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SUBJECT: LER 88-020-01:on 881210,apparent ground causes control element assembly slip.W/890907 ltr.

W/8 ltr.

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TITLE: Licensee Event Report (LER) & Part 21 Rept Combination (50 Dkt)

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Arizona Public Service Company

PALO VERDE NUCLEAR GENERATING STATION
P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

192-00519-JGH/TDS/JJN
September 7, 1989

U. S. Nuclear Regulatory Commission
NRC Document Control Desk
Washington, D.C. 20555

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528 (License No. NPF-41)
Licensee Event Report 88-020-01
File: 89-020-404

Attached please find Supplement 1 Licensee Event Report (LER) No. 88-020-00 prepared and submitted pursuant to 10CFR 50.73. In accordance with 10CFR50.73(d), we are herewith forwarding a copy of the LER to the Regional Administrator of the Region V office.

This report is also being submitted pursuant to 10CFR21 and includes information requested in 10CFR21.21(b)(3). The initial reporting of the defect was previously performed by the original equipment manufacturer and designer. In accordance with 10CFR21.21(b)(2), three copies of this report are being provided to the Director, Office of Nuclear Reactor Regulation.

If you have any questions, please contact T. D. Shriver, Compliance Manager at (602) 393-2521.

Very truly yours,

J. G. Haynes
Vice President
Nuclear Production

JGH/TDS/JJN/kj

Attachment

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U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Palo Verde Unit 1	0 5 0 0 0 5 2 8	1 OF 1 1

TITLE (4)
Apparent Ground Causes Control Element Assembly Slip

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
									N/A	0 5 0 0 0
1 2	1 0	8 8	8 8	– 0 2 0	– 0 1	0 9	0 7	8 9	N/A	0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
1	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 0 8 5	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
	20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
	20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Timothy D. Shriver, Compliance Manager	6 0 2 3 9 3 – 2 5 2 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
X	A A	C L	C 4 9 0	N					

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

At approximately 1059 MST on December 10, 1988, Unit 1 was in Mode 1 at 85 percent power when Control Element Assembly (CEA) 64 slipped a total of approximately 89 inches below the other CEAs in its group. Prior to the event, Control Element Assembly Calculators (CEACs) 1 and 2 were declared inoperable. With both CEACs inoperable Technical Specification (TS) 3.3.1, ACTION 6, requires that each CEA be aligned within 6.6 inches of all other CEAs in its group. At approximately 1100 MST during recovery operations to restore CEA-64, Control Room personnel identified that CEA-57 had slipped to approximately 105.7 inches withdrawn.

The cause of CEA-64 slipping was an apparent ground on the lower lift coil. As immediate corrective action, CEA-57 and -64 were realigned with the other CEAs in its group at approximately 1126 MST on December 10, 1988 and compliance with the ACTION requirements of the Technical Specifications were achieved.

The cause of the unit being in a condition outside the ACTION statement was an inappropriate deletion of ACTION requirements made during a TS revision. An amendment is being pursued to provide ACTION requirements for a CEA misalignment with CEACs inoperable. The cause of CEA-57 slipping was a design defect in the Control Element Drive Mechanism Control System (CEDMCS) that sequences the operation of the CEAs. As corrective action to prevent recurrence, replacement of the lower lift coil is planned for the current refueling outage.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
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TEXT *(If more space is required, use additional NRC Form 366A's)* (17)

I. DESCRIPTION OF WHAT OCCURRED:

A. Initial Conditions:

On December 10, 1988 at approximately 1059 MST Palo Verde Unit 1 was in Mode 1 (POWER OPERATION) with reactor power at approximately 85 percent power when Control Element Assembly (AA) (CEA-64) slipped a total of approximately 89 inches. At approximately 1126 MST while attempting to restore CEA-64 to proper alignment, CEA-57 slipped approximately 43 inches.

On April 20, 1989, at approximately 1122 MST Palo Verde Unit 1 was in Mode 5 when APS received notification from Combustion Engineering that the cause of the second CEA slip (CEA-57) was due to a design defect.

