VERMONT YANKEE NUCLEAR POWER CORPORATION

SEVENTY SEVEN GROVE STREET

RUTLAND, VERMONT 05701

TELEPHONE 802-775-2964

May 23, 1980

Members of the Vermont Yankee
Environmental Technical Advisory Committee

Messrs. David Clough
Angelo Incerpi
Terrence Frost
Charles Thoits, III
Stephen Henry
Warren Kimball

Gentlemen:

Attached are the draft minutes of The Vermont Yankee Environmental Technical Advisory Committee Meeting held in White River Junction, Vermont on May 9, 1980. If you wish to formally amend the minutes, please telephone me, otherwise they will stand until the next TAC meeting.

Sincerely,

Daniel J. Marx

Daniel J. Marx, Ph.D. - Secretary for the Committee
Manager of Environmental Services and
Chief Biologist

Attachment

cc: T. Ippolito/V. Rooney - NRC
J. Wilson, NRC
W. Conway
W. Murphy
J. Pelletier
D. Weyman
B. Ball
S. McAvoy
R. Burke
J. Robinson
R. Marcello
T. Dignan/ J. Ritsher
A. Keyes
W. Countryman
M. McNeer

Cook S.1

DRAFT MINUTES

VERMONT YANKEE ENVIRONMENTAL TECHNICAL ADVISORY COMMITTEE

WHITE RIVER JUNCTION, VERMONT

MAY 9, 1980

Present:

David Clough, VT Department of Water Resources, Montpelier, VT
Terrence Frost, NH Water Supply and Pollution Control Comm., Concord, NH
Peter E. Brezosky, NH Department Fish & Game, Concord, NH
Russell A. Nylander, NH Water Supply and Pollution Control Comm., Concord, NH
Stephen Henry, MA Department of Fish and Wildlife, Westboro, MA
Rocco A. Marcello, Yankee Atomic Electric Co., Westboro, MA
William D. Countryman, Aquatec, Inc., Burlington, VT
R. Mason McNeer, Aquatec, Inc., Burlington, VT
Burton M. Ball, Vermont Yankee Nuclear Power Corporation, Vernon, VT
Daniel J. Marx, Vermont Yankee Nuclear Power Corporation, Rutland, VT

1. The minutes of the last meeting, September 28, 1979, were approved without change as final.

2. Dr. Marx described recent Vermont Yankee organizational changes. The technical functions, formerly centered in the Rutland office, will be relocated to an office in West Brattleboro closer to the plant. Dr. Marx will remain in the Rutland office in the capacity of Manager of Environmental Services and Chief Biologist.

3. Dr. Marx asked for comments from the Committee on the annual ecological report, number IX, which was mailed to the Committee on April 15 for their review. The Committee had no comments on the report. Dr. McNeer presented a brief summary of selected "highlights" of the 1979 annual ecological report. Fish impingement was similar to that observed in previous years on open cycle. Relatively higher levels of turbidity and iron were observed at downstream Monitor 3 which were attributed to construction activity at the Vernon fish ladder. Mr. Clough asked if any changes had been observed in benthic fauna sampling. Dr. McNeer said that no shifts had been seen in the 1979 benthic sampling that were outside of previously observed variations. Dr. Marx read a memorandum written by Robert Estabrook, water pollution biologist with the New Hampshire water Supply and Pollution Control Commission, based on his in-house review for Mr. Frost, of the 1979 ecological report. (A copy of Mr. Estabrook's memo is attached to these minutes).

4. In response to a question from Mr. Frost, Dr. McNeer said that the Ashuelot River, where it flows into the Connecticut downstream of the plant, visually appears to be considerably improved compared to its appearance over past years. It was the opinion of the

Committee that the operation of Vermont Yankee in 1979 had a negligible impact on the ecosystem of the Connecticut river at Vernon.

5. Dr. Marx presented an update of Vermont Yankee's ongoing activity to renew its NPDES permit from the State of Vermont Department of Water Resources. The application for reissuance of the permit was submitted to the Vermont Department of Water Resources on December 31, 1979. Vermont Yankee received a draft permit from the Agency of March 28, 1980. The draft permit incorporated all of the changes that Vermont Yankee had requested in their December 31, 1979 application. On April 18, 1980, Vermont Yankee staff met with Vermont Department of Water Resources staff in Montpelier to offer their comments on the Agency draft permit. On April 25, Vermont Yankee enumerated those comments formally in a letter to the Agency and requested several new changes which had not initially been contained in the application of December 31, 1979.

