



REGIONIV

611 RYAN PLAZA DRIVE, SUITE 400 ARLINGTON, TEXAS 76011-8064

NOV 1 8 1992

Docket No. STN 50-48? License No. NPF-42

Wolf Creek Nuclear Operating Corporation ATTN: Bart D. Withers President and Chief Executive Officer P.O. Box 411 Burlington, Kansas 66839

Gentlemen:

LEAR REGUL

This refers to the enforcement conference conducted at Region IV's request in the Regional office on November 3, 1992. This enforcement conference related to a condition that resulted in degraded essential service water system flow to component cooling water Heat Exchanger A at the Wolf Creek Generating Station. This conference was attended by those on the attached Attendance List.

The subjects discussed at this enforcement conference are described in the enclosed Meeting Summary. It is our opinion that this enforcement conference was beneficial to our understanding of the apparent violations identified in NRC Inspection Report 50-482/92-30. You will be advised by separate correspondence of the results of our deliberations concerning the apparent violations identified in the inspection report.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter will be placed in the NRC's Public Document Room.

Should you have questions concerning this matter, we will be pleased to discuss them with you.

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Sincerely,

A. Bill Beach, Directom Division of Reagtor Projects

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Enclosure: Meeting Summary w/attachments

cc: (see next page)

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cc w/enclosure: Wolf Creek Nuclear Operating Corp. ATTN: Otto Magnard, Director Plant Speration\* P.O. Box 471 Burlington, Kansas 65829

Shaw, Pittman, Potts & Trowbridge ATTN: Jay Silberg, Esq. 2300 M Street, NW Washington, D.C. 20037

Public Service Commission ATTN: C. John Renken Policy & Federal Department P.O. Box 360 Jefferson City, Missouri 65102

U.S. Nuclear Regulatory Commission ATTN: Regional Administrator, Region III 799 Roosevelt Road Glen Ellyn, Jilinois 60137

Wolf Creek Nuclear Operating Corp. ATTN: Kevin J. Mole: Manager Regulatory Services P.O. Box 411 Burlington, Kansos 66839

Kansas Corporation Commission ATTN: Robert Elliot, Chief Engineer Utilities Division 1500 SW Arrowhead Rd. Topeka, Kansas 36604-4027

Office of the Governor State of Kansas Topaka, Kansas 66612

Attorney General 1st Floor - The Statehouse Topeka, Kansas 66612

Chairman, Coffey County Commission Coffey County Courthouse Burlington, Kansas 66839-1798

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Wolf Creek Nuclear Operating Corporation

Kansas Department of Health and Environment Bureau of Air Quality & Radiation Control xITN: Gerald Allen, Public itealth Physicist Division of Environment Forbes Field Building 321 Topeka, Kansas 66620

Kansas Department of Health and Environment ATTN: Robert Eye, General Counsel LSOB, 9th Floor 900 SW Jackson Topeka, Kansas 66612 Wolf Creek Nuclear Operating Corporation

bcc to DMB (1E45)

bcc distrib. by RIV: J. L. Milhoan Section Chief (DRP/D) DRSS-FIPS RIV File MIS System Project Engineer (DRP/D) DRS

Residert Inspector DRP Section Chief (RIII, DRP/3C) SRI, Callaway, RIII RSTS Operator Lisa Shea, RM/ALF, MS: MNBB 4503 Section Chief (DRP/TSS)

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Wolf Creek Nuclear Operating Corporation -4-

bcc to OMB (IE45)

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bcc distrib. by RIV: J. L. Milhoan Section Chief (DRP/D) DRSS-FIPS RIV File MIS System Project Engineer (DRP/0) DRS

Resident Inspector DRP Section Chief (RIII, DRP/3C) SRI, Callaway, RIII RSTS Operator Lisa Shea, RM/ALF, MS: MNBB 4503 Section Chief (DRP/1SS)

#### MEETING SUMMARY

Licensee: Wolf Creek Nuclear Operating Corporation (WCNOC)

Facility: Wolf Creek Generating Station (WCGS)

