UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 144

TO PROVISIONAL OPERATING LICENSE NO. DPR-16

GPU NUCLEAR CORPORATION AND
JERSEY CENTRAL POWER & LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219

1.0 INTRODUCTION

By letter dated March 2, 1990, as supplemented November 29, and December 21, 1990, GPU Nuclear Corporation (GPUN/licensee) requested changes to the Technical Specifications (TS) for the Oyster Creek Nuclear Generating Station. The licensee proposed to revise Technical Specification 1.12, "Refueling Outage" to specify that refueling outage tests or surveillances shall be performed at least once per 24 months. The current definition specifies that refueling outage tests or surveillances shall be performed at least once per 20 months. The existing provision, which allows refueling outage surveillances to be postponed to the next regularly scheduled outage when refueling outages occur within 8 months of the end of the previous refueling outage, is removed. The asterisked footnote is no longer applicable and is removed. The proposed change is necessary to accommodate implementation of a 21 month operating cycle with a 3 month outage or a 24 month refueling outage. The proposed TS will affect the surveillance tests of the following systems:

(1) TS Table 4.1.1., Item 13.b, High Radiation in Main Steamline - instrument channel sensor calibration

(2) TS Table 4.1.1, Item 20, High Temperature Main Steamline Tunnel-instrument channel test

(3) TS Table 4.1.1 Item 27.b, Scram Discharge Volume (Rod block) Scram Trip Bypass

(4) TS Table 4.1.1, Item 29, Drywell High Radiation-instrument channel calibration/test

(5) TS Table 4.1.2, Item 3, Containment Spray Trip System Test

(6) TS Table 4.1.2, Item 4, Automatic Depressurization Trip System Test

(7) TS Table 4.1.2, Item 5, MSIV Closure Trip System Test

(8) TS Table 4.1.2, Item 6, Core Spray Trip System Test

(9) TS Table 4.1.2, Item 7, Primary Containment Isolation Trip System Test

(10) TS Table 4.1.2, Item 9, Isolation Condenser Actuation Trip System Test

(11) TS Table 4.1.2, Item 12, Air Ejector Offgas Line Isolation Trip System Test

(12) TS 4.2.H, Scram Discharge Volume Drain and Vent Valve Operability Test

(13) TS 4.3.D, Reactor Coolant System Visual Examination

(14) TS 4.3.G, Primary Coolant System Pressure Isolation Valve Leak Test

(15) TS 4.4.A.1, Core Spray System Pump Operability Test

(16) TS 4.4.B.2, Automatic Depressurization System Automatic Actuation Test

(17) TS 4.4.C.1, Containment Cooling System Pump Operability Test

(18) TS 4.4.D.1, Emergency Service Water System Pump Operability Test

(19) TS 4.4.E.1, Control Rod Drive Hydraulic System Pump Operability

(20) TS 4.4.F.1, Fire Protection System Pump and isolation valve operability.

(21) TS 4.5.J.1, Containment Isolation Valve Automatic Closure Test

(22) TS 4.5.O, Instrument Line Flow Check Valve Test

(23) TS 4.5.P.2, Suppression Chamber interior visual inspection

(24) TS 4.8.A.4.a, Isolation Condenser isolation valve visual inspection and external leakage check

(25) TS 4.12.I, Alternate Shutdown Monitoring Instrumentation

(26) TS 4.13-1, Item 5, Containment High Range Radiation Monitor

(27) TS 4.17, Control Room Heating, Ventilating, and Air-Conditioning System

The staff's evaluation which supports the change of TS 1.12 "Refueling Outage" to specify that refueling outage tests and surveillance shall be performed at least once per 24 months for each of the above items is presented in Section 2.0 of this report.

Several TS sections which currently specify surveillance requirements on a refueling outage basis have not been completely evaluated for extension from 20 months to 24 months. These TS surveillance intervals are revised to specify a 20 month interval, which is the existing definition of a refueling outage interval. This change allows the TS definition of a refueling outage interval (TS 1.12) to be revised to 24 months, thereby extending the interval only for the systems and components evaluated and addressed in Section 2.0 of this report. The following is a listing of the TS surveillance intervals which remain on a 20 month basis and are being revised accordingly:

1) TS Table 4.1.1, Item 18, Condenser Low Vacuum Instrument Channel Calibration/Test

2) TS Table 4.1.1, Item 20, Main Steamline Tunnel High Temperature Sensor Calibration

3) TS Table 4.1.1, Item 25, Recirculation Loop Flow Instrument Calibration

4) TS Table 4.1.1, Item 27.a, Scram Discharge Volume Water Level High Instrument Calibration

5) TS Table 4.1.2, Item 13, Containment Vent and Purge Isolation Trip System Test

6) TS 4.2, Reactivity Control.

