NRC Form 366
(9/83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2	0 5 0 0 0 3 6 1	1 OF 0 2

TITLE (4)
DECALIBRATION OF CALCULATED STATIC THERMAL POWER

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQ. NUMBER	REV. NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
0 2	1 4	8 4	8 4	0 0 9	0 1	0 7	2 3	8 4	Unit 3	0 5 0 0 0 3 6 2
										0 5 0 0 0

OPERATING MODE (9)	3	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		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)	X OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	Voluntary Report
		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
J. G. HAYNES, STATION MANAGER	7 1 4 — 4 9 2 - 7 7 0 0

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	

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

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

This submittal provides an informational Licensee Event Report (LER) on the decalibration of calculated Static Thermal Power for Units 2 and 3. An analysis of startup test data for Units 2 and 3 established that Calculated Thermal Power (BDT), calculated by the Core Protection Calculators (CPC's), may become decalibrated relative to secondary calorimetric power as a result of changes in radial core power distribution. This could result in the generation of nonconservative values of Local Power Density and Departure from Nucleate Boiling Ratio.

Combustion Engineering has explicitly evaluated the impact of decalibration of the CPC Static Thermal Power calculation, and has concluded that both Units 2 and 3 have operated within the bounds of their safety analyses, and even under the most adverse decalibration effects, the specified Fuel Design Limits would not have been exceeded during an accident.

As corrective action to prevent decalibration, Procedure S023-5-1.7 was changed to include provisions for verifying BDT calibration at 20 percent power intervals during power ascension and following movement of Control Element Assemblies (CEA's).

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQ. NUMBER	REV. NUMBER	
SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2	0 5 0 0 0 3 6 1	8 4	0 0 9	0 1	0 2 OF 0 2

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

This submittal provides an informational Licensee Event Report on the decalibration of calculated Static Thermal Power for Units 2 and 3. An analysis of startup test data for Units 2 and 3 established that Calculated Thermal Power (BDT), calculated by the Core Protection Calculators (CPC's), may become decalibrated relative to secondary calorimetric power as a result of changes in radial core power distribution. BDT is generated by using the mass flow rate of the reactor coolant and temperature rise across the core. Due to temperature stratification in the coolant leaving the reactor vessel, the hot leg temperature (T_H) detectors may provide signals to the CPC's which are not representative of average reactor coolant bulk temperature. The error in the calculation of BDT could result in nonconservative values of Local Power Density (LPD) and Departure from Nucleate Boiling Ratio (DNBR). Since changes in radial core power distribution directly affect the temperature stratification which occurs, once BDT has been calibrated with secondary calorimetric power, changes in power level or Control Element Assembly (CEA) configuration may result in the decalibration of BDT beyond the design allowance.

Combustion Engineering has evaluated the impact of decalibration of BDT and has concluded that Units 2 and 3 have operated within the bounds of their safety analyses, and even under the most adverse decalibration effects, the specified Fuel Design Limits would not have been exceeded during an accident.

It is important to note that BDT is only needed for certain CEA deviation events, and that a number of conditions are required to be present concurrently, for thermal power decalibration to result in nonconservative values of LPD and DNBR. The Units 2 and Unit 3 Procedure SO23-5-1.7 was changed to include provisions for verifying BDT calibration at 20 percent power intervals during power ascension and following movement of CEA's. Although the probability of the events of interest is not within the definition of Anticipated Operational Occurrences, the corrective action above will explicitly account for this decalibration effect.

As discussed in LER 84-009, Revision 0, an interim change was made to the CPC addressable constants. This change had increased the CEA deviation penalty factor multipliers to accommodate single CEA deviation events under the most adverse BDT decalibration. However, the interim change was determined to be a contributing cause for the March 24, 1984 reactor trip (LER 84-019) due to low Departure from Nucleate Boiling Ratio (DNBR). As discussed in LER 84-019, to prevent recurrence of this type of trip the penalty factor multipliers were returned to the original values.

GPU Nuclear

GPU Nuclear Corporation
Post Office Box 388
Route 9 South
Forked River, New Jersey 08731-0388
609 971-4000
Writer's Direct Dial Number:

July 24, 1984

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

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Licensee Event Report

This letter forwards one (1) copy of Licensee Event Report (LER) No. 84-016.

Very truly yours,

Peter B. Fiedler
Vice President and Director
Oyster Creek

PBF:dam
Enclosures

cc: Dr. Thomas E. Murley, Administrator
Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, NJ 08731

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Southern California Edison Company

SAN ONOFRE NUCLEAR GENERATING STATION
P.O. BOX 128
SAN CLEMENTE, CALIFORNIA 92672

J. G. HAYNES
STATION MANAGER

TELEPHONE
(714) 492-7700

July 23, 1984

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

Subject: Docket No. 50-361
Licensee Event Report No. 84-009, Revision 1
San Onofre Nuclear Generating Station, Units 2 and 3

References: 1) Letter, J. G. Haynes (SCE) to USNRC Document Control Desk, dated March 15, 1984, Licensee Event Report No. 84-009

2) Letter, J. G. Haynes (SCE) to USNRC Document Control Desk, dated June 13, 1984, Licensee Event Report No. 84-009, Revision 1

Reference (1) provided the 30-day informational Licensee Event Report (LER) on the decalibration of calculated Static Thermal Power for Units 2 and 3. As discussed in Reference (2), enclosed LER 84-009, Revision 1, provides the results of the Unit 3 evaluation and final recommendation from Combustion Engineering. Since this involves the same components, system, cause and method of discovery for Units 2 and 3, a single LER for Unit 2 is enclosed in accordance with NUREG-1022. Neither the health and safety of plant personnel nor the public were affected by this event.

If you require any additional information, please so advise.

Sincerely,

J G Haynes/BEM

Enclosure: LER No. 84-009, Revision 1

cc: A. E. Chaffee (USNRC Resident Inspector, Units 1, 2 and 3)
J. P. Stewart (USNRC Resident Inspector, Units 2 and 3)

J. B. Martin (Regional Administrator, USNRC Region V)

Institute of Nuclear Power Operations (INPO)

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