DEC 29 1980

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION IN SUPPORT OF CHANGES OF IMPLEMENTATION DATES IDENTIFIED IN CERTAIN LICENSE CONDITIONS SPECIFIED IN OPERATING LICENSE NPF-7, NORTH ANNA POWER STATION, UNIT NO. 2

1.0 INTRODUCTION

In a letter dated November 20, 1980, the Virginia Electric and Power Company (VEPCO) requested an amendment of Operating License NPF-7 for North Anna Power Station, nit No. 2. In letters dated Decmeber 15 and 18, 1980 VEPCO provided additional information regarding their request.

The first proposed change is to revise the required implementation dates for certain post-TMI requirements identified in the North Anna Unit No. 2 operating license to correspond to the implementation date requirements set forth for operating plants and applicants for operating licenses in NUREG-0737, "Clarification of TMI Action Plan Requirements." These items are:

ITEM	TITLE	LICENSE CONDITION DATE	PROPOSED* DATE
I.D.1	Control Room Design Review	August 21, 1981	complete review, using NRC Guidelines (NUREG-0700) to be issued in 1981, on a schedule that will be determined upon issuance of guidelines
II.B.1	Reactor Coolant System VENTS	December 31, 1981	July 1, 1982
II.B.2	Plant Shielding	January 1, 1981	Plant modifications January 1, 1982 Equipment Qualifications June 30, 1982
II.B.3	Post-Accident Sampling	April 1, 1981	January 1, 1982
II.D.1	Relief and Safety Valve Test Requirements	July 1, 1981	July 1, 1981
II.E.4.1	Containment Dedicated Penetrations	January 1, 1981	July 1, 1981
II.F.1 Item (i)	Containment Pressure Monitor	January 1, 1981	January 1, 1982

*Proposed date in accordance with NUREG-0737

ITEM	TITLE	LICENSE CONDITION DATE	PROPOSED* DATE
II.F.1 Item (ii)	Containment Water Level Monitoring	January 1, 1981	January 1, 1982
II.F.1 Item (iii)	Containment Hydrogen Concentration Monitoring	April 1, 1981	January 1, 1982
II.F.1 Item (iv)	Containment Radiation Monitor	January 1, 1981	January 1, 1982
II.F.1 Item (v)	NOBLE Gas Monitor and Iodine Particulate Sampling	July 31, 1981	January 1, 1982

The changes in implementation dates is related to Conditions 2.C.(20) Item a, and 2.C.(21) Items c, d, e, f, h and i of Operating License NPF-7. The implementation dates presently stated in the operating license reflect the requirements specified at the time of license issuance. The required implementation dates for the identified items from NUREG-0660, "NRC Action Plan Developed as a Result of the TMI-2 Accident," have been changed by NUREG-0737.

VEPCO further indicates that the implementation dates have been relaxed in NUREG-0737 for the entire industry due to revised technical requirements, clarifications and equipment qualifications and procurement delays.

The second proposed change is related to Condition 2.C(12) of Operating License NPF-7 and requests that the required implementation dates specified in the license regarding modifications associated with IE Bulletin 79-27 "Loss-of-Non-Class IE Instrumentation and Control Power System Bus During Operation" be revised.

2.0 EVALUATION

2.1 TMI ACTION PLAN CONDITIONS

2.1.1 CONTROL ROOM DESIGN REVIEW (Item I.D.1)

Condition 2.C.(20) Item (a) of the North Anna Unit No. 2 Operating License NPF-7 requires that no later than one year from the date of issuance of

*Proposed date in accordance with NUREG-0737

the Unit No. 2 operating license, VEPCO shall submit an evaluation of the benefits of installing data recording and logging equipment in the control room. In their letter of November 20, 1980, VEPCO request that the implementation date for the submittal of the evaluation be in accordance with the schedule requirements of NUREG-0737.

In their letter of December 15, 1980, VEPCO indicates that an evaluation of the benefits of installing data recording and logging equipment needs to take into consideration the long term instrument and control upgrade of the control room to be performed in response to Section I.D.1 of NUREG-0737 and the forthcoming NUREG-0700, "Human Engineering Guide to Control Room Evaluation." They further indicated that this was the intent of the present license condition. At the time the condition was imposed, there was no definition of the long term control room review program. A change in the implementation date to be in accordance with NUREG-0737 will permit an appropriate evaluation of the need for data recording equipment in the licensee's detailed control room design review report. The requested change makes the requirement reflect more recent developments in this area.