7) TS 4.4.B.1, Automatic Depressurization System Valve Operability

8) TS 4.5.J.5.b(4), Drywell to Suppression Chamber Leak Rate Test

9) TS 4.5.K.2, Reactor Building Standby Gas Treatment System Test

10) TS 4.8.A.2, Isolation Condenser Auto Actuation and Functional Test

11) TS Table 4.13-1, Item 6, High Range Radioactive Noble Gas Effluent Monitor

These changes have no effect on the function of the subject surveillances since the existing refueling outage interval is defined as not to exceed 20 months. Therefore, the proposed changes are editorial in nature and have no effect on the safety function of the subject systems and components, and are therefore, acceptable.

The licensee also proposed to revise the "24 month" designation back to a "refueling outage" designation since the licensee proposes to redefine refueling outage intervals from a maximum of 20 months to at least once per 24 months for the following TS items,

1) TS 4.5.J.4.b, Reactor Building to Suppression Chamber Vacuum Breakers

2) TS 4.5.J.5.b, Pressure Suppression Chamber - Drywell Vacuum Breakers

3) TS 4.7.A.2, Diesel Generator

Amendment 141 of Provisional Operating Licensee DPR-16 has previously approved the extension to a 24 month interval for the surveillance identified above. Therefore, this is an editorial change in nomenclature to be consistent with the redefining of the refueling outage.

The licensee also proposed to amend License Condition 2.C.7. This item is addressed in Amendment No. 143 of Provisional Operating License DPR-16. Additionally TS Table 4.1.1, Item 15, TS Table 4.1.1, Item 28.a, TS Table 4.1.1, Item 28.b, TS 4.2.3, TS 4.5.E, TS 4.7.A.2, TS 4.7.A.3, and TS 6.15 were addressed in Amendment No. 141 to Provisional Operating License DPR-16.

2.0 Evaluation

2.1 Protective Instrumentation

TS Table 4.1.1

Item 13.b - High Radiation in Main Steamline
Item 20 - High Temperature Main Steamline Tunnel
Item 27.b - Scram Discharge Volume (Rod block) Scram Trip Bypass
Item 29, and TS 4.13, Table 4.B-1, Item 5. Drywell High Radiation Monitoring System

Evaluation

Technical Specification Table 4.1.1, Item 13.b, High Radiation in Main Steamline Instrument Channel Calibration is currently specified to be performed during each refueling outage. This instrumentation provides continuous monitoring of radioactivity in the main steamline and provides indication of fission product releases from the fuel to the reactor coolant. When main steamline high radiation is detected a SCRAM and main steamline isolation valve (MSIV) closure is initiated to limit the release of fission products to the environment. The proposed change extends the calibration surveillance interval from 20 months to 24 months. The purpose of the outage calibration is to verify that detector sensitivity to a known radioactive source has not been degraded. The licensee evaluated surveillance test results for the years 1977 through 1987. The licensee indicated that for this evaluation period only one deviation was discovered which involved the recalibration of this monitor system. The licensee will continue to functionally test the main steamline monitoring system once per month and perform channel checks once per shift per TS requirements. The sensor, as referenced in the licensee submittal, has been shown to be reliable over the present surveillance

interval. The High Radiation in Main Steamline instrument channel has also been modified with the addition of a General Electric (GE) NUMAC Logarithmic Radiation Monitor (LRM). The NUMAC LRM is expected to provide enhanced performance over the INMAC LRM it replaces. Among the improvements noted were smaller instrument drift rate, better accuracy and resolution. The NUMAC LRM also includes a self diagnostic function that annunciates a failure when detected. Based on our review of the information provided by the licensee the staff concludes that the proposed 24-month surveillance interval for the High Radiation in Main Steamline instrumentation is acceptable.

Technical Specification Table 4.1.1, Item 20, High Temperature Main Steamline Tunnel Instrument Channel Functional Test is scheduled to be performed every refueling outage. The change proposed by the licensee will revise the surveillance interval to 24 months. This surveillance tests the eight main steamline temperature sensors in each protection channel. These sensors initiate closure of the main steamline isolation valves should a main steamline break occur. The trip setpoint is set at 50 degrees above ambient at rated power. An evaluation of surveillance test results for the years 1978 through 1986 was performed by the licensee to determine the viability of a surveillance extension. The licensee did not find any adverse trends and the functional test acceptance criteria were fully met. The eight sensors of each channel are designed so that each system may be operated with minimum of two operable sensors per channel. This arrangement further ensures system reliability. The calibration interval for each sensor will remain at 20 months since the present temperature switches are to be replaced with a "select-grade" version for which no maintenance history is available. The licensee intends to submit a calibration interval extension for these switches at a later date. A review of the TS and the licensee submittal by the staff finds that the proposed High Temperature Main Steamline Tunnel Instrument channel functional test surveillance extension from 20 months to 24 months is acceptable.

