works Inc.

d. Purpose of Dam

The impoundment provided by the dam is for recreational purposes.

e. Design and Construction History

Original design and construction records are not available. It is reported that the dam was built in approximately 1870. It is reported that repairs to the dam were done in 1968 and 1977. In 1968 the stone masonry joints were repointed, the sluice gates were repaired and a new foot bridge was installed.

In 1977 the upstream and downstream faces of the dam were sealed and mortared. The records of these repairs are on file at Arnold Print Works Inc.

1-2
PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM
HUDSON RIVER BASIN
INVENTORY NO. MA 00211
CHESIRE RESERVOIR DAM
TOWN OF CHESIRE
BERKSHIRE COUNTY, COMMONWEALTH OF MASSACHUSETTS

SECTION 1 - PROJECT INFORMATION

1.1 GENERAL

a. Authority

Public Law 92-367, August 8, 1972, authorized the Secretary of the Army, through the Corps of Engineers, to initiate a national program of dam inspection throughout the United States. The New England Division of the Corps of Engineers has been assigned the responsibility of supervising the inspection of dams within the New England Region. Tippetts-Abbett-McCarthy-Stratton has been retained by the New England Division to inspect and report on selected dams in the State of Massachusetts. Authorization and notice to proceed was issued to Tippetts-Abbett-McCarthy-Stratton under a letter of May 3, 1978, from Mr. Ralph T. Garver, Colonel, Corps of Engineers. Contract No. DACW 33-78-C-0298 has been assigned by the Corps of Engineers for this work.

b. Purpose

(1) Perform technical inspection and evaluation of non-Federal dams to identify conditions which threaten the public safety and thus permit correction in a timely manner by non-Federal interests.

(2) Encourage and prepare the States to initiate quickly effective dam safety programs for non-Federal dams.

(3) To update, verify and complete the National Inventory of Dams.

1.2 DESCRIPTION OF THE PROJECT

a. Description of Dam and Appurtenances

Cheshire Reservoir Dam is located on a pond adjacent to the Cheshire Reservoir. The pond and reservoir are separated by a railroad embankment with a connection provided by a 21 feet long railroad bridge.
References (cont'd)


SECTION 6 - STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITY

a. Visual Observations

Visual observations did not indicate any serious structural problems with the dam. The deficiencies described in Section 3 require attention; the measures to improve the deficiencies are given in Section 7.

b. Design and Construction Data

No design computations or other data pertaining to the structural stability of the dam have been located. On the basis of past performance, visual inspection, as well as engineering judgment, the dam at present appears to be structurally adequate.

c. Operating Records

There are no operating records or reports available. It is reported that there have been no operational problems which would affect the stability of the dam.

d. Post-Construction Changes

It is reported that the dam was built in approximately 1870. There are no records of any modification to dam. In 1968 and 1977 repairs were made to the dam and are described in Section 1.2b.

e. Seismic Stability

The dam is located in Seismic Zone No. 2 and in accordance with recommended Phase I guidelines does not warrant seismic analyses.
SECTION 7 - ASSESSMENT, RECOMMENDATIONS & REMEDIAL MEASURES

7.1 DAM ASSESSMENT

a. Conditions

Phase I investigation of Cheshire Reservoir Dam does not indicate conditions which would constitute an immediate hazard to human life or property. Based on engineering judgment and the performance of the dam and outlet works, the project appears to be in fair condition. The project, however, does have inadequacies and deficiencies which, if not remedied, have the potential for developing into hazardous conditions.

Because there are no data on Probable Maximum Floods for an area of 15.2 square miles, it was necessary to synthesize a test flood for the contributing area equal to one-half the Probable Maximum Flood (1/2 PMF). The 1/2 PMF inflow-peak was 28,592 cfs.

The adequacy of the spillway was tested by routing the Test Flood through the reservoir using computer routing technique. The water surface was assumed to be at the spillway crest at the start of the storm. The peak outflow from the routed flood (1/2 PMF) was 11,242 cfs corresponding to El 976.95 or 2.75 feet above the top of the dam. Since the dam is expected to be overtopped with an inflow equal to the 1/2 PMF, it is considered that the spillway is not adequate from a hydraulic and hydrologic standpoint. However, since the potential hazard as a result of a breach is low and it is considered that little increase in hazard would result from an overtopping and failure, further investigations and/or recommendations are not considered necessary at this time.

b. Adequacy of Information

The lack of in-depth engineering data did not allow for a definitive review. Therefore, the adequacy of this dam could not be assessed from the standpoint of reviewing design and construction data, but is based primarily on visual inspection, past performance history and sound engineering judgment.

c. Urgency

The remedial measures described in subsequent paragraphs should be undertaken by the owner within the next 12 to 24 months, after receipt of this Phase I Inspection Report.
d. Necessity for Additional Investigations

Additional investigations to assess the adequacy of the dam and appurtenant structures do not appear necessary.

7.2 RECOMMENDATIONS

None.