License No.: NPF-42

Docket No.: 50-482

SUBJECT: ENFORCEMENT CONFERENCE CONCERNING DEGRADED ESSENTIAL SERVICE WATER SYSTEM FLOW TO COMPONENT COOLING WATER HEAT EXCHANGER A

On November 3, 1992, representatives of WCNOC met with Region IV personnel at the Regional office to discuss the issues concerning degraded essential service water system flow to component cooling water Heat Exchanger A. The staff found the enforcement conference to be beneficial in assessing the apparent violations identified in NRC Inspection Report 50-482/92-30, dated October 27, 1992.

Attachments:

- 1. Attendance List
- 2. Licensee Presentation (NRC distribution only)

ATTACHMENT J

#### ATTENDANCE LIST

Attendance at the enforcement conference between WCNOC and NRC on November 3. 1992, at the Regional office:

#### WCNOC

B. Withers, President and Chief Executive Officer

- O. Maynard, Vice President, Plant Operations
- R. Hagan, Vice President, Nuclear Assurance
- W. Norton, Manager, Technical Support K. Moles, Manager, Regulatory Services

- M. Covey, Supervisor, Engineering T. Riley, Supervisor, Regulatory Compliance
- A. Birzer, System Engineer

#### NRC

- J. Milhoan, Regional Administrator
- T. Gwynn, Deputy Director, Division of Reactor Projects (DRP)
- D. Chamberlain, Deputy Director, Division of Reactor Safety
- A. Howell, Chief, Project Section D, DRP
- M. Satorius, Project Engineer, Project Section D, DRP
- G. Pick, Senior Resident Inspector, Wolf Creek Generating Station
- W. Reckley, Project Manager, Office of Nuclear Reactor Regulation
- W. Brown, Regional Counsel, Region IV
- G. Sanborn, Enforcement Officer, Region IV
- J. Luehman, Enforcement Specialist, Office of Enforcement

# Wolf Creek Nuclear Operating Corporation (WCNOC)

Enforcement Conference Concerning Seven Apparent Violatic ns Identified in Inspection Report 482/92-30 (Degraded Essential Service Water System Flow to Component Cooling Water System Heat Exchanger "A")

Date: November 3, 1992

Time: 2:00 pm

Location: NRC Region IV Offices Arlington, Texas



#### Agenda

Introduction/Opening Remarks

Discussion of Apparent Violations & Inspection Report 482/92-30 Findings

Generic Aspects of Work Controls and Corrective Action Issues

**Closing Remarks** 

- Burt Withers

- Brad Norton

- Otto Maynard

- Bart Withers

### Overview of WCNOC's Presentation on Specific Apparent Violations

- Essential Service Water System
- Sequence of Events
- Categorization of Apparent Violations
- Concerns Identified, WCNOC's Position, Root Cause(s), Significance, Corrective Actions Taken/Results Achieved and Actions Planned
- Summary



TRAIN "A" - ESSENTIAL SERVICE WATER SYSTEM

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#### Essential Service Water Train "A" Flow Rates

Document	System Mode	Date	Flow (gpm)	Acceptance Criteria
USAR Rev. 5	Normal	-	7350/8800 2)	7350
USAR Rev. 5	Post LOCA		7350	7497 (1)
PMR 3354	Post LOCA	05-02-90	7150	7293 (1)
Calculation (3) EG-09-W	Post LOCA	08-28-90	7602	7142 (1)
TP-TS-41	Post LOCA	10-20-91	8055	7293
TP-TS-42	Normal	11-22-91	7200 (4)	7350
STN-PE-37	Normal	08-17-92	6364	7200 (7)
TP-TS-115	Post LOCA	08-27-92	7213	8055 <u>+</u> 200 (8)
TP-TS-115 (5)	Post LOCA	08-28-92	8536	8055 + 200 (8)
TP-TS-115 (6)	Post LOCA	08-28-92	7933	8055 + 200 (8)

NO:ES:

- 1. Acceptance Criteria for safety related flow is design flow plus 2% Controlotron flow meter accuracy.
- Normal mode operation usually has CCW heat exchangers aligned in STANDBY (7350 gpm), during plant shutdown full normal flow of 8800 gpm may be achieved by opening bypass valve.
- The results of calculation EG-09-W were presented in CCP 00018 as disposition to RER 92-070.
- 4. Work Request 6586-91 evaluated and accepted the low normal mode flow rate.
- 5. Flow following throttle valve rework/indicator adjustment.
- 6. r low following throttle valve position adjustment.
- The expected flow for quarterly flow testing is the as-left normal mode flow from Refuel V. Any deviations from expected flow are evaluated by the test engineer.
- The acceptance criteria for TP-TS-115 was the expected flow from Refuel V with a tolerance to account for differences in methods for simulating post-LOCA conditions.

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- 10-91 Believe that three teeth on worm gear sector (EFV0058) were broken when "A" CCW heat exchanger was isolated for maintenance
- 10-20-91 The post-LOCA flow rate was set at 8055 gpm with valve EFV0058 left at 50 degrees open. (TP-TS-41)
- 10-21-91 Temporary Change MI91-879 to ADM 02-102 changed the throttle position for EFV0058 to 50 Degrees open from 51.
- 11-22-91 The normal service water flow rate through EFV0058 was measured at 7200 gpm and EFV0058 was unchanged at 50 degrees open. (TP-TS-42)
- 12-03-91 STN PE-037 performed for quarterly monitoring of heat exchanger performance. 330 gpm of <u>normal</u> service water flow is measured through "A" CCW heat exchanger. EFHV0051 is throttled at 3% open for cold weather operation. TP-6

- 12-05-91 EFV0058 and EFV0090 (same valve on "B" train) were found locked throttled at 30 degrees open. They were restored to their required positions. PIR OP 91-1116 was initiated.
- 03-25-92 STN PE-037 performed for quarterly monitoring of heat exchanger performance. 450 gpm of <u>normal</u> service water flow is measured through "A" CCW heat exchange. EFHV0051 is throttled at 5% open for cold weather operation.
- 06-09-92 STN PE-037 performed for quarterly monitoring of heat exchanger performance. 474 gpm of <u>normal</u> service water flow is measured through "A" CCW heat exchanger. EFHV0051 is throttled at 6% open for cold weather operation.

 07-22-92 Preventive maintenance (WR 51543-92) consisting of a grease inspection was performed on EFV0058 and four other EF system valves, EFV0052, 0053, 0272 and 0273. A nree broken teeth were found on the closing end of the worm gear sector of EFV0058. Corrective work request 3765-92 was initiated to document the defective gear in EFV0058.

Following completion of the preventive maintenance, the five valves were stroked. EFV0058 was only partially stroked because of the broken teeth, and maintenance was present when it was stroked. EFV0058 was believed to have been fully opened and returned to its required throttle position.

 07-23-92 The operability review performed by System Engineering found the condition acceptable given that EFV0056 .emained in its throttled position.

- 08-17-92 During performance of STN PE-037, Results Engineering identified lower than expected <u>normal</u> service water flow through the CCW heat exchanger "A", 6364 gpm versus 7200 gpm. EFHV0051 is 100% open.
- 08-20-92 It was decided to prepare a temporary procedure to measure the post-LOCA (ESW) flow rate (TP-TS-115).
- 08-24-92 Procedure TP-TS-115 was approved with a safety evaluation.
- 08-27-92 Post-LOCA (ESW) flow rate through CCW "A" heat exchanger was measured to be 7213 gpm. 8055 gpm was the expected value.

EFV0058 was stroked closed to verify its position. A popping noise was heard, the valve could not be closed beyond the 15 degree open position and could not be reopened. Entered LCO for Tech Spec 3.5.2 and 3.7.3 for "A" trains CCW and ECCS. RER 92-070 was written.

• 08-28-92 EFV0058 repaired and Maintenance signed off clearance.

The ESW flow rate through EFV0058 was measured (TP-TS-115) and reported complete at 1707. The control room exited the LCOs.