Technical Specification 4.1.1, Item 27.b, Scram Discharge Volume (rod block) Scram Trip is scheduled for each refueling outage. The purpose of this surveillance is to confirm the operability of alarms, indications, and bypass logic circuitry of the scram discharge volume trip bypass associated with the reactor protection system. The proposed change extends the surveillance interval from 20 months to 24 months. The licensee reviewed test results for the years 1984 to 1988 and found that the surveillance requirements had all been met with no adverse trends detected. This surveillance history data is limited in that the scram discharge volume was modified extensively in 1984. This bypass is active only in the shutdown or refuel mode; thus, testing only during refueling outage is acceptable. Based on the above the staff finds the extension of the Scram Discharge Volume Trip Bypass Channel Functional Test from 20 to 24 months acceptable.

Technical Specification 4.1.1, Item 29, and TS 4.13, Table 4.13-1, Item 5 Drywell High Radiation Channel Calibration and Functional Test are scheduled for each refueling outage (20 months). The proposed change will extend the surveillance interval from 20 to 24 months for the Containment High Range Radiation Monitoring System (Drywell High Radiation) functional test and calibration. The function of the Containment High Range Radiation Monitoring System is to provide a high range trip signal to the drywell and torus purge ventilation isolation valves via the RPS. The purpose of the Calibration and Functional Test is to confirm the system trip setpoint with an external source and test the RPS logic channel. The vendor recommendation for the detector calibration is once every 5 years. The licensee also stated that the additional monthly channel checks, and channel functional tests are performed on the Containment High Range Radiation Monitoring System. Based on the vendor data referenced by the licensee and the additional monthly testing performed on the High Range Radiation Monitoring System the staff finds the proposed surveillance interval extension to be acceptable.

Conclusion

The proposed 24-month surveillance interval extensions for the TS sections listed below have been reviewed and are acceptable to the staff.

TS Table 4.1.1

Item 3.b - High Radiation in Main Steamline
Item 20 - High Temperature Main Steamline Tunnel
Item 27.b - Scram Discharge Volume (Rod Block) Scram Trip Bypass
Item 29 and TS 4.13, Table 4-13-1, Item 5 - Drywell High Radiation Monitoring Systems.

The maintenance and surveillance history evaluation performed by the licensee confirmed the reliable operation of the equipment for the existing surveillance intervals. Although instrument drift was not addressed specifically in the submittal, the referenced surveillances are, generally, system functional tests with instrument calibrations being performed under separate surveillances. For surveillance extensions that involved specific instrumentation the licensee provided additional supporting information or stated that additional surveillances are performed that support an increased surveillance interval. The intervals for calibration/testing and channel checks that are not outage related for the referenced TS surveillances are not being revised and will continue to provide assurance of system operability. The licensee has also performed an equipment upgrade on the Main Steamline High Radiation instrumentation and has planned an instrument upgrade for the High Temperature Main Steamline Tunnel systems to further improve reliability. Where surveillance history data is not available, such as for replaced equipment, the licensee should initiate a means to collect and trend the necessary data to ensure that an extended surveillance interval remains

appropriate for the subject system. Based on the information provided by the submittal and additional information provided by the licensee the staff finds the proposed surveillance interval extensions to be acceptable.

2.2 Trip Systems Evaluated TS Table 4.1.2

Item 3 - Containment Spray
Item 4 - Automatic Depressurization
Item 5 - MSIV Closure
Item 6 - Core Spray
Item 7 - Primary Containment Isolation
Item 9 - Isolation Condenser Actuation and Isolation
Item 12 - Air Ejector Off-Gas Line Isolation

Evaluation

Technical Specification change Table 4.1.2, Item 3, Containment Spray Actuation System functional testing is performed every refueling outage. The proposed change will revise the surveillance interval from 20 to 24 months. This surveillance tests the operability of the Containment Spray Actuation System logic and actuates various components of the system. The function of the Containment Spray System is to condense any steam resulting from a design basis LOCA, thereby maintaining containment pressure within TS limits. The purpose of this surveillance is to confirm system operability following any outage maintenance activities. The licensee stated that the Containment Spray System is also tested once every 3 months in accordance with Table 4.1.2. This test interval is not being revised and will continue to confirm system operability. Based on the above information the staff finds the proposed interval extension for the Containment Spray Actuation System to be acceptable.

Technical Specification Table 4.1.2, Item 4, Automatic Depressurization System functional testing is performed every refueling outage. The purpose of the Automatic Depressurization System (ADS) is to reduce reactor pressure so that flow from the low pressure core spray system can inject water onto the core during small break LOCA conditions. The proposed surveillance test interval would be extended from 20 months to 24 months. The purpose of the surveillance test is to confirm operability of the ADS and to detect failed system components. The licensee performed an evaluation of surveillance test results over the period of 1978 to 1988. The review did not find any discrepancies and found that all acceptance criteria were met. Associated instrument calibration are performed separated once every 3 months. The staff therefore finds the proposed calibration interval to be acceptable.