We have reviewed the information provided by VEPCO, and conclude that the schedule requirements of NUREG-0737 will result in an evaluation which will reflect more recent developments in control room design and therefore the change in the implementation schedule is acceptable.

2.1.2 REACTOR COOLANT SYSTEM VENTS (Item II.B.1)

Condition 2.C.(21) Item (c) of the North Anna Unit 2 Operating License NPF-7 requires that VEPCO submit procedural guidelines and analytical bases for the reactor coolant system (RSC) vents. The reactor coolant vent system shall be installed no later than December 31, 1981. In their

letter of November 20, 1980, VEPCO proposes that the reactor coolant system vents shall be installed no later than the implementation schedule of NUREG-0737; i.e., July 1, 1982.

their letter of December 15, 1980, VEPCO indicates that there have been significant changes to the technical requirements for the reactor coolant systems vents. All available design information on the reactor coolant system vents will be supplied in VEPCO's response to NUREG-0737. NUREG-0737 requires installation by July 1, 1982 but operating procedures are not to be implemented and valves are to be inoperable until NRC approval. Since installation of the RCS Vent connection requires approximately thirty days and removal of the reactor vessel head, VEPCO proposes that this modification be installed at the first refueling outage of North Anna Unit 2 scheduled for the spring of 1982.

Based on the requirements for the RCS vents which existed during the summer of 1980, the NRC staff concluded in Supplement 11 to the Safety Evaluation Report that installation of the vents during the first refueling outage was acceptable. Since this refueling is now scheduled for the spring of 1982, an extension of the installation deadline to the NUREG-0737 schedule is consistent with previous safety evaluations and therefore acceptable.

2.1.3 PLANT SHIELDING (Item II.B.2)

Condition 2.C.(21) Item (d) of the North Anna Unit 2 Operating License NPF-7 reqires that VEPCO shall complete modifications to assure adequate access to vital areas and protection of safety equipment following an accident resulting in a degraded core no later than January 1, 1981. In their letter of November 20, 1980, VEPCO requests that modifications regarding the above be in accordance with the implementation schedule of

NUREG-0737, i.e., Plant modifications, January 1, 1982, Equipment qualification June 30, 1982.

In their letter of December 15, 1980, VEPCO states that engineering related to plant shielding is approximately 80 percent complete and equipment replacement modifications are approximately 10 percent complete.

There have been some changes in scope regarding the design of plant shielding since the original requirements. Additional equipment modifications may be required by the NUREG-0737 required inclusion of High Energy Line Breaks in the shielding review. This review and subsequent modifications will be complete by the NUREG-0737 required implementation date. The limiting material items for implementation of the remaining outage related shielding modifications are as follows:

ITEM	DATE PURCHASE ORDER PLACED	PROMISED DELIVERY	EXPECTED DELIVERY
Direct Acting Solenoid Valves	4/22/80	By 12/31/80	1/19/81
Air Operated Valves	5/1/80	10/1/80	12/31/80
Air & Fire Dampers	11/11/80	3/1/81	3/1/81

Based on the original scope for the shielding review, VEPCO indicated that necessary modifications could be complete prior to January 1, 1981, depending on timely delivery of valves. As shown above, delivery of some valves will not be made in time to support the previous schedule. Replacement of these valves will be made at the first outage of sufficient duration following delivery. Since these modifications are an enhancement

of plant capabilities following a postulated accident, we conclude that a short delay in installation, consistent with current NRC requirements for all operating reactors is acceptable.

2.1.4 POST-ACCIDENT SAMPLING (Item II.B.3)

Condition 2.C.(21) Item (e) of the North Anna Unit 2 Operating License NPF-7 requires that VEPCO shall complete corrective actions needed to provide the capability to promptly obtain and perform radioisotopic and chemical analysis of reactor coolant and containment atmosphere samples under degraded core conditions without excessive exposure no later than April 1, 1981. In their letter of November 20, 1980, VEPCO requests that the implementation of the corrective actions related to the above be in accordance with the implementation schedule of NUREG-0737, i.e., January 1, 1982.

