



KLEINSCHMIDT ASSOCIATES,
Consulting Engineers, Scientists & Planners

75 Main Street PO Box 576 • Pittsfield, Maine 04967 • Phone: 207-487-3328 • Fax: 207-487-3124 • www.KAassociates.com

June 7, 2000

Federal Energy Regulatory Commission
Anton Sidoti
New York Regional Office
19 W 34th Street, Suite 400
New York, NY 10001

POOR QUALITY ORIGINAL

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FEDERAL ENERGY
REGULATORY COMMISSION

Putts Bridge Project (FERC NO. 10677) - *Moss*

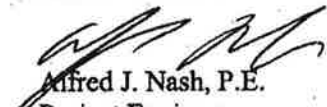
Dear Mr. Sidoti

On behalf of our client, Consolidated Edison Development (CED), owner and operator of the Putts Bridge Project (FERC No. 10677) located on the Chicopee River in Ludlow Massachusetts, we are providing you with three copies of the Putts Bridge Bypass Water Quality Study Plan (Study Plan) for your use. The Study Plan is being provided to the FERC in accordance with the Development Plan for the Putt's Bridge Project, which was approved by the FERC on December 29, 1999. The Study Plan was prepared in response to concerns raised by the United States Fish and Wildlife Service (USFWS) in a letter dated November 6, 1998. The Study Plan is required to confirm the adequacy of the existing minimum release of 25 cfs into the bypass reach of the project for water quality.

A draft of the Study Plan was provided to the USFWS and Massachusetts Division of Fisheries and Wildlife (MDFW) for review and comment by letter dated January 10, 2000. Comments on the draft plan were received from the USFWS and MDFW by letters dated February 10, 2000 and February 15, 2000, respectively. All comments and recommendations received on the draft plan have been incorporated into this final plan.

CED intends to implement the study beginning in July of 2000. A copy of the study results will be provided to the FERC and resource agencies after consultation with the resource agencies. If you have any questions or comments regarding this Study Plan please do not hesitate to contact me at (207) 487-3328 (email: Al.Nash@Kassociates.com) or John Labiak of CED at (212) 267-5280 (email: LabiakJ@conedenergy.com).

Sincerely,
KLEINSCHMIDT ASSOCIATES


Alfred J. Nash, P.E.
Project Engineer

FERC - NYRO RECEIVED

JUN = 8 2000

NEW YORK, NY

FERC DOCKETED

JUN 8 2000

AJN:mas
Enclosure

cc: Caleb Slater, MDFW
John Warner, USFWS
John Labiak, CED
Kim Marsili, CEEMI
Fred Szufnarowski, KA

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West Columbia, SC 803-822-3177 Strasburg, PA 717-687-7211 Springfield, VA 703-451-8370 Deep River, CT 860-526-2358 East Syracuse, NY 315-463-5013 Sacramento, CA 916-447-7802 Seattle, WA 206-285-6449

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CONSOLIDATED EDISON ENERGY MASSACHUSETTS, INC.

West Springfield, Massachusetts

PUTTS BRIDGE PROJECT
(FERC No. 10677)

BYPASS WATER QUALITY STUDY PLAN

JUNE 2000

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JUN - 8 2000

NEW YORK, NY

Prepared by:

KLEINSCHMIDT ASSOCIATES
Consulting Engineers, Scientists & Planners

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REGULATORY COMMISSION

CONSOLIDATED EDISON ENERGY
MASSACHUSETTS, INC.
West Springfield, Massachusetts

PUTTS BRIDGE PROJECT
(FERC No. 10677)

BYPASS WATER QUALITY STUDY PLAN

JUNE 2000

Prepared by:

KLEINSCHMIDT ASSOCIATES
Consulting Engineers, Scientists & Planners

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**CONSOLIDATED EDISON ENERGY MASSACHUSETTS, INC
WEST SPRINGFIELD, MASSACHUSETTS**