B. Reportable Event Description (Including Dates and Approximate Times of Major Occurrences):

Event Classification: A condition prohibited by the Plant's Technical Specifications. A condition that was outside the design basis. An unanalyzed condition that significantly compromised plant safety.

Note: This section includes information requested by 10CFR21 concerning the nature of the defect and dates for which information was obtained/developed.

On December 10, 1988, CEA-64 slipped a total of approximately 89 inches below the other CEAs in its group during performance of Surveillance Test (ST) 41ST-1SF01, "CEA Operability Checks." Prior to the event, Control Element Assembly Calculators (CEACs) (CPU) were declared inoperable for the performance of the ST and CEAC functional testing. With both CEACs inoperable and the CEA deviating greater than 6.6 inches from any other CEA in its group, Unit 1 was in a condition contrary to Technical Specifications (TS).

At approximately 1059 MST on December 10, 1988, CEA-64 slipped to approximately 138.37 inches withdrawn while being exercised in manual individual mode during performance of the ST. The immediate actions taken were to enter the ACTION for LCO 3.1.3.5 due to a shutdown CEA being less than 144.75 inches withdrawn and to enter LCO 3.1.3.1 ACTION c due to CEA misalignment.

With both CEACs inoperable Limiting Condition for Operation (LCO) 3.3.1 ACTION 6 states that, "Operation may continue provided that at least once per 4 hours, all full-length and part length CEAs are

verified fully withdrawn except during surveillance testing pursuant to Specification 4.1.3.2 or during insertion of CEA group 5 as permitted by 2.a above, then verify at least once per 4 hours that the inserted CEAs are aligned within 6.6 inches (indicated position) of all other CEAs in its group." The inability to meet this ACTION statement resulted in the entry into Technical Specification 3.0.3.

At approximately 1100 MST on December 10, 1988, during recovery attempts to restore CEA-64, CEA-64 slipped further to approximately 121.29 inches withdrawn. At this time, control room personnel (utility licensed) identified that CEA-57 had slipped to approximately 105.7 inches withdrawn. LCO 3.1.3.1 ACTION c was then exited and LCO 3.1.3.1 ACTION b was entered due to more than one CEA misaligned more than nineteen inches. CEA-57 was restored to 148.18 inches withdrawn at 1107 MST on December 10, 1988. LCO 3.1.3.1 ACTION b was exited and LCO 3.1.3.1 ACTION C was entered. A power reduction was commenced in accordance with Technical Specifications. Efforts continued to recover CEA-64. CEA-64 reached a minimum position of approximately 61 inches withdrawn and the CEA was repositioned at approximately 148.18 inches withdrawn at 1126 MST on December 10, 1988. At this time LCO 3.0.3, LCO 3.1.3.5 and LCO 3.1.3.1 ACTION c were exited. The power reduction was stopped at approximately 1131 MST on December 10, 1988 at approximately 80 percent reactor power.

At approximately 1538 MST on December 10, 1988, Surveillance Test 41ST-1SF01 was completed satisfactorily. Both CEACs were declared operable at 1543 MST and LCO 3.3.1 ACTION 6b was exited.

On April 20, 1989 at approximately 1122 MST, Combustion Engineering notified APS that the cause of CEA-57 slipping was a result of a design defect in the Control Element Drive Mechanism Control System (CEDMCS).

On April 20, 1989 at approximately 1513 MST, APS made an Emergency Notification pursuant to 10CFR50.72 as a result of the unit being in an unanalyzed condition that was outside the design basis.

C. Status of structures, systems, or components that were inoperable at the start of the event that contributed to the event:

Prior to the start of this event, both Control Element Assembly Calculators (CEACs) were intentionally declared inoperable at approximately 1022 MST on December 10, 1988. As described in ANPP letter 161-01355-DBK/RAB to the Nuclear Regulatory Commission dated October 3, 1988, it is prudent to declare both CEACs inoperable while performing CEAC functional testing. Therefore, Unit 1 power was reduced to 85 percent and the CEACs declared inoperable for CEAC Testing on December 10, 1988. When the Unit is downpowered,

CEA Testing per 41ST-1SF01 is also conducted.