In their letter of December 15, 1980, VEPCO indicates that engineering of the post-accident sampling system is approximately 95 percent complete. Construction is in progress and is expected to be completed in the summer of 1981. The schedule is based on delays in major equipment delivery as follows:

EQUIPMENT	PROMISED DELIVERY	EXPECTED DELIVERY
(1) Liquid Sample Panel	10/1/80	12/15/80
(2) Chemical Analysis Panels	12/1/80	2/1/81
(3) Chemical Analysis Control Panels	12/1/80	2/1/81
(4) Process Control Panels	12/1/80	1/15/81
(5) Containment Air Sample Control Panels	12/1/80	3/15/81
(6) Metal Bellows Pumps	12/1/80	12/12/80

Upon completion of the construction, the system will be tested, and operators will be trained in order to obtain and analyze samples taken from reactor coolant and containment atmosphere. The system checkout and training is expected to take until January 1, 1982. This system will meet the revised requirements and clarifications included in NUREG-0737.

The new post-accident sampling system will enhance the current capability of the station for sampling and analysis. The short term post-accident sampling facility will continue to be used in the interim and until the improved system can be installed. VEPCO will continue to use the interim procedure discussed in Section 22.2, Item II.B.3 of Supplement 11 of the Safety Evaluation Report for sampling and analysis. On this basis, we conclude that a delay in installation of the sampling system to be shared with Unit 1 is acceptable and is consistent with current NRC requirements for all operating reactors.

2.1.6 RELIEF AND SAFETY VALVE TEST REQUIREMENTS (Item II.D.1)

Condition 2.C.(21) Item (f) of the North Anna Unit 2 Operating License NPF-7 requires that VEPCO shall complete tests to qualify the reactor coolant system relief and safety valves under expected operating conditions for design basis transients and accidents no later than July 1, 1981. In their letter of November 20, 1980, VEPCO requests that completion of tests to qualify the reactor coolant system relief and safety valves be in accordance with the implementation schedule of NUREG-0737, i.e., July 1, 1981. As stated in Section 22.3 Item II.D.1 of Supplement No. 11 to the Safety Evaluation Report, VEPCO is actively pursuing a joint effort with other members of the utility industry which would develop requirements for a generic test facility and program for reactor coolant system relief and safety valve prototypical testing.

In their letter of December 15, 1980, VEPCO indicates that the EPRI testing programs in progress are attempting to meet the NUREG-0737 requirement dates which is the same as in Operating License NPF-7. Therefore, the requested change is intended only to recognize the generic nature of these tests and is consistent with NRC requirements for operating reactors and is acceptable.

2.1.6 CONTAINMENT DEDICATED PENETRATIONS (Item II.E.4.1)

Condition 2.C.(21) Item (h) of the North Anna Unit 2 Operating License NPF-7 requires that VEPCO shall install redundant remote manual actuated valves in series to isolate the containment vacuum pumps from the combustible gas control system. VEPCO shall also convert the manual valves in the hydrogen recombiner piping to remote manual actuation no later than January 1, 1981. In their letter of November 20, 1980, VEPCO requests that the implementation of the above be in accordance with the implementation schedule of NUREG-0737, i.e., July 1, 1981.

In their letter of December 15, 1980, VEPCO indicates that engineering regarding the above is approximately 90 percent complete and construction is scheduled for a spring outage. However, a study is underway to determine if any work can be accomplished pre-outage. The final design package is expected to be issued in early January 1981. There have been no significant changes in scope since the original requirements. The limiting material items for implementation of the containment dedicated penetration modifications are as follows:

ITEM	DATE PURCHASE ORDER PLACED	PROMISED DELIVERY	EXPECTED DELIVERY
Direct Acting Solenoid Valves	4/22/80	By 12/31/80	1/19/81
Air Operated Valves	5/1/80	10/1/80	12/31/80

In addition the dedicated penetration modifications must be complete for Unit 1 and the Post-Accident Monitoring and Control Panels installed (scheduled for spring 1981) to allow final implementation and testing. This modification will be completed by the NUREG-0737 required implementation date.

The existing license requirement was based on the expectation that all necessary hardware would be delivered during December 1980. However, VEPCO's July 25, 1980 letter indicated that if delivery was late, installation would be delayed into 1981. The staff recognized this possibility in Supplement 11 to the Safety Evalaution Report. Since the modification is designed to further enhance station capabilities following a postulated accident, a delay in completion of implementation, consistent with current NRC requirements for all operating reactors is acceptable.