7.3 REMEDIAL MEASURES

a. Alternatives

None.

b. Operating & Maintenance Procedures

It is recommended that the following measures be undertaken by the owner within the next 24 months after receipt of this Phase I Inspection Report:

1. Establish a formal program of operation and maintenance, and initiate biennial inspection of the dam.

2. Provide round-the-clock surveillance during periods of unusually heavy precipitation.

3. Develop a formal system for warning downstream residents in case of emergency.

4. Repair leaks on the spillway and the downstream training walls.

5. Repair missing and spalled concrete and repoint all masonry walls.

6. The plunge pool floor at the base of the dam should be examined when the flow in the channel is at a minimum.
VISUAL INSPECTION CHECKLIST

APPENDIX A
**VISUAL INSPECTION CHECK LIST**

**PARTY ORGANIZATION**

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>CHESTERFIELD DAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE</td>
<td>10-26-78</td>
</tr>
<tr>
<td>TIME</td>
<td>9:30 AM</td>
</tr>
<tr>
<td>WEATHER</td>
<td>Rainy - 60°F</td>
</tr>
<tr>
<td>W.S. ELEV.</td>
<td>971.0</td>
</tr>
</tbody>
</table>

**PARTY:**

1. Harvey S. Feldman
2. Jyotindra H. Patel
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

**PROJECT FEATURE**

<table>
<thead>
<tr>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>All project features inspected by party members.</td>
</tr>
</tbody>
</table>

**INSCRIBED BY**

<table>
<thead>
<tr>
<th>REMARKS</th>
</tr>
</thead>
</table>

---

---
PERIODIC INSPECTION CHECK LIST

PROJECT FEATURE NAME

DISCIPLINE NAME

DAM EMBANKMENT

Crest Elevation

Current Pool Elevation

Maximum Impoundment to Date

Surface Cracks

Pavement Condition

Movement or Settlement of Crest

Lateral Movement

Vertical Alignment

Horizontal Alignment

Condition at Abutment and at Concrete Structures

Indications of Movement of Structural Items on Slopes

Trespassing on Slopes

Sloughing or Erosion of Slopes or Abutments

Rock Slope Protection - Riprap Failures

Unusual Movement or Cracking at or near Toes

Unusual Embankment or Downstream Seepage

Channel Comments.
Piping or Boils

Foundation Drainage Features

Toe Drains

Instrumentation System
PERIODIC INSPECTION CHECK LIST

<table>
<thead>
<tr>
<th>Project Feature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheshire Reservoir Dam</td>
<td>10-26-78</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Feature</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outlet Works - Intake Channel and Intake Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intake Channel is a pond adjacent to Cheshire Reservoir.</td>
</tr>
</tbody>
</table>

**A. Approach Channel**

- **Slope Conditions:** Right concrete lined slope is in good condition; left approach is a timber embankment retaining wall which was full.
- **Bottom Conditions:** Unable to ascertain a pond.
- **Rock Slides or Falls:** None
- **Log Boom:** None
- **Debris:** Mixed debris
- **Condition of Concrete Lining:** See comments above.
- **Drains or Weep Holes:** None

**B. Intake Structure**

- **Condition of Concrete:** Changes may be needed due to high values. Opening the submerged.
- **Stop Logs and Slots:**

---

---
PERIODIC INSPECTION CHECK LIST

PROJECT: CHESHIRE RESERVOIR DAM  DATE: 10-26-78

PROJECT FEATURE: ___________________ NAME: ___________________

DISCIPLINE: ___________________ NAME: ___________________

OUTLET WORKS - CONTROL TOWER

a. Concrete and Structural
   General Condition ___________________
   Condition of Joints ___________________
   Spalling ___________________
   Visible Reinforcing ___________________
   Rusting or Staining of Concrete ___________________
   Any Seepage or Efflorescence ___________________
   Joint Alignment ___________________
   Unusual Seepage or Leaks in Gate Chamber ___________________
   Cracks ___________________
   Rusting or Corrosion of Steel ___________________

b. Mechanical and Electrical
   Air Vents ___________________
   Float Wells ___________________
   Crane Hoist ___________________
   Elevator ___________________

There is no control tower. The opening slabs located on crest are not protected.
<table>
<thead>
<tr>
<th>System</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic System</td>
<td>None</td>
</tr>
<tr>
<td>Service Gates</td>
<td>Dampen type gate valve which are repeated in operating condition and manually operated</td>
</tr>
<tr>
<td>Emergency Gates</td>
<td>None</td>
</tr>
<tr>
<td>Lightning Protection System</td>
<td>None</td>
</tr>
<tr>
<td>Emergency Power System</td>
<td>None</td>
</tr>
<tr>
<td>Wiring and Lighting System</td>
<td>None</td>
</tr>
</tbody>
</table>
PERIODIC INSPECTION CHECK LIST

PROJECT CHESHIRE RESERVOIR DAM               DATE 10-26-78
PROJECT FEATURE ____________________________ NAME ____________________________
DISCIPLINE ____________________________ NAME ____________________________

OUTLET WORKS - OUTLET STRUCTURE AND
OUTLET CHANNEL___________________________________________
General Condition of Concrete ____________________________
Rust or Staining __________________________________________
Spalling __________________________________________________
Erosion or Cavitation ______________________________________
Visible Reinforcing ________________________________________
Any Seepage or Efflorescence ______________________________
Condition at Joints ________________________________________
Drain Holes ______________________________________________
Channel __________________________________________________

Loose Rock or Trees Overhanging Channel ______________________
Condition of Discharge Channel ______________________________
PERIODIC INSPECTION CHECK LIST

PROJECT CHESHIRE RESERVOIR DAM  DATE 10-26-78

PROJECT FEATURE __________________________  NAME __________________________

DISCIPLINE __________________________  NAME __________________________

OUTLET WORKS - SPILLWAY WEIR, APPROACH
AND DISCHARGE CHANNELS

a. Approach Channel

General Condition  Generally in good condition

Loose Rock Overhanging Channel  None

Trees Overhanging Channel  None

Floor of Approach Channel  It was impossible to determine because pond was full

b. Weir and Training Walls

General Condition of Concrete  See Misc. Comments

Rust or Staining  None

Spalling  Both training and fill

Any Visible Reinforcing

Any Seepage or Efflorescence

Drain Holes

c. Discharge Channel

General Condition  Generally in good condition

Loose Rock Overhanging Channel  None

Trees Overhanging Channel  None
Floor of Channel   Impossible to observe because of water in the channel pool.