Technical Specification Table 4.1.2, Item 5, MSIV Closure Trip System functional testing is performed every refueling outage. The proposed surveillance interval extension will extend the present interval of 20 months to 24 months. This surveillance tests the operation of the main steamline isolation valve (MSIV) closure trip logic and actuation components. The MSIVs

are designed to limit core damage (loss of reactor coolant inventory) and excessive release of radioactivity to the environment. The licensee reviewed surveillance test results for the years 1978 to 1987 and found them to be acceptable except for the main steamline pressure switches. The licensee stated that 3 of the 4 main steamline low pressure have performed satisfactorily. One low pressure switch failed to meet the acceptance criteria in 2 of the 16 surveillances performed. The licensee has stated that these switches are scheduled to be replaced in an effort to improve system reliability. These switches also undergo calibration every 3 months which will continue to provide assurance of system operability. Based on the above the staff finds the proposed surveillance interval extension to 24 months acceptable.

Technical Specification Table 4.1.2, Item 6, Core Spray Actuation System functional testing interval is currently specified for each refueling outage (20 months). The Core Spray System provides protection of the core for a large or small break LOCA. The purpose of this surveillance is to assure system operability, and to detect any component failures caused by maintenance or construction activities during an outage. The proposed change revises the surveillance interval from 20 months to 24 months. The Core Spray Actuation System is also tested every 3 months for pump and valve operability as shown in the Oyster Creek TS. Based on the above the staff finds the proposed surveillance extension acceptable.

Technical Specification Table 4.1.2, Item 7, the Primary Containment Isolation Trip System surveillance testing is also specified to be performed during each refueling outage. This surveillance tests the operability of the primary containment isolation logic and actuation components. The proposed change revises the surveillance interval from 20 months to 24 months. The licensee evaluated surveillance test results for the period 1978 to 1987 and found that all requirements were met except for the failure of two valves to open during the performance of one surveillance test. These failures were attributed to control wiring errors at the respective valve solenoids. The wiring was subsequently repaired and the valves successfully retested. Each instrument channel that initiates actuation of the primary containment isolation trip system will continue to be calibrated and tested every 3 months per TS 4.1.1. These surveillances provide added assurance of system operability. System reliability has been demonstrated by acceptable surveillance test results. Based on the above information the staff finds the proposed surveillance interval extension from 20 months to 24 months to be acceptable.

Technical Specification Table 4.1.2, Item 9, Isolation Condenser Actuation and Isolation System Functional Test is currently scheduled to be performed every refueling outage. Oyster Creek utilizes an isolation condenser system to control reactor pressure upon loss of normal heat sink. The isolation condenser draws off reactor steam, condenses the steam, and returns the resultant condensate to the reactor vessel via the recirculation system suction line. The purpose of this surveillance is to ensure acceptable system

operability and availability. The licensee review of surveillance test results over the period 1978 and 1988 did not indicate any deviations from the surveillance acceptance criteria. The instrumentation surveillances associated with isolation condenser actuation are not being revised and continue to provide a means of ensuring system operability. The staff finds the proposed interval extention to 24 months to be acceptable.

Technical Specification Table 4.1.2, Item 12, Air Ejector Offgas Line Isolation System functional testing is performed every refueling outage. The Offgas Isolation System is designed to isolate automatically upon detection of either main steam line high radiation or high offgas radiation. The purpose of this surveillance test is to ensure the automatic trip signal to isolation valve V-7-31 is operable. A licensee evaluation of surveillance test results for the years 1986 and 1987 indicated full conformance to surveillance requirements. The existing analog radiation monitors were replaced with GE NUMAC LRM's to improve system accuracy and reliability. Unlike the older LRM's it replaces, the NUMAC incorporates self diagnostic functions to provide further assurance of system reliability. Based on the above the staff finds the proposed surveillance extension to 24 months acceptable.

Conclusion

The proposed 24-month surveillance interval extensions for the TS sections listed below have been reviewed and are acceptable to the staff.

TS Table 4.1.2

Item 3 - Containment Spray
Item 4 - Automatic Depressurization
Item 5 - MSIV Closure
Item 6 - Core Spray
Item 7 - Primary Containment Isolation
Item 9 - Isolation Condenser Actuation and Isolation
Item 12 - Air Ejector Off-Gas Line Isolation

The maintenance and surveillance history evaluation by the licensee confirmed the reliable operation of the equipment for the existing surveillance intervals. Although instrument drift was not addressed specifically in the submittal, the referenced surveillances are, generally, system functional tests with instrument calibrations being performed under separate surveillances. For surveillance extensions that involved specific instrumentation, the licensee provided additional supporting information or stated that additional surveillances are performed that support an increased surveillance interval. The intervals for calibration/testing and channel checks that are not outage related for referenced TS surveillances are not being revised and will continue to provide assurance of system operability. The licensee has planned an instrument upgrade for the MSIV to further improve reliability. Where surveillance history data is not available, such as for

replaced equipment, the licensee should initiate a means to collect and trend the necessary data to ensure that an extended surveillance interval remains appropriate for the subject system. Based on the information provided by the submittal and additional information provided by the licensee the staff finds the proposed surveillance interval extensions to be acceptable.