On October 8, 1988, during the same Surveillance Test, CEA-64 slipped to approximately 137.68 inches withdrawn. At this time the CEACs were operable and this slip generated pre-trips and trips on Local Power Density (LPD) and Departure from Nucleate Boiling Ratio on one channel of the Plant Protection System (PPS). Correction of the apparent ground which caused this slip did not affect the safety of the plant (as discussed in Section II), operation of the unit was allowed to continue.

Recognizing the possibility of additional CEA-64 slips, a prudent measure for conducting the test on December 10, 1988 was the removal of CEACs from operability as allowed by the Surveillance Test. The CEACs were returned to operability at approximately 1543 MST following appropriate surveillance testing.

PVNGS requested an exigent Technical Specification change from the NRC which allowed for the continued operation of Unit 1 until the end of the current cycle without conducting further exercise tests on CEA-64. The NRC granted this request on January 13, 1989, and no problems were experienced during the monthly CEA exercised testing performed in January or February.

D. Cause of each component or system failure, if known:

CEA-64

The cause of the CEA-64 slip is an intermittent ground on the lower lift coil (CO)(AA) which is believed to be caused by degraded insulation on the coil lead wire. The intermittent ground occurs immediately following the voltage increase associated with energizing the lower lift coil and results from coil movement that brings the damaged coil lead wire in proximity to the coil stack housing assembly. The magnitude of the intermittent ground varies, and therefore, the slip does not occur on every CEA step.

CEA Coil Stack grounds were first identified in approximately May, 1985 on the Control Element Drive Mechanisms (CEDMs) for CEA-63 and CEA-64. During the first refueling outage the CEDMs for CEA-63 and CEA-64 were meggered and continuity was checked. The results of the testing led to the decision that the two CEAs were acceptable for continued use. After the refueling outage 41ST-1SF01 was successfully performed every month until the same or a similar problem recurred on CEA-63 on August 16, 1988. The October, 1988 performance of 41ST-1SF01 resulted in CEA-64 slipping.

During the performance of 41ST-1SF01 in November, 1988, CEA-64 again slipped. This event was reported in Unit 1 LER 88-026-00.

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TEXT *(If more space is required, use additional NRC Form 366A's)* (17)

Prior to this event during Unit 2's first fuel cycle the CEDM coil stacks for CEAs 33 and 19 exhibited similar grounding characteristics but not double slippage. During the first refueling outage, the CEDM coil stacks for CEAs 33 and 19 were removed. Since their replacement, no PVNGS Unit 2 coil stack assemblies have exhibited grounding indications and no slippage has occurred. No grounding indication or slippage attributed to grounding has been observed at PVNGS Unit 3.

The coil stack for CEDM No. 33 was disassembled, examined, and evaluated at PVNGS by representatives of the Engineering Evaluations Department. During the examination, substantial damage was found in the area of the lower lift coil where the coil lead wires pass through the nipple assembly. The evaluation concluded that the ground fault associated with CEA No. 33 was the result of damage to the coil lead wire which was later found to have occurred during the assembly process (a manufacturing deficiency).

The coil stack for CEDM No. 19 was sent to CE for an independent evaluation. During the evaluation, CE identified damage to the coil leads similar to those found on CEA-33. This was determined to be a manufacturing deficiency that occurred during the coil stack assembly process.

Two factors are believed to have contributed to the manufacturing deficiency becoming a pathway for a short circuit to ground. The two factors were the observed motion of the lower lift coil leads and the orientation of the coil within its housing. These conditions combined to narrow the gap between the bare wire and the housing which allowed an intermittent ground fault, subsequent insulation deterioration over time, and subsequent arcing to the housing assembly.