Other Obstructions   About 4 feet from west the channel passes under Rt. No. 8 bridge.
February 12, 1976

Mr. David Standley, Commissioner  
The Commonwealth of Massachusetts  
Executive Office of Environmental Affairs  
Department of Environmental Quality Engr.  
Division of Waterways  
100 Nashua Street  
Boston, MA 02114  

RE: Inspection - Dam #1-2-58-2  
Cheshire  
Cheshire Reservoir Dam

Dear Mr. Standley:

Relative to your letter of January 22 to Arnold Print Works concerning the above dam, please be advised that the owner of the reservoir and the dam is the above Hoosac Reservoir Co.

We note that on November 3, 1975, an engineer from the Massachusetts Department of Public Works made a visual inspection of the above dam and that there still exists the following items to be done that were noted in letter dated February 25, 1974. These conditions will receive the required attention after weather conditions are suitable for such work.

1. Cleaning and repointing some of the masonry joints of the side walls and center pier.

2. Investigating and making the necessary repair to correct water flowing beneath the spillway capstones on the southerly side of the center pier.

We appreciate your report and advice and agree that we do not want conditions to become more serious.

Very truly yours,

E. John Heinke  
Controller

EJR:shg
The dam has had considerable repair work done on it during the summer. The water was drawdown and the entire dam was sealed and mortared. (see photo).

No deficiencies were noted at this inspection.

For location see Topo Sheet 4-C.

13. Overall Condition:
- X 1. Safe
- 2. Minor repairs needed
- 3. Conditionally safe – major repairs needed
- 4. Unsafe
- 5. Reservoir impoundment no longer exists (explain)

Recommend removal from inspection list
8. Downstream Face of Dam:

9. Emergency Spillway
   Comments: ________________________________

10. Water level at time of inspection 0.3' above X below
    top of dam ______
        principal spillway X
        other ______

11. Summary of Deficiencies Noted:
    KONE Growth (Trees & Brush) on Embankment
    Animal Burrows and Washouts
    Damage to slopes or top of dam
    Cracked or damaged masonry
    Evidence of seepage
    Evidence of piping
    Erosion
    Leaks
    Trash and/or debris impeding flow
    Clogged or blocked spillway
    Other
# Inspection Report - Dams and Reservoirs

## 1. Location:
- **City/Town:** Cheshire
- **Dam No.:** 1-2-58-2

**Name of Dam:** Cheshire Reservoir

**Inspected by:** RD Jordan-R Spaniol

**Date of Inspection:** October 28, 1977

**Previous Inspection:** November 3, 1975

## 2. Owner/s per:
- **Assessors:**
  - Name: [Name]
  - Reg. of Deeds: [Name]
  - Personal Contact: [Name]

### Arnold Print Works, Adams, MA
- **Name:** [Name]
- **St. & No.:** [Address]
- **City/Town/State:** [Location]
- **Tel. No.:** [Phone]

## 3. Caretaker (if any)
- **E.g.:** superintendent, plant manager, appointed by absentee owner, appointed by multi owners.

<table>
<thead>
<tr>
<th>Name</th>
<th>St. &amp; No.</th>
<th>City/Town/State</th>
<th>Tel. No.</th>
</tr>
</thead>
</table>

## 4. No. of Pictures taken
- **1**

## 5. Degree of Hazard: (If dam should fail completely)*

- **Minor**
- **Moderate X**
- **Severe**
- **Disastrous**

*This rating may change as land use changes (future development)*

## 6. Outlet Control:
- **Automatic**
- **Manual X**

<table>
<thead>
<tr>
<th>Operative</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**Comments:**

## 7. Upstream Face of Dam:

<table>
<thead>
<tr>
<th>Condition</th>
<th>1. Good X</th>
<th>2. Minor Repairs</th>
</tr>
</thead>
</table>

**Comments:**

---
12. Remarks & Recommendations; (Fully Explain).

PREVIOUS INSPECTION DATE:
Supplementary Report: March 28, 1978

MARCH 28, 1978: On this date I was requested to inspect the dam by Deputy Chief Engineer Hannon.

Several people were present during the inspection including: Mr. Grizzi, Representing the Civil Defense Agency Area 4, Trooper Geo. Mott, Mass. State Police, Two Maintenance Men from Arnold Print Works, and the Cheshire Civil Defense Director.

Several leaks were visible through the face of the dam and at both abutments. Most of the leaks appear to be under pressure as the water was spurting out from the structure. Water level was approximately three inches above the spillway.

In my opinion, there was no immediate danger of failure, however, as a precautionary measure, I recommended lowering the impoundment. The gates were partially opened by the men from Arnold Print Works.

March 29, 1978: Checked water level at the dam. It was approximately 2" below the spillway crest. No pressure reduction of the leaks was noted. I therefore recommended that the lowering of the reservoir continue.

The owners repaired the upstream face of this structure in the summer of 1977. At the District inspection conducted in October 1977 no pressure leaks were noted.

Although this dam has a low head there is a large impoundment and a sudden failure could cause damage downstream. Due to the number and type of leaks observed, the District recommends that the owners be advised to retain a consultant to conduct an in depth analysis of the structure.

This office will continue to monitor the dam on a daily basis.

