



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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March 16, 2001

Gregory M. Rueger, Senior Vice President  
and General Manager  
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**SUBJECT: NRC INTEGRATED INSPECTION REPORT 50-275/00-16; 50-323/00-16**

Dear Mr. Rueger:

On February 17, 2001, the NRC completed an inspection at your Diablo Canyon Nuclear Power Plant, Units 1 and 2 facility. The enclosed report documents the inspection findings, which were discussed during the inspection period and on February 21, 2001, with James R. Becker and other members of your staff.

This inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations, and with the conditions of your licenses. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, two violations of NRC requirements were identified. Because these violations were determined to be of very low safety significance and have been entered into your corrective action program, the NRC is treating the issues as noncited violations, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny these noncited violations, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Diablo Canyon Nuclear Power Plant facility.

Circumstances affecting the financial viability of Pacific Gas and Electric Company have continued to evolve during this inspection period. Actions have been initiated by the State of California and Pacific Gas and Electric Company to address the impacts of these financial challenges. The NRC has exercised communications channels to better understand your planned and implemented actions, especially as they relate to your responsibility to safely operate the Diablo Canyon reactors. NRC inspections, to date, have confirmed that you are operating these reactors safely and that public health and safety is, thus far, assured.

In response to these conditions of economic distress, there will be two differences in how the Region communicates its inspection findings. First, we will continue the 6-week periodicity of our integrated inspection reports (the other reactors in Region IV will be transitioning to a quarterly report frequency, with the exception of San Onofre Nuclear Generating Station). Second, the description of the scope of the individual inspection activities will be significantly more detailed. This is being done to keep the public more fully informed of the breadth and depth of the NRC's inspection and oversight activities.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

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

Sincerely,

*/RA/*

William B. Jones, Chief  
Project Branch E  
Division of Reactor Projects

Docket Nos: 50-275  
50-323  
License Nos: DPR-80  
DPR-82

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NRC Inspection Report No.  
50-275/00-16; 50-323/00-16

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**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket Nos: 50-275  
50-323

License Nos: DPR-80  
DPR-82

Report Nos: 50-275/00-16  
50-323/00-16

Licensee: Pacific Gas and Electric Company

Facility: Diablo Canyon Nuclear Power Plant, Units 1 and 2

Location: 7 ½ miles NW of Avila Beach  
Avila Beach, California

Dates: December 31, 2000, through February 17, 2001

Inspectors: D. Proulx, Senior Resident Inspector  
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Approved By: W. Jones, Chief, Project Branch E  
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**ATTACHMENTS:**

Attachment 1: Supplemental Information

Attachment 2: NRC's Revised Reactor Oversight Process

## SUMMARY OF FINDINGS

### Diablo Canyon Nuclear Power Plant NRC Inspection Report 50-275/00-16; 50-323/00-16

IR05000275-00-16, IR05000323-00-16: 12/31/00-02/17/01, Pacific Gas and Electric Co.; Diablo Canyon Nuclear Power Plant Units 1 and 2; Integrated Resident & Regional Report; Maint. Rule Impl., Personnel Performance During Nonroutine Evolutions, Access Controls to Radiologically Significant Areas.

This report covers a 7-week routine resident inspection, an emergency preparedness inspection, a maintenance rule inspection, a 10 CFR 50.59 inspection, a heat exchanger inspection, and four radiation protection-related inspections during December 31, 2000, through February 17, 2001. The inspection identified two green noncited violations (NCVs). The significance of most issues is indicated by their color (green, white, yellow, or red) and was determined by the Significance Determination Process (SDP) in Inspection Manual Chapter 0609. Findings for which the SDP does not apply are indicated by no color or by the severity level of the applicable violation.

#### A. Inspector Identified Findings

##### Cornerstone: Mitigating Systems

- Green. The Unit 1 component cooling water system was operated in a condition outside its design basis because of excessive leakage through the component cooling water crosstie valves. This resulted in a condition where the component cooling water system could not be completely separated into its two trains to mitigate a system leak or protect against a single failure was compromised. The licensee had not translated adequate design controls for component cooling water system train isolation into procedures or instructions to ensure the ability to isolate a single train and prevent a single failure from rendering the component cooling water system inoperable. The failure to translate this design basis information into instructions or procedures is a violation of 10 CFR 50, Appendix B, Criterion III (Design Control). This violation is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy. This issue was entered into the licensee's corrective action program as Nonconformance Report N0002117.

The inspectors determined that this issue was of very low risk significance. The inspectors noted that the licensee's analysis assumed that a safety-related 250 gpm makeup source was available to replenish the component cooling water system. In addition, two other nonsafety-related makeup sources were available. The inspectors noted that although the ability to split the trains was compromised, the component cooling water system could have met its intended safety function despite the condition with adequate normal and backup makeup systems available (Section 1R14.2).

##### Cornerstone: Occupational Radiation Safety

- Green. On February 13, 2001, during a walkdown of the radiological effluent release monitors and tanks located on Elevation 64 foot of the auxiliary building, the inspectors identified a radiation area and a high radiation area near the Spent Resin Tank Filters

that were not surveyed and controlled. Surveys revealed that general area radiation levels ranged from 7 millirems per hour to as high as 500 millirems per hour.

10 CFR 20.1501(a) states, in part, that each licensee shall make or cause to be made surveys that are reasonable under the circumstances to evaluate the extent of the radiation levels and the potential radiological hazards. The failure to survey the areas surrounding the Spent Resin Tank Filters to evaluate the extent of the radiation levels and potential radiological hazards is a violation of 10 CFR 20.1501. This violation is in the licensee's corrective action program as Action Request AO 525568.

