

FEB 19 1992

Docket No. 50-298
License No. DPR-46

Nebraska Public Power District
ATTN: Guy R. Horn, Nuclear Power
Group Manager
P.O. Box 499
Columbus, Nebraska 68602-0499

Gentlemen:

This refers to the management meeting conducted at Region IV's request at the Cooper Nuclear Station on February 12, 1992. This meeting related to activities authorized by NRC License DPR-46 for the Cooper Nuclear Station and was attended by those on the attached attendance list.

The subjects discussed at the meeting are described in the enclosed Meeting Summary.

It is our opinion that this meeting was beneficial and provided a better understanding of your management controls in the emergency preparedness and health physics area. 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 any questions concerning this matter, we will be pleased to discuss them with you.

Sincerely,

A. Bill Beach, Director
Division of Reactor Projects

Enclosure:
Meeting Summary w/attachments

cc w/enclosure:
Nebraska Public Power District
ATTN: G. D. Watson, General Counsel
P.O. Box 499
Columbus, Nebraska 68602-0499

RIV/C:DRP
PHHarrell
2/19/92

D:DRP
ABBeach
2/19/92

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PDR ADOCK 05000298
P PDR

TEAS
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Nebraska Public Power District

-2-

Cooper Nuclear Station
ATTN: John M. Meacham, Division
Manager, Nuclear Operations
P.O. Box 98
Brownville, Nebraska 68321

Nebraska Department of Environmental
Control
ATTN: Randolph Wood, Director
P.O. Box 98922
Lincoln, Nebraska 68509-8922

Nemaha County Board of Commissioners
ATTN: Larry Bohlken, Chairman
Nemaha County Courthouse
1824 N Street
Auburn, Nebraska 68305

Nebraska Department of Health
ATTN: Harold Borchert, Director
Division of Radiological Health
301 Centennial Mall, South
P.O. Box 95007
Lincoln, Nebraska 68509-5007

Kansas Radiation Control Program Director

bcc to DMB (IE45)

bcc distrib. by RIV:

R. D. Martin	Resident Inspector
Section Chief (DRP/C)	Lisa Shea, RM/ALF
DRSS-RPEPS	MIS System
RIV File	Project Engineer (DRP/C)
RSTS Operator	DRP
Senior Resident Inspector - River Bend	
Senior Resident Inspector - Fort Calhoun	
DRS	

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Senior Resident Inspector - River Bend	
Senior Resident Inspector - Fort Calhoun	
DRS	

MEETING SUMMARY

Licensee: Nebraska Public Power District
Facility: Cooper Nuclear Station
License No.: DPR-46
Docket No.: 50-298
Subject: Meeting to Discuss Weaknesses Identified in the Areas of
Health Physics and Emergency Preparedness

On February 12, 1992, representatives of Nebraska Public Power District met with Region IV personnel at the Cooper Nuclear Station, to discuss weaknesses identified by the NRC in the areas of radiological protection and emergency preparedness. The details of the weaknesses are provided in NRC Inspection Reports 50-298/91-25 and 50-298/92-01. The attendance list and licensee presentation are attached to this summary.

The licensee discussed the corrective actions that are being implemented to address the program weaknesses.

Attachments:

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

ATTENDANCE LIST

Attendance at the NPPD/NRC management meeting on February 12, 1992, at the Cooper Nuclear Station:

NPPD

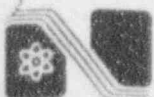
G. Horn, Nuclear Power Group Manager
J. Meacham, Division Manager of Nuclear Operations
M. Krumland, Emergency Preparedness Supervisor
J. Dutton, Nuclear Training Manager
D. Whitman, Division Manager of Nuclear Support
T. Chard, Acting Radiological Manager
G. Smith, Nuclear Licensing and Safety Manager
V. Woistenholm, Division Manager of Quality Assurance
R. Gardener, Senior Manager of Operations

NRC

A. Beach, Director, Division of Reactor Projects (DRP)
J. Jaudon, Deputy Director, Division of Radiation Safety and Safeguards (DRSS)
P. Harrell, Chief, Project Section C, DRP
R. Kopriva, Senior Resident Inspector, Cooper Nuclear Station
B. Murray, Chief, Facilities Inspection and Programs Section, DRSS
B. Spitzberg, Emergency Preparedness Analyst, DRSS

