

AD-A057 299

BAKER (MICHAEL) JR INC BEAVER PA

F/G 13/2

NATIONAL DAM SAFETY PROGRAM, POINT VIEW DAM (NJ00236), PASSAIC --ETC(U)

DACW61-78-C-0141

NL

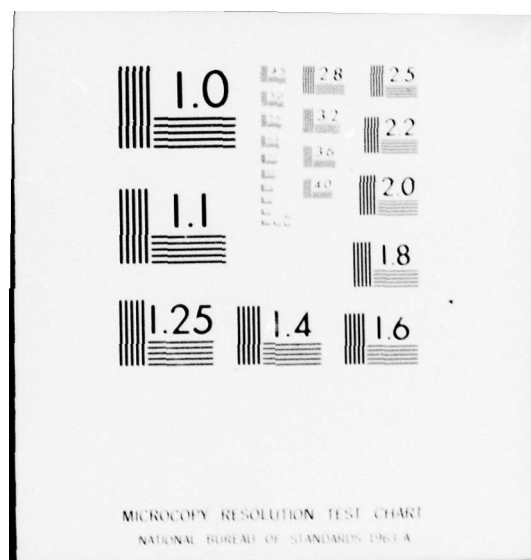
UNCLASSIFIED

1 of 1

AD
A057 299



END
DATE
FILMED
9-78
DDC



AD AU 57299

LEVEL II

①

3

PASSAIC RIVER BASIN

HAYCOCK BROOK, PASSAIC COUNTY

NEW JERSEY

POINT VIEW DAM

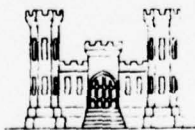
PHASE I INSPECTION REPORT

NATIONAL DAM SAFETY PROGRAM

Approved for public release;
distribution unlimited

NJ 00236

DDC
RECEIVED
AUG 9 1978
D



DEPARTMENT OF THE ARMY

PHILADELPHIA DISTRICT, CORPS OF ENGINEERS

CUSTOM HOUSE - 2D & CHESTNUT STREETS

PHILADELPHIA, PENNSYLVANIA 19106

JULY 1978

78 08 03 46

AU NO.
DDC FILE COPY

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER NJ00236	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Phase I Inspection Report National Dam Safety Program Point View Dam Passaic County, New Jersey		5. TYPE OF REPORT & PERIOD COVERED 9 FINAL rept.
7. AUTHOR(s) 10 Michael Baker, III		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Michael Baker, Jr. Inc. 4301 Dutch Ridge Rd. Box 280 Beaver, Pa. 15009		8. CONTRACT OR GRANT NUMBER(s) 15 DACW61-78-C-0141
11. CONTROLLING OFFICE NAME AND ADDRESS U.S. Army Engineer District, Philadelphia Custom House, 2d & Chestnut Sts. Philadelphia, Penna. 19106		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE 11 Jul 78
		13. NUMBER OF PAGES 58
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		15. SECURITY CLASS. (of this report) 12 61p.
17. DISTRIBUTION STATEMENT 6 National Dam Safety Program, Point View Dam (NJ00236), Passaic River Basin, Haycock Brook, Passaic County, New Jersey Phase I Inspection Report.		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
18. SUPPLEMENTARY NOTES Copies are obtainable from National Technical Information Service, Springfield, Virginia 22151		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Dams -N.J. National Dam Safety Program Phase I Point View Dam, N.J.		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report cites results of a technical investigation as to the dam's adequacy. The inspection and evaluation of the dam is as prescribed by the National Dam Inspection Act, Public Law 92-367. The technical investigation includes visual inspection, review of available design and construction records, and preliminary structural and hydraulic and hydrologic calculations, as applicable. An assessment of the dam's general condition is included in the report.		



DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
CUSTOM HOUSE-2 D & CHESTNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106

IN REPLY REFER TO

NAPEN-D

28 JUL 1978

Honorable Brendan T. Byrne
Governor of New Jersey
Trenton, New Jersey 08621

Dear Governor Byrne:

Inclosed is the Phase I Inspection Report for Point View Dam in Passaic County, New Jersey which has been prepared under authorization of the Dam Inspection Act, Public Law 92-367. A brief assessment of the dam's condition is given on the first two pages of the report.

Based on visual inspection, available records, calculations and past operational performance, Point View Dam is judged to be in good condition. To insure adequacy of the structure, the following actions, as a minimum, are recommended:

a. The toe drain outlets, adjacent to the spillway wing walls, should be located and cleaned by the owner within three months from the date of approval of this report. Also, within six months from the date of approval of this report a geotechnical investigation of the seepage situation, at the downstream toe of the dam, should be performed. Any necessary remedial action required as a result of this investigation should be initiated within calendar year 1979.

b. Maintenance of the downstream slope of the dam should be upgraded. Specifically, trees and brush on the slope should be cut and weeds and grass should be mowed periodically. Groundhogs should be eliminated from the downstream slope and the entrances to their burrows backfilled. Areas of erosion should be graded and seeded. This maintenance program should be initiated within three months of the date of approval of this report. Also, rip rap damage on the upstream slope of the dam should be made part of this maintenance program.

c. Emergency operations procedures should be developed and made known to all operations personnel. This should include instructions for dam operations during emergencies, evacuation notification for downstream areas,

NAPEN-D

Honorable Brendan T. Byrne

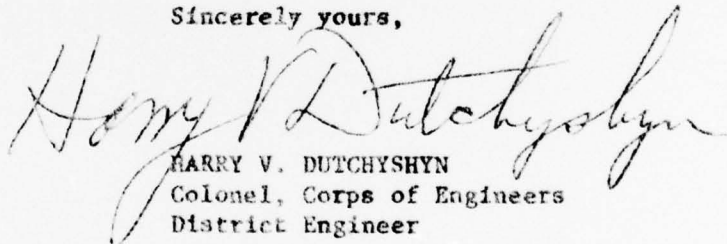
and plans for emergency drawdown of the reservoir. These emergency operation plans should be developed and implemented within two months from the date of approval of this report.

A copy of the report is being furnished to Mr. Dirk C. Hofman, New Jersey Department of Environmental Protection, the designated State Office contact for this program. Within five days of the date of this letter, a copy will also be sent to Congressman Robert A. Roe of the Eighth District. Under the provisions of the Freedom of Information Act, the inspection report will be subject to release by this office, upon request, thirty days after the date of this letter.

Additional copies of this report may be obtained from the National Technical Information Services (NTIS), Springfield, Virginia, 22161 at a reasonable cost. Please allow four to six weeks from the date of this letter for NTIS to have copies of the report available.

An important aspect of the Dam Safety Program will be the implementation of the recommendations made as a result of the inspection. We accordingly request that we be advised of proposed actions taken by the State to implement our recommendations.

Sincerely yours,



HARRY V. DUTCHYSHYN
Colonel, Corps of Engineers
District Engineer

1 Incl
As stated

Cy furn:
Mr. Dirk C. Hofman, P.E.
Department of Environmental Protection

PHASE I REPORT
NATIONAL DAM SAFETY PROGRAM

Name of Dam - Point View Dam, Passaic County, New Jersey

Stream - Haycock Brook

Dates of Inspection - 8, 9, 10, and 13 June 1978

ASSESSMENT OF
GENERAL CONDITIONS

Point View Dam is a zoned earthfill dam with a central concrete gravity section containing an overflow spillway and inlet/outlet works. The dam has a maximum height of 55 feet and a crest length of approximately 1100 feet. Point View Dam and Reservoir are owned and operated for pumped storage water supply by the Passaic Valley Water Commission.

Visual inspection and review of engineering data in June 1978 indicate no serious deficiencies requiring emergency attention. The dam was found to be in generally good overall condition at the time of inspection. The inspection did disclose a potential problem with seepage and piping at the downstream toe of the dam. As soon as possible, the owner should locate and clean toe drain outlets and retain a consultant for further investigation of the seepage situation. It is further recommended that the owner upgrade maintenance of the downstream slope of the dam, repair riprap damage on the upstream slope, and develop emergency operating procedures for the dam and reservoir. Emergency evacuation plans should also be developed for areas which will be affected in the event of a dam failure. Future periodic inspection of Point View Dam is strongly recommended.

MICHAEL BAKER, JR., INC.



Michael Baker, III, P.E.
Chairman of the Board and
Chief Executive Officer
Registration Number 13385

Based on visual inspection, available records, calculations and past operational performance, Point View Dam is judged to be in generally good overall condition. To

DAM NAME: POINT VIEW DAM

insure adequacy of the structure, the following actions, as a minimum, are recommended:

a. The toe drain outlets, adjacent to the spillway wing walls, should be located and cleaned by the owner within three months from the date of approval of this report. Also, within six months from the date of approval of this report a geotechnical investigation of the seepage situation, at the downstream toe of the dam, should be performed. Any necessary remedial action required as a result of this investigation should be initiated within calendar year 1979.

b. Maintenance of the downstream slope of the dam should be upgraded. Specifically, trees and brush on the slope should be cut and weeds and grass should be mowed periodically. Groundhogs should be eliminated from the downstream slope and the entrances to their burrows backfilled. Areas of erosion should be graded and seeded. This maintenance program should be initiated within three months of the date of approval of this report. Also, rip rap damage on the upstream slope of the dam should be made part of this maintenance program.

c. Emergency operations procedures should be developed and made known to all operations personnel. This should include instructions for dam operations during emergencies, evacuation notification for downstream areas, and plans for emergency drawdown of the reservoir. These emergency operation plans should be developed and implemented within two months from the date of approval of this report.