2.3 Scram Discharge Volume Drain and Valve Operability Test - TS 4.2.H

Evaluation

Technical Specification 4.2.H specifies that all withdrawn control rods are verified operable at least once per refueling cycle by demonstrating the scram discharge volume (SDV) drain and vent valves functional operability and acceptable closure times. The safety function of the SDV system is to limit the loss of and contain the reactor vessel water from all the control rod drives during a scram. The SDV drain and vent valves isolate the SDV upon a scram signal.

The proposed TS change will extend the interval between successive refueling outage tests from 20 months to 24 months. An operating history of functional test demonstrated reliable operation over the last 6 years. These valves are exercised once a month as a slow motion test to verify component operability as per TS requirements. The licensee performs a full travel test quarterly. During the refueling outage, the licensee performs a full stroke and stroke time test for the component operability. Monthly and quarterly operability verification of drain and vent valves provide assurance of component availability all the time. Therefore, the proposed TS change will have no effect on the safety function of the SDV drain and vent valves.

Conclusion

We find that the proposed TS change to extend the surveillance test intervals of the Scram Discharge Volume Drain and Valve system to be consistent with refueling cycle change from 20 months to 24 months is acceptable, based on the adequate operating history of the systems seen through functional tests and TS current monthly and quarterly operating testing requirements of mechanical equipment which provide assurance of component availability during the plant operation. This change is expected to have no significant effect on the ability of the system to perform its safety functions reliably.

2.4 Reactor Coolant System Visual Examination TS 4.3.D.

Evaluation

TS Section 4.3, Subsection D, currently specifies that a visual examination for leaks shall be made with the reactor coolant system at pressure during each scheduled refueling outage or after major repairs have been made to the reactor coolant system. The proposed change will extend the interval between successive visual inspection from 20 to 24 months. The unidentified leak rate

is monitored during this inspection and corrective actions are taken if an unacceptable leak rate is found by visual inspection or by monitored leak rate.

Furthermore, TS Section 3.3 bases references fracture mechanics analysis which shows that postulated pipe crack initiation and subsequent growth would occur very slowly and will be detected before it grows to critical size which could cause pipe rupture. In addition, fracture analysis also shows that the leak rate at the critical size exceeds the upper limit on unidentified leak rate.

Conclusion

Based on the licensee's operation and inspection experience and inspection results the TS change as discussed above has been found acceptable. The staff also concludes that the proposed TS change will not effect the safety functions of the Reactor Coolant System.

2.5 Primary Coolant System Pressure Isolation Valve Leak Test - TS 4.3, Subsection G

Evaluation

Technical Specification Section 4.3, Subsection G, currently specifies that the Primary Coolant System Pressure Isolation Valves be periodically leak tested every time the plant is placed in the cold shutdown condition for refueling, each time the plant is placed in a cold shutdown condition for 72 hours if testing has not been accomplished in the preceding 9 months, whenever the valve is moved whether by manual actuation or due to flow conditions, and after returning the valve to service after maintenance, repair or replacement work is performed. With the present definition of the plant refueling cycle, this means that the testing is accomplished at least every 20 months. This surveillance leak tests the check valves to ensure they are fully seated prior to plant startup. The safety function of the periodic surveillance test is to verify that the valves are fully seated and any leak rate is within acceptance criteria. Evaluation of test results over the period 1981 and 1988 does not indicate any deviations and acceptance criteria was fully met. ASME Code XI states that Pressure Isolation Valves be leak tested every 2 years, so the proposed plant refueling cycle extension to 24 months is within Code requirements in regards to testing Primary Coolant System Pressure Isolation Valves.

Conclusion

Based upon a comparision of the proposed Technical Specification change with code requirements and the past performance of this component we have determined that extending the plant refueling outage from 20 months to 24 months would not

compromise the safety function of the valve affected by this extension. Therefore, the staff concludes that extending the surveillance testing interval from 20 months to 24 months is acceptable.

2.6 Core Spray System Pump Operability Test - TS 4.4.A.1

Evaluation

The core spray system provides for the removal of decay heat from the core following a LOCA by delivering water from the suppression pool to the reactor vessel through spray nozzles located directly above the fuel assemblies. The safety function of this periodic surveillance test is to provide assurance of the core spray system availability prior to startup following a refueling outage, during which major repair and maintenance may be performed on the system.

The proposed TS change will only extend the interval between successive refueling outage tests from 20 months to 24 months. TS 4.4.A.1 requires that core spray system pump operability be verified once every month. In addition, the pump operability is verified prior to startup following a refueling outage to ensure that major repair and maintenance performed during an outage has not encroached upon the availability of the core spray system. The core spray system automatic actuation test is performed quarterly. The core spray system pump operability surveillance test frequency remains the same. The proposed change will have a minor impact during the refueling. The pump will be tested twice during that month.

Thus, TS current testing provides adequate assurance concerning the system availability and a change in the interval between outages is expected to have no effect on system availability. Therefore, the proposed change is expected to have an insignificant effect on the ability of the core spray system to perform its safety function reliably.