This issue was determined to have very low safety significance, because there was no overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised (Section 2OS1).

B. Licensee Identified Violations

Violations of very low significance which were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee appear reasonable. These violations are listed in Section 4OA7 of this report.



## Report Details

### Summary of Plant Status

Diablo Canyon Units 1 and 2 began this inspection period at 100 percent power.

On January 5, 2001, operators reduced power on Unit 1 to 15 percent power to perform a balance shot on the main turbine to reduce vibration. Following completion of these maintenance activities, operators returned Unit 1 to 100 percent power on January 8.

On January 10, 2001, operators in both units reduced power to 20 percent in anticipation of high Pacific Ocean swells. After the high energy swells subsided, operators returned both units to 100 percent power on January 12.

On January 19, 2001, operators reduced power on Unit 2 to 50 percent to repair a weld leak on main feedwater Pump 2-2 and to clean the main condenser. Following completion of these maintenance activities, operators returned Unit 2 to 100 percent power on January 20.

Units 1 and 2 continued to operate at essentially 100 percent power until the end of this inspection period.

### **1. REACTOR SAFETY**

#### **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness**

#### **1R02 Evaluations of Changes, Tests, or Experiments (71111.02)**

##### **a. Inspection Scope**

The inspectors reviewed a selected sample of 12 safety evaluations to verify that the licensee had appropriately considered the conditions under which the licensee may make changes to the facility or procedures or conduct tests or experiments without prior NRC approval.

The inspectors reviewed an additional 12 safety evaluation screenings, in which the licensee determined that safety evaluations were not required, to ensure that the licensee's exclusion of a full evaluation was consistent with the requirements of 10 CFR 50.59.

The inspectors reviewed seven action requests initiated by the licensee that addressed problems or deficiencies associated with 10 CFR 50.59 to ensure that appropriate corrective actions were being taken. The inspectors also reviewed licensee self-assessments to ensure that problems or deficiencies were appropriately addressed.

##### **b. Findings**

No findings of significance were identified.

1R04 Equipment Alignments (71111.04Q)

Partial System Walkdowns

.1 Safety Injection System Walkdown

a. Inspection Scope

On January 16-17, 2001, while safety injection Pump 2-2 was inoperable, the inspectors performed a partial system walkdown of portions of the safety injection system associated with safety injection Pump 2-1. The inspection included procedure review, an in-plant walkdown of the system, verification of the valve and electrical lineups, and review of the Final Safety Analysis Report. The inspectors used Drawing 107709, "Safety Injection," Revision 39, and Procedures OP B-3A:1, "Safety Injection System - Make Pumps Available," Revision 8B, and OP B-3A:II, "Safety Injection System - Alignment Verification for Plant Startup," Revision 15, as guidance.

b. Findings

No findings of significance were identified.

.2 Diesel Engine Generator Walkdown

a. Inspection Scope

On February 14, 2001, while the California grid was in a Stage 3 electrical emergency and the Morro Bay-Gates 230 kV offsite power line was unavailable, the inspectors performed a partial system walkdown of Diesel Engine Generator 2-2. The inspection included procedure review, an in-plant walkdown of the system, and verification of the valve and electrical lineups. The inspectors used Drawing 107721, "Diesel Engine 2-2," Revision 39, and Procedure OP J-6B:II, "Diesel Engine Generator 2-2 - Make Available," Revision 16, as guidance.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

Monthly Routine Inspection

a. Inspection Scope

The inspectors performed fire protection walkdowns to assess the material condition of plant fire detection and suppression, fire seal operability, and proper control of transient combustibles. The inspectors used Section 9.5 of the Final Safety Analysis Report Update as guidance. Specific risk-significant areas inspected included the intake

structure, the radiological controlled area of the auxiliary building, and the diesel generator rooms in the turbine building.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed a selected sample of safety-related heat exchanger testing or inspection and cleaning and maintenance records to verify that the licensee had identified any potential heat exchanger deficiencies which could mask degraded performance and had identified any potential common cause heat sink performance problems that had the potential to increase risk. In addition, the inspectors reviewed heat exchanger design calculations and vendor information to ensure that the heat exchangers were performing within their design basis. The inspectors reviewed this data for the residual heat removal heat exchangers, the emergency diesel generator lube oil and jacket water heat exchangers, and the containment fan cooling units.

The inspectors reviewed 16 action requests initiated by the licensee that addressed problems or deficiencies associated with safety-related heat exchangers to ensure that appropriate corrective actions were being taken.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

.1 Routine Reviews

a. Inspection Scope

The inspectors reviewed the licensee's maintenance rule implementation for equipment performance problems. The inspectors determined if the equipment was properly placed into the scope of the rule, if the failures were properly characterized, and if goal setting was recommended, if required. Procedure MA1.ID17, "Maintenance Rule Monitoring Program," Revision 8, was used as guidance. The inspectors reviewed the following action requests (ARs):

- A0496482, "Diesel Engine Generator 2-3 Incorrect Right Angle Gearbox Oil"
- A0517849, "Loss of Startup Transformer to Unit 2 and Automatic Diesel Generator Starts"

- A0521760, "Diesel Engine Generator 1-3 Failed to Achieve Stable Voltage in Required Time"

b. Findings

The inspectors reviewed AR A0517849, which had been closed out and taken to "History." This action request stated that on October 23, 2000, while implementing a clearance order for the Unit 1 Startup Transformer 1-1 during Refueling Outage 1R10, the operator inadvertently removed Unit 2 Startup Transformer 2-1 from service. This resulted in all three Unit 2 diesel engine generators starting. Operators responded to this inadvertent action, returned Startup Transformer 2-1 to service, and secured each of the diesel engine generators. Nuclear Quality Services personnel elevated this issue to a Quality Evaluation (the second tier of importance in the corrective action program) because of the impact on Unit 1.