APPROVED:

Harry V. Hutchyshyn
HARRY V. HUTCHYSHYN
Colonel, Corps of Engineers
District Engineer

DATE:

28 July 1978

LEVEL II

PASSAIC RIVER BASIN



Name of Dam: Point View Dam
County and State: Passaic County, State of New Jersey
Inventory Number: NJ 00236

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

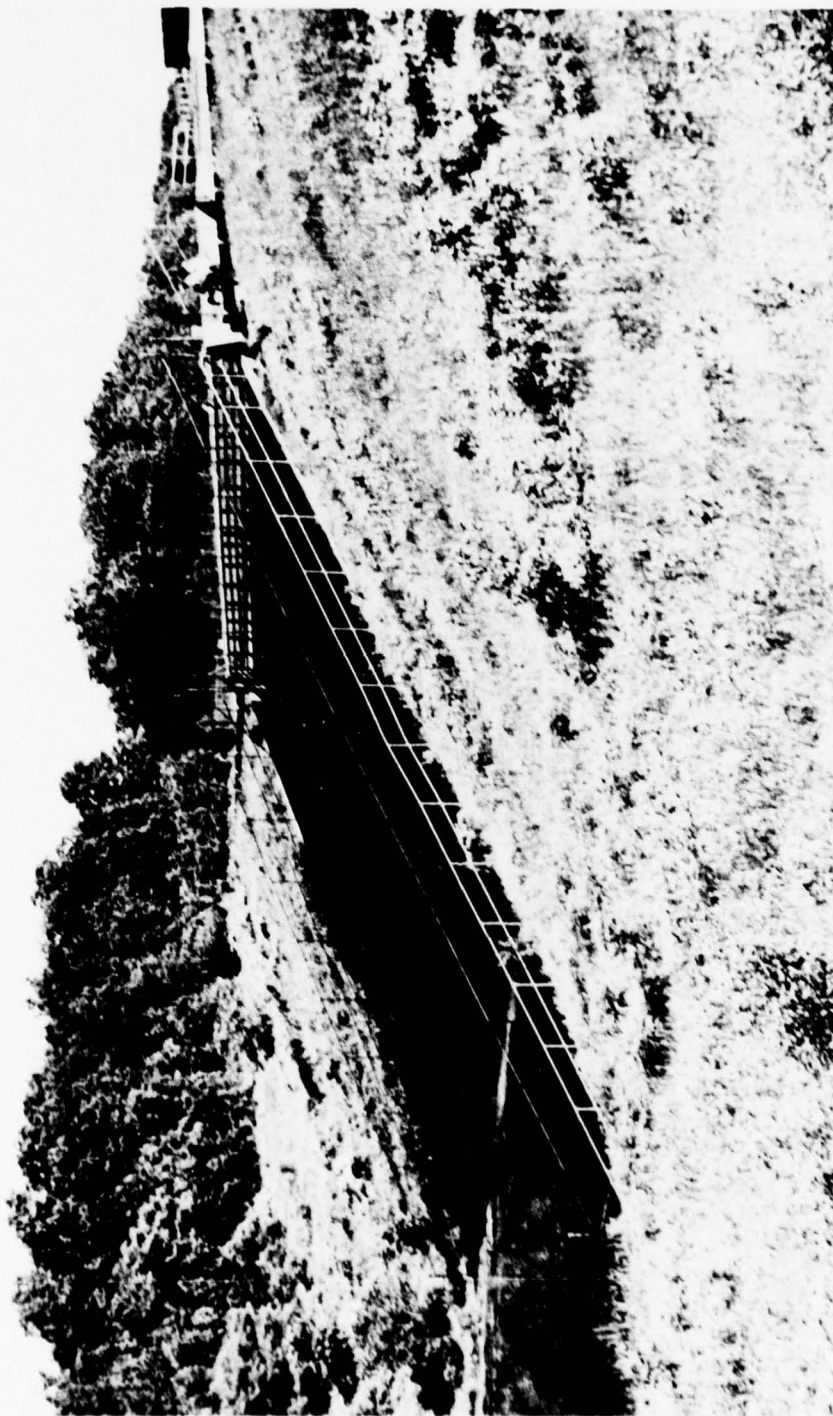
Prepared By: Michael Baker, Jr., Inc.
Consulting Engineers
4301 Dutch Ridge Road
Box 280
Beaver, Pennsylvania 15009

Prepared For: Department of the Army
Philadelphia District, Corps of Engineers
Custom House - Second and Chestnut Streets
Philadelphia, Pennsylvania 19106

Date: July 1978

ACCESSION For	
NTIS	NTIS Service ☒
DDC	DDC Service ☐
UNCLASSIFIED	☐
RESTRICTED	☐
BY _____	
DATE _____	
A	

DDC
RECEIVED
AUG 9 1978
D



OVERALL VIEW OF DAM

TABLE OF CONTENTS

	<u>Page</u>
Location Plan	1
Section 1 - Project Information	3
Section 2 - Engineering Data	7
Section 3 - Visual Inspection	9
Section 4 - Operational Procedures	11
Section 5 - Hydraulic/Hydrologic	13
Section 6 - Structural Stability	15
Section 7 - Assessment, Recommendations/Remedial Measures	17

PLATES

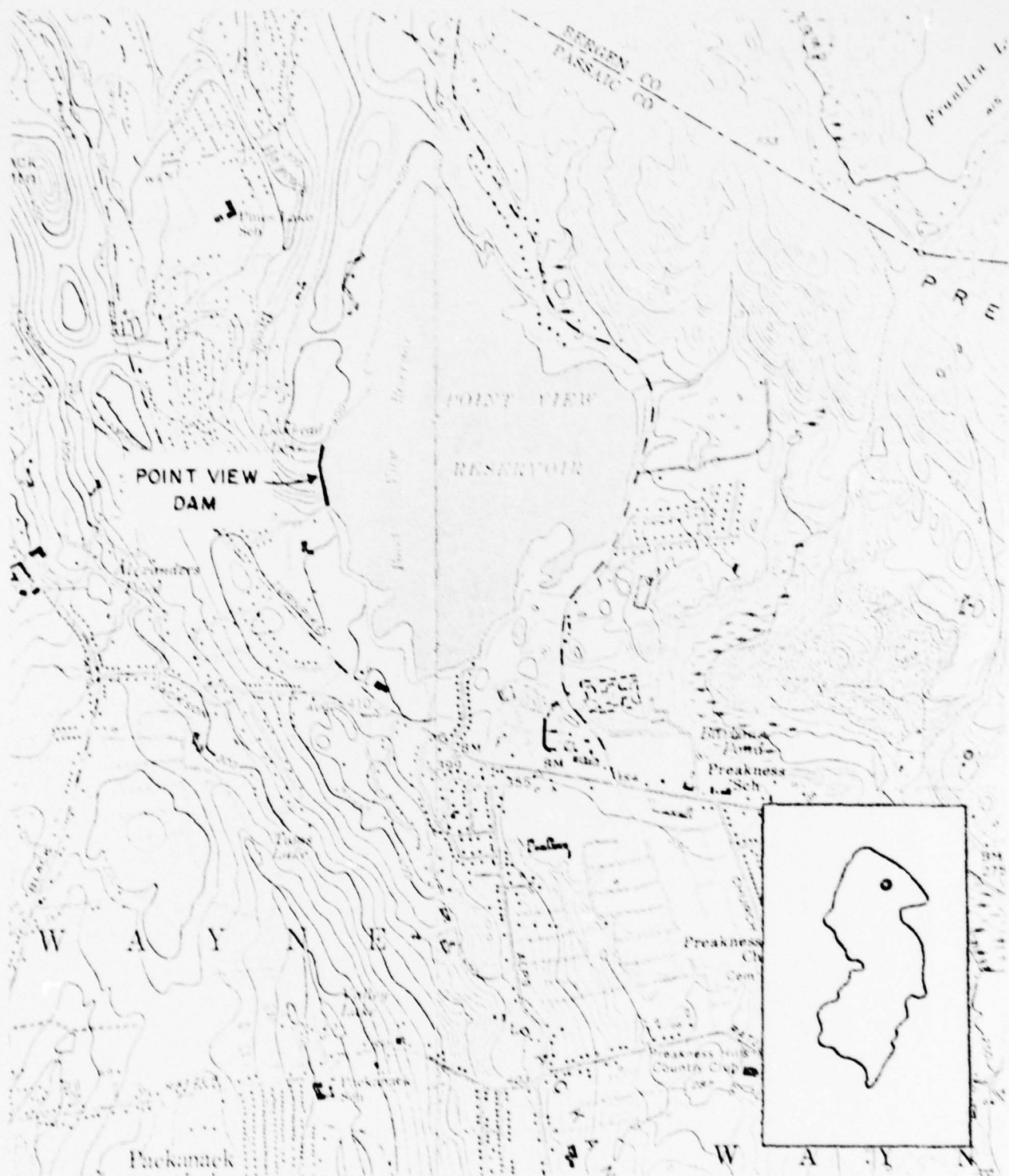
PHOTOGRAPHS

Photograph Descriptions	19
Photo 1 - View Upstream at Spillway Outlet From Southwest Bank of Lionheads Lake	21
Photo 2 - View North Along Cyanamid Drive From Left Abutment of Dam	21
Photo 3 - View South Along Dam Crest From Gate Control Chamber	23
Photo 4 - View Northeast at Right Side of Spillway From Gate Control Chamber	23
Photo 5 - View North Along Dam Crest From Gate Control Chamber	25
Photo 6 - View Downstream at Right Side of Spillway and Upstream Slope of Dam From Intake Tower	25
Photo 7 - View Downstream at Left Side of Spillway and Upstream Slope of Dam From Intake Tower	27
Photo 8 - Close-up of Riprap Failure at Left Side of Spillway	27
Photo 9 - View Upstream at Left Side Spillway Outlet Showing Wing Wall and Downstream Slope of Dam	29
Photo 10 - Close-up of Seepage and Sand Boils in Test Pit at Toe of South Spillway Outlet Wing Wall	29
Photo 11 - View Upstream at Right Side Spillway Outlet Showing Wing Wall and Downstream Slope of Dam	31
Photo 12 - Close-up of Piping Hole Encountered in Test Pit at Toe of North Spillway Outlet Wing Wall	31
Photo 13 - View Downstream Over East End of Lionshead Lake From Downstream Slope of Point View Dam, Left of Spillway	33
Photo 14 - View Downstream Over East End of Lionshead Lake From Southwest Bank	33

DAM NAME: POINT VIEW DAM

TABLE OF CONTENTS
(Cont.)

	<u>Page</u>
<u>APPENDICES</u>	
Appendix A - Check List - Visual Inspection	35
(with Seepage and Piping Supplement)	47
Appendix B - Check List - Engineering Data	55



SCALE 1:24,000



1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETER

78 LOCATION PLAN 03 46
POINT VIEW DAM

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
NAME OF DAM: POINT VIEW DAM, ID# NJ 00236

SECTION 1 - PROJECT INFORMATION

1.1 GENERAL

- a. Authority - This report is authorized by the Dam Inspection Act, Public Law 92-367, 92nd Congress, H.R. 15951 enacted 8 August 1972.
- b. Purpose of Inspection - The purpose of this inspection is to evaluate the general condition of Point View Dam with respect to safety of the facility based upon available data and visual inspection.