13. Overall Condition:

1. Safe

2. Minor repairs needed

3. Conditionally safe - major repairs needed

4. Unsafe

5. Reservoir impoundment no longer exists (explain)

Recommend removal from inspection list
SUBJECT 
WATERWAYS-District One
Cheshire Reservoir Dam
Dam #1-2-58-2

ATTENTION 
Mr. J. J. Hannon

Mr. David Standley, Commissioner
Department of Environmental Quality Engineering

Dear Sir

We have enclosed a copy of a supplementary inspection report for the subject project.

Very truly yours

Dean P. Amidon, P. E.
District Highway Engineer

Enclosure
cc SurLen
April 11, 1978

RE: Dam No. 1-2-58-2
Cheshire Reservoir

Mr. John J. Hannon, P.E.
Chief Engineer
The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Department of Environmental Quality Engineering
Division of Waterways
100 Nashua Street
Boston, Massachusetts 02114

Dear Mr. Hannon:

We have your letter of April 3 addressed to Arnold Print Works, Inc. regarding the above matter. Please be advised that the owner of the reservoir and the dam is the Hoosac Reservoir Co.

Also, relative to your recommendation, we are contacting Robert G. Brown & Associates, Inc., of Pittsfield, regarding a study of the conditions of the dam.

I presume that your department is aware that in early August of 1977, the dam underwent extensive repairs, and at that time at our request, Inspector Bob Jordan, of your division, looked at it.

We appreciate your interest and notice and will keep you advised of progress.

Very truly yours,

[Signature]

E. A. Prine
Controller

EJR: mhg
The dam has had considerable repair work done on it during the summer. The water was drawdown and the entire dam was sealed and mortared. (see photos)

No deficiencies were noted at this inspection.

For location see Topo Sheet 4-C.

13. Overall Condition:

\[X\] 1. Safe

2. Minor repairs needed

3. Conditionally safe - major repairs needed

4. Unsafe

5. Reservoir impoundment no longer exists (explain)

Recommend removal from inspection list
8. Downstream Face of Dam:

9. Emergency Spillway
   Comments: _________________________________

10. Water level at time of inspection 0.3' above X below ___
    top of dam ________
    principal spillway X ______
    other ________

11. Summary of Deficiencies Noted:
    NONE. Growth (Trees & Brush) on Embankment ______________________________
    " Animal Burrows and Washouts ______________________________
    " Damage to slopes or top of dam ______________________________
    " Cracked or damaged masonry ______________________________
    " Evidence of seepage ______________________________
    " Evidence of piping ______________________________
    " Erosion ______________________________
    " Leaks ______________________________
    " Trash and/or debris impeding flow ______________________________
    " Clogged or blocked spillway ______________________________
    " Other ______________________________
# INSPECTION REPORT - DAMS AND RESERVOIRS

1. **Location:** County/Town CHESHIRE  
   **Dam No.:** 1-2-58-2  
   **Name of Dam:** Cheshire Reservoir  
   **Inspected by:** RD Jordan-RSpaniol  
   **Date of Inspection:** October 28, 1977  
   **Previous Inspection:** November 3, 1975

2. **Owner/s per:**  
   - Assessors  
   - Reg. of Deeds  
   - Personal Contact

1. **Name:** Arnold Print Works  
   **St. & No.:** Adams, MA  
   **City/Town/State:** Tel. No.

2. **Name:**  
   **St. & No.:** City/Town/State  
   **Tel No.:**

3. **Caretaker (if any):**  
   e.g. superintendent, plant manager, appointed by absentee owner, appointed by multi owners.

   **Name:**  
   **St. & No.:** City/Town/State  
   **Tel No.:**

4. **No. of Pictures taken:** 1

5. **Degree of Hazard:** (If dam should fail completely)*  
   - Minor 1  
   - Moderate x  
   - Severe 2  
   - Disastrous 3

   *This rating may change as land use changes (future development)*

6. **Outlet Control:**  
   - Automatic  
   - Manual x  
   - Operative x  
   - Yes  
   - No

   **Comments:**

7. **Upstream Face of Dam:**

   **Condition:**  
   - 1. Good x  
   - 2. Minor Repairs  
   - 3. Major Repairs  
   - 4. Urgent Repairs

   **Comments:**
SUBJECT  WATERWAYS - District One

Onota Lake Dam  1-2-236-6
Cheshire Reservoir Dam  1-2-58-2

Mr. Harvey Feldman
Tibbit, Abbott, McCarthy, Stratton
345 Park Avenue
New York City 10022

Dear Sir,

We have enclosed a copy of the latest District One Inspection Report for the subject dams.

Although the report for Cheshire Reservoir shows the structure to be in satisfactory condition, a problem developed in March 1978 and at the request of the Civil Defense Agency this office conducted a visual inspection on March 27, 1978. Several pressure leaks were noted in the face of the dam and the left abutment. We recommended the immediate lowering of the pond and advised the owners to retain the services of an engineering consultant to conduct an indepth investigation. The firm of Robert G. Brown & Associates was awarded a contract to perform this work.

Mr. Brown has not completed his study, but he has a considerable amount of information relative to the structure.

Mr. Brown can be reached at the following address should you desire to contact him: Robert G. Brown & Associates, Berkshire Common, South Street, Pittsfield, MA 01201, telephone: (413) 499-1560.

If we can be of any further assistance, please contact this office.