The inspectors noted that this issue constituted an operator error in the performance of a maintenance activity. The performance criteria for the startup transformers provided that for a single MPFF, that the Startup Transformer 2-1 be reviewed for the goal setting requirements of 10 CFR 50.65(a)(1). Action Request A0517849 was closed with the field for MPFF marked as "No". The NRC staff is reviewing whether the licensee's failure to consider the startup transformers for the goal-setting requirements of 10 CFR 50.65(a)(1) after performance indicated that the component was not being effectively controlled through appropriate preventive maintenance was a violation of 10 CFR 50.65(a)(2). This is an unresolved item (323/0016-01).

This issue was entered into the licensee's corrective action program as AR A0524635. Subsequently, the Maintenance Rule Expert Panel Meeting members reviewed the condition which resulted in the MPFF. The members concluded that the startup transformer would not be placed into the goal setting requirements of 10 CFR 50.65(a)(1), based in part on the MPFF resulting from personnel error.

The inspectors noted that nonquality Procedure MA1.ID17 described the normal process for evaluating equipment failures for MPFFs. Section 5.4.2 of Procedure MA1.ID17 stated that upon failure of a maintenance rule scoped system, the AR would be coded with maintenance rule functional failure P, as in pending. The AR would then be routed to the system engineer, who would make the MPFF determination. Following the system engineer evaluation, the maintenance rule expert panel would review and approve the evaluation. If an MPFF was determined to have occurred, the AR would be again routed to the system engineer for goal setting evaluation and would also be reviewed by the expert panel. Because the AR was initiated with the initiating code of AT REPT, the licensee's system entered a default value of "No" in the field for the MPFF determination. This was not identified by the action request review team or the quality assurance organization prior to closure of AR A0517849. Thus, the process as described in Procedure MA1.ID17 did not occur with respect to AR A0517849. The licensee was evaluating enhancements to the AR initiating program, and the AR review process at the end of this inspection period.

The inspectors evaluated this issue using the SDP. The inspectors noted that Startup Transformer 2-1 was inoperable for less than one hour and the Unit 2 diesel engine generators started as required. The condition did not result in an increase to an initiating event frequency. The offsite power supply, as a mitigating system, was unavailable for a short period of time with the respective emergency diesel generators available. Therefore, adequate sources of power were available to mitigate a reactor trip or loss of offsite power event. The inspectors determined that this issue was of very low risk significance and was determined to be a green issue.

.2 Periodic Evaluation Reviews

a. Inspection Scope

The inspectors reviewed the licensee's reports documenting the performance of the last two maintenance rule periodic effectiveness assessments. These periodic evaluations covered a 19-month period from April 1998 through November 1999, and a 20-month period from July 1996, through March 1998. These two periodic evaluations were prepared as required by 10 CFR 50.65(a)(3).

The inspectors considered whether the licensee's program identified and monitored risk-significant functions associated with structures, systems, and components using reliability and unavailability. The inspectors also reviewed whether the performance of nonrisk-significant functions was monitored using plant level criteria. The inspectors reviewed the conclusions reached by the licensee with regard to the balance of reliability and unavailability for specific maintenance rule functions. This review was conducted by examining the licensee's evaluation of all risk-significant functions that had exceeded performance criteria during the evaluation periods. The inspectors also examined the licensee's evaluation of program activities associated with placement of maintenance rule program risk-significant functions in Categories (a)(1) and/or (a)(2). This review was conducted by the examination of periodic evaluation conclusions reached by the licensee for functions of the vital ac electric power, auxiliary feedwater, component cooling water, high head emergency core cooling, reactor coolant, and associated systems.

b. Findings

No findings of significance were identified.

.3 Effectiveness of Maintenance Rule Program

The inspectors reviewed the Maintenance Rule Expert Panel Meeting Minutes for those meetings listed in Attachment 1 with an emphasis on issues associated with functions of the vital ac electric power, auxiliary feedwater, component cooling water, high head emergency core cooling, reactor coolant, and associated systems. For the identified functions, the inspectors followed up by obtaining the needed documentation and assessing the maintenance rule program performance related to:

- Program adjustments made in response to unbalanced reliability and availability

- Cause determination of degraded performance or failure to meet performance criteria
- Adequacy of corrective action and goal setting
- Monitoring of established goals for functions placed in Category (a)(1)
- Program revisions to scoping and risk significance
- Creation of new risk-significant functions to improve performance monitoring
- Assessment of plant level performance

In order to validate that the licensee was identifying programmatic issues from outside of the maintenance rule program, the inspectors also reviewed the Nuclear Quality Service Audit, Nuclear Quality Service Assessment, and third-party assessment of the maintenance rule program that are referenced in Attachment 1.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspectors evaluated the use of the corrective action system within the maintenance rule program. This review was accomplished by the examination of the action request reports and a sample of the control room logs listed in the attachment. The purpose of this review was to establish that the corrective action program was entered at the appropriate threshold for the purposes of:

- Starting the evaluation and determination of corrective action process when performance criteria was exceeded
- Correction of performance-related issues or conditions identified during the periodic evaluation
- Correction of generic issues or conditions identified during programmatic surveillances, audits, or assessments

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Control (71111.13)

.1 Risk Assessments

a. Inspection Scope

Throughout the inspection period, the inspectors reviewed daily and weekly work schedules to determine when risk-significant activities were scheduled. The inspectors reviewed selected activities regarding risk evaluations and overall plant configuration control. The inspectors verified that the applicable contingencies were in place as discussed in the risk assessments. The inspectors used Procedure AD7.DC6, "On-Line Maintenance Risk Management," Revision 5, as guidance. The activities reviewed were associated with the following:

- Component Cooling Water Heat Exchanger 2-2 inoperable coincident with a California Electrical Grid Stage III electrical emergency
- Battery Charger 1-3-2 inoperable coincident with a Stage III electrical emergency and condensate booster pump work

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Evolutions (71111.14, 71153)

.1 Dual Unit Down Ramps

a. Inspection Scope

On January 10, 2001, the licensee was informed that high Pacific Ocean swells had been predicted. In anticipation of heavy kelp loading on the traveling screens, operators decreased power to 20 percent on both units. The inspectors responded to the control room and monitored the operators' response to the transient and reviewed plant conditions to determine if both units had stabilized. The inspectors remained in the control room to observe the effect of the high swell conditions on the traveling screens for the duration of the event.

b. Findings

No findings of significance were identified.

.2 Licensee Event Report (LER) Review

(Closed) LER 275/2001-09-00: Component cooling water (CCW) system valves would not close properly due to misadjusted travel stops - personnel error.

On October 25, 2000, the licensee determined that Unit 1 had been outside its design basis because of excessive leakage from the CCW system crosstie valves. The licensee attempted to use the crosstie valves as an isolation boundary to support outage work. However, the licensee was not able to adequately isolate the clearance boundary using the crosstie Valves CCW-1-15 and CCW-1-17. Because of the inability to use these valves as a clearance boundary, the licensee performed a leak check of the valves using temporary Procedure TP-TB-0005, "CCW Header B Pump Discharge Valve Seat Leakage Test," Revision 0. The licensee was unable to precisely measure the valve leakage but estimated the leakage as 70 gpm. Craftsmen examined the valves in question and noted that the valve travel stops for the valves had been misadjusted such that the CCW crosstie isolation valves were not seated. The licensee determined that the root cause of this condition was personnel error.

Final Safety Analysis Report Update, Section 9.2.2, identifies that the CCW system can be separated into its individual trains to isolate leaks and prevent a loss of safety function following any single failure within 20 minutes. Subsequently, the licensee determined that the CCW system was being operated outside its design basis because of the inability to separate the CCW system into its individual systems. The licensee had not translated the design information to the maintenance of the crosstie valves which provide the ability to isolate leakage or prevent a single failure from affecting the entire CCW system. The failure to translate this design basis information into instructions or procedures is a violation of 10 CFR 50, Appendix B, Criterion III (Design Control). This violation is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy. This issue was entered into the licensee's corrective action program as Nonconformance Report N0002117 (275/0016-02).

The licensee's corrective actions included: (1) manually adjusted Valves CCW-1-15 and CCW-1-17 to reduce cumulative leakage to less than 1 gpm, (2) adjusted the travel stops such that the valve disks properly mated with their seats, (3) inspected similar valves on both Units 1 and 2, and (4) adjusted the travel stops on several similar valves. For long-term actions the licensee will require postmaintenance testing for similar valves to verify the travel stops are properly adjusted.

The inspectors evaluated this issue using the SDP. The inspectors noted that the licensee's analysis assumed that a safety-related 250 gpm makeup source was available to replenish the CCW system. In addition, two other nonsafety-related makeup sources were available. The inspectors noted that although the ability to split the trains was compromised, the CCW system could have met its intended safety function despite the condition, with adequate normal and backup makeup systems available. The inspectors determined that this issue was of very low risk significance and was screened as a green issue.



1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the operability evaluations and supporting documents to determine if the associated systems could meet their intended safety functions despite the degraded status. The inspectors reviewed the applicable Technical Specification Bases and Final Safety Analysis Report Update sections in support of this inspection. The following ARs were reviewed:

- AR A0523481, "Centrifugal Charging Pump Check Valve CVCS-1-8479B Sticks Open"
- AR A052346, "Unit 1 Component Cooling Water Pipe Stress Analysis Inputs are 15 Degrees Higher than Unit 2"
- AR A0523521, "Component Cooling Water Heat Exchanger 1-1 Auxiliary Saltwater System Differential Pressure has Excessive Oscillations"

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors evaluated the cumulative effect of operator workarounds to assess if the licensee adequately managed these items. The inspectors reviewed the licensee's operator workaround and operator burden logs to determine if plant operators would reasonably be able to perform their postaccident duties, given the existing equipment deficiencies.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors observed and evaluated the following postmaintenance test procedure to determine if the test adequately demonstrated that the equipment was capable of performing its safety functions. The inspection included review of the work order (Work Order RO198310 "Battery Charger BTC 1-3-2; Clean Inspect and Test," dated February 7, 2001) and the vendor manual to determine if the test adequately covered the scope of the work.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

Routine Observations

a. Inspection Scope

The inspectors evaluated performance of surveillance test Procedure STP I-9, "12 kV Volt Bus D Reactor Coolant Pump Undervoltage/Underfrequency Channel Calibration and Time Response Test," Revision 5, on February 16, 2001. The inspection included technical review of the procedure, observation of the test, and review of the completed data.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed Temporary Modification/Plant Jumper Log Entry 99-051, "Limit Travel of Valve SW-0-PCV-152 to 10 percent." The inspectors reviewed the 10 CFR 50.59 screening, verified that the applicable drawings were annotated, observed that the necessary tags were in place, and that the transient combustible administrative controls were properly implemented. This temporary alteration was performed in accordance with Procedure CF4.ID7, "Temporary Modifications - Plant Jumpers and Measuring and Test Equipment," Revision 7B.

b. Findings

No findings of significance were identified.

