NH 1465

Admin # 411

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F.K. Federal Building; Boston, MA 02203-1911

EMORANDUM

ATE: February 10, 1992

JBJ: PSNH-Merrimack Station
NPDES No. NH0001465, Draft Permit
Public Noticed, December 18, 1991

ROM: William R. Beckwith WRB
Water Quality Management Section

T. E. LANDRY
FEB 11 1992

TO: Nick Prodany
NH-RI-VT Wastewater Management Section

The Water Quality Management Section concurs with the proposed requirements to study effects of the thermal discharge and the open cooling canal on resident and anadromous aquatic life in the Merrimack River. The outline at Part I.A.17 of issues to be addressed is well focused.

We are concerned, however, that due to a multitude of potential problems (absence of low flow conditions, a cool summer, less than peak power demand, lack of cooperation by the permittee, unexpected error in data collection, or a well executed but inconclusive study) we may find ourselves no closer to establishing firm temperature limits than we are now. Collection of adequate data to allow for model development and projection to critical conditions might not be accomplished within the available time frame. Judgements might need to be made based on observations at less than critical conditions.

The permit should contain a clear statement that EPA intends to establish enforceable permit limits on the thermal discharge (and the cooling canal operation if necessary) to protect the resident and anadromous aquatic life in the Merrimack River. The studies are requested to aid in that effort. The permit should also contain a statement that if the proposed studies cannot be completed or are inconclusive, then limits will be established based on the best information available. The TAC would evaluate current literature, ambient water quality criteria recommendations, etc., and provide a best judgement recommendation for permit limits.

We also request that, rather than the normal five year term, the permit be issued for a term that coincides with the date when TAC recommendations based on the proposed study are expected. This would facilitate the timely establishment of permit limits.

Additional Comments:

* The Water Quality Management Section raised concerns about the thermal discharge after reviewing the permittee's ambient temperature data that: 1) demonstrate the temperature requirements (goals or limits?) of the existing permit are not achieved, and 2) show ambient surface water temperatures below the discharge elevated well above background (example: 1987 Average ΔT for July, August, September and October of 6, 11, 11, and 8° F, respectively). Review of this data has caused biologists at NHF&GD, USF&WS, and our ESD to express significant concerns. They have indicated that temperatures reported downstream of the discharge have exceeded incipient lethal temperatures for smallmouth bass adults as well as salmonid adults. Acceptable temperatures for spawning and embryo survival are lower than those for adult survival. Concerns about a potentially inadequate zone for fish passage have been noted. NHF&GD, USF&WS, and our ESD have expressed their concerns in writing. Existing data are the basis for the proposed study requirements. The fact sheet does not discuss this. Rather, the fact sheet includes three references to data demonstrating that the cooling water discharge from PSNH-Merrimack Station has not adversely or significantly impacted aquatic life in the Merrimack River. While temperature, dissolved oxygen, and pH data have been reviewed, we have not seen the "ecological studies" and "ecological data".

* Dilution calculations for outfall 003 using the proposed Average Monthly and Maximum Daily flow limits, the TRC Maximum Daily limit, and a 7Q10 low flow estimate of 650 CFS (420 MGD) indicate that New Hampshire's AWQC for chlorine of 11 ug/l - chronic and 19 ug/l - acute would be exceed instream. If a Maximum Daily limit only is established for TRC, it should be 16 ug/l to ensure that the chronic criterion is not exceeded. This includes adjustment for New Hampshire's 10% reservation of assets. Compliance would be determined based on the detection limit as discussed in the fact sheet. Note that, as written, the proposed TRC limit for outfall 003 applies to the entire flow discharged from 003 not just a portion of the total from a single cooling unit during chlorination.

* There have been verbal reports that at low flow conditions the cooling water intake has been observed to draw the Merrimack River flow "upstream". Monitoring location N-5 is to be representative of ambient background conditions. Is N-5 upstream of effects created by the flow reversals?

* Part I. A. 17a.: We are interested in the <u>minimum</u> temperature that would impede migration, not "maximum".

Please ask if you have any questions.

cc: Bill Butler
Peter Nolan