At 1734 too much flow was determined to be going through the "A" CCW heat exchanger. The ESW inlet valve to the CCW heat exchanger, EFHV0051 was closed to isolate the condition, and the LCO was reentered referencing back to the original entry time.

At 1939 EFHV0051 was reopened to resume the flow measurements, and EFV0058 was repositioned according to TP-TS-115 to achieve the desired flow rate.

At 2110 setting the flow rate through EFV0058 was reported complete. At 2134 the LCOs were exited.

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- 08-31-92 PIR TS 92-0632 was written to address exiting the LCOs prematurely.
- 09-04-92 PIR NP 92-0653 was written to address the communication of a deficient condition.
- 09-15-92 RER 92-070 evaluation initially complete. Letter EN 92-0040 identifies no tubes plugged and all tubes were cleaned in Refuel 5 for "A" CCW heat exchanger.
- 10-19-92 RER 92-070 closed based on final engineering evaluation.
   Based on Calculation EG-09-W, an ESW flow rate of 7002 gpm would be sufficient to allow CCW heat exchanger "A" to remove the required heat loads.

### Safety Significance of Low ESW Flowrate

- Calculation EG-09-W (8/28/90) determined that an ESW flow rate of 7002 gpm was needed to remove the required heat loads to maintain maximum CCW temperature below 130 degrees Fahrenheit (127.5°F)
  - Calculation assumed 46 out of 2232 tube pairs plugged
  - Calculation assumed a fouling factor of 0.0025
- An ESW flowrate of 7213 gpm was measured
  - ESW flowrate at least 7068 gpm (7213 gpm minus 2% for Controlotron accuracy)
  - No tube pairs currently plugged
  - All tube pairs cleaned during Refueling 5 outage
- Heat transfer rate achieved by an ESW flowrate of 7068 gpm with no tubes plugged will be greater than that achieved at 7002 gpm with 46 tube pairs plugged
- Conclusion ESW/CCW was able to perform intended safety functions.
   CCW maximum temperature would not have been exceeded

#### **Categorization of Apparent Violations**

- Work Controls (Inadequate Documentation)
  - Failure to provide adequate work instruction (9230-01)
  - Failure to perform appropriate post-maintenance test (9230-02)
- Corrective Actions (CA)
  - Failure to implement CAs to preclude repetition (9230-03)
  - Failure to correctly translate the vendor information into an appropriate administrative control (9230-05)
  - Failure to implement timely CAs (9230-06)
  - Failure to identify and correct condition (low ESW flow) in a timely manner (9230-07)
- Procedural Guidance/Personnel Error (Inadequate Documentation) (9230-04)

#### Work Controls

- · Failure to provide clear work instructions on PM (9230-01)
  - Instructions provided were ambiguous
  - Poor documentation of activities
  - Significant issue but isolated
  - Testing programs would identify problems
  - Corrective Actions taken
    - HFAR completed on valve family scribe marks/training planned
    - Self assessment of pending PM Packages for similar problems
    - Ongoing work process review

### Work Controls

- Post maintenance testing (PMT) was considered appropriate (9230-02)
  - Occurrence due to unclear Work instructions
    - Testing/activities were appropriate for work intended
    - Work Request issues set up problem with PMT
  - Low Significance due to poor work instructions and documentation
  - Corrective Actions
    - Ongoing post maintenance testing program development and review

- Timely implementation of corrective actions (9230-03)
  - Performance Improvement Request (PIR) initiated 12/91 mispositioned valves
  - -Event different than current event
    - Plant Mode 5 vice Mode 1 ESW/CCW not required to be operable
    - Locked valve program status required upon entering Mode 4
    - Gross position difference
  - -Low Significance circumstances were different
  - Corrective Actions taken
    - Determined backlog found 32 PIRs none considered safety significant
    - PIRs are being prioritized in a timely manner

