TENNESSEE VALLEY AUTHORITY

DOCKET NO. STN 50-520

HARTSVILLE NUCLEAR PLANT, UNIT A2

AMENDMENT TO CONSTRUCTION PERMIT

Amendment No. 1
Construction Permit CPPR-152

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The issuance of this amendment will not be inimical to the common defense and security or to health and safety of the public; and

   B. Issuance of this amendment will result in no environmental impacts not previously considered.

2. Accordingly, Construction Permit No. CPPR-152 is amended by adding the enclosed Attachment C "Monitoring Plan for Mussels During Discharge Diffuser Construction".

3. This amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Voss A. Moore, Assistant Director
for Environmental Projects
Division of Site Safety and
Environmental Analysis

Enclosure:
Attachment C to CPPR-152

Date of Issuance: NOV 30 1978

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ATTACHMENT C

Monitoring Plan for Mussels During Discharge Diffuser Construction - Hartsville Nuclear Plants

This monitoring plan has as a goal a complete assessment of the impacts of the construction of the Hartsville Nuclear Plants' discharge diffuser. The keys to the environmental monitoring plan for the diffuser construction are the decision points which have been devised for early feedback to assure integrity of the Dixon Island mussel bed. Appropriate mitigative actions to be taken during construction of the diffuser, should significant perturbations occur, have been incorporated into this plan.

Special monitoring of the discharge diffuser construction will include the following:

PRE-DIFFUSER CONSTRUCTION

1. Square meter grid samples will be collected along approximately 30 transects at 50-foot intervals approximating those established during the December 1976 mussel survey. The number of quadrats established on each transect will depend on the width of the mussel bed at that particular transect. The square meter grid will be placed on the bottom at approximately 20-foot intervals and all mussels will be carefully removed and examined and immediately returned to the river. This reassessment of the mussel bed prior to the initiation of diffuser construction is necessary because a visit to the Cumberland River and Hartsville site in July 1977 revealed that mussels were being removed from the Dixon Island mussel bed by commercial mussel fishermen.

2. Prior to the initiation of instream construction activities, sediments in the area of diffuser construction and downstream will be sampled and characterized as to particle size and total volatile solids. This will provide a baseline of data for evaluating the deposition of sediments resulting from the excavation activities. The following procedures will be followed for this activity:

   A. Core sampler will be utilized.

   B. Two transects will be established at the site of dredging--10 samples will be taken.

   C. Three transects will be established on the Dixon Island mussel bed--15 samples will be taken.

3. Chemical constituents of the sediments will be determined prior to the diffuser construction. An elutriate test will be performed to detect any significant release of contaminants in the material to be dredged. Six samples will be collected in the area to be dredged and 3 samples will be collected on the Dixon Island mussel bed. Samples will be analyzed for Hg, Pb, As, Cd, Cu, Zn.

4. Sedimentation traps will be placed by Scuba divers at specified intervals along the length of the Dixon Island mussel bed downstream of the proposed dredging operation to estimate the loss of and accumulation of materials in the sediments (to be continued throughout the instream dredging activities). A control station (1 transect) upstream of the dredging operation will be monitored to detect natural sedimentation rates for comparative purposes.

5. Scuba divers will search the area from Dixon Island downstream to the upper edge of the Dixon Island mussel bed and remove any isolated mussel specimens. Any specimens found will be placed on or in the substrate of an established mussel bed.

DIFFUSER EXCAVATION PERIOD

1. Sedimentation traps will continue to be placed at the same stations used in the prediffuser excavation period. The traps will be returned twice per eight-hour dredging crew working shift (once after four hours and once after eight hours) during excavation of approximately the first 1,000 cubic yards of material.

2. Turbidity levels of the river above and below the dredging activities will be measured at 1-meter depth intervals from surface to the bottom and averaged over the water column to document changes in natural turbidity levels resulting from these activities. Samples will be taken hourly during excavation. Natural turbidity levels of record as defined in the Hartsville Nuclear Plants ER will be the feedback criteria for regulating the rate of instream dredging. Maximum documented levels of turbidity are 85 ppm (JTU).

3. Measurement of light intensity in the water column will be performed with a submarine photometer both above and below the dredging activities. Measurements will be made hourly during excavation. A 50 percent reduction in the depth of 0.1 percent of the light transmission at some selected point at the mussel bed relative to an upstream location (above the dredging activities) will be the feedback criteria for instituting corrective mitigative actions.

4. Should turbidity levels or light penetration data indicate a need for mitigative action, the inspector will report his findings and make his recommendation to the project environmental engineer, who will present these findings and recommendations to the project manager. The project manager will make the decision on the mitigative actions to be taken, i.e., to slow down or halt construction.

5. Dissolved oxygen, pH, conductivity, and temperature profiles will be made at upstream and downstream locations to document any perturbations of these parameters.

6. During blasting activities, mussels will be placed by Scuba divers at established intervals from the area of the blasting to determine if mussels on the Dixon Island bed are harmed by shock waves from these activities.

POST-DIFFUSER CONSTRUCTION

1. A post-diffuser construction survey of sediments in the area of the diffuser and mussel bed will be conducted to document any perturbation of river sediments as a result of these construction activities. A total of 5 samples will be collected from each of three transects approximating those established in Pre-diffuser construction (2).

2. Transects approximating those established during the pre-diffuser construction survey will be established at 50-foot intervals beginning at the upper end of the mussel bed (CRM 284.1). Square meter samples will be taken along the transect. Mussels recovered from the square meter grids will be carefully removed and examined and immediately returned to the river. This qualitative and quantitative data will serve as a reevaluation of the mussels found on the Dixon Island mussel bed following completion of the diffuser construction activities.

The breeding season for *Lampsilis orbiculata* is reported to be during August and September, with glochidia being discharged the following June. Since mussels are mucoid filter feeders, the increase in turbidity levels should pose no problem to mussels during any period of the year. We therefore recommend that instream dredging activities associated with the discharge diffuser be conducted at any time of the year. However, dredging during the breeding season (August and September) will be avoided if possible.