WOLF CREEK
NUCLEAR OPERATING CORPORATION

Terry J. Garrett
Vice President, Engineering

July 26, 2007

ET 07-0033

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Reference:
1) Letter ET 06-0038, dated September 27, 2006, from T.J. Garrett, WCNOC, to USNRC
2) Letter ET 07-0011, dated May 2, 2007 from T.J. Garrett, WCNOC, to USNRC
3) Letter ET 07-0016, dated May 10, 2007, from T.J. Garrett, WCNOC, to USNRC
4) Telephone Conference Summary dated June 27, 2007, from V. Rodriguez, USNRC (ML071730415)
5) Telephone Conference Summary dated June 28, 2007, from V. Rodriguez, USNRC (ML071780545)

Subject: Docket No. 50-482: Followup Response to NRC Requests for Additional Information Related to Wolf Creek Generating Station License Renewal Application

Gentlemen:

Reference 1 provided Wolf Creek Nuclear Operating Corporation's (WCNOC) License Renewal Application for the Wolf Creek Generating Station (WCGS). References 2 and 3 provided WCNOC responses to NRC requests for additional information (RAIs) regarding the License Renewal Application. References 4 and 5 documented telephone conference calls held on May 15, 2007 and June 21, 2007 to discuss and clarify the WCNOC responses. Attachment I provides follow-up responses to the RAIs discussed on the conference calls.

Attachment II provides a summary of the commitments made in this response. License renewal commitment number 19 has been revised and commitment number 37 has been added.

Enclosure 1 provides an updated Nickel Alloy Aging Management Program and Nickel Alloy Updated Safety Analysis Report supplement as requested in RAI B.2.1.34-1.

A121
NRR

If you have any questions concerning this matter, please contact me at (620) 364-4084, or Mr. Kevin Moles at (620) 364-4126.

Sincerely,

Terry J. Garrett

TJG/rlt

Attachments I – WCNOC Followup Response to NRC Requests for Additional Information
II – List of Commitments

Enclosure 1 Supplement

cc: J. N. Donohew (NRC), w/a, w/e
V. G. Gaddy (NRC), w/a, w/e
B. S. Mallett (NRC), w/a, w/e
V. Rodriguez (NRC), w/a, w/e
Senior Resident Inspector (NRC), wo/a, wo/e

STATE OF KANSAS)
) SS
COUNTY OF COFFEY)

Terry J. Garrett, of lawful age, being first duly sworn upon oath says that he is Vice President Engineering of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the contents thereof; that he has executed the same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By _____
Terry J. Garrett
Vice President Engineering

SUBSCRIBED and sworn to before me this 26th day of July, 2007.

RHONDA L. TIEMEYER
NOTARY PUBLIC
STATE OF KANSAS
OFFICIAL SEAL
MY COMMISSION EXPIRES
January 11, 2010

Rhonda L. Tiemeyer
Notary Public

Expiration Date January 11, 2010

Attachment I

WCNOC Followup Response to NRC Requests for Additional Information

RAI 2.1-2
RAI B.2.1.34-1
RAI B.2.1.34-3
RAI B.2.1.34-6
RAI B.2.1.34-9

RAI 2.1-2 Followup Discussion

During a telephone conference call on May 15, 2007, the staff indicated that the response to Item (4) of this RAI requires clarification. The staff requested that the applicant clarify:

(1) if the location of the drain pipes was verified,

(2) if the location of the electrical equipment in the vicinity of the identified drain pipes which might be susceptible to leakage from the drain pipes was verified, and

(3) how WCGS verified that the electrical equipment would not be affected by leakage from the drain pipes (e.g., is the equipment designed for a potentially wetted environment)

RAI 2.1-2 Followup Response

The drain pipes discussed in RAI 2.1-2 Item (4) will be included in the scope of license renewal under the criteria of 10 CFR 54.4(a)(2).