1EP2 Alert and Notification System Testing (7111402)

a. Inspection Scope

The inspectors performed the following actions to evaluate the adequacy of the offsite siren system for alerting the public in the event of a nuclear emergency:

- Reviewed licensee commitments for the siren system contained in the initial and updated system design reports, the emergency plan, and station procedures
- Reviewed changes to the system and effects on commitments

- Evaluated the adequacy of siren test and maintenance procedures
- Reviewed siren test and maintenance records from calendar year 2000
- Interviewed licensee personnel responsible for siren oversight
- Reviewed action requests written to document siren problems occurring in calendar year 2000

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization Augmentation Testing (7111403)

a. Inspection Scope

The inspectors performed the following actions to evaluate the notification system for emergency response organization members and activation of onsite emergency response facilities:

- Reviewed emergency response organization notification and facility activation goals and commitments in the emergency plan and station procedures
- Reviewed the adequacy of design, operation, and testing of the primary and backup notification systems
- Reviewed augmentation results from two declared emergency events from calendar year 2000
- Reviewed a sample of augmentation drill results, action requests documenting augmentation system problems, and the adequacy of corrective actions for identified problems
- Reviewed the qualification status for a sample of 21 emergency response organization members
- Interviewed two control room assistants and one radiation protection foreman responsible for performing emergency response organization augmentation notifications to evaluate the adequacy of training for this task
- Interviewed four emergency response organization members to determine their knowledge of responsibilities for response augmentation

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (7111404)

a. Inspection Scope

The inspectors reviewed Procedure G-1, "Emergency Classification and Emergency Plan Activation," Revision 29, and supporting documentation for this revision to determine if the licensee revised the procedure in accordance with NRC regulations.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (7111405)

a. Inspection Scope

The inspectors performed the following actions to evaluate emergency preparedness related efforts to correct weaknesses and deficiencies:

- Reviewed the adequacy of corrective actions taken for emergency preparedness problems identified in the year 2000 biennial exercise
- Reviewed the adequacy of corrective actions taken for emergency preparedness problems identified in two declared emergency events in calendar year 2000
- Reviewed quality assurance audit and surveillance reports for calendar years 1999 and 2000
- Reviewed selected emergency preparedness action requests and action items for the adequacy and timeliness of corrective actions
- Reviewed four emergency planning department self-assessments for calendar year 2000 to determine the quality of self-initiated corrective actions

b. Findings

No findings of significance were identified.

## 2. RADIATION SAFETY

### Cornerstones: Occupational Radiation Safety, Public Radiation Safety

#### 2OS1 Access Controls to Radiologically Significant Areas (71121.01)

##### a. Inspection Scope

Radiation surveys of the radiologically controlled area were reviewed and compared with regulatory requirements.

##### 2. Findings

On February 13, 2001, during a walkdown of the radiological effluent release monitors and tanks located on elevation 64 foot of the auxiliary building, the inspectors identified a radiation area and a high radiation area near the spent resin tank filters that were not surveyed and controlled. Surveys performed at the inspector's request, revealed that general area radiation levels ranged from 7 millirems per hour to as high as 500 millirems per hour.

10 CFR 20.1501(a) states, in part, that each licensee shall make or cause to be made surveys that are reasonable under the circumstances to evaluate the extent of the radiation levels and the potential radiological hazards. The failure to survey the areas surrounding the spent resin tank filters to evaluate the extent of the radiation levels and potential radiological hazards is a violation of 10 CFR 20.1501. This violation is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Action Request AO 525568 (50-275;323/0016-03).

When this issue was processed through the SDP, it was determined to be a green finding because not surveying an area has a credible impact on a worker's radiological safety and the occurrence had the potential to involve a workers unplanned, unintended dose. However, there was no overexposure or substantial potential for an overexposure and the ability to assess dose was not compromised.

#### 2OS2 ALARA Planning and Controls (71121.02)

##### .1 Normal Operations

##### a. Inspection Scope

The inspectors interviewed radiation workers and radiation protection personnel involved in high dose rate and high exposure jobs in the radiologically controlled areas during normal operations. The inspectors conducted independent radiation surveys of selected work areas within the radiologically controlled area. The inspectors reviewed and compared the following items with regulatory requirements to determine whether the

licensee had an adequate program to maintain occupational exposure as low as is reasonably achievable (ALARA):

- ALARA program procedures
- Processes used to estimate and track exposures
- Plant collective exposure history for the past 3 years, current exposure trends, and 3-year rolling average dose information
- One radiation work permit package for online work activities (power entries in Units 1 and 2) which resulted in access to posted very high radiation areas during the inspection period
- Use of engineering controls to achieve dose reductions
- Individual exposures of selected work groups (health physics, operations, and mechanical maintenance)
- Hot spot tracking and reduction program
- Plant related source-term data, including source-term control strategy
- Temporary shielding packages (TSR 99-0080, 00-0008, 00-0016, 01-0207, and 01-0235)
- Radiological work planning
- ALARA Committee meeting minutes (7/5/00, 8/16/00, 11/15/00, and 1/17/01)
- ALARA Hit Team/Advisory Committee meeting minutes (2/3/00, 6/1/00, and 6/8/00)
- Declared pregnant worker dose monitoring controls

b. Findings

No findings of significance were identified.