Conclusion

We find the proposed TS change to extend the surveillance test intervals of the core spray system to be consistent with the refueling cycle change from 20 months to 24 months is acceptable, based on the adequate operating history of the system seen through functional tests and the TS current monthly operability testing requirements of mechanical equipment which provide assurance of component availability during the plant operation. This change is expected to have no significant effect on the ability of the systems discussed above to perform their safety functions reliably.

2.7 Automatic Depressurization System Automatic Actuation Test - Item TS 4.4.B.2

Technical Specification 4.4.B.2 specifies that the Automatic Depressurization System (ADS) automatic actuation test be performed every refueling outage. The ADS safety function is to depressurize the reactor coolant system during a small break LOCA to permit the low pressure core spray system to inject water onto the reactor core. This periodic surveillance test is to assure acceptable system availability by detecting failed components.

The proposed TS change will extend the interval between successive refueling outage tests from 20 months to 24 months. The operating history of functional tests demonstrated reliable operation over the last 10 years. The ADS valve functional test is done in two parts, (1) manual operability test during the refueling outage, and (2) automatic actuation test for the valve's operator during the refueling outage. ADS logic circuitry is tested once a month in other TS and remains the same. ADS valves operability test is performed manually by the operator using a switch in the control room. The automatic actuation test (ADS valves' stems are disconnected and ADS valves' actuation signals are simulated) verifies the valve's operator functional capability separately. Prior to restart, valves operability is verified again with steam at low power.

Thus, TS current testing, (1) monthly logic test and (2) valve operability manual test during the refueling outage provide adequate assurance concerning the ADS system availability and a change in the interval between outages is expected to have no effect on system availability. Therefore, the proposed change is expected to have an insignificant effect on the ability of the ADS system to perform its safety function reliability.

Conclusion

We find the proposed TS change to extend the surveillance test intervals of the ADS to be consistent with the refueling cycle change from 20 months to 24 months is acceptable, based on the adequate operating history of the systems seen through functional tests and the TS current monthly and quarterly operability testing requirements of mechanical equipment which provide assurance of component availability during the plant operation. This change is expected to have no significant effect on the ability of the systems discussed above to perform their safety functions reliably.

2.8 Containment Cooling System Pump Operability Test - Item 4.4.C.1 and Emergency Service Water System Pump Operability Test - TS 4.4.D.1

Evaluation

The Containment Spray and Emergency Service Water Systems comprise the Containment Cooling System and function to reduce containment pressure and temperature following a design basis LOCA, and in conjunction with the Core

Spray System assure continuity of core cooling. The safety function of these periodic surveillance tests is to provide assurance of the Containment Spray System and Emergency Service Water System availability prior to startup following a refueling outage, during which major repair and maintenance may be performed on the systems.

The proposed TS change will only extend the interval between successive refueling outage tests from 20 months to 24 months. TS 4.4.C.1 and TS 4.4.D.1 require that containment spray system pump operability and emergency service water pump operability be verified once every month. In addition, the pump operabilities are verified prior to startup following a refueling outage to ensure that major repair and maintenance performed during an outage has not encroached upon the availability of the containment spray system or emergency service water system. The systems automatic actuation tests are performed quarterly. The systems pump operability surveillance tests frequencies remain the same.

Thus, TS current testing provides adequate assurance concerning the systems availabilities and a change in the interval between outages is expected to have no effect on systems availability. Therefore, the proposed change is expected to have an insignificant effect on the ability of the containment spray system and emergency service water system to perform their safety function reliably.

Conclusion

We find the proposed TS change to extend the surveillance test intervals of the above systems to be consistent with the refueling cycle change from 20 months to 24 months is acceptable, based on the adequate operating history of the systems seen through functional tests and the TS current monthly operability testing requirements of mechanical equipment which provide assurance of component availability during the plant operation. This change is expected to have no significant effect on the ability of the systems to perform their safety function reliably.

2.9 Control Rod Drive Hydraulic System Pump Operability - TS 4.4.E.1

Evaluation

Technical Specification 4.4.E.1 requires that control rod drive hydraulic system pump and isolation valve operability be verified once per month, in addition to verification prior to startup following a major maintenance and a refueling outage.

The proposed TS change will extend the interval between successive refueling outage tests from 20 months to 24 months. This change will have no effect on system availability since this equipment is tested monthly. Also the control rod drive hydraulic system is normally in operation thereby providing continuous indication of system operability. Therefore, the proposed change is expected to have an insignificant effect on the ability of the control rod drive hydraulic system to perform its safety function reliably.

Conclusion

We find the proposed TS change to extend the surveillance test interval of the Control Rod Drive Hydraulic system to be consistent with the refueling cycle change from 20 months to 24 months is acceptable, based on the adequate operating history of the system the TS current monthly operability testing requirements of mechanical equipment which provide assurance of component availability during the plant operation. This change is expected to have no significant effect on the ability of the systems discussed above to perform its safety functions reliably.