1.2 DESCRIPTION OF PROJECT

- a. Description of Dam and Appurtenances - Point View Dam is a zoned earthfill embankment approximately 1100 feet long with a maximum height of 55 feet. Seepage control in abutment sections of the embankment is provided by an impervious core and a drainage blanket beneath the downstream slope. A 510 feet long segment of dam containing the 106 feet long concrete gravity section with spillway, inlet, and outlet works is located in the center of the valley. In this segment, embankment sections on both sides of the concrete section have an impervious core, transition zones, and downstream shells with a bench carrying a road across the dam. (This road passes over the concrete spillway on a bridge.) Embankment sections in the 510 feet long central segment have their impervious cores extending into rock in cutoff trenches with minimum base widths of 20 feet. A four feet wide concrete "cutoff" extending variable depths into rock was used as a grout cap for a single line grout curtain beneath the 510 feet long central segment of the dam. No drainage blanket was provided in the 510 feet central segment; the downstream shell zones were apparently considered to be free draining. Toe drains were provided for these downstream shells. Backfill drains for the spillway outlet wing walls connect to the toe drains which apparently discharge through the ends of the wing walls several feet below tailwater level.

Point View Reservoir is used for pumped storage water supply. Water is taken from the Pompton River about 1.5 miles west of the dam, then pumped

DAM NAME: POINT VIEW DAM

through a 42 inch diameter prestressed reinforced concrete force main to the reservoir. This force main extends through the base of the concrete spillway section to an outlet structure on the reservoir floor 350 feet upstream from the spillway. Water is returned to the Pompton River (for subsequent use downstream) via a similar 42 inch force main. The intake tower is located 150 feet upstream from the spillway and the gate control chamber is located in the center of the spillway section. Discharge from the reservoir is controlled with a 42 inch hydraulically operated butterfly valve in the base of the gate control chamber.

The spillway consists of two overflow sections, one on each side of the gate control chamber. Each side has an 18 feet long overflow weir section with crest El. 386 and a 20 feet long bascule gate section. The gates, which are four feet high with base El. 382 and top El. 386, are located on each side of the gate control chamber and they were installed to be operated hydraulically. The gates, however, are blocked in the closed position to weir elevation with large wooden blocks which are located in the gate control chamber. These blocks hold the arms that control gate movement in an inoperable position without depending on the hydraulic system.

- b. Location - Point View Dam is located on Haycock Brook in Wayne Township, Passaic County, New Jersey. The dam is located about five miles north of Interstate Route 80 and one mile east of U.S. Route 202. Access to the dam is provided by Cynamid Drive which runs about 1500 feet northeast from the Paterson-Hamburg Turnpike, then crosses the dam via a bench on the downstream slope and a bridge over the spillway.
- c. Size Classification - The maximum height of the dam is 55 feet and the reservoir volume to the spillway crest is approximately 8590 acre-feet. The dam is therefore in the "Intermediate" size category as defined by the "Recommended Guidelines for Safety Inspection of Dams."
- d. Hazard Classification - The reach of Haycock Brook which extends approximately one mile downstream from Point View Dam through Lionshead Lake to Pines Lake passes through highly developed residential areas containing numerous homes and several hundred people. In the event of failure of Point View Dam, it is likely that "more than a few" lives would be lost and economic losses would be "excessive."

DAM NAME: POINT VIEW DAM

The dam is therefore considered to be in the "High" risk category as defined in the "Recommended Guidelines for Safety Inspection of Dams."

- e. Ownership - The dam is owned by the Passaic Valley Water Commission, Box 230, 1525 Main Avenue, Clifton, New Jersey 07015.
- f. Purpose of Dam - The dam is used for pumped storage water supply.
- g. Design and Construction History - The existing facility was designed for the owner by Clinton Bogert Engineers, New York, New York. The dam was built by Brookfield Baylor Construction Company, New York, New York, beginning in 1962. Construction was completed in 1964.
- h. Normal Operational Procedures - The reservoir is maintained full to the spillway crest level (El. 386) for release as necessary to supplement downstream water supplies during periods of low flow or adverse water quality in the Passaic River. Water has only been released for these purposes once in the thirteen years of reservoir operation. That was in the summer of 1966 when the reservoir was drawn down approximately 50 feet during a period of poor water quality in the Passaic River. A daily release of 400,000 gallons is specified to maintain flow in downstream portions of Haycock Brook. This daily release is provided through a six inch steel pipe with globe valve tapped from the 42 inch outlet pipe.

1.3 PERTINENT DATA

- a. Drainage Area - The drainage area of Point View Reservoir is 1.82 square miles.
- b. Discharge at Damsite - The maximum known flow at the damsite is not available.
- c. Elevation [feet above Mean Sea Level (M.S.L.)] -
 - Top of Dam - 390
 - Discharge - 2067 C.F.S. (with gates closed)
3333 C.F.S. (with gates open)
[from microfilm files of New Jersey
Department of Environmental Protection
(NJDEP)]
 - Normal Pool - 386
 - Streambed at Centerline of Dam - 335
 - Maximum Tailwater - Not available

DAM NAME: POINT VIEW DAM

- d. Reservoir (miles) -
Length of Maximum Pool - 0.95
Length of Normal Pool - 0.95
- e. Storage -
At Spillway Crest (El. 386) - Approximately 8590
acre-feet
- f. Reservoir Surface (acres) -
Top of Dam - 490
Spillway Crest - 465
Normal Pool - 465
- g. Dam -
Type - Zoned earthfill embankment with central
concrete gravity spillway section 106
feet wide
Length - 1100 feet
Height - 55 feet
Top Width - 20 feet
Side Slopes - Upstream - 3:1
Downstream - 2:1
Impervious Core - 20 feet minimum base width
Cutoff - Single line grout curtain approximately
510 feet long in rock beneath center of
valley
- h. Diversion and Regulating Tunnel - None
- i. Spillway -
Type - Concrete with circular crest and 0.75:1
downstream slope
Length of Weir - 36 feet (ungated)
Crest Elevation - 386.0 feet (M.S.L.)
Gates - There are two bascule gates, each 20 feet
wide by four feet high. The gates have
been closed to approximate weir crest level
for the past 12 years and are held in place
by large wooden blocks. These blocks are
located in the gate control chamber and
are positioned to hold the arms that control
the gate movement in an inoperable position.
Downstream Channel - Outlet directly into upstream
end of Lionshead Lake
- j. Regulating Outlets - 42 inch diameter prestressed
reinforced concrete pipe to Pompton River; flow
regulated by three electronically operated sluice
gates.

DAM NAME: POINT VIEW DAM

SECTION 2 - ENGINEERING DATA

2.1 DESIGN

Design information reviewed included:

- 1) "Preliminary Engineering Report, Point View Reservoir Project," prepared by Clinton Bogert Engineers, New York, New York, April 1961, 29 pages and Appendices A, B, and C.
- 2) "Point View Reservoir Project - Record Drawings," 31 sheets prepared by Clinton Bogert Engineers, New York, New York, undated (reportedly "as built" drawings).
- 3) "Point View Reservoir Project - Contract No. 3 - Reservoir and Dam - Contract and Specifications," prepared by Clinton Bogert Engineers, New York, New York, January 1962.
- 4) Notes, Correspondence, Calculations, Memoranda, and Drawings in microfilm files of NJDEP. The more significant of these were related to review of the dam permit application in April and May 1962. Of particular importance is a handwritten summary sheet prepared by R.A. Webster of the New Jersey Department of Conservation on 16 May 1962, which is quoted verbatim below:

"Findings"

1. "Gravity spillway section is structurally stable."
2. "Earthfill sections comply with rules and regulations. Stability check not possible because of lack of information regarding analyses of soils to be used. However, plans and specifications show that sound engineering practices were followed in design."
3. "Hydrology and Hydraulics - dam (sic, spillway) designed for 2067 cubic feet per second which is excess of the probable maximum precipitation storm."

Other design data may exist in the files of Clinton Bogert Engineers or their successors. Such additional data, if they do exist, are not readily available and were not reviewed in connection with this Phase I Inspection Report.

DAM NAME: POINT VIEW DAM

2.2 CONSTRUCTION

Very little information on the construction of Point View Dam was available for review in connection with this Phase I Inspection Report. Some construction progress information was obtained from the files of the Passaic Valley Water Commission. This information indicated that dam construction began in the summer of 1962 and was 99 percent complete on 30 September 1964. No technical information on foundation conditions, construction materials or quality control testing was readily available. Some of this technical information may exist in the files of Clinton Bogert Engineers or their successors. It was physically impossible to locate this latter construction information which, in any case, was not necessary for purposes of this Phase I Inspection Report.

2.3 OPERATION

Very little information on the operation of Point View Dam and Reservoir was available for review in connection with this Phase I Inspection Report.

The information summarized in paragraph 1.2.h. of this report was obtained in interviews with representatives of the Passaic Valley Water Commission. More detailed operations information is probably available in their files. It may be noted that the dam and reservoir have daily inspections by a resident caretaker.

2.4 EVALUATION

The readily available information is considered adequate for purposes of this Phase I Inspection Report on Point View Dam.

SECTION 3 - VISUAL INSPECTION

3.1 FINDINGS

- a. General - The dam and its appurtenance structures were found to be in generally good overall condition at the time of inspection. Most of the problems noted during the visual inspection are considered minor and do not require immediate remedial treatment. The one problem requiring immediate attention is the seepage and piping observed on 9 June in the downstream toe of the dam behind both spillway outlet wing walls. The seepage and piping situation was discussed in telephone conversations on 9 June and during a meeting at the dam on 10 June. The seepage and piping situation and subsequent telephone conversations and meeting are summarized in the supplement to the visual inspection check list in Appendix A.
- b. Dam -
 - 1) Seepage and piping were observed at the downstream toe of the dam behind both spillway outlet wing walls on 9 June, as described in the supplement to the visual inspection check list in Appendix A. The seepage water was clear on 10 June, indicating that the piping had apparently stabilized. Seepage at the downstream toe of the dam probably indicates that the toe drain outlets, and perhaps also the toe drains themselves, are plugged.
 - 2) Vegetation consisting of small trees, brush, weeds, and grass was observed on the downstream slope of the dam along with several groundhog burrows and some minor erosion. The sidewalk at the top of the downstream slope on the right (north) side of the spillway has been undermined by erosion.
 - 3) Riprap failures - due to wave action and/or vandalism - were noted on the upstream slope of the dam adjacent to both spillway inlet wing walls.

