

**WSSC, FCWA, and Washington Aqueduct
Joint Exhibit No. 2**

**BEFORE THE
PUBLIC SERVICE COMMISSION
OF MARYLAND**

**IN THE MATTER OF THE)
APPLICATION OF CATOCTIN)
POWER, LLC FOR A CERTIFICATE)
OF PUBLIC CONVENIENCE AND)
NECESSITY TO CONSTRUCT A)
GENERATING STATION IN)
FREDERICK COUNTY,)
MARYLAND)
)**

Case No. 8997

DIRECT TESTIMONY OF ERIK HAGEN

1 Q: Please state your name, occupation, and current position?

2 A: My name is Erik Hagen. I am a civil engineer working in the field of
3 water resources planning and management, and my current position is
4 Director of Co-operative Water Supply Operations at the Interstate
5 Commission on the Potomac River Basin (ICPRB), 51 Monroe St., Suite PE-
6 08, Rockville, MD 20850.

7 Q: How long have you worked for the ICPRB and what are your duties and
8 responsibilities there?

1 A: I have been an employee of the ICPRB since October of 1997. Since that
2 time, I have worked in several positions including my current one within the
3 ICPRB's Section for Co-operative Water Supply Operations on the Potomac
4 ("CO-OP"). In these positions, I have provided coordination of the major
5 water supply resources of the Potomac River basin during times of drought
6 and conducted various water supply analyses throughout the Potomac River
7 basin.

8 Q: What other professional experience do you have analyzing water supply
9 issues generally and the Potomac River Basin specifically?

10 A: I was responsible for a study to forecast the future water supply demand in
11 the Washington metropolitan area and to assess the Potomac's ability to meet
12 that future demand. I was a co-author of another study that examined water
13 supply demands throughout the Potomac basin, evaluated the ability of local
14 water resources to support those forecasts of demand, and assessed
15 consumptive water use in the Potomac basin.

16 Q: What is your educational background?

17 A: I earned a Bachelor of Arts from Carlton College in Minnesota and a
18 Bachelor of Science in Civil Engineering and Master of Science in Civil
19 Engineering from the University of Washington in Seattle.

1 Q: Have you written any professional publications concerning water supply
2 issues?

3 A: I have presented my work in water resources management at numerous
4 national conferences. Most of those resulted in papers which were published
5 in the conference proceedings. I am also the principal or co-author of many
6 reports published by the ICPRB.

7 Q: Do you belong to any professional organizations or hold any professional
8 licenses?

9 A: I am a member of the American Water Works Association, American
10 Society of Civil Engineers, and the American Water Resources Association. I
11 am a registered Professional Engineer in Virginia.

12 Q: Which party is sponsoring your testimony?

13 A: My testimony is sponsored by the Washington Suburban Sanitary
14 Commission ("WSSC"), the Fairfax County Water Authority ("FCWA") and
15 the Washington Aqueduct Division, a component of the U.S. Army Corps of
16 Engineers and the U.S. Department of Defense, (the "Washington Aqueduct"),
17 all of which are intervenors in this case. Hereafter, in my testimony I will
18 sometimes collectively refer to WSSC, FCWA and the Washington Aqueduct
19 as the "three large municipal water suppliers."

1 Q: Would you briefly explain the relationship of WSSC, FCWA, and
2 Washington Aqueduct to the Potomac River?

3 A: The three large municipal water suppliers rely on the Potomac River and
4 its reservoirs for water supply. The Washington Suburban Sanitary
5 Commission serves Montgomery and Prince George's counties in Maryland,
6 the Washington Aqueduct supplies the District of Columbia, the City of Falls
7 Church and Arlington County in Virginia, and the Fairfax County Water
8 Authority provides water to Fairfax County and much of the other suburbs of
9 northern Virginia. The combined summer demand of the three large
10 municipal suppliers from the Potomac River is 500 to 600 mgd.