Very truly yours,

Dean P. Amidon, P. E.
District Highway Engineer

Enclosures
cc Surlen
DRAWINGS, INSPECTION REPORTS
AND OTHER DATA

APPENDIX B
### PERIODIC INSPECTION CHECK LIST

**PROJECT** CHESHIRE RESERVOIR DAM  
**DATE** 10-26-78

**PROJECT FEATURE**  
**NAME**

**DISCIPLINE**  
**NAME**

**OUTLET WORKS - SERVICE BRIDGE**

#### a. Superstructure

<table>
<thead>
<tr>
<th>Item</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearings</td>
<td>None</td>
</tr>
<tr>
<td>Anchor Bolts</td>
<td>Anchor to the side wall of spillway</td>
</tr>
<tr>
<td>Bridge Seat</td>
<td>None</td>
</tr>
<tr>
<td>Longitudinal Members</td>
<td>Steel channel and in good condition</td>
</tr>
<tr>
<td>Under Side of Deck</td>
<td>Is bottom of steel grating and in good condition</td>
</tr>
<tr>
<td>Secondary Bracing</td>
<td>Steel channel and in good condition</td>
</tr>
<tr>
<td>Deck</td>
<td>Is of steel grating and in good condition</td>
</tr>
<tr>
<td>Drainage System</td>
<td>None</td>
</tr>
<tr>
<td>Railings</td>
<td>Steel railings both sides and in good condition</td>
</tr>
<tr>
<td>Expansion Joints</td>
<td>None observed</td>
</tr>
<tr>
<td>Paint</td>
<td>None</td>
</tr>
</tbody>
</table>

#### b. Abutment and Piers

<table>
<thead>
<tr>
<th>Item</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Condition of Concrete</td>
<td>Good</td>
</tr>
<tr>
<td>Alignment of Abutment</td>
<td>Good</td>
</tr>
<tr>
<td>Approach to Bridge</td>
<td>Clear</td>
</tr>
<tr>
<td>Condition of Seat and Backwall</td>
<td>—</td>
</tr>
</tbody>
</table>
**COUNTY OF BERKSHIRE, MASS.**

**INSPECTION OF DAMS**

City or Town of Cheshire: ___________ Date: September 17, 1968

Name of Dam: Cheshire Reservoir  Inspector: William A. Heaphy

Owner: Arnold Print Works Inc. Address: Lime St., Adams, Mass. Tel.: ___________

Caretaker: Carl Northrup  Address: Melrose St., Adams, Mass. Tel.: ___________

Location: Northeast Corner of Lake 20' East of B.R. Tracks.

Type and Dimensions: Stone Masonry 50' Long 15' high

<table>
<thead>
<tr>
<th>Spillway, type and size</th>
<th>Stone  40' long 2'9&quot; Freeboard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outlets, type and size</td>
<td>Round 3'x3' outlets (Stone Masonry) With Butterfly</td>
</tr>
<tr>
<td>Flashboards, type and height</td>
<td>None</td>
</tr>
</tbody>
</table>

Date Built: 1870  Condition: Fair

When last repaired: 1968  By whose orders: Owner

Nature of Repairs: Pointing up Spillway to seal leaks, Repairs made to gates, New Footbridge built.

Purpose of Dam: Industrial use

Approximate storage of water: 67,000,000 cubic feet

Approximate area of water shed: 15 square miles

Possible damage due to failure of dam: Damage to bridge, State highway and Railroad

Remarks: Water Level about 18" below spillway. Many leaks under stone slabs for full width of Spillway, about 6 being fairly large. Foot bridge deteriorating.

Recommendations: That repairs be undertaken at once and completed before fall.
DESCRIPTION OF DAM

DISTRICT ONE


Date              12-11-72

City/Town         Cheshire

Name of Dam       Cheshire Reservoir

1. Location: Topo Sheet No. 4-C

Provide 8-1/2" x 11" in clear copy of topo map with location of Dam clearly indicated.

2. Year built: 1870

Year/s of subsequent repairs

3. Purpose of Dam: Water Supply

Recreational X

Irrigation

Other

4. Drainage Area: 15

sq. mi. __________ acres.

5. Normal Ponding Area: 600

Acres; Ave. Depth

Impoundment: __________ gals; __________ acre ft.

6. No. and type of dwellings located adjacent to pond or reservoir:

i.e. summer homes etc.

7. Dimensions of Dam: Length 40'

Max. Height 14'

Slopes: Upstream Face vert

Downstream Face vert

Width across top 7'

8. Classification of Dam by Material:

Earth ______ Concr. Masonry ______ Stone Masonry X

Timber ______ Rockfill ______ Other ______

9. A. Description of present land usage downstream of dam:

50 % rural; 50 % urban.

B. Is there a storage area or flood plain downstream of dam which could accommodate the impoundment in the event of a complete dam failure?

Yes ______ partial ______ No ______
10. Risk to life and property in event of complete failure.

No. of people 150
No. of homes 40
No. of Businesses
No. of Industries
No. of Utilities
Railroads Penn Central
Other dams
Other

11. Attach Sketch of dam to this form showing section and plan on 8-1/2" x 11" sheet.
FIELD DATA

1. Chesire Reservoir Outlet Spillway.
   The reservoir and spillway are owned and controlled by the Hoosic River Realty Co., a subsidiary of Arnold Print Works Inc., in Adams. The plant engineer did not have a drawing of the dam but thought one could be obtained through the State.
   I spoke to the Chesire Town Clerk concerning flooding at the reservoir. He referred me to Mr. DeLioe who owns the package store across the street from the spillway. At one time, he was the keeper of the dam and supplied me with info concerning it. There are four 3' box culverts on the bottom of the face of the dam. These are staggered at different elevations. Looking closely, they can be seen below the waterline. See attached drawing.