3.2 EVALUATION

- a. Dam
 - 1) The seepage and piping observed at the downstream toe of the dam on 9 June are not considered detrimental to the stability of

DAM NAME: POINT VIEW DAM

the dam at the present time. However, the nature and complexity of these seepage and piping phenomena are such that stability problems could develop at some future time. It is therefore strongly recommended that the owner conduct a more detailed investigation of the seepage situation and toe drains as outlined in paragraph 7.c. of this report.

- 2) Vegetation, groundhog holes, and erosion on the downstream slope of the dam are not considered detrimental to the stability of the dam, but these matters should be treated in an improved program of maintenance for the downstream slope. More detailed recommendations on these matters are given in paragraph 7.c. of this report.
- 3) Damage to riprap on the upstream slope of the dam adjacent to both spillway inlet wing walls is relatively minor and should be repaired during normal maintenance activities.

SECTION 4 - OPERATIONAL PROCEDURES

4.1 PROCEDURES

Operational procedures are generally discussed in paragraph 1.2.h. and 2.3.

There is no formal written procedure for reservoir operation or for emergency downstream evacuation in the event of impending catastrophe. However, operating personnel interviewed have a keen sense of awareness and access to good telephone and radio communication with which to alert civil defense and police.

Rapid emergency drawdown is impossible with the 42 inch pipe which is the only reservoir outlet when the pool is below El. 382, spillway gate base level.

It is recommended that a formal emergency procedure be prepared and prominently displayed and furnished to all operating personnel. This should include:

- 1) How to operate the dam and reservoir during an emergency.
- 2) Procedures for rapid drawdown of the reservoir under emergency conditions.
- 3) Who to notify, including public officials, in case evacuation from the downstream area is necessary.

In addition, the owner should assist public officials in developing an emergency evacuation plan for areas which will be affected in the event of a dam failure.

4.2 MAINTENANCE

Maintenance of the dam and appurtenant facilities is generally adequate, except for the downstream slope and toe drain outlets as noted in Section 3 of this report. A resident caretaker makes daily inspections of the dam and it is also frequently visited by the owner's operations personnel.

SECTION 5 - HYDRAULIC/HYDROLOGIC

5.1 OVERTOPPING POTENTIAL-EVALUATION FOR OVERTOPPING PHASE I CRITERIA

Point View Dam is classified as a "High" hazard-"Intermediate" size dam requiring evaluation for a Spillway Design Flood equal to the Probable Maximum Flood (P.M.F.). The spillway includes two 20 feet gated sections and two 18 feet ungated sections. The crests of the gates and the ungated sections are at El. 386 and the base of gates is at El. 382. The dam crest is at El. 390.

Design data were obtained from the microfilm files of the NJDEP. Spillway dimensions taken from available drawings were verified and supplemented by measurements made during the field inspection.

The maximum spillway capacity is considered to be the discharge developed when the reservoir is at dam crest level, El. 390. For this condition, the spillway capacity is 2067 C.F.S. with the gates closed and 3333 C.F.S. with the gates open according to information in the microfilm files of the NJDEP. These files also contain information indicating that the spillway capacity of 2067 C.F.S. exceeds the Probable Maximum Precipitation (P.M.P.) discharge for the watershed. Since the P.M.P. discharge equals the P.M.F., it follows that the spillway has a capacity more than sufficient to pass the P.M.F. with the gates closed. The spillway is therefore considered adequate according to Phase I Inspection criteria.

5.2 EMERGENCY DRAWDOWN OF RESERVOIR

The outlet works for Point View Reservoir consist of a 42 inch pipe extending from the dam 7900 feet west to the Pompton River. The April 1961 "Preliminary Engineering Report" by Clinton Bogert Engineers indicates that 53 M.G.D. can be discharged through the 42 inch pipe when the reservoir is at spillway crest El. 386. Using an average discharge rate of 50 M.G.D., approximately 56 days would be required to empty the reservoir. If the bascule gates were opened to release the top four feet of water, the total time for reservoir drawdown would be reduced to approximately 45 days.

PRECEDING PAGE BLANK

SECTION 6 - STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITY

- a. Visual Observations - No structural inadequacies were observed during visual inspection of the dam. As indicated in paragraph 3.1.a. of this report, seepage and piping observed at the downstream toe of the dam on 9 June are not considered detrimental to stability of the dam at the present time but they certainly require further investigation.
- b. Design and Construction Data - Review of information in the microfilm files of the NJDEP indicates that the concrete spillway section of Point View Dam was designed according to procedures given in the U.S. Bureau of Reclamation (1960) Design of Small Dams, 1st edition. The embankment sections of Point View Dam appear to have been designed on an empirical basis using Design of Small Dams, 1st edition, as a guide.

Readily available design information, along with operating history, observations during the field inspection, and experience with other concrete gravity and embankment dams lead to the conclusion that Point View Dam could be shown to meet the stability requirements of the "Recommended Guidelines for Safety Inspection of Dams." This qualitative evaluation of structural stability is considered sufficient for a Phase I Inspection Report.
- c. Operating Records - Readily available operating information indicates that Point View Dam has sustained maximum pool conditions almost continuously for the past thirteen years. There were no reports of structural distress during this lengthy period of sustained loading.
- d. Post-Construction Changes - There were no post-construction changes to the dam or appurtenant structures which would adversely affect structural stability.
- e. Seismic Stability - Point View Dam is located in Seismic Zone 1 according to the Seismic Zone Map of Contiguous States given in Figure 1, page 30, "Recommended Guidelines for Safety Inspection of Dams." This is a zone of very low seismic activity. Experience has shown that dams with adequate stability under static loading conditions will also have adequate stability under seismic loading

DAM NAME: POINT VIEW DAM

conditions in such zones of low seismic activity. As indicated above in paragraph 6.1.b., Michael Baker, Jr., Inc. believes that Point View Dam could be shown to meet the stability requirements of the "Recommended Guidelines for Safety Inspection of Dams." There is no need for further consideration of seismic stability under the circumstances.

SECTION 7 - ASSESSMENT, RECOMMENDATIONS/REMEDIAL MEASURES

7.1 DAM ASSESSMENT

- a. Safety - There are no detrimental findings, as a result of this inspection, from which an unsafe assessment can be rendered. The spillway is considered adequate to pass the P.M.F. without overtopping the embankment.
- b. Adequacy of Information - The information available for review was generally adequate for purposes of this Phase I Inspection Report.

7.2 RECOMMENDATIONS/REMEDIAL MEASURES

The dam inspection revealed two items that should be given immediate attention by the owner:

- 1) The Passaic Valley Water Commission should locate, excavate and clean as necessary the toe drain outlets at the ends of the two spillway outlet wing walls. In addition, the Commission should consider installation of additional toe drain outlets above tailwater level. It is expected that the consultant recommended in Item 2) below would provide guidance in this matter.
- 2) The Passaic Valley Water Commission should retain a consultant experienced in geotechnical aspects of embankment dams to review the seepage and piping situation at the downstream toe and follow through with appropriate investigations and remedial measures. Specifically, the consultant should locate and review available information on construction of the dam with special emphasis on the downstream slope and toe drains. The consultant should also consider a program of subsurface exploration including test pits in the downstream toe and borings with open standpipe piezometers in the downstream slope to clarify material properties and seepage characteristics.

The dam inspection also disclosed several items of lower priority which will require attention:

- 1) Maintenance of the downstream slope of the dam should be upgraded. Specifically, trees and brush on the slope should be cut and weeds and grass should be mowed periodically. Groundhogs should be eliminated from the

DAM NAME: POINT VIEW DAM

downstream slope and the entrances to their burrows backfilled. Areas of erosion should be graded and seeded.

- 2) Riprap damage on the upstream slope of the dam should be repaired during normal maintenance activities.
- 3) An emergency operations procedure should be developed and made known to all operations personnel. This should include instructions for dam operations during emergencies, evacuation notification for downstream areas, and plans for emergency drawdown of the reservoir.
- 4) Consideration should be given to provide a more positive method to lock the gates in the current operating position without dependency on the hydraulic system and the wooden blocks.

It is further strongly recommended that future periodic inspections be conducted by personnel of appropriate state or federal agencies, the owner's engineering staff, or consultants retained by governmental agencies or by the owner.

The preceeding Recommendations 1) and 2) and Recommendation 1) under the lower priority items were given verbally for immediate attention to the Passaic Valley Water Commission on 10 June 1978 during a meeting held at the dam site. Those recommendations are further detailed in the supplement to the visual inspection check list in Appendix A.

PLATES

NO DRAWINGS OF REPRODUCIBLE QUALITY WERE AVAILABLE
FOR INCLUSION IN THIS REPORT. IF DRAWINGS ARE
DESIRED, PLEASE CONTACT THE OWNER.

PHOTOGRAPHS

PHOTOGRAPH DESCRIPTIONS

- Overall View of Dam - View North Along Downstream Slope;
Spillway Outlet in Center; Gate Control
Chamber in Upper Right Edge of Photo -
10 June 1978.
- Photo 1 - View Upstream (East at Spillway Outlet From
Southwest Bank of Lionheads Lake - 9 June 1978
- Photo 2 - View North Along Cyanamid Drive From Left (South
Abutment of Dam; Spillway and Gate Control Chamber
in Center (Right of Station Wagon); Intake Tower
at Right Edge of Photo - 9 June 1978
- Photo 3 - View South Along Dam Crest From Gate Control
Chamber; Ungated Spillway Section at Left -
9 June 1978
- Photo 4 - View Northeast at Right Side of Spillway (Gated
and Ungated Section) From Gate Control Chamber -
9 June 1978
- Photo 5 - View North Along Dam Crest From Gate Control
Chamber; Ungated Spillway Section at Right -
9 June 1978
- Photo 6 - View Downstream (West) at Right (North) Side of
Spillway and Upstream Slope of Dam From Intake
Tower; Gate Control Chamber and Walkway to Intake
Tower at Left Edge of Photo - 9 June 1978
- Photo 7 - View Downstream (West) at Left (North) Side of
Spillway and Upstream Slope of Dam From Intake
Tower; Riprap Failure Left of Spillway (Close-up in
Photo 8); Gate Control Chamber at Right Edge of
Photo - 9 June 1978
- Photo 8 - Close-up of Riprap Failure at Left Side of Spillway
(Center of Photo 7); Clipboard for Scale-9 June 1978
- Photo 9 - View Upstream (East) at Left (South) Side Spillway
Outlet Showing Wing Wall and Downstream Slope of
Dam; Area of Minor Erosion Right of Top of Wing Wall;
Seepage and Sand Boils (Close-up in Photo 10)
Between T.J. Dougan and Clipboard at Toe of Wing Wall -
9 June 1978
- Photo 10 - Close-up of Seepage and Sand Boils in Test Pit at
Toe of South Spillway Outlet Wing Wall (Photo 9) -
9 June 1978

PHOTOGRAPH DESCRIPTIONS
(Cont.)

