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February 14, 1983

United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Attn: Edward L. Jordon, Director
Division of Engineering and Quality Assurance
Washington, DC 20555

Reference: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
IE Bulletin 81-03

Gentlemen:

Enclosed is our response to the NRC Request for Additional Information dated December 14, 1982 regarding IE Bulletin 81-03. This bulletin is entitled "Flow Blockage of Cooling Water to Safety Components by CORBICULA SP. (Asiatic Clam) and MYTILUS SP. (Mussel).

Our estimate of the additional manpower expended in conducting this review and preparing this response is 60 manhours.

If you have any questions concerning this response, please contact my office.

Very truly yours,

Robert F. Baleweski for

J. J. Carey
Vice President, Nuclear

Enclosure

cc: Mr. W. M. Troskoski, Resident Inspector
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U. S. Nuclear Regulatory Commission
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Washington, DC 20555

IE11

United States Nuclear Regulatory Commission
Office of Inspection & Enforcement
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King of Prussia, PA 19406

ATTACHMENT

IE Bulletin No. 81-03
Response to Request for Additional Information

Item 4.a. Provide an assessment of intrusion potential under "worst case" conditions.

In our previous submittal, we demonstrated that clams are not causing a substantial degradation of cooling systems at Beaver Valley. We have not experienced a significant problem with the intrusion of Corbicula even during "worst case" periods to date. At Beaver Valley, this worst case period would be in early Fall, with low river flow and high population density of the organi[illegible]

However, when postulating a dramatic increase in organism population in the river, the potential for intrusion of Corbicula would be high. The instrusion of mature clams would not present a problem since the traveling screens in the intake structure prevent clams with a shell size of approximately 0.5 inch from entering the intake bays. The potential for intrusion of Corbicula larvae (and small clams) would be high since the extremely small size of the larvae (200 microns) could allow them to pass through screens and strainers used on the systems. In this postulated case, the prevention and detection methods outlined in the original response should alert plant personnel to potential flow degradation due to clam debris.

We have only found significant infestation by mature clams in non-safety related heat exchangers with elevated controlled recirculation temperatures, specifically the cooling tower and chilled water unit condensers.

Item 5.a. Provide description of existing monitoring program for Ohio River.

Attached are excerpts from the 1981 Annual Environmental Report Non Radiological which describe the Benthic and Impingement surveys performed as part of our environmental monitoring program. The complete environmental monitoring program and results are described in the 1981 Annual Environmental Report Non Radiological.

Item 5.e. Satisfactory contingent upon provision of inspection - performance schedule.

The following table lists the surveillances performed on potentially affected fire protection and safety related systems at Beaver Valley Power Station, Unit 1. In addition to these surveillances, a heat exchanger performance program which includes potentially affected heat exchangers has been initiated. The performance of these heat exchangers is expected to be checked semi annually.

SURVEILLANCES

TITLE	TYPE OF CHECK	FREQUENCY
OST 1.30.1 Silt Check Main Intake Structure	Visual Inspection for Clams in the Intake Bay	Semi Annual
OST 1.30.7 Fish Impingement Collection	Impingement Survey of Traveling Screens	Weekly
OST 1.30.2 River Water Pump 1A Test	Directs Flow Through Recirculation Spray Heat Exchangers (RS-E-1A, 1C)	Monthly
OST 1.30.3 River Water Pump 1B Test	Directs Flow Through Recirculation Spray Heat Exchangers (RS-E-1B, 1D)	Monthly
OST 1.33.3 Fire Protection System Drain Test	Checks Static and Flow Pressure of Fire Protection System	Monthly
OST 1.33.4 Fire Protection System Hydrant Test	Flush of Fire Hydrants	Annual
OST 1.33.6 Fire Protection System Annual Test	Flush of Strainers in the Fire Protection System	Annual
OST 1.36.1 Diesel Generator No. 1 Monthly Test	Checks for Adequate Cooling of DG No. 1 Cooling Water Through EE-E-1A	Monthly
OST 1.36.2 Diesel Generator No. 2 Monthly Test	Checks for Adequate Cooling of DG No. 2 Cooling Water Through EE-E-1B	Monthly
River Water System In-Line Strainers	Inspect/Clean Visual Inspection for Clams	Bi-monthly or as needed

B. BENTHOS

Objectives

To characterize the benthos of the Ohio River near BVPS and to determine the impact, if any, of BVPS operations.

Methods

Benthic surveys were performed in May and September, 1981. Benthos samples were collected at Stations 1, 2A, 2B and 3 (Figure V-B-1), using a Ponar grab sampler. Duplicate samples were taken at Stations 1, 2A and 3. Sampling at Station 2B, in the back channel of Phillis Island, consisted of a single ponar grab at the south, middle and north side of the channel.

Each grab was washed within a U.S. Standard No. 30 sieve and the remains placed in a bottle and preserved with 10% formalin. In the laboratory, macroinvertebrates were sorted from each sample, identified to the lowest possible taxon and counted. Mean densities (numbers/m^2) for each taxon were calculated for each of two replicates and three back channel samples. Three species diversity indices were calculated: Shannon-Weiner and Evenness indices (Pielou 1969), and the number of species (taxa).

Habitats

Substrate type was an important factor in determining the composition of the benthic community. Two distinct benthic habitats exist in the Ohio River near BVPS. These habitats were the result of damming, channelization, and river traffic. Shoreline habitats were generally soft muck substrates composed of sand, silt and detritus. An exception occurs along the north shoreline of Phillis Island at Station 2A where clay and sand predominate. The other distinct habitat, hard substrate, is located at midriver. The hard substrate may have been initially caused by channelization and scoured by river currents and turbulence from commercial boat traffic.