* GAGE READING AT RESERVOIR = 970.75
Front View - Locking U/S at Face of Stillwy on Cheshire Reservoir

**Notes:**

- Culverts are staggered @ approx 6" elev. interval.
- Could not see opening on back side of dam but I, LeBoe, think they are all at same elev, all open to boat (larry should have invert elev) and are 3' wide and 1.5' high.
2. There are no openings other than the one Larry L. has data for, under P.R. at reservoir.

3. Gage reading - 970.75

4. Road crossing between the two major reservoir storage areas.

storage area 1

(roads hard and level)

and roads

storage area 2

Culvert A

Culvert B

Cross section

Road ELEV at 2.0' Culvert is 976.95

Rel. low point 976.5

2.0 feet is in very poor condition (ACID)
In addition I found a 2' seep on the far left bank of storage area II. Its invert elev is appx 971.0 however this invert does not drain storage area I (It was running today 3/4/74) I could not locate its source but it appears as if it may drain the road running above the left bank at this point.

Noapy's Rd.
This is now called Anglican Rd. Crossing

Water Elevation 970.75

Road Elevation 972.55
Road is level

Invert Elevation 966.15
+10" summer

[Diagram showing road elevation and invert elevation]
Hudson River Tributaries
South Branch Hoosic River at Chestee Res.
Railroad Culvert
from measurements taken on June 1, 1930 (Bluemap)
plotted June 27, 1930.

Note: The upstream side is practically
identical in area but has reduced capacity
due to pipe trash racks. The effective
flow area is about 2/3 of the gross
opening area.

Assumed 45' x 150' miter curb for tainter gate.
WATER
& RELATED LAND
RESOURCES
OF
THE
BERKSHIRE REGION
MASSACHUSETTS
US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ECONOMIC RESEARCH SERVICE
FOREST SERVICE
IN COOPERATION WITH
MASSACHUSETTS WATER RESOURCES COMMISSION
197
<table>
<thead>
<tr>
<th>DAM</th>
<th>PROFILE LOCATION</th>
<th>DRAINAGE AREA (SQ. M.)</th>
<th>DAM DATA</th>
<th>SPILLWAY DATA</th>
<th>FLOOD DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STATION</td>
<td>Sq Mi.</td>
<td>TYPE</td>
<td>HEIGHT Feet</td>
<td>TOP ELEVATION Feet</td>
</tr>
<tr>
<td>Valley Mill</td>
<td>Plate 2</td>
<td>170</td>
<td>Earth &amp; Stone</td>
<td>10</td>
<td>952.4</td>
</tr>
<tr>
<td>Columbia Mill</td>
<td>Plate 5</td>
<td>165</td>
<td>Timber Crib-filled</td>
<td>19</td>
<td>952.1</td>
</tr>
<tr>
<td>Willow Mill</td>
<td>Plate 6</td>
<td>5.1</td>
<td>Stone &amp; Concrete</td>
<td>17</td>
<td>846.2</td>
</tr>
<tr>
<td>Glenville</td>
<td>Plate 1</td>
<td>194</td>
<td>Concrete</td>
<td>20</td>
<td>444.9</td>
</tr>
<tr>
<td>Monument Mills</td>
<td>Plate 1</td>
<td>124</td>
<td>Timber Crib</td>
<td>16</td>
<td>751.9</td>
</tr>
<tr>
<td>Rising Paper Co.</td>
<td>Plate 3</td>
<td>290</td>
<td>Timber Crib</td>
<td>21</td>
<td>726.6</td>
</tr>
</tbody>
</table>

**NOTES:**

- Information is intended for planning purposes only, should not be used for final design or construction.
- General dam construction type.
- General spillway or spillway construction type.
- Mean sea level datum (M.S.L.).
- Floods that can occur under present watershed and floodplain conditions, see text.
- Velocity of 6000 feet per second.
- Elevation computed at the upstream side of the dam.
Inspection Cheshire Reservoir

Spillway sluiceways.

W.S. E1. 971.5 and 974.2, low W.S. E1. 964.2.

\[ \text{Area} = 2 \times 1.5 = 3 \text{ ft}^2 \]

Use eq for square box culvert \( D = \sqrt[3]{3} = 1.732 \)

\[
H_T = \left[ \frac{1.595 \left( 1 + K_e \right)}{D^4} + \frac{287.64 \left( n^2 L \right)}{D^{16/3}} \right] \left( \frac{Q}{10} \right)^2
\]

\[
h = 0.012, \quad H_{T1} = 974.2 - 964.2 = 10 \text{ ft}
\]

\[
D = 1.732, \quad H_{T2} = 971.5 - 964.2 = 7.3
\]

\[
L = 9', \quad K_e = 1.0
\]

\[
Q \text{ at W.S. E1. 974.2}
H_T = 10'
\]

\[
10 = \left[ \frac{1.595 \left( 2 \right)}{1.732^{14/3}} + \frac{287.64 \left( 0.012^2 \right) 9}{1.732^{16/3}} \right] \left( \frac{Q}{10} \right)^2
\]

\[
10 = 0.369 \left( \frac{Q}{10} \right)^2
\]

\[
Q = \sqrt{\frac{10}{0.369}} \left( 10 \right) = 52.1 \text{ cfs per culvert}
\]