NPPD/NRC RIV MANAGEMENT MEETING

- Introduction
- General Employee Orientation Training
- Health Physics Staff Augmentation
- Outage Craft Augmentation
- Feedwater Nozzle Insulation Removal Incident Evaluation
- NRC Inspection Report 50-298/91-25 Evaluation
- Summary



GENERAL EMPLOYEE ORIENTATION TRAINING

Standard Program

- Radiation Protection - General
- Radiation Protection - Site-Specific
- Radiation Protection - Performance
- Security/EP Indoctrination
- Fitness For Duty
- Quality Assurance
- Industrial Safety

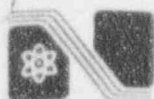
Refueling Outage

- Standard Program Plus Outage Guidebook



REFUELING OUTAGE GUIDEBOOK

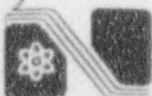
- Quality Assurance
 - Reporting Concerns
- Personnel Safety
- NRC
 - 10CFR19
 - 10CFR21
 - NRC Form 3
 - Onsite Resident
- Radiological Policies
- Security Policies



REFUELING OUTAGE GUIDEBOOK ENHANCEMENTS

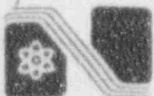
- Distribution
 - Past Practice
 - Future Refueling Outages

- Reporting Concerns
 - Emphasize During Training
 - Explain Avenues Available To Report Work Practice Concerns



HEALTH PHYSICS STAFF AUGMENTATION

- CNS Health Physics Technicians
 - Temporary Promotions To Lead Technicians
 - Temporary Promotions To Outage Coordinators
 - Continued Behavior Observation Training
 - Lead Technicians
 - Health Physics Supervisory Outage Coordinators
 - Health Physicist
 - ALARA Coordinator



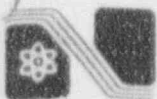
HEALTH PHYSICS STAFF AUGMENTATION

- Contract Health Physics Technicians
 - 52 Technicians For 1991 Refueling Outage
 - Detailed Resume Review And Verification
 - 17 Returnees From Previous CNS Outages
 - Contract Technician Training Program Descriptions



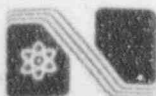
HEALTH PHYSICS STAFF AUGMENTATION

- Overtime Deviations
 - Controlled via CNS Procedure, Station Overtime And Recall Of Standby Personnel
 - Deviation Requests
 - None Associated With 50-298/91-25



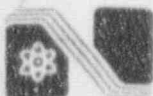
OUTAGE CRAFT AUGMENTATION

- Construction Management Coordinators And Supervisors
 - Continued Behavior Observation Training
- Maintenance Craft
 - 30% Returnees
- Overtime Deviation
 - None Associated With 50-298/91-25
- Bonuses Utilized To Enhance Productivity And Morale
 - Per Diem



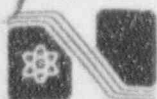
FW NOZZLE INSULATION REMOVAL PROJECT

- ISI Of Feedwater Nozzles Required Insulation Removal
- Full Scale Mockup Training
- Insulator Craft Personnel Replaced
- Mockup Training Of Replacement Craft
- ALARA And Health Physics Pre-Job Briefing Conducted



FW NOZZLE INSULATION REMOVAL PROJECT

- Insulation Removal Radiological Coverage
 - 4 Contract Health Physics Technicians
 - Worker Concerns Regarding Inadequate Dosimetry Placement
- Insulation Removal Work Terminated
 - Evaluate Worker Claims



FW NOZZLE INSULATION REMOVAL INCIDENT EVALUATION

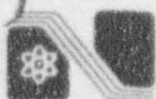
- Radiological Manager Immediately Notified RIV
 - Evaluate Worker Claims
 - Evaluate Worker Exposures

- Health Physics Supervisor Conducted Evaluation
 - Interviewed Workers
 - Interviewed Contract Health Physics Technicians
 - Utilized Mockup To Conduct Evaluation
 - Some Workers Uncooperative
 - Some Workers Provided Inconsistent Information