2.10 Fire Protection System Pump and Isolation Valve Operability - TS 4.4.F.1

Evaluation

Technical Specification 4.4.F.1 requires that Fire Protection System Pump and isolation valve operability be verified once per month, in addition to verification prior to startup following a major maintenance and a refueling outage.

The proposed TS will extend the interval between successive refueling outage tests from 20 to 24 months. This change will have no effect on system availability since this equipment is tested monthly. Therefore, the proposed change is expected to have an insignificant effect on the ability of the Fire Protection System Pump and isolation valve to perform its safety function reliably.

Conclusion

We find the proposed TS change to extend the surveillance test interval of the Fire Protection System Pump and isolation valve to be consistent with the refueling cycle change from 20 to 24 months is acceptable since the TS 4.4.F.1 requires this verification once every month, in addition to prior to startup following a refueling outage. This change is expected to have no significant affect on the ability of the system to perform its safety functions reliably.

2.11 Containment Isolation Valve Automatic Closure Test - Item 4.5.J.1

Evaluation

Technical Specification Section 4.5.J.1 specifies that all containment isolation valves be tested for automatic closure by an isolation signal during each refueling outage. This surveillance tests the operability of the containment isolation valves and verifies acceptable closure times. The proposed change will extend the interval between successive tests from 20 months to 24 months. Evaluation of test results over the period 1978 to 1987 does not indicate any failure due to valve hardware problems or valve degradation. The proposed refueling outage interval change from 20 to 24 months will have no effect on containment isolation valve operability since

the valves have demonstrated reliable operation over the 9 year period cited above. Therefore, the proposed change has no effect on the safety function of the containment isolation valves.

Conclusion

Based on our review of the licensee's proposed change to the TS surveillance requirements, the staff concludes that the licensee's justification to support a change to TS 4.5.J.1 to accommodate the implementation of a 24 month plant refueling cycle is adequate. There were no technical concerns identified, therefore, the extension of the surveillance testing period to 24 months is acceptable.

2.12 Instrument Line Flow Check Valve Test, TS 4.5.O

Evaluation

Technical Specification Section 4.5, Subsection O, currently specifies that Instrument Line Flow Check Valves shall be tested at least once in every period between refueling outages and each time an instrument line is returned to service after any condition which could have produced a pressure or flow disturbance in that line, the open position of the flow check valve in that line shall be verified. With the present definition of the plant refueling cycle, this means that the testing is accomplished at least every 20 months. This surveillance verifies the capability of each valve to isolate. The safety function of the periodic surveillance functional testing is to assure operability of each excess flow check valve and detect and replace any failed devices. This testing cannot be done during plant operation because the testing requires isolation of a large number of sensors from the Reactor Protection System for the duration of the test with a consequent increase in the likelihood of a reactor trip. Evaluation of test results over the period 1980 to 1987 identified no significant deviations which would have prevented the check valves from performing their safety function. The test that is performed on excess flow check valves is a modified leak rate test. ASME Code XI states that leak rate testing of check valves be performed every 2 years, so the proposed plant refueling cycle extension to 24 months is within Code requirements in regards to testing Instrument Line Flow Check Valves.

Conclusion

Based upon a comparison of the proposed Technical Specification change with Code requirements and the past performance of this component we have determined that extending the plant refueling outage from 20 months to 24 months would not compromise the safety functions of the valve affected by this extension. Therefore, the staff concludes that extending the surveillance testing interval from 20 to 24 months is acceptable.

2.13 Suppression Chamber interior visual inspection - TS 4.5.P.2

Evaluation

TS Section 4.5, Subsection P.2, currently specifies that a visual inspection of the suppression chamber interior shall be made at each major refueling outage. This surveillance verifies the integrity of the coating material on the interior surfaces of the suppression chamber. The proposed change will extend the interval between successive inspections from 20 months to 24 months. The present coating material was installed in the 10R outage (1984). During inspections performed during the 11R outage the licensee did not find any damage that would compromise the function integrity of the coating material. In the 12R inspection the licensee did find a few random blisters and areas of mechanical damage. However, there was no evidence of corrosion damage or evidence of spalling of the coating from the steel shell. Any potential failure of the coating material is circumvented by detection of degradation during period inspections and subsequent repair.

Conclusion

Based on the licensee's operating and inspection experience, and inspection results, the TS change has been found acceptable. The staff also concludes that the proposed TS change will not effect the safety functions of the component.

2.14 Isolation Condenser isolation valve visual inspection and external leakage valve check - TS 4.8.4.a

Evaluation

TS Section 4.8.A.4.a, currently specifies that a visual inspection of the isolation condenser steam side isolation valves be conducted each refueling outage. This surveillance visually inspects the external valve bodies for signs of deterioration and provides assurance that the valves will maintain their integrity when they are required for isolation of the primary containment. The proposed change will extend the interval between successive visual inspections from 20 months to 24 months. The valves are located outside the drywell and if a crack or leak develops it would be detected within a shift as the valves and associated piping are inspected for visible leaks once per shift during operation. In addition, the TS require that the temperature in the area of these valves be checked once each shift for temperature increases that would indicate valve leakage.