CE has indicated that the failed insulation was a result of a manufacturing deficiency and was a condition present from initial startup and not a fault that developed as a result of normal operation or equipment aging.

CEAs 64 and 63 in PVNGS Unit 1, and CEAs Nos. 33 and 19 in PVNGS Unit 2 exhibited the intermittent coil grounding described above since plant startup. The lower lift coil leads move during CEA exercising which, in combination with the faulted lead, enables the intermittent grounding to occur on the lower lift coil. Coils that did not indicate this ground phenomena during startup have remained sound with no ground indication during operation. CE's inspection during product testing of 16 lift and latch coils having experienced a minimum of 730,000 steps of travel each, which is equivalent to over 18 years of design life, have shown no coil lead insulation degradation.

The condition leading to observed intermittent grounding in CEDM Nos 19 and 33 for Unit 2 has been determined to be a coil stack manufacturing deficiency. APS believes that this same condition will be found in CEDM 63 and 64 for Unit 1 when they are examined and that this led to the observed dual CEA slippage in Unit 1.

CEA-57

Note: This section includes information requested by 10CFR21 concerning the nature of the defect and dates for which information was obtained/developed.

As a result of APS's investigation in conjunction with the NSSS vendor, Combustion Engineering (CE), APS has determined that the cause of CEA-57 slipping is a defect in the design of the Control Element Driven Mechanism Control System (CEDMCS).

The purpose of the CEDMCS is to provide the drive signals to the coils of the magnetic jack Control Element Drive Mechanisms (CEDMs) which position and hold the individual Control Element Assemblies (CEAs). The CEDMCS controls the direction, rate, and duration of CEA motion in response to automatic or manual demands. The CEDMCS is a non-safety related control system. The safety function of the CEAs is to drop into the core when power is removed from the CEDMs. Power is removed from the CEDMs when the reactor trip breakers open in response to valid reactor protection signals.

Single failure considerations were accounted for in the design of the CEDMCS. The following single failure conditions were included in the engineering specifications for the CEDMCS.

1) No single malfunction in the CEDMCS shall cause any of the following CEA drop conditions:

   - simultaneous drop of two CEAs of a four or five CEA subgroup.
   - simultaneous drop of three CEAs of a four or five CEA subgroup.
   - simultaneous drop of four non-symmetrical CEAs of a five CEA subgroup
   - simultaneous drop of two or more CEAs assigned to different CEA subgroups.

2) No single malfunction in the CEDMCS shall cause any single CEA to be withdrawn from the core, or allow the withdrawal of any single CEA except in the manual individual mode of control with that CEA selected for trimming.

3) No single malfunction in the CEDMCS shall cause any single CEA to be inserted into the core, or allow the insertion of any CEA except in the manual individual mode of control with that CEA selected trimming.

4) No single malfunction in the CEDMCS shall cause the following non-demanded/non-selected CEA motion:

- simultaneous motion of two or three CEAs of a four CEA subgroup in any mode of control.

- simultaneous motion of four non-symmetrical CEAs of any five CEA subgroup in any mode of operation.

Contrary to above stated design basis, on April 20, 1989 at approximately 1122 MST, APS received notification from CE that the intermittent ground in CEA-64 caused CEA-57 to slip as a result of a defect in the design of the CEDMCS.

Extensive CEDMCS circuitry testing was conducted at PVNGS Units 1 and 2, with assistance from CE, to investigate the observed grounding phenomenon. The goal was to duplicate the conditions and precursors leading to the double CEA slip event. In addition, a coil which had previously exhibited intermittent grounding in Unit 2, was bench tested. During bench testing, lower lift coil lead wire movement (associated with lower lift coil movement believed to result from magnetic coupling of the coils and the CEDM assembly) was observed along with arcing at the lower lift coil lead wire penetration through the housing assembly. A variable ground was applied to the Unit 1 CEDM circuitry to duplicate the observed CEDM grounding. Noise was noted in the control circuit (CEDMCS). This noise is postulated to have increased over time and to have eventually interfered with the zero crossing detector circuit in the CEDMCS. This reduced the voltage holding another CEA, and ultimately caused the additional CEA to slip. Duplicating this intermittent ground during testing led to reproducing the slippage of CEA-57.