2.1.7 ADDITIONAL ACCIDENT MONITORING INSTRUMENTATION (Item II.F.1)

Condition 2.C.(21) Item (i) of the North Anna Unit 2 Operating License NPF-7 requires that VEPCO shall install and demonstrate the operability of instruments for continuous indication in the control room of the following variables. Each item shall be completed by the specified date in the condition:

(i) Containment pressure from 0 psia to three times the design pressure of the containment no later than January 1, 1981;

(ii) Containment water level from (1) the bottom of the top of the containment sump, and (2) the bottom of the containment to a level equivalent to 600,000 gallons of water no later than January 1, 1981;

(iii) Containment atmosphere hydrogen concentration from 0 to 10 volume percent shall be installed no later than April 1, 1981; and the hydrogen sampling system to be used in the interim will be installed no later than January 1, 1981;

(iv) Containment radiation up to 10^7 R/hr. no later than January 1, 1981; and

(v) Noble gas effluent from each potential release point from normal concentrations to 10^5 μCi/cc (Xe-133) no later than July 31, 1981.

VEPCO shall also provide capability for continuous sampling and for onsite analysis of the radioiodine and particulate effluent samples no later than July 31, 1981.

Until the above installation is completed, VEPCO shall use interim monitoring procedures and equipment.

With respect to monitoring containment pressure, VEPCO in their letter of November 20, 1980, proposes to change the implementation date to be in accordance with the implementation schedule specified in NUREG-0737; i.e., January 1, 1982.

In their letter of December 15, 1980, VEPCO indicated that the modifications related to the monitoring of containment pressure are complete with the exceptions of qualified indicators and recorders. The indicators are scheduled for delivery March 1981 and the recorders the fall of 1981.

The modifications will be completed by the NUREG-0737 implementation date of January 1, 1982 and will satisfy the revised requirements and clarifications.

The system is fully operational and capable of measuring and indicating containment pressure from 0 to 180 psia. Since the remaining work involves qualification of equipment to monitor plant conditions, we conclude that a short delay in installation of fully qualified equipment, consistent with current NRC requirements for all operating reactors is acceptable.

With respect to the monitoring of containment water level, VEPCO in their letter of December 18, 1980, proposes to change the implementation date to be in accordance with the implementation schedule of NUREG-0737; i.e., January 1, 1982.

In their letter of December 15, 1980, VEPCO, indicates that the modifications related to the monitoring of containment water level are complete with the exception of qualified wide range indicators and recorders. The indicators are scheduled for delivery April 1981 and the recorders the fall of 1981. The modifications will be completed by the NUREG-0737 implementation date of January 1, 1982 and will satisfy the revised requirements and clarifications.

The system is fully operational and capable of measuring and indicating containment water level up to the elevation equivalent to 600,000 gallons. Since the remaining work involves qualification of equipment to monitor plant conditions, we conclude that a delay in installation of fully qualified equipment, consistent with current NRC requirements for all operating reactors is acceptable.

With respect to the monitoring of containment atmosphere hydrogen concentration, VEPCO in their letter of November 20, 1980, proposes to change the implementation date to be in accordance with the implementation schedule of NUREG-0737; i.e., January 1, 1982.

In their letter of December 15, 1980, VEPCO indicates that the engineering related to the monitoring of containment hydrogen concentration is scheduled to be complete February 1981 and all material is expected to be delivered by June 1981. This material had an original delivery date of late 1980. Installation and testing is scheduled for the fall outage and will be operational by the NUREG-0737 required implementation date of January 1, 1982. The system will satisfy the revised reqirements and clarifications of NUREG-0737.

A redundant hydrogen analyzer system that is not fully qualified is operational along with the capability of using a containment gas sample for analysis. Since the parameters are monitored in the interim, a delay in installation consistent with current NRC requirements for all operating reactors is acceptable.

With respect to the monitoring of containment radiation, VEPCO in their letter of November 20, 1980 proposes to change the implementation date to be in accordance with the implementation schedule of NUREG-0737; i.e., January 1, 1982.