**PUTTS BRIDGE HYDROELECTRIC PROJECT
FERC NO. 10677**

BYPASS WATER QUALITY STUDY PLAN

1.0 INTRODUCTION

The Putts Bridge Hydroelectric Project (FERC No. 10677) (Project) is a 3.2 MW hydroelectric facility located in Springfield, Massachusetts. The Project is owned and operated by Consolidated Edison Energy Massachusetts, Inc. (Licensee), a wholly owned subsidiary of Consolidated Edison Energy, Inc. The Project consists of a small impoundment, dam, buried water conduit, bypassed reach, and tailrace. In 1982, the Federal Energy Regulatory Commission (FERC) issued an order exempting the Project from licensing. To comply with FERC license exemption requirements for the Project, the Licensee has consulted with the appropriate resource agencies and prepared a Development Plan, which was approved by FERC on December 29, 1999.

The 1982 exemption conditions required a continuous minimum flow release of 247 cfs or inflow, whichever is less, to the bypassed reach of the Project. After investigation, the resource agencies agreed that a minimum flow of 25 cfs in the bypassed reach would provide suitable habitat for the resident fish community. In a letter dated November 6, 1998 (Appendix A), the U. S. Fish and Wildlife Service (USFWS) expressed concerns about the potential effects of the 25 cfs minimum bypass flow on dissolved oxygen (DO) and temperature. Specifically, the USFWS expressed interest in the ability of the proposed minimum flow to sufficiently aerate and maintain water quality in the large pool located at the downstream end of the bypassed reach, near the confluence of the tailrace. The USFWS recommended a study be undertaken during the summer (low flow periods) to document if the 25 cfs minimum flow released to the bypassed reach is sufficiently maintaining water quality in the pool. This monitoring plan is in response to the USFWS' recommendation.

A draft of this plan was provided to the USFWS and Massachusetts Division of Fisheries and Wildlife (MDFW) for review and comment by letter dated January 10, 2000 (Appendix A). Comments on the draft plan were received from the USFWS and MDFW by letters dated February 10, 2000 and February 15, 2000, respectively (Appendix A). All comments and recommendations received on the draft plan have been incorporated into this final plan for water quality monitoring at the Putts Bridge Project.

2.0 DATA COLLECTION

Water quality monitoring will consist of in-situ measurements of DO and temperature collected from the bypassed reach. Sampling will be performed in the deepest portion of pool, at the spillway, and just below the confluence of the tailrace and bypassed reach. (Figure 1). These sites will be sampled twice each week during the months of July and August, 2000 (total of 8 weeks). Sampling events should not occur during consecutive days during the week. Each sampling event will include diurnal collections (morning and evening). Morning samples will be collected within approximately 2 hours after official sunrise and evening sampling will be conducted within approximately 2 hours before official sunset. If depths within the pools at the sampling locations are less than 2 meters deep, DO and temperature measurements will be taken at mid-depth. Otherwise, measurements will be made at vertical 1-meter increments.

Sampling will be performed during periods of low flow (25 cfs) in the bypassed reach. To the extent possible, sampling will not occur immediately after precipitation events or during dam spillage. The Licensee reserves the right to evaluate flows higher than the existing 25 cfs minimum bypassed reach flow if, during the course of sampling, measurements indicate that water quality is not being adequately protected. The data collected during this period (July and August) should document a representative "worst-case-scenario" of elevated temperatures and potentially reduced DO in the bypassed reach, if these conditions occur.