\[
Q_T = 52.1 \times 4 = 208.2 \text{ cfs}
\]
### Table

<table>
<thead>
<tr>
<th>Elevation (ft)</th>
<th>Area (ft²)</th>
<th>Mean Area (ft²)</th>
<th>Δ Vol (ft³)</th>
<th>Surcharge Storage (ft³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>971.5</td>
<td>621</td>
<td>646</td>
<td>642</td>
<td>606</td>
</tr>
<tr>
<td>972.5</td>
<td>671</td>
<td>696</td>
<td>696</td>
<td>1342</td>
</tr>
<tr>
<td>973.5</td>
<td>721</td>
<td>731.75</td>
<td>516</td>
<td>1858</td>
</tr>
<tr>
<td>974.2</td>
<td>754.5</td>
<td>775.25</td>
<td>52.0</td>
<td>2378</td>
</tr>
<tr>
<td>975</td>
<td>796</td>
<td>821</td>
<td>821</td>
<td>3199</td>
</tr>
<tr>
<td>976</td>
<td>846</td>
<td>896</td>
<td>1792</td>
<td>4991</td>
</tr>
<tr>
<td>978</td>
<td>946</td>
<td>996</td>
<td>1992</td>
<td>6983</td>
</tr>
<tr>
<td>980</td>
<td>1046</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Diagram

- **Elevation (ft)**: 280.0 to 310.0
- **Area (ft²)**: 0 to 10.0
- **Surcharge Storage (ft³)**: 0 to 10,000
- **Mean Area (ft²)**: 0 to 1000
- **Δ Vol (ft³)**: 0 to 1000
- **Ch'k. by**:

---

**Job No.**: 1497-18  
**Project**: Inspection Chesire Lake  
**Date**: Nov 10, 1978  
**By**: D.L.C.
**TAMS**

**Lab No.** 1497-18  
**Project** Inspection Cheshire Reservoir  
**Subject** Flow over road below Lower Pond  
**Date** Oct 31, 1978  
**By** D.L.C.  
**Chk. by**

Assume flow across Road is critical G. 3.087

<table>
<thead>
<tr>
<th>El.</th>
<th>Area</th>
<th>iral Area L.</th>
<th>Equ. H</th>
<th>C</th>
<th>G</th>
<th>3.087 * H^2</th>
<th>F.L.</th>
</tr>
</thead>
<tbody>
<tr>
<td>974</td>
<td>950</td>
<td>350 70.5</td>
<td>1.5</td>
<td>0</td>
<td></td>
<td>0</td>
<td>178</td>
</tr>
<tr>
<td>975</td>
<td>950</td>
<td>350 70.5</td>
<td>1.5</td>
<td>76.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>976</td>
<td>930</td>
<td>1120 55.0</td>
<td>1.3</td>
<td>397.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>978</td>
<td>940</td>
<td>8060 1130</td>
<td>2.7</td>
<td>15,562</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>980</td>
<td>950</td>
<td>5540 1000</td>
<td>3.9</td>
<td>30,186</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Spillway Length
Spillway Length: 40.5'

### Crest Width
Crest Width: 2.0’

### Crest El
Crest El: 970 MSL

### Training Wall H
Training Wall H: 2.07

El taken from USGS Quadrangle Map (1/2 min. Series)

Assume Spillway acts as broad-crested weir.
Assume flow over dam is critical C = 3.087

<table>
<thead>
<tr>
<th>El</th>
<th>Head</th>
<th>Q</th>
<th>Q = CH2/3</th>
<th>H</th>
<th>Q dam</th>
<th>Total Q</th>
<th>Q El</th>
</tr>
</thead>
<tbody>
<tr>
<td>0715</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>07</td>
<td>1.0</td>
<td>2.66</td>
<td>108</td>
<td>108</td>
<td>972.5</td>
<td>972.5</td>
<td>0</td>
</tr>
<tr>
<td>07</td>
<td>2.0</td>
<td>2.88</td>
<td>326</td>
<td>326</td>
<td>973.5</td>
<td>973.5</td>
<td>0</td>
</tr>
<tr>
<td>07</td>
<td>2.67</td>
<td>8130</td>
<td>583</td>
<td>583</td>
<td>914.17</td>
<td>914.17</td>
<td>0</td>
</tr>
<tr>
<td>07</td>
<td>3.5</td>
<td>232</td>
<td>1880</td>
<td>1880</td>
<td>975</td>
<td>975</td>
<td>0</td>
</tr>
<tr>
<td>07</td>
<td>4.5</td>
<td>232</td>
<td>1284</td>
<td>1284</td>
<td>976</td>
<td>976</td>
<td>0</td>
</tr>
<tr>
<td>07</td>
<td>6.5</td>
<td>3.2</td>
<td>2228</td>
<td>2228</td>
<td>978</td>
<td>978</td>
<td>0</td>
</tr>
<tr>
<td>07</td>
<td>8.5</td>
<td>3.2</td>
<td>3332</td>
<td>3332</td>
<td>980</td>
<td>980</td>
<td></td>
</tr>
</tbody>
</table>

Weir acts as sharp crested weir at and above 3.0' head.
Total $H \times A = 12,934.84 \quad \Delta H = 26.077 \quad A = 12.4$

Weighted $H = 1043.1 \quad$ Weighted $\Delta = 2.10 \text{ miles} / 11104 \text{ ft}$

Mean slope = $(1043.1 / 11104) / 100 = 94.9\%$

Assume for 9% basin slope, an average velocity of 5 ft/s.