Nickel Alloy Aging Management Program (AMP)

RAI B.2.1.34-1 Followup Discussion

During a telephone conference call on June 21, 2007, the staff indicated that the response to this RAI requires clarification. The staff informed the applicant that a revised Nickel Alloy AMP, and a revised Nickel Alloy USAR supplement must be submitted. The staff also noted that Commitment No. 19, item A, should include more detailed information specifying that WCGS will be participating in the industry initiatives such as the Westinghouse Owners Group and the Electric Power Research Institute's Material Reliability Program to ensure that the nickel alloy aging effects will be managed.

In addition, the staff requested that the applicant identify all the components of weld locations for which the proactive approach will be applied.

RAI B.2.1.34-1 Followup Response

Enclosure 1 provides an updated Nickel Alloy AMP and USAR supplement.
LRA Commitment Number 19, Item A was amended to add a new item (3) to read "(3) participate in industry initiatives such as owners group programs and the EPRI Materials Reliability Program (MRP) for managing aging effects associated with nickel alloys,.."

The Wolf Creek proactive approach uses mitigation strategies that occur before repair/replacement actions become mandatory. Mitigation strategies may be the same as the preferred repair activity. As stated in the initial response to RAI B.2.1.34-1, WCNOC is considering available options for repairing/mitigating the Reactor Coolant

Loop Nozzles. No other mitigation strategies are projected for near term implementation (next 5 years) at this time. However, current locations may change over time based on plant and industry operating experience.

The following locations were mitigated in RF15 (fall of 2006) with a structural weld overlay:

- **Pressurizer Safety and Relief Nozzle Safe-End Weld**
- **Pressurizer Surge Line Nozzle Safe-End Weld**
- **Pressurizer Spray Nozzle Safe-End Weld**

RAI B.2.1.34-3 Followup Discussion

During a telephone conference call on June 21, 2007, the staff indicated that the response to this RAI requires clarification. The staff requested that the applicant identify all the leak before break nickel alloy welds at WCGS.

RAI B.2.1.34-3 Followup Response

As listed in USAR Table 3.9(N)-12, two of the postulated break locations eliminated by applying Leak Before Break (LBB) methodology are the Reactor Vessel Inlet Nozzle and Reactor Vessel Outlet Nozzle. The corresponding nickel alloy welds in the Nickel Alloy AMP are the RV Outlet Nozzle Safe-End-Hot Leg and RV Inlet Nozzle Safe-End (Cold Leg) Weld.

RAI B.2.1.34-6 Followup Discussion

During a telephone conference call on June 8, 2007, the staff indicated that the response to this RAI requires clarification. The staff requested that the applicant describe what kind of examinations will be performed at each component or weld location provided in the response.

RAI B.2.1.34-6 Followup Response

The nickel alloy program identifies the following Alloy 600 locations and inspection frequencies. With the exception of Steam Generator tubing, which is managed by the steam generator tubing integrity AMP (XI.M19), all Alloy 600 locations in plant systems are included in the scope of this program.

Rank	Location	Type Examination	Frequency
REACTOR VESSELCOMPONENTS (RV)			
12	RV Outlet Nozzle Safe-End-Hot Leg	Bare Metal Visual Volumetric	Each Refueling (Bare Metal Visual), Every 5 Years (Volumetric)
15	RV Head Vent Nozzle	Bare Metal Visual	Lesser of 3rd Refueling or 5 Years
17	RV Bottom Mounted Nozzle (BMN)	Bare Metal Visual Volumetric	Every Other Refueling (Bare Metal Visual), 10-year ISI Exam (Volumetric)
28	RV BMN Weld	Volumetric	10-year ISI Exam
29	RV BMN to Guide Tube Weld	VT-2	Each Refueling
30	RV Inlet Nozzle Safe-End (Cold Leg) Weld	Bare Metal Visual Volumetric	Every 3rd Refueling (Bare Metal Visual), Every 6 Years (Volumetric)
31	RV Core Support Block at Weld	Visual	Once per Interval
32	RV Core Support Block Weld	Visual	Once per Interval
34	RV Core Support Block	Visual	Once per Interval
35	RV Head Vent to Elbow Weld	VT-2	Each Refueling
36	RV Head Vent Elbow to Piping Weld	VT-2	Each Refueling
37	RV Head Vent Pipe to SS Elbow	VT-2	Each Refueling
39	RV Head Vent Nozzle Elbow	VT-2	Each Refueling
40	RV Head Vent Horizontal Pipe	VT-2	Each Refueling
21	Head Vent Penetration Weld	Volumetric/Surface	Lesser of 4th Refueling or 7 Years
Control Rod Drive Mechanism (CRDM)			
13 (CRDM Nozzle Weld)	CRDM Nozzle and Nozzle Weld	Volumetric/Surface	Lesser of 4th Refueling or 7 Years
22	CRDM Nozzle	Bare Metal Visual	Lesser of 3rd Refueling or 5 Years
38	CRDM to Flange Weld	VT-2	Each Refueling
PRESSURIZER COMPONENTS (PZR) Note:1			
Mitigated	PZR Safety and Relief Nozzle Safe-End Weld	Volumetric	25% sampling in ISI interval
Mitigated	PZR Surge Line Nozzle Safe-End Weld	Volumetric	25% sampling in ISI interval
Mitigated	PZR Spray Nozzle Safe-End Weld	Volumetric	25% sampling in ISI interval