FW NOZZLE INSULATION REMOVAL INCIDENT EVALUATION

- Worker Exposures Determined
 - Radiation Survey Data
 - SWP Stay Times
 - Dosimetry Correlations
 - Conservatisms Up To 600% Estimated
- Workers Debriefed On Exposure Calculation Results
 - Some Workers Would Not Accept Results
 - Workers Notified NRC
- Senior Management Debrief With Workers
 - Reviewed Exposure Calculation Methodology
 - Worker Feedback
- Radiation Protection Consultant Assessment Of Exposures
 - Reviewed By Radiological, QA And Senior Management
 - Results Confirmed NPPD Calculations



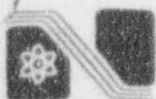
NRC INSPECTION REPORT

50/298 91-25

PERSONNEL MONITORING VIOLATION

Immediate Corrective Actions

- SWPs Corrected To Reflect Actual Dosimetry Requirements
- Health Physics Supervisor Review Of Incident
 - Dosimetry Placement Reviewed With All Technicians



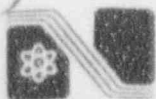
NRC INSPECTION REPORT

50/298 91-25

PERSONNEL MONITORING VIOLATION

Root Causes

- Communications
 - Work Practice Concerns
- Project Coordination
 - Health Physics Coverage
 - Coordinator Assignments



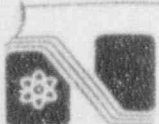
NRC INSPECTION REPORT

50/298 91-25

PERSONNEL MONITORING VIOLATION

Corrective Steps To Avoid Further Violations

- Upgrade Pre-Job Briefings And Mockup Training
 - Emphasize Pre-Job Surveys
 - Emphasize Dosimetry Placement
 - Videotape Mockup And Pre-Job Briefings
- Improve Project Coordination
 - Enhanced Overview Of Contract Technician Activities
 - Craft Health Physics Coordinator
- Industry Event Training
 - Emphasize Communication Of Work Practice Concerns
- Review Dosimetry Placement Training And Procedures

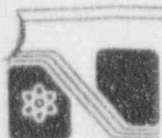


NRC INSPECTION REPORT
50/298 91-25

SWP VIOLATION

Immediate Corrective Action

- SWPs Corrected To Reflect Actual Dosimetry Requirement



NRC INSPECTION REPORT

50/298 91-25

SWP VIOLATION

Root Causes

- Inadequate Procedural Guidance
- Personnel Oversight



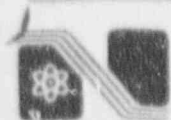
NRC INSPECTION REPORT

50/298 91-25

SWP VIOLATION

Corrective Steps To Avoid Further Violations

- Conduct Assessment Of SWP Program
 - Review SWP/RWP Programs Used At Other Utilities
 - Restructure SWP Program
 - Revise Training And Procedures Based On Restructure
 - Re-evaluate Industry Guidance Relating To SWPs

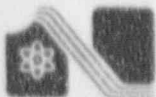


NRC INSPECTION REPORT

50/298 91-25

ADDITIONAL ENHANCEMENTS UNDER EVALUATION

- Hot Spot Posting Criteria
- Real Time Tracking Of Radiation Exposures
- Breathing Zone Air Sampling
- RCA Access Barrier Enhancement
- Radiological Housekeeping
- ALARA Briefing Area
- ALARA Staffing During Outages
- RSS Project Improvements In Rad Support Area



SUMMARY

- Employed Immediate Corrective Actions
- Developed Corrective Actions Both Short And Long Term
- Continued Utilization Of Event For Future Improvement In Diverse Areas



Personnel Dose
Evaluation Summary
for the
Feedwater Nozzle Insulation
Removal Project
Cooper Nuclear Station
February 12, 1992

Table Of Contents

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Nutech Engineers' Evaluation Summary

Between November 5 and November 7, 1991, Nutech Engineers conducted an independent evaluation of the personnel doses associated with the feedwater nozzle insulation removal task.