- Photo 11 - View Upstream (East) at Right (North) Side Spillway Outlet Showing Wing Wall and Downstream Slope of Dam; 18 Inch Corrugated Metal Pipe in Left Center; Piping Hole (Close-up in Photo 12) Left of Wing Wall Three Feet Above Tailwater at Folded Rule - 9 June 1978
- Photo 12 - Close-up of Piping Hole Encountered in Test Pit at Toe of North Spillway Outlet Wing Wall (Photo 11) - 9 June 1978
- Photo 13 - View Downstream (West) Over East End of Lionshead Lake From Downstream Slope of Point View Dam, Left (South) of Spillway; Ditch Carrying Storm Water and Stream Flow From Left Abutment Area Enters Lake at Left Edge of Photo - 9 June 1978
- Photo 14 - View Downstream (Northwest) Over East End of Lionshead Lake From Southwest Bank - 9 June 1978

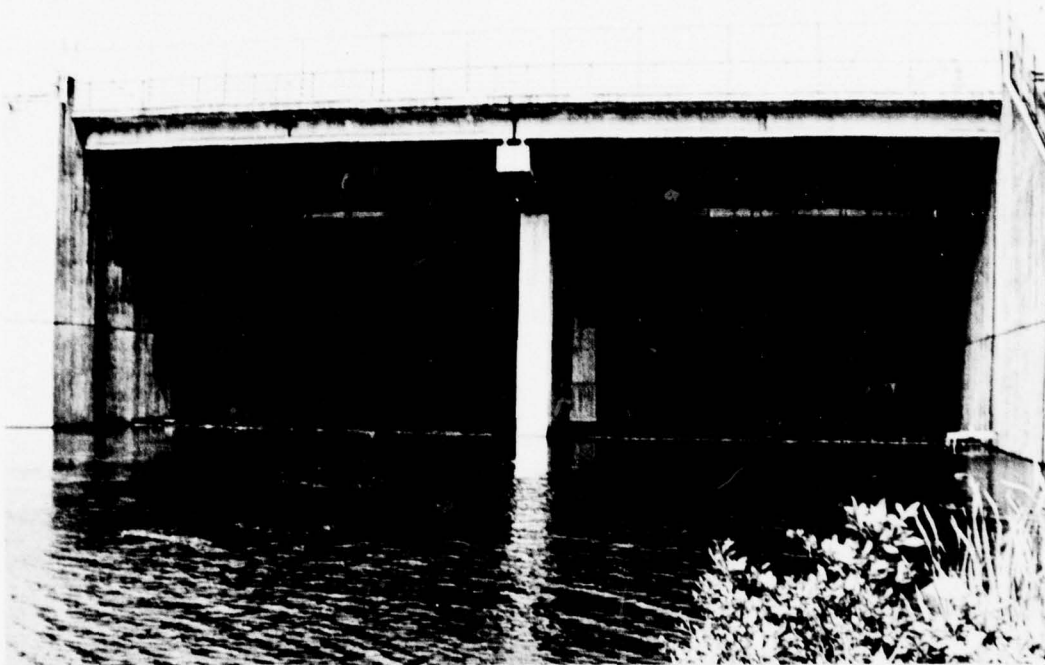


PHOTO 1



PHOTO 2



PHOTO 3

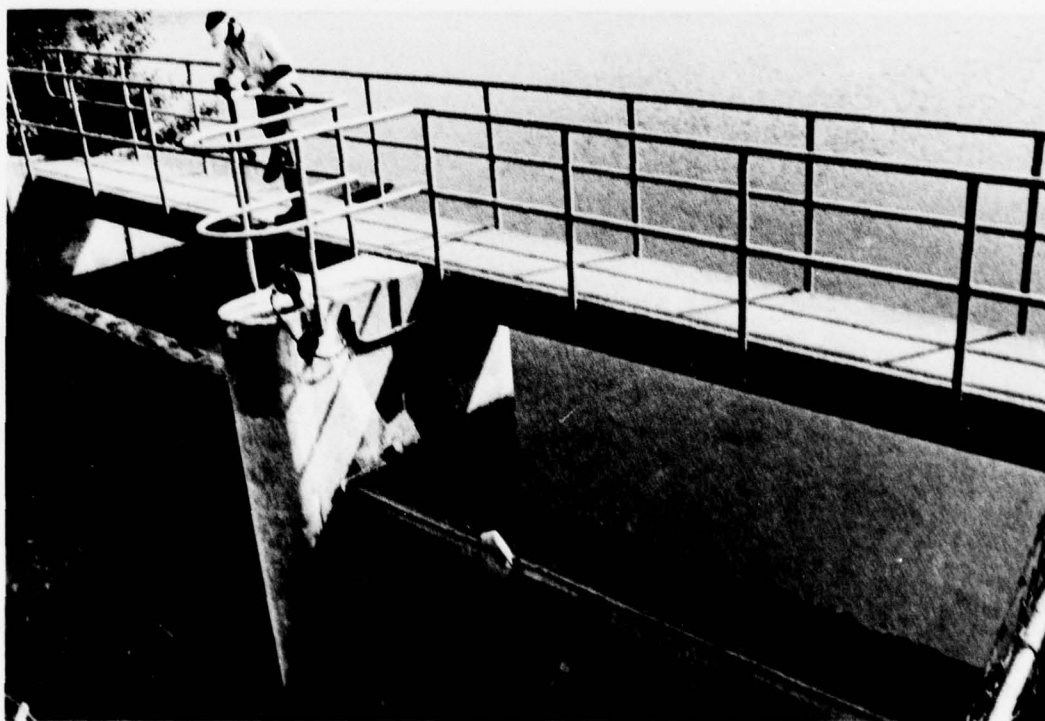


PHOTO 4

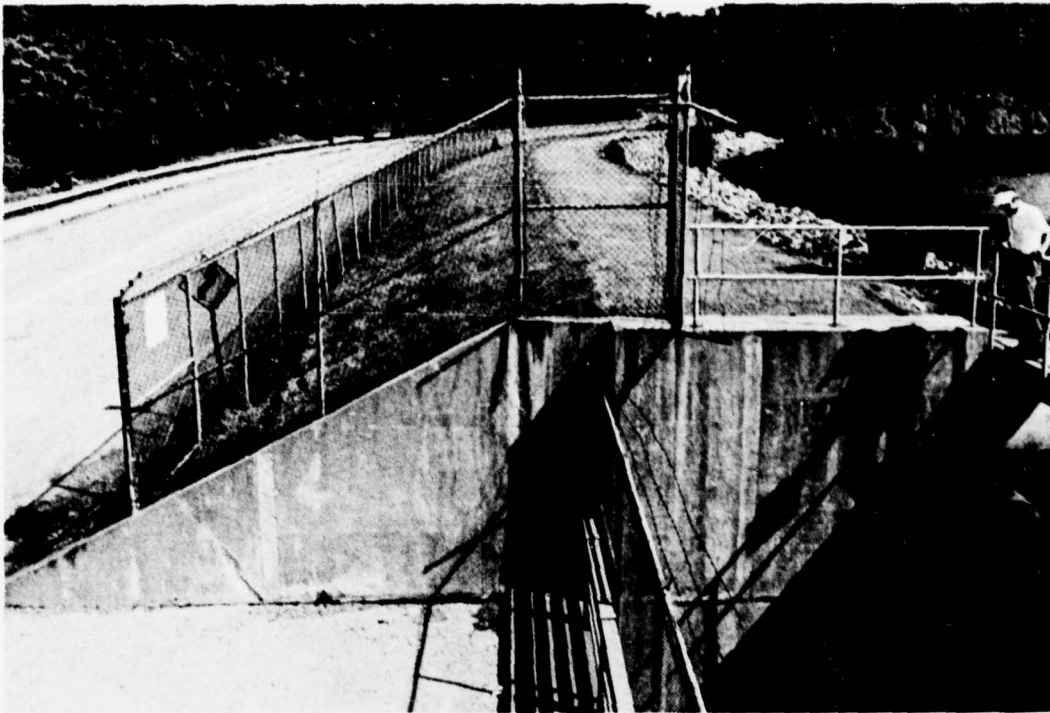


PHOTO 5



PHOTO 6

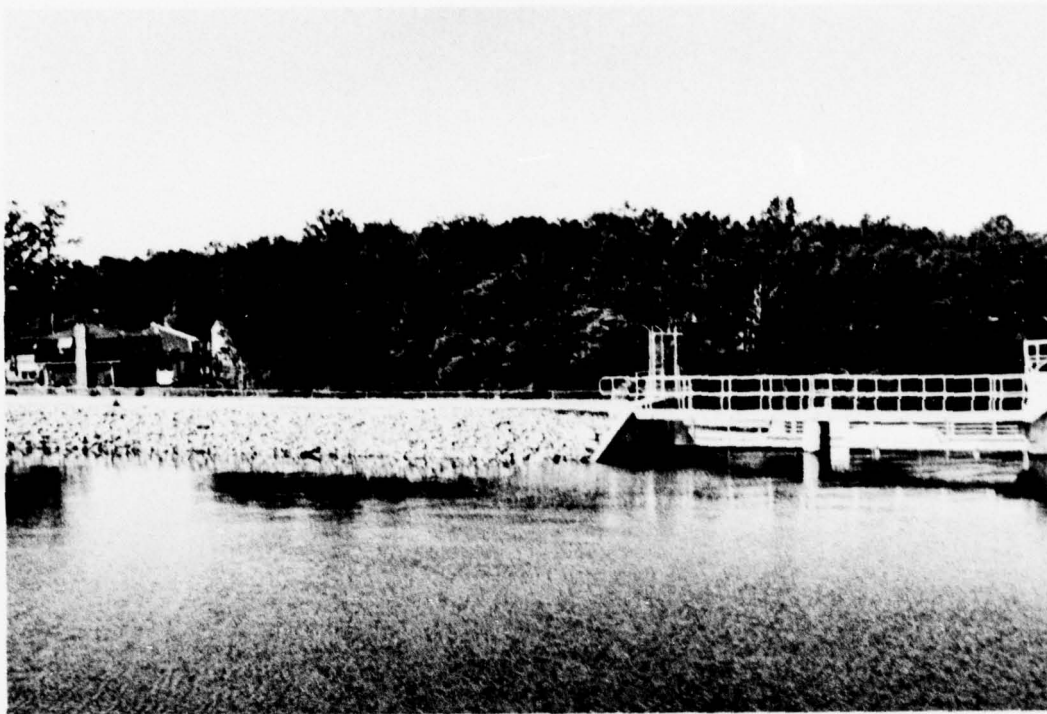


PHOTO 7



PHOTO 8



PHOTO 9

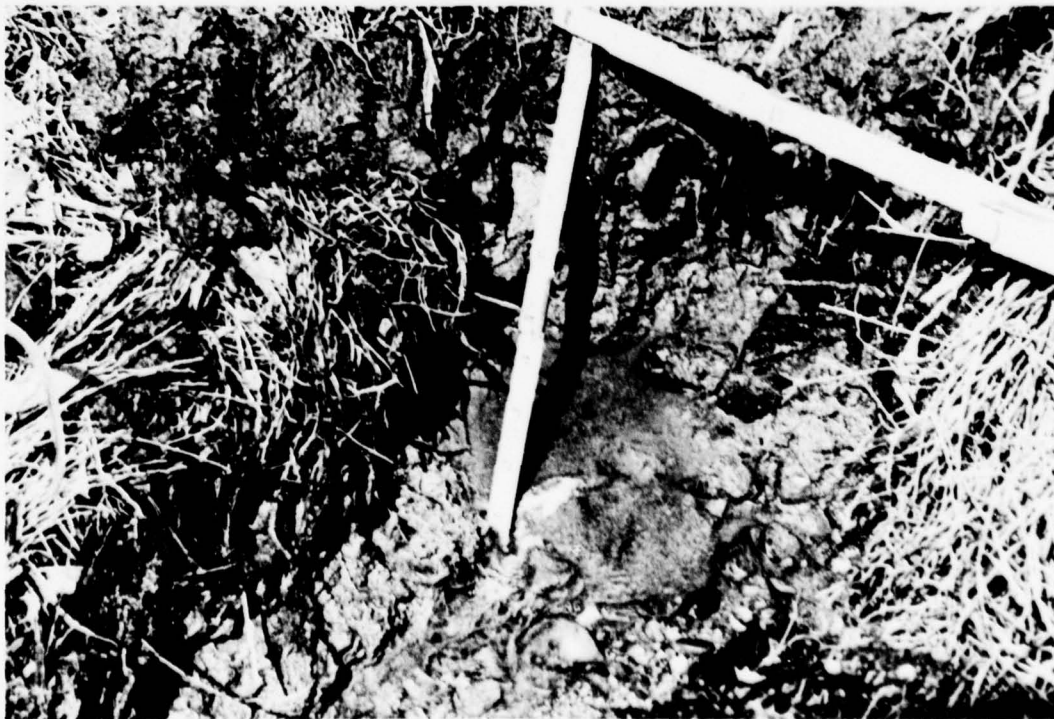


PHOTO 10



PHOTO 11

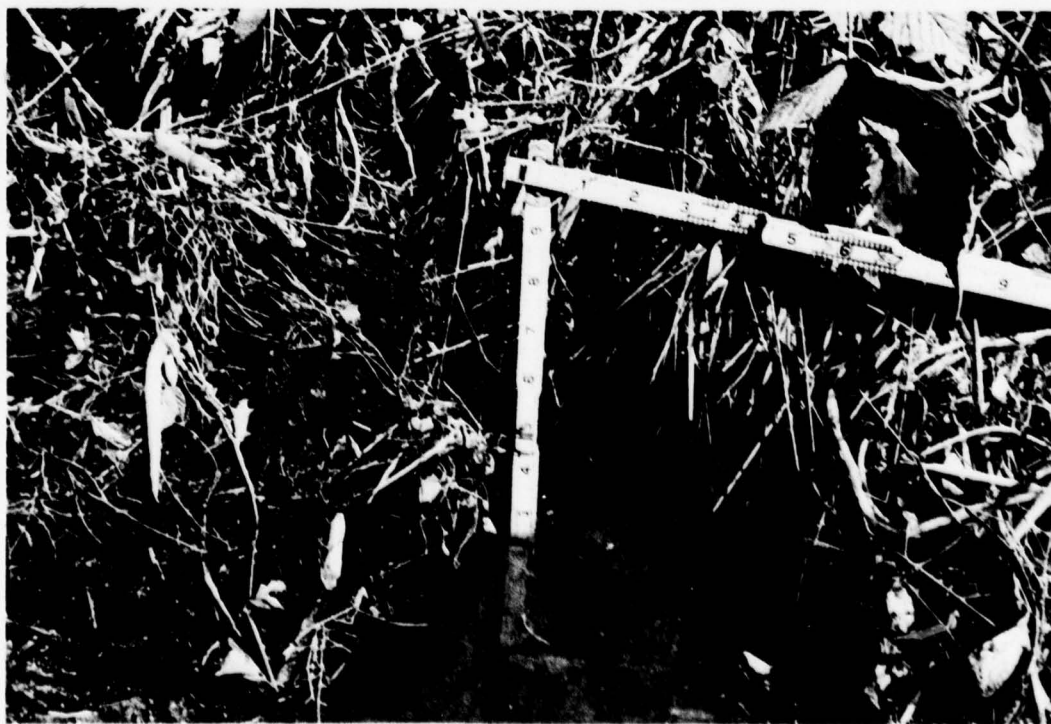


PHOTO 12



PHOTO 13



PHOTO 14

APPENDIX A
CHECK LIST - VISUAL INSPECTION

Check List
Visual Inspection
Phase 1

Name Dam Point View Dam County Passaic State New Jersey Coordinates Lat. 4058.3°
Long. 7415.4°

Date(s) Inspection 8 June 1978 Weather Cloudy, humid, showers Temperature 70°
9 June 1978 Partly cloudy, humid 75°
10 June 1978 Sunny 70°
13 June 1978 Cloudy, breezy 65°
Pool Elevation at Time of Inspection 386 M.S.L. Tailwater at Time of Inspection 343 M.S.L.

Inspection Personnel:

MICHAEL BAKER, JR., INC.:
J. G. Ulfinski - 8 June
E. U. Gingrich - 8-10, 13 June
T. J. Dugan - 8-10 June
J. V. Hamel - 8-10 June

PHILADELPHIA DISTRICT, CORPS
OF ENGINEERS - 10 June only :
D. J. Sheridan
W. H. Zink
A. DePhillippe

N.J. DEPT. OF ENVIRONMENTAL
PROTECTION - 10 June only :
J. O'Dowd

PASSAIC VALLEY
WATER COMMISSION:
P. Mooney-8,9 June
A. Seemann-8,10 June
W. Inhoffer-10 June
G. Bednarz - 13 June

J. V. Hamel Recorder

CONCRETE/MASONRY DAMS

Point View Dam

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
-----------------------	--------------	----------------------------

SEE PAGE ON LEAKAGE

STRUCTURE TO
ABUTMENT/EMBANKMENT
JUNCTIONS

Some evidence of settlement of wing walls adjacent to concrete weirs both upstream and downstream. There are hairline cracks present throughout. The cracks could be due to earth pressure behind the walls or settlement. This condition is typical of left and right wing walls upstream and downstream of concrete weir section.

36

DRAINS

WATER PASSAGES

FOUNDATION

CONCRETE/MASONRY DAMS

Point View Dam

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SURFACE CRACKS CONCRETE SURFACES	Small hairline cracks on concrete weirs at the base. Spalling is present on vertical spillway at crest. The wing wall downstream of vertical spillway--good condition.	