.2 Refueling Outages

a. Inspection Scope

The inspectors interviewed radiation workers and radiation protection personnel involved in high dose rate and high exposure jobs in the radiologically controlled areas during refueling outages. Independent radiation surveys of selected work areas within the radiologically controlled area were conducted. No high exposure jobs or work in high

radiation areas were performed during the inspection. The following items were reviewed and compared with regulatory requirements:

- ALARA program procedures
- Nuclear Quality Services Audits and Radiation Protection Department Self-Assessments
- Processes used to estimate and track exposures
- Plant collective exposure history for the past 3 years, current exposure trends, and 3-year rolling average dose information
- Four ALARA/radiation work permit packages from the Unit 2, Cycle 9 Refueling Outage (steam generator nozzle dam installation, steam generator eddy current testing, shielding activities, and reactor cavity decontamination) which resulted in the highest personnel collective exposures during the inspection period
- Seven ALARA/radiation work permit packages from the Unit 1 Cycle 10 Refueling Outage (reactor disassembly, control rod drive mechanism cable replacement, primary steam generator manway work, steam generator nozzle dam work, steam generator eddy current testing, steam generator sludge lancing work, and reactor coolant pump motor replacement) which resulted in the highest personnel collective exposures during the inspection period
- Hot spot tracking and reduction program
- Use of engineering controls to achieve dose reductions
- Individual exposures of selected work groups (health physics, operations, and maintenance)
- Plant related source-term data, including source-term control strategy
- Radiological work planning
- A summary of ALARA related action requests written since September 1, 1999, was reviewed. Four of these action requests, which involved higher than planned exposure levels and radiation worker practice deficiencies, were reviewed in detail

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation (71121.03)

a. Inspection Scope

The inspectors interviewed cognizant licensee personnel and compared the following items to regulatory requirements:

- Calibration, operability, and alarm setpoint, when applicable, of selected portable radiation detection instrumentation, continuous air monitors, whole-body counting equipment, personnel contamination monitors, Unit 2 incore seal table area radiation monitor (R-7), Unit 1 containment high range monitor (R-30), and Unit 1 main steam line noble gas monitor (R-72)
- Calibration expiration and source response check currency on radiation detection instruments staged for use
- The status and surveillance records of self-contained breathing apparatus staged and ready for use in the plant
- The licensee's capability for refilling and transporting self-contained breathing apparatus air bottles to and from the control room and operations support center during emergency conditions
- Control room operator and emergency response personnel training and qualifications for use of self-contained breathing apparatus
- Radiation Protection Audits (991940001 and 003680435)
- Selected exposure significant corrective action documents, initiated from February 1999 to February 2001, that involved radiation monitoring instrument deficiencies or self-contained breathing apparatus

b. Findings

No findings of significance were identified.

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

a. Inspection Scope

The inspectors interviewed cognizant personnel and walked down the major components of the gaseous and liquid release systems to observe ongoing activities, equipment material condition, and the system configuration, as compared to the description in the Final Safety Analysis Report. The following items were reviewed and compared with regulatory requirements:

- 1999 Radiological Effluent Release Report



- Changes to the Offsite Dose Calculation Manual and to the radioactive waste system design and operation
- Effluent radiological occurrence performance indicator incidents
- Sample collection and analysis of liquid and gaseous effluents
- Selected radioactive liquid and gaseous waste release permits and associated projected doses to members of the public (Batch Release Numbers 2000-2-30, 2000-1-37, 2001-0-5, 2001-1-6, and 2001-2-13)
- Compensatory sampling and radiological analyses conducted when effluent monitors were declared out-of-service
- Monthly, quarterly, and annual dose calculations
- Air cleaning system surveillance test results
- Surveillance test results for the stack and vent flow rates
- Records of instrument calibrations for three point of discharge effluent radiation monitors and flow measurement devices (Unit 1 Plant Vent, Unit 1 Steam Generator Blowdown, and Common Liquid Radwaste Discharge)
- Effluent radiation monitor alarm setpoint values
- Calibration records of counting room instrumentation associated with effluent monitoring and release activities
- Quality control records for the counting room instruments
- Radioactive effluent treatment and monitoring program audit EDMS 003678525
- Twenty corrective action reports related to the radioactive effluent treatment and monitoring program (AO 502013, -503085, -503121, -504587, -505969, -507967, -509283, -511409, -511906, -513697, -513890, -514536, 514538, -515745, -515955, -517025, -517883, -520458, -522898, and -524523)

b. Findings

No findings of significance were identified.