Rank	Location	Type Examination	Frequency
STEAM GENERATOR COMPONENTS (S/G)			
2	SG Partition Plate-Hot Leg	Visual	Generator Maintenance
4	SG Partition Stub-Hot Leg	Visual	Generator Maintenance
5	SG Partition Stub/Tubesheet Weld-Hot Leg	Visual	Generator Maintenance
6	SG Partition Plate/Stub Weld-Hot Leg	Visual	Generator Maintenance
8	SG Closure Ring-Hot Leg	Visual	Generator Maintenance
9	SG Cladding on CS Shell-Hot Leg	Visual	Generator Maintenance
10	SG Partition Plate/Lower Bowl Weld-Hot Leg	Visual	Generator Maintenance
11	SG Closure Ring Weld-Hot Leg	Visual	Generator Maintenance
14	SG Partition Plate-Cold Leg	Visual	Generator Maintenance
16	SG Partition Stub-Cold Leg	Visual	Generator Maintenance
18	SG Tubesheet and Radius Cladding-Hot Leg	Visual	Generator Maintenance
19	SG Partition Stub/Tubesheet Weld-Cold Leg	Visual	Generator Maintenance
20	SG Partition Plate/Stub Weld-Cold Leg	Visual	Generator Maintenance
23	SG Closure Ring-Cold Leg	Visual	Generator Maintenance
24	SG Closure Ring Weld-Cold Leg	Visual	Generator Maintenance
25	SG Drain Pipe (Tube)	Visual	Generator Maintenance
26	SG Cladding on CS Shell-Cold Leg	Visual	Generator Maintenance
27	SG Partition Plate/Lower Bowl Weld-Cold Leg	Visual	Generator Maintenance
33	SG Tubesheet and Radius Cladding-Cold Leg	Visual	Generator Maintenance
REACTOR COOLANT PIPING COMPONENTS (RCS)			
Unranked	RCS Hot Leg Thermowells	VT-2	Each Refueling
Unranked	RCS Cold Leg Thermowells	VT-2	Each Refueling
ENGINEERED SAFETY FEATURES COMPONENTS (ESF) Note: 2			
NR	Accumulator Nozzles (All Alloy 82/182 Welds)	VT-2	ISI Period

Note: 1) The Pressurizer Surge, Safety, Relief and Spray Nozzles have been overlayed with Alloy 690. The pressure boundary in these locations is now the Alloy 690 overlay. The original Alloy 600 is no longer credited as the pressure boundary. Preemptive structural weld overlays immediately go into a sampling pool where 25% of this group must be volumetrically inspected each ISI interval.