This manufacturing deficiency caused the coils to intermittently ground and resulted in noise in the CEDMCS. This noise caused the CEDMCS zero crossing detector circuit to misfire and resulted in the observed dual slippage of CEA Nos 64 and 57 in PVNGS Unit 1. The root cause of the multiple CEA slippage, that a single fault (intermittent grounding of a CEDM coil lead during CEA stepping) may result in a multiple CEA slip, is discussed in the 10 CFR Part 21 report submitted to the NRC by CE on April 20, 1988.

E. Failure mode, mechanism, and effect of each failed component, if known:

The CEA-64 slipped due to reduced voltage being applied to the lower gripper coil when the lower lift coil was energized with the ground present on the lower lift coil. This reduced voltage allowed the gripper assembly to disengage from the CEA drive shaft. The CEA would continue to slip until the gripper assembly would reengage the drive shaft. Additionally, this intermittent ground being induced whenever the lower lift coil was energized caused disturbances with the correct timing to disturb the zero crossing circuitry to other CEA controls thus causing the slipping of CEA-57.

F. For failures of components with multiple functions, list of systems or secondary functions that were also affected:

Not applicable - The CEA gripper coil does not have multiple functions.

G. For failures that rendered a train of a safety system inoperable, estimated time elapsed from the discovery of the failure until the train was returned to service:

Not applicable - no train of a safety system was rendered inoperable.

H. Method of discovery of each component or system failure or procedural error:

The intermittent ground on the lower lift coil assembly lead was a previously identified condition found through troubleshooting. The defect in the CEDMCS was identified during testing and evaluation as discussed above. No procedural errors were identified as a result of this event.

I. Cause of Event:

The cause of this event is described in Section I.D above. There were no personnel errors associated with this event.

J. Safety System Response:

There were no safety system responses as a result of the slipped CEA and none were necessary.

K. Failed Component Information:

The coil is manufactured by Combustion Engineering and is listed as Model Number R-5000.

II. ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATIONS OF THIS EVENT:

The Technical Specification basis for moveable control assemblies states:

The Core Protection Calculators (CPCs) provide protection to the core in the event of a large misalignment (greater than or equal to 19 inches) of a CEA by applying appropriate penalty factors to the calculation of DNBR and Local Power Density to account for the misaligned CEA. However, this misalignment would cause distortion of the core power distribution. This distribution may, in turn, have a significant effect on (1) the fuel exceeding the Specified Acceptable Fuel Design Limits (SAFDL), (2) the available SHUTDOWN MARGIN, (3) the time-dependent long-term power distributions relative to those used in generating Limiting Conditions for Operations and Limiting Safety System Setpoints, and (4) the ejected CEA worth used in the safety analysis. Therefore, the ACTION statement associated with the large misalignment of a CEA requires a prompt realignment of the misaligned CEA.

This event did not result in any adverse safety consequences. ANPP has conducted an evaluation and determined that the fuel did not exceed any SAFDLs during this event.

CE's technical position, concurred with by APS, is that replacing the lower lift coils that exhibit grounding will correct the failed insulation problem and return those coils to the as-designed condition. Since testing has not indicated that a sustained fault will produce the noise found to have caused the observed slippage, APS believes that only the lower lift coil, due to its observed motion during actuation combined with the identified manufacturing deficiency, could produce the symptoms necessary to cause interference with another CEDM.

From the pattern of symptoms observed, a fault of this type would produce noticeable symptoms such as intermittent ground fault annunciation and/or slippage of a single CEA prior to reaching a level whereby noise could interfere with other CEA operation. Monitoring for ground fault indications during CEA operation at startup and shutdown will detect intermittent grounding phenomena that potentially could cause CEA misoperation. Corrective action for an indicated intermittent ground fault will prevent deterioration of the ground fault to the point that multiple CEA slip could be experienced.