Then estimated $T_c = 11104 / 5 = 2088 \text{ mins} = 0.34 \text{ hours}$

$T = 0.34 \times 60 = 20.4 \text{ mins}$

$T_e = 0.12 \times 7.4 = 0.89 \text{ mins}$

$T_p = 0.672 + 0.372 = 0.43 \times 74.8 = 26 \text{ mins}$

$Q_p = \frac{484 \times 12.4}{267^2} = 13,957 \text{ cfs}$

$T = \frac{\Delta H}{Q_p} = 0.15 \text{ hrs} / 68.9 \text{ mins}$

Discharge

Time

15 30 45 60 75 mins
HYDROLOGIC DATA AND COMPUTATIONS

APPENDIX D
7. VIEW OF DOWNSTREAM CHANNEL LOOKING UPSTREAM. NOTE MASS. RTE. NO. 8 BRIDGE AND REMNANT OF OLD BRIDGE SUPPORT IN BACKGROUND.

8. VIEW OF DOWNSTREAM CHANNEL LOOKING DOWNSTREAM.
5. View of access walkway to low level gate valve stems.

6. View of railroad embankment and bridge crossing connecting lake to approach channel.
3. VIEW OF UPSTREAM APPROACH CHANNEL. NOTE STONE MASONRY WALL AND CONCRETE LINED SLOPE.

4. VIEW OF SPILLWAY CREST AND REMNANT OF BRIDGE PIER.
2. VIEW OF CREST AND DOWNSTREAM FACE.
    NOTE PRESSURE LEAKS.
Q at WS: El. 971.5

\[ H_T = 7.3 \]

\[ T_T = 1.555(2) + \frac{267.64(0.013)^2 - 9}{1.232^{1.125}} \left( \frac{Q}{10} \right)^2 \]

\[ T_T = 0.369 \left( \frac{Q}{10} \right)^2 \]

\[ Q = \sqrt{\frac{7.3}{0.369}} = 44.5 \text{ cfs} \]

\[ Q_T = 44.5 \text{ cfs} \times 4 = 78 \text{ cfs} \]
### Input Parameters

| 3.75 | 0.12 | 0.00 | 8.67 | 1 | NO | 1.00 | 1.00 | 0.50 | 1.00 | 0.00 |

#### Reservoir

<table>
<thead>
<tr>
<th>Elev. (ft.)</th>
<th>Storage (ACFT)</th>
<th>Outflow (CFS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>971.50</td>
<td>0.0000</td>
<td>0.00</td>
</tr>
<tr>
<td>972.50</td>
<td>446.0001</td>
<td>104.20</td>
</tr>
<tr>
<td>973.50</td>
<td>1342.0502</td>
<td>326.20</td>
</tr>
<tr>
<td>974.00</td>
<td>1274.0002</td>
<td>326.20</td>
</tr>
<tr>
<td>975.00</td>
<td>2739.0004</td>
<td>1644.00</td>
</tr>
<tr>
<td>976.00</td>
<td>3159.0004</td>
<td>5763.20</td>
</tr>
<tr>
<td>977.00</td>
<td>4991.0009</td>
<td>17700.00</td>
</tr>
<tr>
<td>978.00</td>
<td>6983.0009</td>
<td>37518.00</td>
</tr>
</tbody>
</table>
INFORMATION AS CONTAINED IN THE NATIONAL INVENTORY OF DAMS

APPENDIX E
INVENTORY OF DAMS IN THE UNITED STATES

<table>
<thead>
<tr>
<th>STATE</th>
<th>COUNTY</th>
<th>CITY/TOWN/VILLAGE</th>
<th>NAME</th>
<th>LATITUDE (NORTH)</th>
<th>LONGITUDE (WEST)</th>
<th>REPORT DATE (DAY-MO-YR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA</td>
<td>005</td>
<td></td>
<td>CHESHIRE RESERVOIR DAM</td>
<td>4235.2</td>
<td>7310.0</td>
<td>00NOV78</td>
</tr>
</tbody>
</table>

**POPULAR NAME**
CHESHIRE RESERVOIR

<table>
<thead>
<tr>
<th>REGION</th>
<th>RIVER OR STREAM</th>
<th>DIST FROM DAM (MI)</th>
<th>POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>HOOKS RIVER</td>
<td>0</td>
<td>3000</td>
</tr>
</tbody>
</table>

**TYPE OF DAM**

crctpg

**YEAR COMPLETED**
1870

**PURPOSES**
r

**SILL HEIGHT (FT)**
14

**HYPOTHETICAL MAXIMUM IMPOUNDING CAPACITIES**

<table>
<thead>
<tr>
<th>VOLUME (ACRES-FT)</th>
<th>5130</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER CAPACITY (KW)</td>
<td>3272</td>
</tr>
</tbody>
</table>

**DIST OWN FED R PV/FED SCS A VER/DATE**

<table>
<thead>
<tr>
<th>DIST OWN</th>
<th>FED R</th>
<th>PV/FED SCS</th>
<th>A VER/DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NED</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>15JAN79</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**

<table>
<thead>
<tr>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**OWNER**
HOOSE RESERVOIR CO

**ENGINEERING BY**

<table>
<thead>
<tr>
<th>DESIGN</th>
<th>CONSTRUCTION</th>
<th>OPERATION</th>
<th>MAINTENANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NONE</td>
<td>NONE</td>
<td>NONE</td>
<td>NONE</td>
</tr>
</tbody>
</table>

**CONSTRUCTION BY**

<table>
<thead>
<tr>
<th>REGULATORY AGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**INSPECTION BY**
TIPPETT ARHITT MCCARTHY STRATTON

<table>
<thead>
<tr>
<th>INSPECTION DATE (DAY-MO-YR)</th>
<th>AUTHORITY FOR INSPECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2AMAR78</td>
<td>PL-92-367</td>
</tr>
</tbody>
</table>

**REMARKS**

<table>
<thead>
<tr>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>