Note: 2) As the system/piping temperature is ambient containment temperature (approximately 100 ^{0}F), this location is not considered susceptible to Primary Water Stress Corrosion Craking. (PWSCC)

RAI B.2.1.34-9 Followup Discussion

During a telephone conference call on June 21, 2007, the staff indicated that the response to this RAI requires clarification. The staff requested that the applicant address the following:

a) MRP-126 has not been approved by the staff; therefore, discuss how MRP-126 compares with the guidance currently recommended and endorsed by the NRC. Provide the complete title of MRP-126.
b) Discuss the condition report that documents the evaluation of ultrasonic testing indications found on the pressurizer surge line nozzle.
c) Describe the methodology and criteria used to apply the susceptibility ranking.
d) Provide and discuss WCAP 16228-P, Table 5-1. Provide the complete title of WCAP 16228-P.
e) Describe the monitoring and mitigating program for the components in the various susceptibility categories.

RAI B.2.1.34-9 Followup Response

a) MRP-126, "*Generic Guidance for Alloy 600 Management,*" is a general guideline for plants to use in developing their Alloy 600 management plan. The purpose of a plant specific plan is to provide guidance for administering Alloy 600/82/182 inspections, implementing preventative actions (replacement or mitigation), and developing contingent repair plans. A plant specific plan is developed based on plant specific information required in order to identify and rank/prioritize locations/components to be inspected, and to detect, repair, and mitigate PWSCC cracking of Alloy 600/82/182.

b) The Evaluation for Condition Report (CR) 2006-002468, as discussed in the initial response to RAI B.2.1.34-9, also documents the indications found on the pressurizer surge line nozzle.

c) Relative risk rankings for Alloy 600 locations are included as part of the Nickel Alloy Aging Management Program. The rankings were provided in an assessment conducted by Westinghouse for WCGS and reflect conclusions based on WCGS data. The technical approach used to develop the rankings of PWSCC susceptibility is based on the application of a phenomenological model that relates the kinetics or rate of crack initiation to the materials, manufacturing, and environmentally controlled parameters known to influence this mode of degradation.

d) The complete title for WCAP-16228-P is *PWSCC Susceptibility Assessment of the Alloy 600 and Alloy 82/182 Components in Wolf Creek*, Westinghouse Electric Company LLC; April 2004. WCAP-16228-P, Table 5-1, lists the Wolf Creek components with the highest susceptibility indices relative to PWSCC. WCAP-16228-P is a proprietary document, however, the susceptibility indices in WCAP-16228-P were used to develop the relative risk rankings for Alloy 600/82/182 RCS locations at Wolf Creek, which have been provided in the table in RAI B.2.1.34-6 Followup Response.

e) The monitoring for the components in the Nickel Alloy AMP is listed in the table in RAI B.2.1.34-6 Followup Response. Mitigation is discussed in RAI B.2.1.34-1 Followup Response.

LIST OF COMMITMENTS

The following table identifies those actions committed to by Wolf Creek Nuclear Operating Corporation in this document. Any other statements in this letter are provided for information purposes and are not considered regulatory commitments. Please direct questions regarding these commitments to Mr. Kevin Moles, Manager Regulatory Affairs at Wolf Creek Generating Station, (620) 364-4126.

	COMMITMENT SUBJECT	LRA, Appendix A, Section	COMMITMENT DESCRIPTION
19	Reactor Coolant System Supplement (RCMS 2006-216)	A1.35	WCNOC will: A. Reactor Coolant System Nickel Alloy Pressure Boundary Components Implement applicable (1) NRC Orders, Bulletins and Generic Letters associated with nickel alloys and (2) staff-accepted industry guidelines, (3) participate in the industry initiatives, such as owners group programs and the EPRI Materials Reliability Program, for managing aging effects associated with nickel alloys, (4) upon completion of these programs, but not less than 24 months before entering the period of extended operation, WCNOC will submit an inspection plan for reactor coolant system nickel alloy pressure boundary components to the NRC for review and approval, and B. Reactor Vessel Internals (1) Participate in the industry programs for investigating and managing aging effects on reactor internals; (2) evaluate and implement the results of the industry programs as applicable to the reactor internals; and (3) upon completion of these programs, but not less than 24 months before entering the period of extended operation, WCNOC will submit an inspection plan for reactor internals to the NRC for review and approval. **Reference: ET 06-0038, ET 07-0033** **A(1),(2),(3), B(1),(2) Due: March 11, 2025** **A(4), B(3) Due: March 11, 2023**