Conclusion

Based on the licensee's operating and inspection experience, the TS change is acceptable. The staff also concludes that the proposed TS change will not effect the safety function of the component.

2.15 Alternate Shutdown Monitoring System - TS 4.12.I

Evaluation

Technical Specification Section 4.12.I currently specifies that the following Alternate Shutdown Monitoring Instrumentation channels be calibrated each refueling outage: Condensate Transfer Pump Discharge Pressure, Condensate Storage Tank Level, Service Water Pump Discharge Pressure, Control Rod Drive Pump Flowmeter, Shutdown Cooling System Flowmeter, Isolation Condenser "B" Shell Water Level and Reactor Building Closed Cooling Water Pump Discharge Pressure. The Alternate Shutdown Monitoring Instrumentation is part of the alternate shutdown facility which provides the capability to safely shutdown the plant in the event of a fire. This facility was installed in accordance with 10 CFR 50 Appendix R monitoring instrumentation to provide accurate indications of plant process conditions so that the operator can safely shutdown the plant from outside the control room in the event of a fire in certain locations. The Condensate Transfer Pump Discharge Pressure Indicator, and the Service Water Pump Discharge Pressure Indicator are all existing mechanical gages. The indicator has maintained an excellent performance record over the period from 1974 to 1988. In addition, Technical Specifications require monthly channel checks for these instrument channels.

The Isolation Condenser "B" Shell Water Level Loop is a newly added loop using an existing transmitter. Technical Specifications require a monthly channel check be performed on the instrument channel. In addition, plant procedures specify a channel check and calibrations be performed once every 3 months.

The Condensate Storage Tank (CST) Level Indicator and CRD Pump Flowmeter are newly added instruments. The Shutdown Cooling Flowmeter is an existing instrument. These instruments are differential pressure type mechanical gages which are not susceptible to drift and have maintained an excellent performance record in various applications over a long period. These instruments do not perform any automatic or nuclear safety related functions. Technical Specifications require additional monthly channel checks of the CST Level and CRD Pump Flowmeter instruments channels. In addition, plant procedures specify that the CST Level Indicator and the CRD Flowmeter be calibrated once per year. The proposed refueling outage interval change from 20 months to 24 months will have no effect on the Alternate Shutdown Monitoring instrumentation availability since long term reliable performance has been demonstrated for these channels using existing instrumentation, and the more frequent channel checks and calibrations required by Technical Specifications and plant procedures provides adequate assurance of instrument channel operability. Therefore, the proposed change has no effect on the safety function of the Alternate Shutdown Monitoring instrumentation.

Conclusion

Based on our review, the staff concludes that the licensee's justification to support the proposed change to accommodate the implementation of a 24 month plant refueling cycle is adequate. There were no technical concerns identified, therefore, the extension of the surveillance testing period, for TS 4.12.1, to 24 months is acceptable.

2.16 Control Room Heating, Ventilating, and Air Conditioning System (HVAC) - TS 4.17

Evaluation

Technical Specification Section 4.17.B currently specifies that the control room HVAC system shall be tested to demonstrate the control room and lower cable spreading room are maintained at positive pressure of > 1/8 in. w.g. relative to the outside atmosphere in the partial recirculation mode of operation, at least once every refueling outage. The proposed change will extend the interval between successive test from 20 months to 24 months. With the HVAC system operation, the only factor affecting the capability to pressurize the Control Room Envelope is degradation of the Control Room Envelope boundary penetration seals. It is not expected that penetration seals would significantly degrade over the additional 4 month period. The penetration seals are visually inspected following any repairs or maintenance. In addition, the plant Preventive Maintenance Program routinely inspects and replaces HVAC system components subject to wear such as fan belts and expansion joints and assures system functionality. The proposed refueling outage interval change from 20 months to 24 months will have no effect on the Control Room HVAC System availability since no significant degradation of penetration seals is expected over the additional 4 month period and adequate inspection of Control Room Envelope penetration seals following any repairs or maintenance is performed to enable detection of any potential degradation and allow proper corrective actions to be taken, and Control Room HVAC System components subject to wear are routinely inspected and replaced in accordance with the Preventive Maintenance Program. Therefore, the proposed change has no effect on the Control Room HVAC System.

Conclusion

Based on our review, the staff concludes that the licensee's justification to support the proposed change to accommodate the implementation of a 24 month plant refueling outage is adequate. There were no technical concerns identified, therefore, the extension of the surveillance testing period, for TS 4.17.B, to 24 months is acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32 and 51.35, an environmental assessment and finding of no significant impact have been prepared and published in the Federal Register on January 10, 1991 (55 FR 1032). Accordingly based upon the environmental assessment, we have determined that the issuance of the amendment will not have a significant effect on the quality of the human environment.

4.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security nor to the health and safety of the public.

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