Ambient water temperature (°C) and dissolved oxygen concentrations (mg/l) will be recorded on standardized data sheets for each sampling station/event. Time and field conditions (river flow (cfs), bypass flow (cfs), weather, and air temperature) will also be recorded during sampling. Information of river flow will be obtained from the USGS Indian Orchard Gage

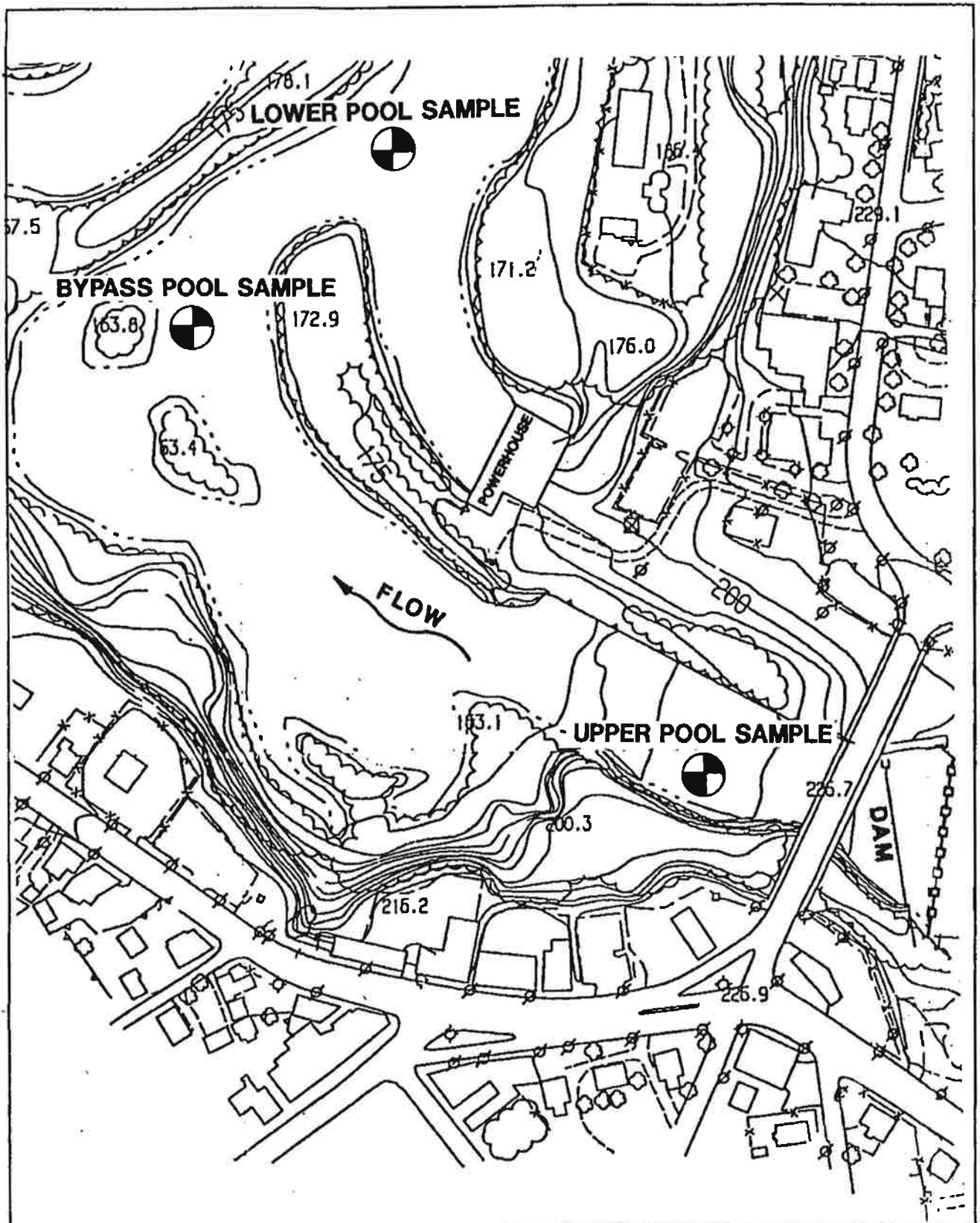
(Gage No. 01177000). Information of bypass flow will be obtained from the records of the bypass gate setting. A sample data sheet appears in Appendix B.