37	LRA Amendment (RCMS 2007-271)	N/A	License Renewal Application changes discussed in RAI 2.1-2 Followup Response will be included in an amendment to the Application if determined to have LRA impact. **Reference: ET 07-0033** **Due: August 31, 2007**

Nickel Alloy Aging Management Program (B2.1.34)

Reactor Coolant System Supplement (B2.1.35)

Reactor Coolant System Supplement (A1.35)

B2.1.34 Nickel Alloy Aging Management Program

Program Description

The plant specific Nickel Alloy Aging Management Program manages cracking due to primary water stress corrosion cracking in all plant locations that contain Alloy 600, with the exception of steam generator tubing (aging management of steam generator tubing is performed by the Steam Generator Tubing Integrity aging management program (B2.1.8)). This includes reactor coolant system (RCS) pressure boundary, RCS non-pressure boundary, and Engineered Safety Features (ESF) locations. Aging management requirements for nickel alloy penetration nozzles welded to the upper reactor vessel closure head noted in the Nickel-Alloy Penetration Nozzles Welded to the Upper Reactor Vessel Closure Heads of Pressurized Water Reactors program (B2.1.5) are included here for review convenience. The term Alloy 600 is used throughout this program to represent Nickel Alloy 600 material and Nickel Alloy 82/182 weld metal. Non-Alloy 600 nickel components (e.g., steam generator bowl drain welds made of Alloy 52/152) are not included in this program but are subject to the ASME Section XI Inservice Inspection program (B2.1.1) requirements.

The Nickel Alloy Aging Management Program uses inspections, mitigation techniques, repair/replace activities and monitoring of operating experience to manage the aging of Alloy 600 at WCGS. Detection of indications is accomplished through a variety of examinations consistent with NRC Order EA-03-009, ASME Section XI Subsections IWB and IWC, EPRI Report 1010087 (MRP-139) issued under NEI 03-08 protocol, and NRC Bulletin 2004-01. Mitigation techniques are implemented when appropriate to preemptively remove conditions that contribute to primary water stress corrosion cracking (PWSCC). Repair/replacement activities are performed to proactively remove or overlay Alloy 600 material, or as a corrective measure in response to an unacceptable flaw in the material. Mitigation and repair/replace activities are consistent with those detailed in MRP-139. Operating experience was reviewed to determine the risk rankings of each Alloy 600 location. Operating experience is continually monitored to provide improvements and modifications to the Nickel Alloy Aging Management Program as needed.

Aging Management Program Elements

The results of an evaluation of each element against the 10 elements described in Appendix A of the SRP-LR, NUREG-1800, are provided below.

Scope of Program – Element 1

With the exception of steam generator tubing, which is managed by the Steam Generator Tubing Integrity Program (B2.1.8), all Alloy 600 locations in plant systems are included in the scope of this program. This includes reactor coolant system (RCS) pressure boundary, RCS non-pressure boundary, and ESF locations.

Preventive Actions – Element 2

The Nickel Alloy Aging Management Program has many potential mitigation strategies that remove one or more of the three conditions that control primary water stress corrosion cracking (susceptible material, tensile stress field, supporting environment). Mitigation activities that have been successfully performed for at least one United States

Pressurized Water Reactor (PWR) plant include weld overlays, replacement of Alloy 600 (as a pre-planned activity), and mechanical stress improvement process (MSIP). Full structural weld overlays may be used either as a mitigation strategy or as a repair method. This method provides structural reinforcement at the (potentially) flawed location, such that adequate load-carrying capability is provided by the overlay. MSIP is a mechanical process that places the component surface in contact with the primary water in a compressive state, thereby removing the tensile stresses needed for initiation of PWSCC.

The considerations used by the Nickel Alloy Aging Management Program in selecting a mitigation strategy, include availability of method, industry experience, plant location, risk evaluation, and pre-implementation activities.