In their letter of December 15, 1980, VEPCO indicates that the engineering related to the monitoring of containment radiation is 90 percent complete. Detectors and cable are mounted in the containment but not electrically terminated. The vendor (Victoreen) is still qualifying the electrical termination procedures. All remaining material is scheduled for delivery

in April 1981. Outside containment work is scheduled to be completed the summer of 1981. The remaining in-containment work could be completed at the first outage allowing five days of containment access after material delivery and procedure qualification. The modifications will be complete by the NUREG-0737 implementation date of January 1, 1982. On this basis, a delay in installation, consistent with current NRC requirements for all operating reactors, is acceptable.

With respect to the monitoring of noble gas, radioiodine and particulate, VEPCO in their letter of November 20, 1980 proposes to change the implementation date to be in accordance with the implementation schedule of NUREG-0737; i.e., January 1, 1982.

In their latter of December 15, 1980, VEPCO estimates that detailed engineering is approximately 60 percent complete. Construction has not started. It is expected that the system will not be installed and operating until January 1, 1982, because of major equipment availability problems.

VEPCO has placed a purchase order with Kaman Science Corporation, Colorado Springs, Colorado for a vent stack and process vent high range effluent radiation monitoring system including noble gas monitors, iodine monitors and particulate monitors for which required delivery is 36 weeks. It is expected that this system can be delivered no earlier than July 31, 1981. Installation and testing is scheduled for four months. The system will satisfy the revised requirements and clarifications of NUREG-0737.

Until the system is fully operational, existing monitors and interim procedures will be used to monitor releases, as reviewed in Supplement

10 of the Safety Evaluation Report. Pending complete implementation of the improved monitoring system, we conclude that the interim procedures and equipment are satisfactory. Final installation will be completed on a schedule consistent with current NRC requirements for all operating reactors and therefore, acceptable.

2.2 IE BULLETIN 79-27

Condition 2.C(12) of the North Anna Unit No. 2 Operating License NPF-7 requires that certain modifications associated with IE Bulletin 79-27 must be implemented at the next outage of sufficient duration or within six months of issuance of a full power operating license, whichever comes first. The modifications had been identified by VEPCO as desirable to improve the ability of the operators to evaluate plant status after loss of power to an instrument bus, but were not essential to satisfy the concerns of IE Bulletin 79-27.

By letter dated November 20, 1980, VEPCO has requested an amendment to the operating license to permit a delay in implementing a portion of the modifications identified as desirable pursuant to IE Bulletin 79-27, although most of the modifications were implemented in a timely manner. Specifically, VEPCO proposes delaying the required time for provision of diverse power supplies for the T_{hot} and T_{cold} (T_h and T_c). VEPCO's request states that the NSS supplier, Westinghouse, identified several potential concerns relative to the interface of this modification with the reactor vessel level instrumentation now being designed. The interface concerns cannot be fully resolved in time to procure equipment and implement the modification in advance of the installation schedule for the level instrumentation.

The modification involving the T_h and T_c instruments was previously determined to be desirable to improve safety but not immediately necessary for safe operation. Several related modifications were in fact implemented within schedular requirements. The original schedule for implementing the modification did not anticipate material procurement delays. There is valid reason for delay to ensure proper interface with the reactor vessel instrumentation.

On the basis of the above, we find the requested delay time to be acceptable. VEPCO has determined that the requested change does not involve an unreviewed safety question, and we conclude that it does not pose a significant hazards consideration. Accordingly, we find that requested change to the license condition, to require that provisions of diverse power supplies for the T_h and T_c instruments be implemented prior to startup from the first refueling outage, to be acceptable.

3.0 ENVIRONMENTAL CONSIDERATIONS

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact, and pursuant to 10 CFR Section 51.1'd)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

We have concluded, based on the considerations discussed above, that:

(1) because the amendment does not involve a significant increase in the

probability or consequences of accidents previously considered or a significant decrease in any safety margin, it does not involve a significant hazards consideration; (2) there is reasonable assurance the the health and safety of the public will not be endangered by operation in the proposed manner; and (3) such activities will be conducted in compliance with the Commission's regulations.

Thus, the issuance of this amendment to change the North Anna Power Station, Unit 2 Operating License NPF-7 related to the implementation dates of certain requirements as discussed in Section 2.0 of this report, will not be inimical to the common defense and security or to the health and safety of the public. Also, we reaffirm our conclusions as otherwise stated in our Safety Evaluation Report and its Supplements.