Based on the above information, the APS position, in conjunction with CE, is that the probability of the initiating fault occurring again is very small and may be considered similar to an initiating fault on a new coil with no manufacturing deviations. APS, therefore, believes that having additional multiple CEA slips or drops due to the suspected fault is very unlikely. This position is further substantiated by the following.

1. The operating history at the Palo Verde units and other similar CE designed plant leads to the conclusion that the possibility of a different intermittent ground fault mechanism causing CEA slips or drops is remote.

2 Automatic reactor trips will occur for most multiple CEA slip or drop events with at least one CEAC and all CPC channels operable.

3. Exceeding the fuel design limits is not expected during most multiple CEA slip or drop events even without operator action. The potential for the fuel design limits being exceeded is dependent upon which CEAs slip, the magnitude of the resulting deviation, the length of time of the deviation, power level, and cycle design.

In conclusion, the reduced likelihood of an uncorrected intermittent ground fault, and the very low probability of such a fault causing a multiple CEA slip or drop, continues to exclude the consideration of multiple rod drop events from the category of an Anticipated Operational Occurrence. Additionally, there is an even lower probability that a double CEA slip or drop would be of the limited set which could cause a specified acceptable fuel design limit to be exceeded.

III. CORRECTIVE ACTIONS:

A. Immediate:

Immediately following the event discovery, preparations were commenced for Unit shutdown in accordance with Technical Specification 3.0.3. Concurrently, actions were taken to withdraw the Control Element Assemblies to within 6.6 inches of their groups. This was successful and the ACTION statements were exited within 30 minutes.

B. Action to Prevent Recurrence:

Due to the minimal effects of short term small CEA misalignment as discussed in II, ANPP Unit 1 continued to operate until the next refueling outage to allow replacement of the lower lift coil. Unit 1 received an exigent Technical Specification Amendment to permit operation without performing the Surveillance Test on CEA-64 for the remainder of the fuel cycle. CEA coil stacks for CEAs 63 and 64 are scheduled for replacement during the current refueling outage. The replacement coil stacks will be inspected prior to installation to ensure that they do no exhibit the coil lead defect previously identified.

Amendments to all three units' Technical Specification Limiting Condition for Operation 3.3.1 ACTION 6 are being pursued to be consistent with the Technical Specification bases for moveable control assemblies, thus providing an appropriate ACTION statement when CEAs are misaligned with CEACs out-of-service. The Unit 3, Cycle 2 amendment request submitted on December 14, 1988, includes the necessary changes for Unit 3. Amendment requests for Units 1 and 2 are being prepared for submittal to the Nuclear Regulatory Commission.

A testing plan has been developed and will be implemented, prior to each Unit's restart that will test for defective CEDM coils. Additionally, ground fault indications will be monitored during CEA operation at unit startup and shutdown.

All known defective coil stacks will be replaced prior to restart of the affected unit. This will eliminate the source of CEA slippage problems associated with coil ground faults.

CEDM coil stacks from Unit 1 that previously exhibited intermittent ground (Nos. 63 and 64) will be disassembled during the Unit 1 outage. The coils will be examined to confirm that they demonstrate similar damage to that found when the Unit 2 coils were examined. This will confirm the failure mechanism leading to the observed intermittent grounding in Unit 1.

Reactor operating procedures were revised to direct the operators to immediately trip the reactor if two or more CEAs slip or drop into the core and an automatic trip does not occur.

IV. PREVIOUS SIMILAR EVENTS:

This identified problem was reported on December 5, 1988 in Unit 1 LER 88-026-00. The action to prevent recurrence from the previous event could not have prevented this event from occurring since the actions have not yet been implemented. The unit has not yet reached its refueling outage to replace the lower gripper coil. The Technical Specification amendment discussed above has been submitted for Units 1 and 2 and approved for Unit 3.