The program lists the recommended mitigation strategies for all of the Alloy 600 components. Mitigation strategies for several components are still to be determined. Specific mitigation strategies will be determined by plant-specific and industry operating experience. The Water Chemistry program (B2.1.2) provides preventive actions for monitoring and control of the supporting environment for PWSCC.

Parameters Monitored/Inspected – Element 3

The Nickel Alloy Aging Management Program utilizes various inspection and examination techniques for early detection of PWSCC in Alloy 600 components. Visual exams are used to detect evidence of leakage from pressure retaining components due to cracking and/or discontinuities and imperfections on the surface of the component. Surface examinations indicate the presence of surface discontinuities. Volumetric examination indicates the presence of cracking/discontinuities throughout the volume of material.

Detection of Aging Effects – Element 4

The Nickel Alloy Aging Management Program utilizes various visual, surface and volumetric inspection and examination techniques for early detection of PWSCC in Alloy 600 components. Three types of visual exams are used: 1) VT-2 Exams which are conducted to detect evidence of leakage from pressure retaining components, 2) Bare Metal Visual Exams which are similar to VT-2 exams but require removal of insulation to allow direct access to the metal surface, and 3) Visual Exams which are conducted to assess the general condition of non-pressure boundary components. Surface Exams are used to indicate the presence of surface discontinuities and are conducted by liquid penetrant or eddy current methods. Volumetric Exams indicate the presence of discontinuities throughout the volume of material and are conducted by radiographic, ultrasonic, eddy current methods, or a combination.

Monitoring and Trending – Element 5

Relative risk rankings for Alloy 600 locations are included as part of the Nickel Alloy Aging Management Program. The rankings were provided in a study conducted by Westinghouse for WCGS and reflect conclusions based on WCGS data. As additional information from the industry and WCGS is collected and analyzed, the risk rankings may be modified.

The Nickel Alloy Aging Management Program provides the requirements for examination frequencies. The examination frequencies are required by regulation, industry guidelines, and WCGS good practices.

Acceptance Criteria – Element 6

Acceptance criteria are specified in implementing procedures. The implementing procedure or work order will specify examination requirements and acceptance criteria in accordance with the applicable regulatory (NRC Order EA-03-009 or ASME Section XI) or industry guideline. For components included in MRP-139, it requires that all indications found during inspections be evaluated per ASME Section XI requirements and indications that do not satisfy IWB-3500 acceptance criteria must be dispositioned by analysis (such as IWB-3600), repaired or replaced.

Corrective Actions – Element 7

Relevant indications failing to meet applicable acceptance criteria are repaired or evaluated in accordance with plant corrective action processes.

Corrective actions may be used as tracking and documentation records for changes in plant thought processes and to identify potential improvements in programs from benchmarking activities.

WCGS site Quality Assurance (QA) procedures, review and approval processes, and administrative controls are implemented in accordance with the requirements of 10CFR50, Appendix B that are acceptable in addressing corrective actions.

Confirmation Process – Element 8

WCGS site QA procedures, review and approval processes, and administrative controls are implemented in accordance with the requirements of 10CFR50, Appendix B that are acceptable in addressing the confirmation process.

Administrative Controls – Element 9

WCGS site QA procedures, review and approval processes, and administrative controls are implemented in accordance with the requirements of 10CFR50, Appendix B that are acceptable in addressing administrative controls.

Operating Experience — Element 10

A summary of the Alloy 600 locations and whether or not they have experienced in-service cracking throughout the industry is provided in the Nickel Alloy Aging Management Program. Risk rankings were provided in a study conducted by Westinghouse for WCGS and reflect conclusions based on WCGS data. As additional information from the industry and WCGS (including implemented mitigation activities) is collected and analyzed, the risk rankings may be modified.

During the refueling in 2005, through-wall cracking in the Alloy 82/182 weld metal of the steam generator bowl drains was found. The weld metal was removed and replaced with Alloy 52 weld metal. This mitigation was performed on all four Steam Generators, even though cracking was found on only two of the Steam Generators.

