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Gordon Dicker, Chief, Environmental Projects Branch #2, L

OCONEE ENVIRONMENTAL TECH SPEC CHANGES

PLANT NAME: Oconee Nuclear Power Station Units 1 and 2
LICENSING STAGE: OL
DOCKET NUMBER: 50-269 and 50-270
RESPONSIBLE BRANCH: EPB 2
PROJECT MANAGER: Richard J. Clark
DESCRIPTION OF RESPONSE: Licensee's requested change rejected.
REVIEW STATUS: ESB review complete.

As requested, we have reviewed the question of discharge of boron at Oconee. We agree that changes in the Environmental Technical Specifications are warranted. However, the changes suggested by our review are different from those requested by the licensee. Our proposed changes are summarized at the end of this memorandum.

Review of the applicant's Environmental Report and preparation of the Environmental Statement involves a determination of whether the facility will result in an acceptable impact on the environment. The intent of including a specification on chemical effluents is to document the conditions for which the recommendation to award a license has been made and to assure that substantial changes in operation are preceded by appropriate assessment of environmental impact.

AEC is not prepared or responsible for setting generally applicable water quality standards. The utility sets its own specifications when it calculates and reports the values necessary for operation as Duke Power Company did for Oconee. When evaluated against levels reported in the literature as potentially toxic, it was agreed that no harm would result from plant operation. Now that Duke Power recognizes that the discharge of boric acid is higher than expected, it behooves them to recompute the expected operating conditions rather than to set an arbitrarily high limit. It is not certain whether the requested limit of 1 mg/l is based upon such computation. From discussion with R.J. Clark, RPM, it is believed it is not. The computed maximum boric acid concentration provided by Mr. Clark's analysis is 0.12 mg/l and, in the absence of other calculations, is the value on which the limit should be based.

It is recommended that allowance be made for slight deviation from the expected actual average. The technical specification should limit them to increases in concentrations which are less than three times the values in Table 1.2-1.

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Although there is no applicable limit for boron or boric acid for the Keowee River, we may seek data on toxic levels in the literature to judge the acceptability of the proposed practice. Since the receiving water is used for public water supply, and since this use requires more stringent limits than does protection of aquatic life, it would seem to be controlling. WASH-1249 was not intended as an exhaustive study of requirements for public water supply and thus it is not an appropriate reference. A more authoritative source is "Water Quality Criteria", Report of the National Technical Advisory Committee to the Secretary of the Interior. Federal Water Pollution Control Criteria, Washington, D.C., April 14 1968. According to this document, "The Public Health Service has established a limit of 1 mg/l (for boron) which provides a good factor of safety physiologically and also considers the domestic use of water for home gardening".

Apparently, the toxicity to plants results in the recommendation for a lower value. The limit for irrigation waters may be slightly lower yet and if the maximum expected concentration would persist at Oconee for extended durations then possible impact on irrigation would have to be explored. Refer to: "Water Quality Criteria", J.E. McKee and H.W. Wolf, The Resources Agency of California, State Water Quality Control Board Publication Number 3-A, Sacramento, California, 1968.

The proposal of Duke Power to operate so closely to the levels of concern indicated in the above references warrants a substantial degree of monitoring and control. It is proposed that the daily maximum concentration of boron produced in the Keowee tailrace be determined either by computation or direct measurement.

Since the stream flow used to estimate the maximum concentration occurs only occasionally, it is not expected that the proposed maximum value will be approached frequently if at all. Further, reduction in maximum concentration could be achieved by administrative controls such as scheduling pumping to coincide with larger releases from the reservoir or pumping from the low activity tank at a much lower rate when no water is being released from Keowee Reservoir. If there were some assurances that the maximum concentration would be substantially below the suggested criteria then monitoring could be avoided. In this case, records of boric acid utilization would provide an adequate check on operation. This was the approach in the original specifications. Therefore, it would seem to be to the licensee's advantage to develop controls to assure the lower concentration.

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A summary of recommended changes to the Environmental Technical Specification is attached.

Ronald L. Ballard, Chief
Environmental Specialists Branch
Directorate of Licensing

Enclosure:
As stated

cc: w/o encl.
A. Giambusso
W. McDonald

w/encl.
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1. Change Heading of Table 1.2-1 to: Expected Chemical Wastes from Oconee Nuclear Station
2. Change Specification A under 1.2, page 5, Appendix B to read as follows: "chemical wastes and the resulting increases in chemical concentrations in the Keowee River shall not exceed by more than a factor of 3 the values given in Table 1.2-1 'Chemical Wastes from Oconee Station.' "
3. In Table 1.2-1, change the heading over the final columns to read: Resulting increase in concentration in Keowee River water (ppm).
4. In Table 1.2-1, delete the value for boric acid in the "Average" column and substitute 0.12 ppm for the 8.8×10^{-4} ppm limit on the maximum increase in concentration of boric acid in river water.
5. Relocate footnote C in Table 1.2-1 from the average to the maximum column and change footnote C to read: This value is calculated by assuming that the concentration in the low activity waste tank is 10 ppm as boron, that the tank is being pumped at a rate of 50 gpm, and that the flow in the river is 30 cfs.
6. Add to p. 5, Para. 1.2, Monitoring.
"c. Boron concentration in the Keowee tailrace shall be determined daily either by computation or by direct measurements."