This evaluation consisted of performing independent radiation surveys of the feedwater nozzle and adjacent area and interviewing (1) contract craft personnel who performed this task, the (2) contract health physics personnel who provided coverage, and (3) Cooper Nuclear Station radiation protection personnel.

Each of the involved craft's dose was established by determining the travel and setup time and the actual time that personnel were performing insulation removal in the nozzle area. The doses were established via discussions held with the aforementioned personnel and the craft's actual times on the Special Work Permit Sign In Sheets.

It was determined that the "greatest potential exposure to the unmonitored posterior portion of the body" occurred when the craft were required to lay on their stomachs to remove the lower portion of the insulation. "If indeed any worker did receive significant unmonitored dose to the lower back region it was most likely to occur while performing this cut."

Entries the Feedwater Nozzle areas to complete the insulation removal, and the subsequent entries to replace it, were "probably not much different from the relative doses to the body parts of the workers who made the earlier entries."

Based on this assumption, the doses were estimated for the upper back area of the initial workers by multiplying the maximum dose recorded for the workers who did not wear back dosimetry, by the ratio for the upper back dose to the maximum dose recorded by dosimeter for the workers who had worn back dosimetry.

"In most cases the upper back... (was) not the limiting body part. In fact, the... ratio between the upper back and the dose received by the highest body part is about 0.54." The maximum value was 0.74, both of which are < 1 . This implies that the back was not the maximum exposed part of the body.

To ensure the workers' lower back concerns were conservatively addressed, an additional adjustment was made by correcting for the contact to 18 inch ratio. This ratio was established at 3.2.

The adjustment for contact-to-18 inches "probably overestimates the dose to the lower back region for several reasons.

"It isn't likely that the lower back of any worker spent very much time 18" closer to the source than the upper back."

"Based on the dosimetry results...(of) the chest, left and right knees, gonads, left and right elbows, head and upper back, there (was) very little variation among all dosimeters."

"In all cases, some body part other than the upper back received the highest measured whole body dose."

"The period of time during which the back was possibly the limiting body part was probably...only about 25% of..(the) total time actually cutting on any nozzle." This also assumes "that the lower back was always 18" closer to the source than was the upper back."

The Nutech Engineers' recommended dose for each of the workers for all of the drywell entries recorded for the insulation removal job are summarized in the following table:

WORKER	
A.	.320 rem
B.	.268 rem
C.	.173 rem
D.	.086 rem
E.	.510 rem
F.	.398 rem
G.	.709 rem
H.	.683 rem

NPPD Dose Assignments

Corporate and Station Management added an additional 50% to the Nutech Engineers' recommendations to ensure that the final dose assignments carried a sufficient margin of conservatism. The results of this adjustment are summarized in the following table.

WORKER

A.	.480 rem
B.	.402 rem
C.	.260 rem
D.	.129 rem
E.	.765 rem
F.	.597 rem
G.	1.064 rem
H.	1.025 rem

This is the dose assigned to the worker's exposure history records for insulation removal.

Additional Calculations

Nutech Engineers also provided two additional sets of calculations for Nebraska Public Power District's use.

The first set used the earlier assumptions, but incorporated the absolute maximum correction ratios for determining the maximum possible dose that could have been received by the workers. This evaluation provided assurance that should the absolute worst possible scenario have taken place, that doses to the workers could not have been outside the 3 rem per quarter limit established by 10CFR20.

The second set used an entirely different set of assumptions. The results were simply to verify that the assumptions used in establishing the recommended dose assignments were technically accurate.

Summary Statement

The method Nebraska Public Power District used for the final dose assignments for the eight craft personnel associated with this evaluation "relied on the assumption that the workers who performed work later in the job undertook similar motions and oriented their bodies in ways similar to the earlier workers. We believe that this is the most probable...(situation). Even if this assumption introduced some non-conservative error causing doses to be underestimated, the additional adjustment for contact exposure (and the additional 50% management adjustment) certainly provided...(adequate correction)."

"We believe that this method...provides the most accurate, reliable and probable estimates of the doses actually incurred by the earlier workers", and provides a sufficient margin of conservatism to ensure that the dose assignments did not underestimate the actual dose for this period.