During the fall of 2006 refueling outage, circumferential indications were found on the pressurizer surge, relief, and safety nozzles to safe end dissimilar metal welds. Full structural weld overlays were applied to all of the pressurizer nozzles. The following changes to the Alloy 600 program resulted from the flaws identified in 2006. Examinations have been added to the program as a result of the 2006 operating experience. Visual examination of bottom mounted nozzles are performed every other refueling outage. A baseline volumetric examination was performed during Refueling Outage (RF)14 (Spring 2005) on all hot leg nozzles, cold leg nozzles and bottom mounted nozzles.

Mitigation plans are prioritized in accordance with risk rankings provided in the program. Pressurizer surge, relief, and safety nozzles containing Alloy 600 material have been overlayed with Alloy 690. Options for mitigating reactor coolant loop nozzles are currently being evaluated.

The WCNOC Alloy 600 program provides reasonable assurance that PWSCC degradation will be detected in a timely manner because examination plans optimize inspection intervals and techniques, and maximize the likelihood of detecting a flaw prior to impact on plant safety and reliability. Alloy 600 inspection activities are included as augmented actions in the ISI program, and include BMV, surface, and volumetric examinations as directed by regulatory and industry guidance. Inspection of components where susceptible material is used as a pressure boundary for the primary system meets or exceeds industry and regulatory guidance. The program incorporates plant specific and industry operating experience. WCNOC has taken a proactive approach in mitigating the pressurizer nozzles via structural weld overlay and has included locations having susceptible material exposed to primary water in the Alloy 600 program. As part of this program WCNOC is considering available options for repairing/mitigating the Reactor Loop Nozzles. This proactive approach applies to other high risk or high probability locations, as well.

Enhancements

None

Conclusion

The continued implementation of the Nickel Alloy Aging Management Program provides reasonable assurance that aging effects will be managed such that the systems and components within the scope of this program will continue to perform their intended functions consistent with the current licensing basis for the period of extended operation.

B2.1.35 Reactor Coolant System Supplement

Section 3.1 of NUREG-1800, "Standard Review Plan for the Review of License Renewal Applications for Nuclear Power Plants," supplements the aging management programs for the Reactor Coolant System components with the following additional requirements.

WCNOC will:

A. Reactor Coolant System Nickel Alloy Pressure Boundary Components

Implement applicable (1) NRC Orders, Bulletins and Generic Letters associated with nickel alloys and (2) staff-accepted industry guidelines, (3) participate in the industry initiatives, such as owners group programs and the EPRI Materials Reliability Program, for managing aging effects associated with nickel alloys, (4) upon completion of these programs, but not less than 24 months before entering the period of extended operation, WCNOC will submit an inspection plan for reactor coolant system nickel alloy pressure boundary components to the NRC for review and approval, and

B. Rector Vessel Internals

(1) Participate in the industry programs for investigating and managing aging effects on reactor internals; (2) evaluate and implement the results of the industry programs as applicable to the reactor internals; and (3) upon completion of these programs, but not less than 24 months before entering the period of extended operation, WCNOC will submit an inspection plan for reactor internals to the NRC for review and approval.

A1.35 Reactor Coolant System Supplement

Section 3.1 of NUREG-1800, "Standard Review Plan for the Review of License Renewal Applications for Nuclear Power Plants," supplements the aging management programs for the reactor coolant system components with the following additional requirements.

WCNOC will:

A. Reactor Coolant System Nickel Alloy Pressure Boundary Components

Implement applicable (1) NRC Orders, Bulletins and Generic Letters associated with nickel alloys and (2) staff-accepted industry guidelines, (3) participate in the industry initiatives, such as owners group programs and the EPRI Materials Reliability Program, for managing aging effects associated with nickel alloys, (4) upon completion of these programs, but not less than 24 months before entering the period of extended operation, WCNOC will submit an inspection plan for reactor coolant system nickel alloy pressure boundary components to the NRC for review and approval, and

B. Reactor Vessel Internals

(1) Participate in the industry programs for investigating and managing aging effects on reactor internals; (2) evaluate and implement the results of the industry programs as applicable to the reactor internals; and (3) upon completion of these programs, but not less than 24 months before entering the period of extended operation, WCNOC will submit an inspection plan for reactor internals to the NRC for review and approval.