6. The additional requested changes in the Vermont Yankee letter of April 25, included: a.) Clarifying the reporting requirement of Vermont Yankee to notify the Secretary of the Agency when the mixed river temperature at downstream Monitor 3 first reaches 60°F in the Spring. b.) A request to initiate a test program to evaluate a condenser cleaning compound - "Drewsperse-744". c.) A provision to allow for the periodic removal of silt from the intake structure and the cooling tower basins by pumping silt to a settling/sedimentation area on land on the plant site.

d.) Deletion from the biological monitoring program table of the section on "Ichthyoplankton Entrainment" in the spring months.

e.) Additions (by request from Angelo Incerpi on April 18) of a section to the biological monitoring program table to monitor impingement three times a week from May 15 to June 30, on the service water travelling screens in the close-cycle mode, beginning in 1981.

7. Mr. Countryman said that he feels that impingement monitoring on closed-cycle is unnecessary since that plant withdraws only 11 - 15 CFS from the river in the open-cycle mode. Mr. Henry said that shad are not impinged at other Connecticut river steam-electric plants and that species appears to be resistant to impingement.

8. Mr. Clough said that the Vermont Agency of Environmental Conservation is preparing a revised draft of the draft permit based on Vermont Yankee's comments and suggestions (supra) on the Agency first draft. Mr. Clough said that to date, approximately 150 letters had been received by the Agency from people requesting a public hearing on the draft permit. The public hearing on the NPDES final draft permit will be June 20 in the Brattleboro High School at 1:30 p.m. Mr. Clough indicated that the letters of comment to date, have been of a general "anti-nuclear nature" and that few specific water quality issues of technical nature have been raised. The public hearing will be restricted by the Agency to specific issues on the renewal.

9. Mr. Nylander said that to date the State of New Hampshire has not made a decision on formal participation in the Vermont NPDES hearing. Mr. Frost said that he and his technical staff will recommend participation, but at this time he did not know to

what extent.

10. Mr. Marcello presented an update on Vermont Yankee efforts to amend the NRC environmental (non-radiological) technical specifications. The technical aspects of the NPDES permit regarding effluent limitations and monitoring requirements have been accepted by the NRC staff for incorporation by reference to the NPDES permit as the NRC technical specifications. There still exist several administrative differences which are in discussion between Vermont Yankee and the NRC. As of this date, Vermont Yankee has submitted to the NRC a version of proposed environmental technical specifications which reference the effluent limitations and monitoring requirements of the NPDES permit and include Vermont Yankee's administrative format. Mr. Marcello indicated that at this juncture "the ball is back in NRC's court".

11. Mr. Countryman presented an update on the Atlantic salmon smolt radio tracking project. Vermont Yankee has chosen the AVM Company of Champaign, Illinios as the equipment supplier for this project. Five AVM receivers, and fifty radio tags were purchased. Sixty-four smolt, age 1.5 years, ranging in length from 8 - 13 inches were obtained from the Roxbury, Vermont hatchery. The fish were maintained in a constant flow (Living Stream) aquarium in the Monitor House at upstream station 7 to acclimate the fish to ambient river water. Untagged fish have also been maintained in live boxes since May 5 in the river at station 5 (upstream control location) station 4.1 (300 feet off the discharge structure) and just above Vernon hydro station at the log boom. From April 23 to May 12 (19 days) 17 smelt have been implanted with radio

transmitters (stomach) and released in Vernon pool between Brattleboro and the Vermont Yankee intake structure. Of these seventeen, eight fish have been located and tracked below Vernon dam as far as Turners Falls. Seven of the seventeen, were located above Vernon dam in various locations in Vernon pool, but not below, and some were presumably lost in passage through the turbines of the Vernon hydro plant. (As of May 20, two of the original seventeen fish remain in the river: one is just above the Vernon hydro station intake gates [and is being fed by hydro station personnel] and one is three miles below the Vernon hydro station). Individual fish are detectable since each radio tag is on a discreet frequency between 49 and 50 megahertz. Mr. Countryman acknowledged the valuable technical assistance provided by Alexis Knight of the U.S. Fish and Wildlife Service and the AVM Company. Vermont Yankee will probably continue this smolt tracking project next spring by which time the fish ladder at the Vernon hydro station will be completed. Dr. Marx said that Vermont Yankee expects to conduct modest radio tagging efforts on smolt in the spring over the next several years, including possibly some radio tagging of upstream migrating adults. The tracking efforts this spring included night tracking. The efforts this spring, indicated that there is no apparent correlation with movement of the fish and the time of the day. i.e., they did not tend to move at night any more than during the daylight hours.