3.0 INSTRUMENT CALIBRATION AND RECORD KEEPING

All measurements (DO in mg/L and temperature in °C) will be made using a calibrated, DO field meter. Immediately prior to and after each sampling event, the instrument will be calibrated according to EPA approved manufacturers recommendations. All calibration records will be documented in a field notebook and made available for inspection upon request. Additional information that will be included in the field notebook will include river flow data at the time of sampling, project generation data, and prevailing weather conditions including air temperature. A sample calibration sheet appears in Appendix B.

4.0 REPORTING

Upon completion of the study, a report will be prepared and distributed to state and federal resource agencies for review and comment. The report will summarize the results obtained in the study and will contain appropriate tables and figures.



CONSOLIDATED EDISON ENERGY MASSACHUSETTS, INC.
 WEST SPRINGFIELD, MASSACHUSETTS

**PUTTS BRIDGE PROJECT
 WATER QUALITY SAMPLING LOCATIONS**

FIGURE 1

KLEINSCHMIDT ASSOCIATES

APPENDIX A

Commonwealth of Massachusetts



Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

February 15, 2000

RE: Putts Bridge Project (FERC # 10677)
Draft Water Quality Monitoring Plan

Alfred J. Nash, P.E.
Kleinschmidt Associates
75 Main Street
PO Box 576
Pittsfield, ME 04967

Dear Mr. Nash,

The Massachusetts Division of Fisheries and Wildlife (Division) is the state agency responsible for the protection and management of the fish and wildlife resources of the Commonwealth. As such, we have prepared the following comments in response to the draft Water Quality Monitoring Plan for the Putts Bridge Project (FERC # 10677) located on the Chicopee River.

Your proposal to sample the water temperature and dissolved oxygen twice daily during July and August at two locations in the bypass reach and at one location at the confluence of the tailrace is acceptable. We would recommend that the sampling occur at least twice a week in the period July through August, and that the sampling occur during normal summer low flow conditions. Please avoid sampling when the project is spilling into the bypass reach, and provide a summary of bypass reach flow data that corresponds to the water quality sample times.

Sincerely,

A handwritten signature in black ink, appearing to read "Caleb Slater".

Caleb Slater, PhD
Anadromous Fish Project Leader

Division of Fisheries & Wildlife

Field Headquarters, One Rabbit Hill Road, Westboro, MA 01581 (508) 366-4470

An Agency of the Department of Fisheries, Wildlife & Environmental Law Enforcement



United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
22 Bridge Street, Unit #1
Concord, New Hampshire 03301-4986



REF: FERC No. 10677

February 10, 2000

Alfred J. Nash, P.E.
Kleinschmidt Associates
75 Main Street, P.O. Box 576
Pittsfield, ME 04967

Dear Mr. Nash:

This responds to your January 10, 2000 cover letter and accompanying draft Water Quality Monitoring Plan for the Putts Bridge Project, located on the Chicopee River in Massachusetts. We have reviewed the plan and offer the following comments.

You propose to monitor water quality in the Putts Bridge bypass reach to determine the adequacy of the interim 25 cfs discharge in maintaining water quality in the stretch of river between the dam and the tailrace. Each week from July through August you will collect dissolved oxygen and water temperature data twice daily (early morning and late afternoon). Samples will be collected from three locations; two in the bypass reach and one just below the confluence of the tailrace. At the end of monitoring the results will be compiled into a report for agency review and comment.

We have no objection to the proposed study protocol. However, the plan does not specify how many times each week samples will be collected. We recommend that monitoring take place a minimum of twice per week. Also, sampling should take place during the warmest, driest conditions possible (e.g., avoid sampling during or after precipitation events). If higher flows are evaluated, you will need to provide a calculation sheet that verifies how much flow was passed during that monitoring event.

Thank you for this opportunity to comment. If you have any questions, please contact Melissa Grader of this office at (603) 225-1411.