STRUCTURAL CRACKING	Hairline cracks are present throughout the wing walls adjacent to concrete weirs. See Structure to Abutment/ Embankment Junctions Sheet 1.	
VERTICAL AND HORIZONTAL ALIGNMENT	The right concrete weir is 1/4" out of plumb. This could be an "as built" condition as no structural cracking has resulted from this condition. The wing walls upstream of the concrete weir have settled and are slightly out of plumb. Neoprene has deteriorated.	Replace neoprene sealer.
MONOLITH JOINTS	Good	
CONSTRUCTION JOINTS	Good	

EMBANKMENT

Point View Dam

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SURFACE CRACKS	None observed	Several groundhog holes on downstream slopes both sides of spillway--Implement groundhog control program.
UNUSUAL MOVEMENT OR CRACKING AT OR BEYOND THE TOE	None observed	Vegetation consisting of small trees, brush, grass and weeds on downstream slope of dam--remove trees and brush; periodically mow grass and weeds.
SLOUGHING OR EROSION OF EMBANKMENT AND ABUTMENT SLOPES	Minor erosion on downstream slope, both sides of spillway; erosion and undermining of sandy fill beneath sidewalk, right side of spillway at crest of downstream	Repair erosion areas and undermined sidewalk during routine maintenance.
VERTICAL AND HORIZONTAL ALIGNMENT OF THE CREST	No problems observed	
RIPRAP FAILURES	Riprap failures on upstream slope of dam adjacent to both spillway wing walls--due to wave action and/or vandalism.	Repair riprap

EMBANKMENT

Point View Dam

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
JUNCTION OF EMBANKMENT AND ABUTMENT, SPILLWAY AND DAM	Settlement of both wing walls on upstream side of spillway has opened vertical construction joints approximately 1/2 inch at top on each side, along upstream side of spillway foot bridge.	This settlement distress is essentially impossible to repair.
ANY NOTICEABLE SEEPAGE	See attached sheets on seepage and piping.	
STAFF GAGE AND RECORDER	None	
DRAINS	See attached sheets on seepage and piping.	

UNGATED SPILLWAY

Point View Dam

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CONCRETE WEIR	There are two concrete weirs. A small amount of seepage has occurred through the base and at the contact with the wing walls as evidenced by calcite deposits on concrete. Small hairline cracks (1/32") are present at the base of the 6 feet high weirs and at approximately midpoint. The weirs are 18 feet long. There are small popouts in the concrete of the right weir.	
APPROACH CHANNEL	None	
DISCHARGE CHANNEL	No problems observed	
BRIDGE AND PIERS	Good condition. There is a two span prestressed concrete I-beam bridge over the vertical spillway and stilling basin. It is in good condition below. The roadway is badly spalled with reinforcing exposed and neoprene sealer is no longer present at the abutments.	Replace sealer. Patch roadway.