NEBRASKA PUBLIC POWER DISTRICT
NUCLEAR REGULATORY COMMISSION - REGION IV
MANAGEMENT MEETING

EMERGENCY PREPAREDNESS ISSUES

FEBRUARY 12, 1992



BACKGROUND

- *Inspection Report 50-298/92-01, January 27, 1992*
 - *January 6-10, 1992*
 - *Status of EP Program and Operator Knowledge and Performance of Duties*
 - *No Violations*
 - *Four Weaknesses Identified*
 - *Management Meeting Requested*



WEAKNESS 298/9201-01

- *WEAK Emergency Classification*

- *Slow Correlation of Plant Conditions with EAL's*
- *Slow Declaration of Emergency Classifications*



WEAKNESS 298/9201-02

WEAK Emergency Notification

- *Incorrect or Incomplete Data Entered on Forms*
- *Incorrect or Incomplete Notifications made to Offsite Authorities*



WEAKNESS 298/9201-03

- WEAK Dose Assessment
 - *Incorrect Information Entered in Dose Assessment Program*
 - *Inconsistency Between Dose Calculations and Release Information Provided to Offsite Authorities*



WEAKNESS 298/9201-04

- *WEAK Protective Action Recommendations*
 - *Resulting from Inaccurate Dose Assessment (Previous Weakness)*
 - *Baseline Automatic General Emergency PAR Incorrect*
 - *Evacuation of Upwind Sectors Vice Downwind*



IMMEDIATE CORRECTIVE MEASURES

- *Immediately Retrained and Reevaluated the Three Operating Crews Involved*
 - *Retraining on Same Scenario*
 - *Reevaluation on Similar Scenario*
 - *Completed January 11-12, 1992*

- *Trained and Evaluated Other Three Operating Crews Before Resuming on Shift Duties*
 - *Completed by January 17, 1992*

- *Operations and Training Management Present For All Sessions*



EMERGENCY CLASSIFICATION - 298/9201-01

Root Cause

- *Training in EAL's Under Dynamic Conditions Less Than Adequate*

Planned Corrective Actions

- *Enhance Classroom EAL Training for Operators*
- *Enhance Simulator Emergency Response Training*



EMERGENCY NOTIFICATION - 298/9201-02

- Root Causes*
 - *Procedure Inadequate*
 - *Task Assignment Incorrect*
- Subsequent Corrective Actions*
 - *Revision to EPIP 5.7.6 "Notification"*
- Planned Corrective Actions*
 - *Enhance Simulator Emergency Response Training*



DOSE ASSESSMENT - 298/9201-03

- *Root Causes*
 - *Procedure Inadequate*
 - *Human Miscue*
- *Subsequent Corrective Actions*
 - *Revision to EPIP 5.7.17 "Dose Assessment"*
- *Planned Corrective Actions*
 - *Enhance Simulator Emergency Response Training*



PROTECTIVE ACTION RECOMMENDATIONS - 298/9201-04

- *Root Causes*
 - *Procedure Inadequate*
 - *Human Miscue*
- *Subsequent Corrective Actions*
 - *Revision to EPIP 5.7.5 "General Emergency"*
- *Planned Corrective Actions*
 - *Enhance Simulator Emergency Response Training*



EMERGENCY PREPAREDNESS TASK FORCE

- Self Initiated Effort to Upgrade EP Program*
- Plant and Corporate Involvement*
- Comprehensive Review of EP Program Against Industry Standards and Practices*
- Complete By July 1, 1992*



EP TASK FORCE REVIEW

- ERO Effectiveness Based on Industry Standards*
- ERO Command and Control*
- ERO Training Effectiveness and Efficiency*
- ERO Staffing*
- ERO Call In*
- Previous NRC Exercise/Inspection Findings*
- Exercise/Drill Preparation, Implementation, Evaluation*



CONCLUSIONS

- *Immediate and Direct Action Taken on IR 92-01 Weaknesses*
- *Follow Up Evaluation Identified Root Causes*
- *Corrective Actions Taken or in Progress to Eliminate Root Causes*
 - *Procedure Revisions*
 - *Training Enhancements*
- *EP Task Force Review to Upgrade Overall EP Program*

