VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

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United States Nuclear Regulatory Commission
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Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNITS 1 AND 2
SUMMARY OF FACILITY CHANGES, TESTS AND EXPERIMENTS

Pursuant to 10 CFR 50.59(d)(2), enclosed is a summary description of Facility Changes, Tests and Experiments identified in Regulatory Evaluations implemented at the North Anna Power Station during 2005.

If you have any questions, please contact us.

Very truly yours,

J. M. Davis
Site Vice President

Enclosure - Attachment

cc: U. S. Nuclear Regulatory Commission
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Mr. J. T. Reece
NRC Senior Resident Inspector
North Anna Power Station

JE47

Attachment 1

NORTH ANNA UNITS 1 &2

2005 – 10 CFR 50.59 CHANGES, TESTS & EXPERIMENTS

REGULATORY EVALUATION: 97-SE-M0D-07

Document Evaluated: DCP 96-237 – INSTALL TEST TAPS IN HVAC DUCTS / NAPS / UNITS 1&2.

Brief Description: Test taps were installed on the HVAC ductwork in the auxiliary building and safeguards area.

Reason for Change: The test taps were needed to assist in evaluating various flow conditions throughout the ventilation systems, including flow balances.

Summary: Test taps were installed on the HVAC ductwork in the Auxiliary Building and Safeguards areas. The subject test taps will assist in evaluating various flow conditions throughout the ventilation systems including flow balances. The test taps will allow for the temporary installation of instrumentation to allow for flow balancing. When not in use, the taps will be capped to maintain the system pressure boundary function of the ducts.

REGULATORY EVALUATION: 00-SE-MOD-02

Document Evaluated: DCP 99-168 – CHARGING PUMP UPGRADES / NAPS / UNITS 1&2

Brief Description: Replace / refurbish the charging pump internal rotating element, discharge head / drip pocket assembly and thrust bearing housing with upgraded components.

Reason for Change: Root Cause Evaluation, RCE N-98-08, "Unit 1 B Charging Pump High Vibrations" identified that the cause of the increased vibration problems on Unit 1 and 2 Charging Pumps were primarily due to the pumps operating at or near the end of their life span. Specifically, it was determined that, based on the current design of the Charging Pumps, the rotating elements would typically only last approx. 30,000 "run" hours which corresponds to a 15-year life span. As a result of recommendations formulated in the RCE, a commitment was made to refurbish the Charging Pump rotating elements utilizing a new shaft design by the pump manufacturer, Ingersoll-Dresser Pump Company (IDP).

Summary: To increase Unit 1 & 2 Charging Pump reliability, integrity, and life span, the following corrective actions were taken:

a) All Charging Pump shafts were replaced with ones that incorporated a tougher material with improved fatigue strength,

b) Shaft keyways, pressure reducing sleeves, and impeller grooves were re-designed to reduce stress concentration in the shaft and increase shaft reliability.

c) Drip trays and thrust bearing housings were re-designed to stabilize the outboard bearing to make them less susceptible to vibration harmonics and help reduce wear / loosening of internal pump clearances / mechanical seal leaks.

REGULATORY EVALUATION: 01-SE-MOD-02

Document Evaluated: DCP 99-006 – VENTILATION RADIATION MONITORING (KAMAN) SYSTEM REPLACEMENT / NAPS / UNITS 1&2

Brief Description: The previously installed KAMAN process and vent stack particulate, iodine and gaseous radiation monitors: 1-GW-RM-178, 1-VG-RM-179 & 1-VG-RM-180 were replaced with radiation monitor systems manufactured by MGP Instruments. Similarly, Westinghouse, NRC and General Atomic radiation monitors: 1-GW-RM-101/102, 1-VG-RM-1 03/104 & 1-VG-RM-1 12/113, previously installed in parallel with, and redundant to the KAMAN monitors, were removed.

Reason for Change: A new, state of the art, MGP monitoring system was installed to replace the out-dated KAMAN monitors, which were no longer being manufactured. Previously, the radiation monitoring system was comprised of a combination of different manufacturers' equipment that had been difficult and expensive to operate and maintain.

Summary: The previous configuration of radiation monitors contributed to the maintenance / unreliability issues identified over the years. DCP 99-006, subsequently replaced radiation monitors, re-aligned / replaced sample lines, as necessary, to accommodate the replacement of several monitors by one monitor, in each of the process and stack vent monitoring subsystems. Additionally, relocation of the grab sample stations from the roof enclosure reduced the time required by Health Physics to check vent samples and Operations to check the functioning of associated sample pumps 1-SS-P-6A and 6B each shift.

REGULATORY EVALUATION: 05-SE-MOD-01

Document Evaluated: DCP 95-007 – DESIGN BASIS FOR NORTH ANNA SPENT FUEL 100 HOUR CORE OFFLOAD / NAPS / UNITS 1&2

Brief Description: DCP 05-007 served as the implementing document to demonstrate the acceptably of changing the minimum wait time to offload the core from the current 150 hours to 100 hours .

Reason for Change: As part of the initiative to reduce the duration of refueling outages, Engineering calculations and evaluations determined that reducing the core offload wait time from 150 hours to 100 hours was reasonable and achievable .

Summary: This DCP documents the gamma heating analysis, as well as the spent fuel pool structural re-analysis and heat removal capability of the associated cooling

systems that demonstrate the acceptability of reducing core offload wait time from 150 hours to 100 hours.