OUTLET WORKS

Point View Dam

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CRACKING AND SPALLING OF CONCRETE SURFACES IN OUTLET CONDUIT	Outlet conduit not visible	
INTAKE STRUCTURE	Good condition	
OUTLET STRUCTURE	No problems observed	
OUTLET CHANNEL	No problems observed	
EMERGENCY GATE	No problems observed	

GATED SPILLWAY

Point View Dam

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CONCRETE SILL	There is a concrete sill just below the gates which makes up the crest of the vertical spillway. Small spalls and popouts are present.	Cosmetic repair only.
APPROACH CHANNEL	None	
DISCHARGE CHANNEL	No problems observed	
BRIDGE AND PIERS	See ungated spillway; some comments apply.	
GATES AND OPERATION EQUIPMENT	Two 20' bascule gates are blocked in place at 65° and 67° respectively with large wooden blocks in the gate control chamber. The blocks hold the arms that control gate movement in an inoperable position. Some leakage exists between gates and concrete wall.	Neither the blocked gates nor the leakage appear to be detrimental.

INSTRUMENTATION
(No instrumentation)

Point View Dam

REMARKS OR RECOMMENDATIONS

OBSERVATIONS

VISUAL EXAMINATION

MONUMENTATION/SURVEYS

Not Applicable

OBSERVATION WELLS

Not Applicable

WEIRS

4
3

Not Applicable

PIEZOMETERS

Not Applicable

OTHER

Not Applicable

RESERVOIR

Point View Dam

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SLOPES	Well vegetated natural slopes covered with glacial till, moraine and ice contact soil deposits - slopes stable from hydraulics and soil mechanics viewpoints.	
SEDIMENTATION	No problems observed or likely to occur - small watershed (1.8 sq. mi.) for pumped storage water supply reservoir.	

DOWNSTREAM CHANNEL

Point View Dam

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CONDITION (OBSTRUCTIONS, DEBRIS, ETC.)	Discharge from dam flows directly into upper end of Lionshead Lake. Lionshead Lake Dam is treated in a separate inspection form.	
SLOPES	Slopes of Lionshead Lake are well vegetated glacial soil deposits (till and moraine) - stable from both hydraulics and soil mechanics viewpoints.	
APPROXIMATE NO. OF HOMES AND POPULATION	Estimated 20 homes and 100 persons along both sides of Lionshead Lake, from Point View Dam to Lionshead Lake Dam.	

4 July 1978

James V. Hamel

Seepage and Piping Observations of 9 and 10 June 1978
Supplement to Visual Inspection Check List
Phase I Inspection of Point View Dam

Introduction

During the Phase I field inspection of Point View Dam, Wayne Township, New Jersey, on 9 June 1978, seepage and piping were observed at the downstream toe of the dam behind both spillway outlet wingwalls, as shown on the attached plan sketch. It should be noted that outlets of the dam embankment toe drains and wingwall backfill drains could not be located in the field. These drain outlets are presumably below tailwater level at the ends of the two wingwalls. The seepage and piping situation, plus telephone discussions with the Philadelphia District, Corps of Engineers, on 9 June and a meeting at the dam site on 10 June with representatives of the Corps of Engineers, New Jersey Department of Environmental Protection, and Passaic Valley Water Commission (dam owner) are summarized in the following paragraphs.

Seepage and Piping behind Right (North) Wingwall

On the afternoon of 9 June, a 1 in. diameter sand boil was observed at tailwater level (El. 343 $\pm$) approximately 13 ft. north of the west end of the right wingwall; see attached sketch. This boil in well graded sand had an estimated flow rate of 1 gpm and did not appear to have any piping or erosion of fine soil particles.

An 18 in. diameter corrugated metal pipe with invert about 1 ft. above tailwater level protruded from the slope toe 5 ft. south of the sand boil and 8 ft. north of the wingwall, as shown on the attached sketch.

4 July 1978

-2-

James V. Hamel

This pipe, which was not shown on the "As Built" drawings of the dam, was one-third to one-half plugged with silty sand and gravel and initially had no water flowing from it.

Seepage was coming from the slope toe around and above the sand boil and 18 in. pipe. The appearance and vegetation of this area indicated that the seepage had been occurring for a considerable length of time in a relatively steady manner. A number of small test pits were excavated with a hand shovel in an effort to delineate the seepage area. The area delineated was about 40 ft. long (north-south) by 20 ft. wide (east-west) at the junction of the downstream slope with the right abutment as shown on the attached sketch.

One of the test pits excavated 10 ft east of the end of and 2 ft behind the wingwall encountered a piping hole approximately 8 in. wide by 6 in. high which extended back about 3 ft into the slope; see attached sketch. This hole was located 3 ft above tailwater level in silty sand at the top of the seepage area where concentrated flow estimated at 5 gpm was occurring. Silt and fine sand particles washed from the piping hole for about 10 min. after its downslope end was opened to allow free discharge of water. This seemed to relieve flow from the entire seepage area and flow in several of the other test pits visibly diminished. The piping hole was observed for approximately one hour. During this interval, there were periods during which the seepage water was clear and other periods during which muddy water (containing silt and clay size soil particles) came out. Also presumably as a result of changed flow conditions in the slope, muddy water began flowing from the 18 in. pipe in the slope toe about 30 min. after the piping hole had been excavated. This muddy water is believed to have resulted largely from fines washed out of the

4 July 1978

-3-

James V. Hamel

soil in the pipe invert.

The patterns of seepage and piping indicated that the embankment toe drain and wingwall backfill drain outlets, and perhaps portions of the drains themselves, were plugged. It was recognized that some of the fines which washed from the piping hole had probably accumulated there previously under the mat of topsoil and vegetation covering the downstream slope. Nevertheless, existence of the piping hole and concentrated seepage was considered to have potentially serious implications for the dam.

Seepage and Piping behind Left (South) Wingwall

A seepage area similar to that behind the right wingwall was also observed behind the left wingwall at the junction of the downstream slope with the left abutment. In addition, two boggy areas were observed on the left abutment slope downstream from the dam. The seepage areas and two boggy areas are shown on the attached sketch. The upper portions of all three of these wet areas was about 4 ft above tailwater level. The appearance and vegetation of all three of these areas indicated that seepage had been occurring from them for considerable lengths of time in a relatively steady manner.

Due to time limitations, only one test pit was excavated in an area of concentrated seepage 10 ft east of and 2 ft behind the wingwall; see attached sketch. This test pit disclosed two sand boils, each about 1 in. in diameter, in well graded silty sand 4 ft above tailwater level. Total seepage flow was estimated to be about 7 or 8 gpm. The sand boils were observed for approximately one-half hour. On several occasions during this time interval, a few silt and fine sand particles were observed to wash from the sand boils in very feeble piping action. It was concluded that the well graded sand at this location was essentially self-healing with regard to piping.

The pattern of seepage behind the left wingwall was generally similar to that behind the right wingwall. Piping indications behind the left wingwall were much less pronounced but it must be recognized that the test pit program behind the left wingwall was much less comprehensive than that behind the right wingwall. Seepage behind the left wingwall indicated that the embankment toe drain and wingwall backfill drain outlets, and perhaps portions of the drains themselves, were plugged. The two boggy areas on the left abutment slope suggest seepage through pervious soil zones, e.g., glacial outwash or ice contact soils, on the original valley wall. This seepage may include natural groundwater flow from the valley wall as well as leakage from the reservoir.

Telephone Discussions of 9 June

From approximately 4:30 to 5:30 p.m. on 9 June, the writer discussed his field observations and interpretations in a telephone conference with numerous representatives of the Philadelphia District, Corps of Engineers, including F. Braun, W.H. Zink, D.J. Sheridan, and A. DePhilippe. The consensus was that the situation was not one of imminent hazard requiring emergency action but that, in view of the unknowns and possible complexities of the seepage and piping, immediate attention was required. The writer recommended that the dam owner be notified of the situation immediately and that a meeting be held as soon as practicable at the dam site with representatives of the owner and the Corps of Engineers to inspect the seepage areas and further discuss the situation. Corps personnel agreed to notify the owner's representatives and to contact the writer later regarding a meeting at the dam site.

4 July 1978

-5-

James V. Hamel

In telephone conversations at approximately 9:00 p.m. on 9 June, with W.R. Inhoffer of the Passaic Valley Water Commission and D.J. Sheridan of the Corps of Engineers, the writer was advised that a meeting was to be held at the dam site at 10:30 a.m. on 10 June. The writer agreed to attend this meeting with other members of the Baker dam inspection team.

Meeting of 10 June

A meeting was held at the dam site from approximately 10:10 a.m. to 12:30 p.m. on 10 June. Personnel attending were:

Philadelphia District, Corps of Engineers: D.J. Sheridan
A. DePhilippe
W.H. Zink

New Jersey Department of Environmental Protection: J. O'Dowd

Passaic Valley Water Commission: W.R. Inhoffer
A. Seemann

Baker Dam Inspection Team: T.J. Dougan
E.U. Gingrich
J.V. Hamel

Drawings of the dam were reviewed, seepage areas were inspected, and the situation was discussed. Seepage conditions observed on 10 June were generally similar to those observed on 9 June but discharge from the piping hole behind the right wingwall was clear, suggesting that the piping had stabilized, i.e., healed itself overnight.

