

FEDERAL ENERGY REGULATORY COMMISSION
Washington, D. C. 20426

OFFICE OF ENERGY PROJECTS

JUN 30 2009

Project No. 3142-007
Barton Dam Project
City of Ann Arbor

Mr. Alfred A. Gatta
City Administrator
City of Ann Arbor
100 North Fifth Avenue
Ann Arbor, Michigan 48104

Subject: Run-of-River Deviations

Dear Mr. Gatta:

We received your letter dated March 11, 2008, providing hourly generation and pond elevation data for the period of December 1, 2007 through February 12, 2008. You also include copies of charts with field notes, operator logbook entries, and a conversion chart showing relationships between gate opening and flow, and hydro-generation and flow. This information was filed in response to our letter dated February 13, 2008; regarding allegations of flow fluctuations on the Huron River below the project.

The exemption order issued for the project on May 4, 1982, requires the project to be operated in an instantaneous run-of-river mode. Article 2 of the exemption order requires that the construction, operation, and maintenance of the project comply with any terms and conditions that federal and state fish and wildlife agencies have determined are appropriate to prevent the loss of, or damage to, fish and wildlife resources. Pursuant to article 2, the exemption order requires you to implement a Michigan Department of Natural Resources' (MDNR) requirement to provide a minimum flow of 100 cubic feet per second (cfs) or inflow to the impoundment, whichever is less. By letter dated December 24, 1981, the U.S. Fish and Wildlife Service (FWS) requires you to provide stream gaging stations immediately upstream and downstream of the project to verify instantaneous run-of-river operation. All available records indicate that there is no approved gaging plan for this project, and no indication from the FWS that they have accepted an alternative for gaging.

Discussion

In your filing, you state that there are no upstream and downstream gaging stations for the project, noting that you maintain the pond level within +/- 0.05 foot of the 797.00 feet msl pond elevation in order to meet the run-of-the-river requirement. Your filing includes hourly generation and pond elevation records for the requested period and explanations for specific deviations from the pond level parameters. Specifically, you note that the required minimum flow was maintained at the project, except for short durations on December 23, 2007 and February 5, 2008. You also identify deviations of the pond level parameters and associated reasons, on December 12, 17, 19, and 23, 2007; January 6 and 18, 2008; and February 5 and 12, 2008. The majority of these deviations occurred due to maintenance activities and no identifiable reason was provided for January 6.

The purpose of run-of-river operation is not only to maintain a constant reservoir elevation, but more importantly, it is to minimize fluctuations downstream for the protection of fish and wildlife resources. While the reservoir elevation may remain constant, the flows downstream should also remain relatively constant, with minimal fluctuations over short periods of time. Flow downstream of the powerhouse should mimic natural river flow as closely as possible. As flows into the impoundment increase or decrease, so should the downstream flows. In other words, run-of-river operation means that instantaneous inflow to project equals instantaneous outflow.

Your current practice of maintaining headpond levels does not always equal run-or-river operation. Gaging stations upstream and downstream of the project ensure the accurate measurement of inflow and outflow to verify that they are equal. Without such gaging, maintaining a relatively even headpond level would not ensure compliance with run-of-river. For example, if generation is stopped when the headpond level is at the spillway crest, the turbine shuts down and there is a delay in flow going downstream. When the headpond is full enough to signal the computer to begin generation, the turbine turns on and a pulse of flow occurs downstream. This causes fluctuations inconsistent with run-of-river operation.

Since gaging stations were not installed at the project, as required by the FWS's article 2 terms and conditions letter, we used the available hourly generation records and the turbine flow rating table provided to determine equivalent flow estimates per hourly generation values. In reviewing this information, we identified specific dates and times when project discharges fluctuated significantly over short periods of time. Specifically, we identified run-of-river deviations on December 8, 18, 20, and 21, 2007; January 2, 4, 6, 10, 16,

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30, and 31, 2008; and February 3, 4, 6, 8, and 14, 2008. Appendix A of this letter includes tables and graphs providing more details about these run-of-river deviations.

Based on the data you provided, it is clear that outflow coincides with generation, and frequently this outflow does not represent the natural flow rate entering the impoundment. On a related note, we received a second report of erratic flows occurring below Barton Dam on March 16, 2009. While downstream flows will change over time depending on weather and upstream input, they would not change as rapidly as occurred downstream of Barton Dam. This type of operation does not reflect run-of-river operation and is unacceptable.