REGULATORY EVALUATION: 05-SE-OT-01 & 05-SE-OT-01, REV 1, (ISOLATION OF COMPONENT COOLING TO CONTAINMENT PENETRATIONS)

Documents Evaluated: Engineering Transmittal ET CME-2005-0005, Rev 2, and North Anna Operating Procedure 0-OP-51.8, Isolation of Component Cooling to Containment Penetrations.

Brief Description: ET CME-2005-0005 involved an evaluation to demonstrate that a reduction in the compressive strength of the containment shell concrete would not be affected by the thermal cycles induced by the loss of hot penetration cooling. Specifically, it determined that: a) strength reduction was localized to the area around the hot penetration and had no effect on the concrete several feet away from the penetration, b) there was no loss of integrity and c) coatings applied to the liner remained qualified at their expected operating temperatures.

Reason for Change: Suspected leaks in several containment penetration coolers necessitated the isolation of Component Cooling water to all of the containment penetrations with coolers. Cooling water is normally supplied to ensure that the Containment Building concrete surrounding the penetrations is maintained below 150 °F.

Summary: Isolation of the Component Cooling water piping will expose the concrete surrounding the penetrations to higher temperature than designed. The thermal cycling of the concrete at higher than the design temperature results in a reduction of the strength of the concrete. The concrete and the penetration were evaluated for the temperatures and thermal cycles they are expected to experience with the loss of penetration cooling and the impact was determined to be acceptable. The procedure for isolating the penetration coolers was reviewed to ensure that the penetrations will not be subjected to thermally induced over-pressurization as a result of the isolation evolution.

REGULATORY EVALUATION: LICENSING COMMITMENT EVALUATION: OPERATOR CONTAINMENT ENTRY TO VERIFY RHR SUCTION VALVE POSITION, DATED 06-06-05

Documents Evaluated: North Anna U1/2 - TS Amendment Nos. 175 & 156; 1/2-PT-214.16; 1/2-OP-1.3; Generic Letters 87-12 & 88-17.

Brief Description: The NRC Safety Evaluation Report (SER) associated with TS Amendment Nos. 175 and 156, Removal of the NAPS U1 & 2 - RHR System autoclosure interlock, stated: "Procedures used during startup after RHR isolation valves are closed and de-energized will be revised to now require a containment entry by two operators who will simultaneously verify that the RHR suction valves are closed

by observing the mechanical indicator on the valves. This revised procedure will give further assurance that the valves are in the correct position."

However, subsequent to the above-noted commitment, a new, Plant Computer System (PCS) was placed in-service providing the capability to verify that the subject suction valves are properly closed. The PCS system is now being utilized by an independent operator and the Shift Technical Advisor to ensure the RHR suction valves are in the "closed" position prior to being de-energized.

Reason for Change: The requirement for two operators to perform a sub-atmospheric containment entry to simultaneously verify the RHR suction valve position was determined to be unnecessary since it exposed the operator to: a) potential, personnel safety issues associated with entry into the containment while under vacuum, as well as: b) additional radiation exposure since the RHR suction valves are located in a high radiation area.

Summary: The installation of the new PCS includes a method to verify the correct position of the RHR valves before the electrical breakers are de-energized without requiring an under - vacuum entry into the containment. Similarly, 1/2-0P-1.3 was revised to utilize PCS to verify that the RHR valves are closed prior to de-energizing and locking the breakers for the MOV's.

REGULATORY EVALUATION: LICENSING COMMITMENT EVALUATION: UNIT 1, CIRCULATING WATER SYSTEM PROTECTION CIRCUITRY TEST FREQUENCY, DATED 03-09-06

Documents Evaluated: NRC Inspection Report No. 90-01; LER NI-88-002-00; CTS 01-88-5061-004; PM E-I0-CW/R-2; EMP-P-CW-I.

Brief Description: LER N1-88-002-00, dated 02-03-88, (Manual Reactor Trip in anticipation of a loss of main condenser vacuum when 3 running CW pumps tripped simultaneously and condenser vacuum decreased rapidly) was "closed" in NRC IR # 90-01, with the statement: "As a corrective action, the licensee developed a new preventative maintenance procedure which performed an evaluation of the Unit 1 and 2 CW system protective circuitry and did not identify any discrepancies. The new procedure will be performed every refueling outage."

However, the commitment that "the new procedure will be performed every refueling outage" has since been re-evaluated. It has now been determined that the CW system protection circuitry testing frequency should be based on the PMTER process which determines PM frequency on "system performance."

Attachment 1

NORTH ANNA UNITS 1 &2

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Reason for Change: The basis for changing the CW system protection circuitry testing frequency from every Refueling Outage to that determined by the PMTER process, included the following:

1) North Anna U1/2 Technical Specifications, as well as USFAR Chapters 2, 3, 10, and 11, do not contain a requirement to maintain the CW system protection circuitry testing on a refueling frequency. Rather, UFSAR Chapter 10 indicates that the CW system is tested periodically.
2) The subject Trip Valves are: a) Non-EQ, b) run-to-failure, c) Non-safety, d) AOV CAT 4, and e) do not affect reactivity.
3) A regulatory requirement to perform CW system protection circuitry testing on a refueling frequency could not be identified, therefore, it was considered appropriate to apply the PMTER process to determine the appropriate frequency based on "system performance."

Summary: The requirement to perform CW System Protection Circuitry Testing on a Refueling Outage frequency has been determined to be unnecessary, and adequate evidence, provided above, justified performing this test in accordance with the PMTER (system performance) process.