12. Dr. Marx distributed a notice (dated 3/7/80) which has been received by all nuclear power plant licensees from the NRC on the subject of the possible health hazard of a pathogenic

amoeba Naegleria fowleri associated with closed-cycle cooling. This organism was found in the circulating water system of the Praire Island Nuclear Generating Plant on the Mississippi River south of the Minneapolis-St. Paul area in Minnesota. The discovery was made in November 1979 by the utilities environmental staff. The condition was reported to the Nuclear Regulatory Commission by the utility and Dr. Richard Tyndall of the Oak Ridge National Laboratory recommended a hyper-chlorination program (2ppm free chlorine for 6 hours) to reduce numbers of Naegleria fowleri in the circulating water system. The organism occurs naturally as a soil-dwelling amoeba and the combination of the high water temperatures (above 28°C) and high populations of bacteria present ideal conditions for Naegleria's growth and reproduction. Jim Wilson of the NRC and Dr. Richard Tyndall have told Dr. Marx that they do not believe that NRC will be requiring further follow-up on their initial notice. Dr. Marx said that he contacted Dr. Tyndall at Oak Ridge and asked for a method for sampling and sending water samples to the Oak Ridge Laboratory for cultivation and examination for the presence of Naegleria fowleri. A few samples will be taken by Dr. Marx during the summer months at Vermont Yankee while the plant is on close-cycle for examination by the Oak Ridge laboratory. Dr. Tyndall told Dr. Marx that based on a description of the Vermont Yankee circulating water system and mode of operation that he would not expect the organism to be found. It appears that most state department's of health are aware of the public health

potential of Naegleria fowleri infections, but do not regard the organism as a serious public health threat because of its rather unusual epidemiologic characteristics. Dr. Marx will keep the Committee informed as to the results of any sampling and cultivation for amoebae which is done on the Vermont Yankee circulating water and associated environs.

Respectfully submitted,

Daniel J. Marx

Daniel J. Marx, Ph.D.
Secretary

5/23/80

STATE OF NEW HAMPSHIRE

ATTACHMENT

INTER-DEPARTMENT COMMUNICATION

DATE April 29, 1980

FROM Robert H. Estabrook RHE
Water Pollution Biologist

AT (OFFICE) Water Supply & Pollution Contro Commission

SUBJECT REVIEW OF DOCUMENT "ECOLOGICAL STUDIES OF THE CONNECTICUT RIVER, VERNON/VERMONT", REPORT IX, JANUARY 1979 - DECEMBER 1979

TO Terrence P. Frost
Chief Aquatic Biologist and
Director of Permits and Enforcement

SITUATION:

1. The subject document is the ninth in a series of reports describing the environmental conditions of the Connecticut River impacted by thermal discharges from the Vermont Yankee Nuclear Power Plant.

2. The year of 1979 was the first full year of operation under the amended discharge permit that allowed for open cycle cooling (with certain thermal limitations) during the period of October 15 to May 15.

DISCUSSION:

1. Three thermal criteria were imposed on the open cycle mode of cooling, and all 3 were met in 1979. The criteria and actual conditions were as follows:

   a.) The river water temperature at station 3 (.65 miles south of Vernon Dam) could not exceed 65° F.; the maximum hourly mean temperature observed was 63° F.

   b.) The rate of change in temperature between two successive hourly means at station 3 could not exceed 5°F.; the maximum observed rate of change was 2.7°F.

   c.) The increase in river temperature over ambient could not exceed 13.4°F.; the maximum increase in temperature from station 7 (4.25 miles north of Vernon Dam) to station 3 was 10.2° F.

2. A few abnormally high values were found for chloride, total phosphate, solids, and turbidity, but were attributed to construction work on a fish ladder at Vernon Dam.

STATE OF NEW HAMPSHIRE

INTER-DEPARTMENT COMMUNICATION

DATE April 29, 1980

AT (OFFICE)

FROM Robert H. Estabrook

SUBJECT

TO Terrence P. Frost

3. Phytoplankton, zooplankton, macroinvertebrate, and fish studies indicated little differences from previous year's results. I do question the value of the plankton studies as a means of assessing the impact of the thermal discharge. Panel studies (i.e., slides suspended in the water to allow for the growth of attached plants and animals) would be more valuable in assessing the growing conditions at a given point in the stream. The plankton analyses merely measure what is floating down the river from upstream conditions.

RECOMMENDATION:

The results of this study indicate that the thermal discharges from the Vermont Yankee Nuclear Power Plant caused no measurable adverse effects on the water quality or aquatic biota of the Connecticut River in 1979.

I recommend that Vermont Yankee be allowed to continue to operate under the open cycle cooling mode from October 15 to May 15, with the assigned thermal limitations.

RHE

RHE/ewn

x.c R.A NYLANDER, P.E. (PERMITS)
DR. DANIEL J. MARX, VYNPC