Sincerely,

William J. Neidermyer
Acting Supervisor
New England Field Office

cc: Caleb Slater, MA DFW
John Labiak, CEEMI
111 Broadway, 16th Floor
New York, NY 10006
Kim Marsili, CEEMI
Reading File
es: MGrader:2-7-00:(603)225-1411



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January 10, 2000

Caleb Slater
Mass. Division of Fisheries & Wildlife
Field Headquarters
1 Rabbit Hill Rd.
Westborough, MA 01581

Dear Caleb:

Enclosed for your review and comment is the Putts Bridge Water Quality Monitoring Plan, as discussed at Consolidated Edison Energy Massachusetts, Inc's (CEEMI) June 22, 1999 meeting in West Springfield, MA.

Although we don't intend to start the water quality monitoring until the summer of 2000, we would like to get your comments on this plan by March 1, 2000 so that we can distribute the final plan and be in the field in July 2000.

Thank you in advance for your timely review and comment. Please feel free to call me with your comments, in lieu of written comments, if you prefer. If you have any questions or need additional information, please do not hesitate to contact me at 207-487-3328 (Email ALN@KAssociates.com)

Sincerely,

KLEINSCHMIDT ASSOCIATES

Alfred J. Nash, P.E.
Project Engineer

AJN:mas

Encl.

cc: John Labiak (CEEMI)
Kim Marsili (CEEMI)
Kelly Fargo (KA)

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January 10, 2000

Mr. John Warner
U.S. Fish and Wildlife Service
22 Bridge Street
Unit #1
Concord, NH 03301

Dear John:


Enclosed for your review and comment is the Putts Bridge Water Quality Monitoring Plan, as discussed at Consolidated Edison Energy Massachusetts, Inc's (CEEMI) June 22, 1999 meeting in West Springfield, MA.

Although we don't intend to start the water quality monitoring until the summer of 2000, we would like to get your comments on this plan by March 1, 2000 so that we can distribute the final plan and be in the field in July 2000.

Thank you in advance for your timely review and comment. Please feel free to call me with your comments, in lieu of written comments, if you prefer. If you have any questions or need additional information, please do not hesitate to contact me at 207-487-3328 (Email ALN@KAssociates.com)

Sincerely,

KLEINSCHMIDT ASSOCIATES



Alfred J. Nash, P.E.
Project Engineer

AJN:mas

Encl.

cc: John Labiak (CEEMI)
Kim Marsili (CEEMI)
Kelly Fargo (KA)

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
22 Bridge Street, Unit #1
Concord, New Hampshire 03301-4986

REF: FERC Numbers: 11675 - Dwight
11676 - Red Bridge
11677 - Putts Bridge
11678 - Indian Orchard

November 6, 1998

Howard E. Person
Western Massachusetts Electric Co.
P.O. Box 2010
West Springfield, MA 01090-2010

Dear Mr. Person:

This is in response to your letter dated August 24, 1998 regarding the Chicopee River projects. In your letter, you cite the need to provide the FERC with a plan for increasing the installed capacity of the projects as required under the terms of the September 11, 1992 Order Granting Exemption From Licensing for each project. After a review of various alternatives to increase generating capacity, you propose to retrofit existing equipment rather than install minimum flow turbines as was originally proposed.

Article 2 of the project exemptions require compliance with the terms and conditions established by the state and federal fisheries agencies. For each project, the Service and Massachusetts Division of Fisheries and Wildlife required the release of minimum flows to the project bypass reaches. These flows equate to the median August flow; the summer low flow at each site.

The projects are currently operating under interim flow release plans as the originally-proposed minimum flow turbines have not been installed. At the Indian Orchard Project, the required flows (247 cfs) are being released through modified canal gates. At the Dwight and Red Bridge projects, a range of flows that bracket the required flows are being provided on an interim basis. At the Putts Bridge Project, a lower flow of 25 cfs has been released on an interim basis instead of the originally required 247 cfs, after re-assessment of habitat quality and quantity in the reach.