11 Q: What is the CO-OP's role in coordinating water supplies?

12 A: The CO-OP was established in 1979 within ICPRB and is the entity
13 responsible for coordinating water supply withdrawals from the Potomac
14 River during times of drought. The three large municipal water suppliers
15 agreed that CO-OP would coordinate their drought operations through the
16 Water Supply Coordination Agreement (previously discussed in testimony
17 dated Thursday, October 14, 2004 - 10:00 a.m., page 4, lines 8 through 14)
18 which was signed by the three large municipal water suppliers and by ICPRB.
19 ICPRB agreed to perform this coordination role through a contractual

1 agreement with the three large municipal water suppliers and does so through
2 CO-OP.

3 Q: What is the purpose of your testimony in this case?

4 A: The purpose is to explain how the provisions of the Settlement Agreement,
5 to be made a part of the record in this proceeding, protect the Potomac River
6 during dry conditions.

7 Q: What was the CO-OP's role in connection with the Settlement Agreement?

8 A: One of CO-OP's primary responsibilities under its contract with the three
9 large municipal water suppliers is to provide technical support with respect to
10 water quantity related issues on the Potomac. Pursuant to this responsibility,
11 CO-OP assisted the three large municipal water suppliers in developing the
12 technical aspects of a Settlement Agreement that would protect the water
13 supply of the Washington metropolitan supply and the river.

14 Q: Does ICRPB have a position on whether the Commission should grant the
15 CPCN to Catoctin Power?

16 A: ICRPB does not have a position.

17 Q: What expertise does CO-OP have in evaluating Potomac water
18 augmentation mechanisms?

1 A: For clarification, CO-OP defines augmentation here as water released to
2 the Potomac River from stored supplies. CO-OP maintains a computer
3 simulation model of the Potomac reservoirs and river and has conducted
4 numerous analyses and studies of the Potomac system and its series of
5 reservoirs. CO-OP recommends when and how much water to release into the
6 Potomac River from reservoir storage owned by the three large municipal
7 water suppliers in Jennings Randolph and Little Seneca reservoirs during
8 times of drought. These reservoirs are upstream of the water supply intakes,
9 and releases from these reservoirs take 9- and 1-day(s), respectively, to reach
10 the most downstream intake during low flow periods. Because reservoir
11 releases take time to reach the intakes, CO-OP forecasts the flow in the
12 Potomac River in order to make appropriate releases from the upstream
13 reservoirs. In forecasting the Potomac flow, CO-OP must track inflows to the
14 Potomac River as well as major withdrawals from the Potomac River Basin
15 and then determine the travel time from various locations on the river to the
16 most downstream water intake. These activities have given CO-OP direct
17 long-term experience with evaluating Potomac augmentation mechanisms.

18 Q: How does the Settlement Agreement protect the Potomac River flow
19 during dry conditions?

1 A: CO-OP must account for all upstream water withdrawals when
2 determining how much water to release from the Potomac reservoirs. Any
3 water that is not returned to the river basin such as a consumptive use must be
4 accounted for. Consumptive use can be defined here as any water withdrawn
5 from the river basin but not returned to it for use downstream. For every
6 incremental amount of new consumptive use in the river basin, CO-OP must
7 release an additional amount of water from Jennings Randolph or Little
8 Seneca reservoirs in order to maintain the minimum recommended flow in the
9 river and to offset the new consumptive use during low flow periods.
10 However, if sufficient augmentation is made to the Potomac River that offsets
11 the consumptive use there is then no net effect on the flow in the Washington
12 metropolitan area and no additional burden on the water supply reservoirs.
13 The trigger mechanism established by the Settlement Agreement is set
14 conservatively, causing augmentation whenever there are ongoing reservoir
15 releases from Jennings Randolph or Little Seneca, or when flow drops below
16 1,000 cubic feet per second (cfs) at Little Falls. The resulting augmentation
17 will provide additional water to the river when and where it is needed, so that
18 the water suppliers will not have to make up the consumptive use with water
19 from their reservoirs.

20 Q: Do you have any concluding remarks?

1 A: The augmentation strategy developed in the Settlement Agreement will
2 protect the three large municipal water suppliers' water supply storage in
3 Jennings Randolph and Little Seneca, and will not have adverse effects on the
4 water supply of the Washington metropolitan area. The augmentation strategy
5 will also protect the Potomac River from the proposed power plant's
6 consumptive use during periods of low flow, offsetting any consumptive use
7 whenever flows drop below 1,000 cfs.