- Incorrect implementation of Industry Technical Information Program (ITIP) (9230-05)
  - -ITIP in 1986: Over-torquing issue
    - Information incorrectly applied to administrative controls
  - Significant due to potential repetitive valve damage
    - No safety significance
  - Corrective Actions taken on ITIP program
    - Program recently transferred and revised
    - More in-depth reviews and approvals now required; more attention
    - 20% of old ITIPs reviewed and 4-5% of those reopened for various reasons

- Timely/accurate procedure revisions (9230-06) - Due to inadequate administrative controls

  - Procedure Change Notice (PCN) issued on backshift as new revision
  - PIR initiated

  - Potentially significant but limited in scope and impact
    - Procedure error in lower tier document
- Higher tier procedure correct and would have been followed valve was locked in 47 degree open position, as required - Corrective actions taken and underway - programmatic to prevent

  - Revised administrative directions (complete) Require review of new revisions (11/30/92)
  - Establish log of changes (11/30/92)

- Results Effective recent catches have been made under new controls -Not a Condition Adverse to Quality in this case

- Timely correction of ESW flow rate to CCW (9230-07)
  - Testing of CCW HX "A" for Generic Letter 89-13 on 8/17/92
    - Thought transposition error may have occurred
    - No reason to believe ESW flows were affected SW/ESW differences
    - Completed Service Water testing 8/21/92 satisfactory with deficiencies
    - Check ESW flow by testing to post-LOCA conditions to ensure Technical Specification compliance
    - Potentially conflicting activities planned required additional coordination
    - Test on 8/27/92 determined ESW flow low; entered appropriate Technical Specification Action Statements
  - Time to establish test was reasonable
    - Testing must be controlled
    - Logic was sound that ESW not affected
  - Review showed actions were appropriate to circumstances

#### Procedural Guidance/Personnel Errors

- Conduct of Testing (9230-04)
  - -Procedure TP-TS-115 acceptance criteria not complied with
    - T.S. Action Statements exited prematurely
    - Test required +/-200 gpm flow otherwise CWR required
    - S.S. informed test was satisfactory personnel error
    - Discovered by test engineer supervisor informed S.S. LCOs re-entered
  - Communications Issue
    - Responsibility for understanding test & results rests with test engineer
    - Documentation in procedures was adequate for test acceptance criteria
  - Potentially Significant
    - Could result in nonconservative action being taken
    - No Safety Significance in this case

### Procedural Guidance/Personnel Errors

- Corrective Actions clarify management's expectations
  - Procedure checklist to ensure test writer's guide adherence
  - Require pre-job briefing for test delays, changes in plant status, etc.
  - Positive Discipline" presentation and accountability

### Summary of WCNOC's Positions

Apparent Violations	Self Identification	Timely and Effective Corrective Actions	Significance
<ul> <li>9230-01 (Work Instructions)</li> </ul>	YES	YES	YES - But Isolated
■ 9230-02 (PMT)	N/A - Part of 9230-01 - PMT was adequate	YES	Low - Caused by 9230-01
<ul> <li>9230-03 (CA for 12/91 PIR)</li> </ul>	YES	YES - PIR properly prioritized	Low - Different Circumstances
■ 9230-04 (Personnel Error)	YES	YES	YES - But Not Safety
■ 9230-05 (1986 ITIP)	YES	NO	YES - Potential for repetitive failure
■ 9230-06 (PCN to CKL)	NO	YES	YES - Limited in Scope & Impact
<ul> <li>9230-07 (Low ESW Flow)</li> </ul>	YES	YES	Low - ESW/CCW able to perform safety functions

#### Generic Aspects of Issues Involved

- Work Controls
  - -Past, Present, & Future
- Corrective Actions
   Past, Present, & Future
- Summary

### Generic Aspects of Work Controls Issues

- Planners moved to work groups
- Mechanical coordinators added
- Scheduling Enhancements
- INPO assistance visit in December
- Mechanical supervisor heading improvement group

#### Generic Aspects of Corrective Action Issues

- Root Cause training
  - -Hardware
  - -Program/People
- Procedure and Program enhancements
- Group discussions attitudes
- System Engineering support
- Team approach

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