In your letter, you propose to make the present minimum flow release protocols permanent. We have reviewed these protocols and have the following comments and recommendations:

Dwight

Our original terms and conditions for the Dwight Project required the continuous release of 258 cfs, or inflow to the project, whichever is less, to the 3,000 foot-long bypass reach. The current interim release protocol provides bypass flows that range between 140 cfs and 305 cfs, released from the canal drain gates and slots in the flashboards across the dam.

The current operation protocol was accepted as an interim measure, with the understanding that future construction of a minimum flow turbine would provide for a stabilized 258 cfs discharge. While we endorse the continuation of releasing bypass flows across the entire spillway crest, the nature of the current releases are not acceptable as a permanent measure. Project operations or release structures must be modified to provide a continuous discharge of 258 cfs rather than a range in flows well above and well below 258 cfs.

Red Bridge

The original terms and conditions for the Red Bridge project call for the continuous release to the 1,600 foot-long bypass reach of 237 cfs or inflow to the project, whichever is less. The interim release protocol provided flows over the spillway crest ranging from 140 cfs to 300 cfs.

As with the Dwight Project, the current flow release plan was accepted on an interim basis but is not acceptable as a permanent operational protocol. Bypass flows are currently discharged over the spillway crest and fluctuate between 140 cfs and 300 cfs. Due to the extensive spillway length, impoundment fluctuations of only two inches result in this wide range of bypass flows. Construction of a gate or notch in the spillway crest appear to be the most appropriate alternatives to provide more stable flows. Such a structure will allow for a deeper and narrower flow discharge so that minor pond level fluctuations have little effect on flow releases. WMECO should develop plans for such a structure or alternatives that will address this issue.

Potts Bridge

At Potts Bridge, the original exemption conditions required the continuous release of 247 cfs or inflow to the project, whichever was less. However, subsequent to the issuance of the Exemption from Licensing, WMECO conducted an assessment of bypass reach habitat and a flow release demonstration was undertaken. We have reviewed our notes on the flow demonstration. Based on this review, we can accept the 25 cfs minimum bypass release from a habitat standpoint.

However, at the September 9, 1993 meeting, we raised the issue of assuring that a minimum flow of 25 cfs would provide sufficient aeration and circulation to the large pool that lies at the downstream end the bypass reach, just upstream from the turbine discharge. We are unaware of any data that verifies that the water quality in the pool is protected under a 25 cfs discharge. Therefore, we recommend that a monitoring study be undertaken next summer to assess water quality in the pool in comparison to upstream and downstream water quality. A plan for such a study should be developed and distributed for agency comment. The study should target dissolved oxygen and temperature during the low flow summer period. Diurnal sampling and sampling at various depths and locations in the pool should be part of the plan.

-3-

In addition, at meetings on September 9, 1993 and October 12, 1994, we had raised questions about the ability of WMECO to provide the required flows of 247 cfs at Indian Orchard given the low continuous bypass flows and store-and-release operations at Putts Bridge. According to the meeting notes for the October 12, 1994 meeting (copy attached), WMECO was to provide data to support the contention that the minimum flows from Indian Orchard would not be compromised by the proposed operations of Putts Bridge.

Our records do not indicate that we ever received this supportive data. Please provide data that demonstrates that the required bypass flow of 247 cfs (or inflow if inflow is less than 247 cfs) has been provided at Indian Orchard under current Putts Bridge operational protocols.

Indian Orchard

The current minimum bypass flow release protocol provides the 247 cfs flow release required by our original terms and conditions. As such, the current release protocol is an acceptable long term operation measure.

Conclusions

As discussed above, alternative flow release mechanism will be needed to stabilize releases to the Dwight and Red Bridge bypass channels. Additional operational and water quality data are needed before we can formally accept the proposed 25 cfs release to the Putts Bridge bypass. The current and proposed Indian Orchard release plan are acceptable.

Thank you for this information.

APPENDIX B
DATA AND CALIBRATION SHEETS