Conclusion

Based upon our review of the available information, it is apparent that you are not always operating your project in a run-of-river mode. The records show that the reservoir elevation may have been maintained at a relatively steady level, but downstream flows fluctuate frequently in conjunction with project operations. Adequate gaging is needed for verification of instantaneous run-of-river operation, as required by article 2 terms and conditions. Non-compliance with this term and condition could be considered a violation of the project exemption.

In order to resolve the problem, we request that you file a run-of-river plan within 120 days of the date of this letter. The plan should be developed in consultation with the MDNR and FWS. The plan should include provisions for the installation of gaging stations upstream and downstream of the project, pursuant to the FWS's terms and conditions, or concurrence from the FWS on an acceptable alternative. The plan should also include a schedule for installing the gaging stations or alternative measures, and provisions for providing hourly flow records in cubic feet per second (cfs) to the Commission and agencies to verify compliance. In addition, your filing should include documentation of consultation with the MDNR and FWS on your proposed plan, including responses to any specific agency recommendations that are not incorporated into the plan. You should allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan with the Commission.

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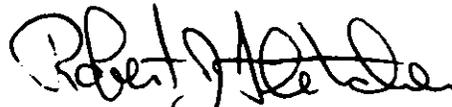
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An original and eight copies of the requested information should be filed with:

The Secretary
Federal Energy Regulatory Commission
Mail Code: DHAC, PJ-12.1
888 First Street, N.E.
Washington, D.C. 20526

Thank you for your cooperation in this matter. If you should have any questions concerning the material to be filed, please contact Mrs. Patricia A. Grant at 312-596-4435.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert J. Fletcher". The signature is stylized and cursive.

Robert J. Fletcher
Chief, Land Resources Branch
Division of Hydropower
Administration and Compliance

Appendix A**December, 2007 – Flow Changes in Cubic Feet per Second**

FROM			TO		
Date	Time	Flows	Date	Time	Flows
12-8-07	2100 hrs	487.926	12-8-07	2200 hrs	341.111
12-18-07	0700 hrs	530.079	12-18-07	0900 hrs	303.562
12-18-07	0900 hrs	303.562	12-18-07	1600 hrs	544.791
12-20-07	0200 hrs	530.372	12-20-07	0300 hrs	391.807
12-21-07	1300 hrs	471.746	12-21-07	1400 hrs	170.992
12-21-07	1400 hrs	170.992	12-21-07	1900 hrs	533.347

January, 2008 – Flow Changes in Cubic Feet per Second

FROM			TO		
Date	Time	Flows	Date	Time	Flows
1-2-08	0000 hrs	527.676	1-2-08	0100 hrs	424.419
1-2-08	2000 hrs	532.834	1-3-08	0700 hrs	360.612
1-4-08	0700 hrs	522.286	1-4-08	0900 hrs	378.996
1-6-08	1500 hrs	539.618	1-6-08	1900 hrs	-0-
1-6-08	1900 hrs	-0-	1-7-08	0100 hrs	541.718
1-10-08	1300 hrs	495.434	1-10-08	1400 hrs	247.427
1-10-08	1400 hrs	247.427	1-10-08	2100 hrs	490.178
1-16-008	1900 hrs	501.430	1-16-08	2000 hrs	383.933
1-30-08	0700 hrs	-0-	1-30-08	1000 hrs	-0-
1-30-08	1000 hrs	-0-	1-30-08	1700 hrs	573.165
1-30-08	1700 hrs	573.165	1-30-08	2200 hrs	298.489
1-31-08	1300 hrs	351.804	1-31-08	1400 hrs	127.346
1-31-08	1400 hrs	127.346	1-31-08	1600 hrs	521.993
1-31-08	1800 hrs	538.805	1-31-08	1900 hrs	554.917
1-31-08	1900 hrs	554.917	1-31-08	2000 hrs	532.040
1-31-08	2000 hrs	532.040	1-31-08	2300 hrs	554.917

