nitial Telephone
eport Date: March 27, 1976

nitial Written
eport Date: March 29, 1976

Date of
Occurrence: March 27, 1976

Time of
Occurrence: 0600

OYSTER CREEK NUCLEAR GENERATING STATION
FORKED RIVER, NEW JERSEY 08731

Reportable Occurrence
Report #50-219-76-7-1P

DENTIFICATION
F OCCURRENCE:

Violation of the Technical Specifications, paragraphs 2.3.1.a and 2.3.2.a which specify limiting safety system settings for the APRM scram and rod block and paragraph 3.10.A which specifies maximum values for the average planar linear heat generation rate (APLHGR).

This event is considered to be a reportable occurrence as defined in the Technical Specifications, paragraph 6.9.2.a.(2).

)NDITIONS PRIOR
) OCCURRENCE:

___Steady State Power
___Hot Standby
___Cold Shutdown
___Refueling Shutdown
___Routine Startup Operation
___Routine Shutdown Operation
XX Load Changes During Routine Power Operation
___Other (Specify)

Power: Core, 1409.4 Mwt
Electric, 465 Mwe

Flow: Recirculation, 46.5×10^6 lbm/Hr
Feedwater, 5.12×10^6 lbm/Hr

Stack Gas: 5,970 uci/sec.

SCRIPTION
OCCURRENCE:

On Friday, March 26, 1976 at 2330 plant power was reduced to 450 MWe to accommodate core flux shaping. With the APRM setting of 100% = 1900 Mwt, several groups of power rods were inserted to clear a rod block caused by the recirc. flow reduction to permit withdrawal of shaping rods.

Following the insertion of these groups, various locations of the core were monitored, including location 20-25, and it was determined that the rods in Group 18 could be withdrawn for core flux shaping. Following the withdrawal of the rods in Group 18 to position 48 (previously at position 40), core location 20-25 in addition to other core locations was again checked and all parameters were found to be within

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the limits specified in the Technical Specifications. Subsequent to these checks the following groups of rods were moved:

Group 16, position 36 to 42
Group 13, position 32 to 28
Group 11, position 28 to 32

Following these moves and checks of core locations considered to be most limiting, (TIP 20-25 excluded), it was determined that all parameters were within the limits specified in the Technical Specifications. At this time, approximately 0330 the rods previously inserted to clear the rod block were withdrawn to their initial positions and additional core checks were performed all of which were satisfactory.

At 0340 the plant commenced increasing load at a rate of 12 Mwe/Hr using recirculation flow. During this load increase periodic checks (approx. hourly) were made at various core locations.

At 0600 the load increase was halted following a check at core location 20-25 which revealed that peaking factor limits for three adjacent assemblies (12 assemblies, total core) had apparently been exceeded. The data obtained at that time were as follows:

Core Location	Assembly	Fuel Type	Percentage of Peaking Factor Limits
19-24	UD4 38	V B	102.12%
19-26	UD 3D	III E	104.12%
21-26	UD 2D	III E	111.39%

The allowable limits for peaking factor at the time of the apparent violation was 101.6% due to the APRM setting of 100% = 1900 Mwt.

In addition to the violation of the peaking factor limits, it was also determined that the APLHGR limit for assembly UD 2D (location 21-26) had been exceeded. The value was calculated to be 101.55% of the limit specified in Technical Specification 3.10.

At this time the MCPR was 90.35% of its steady state limit at assembly UD 2D and its three (3) symmetric assemblies.

Immediately following these observations the following groups of rods were inserted thus returning the parameters exceeded to values below the specified limits:

Group 18, position 48-44
Group 16, position 42-38

It is estimated that the APLHGR Limit was exceeded for a period of approximately one (1) to two (2) hours and that the peaking factor limit was exceeded for approximately three (3) hours.

'PARENT CAUSE
F OCCURRENCE:

___Design
___Manufacture
___Installation/ Construction
___Operator
___Procedure
___Unusual Service Condition Inc. Environmental
___Component Failure
___Other (Specify)

Failure to properly monitor the reactor core.

This occurrence was attributed to the failure of the engineer providing advice during the flux shaping operation to recognize the effect on the flux shape (peaking factors) around location 20-25 as the group 16 rods were withdrawn subsequent to the withdrawal of group 18.

ALYSIS OF
CURRENCE:

Total peaking factor is, in itself, not an indication of the Core Thermal Performance. The limits specified in the Technical Specifications were used for evaluating the effects of abnormal operating occurrences and for formulation of a safety limit curve (Technical Specification Figure 2.1.1.). The parameters which are truly indicative of the core performance are: (1) average planar linear heat generation rate, (2) maximum linear heat generating rate, (3) critical power ratio, and (4) assembly averaged power-void relationship. The lowest calculated critical power ratio was determined to be 1.871 for assembly UD 2D. The APRM scram was set at 88.5% of the rated power or 1681 MWt. The safety limit associated with the actual power distribution in the assembly (i.e. the power level at which the CPR = 1.37) was calculated to be 1.36 X operating power or 1917 MWt. The APRM scram was set at 88% of the safety limit and was therefore fully adequate to protect against the occurrence of a critical heat flux during anticipated transients. It may be concluded that, in this case, the total peaking factor limits are not required to protect the reactor core.

The violation of the APLHGR limit at core location 21-26 is significant in that in the event of a loss of coolant accident the peak cladding temperature at this location may have exceeded the 2200°F limit specified in 10 CFR 50.46 (January 4, 1974).

RRECTIVE ACTION: Immediate corrective action involved the insertion of control rods as previously described.

ILURE
TA: N/A

epared by Mark F. Budey Date: March 29, 1976

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Oyster Creek Nuclear Generating Station Docket #50-2
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UBJECT: Reportable Occurrence Report No. 50-219/76-7-1P

The following is a preliminary report being submitted in compliance with the Technical Specifications, paragraph 6.6.2.

Preliminary Approval:

J. T. Carroll

J. T. Carroll, Jr. Date 3/29 76

C: Mr. Roger Boyd