2PS3 Radiological Environmental Monitoring Program and Radioactive Material Control Program (71122.03)

a. Inspection Scope

The inspectors interviewed licensee personnel responsible for implementing the radiological environmental, meteorological monitoring, and radioactive material control programs. The inspectors observed the following activities and equipment:

- Collection and preparation for shipment of airborne particulate, charcoal, and marine samples for analysis at an offsite contract laboratory
- Meteorological instrument data displays at the primary and backup meteorological towers and in the control room
- The survey of materials for release from the radiologically controlled area

The following items were reviewed and compared with regulatory requirements to: (1) determine whether the licensee had an adequate program to verify the impact of radioactive effluent releases to the environment, and (2) ensure that the surveys and controls were adequate to prevent the inadvertent release of licensed materials into the public domain:

- Implementing procedures for the radiological environmental monitoring program
- Number and location descriptions of the environmental sampling stations as specified in the Offsite Dose Calculation Procedure
- Environmental sample analytical results
- Calibration and maintenance records for environmental air sampling equipment and radiation measurement instrumentation
- 1999 land use census results and changes to the radiological environmental monitoring program
- 1999 Annual Radiological Environmental Operating Report (420DC-00.19)
- The contractor environmental laboratory's performance in the interlaboratory comparison program
- Implementing procedures for the meteorological monitoring program
- Meteorological instrument operability, reliability, and annual meteorological data recovery
- Procedures, methods, and instruments used to survey, control, and release materials from the radiologically controlled area

- Calibration procedures and records for instruments used to perform radiological surveys prior to material release
- Detection sensitivities of radiation survey instruments used for the release of potentially contaminated materials from the radiologically controlled area
- Criteria used for the unrestricted release of potentially contaminated material from the radiologically controlled area
- Audit (EDMS Number 003706472)
- Corrective action documentation

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151)

.1 Performance Indicator Review

a. Inspection Scope

The inspectors reviewed the following performance indicators for the period from the first quarter of 1999 through the second quarter of 2000 to assess the accuracy and completeness of the indicator. The inspectors used NEI 99-02, "Regulatory Assessment Performance Indicator Verification," Revision 0, as guidance for this inspection.

- Reactor Coolant System Activity
- Reactor Coolant System Leakage

b. Findings

No findings of significance were identified.

.2 (Closed) Unresolved Item (URI) 275: 323/2000-010-02: Questionable interpretation of residual heat removal performance indicator.

During verification of the residual heat removal performance indicator, the inspectors noted that the licensee did not count any unavailability time for periods when the CCW or auxiliary saltwater systems were inoperable. The licensee noted that both the CCW and the auxiliary saltwater systems operated cross-connected between trains and could supply 100 percent of the required cooling to either train of residual heat removal with a single train. The inspectors questioned if a train of residual heat removal should be

considered unavailable if the system was vulnerable to a single failure.

The licensee submitted a "Frequently Asked Question" (FAQ) the Nuclear Energy Institute (NEI) to provide aide in interpreting the residual heat removal performance indicator. NEI submitted Mitigating Systems FAQ 221-MS04 to the NRC, which was approved on October 31, 2000. This FAQ response indicated that if a single saltwater train is capable of satisfying the heat removal requirements of both trains of CCW or residual heat removal, no shutdown cooling unavailability need be reported.

The inspectors concluded that the licensee reported the residual heat removal performance indicator data properly. This item is closed.

.3 Drill and Exercise Performance

a. Inspection Scope

The inspectors reviewed classification, notification, and protective action recommendation results from the year 2000 biennial exercise, two declared emergency events, and selected emergency preparedness drills and simulator scenarios from calendar year 2000 to verify the accuracy of the reported performance indicator data for that period.

b. Findings

No findings of significance were identified.

.4 Emergency Response Organization Drill Participation

a. Inspection Scope

The inspectors reviewed drill participation data for calendar year 2000 for a sample of 19 key emergency response organization members to verify the accuracy of data reported for this performance indicator for that period.

b. Findings

No findings of significance were identified.

.5 Alert and Notification System Reliability

a. Inspection Scope

The inspectors reviewed siren test results from the third quarter of calendar year 2000 to verify the accuracy of data reported for this performance indicator for year 2000.

b. Findings

No findings of significance were identified.

40A6 Management Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. J. Becker, Operations Director, and other members of licensee management at the conclusion of each regional inspection during the inspection period. The resident inspection results were presented on February 21, 2001. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

40A7 Licensee Identified Violations

The following finding of very low safety significance was identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600 for being dispositioned as Noncited Violation (NCV).

NCV Tracking Number                      Requirement Licensee Failed to Meet

275; 323/0016-04	Technical Specification 5.4.1 requires procedures for the control of radioactivity. Section 7.1.1 of Procedure RCP D-614, "Release of Materials From the Radiologically Controlled Area," Revision 5A, states in part, that all material released from the radiologically controlled area shall have no detectable licensed radioactivity. On October 12, 1999, and August 29, 2000, detectable licensed radioactivity was released from the radiologically controlled area, as described in the licensee's corrective action program, reference Action Requests A0494102 and A0513515.
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## ATTACHMENT 1

### PARTIAL LIST OF PERSONS CONTACTED

#### Licensee

J. Becker, Director, Operations Services  
D. Christensen, Engineer, Nuclear Quality Assurance and Licensing  
G. DeHart, Instructor, Learning Services  
H. Fong, Engineer, Radiation Protection  
J. Gardner, Senior Engineer, Chemistry and Environmental Operations  
R. Gray, Engineer, Radiation Protection  
R. Hite, Director, Radiation Protection  
L. Hopson, Manager, Chemistry and Environmental Operations  
S. Ketelsen, Supervisor, Regulatory Services  
J. Knemeyer, Engineer, Chemistry and Environmental Operations  
D. Miklush, Director, Engineering Services  
L. Moretti, Foreman, Radiation Protection  
K. O'Neil, Engineer, Engineering Services  
P. Nugent, Director, Regulatory Services  
D. Oatley, Vice President  
J. Tompkins, Director, Nuclear Quality Analysis and Licensing  
R. Waltos, Director, Maintenance Services  
S. Zawalick, Engineer, Engineering Services