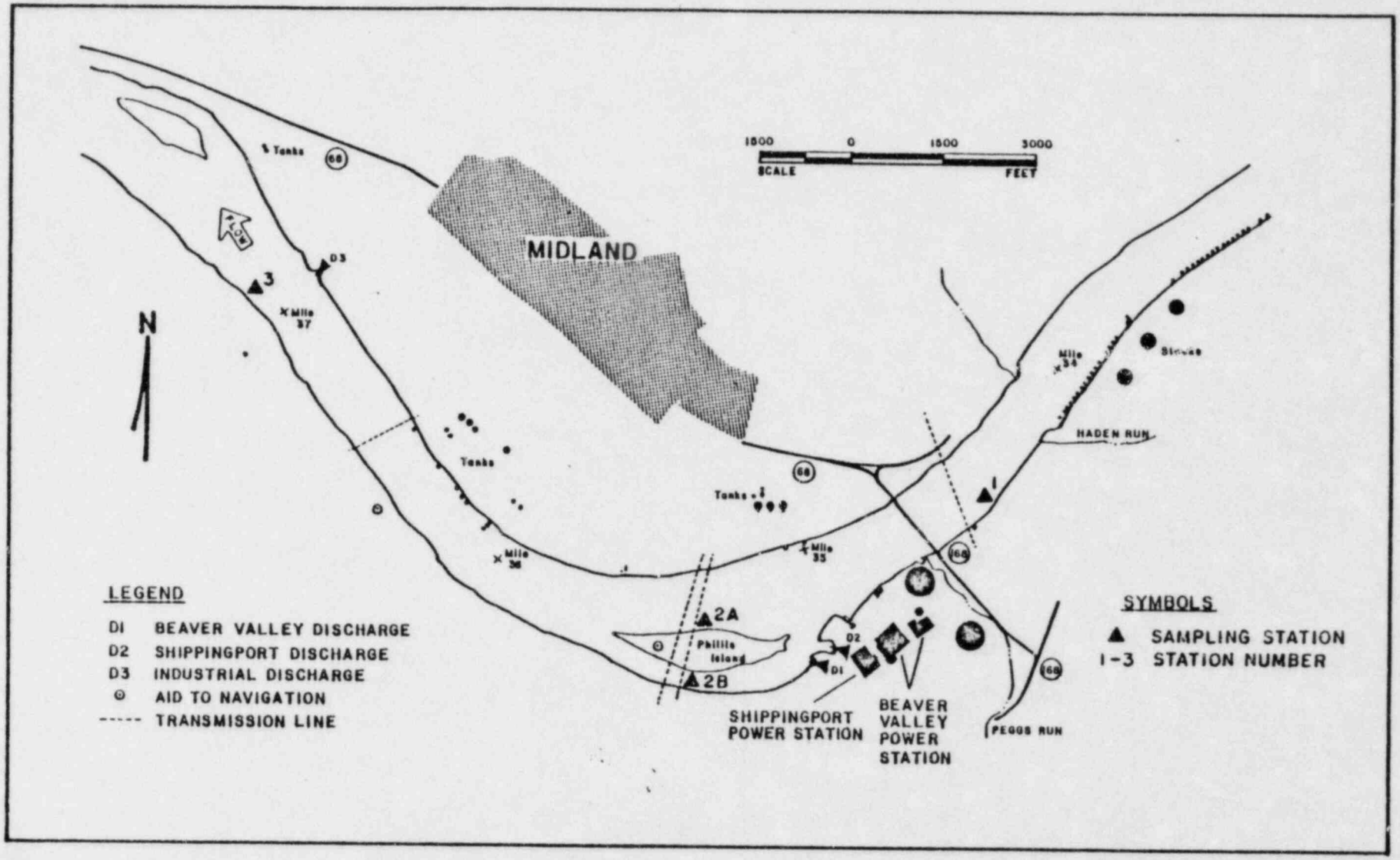

FIGURE V-B-1

BENTHOS SAMPLING STATIONS, BVPS

G. FISH IMPINGEMENT (ETS Reference 3.1.3.7)

Objective

Impingement surveys were conducted to monitor the quantity of impinged fish on the traveling screens.

Methods

Impingement surveys were conducted weekly throughout 1981 (Table V-A-1). Except when technical difficulties delayed sampling, weekly fish impingement sampling began on Thursday mornings when all four traveling screens were washed. A collection basket of 0.25 inch mesh netting was placed at the end of the screen washwater sluiceway (Figure V-G-1). On Friday mornings, after approximately 24 hours, each screen was washed individually for 15 minutes (one complete revolution of the screen) and all aquatic organisms collected. Fish were identified, counted, measured for total length (mm) and weighed (g). Data were summarized according to operating intake bays (bays that had pumps operating in the 24 hr sampling period) and non-operating intake bays.

Results

The BVPS impingement surveys of 1976 through 1981 have resulted in the collection of 32 species of fish representing nine families (Table V-G-1). A total of 141 fish, representing 20 species (21 taxa) was collected in 1981 (Table V-G-2). Channel catfish were dominant with 36.9% of the total annual catch, followed by emerald shiner (26.2%) and gizzard shad (12.0%). Freshwater drum (5 specimens) accounted for 3.5% with all other taxa represented by three or fewer specimens. No endangered or threatened species were collected (Commonwealth of Pennsylvania 1980). In addition, 181 crayfish, 84 clams (18 Lampsilus), and 66 Corbicula) and 28 dragonflies were collected on the traveling screens in 1981 (Table V-G-6).

One golden shiner, a species not collected in previous years, was collected in 1981. All fishes ranged in size from 23 mm to 261 mm, with the majority under 100 mm. The total weight of fish collected in 1981 was 0.94 kg (2.07 lbs) (Table V-G-2).