It was concluded that the seepage behind the two wingwalls probably resulted primarily from plugging of the toe drain and wall drain outlets and perhaps plugging of the drains themselves. The situation was not considered to present an immediate safety hazard and no emergency actions were considered necessary. However, it was recognized by all present that

4 July 1978

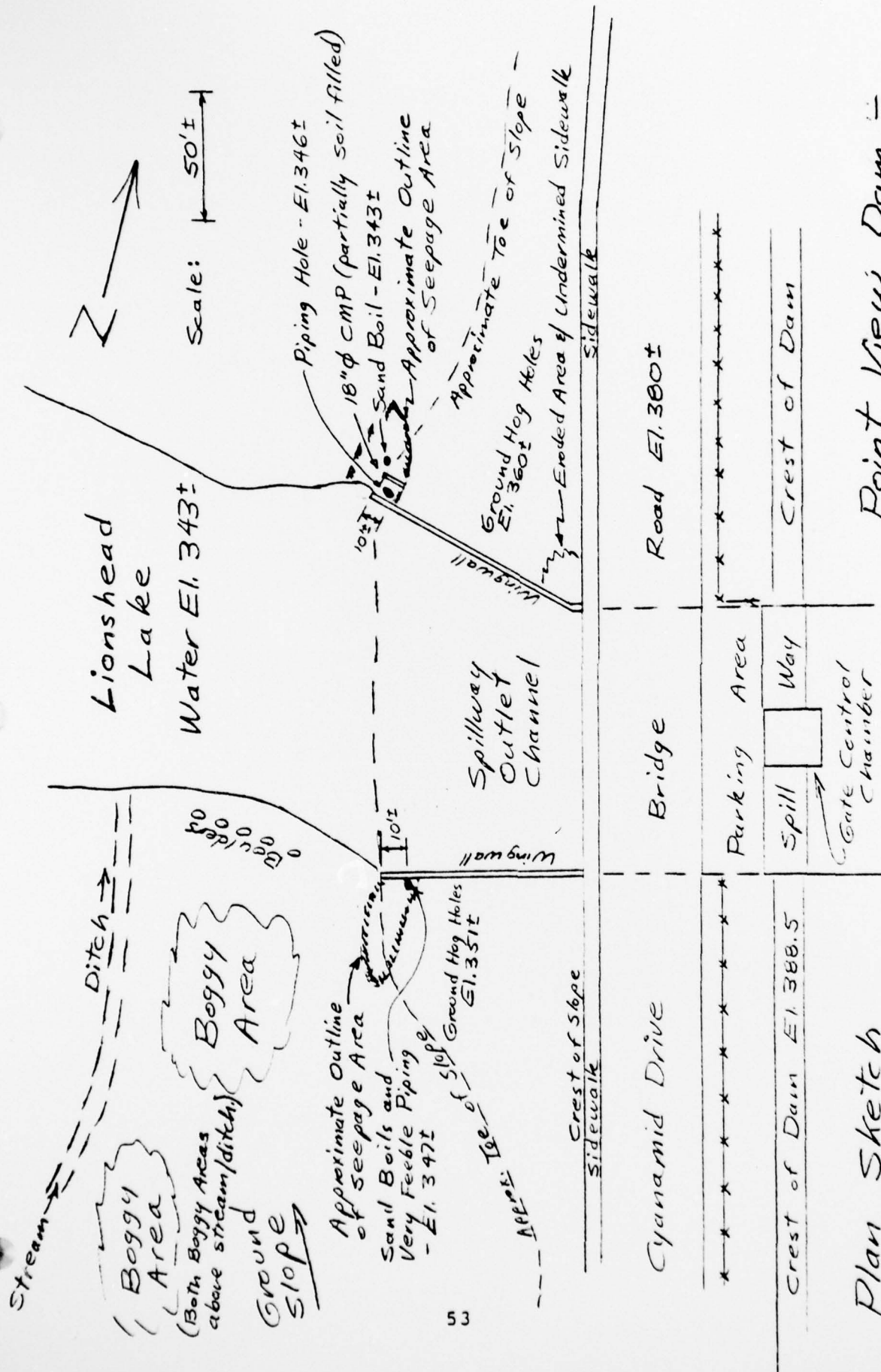
-6-

James V. Hamel

the safety of the dam could be decreased at some future time if the situation were not corrected.

The following recommendations were presented verbally to Mr. Inhoffer by the writer:

1. The Passaic Valley Water Commission should retain a consultant experienced in geotechnical aspects of earth dams to review the seepage situation and recommend appropriate additional investigations which might include:
 - a. Reviewing background information on dam construction and drain installation
 - b. Excavation test pits in the downstream toe of the dam and behind the wingwalls to observe seepage conditions and fill materials.
 - c. Drilling one or more borings in the downstream slope of the dam behind each wingwall to observe soil materials and water levels and to install open standpipe piezometers which could be monitored to clarify seepage conditions.
2. The Passaic Valley Water Commission should attempt to locate, excavate, and clean the toe drain and wingwall backfill drain outlets. Consideration should also be given to providing additional drain outlets above tailwater level, e.g., at the downstream toe of the dam embankment.
3. The Passaic Valley Water Commission should upgrade maintenance of the downstream slope of the dam by:
 - a. Cutting brush and small trees
 - b. Periodically mowing grass and weeds
 - c. Eliminating ground hogs which had burrowed in the downstream slope



Point View Dam -
Seepage & Piping Areas
Observed 9 June 1978

APPENDIX B
CHECK LIST - ENGINEERING DATA

CHECK LIST
ENGINEERING DATA
DESIGN, CONSTRUCTION, OPERATION

Point View Dam

ITEM	REMARKS
PLAN OF DAM	Reference drawings: "Point View Reservoir Project - Record Drawings" - 31 sheets prepared by Clinton Bogert Engineers, New York, NY - undated. (reportedly "As Built" drawings). Plans of Dam - sheet 5, 7, 9 and 12.
REGIONAL VICINITY MAP	See Location Plan included in this report.
CONSTRUCTION HISTORY	"Point View Reservoir Project - Contract 3 - Reservoir and Dam - Contract and Specifications," prepared by Clinton Bogert Engineers, January, 1962. Dam constructed from September, 1962 to September, 1964 by Brookfield Baylor Construction Company, New York, NY.
TYPICAL SECTIONS OF DAM	Reference drawings - sheets 7, 8, 10, 13 and 16
HYDROLOGIC/HYDRAULIC DATA	Calculation sheets and dam permit application review data in microfiche files of April, 1961 Preliminary Engineering report referenced on next page.
OUTLETS - PLAN	Reference drawings - sheets 1, 5, 9, 17, 18
- DETAILS	Reference drawings - sheets 5, 10, 11, 17, 18, and 21
- CONSTRAINTS	None
- DISCHARGE RATINGS	None available
RAINFALL/RESERVOIR RECORDS	None available

Point View Dam

ITEM	REMARKS
DESIGN REPORTS	"Preliminary Engineering Report, Point View Reservoir Project", Clinton Bogert Engineers, New York, NY, 1 April 1961, 22 pp and Appendices A, B and C.
GEOLOGY REPORTS	Excerpts from 1934 and 1956 geology reports included in Appendices A and B of April, 1961, "Preliminary Engineering Report".
DESIGN COMPUTATIONS HYDROLOGY & HYDRAULICS DAM STABILITY SEEPAGE STUDIES	Concrete gravity section apparently designed to have adequate stability according to criteria in U.S. Bureau of Reclamation (1960) <u>Design of Small Dams</u> , 1st ed. No calculations of embankment dam stability or seepage; embankment sections apparently designed on empirical basis using U.S. Bureau of Reclamation (1960) <u>Design of Small Dams</u> , 1st Ed., as a guide. Some design computations by Clinton Bogert Engineers are available in microfiche files of New Jersey Dept. of Environmental Protection. Also in these files are computations made by J.C. Riley and R. A. Webster of New Jersey Department of Conservation in April and May 1962 during their (Continued on bottom of following page)
MATERIALS INVESTIGATIONS BORING RECORDS LABORATORY FIELD	Very limited boring and soil test information included in Appendix C of April 1961 "Preliminary Engineering Report". Some boring records available in microfiche files of NJ Dept. of Environmental Protection. Additional boring records and soil test data may be available from Clinton Bogert Engineers. Results of materials (soil, concrete) testing during construction may also be available from Clinton Bogert Engineers (or their successors).
POST-CONSTRUCTION SURVEYS OF DAM	None available.
BORROW SOURCES	Glacial soils within reservoir area--locations shown on sheets 2 and 3 of reference drawings.

Point View Dam

ITEM	REMARKS
------	---------

SPILLWAY PLAN

SECTIONS	Reference Drawings - Sheets 5, 9 and 12
DETAILS	Reference Drawings - Sheets 5, 6, 10, 13, 14, 15, 16, 18, and 29

OPERATING EQUIPMENT Reference Drawings - Sheets 1, 5, 21, 25, 29 and 30
PLANS & DETAILS

DESIGN COMPUTATIONS - continued from previous page:

57

review of the dam permit application. A handwritten summary sheet by R. A. Webster, dated 16 May 1962, states:

1. "Gravity spillway section is structurally stable."
2. "Earthfill sections comply with rules and regulations. Stability check not possible because of lack of information regarding analyses of soils to be used. However, plans and specifications show that sound engineering practices were followed in design."
3. "Hydrology and hydraulics (checked by J. C. Riley) --dam designed for 2067 CFS which is in excess of the probable maximum precipitation storm."

Point View Dam

ITEM	REMARKS
------	---------

MONITORING SYSTEMS	None
--------------------	------

MODIFICATIONS	No significant modifications to dam since its construction.
---------------	---

HIGH POOL RECORDS	Reservoir kept essentially full (El. 386) at all times for standby water supply.
-------------------	--

58

POST-CONSTRUCTION ENGINEERING STUDIES AND REPORTS	None available
---	----------------

PRIOR ACCIDENTS OR FAILURE OF DAM DESCRIPTION REPORTS	None
---	------

MAINTENANCE OPERATION RECORDS	May be available from Passaic Valley Water Commission
-------------------------------	---

CHECK LIST
HYDROLOGIC AND HYDRAULIC DATA
ENGINEERING DATA

DRAINAGE AREA CHARACTERISTICS: 1.82 sq.mi.; predominantly well-vegetated glacial soils

ELEVATION TOP NORMAL POOL (STORAGE CAPACITY): El. 386 (8590 acre-feet)

ELEVATION TOP FLOOD CONTROL POOL (STORAGE CAPACITY): Not Applicable

ELEVATION MAXIMUM DESIGN POOL: Not Applicable

ELEVATION TOP DAM (STORAGE CAPACITY): El. 390 (10,450 acre-feet)

CREST: _____

- a. Elevation 386
- b. Type Earthfill dam with concrete gravity spillway
- c. Width 20 feet
- d. Length 1100 feet
- e. Location Spillover Center of earth section
- f. Number and Type of Gates Two hydraulically operated bascule gates; inoperable with wood blocks past 12 years.

OUTLET WORKS: _____

- a. Type one 42 inch pipe and one 6 inch pipe
- b. Location base of concrete spillway section
- c. Entrance inverts El. 333.5
- d. Exit inverts 42 inch pipe discharges in Pompton River, El. 170; [six inch pipe discharges into stilling pool, El. 338.5]
- e. Emergency drawdown facilities above-mentioned 42 inch and six inch pipes

HYDROMETEROLOGICAL GAGES: None

- a. Type _____
- b. Location _____
- c. Records _____

MAXIMUM NON-DAMAGING DISCHARGE Not Available

Note: An automatic pool elevation gage and recorder were installed during dam construction but are currently inoperable. Pool elevation is measured manually on a daily basis from the intake tower.

Dam Name: Point View