#### NRC

D. Proulx, Senior Resident Inspector  
T. Jackson, Resident Inspector

### ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened

323/0016-01	URI	NRC staff to determine whether a maintenance rule violation occurred for the failure to classify the inadvertent loss of Startup Transformer 2-1 as an MPFF (Section 1R12.1)
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#### Opened and Closed During this Inspection

275/0016-02	NCV	CCW system outside of design basis because valves would not close properly (Section 1R14.2)
275;323/0016-03	NCV	Failure to survey (Section 2OS1)
275;323/0016-04	NCV	Failure to properly release radioactive material (Section 4OA7)

Previous Items Closed

275/2001-09-00	LER	CCW system valves would not close properly due to misadjusted travel stops - personnel error (Section 1R14.2)
275;323/00010-02	URI	Questionable interpretation of residual heat removal performance indicator (Section 4OA2.2)

Previous Items Discussed

None

LIST OF ACRONYMS USED

ALARA	as low as reasonably achievable
AR	action request
CCW	component cooling water
CFR	Code of Federal Regulations
FAQ	Frequently Asked Question
LER	Licensee Event Report
MPFF	maintenance preventable functional failure
NEI	Nuclear Energy Institute
NCV	Noncited Violation
NRC	Nuclear Regulatory Commission
SDP	Significance Determination Process
STP	Surveillance Test Procedure
URI	Unresolved Item

DOCUMENTATION REVIEWED

Safety Evaluations

98-063	Upgrade Intake Debris Screens to Design Class I
98-082	DCM T-9, Wind, Tornado, and Tsunami
98-083	Exercising of Containment Atmosphere Sample (Post-LOCA) Valves
98-085	ECCS Pressure Reducing Orifices
98-115	Containment Systems - Containment Leakage
98-149	Nonclass 1E Penetration Overcurrent Protection
99-009	Second Level Undervoltage Relay Protection Setpoint Change
99-018	Revision of MP M-50.8, "Internals Lifting Device Handling"
99-022	Change to Generic Letter Commitment to Plug PWSCC Cracks
99-023	Unit 2 Condensate Storage Tank Level Taps for LT 40/44
99-078	Revised Containment Integrity Analysis (CIA)
99-137	FSAR Update of Emergency Diesel Generator Loading Tables 8.3-3 and 8.3-5

10 CFR 50.59 Screenings

A0475158	Add Spring Loaded Check Valve to Reduce Pulsations at FT-499
A0481569	DEG Turbo Lube Oil Check Valve Removal (Unit 1)
A0486865	Fan E-4: Breaker New Setting / TOL Relay Heater Replacement
A0489124	Install Pipe in Abandoned Pen #3CC-3T2-709-31*2P9*
A0492658	Limatorque® Valve Body: Conduit Seals - Allow Removal
A0494274	FWP Gov Valve Guide Bushing Modification (Drwg Change Only)
A0501939	ATMM - Modify EDG Circuit (Unit 1)
A0505612	Limatorque® Valve Body: Conduit Seal Removal
A0513896	Change Fan S-22 Filter Size
A0514031	Revise "S" and "C" Pipe Spec Dwgs
-9.1(12)	Summary Description of Heavy Loads Program
N-10.1(1)	Setpoint Relationship Between the 10% ADVs and the MSSVs

PROCEDURES

NUMBER	DESCRIPTION	REVISION
AD7.DC6	On-Line Maintenance Risk Management	5
MA1.1D17	Maintenance Rule Monitoring Program	8
MA1.NE1	Maintenance Rule Monitoring Program -Civil Implementation	2

MISCELLANEOUS DOCUMENTS

NUMBER	DESCRIPTION	DATE
NA	Maintenance Rule Periodic Assessment	12/9/99
NA	Maintenance Rule Periodic Assessment	04/24/98
NA	Unit 1 Quarterly Maintenance Rule Monitoring Report - 01/01/99 to 12/31/00	01/23/01
NA	Unit 2 Quarterly Maintenance Rule Monitoring Report - 01/01/99 to 12/31/00	01/23/01
NA	Unit 1 Quarterly Maintenance Rule Monitoring Report - 10/01/98 to 9/30/00	10/31/00
NA	Unit 2 Quarterly Maintenance Rule Monitoring Report - 10/01/98 to 9/30/00	10/31/00
NA	Maintenance Rule (a) (4) STARS Self-Assessment	12/08/01
EDMS-990360023	Maintenance Rule Followup Assessment	04/15/99





Emergency Planning Action Items from calendar year 2000

Nuclear Quality Services Audit 991310019, "Emergency Preparedness," dated December 2, 1999

Nuclear Quality Services Audit 003708005, "Emergency Preparedness," dated January 26, 2001

## ATTACHMENT 2

### **NRC's REVISED REACTOR OVERSIGHT PROCESS**

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

<b>Reactor Safety</b>	<b>Radiation Safety</b>	<b>Safeguards</b>
<ul style="list-style-type: none"><li>• Initiating Events</li><li>• Mitigating Systems</li><li>• Barrier Integrity</li><li>• Emergency Preparedness</li></ul>	<ul style="list-style-type: none"><li>• Occupational</li><li>• Public</li></ul>	<ul style="list-style-type: none"><li>• Physical Protection</li></ul>

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the significance determination process, and assigned colors of GREEN, WHITE, YELLOW, or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, or RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.