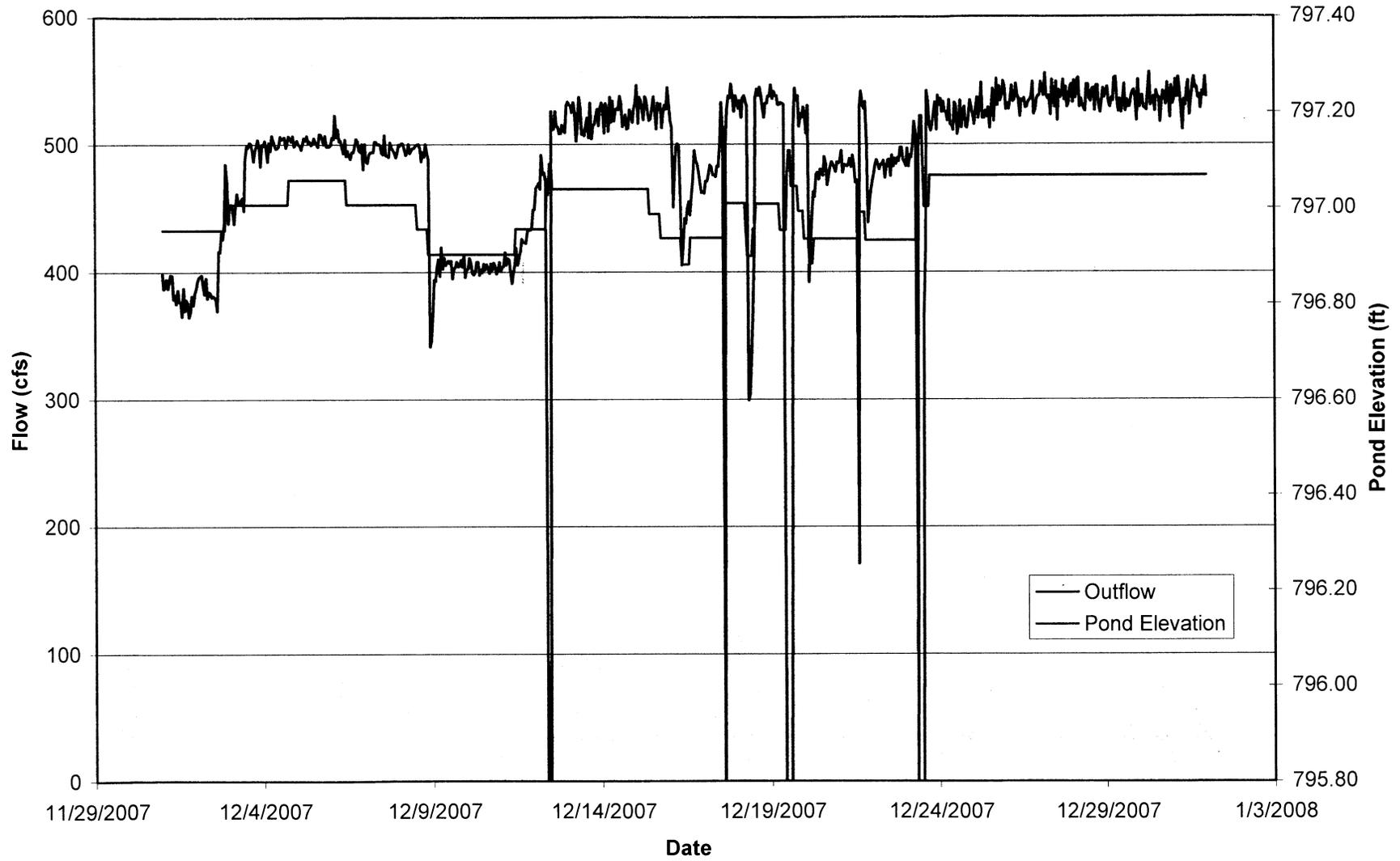
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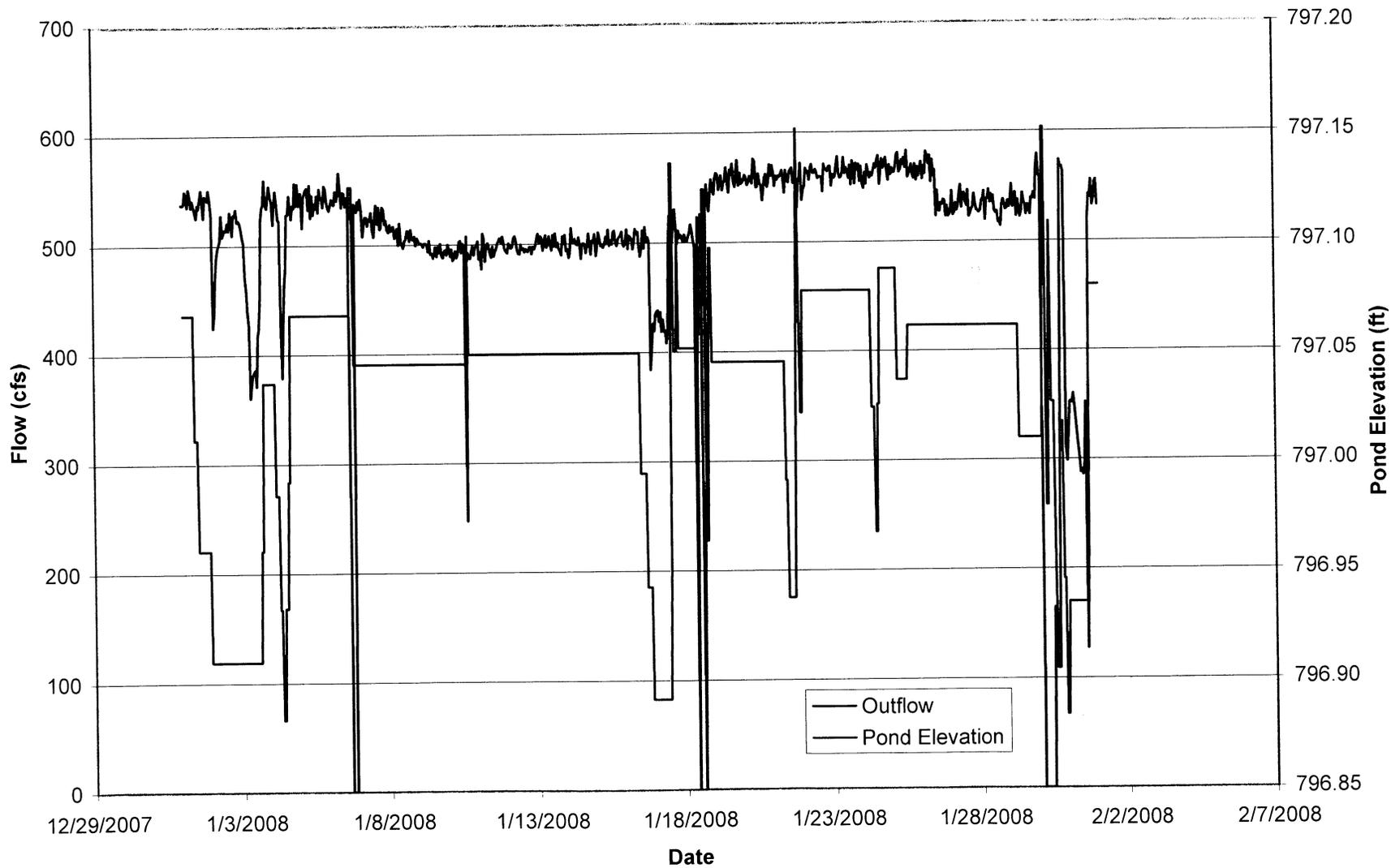
February, 2008 – Flow Changes in Cubic Feet per Second

FROM			TO		
Date	Time	Flows	Date	Time	Flows
2-3-08	0900 hrs	562.765	2-3-08	1200 hrs	-0-
2-3-08	1200 hrs	-0-	2-3-08	1300 hrs	564.192
2-4-08	0800 hrs	566.716	2-4-08	0900 hrs	-0-
2-4-08	0900 hrs	-0-	2-4-08	1000 hrs	576.266
2-6-08	1000 hrs	537.551	2-6-08	1100 hrs	317.625
2-6-08	1100 hrs	317.625	2-6-08	1200 hrs	462.920
2-8-08	0900 hrs	505.635	2-8-08	1000 hrs	235.616
2-8-08	1000 hrs	235.616	2-8-08	1100 hrs	486.608
2-14-08	1300 hrs	520.791	2-14-08	1400 hrs	268.997
2-14-08	1400 hrs	268.997	2-14-08	1600 hrs	505.635

Outflow/Pond Level- December



Outflow/Pond Level - January



Outflow/Pond Level - February

