

To:

James P. O'Reilly
Directorate of Regulatory Operations
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

From:

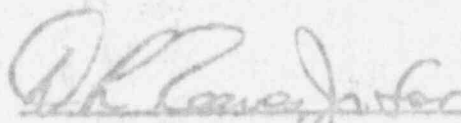
Jersey Central Power & Light Company
Oyster Creek Nuclear Generating Station
Docket #50-219
Forked River, New Jersey 08731

Subject:

Abnormal Occurrence Report No. 50-219/74/35

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

Preliminary Approval:



J. T. Carroll, Jr.

7/6/74

Date

cc: Mr. A. Giambusso

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PDR ADDCK 05000219
S PDR

h. j. carroll
50-219

Initial Telephone

Report Date: 7/5/74

Date of

Occurrence: 7/5/74

Initial Written

Report Date: 7/8/74

Time of

Occurrence: 1540

OYSTER CREEK NUCLEAR GENERATING STATION
FORKED RIVER, NEW JERSEY 08731

Abnormal Occurrence
Report No. 50-219/74/35

IDENTIFICATION
OF OCCURRENCE:

Violation of the Technical Specifications, paragraph 2.3.7.
Main Steam Line Low Pressure Switches RE23B, C, and D were
found to trip at pressures less than the minimum required
value of 860 psig.

This event is considered to be an abnormal occurrence as de-
fined in the Technical Specifications, paragraph 1.15A.

CONDITIONS PRIOR
TO OCCURRENCE:

<input type="checkbox"/> Steady State Power	<input type="checkbox"/> Routine Shutdown
<input type="checkbox"/> Hot Standby	<input type="checkbox"/> Operation
<input type="checkbox"/> Cold Shutdown	<input type="checkbox"/> Load Changes During
<input type="checkbox"/> Refueling Shutdown	<input type="checkbox"/> Routine Power Operation
<input checked="" type="checkbox"/> Routine Startup	<input type="checkbox"/> Other (Specify)
<input type="checkbox"/> Operation	

Power:

Reactor, 1700 MW

Elec., 399 MWe

Flow:

Recirc., 8.6×10^4 gpmFeed., 4.5×10^6 lb/hr

Reactor Pressure: 1020 psig

DESCRIPTION OF
OCCURRENCE:

On Friday, July 5, 1974, at 1540, while performing a routine
surveillance test on the four Main Steam Line Low Pressure
Switches, it was discovered that switches RE23B, C, and D
tripped at 845, 857, and 854 psig, respectively. These values
are below the minimum required trip point of 860 psig which
is derived by adding to the Technical Specification limit of
850 psig a 10 psig head correction factor.

The "as found" and "as left" switch settings were:

	<u>"As Found" Settings</u>	<u>"As Left" Settings</u>
RE23A	864 psig	864 psig
RE23B	845 psig	862 psig
RE23C	857 psig	863 psig
RE23D	854 psig	862 psig

APPARENT CAUSE
OF OCCURRENCE:

<input checked="" type="checkbox"/> Design	<input type="checkbox"/> Procedure
<input type="checkbox"/> Manufacture	<input type="checkbox"/> Unusual Service Condition
<input type="checkbox"/> Installation/	<input type="checkbox"/> Inc. Environmental
<input type="checkbox"/> Construction	<input type="checkbox"/> Component Failure
<input type="checkbox"/> Operator	<input type="checkbox"/> Other (Specify)

Switch repeatability is a recognized problem and work is in progress to formulate a final solution.

ANALYSIS OF
OCCURRENCE:

As indicated in the bases of the Technical Specifications, "The low pressure isolation of the Main Steam Lines at 850 psig was provided to give protection against fast reactor depressurization and the resultant rapid cooldown of the vessel. Advantage was taken of the scram feature which occurs when the Main Steam Isolation Valves are closed to provide for reactor shutdown so that high power operation at low reactor pressure does not occur, thus providing protection for the fuel cladding integrity safety limit."

The adverse consequences of reactor isolation occurring at reactor pressure approximately 15 psig below the specified minimum value of 860 psig is limited to those effects attendant to a greater than normal reactor cooldown rate. The fuel cladding integrity safety limit only comes into effect

for power operation at reactor pressures less than 600 psig or for power operation greater than 354 MWt with less than 10% recirculation flow. Therefore, the consequences of a 15 psig lower than normal reactor isolation and scram setpoint has no threatening effect whatsoever on the fuel cladding integrity.

The effects of a too rapid cooldown due to the lower isolation pressure are inconsequential since there is less than 2°F difference between the saturation temperature for 850 psig and 835 psig.

CORRECTIVE
ACTION:

Continuing corrective actions being taken at this time are as stated in Abnormal Occurrence Report Nos. 74-9, 74-10, 74-12, and 74-22, and as restated herein:

1. Investigation is being conducted into the basis for the steam line low pressure setting of 850 psig. Development of a Technical Specification change to lower the setpoint will follow if results of transient analyses indicate this possibility. (See Abnormal Occurrence Report No. 73-30.)
2. Recommendations to possibly reduce or eliminate the sensor setpoint change problem have been received. It was reported that General Electric tests on a pulsating line to simulate plant conditions show that pre-cycled Barksdale switches show improvement but that the switches still do not meet 1% repeatability. General Electric, therefore,

recommended an Ashcroft switch as it is more accurate. The Ashcroft catalog number is 61 S 6080 BN20-C6L-1028. As a result, one switch of each type (pre-cycled Barksdale and Ashcroft) has been purchased for test and evaluation at Oyster Creek. An Ashcroft switch is currently on hand and undergoing evaluation.

FAILURE DATA:

Manufacturer data pertinent to these switches are as follows:

Meletron Corp. (subsidiary of Barksdale)
Los Angeles, California
Pressure Actuated Switch
Model 372
Catalog #372-6SS49A-293
Range 20-1400 psig
Proof Psi. 1750 G

Previous Abnormal Occurrence Reports involving these switches are:

1. Letter to Mr. A. Giambusso from Mr. D. A. Ross, dated December 24, 1973.
2. Abnormal Occurrence Report No. 74-1.
3. Abnormal Occurrence Report No. 74-9.
4. Abnormal Occurrence Report No. 74-10.
5. Abnormal Occurrence Report No. 74-12.
6. Abnormal Occurrence Report No. 74-22.

Prepared by:

Arthur H. Ross

Date:

7/8/74

Jersey Central Power & Light Company



MADISON AVENUE AT PUNCH BOWL ROAD • MORRISTOWN, N. J. 07960 • 201-539-6111

MEMBER OF THE

General



Public Utilities Corporation

July 15, 1974



Mr. A. Giambusso
Deputy Director for Reactor Projects
Directorate of Licensing
United States Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. Giambusso:

Subject: Oyster Creek Station
Docket No. 50-219
Abnormal Occurrence Report No. 50 219/74/35

The purpose of this letter is to forward to you the attached Abnormal Occurrence Report in compliance with paragraph 6.6.2.a of the Technical Specifications.

Enclosed are forty copies of this submittal.

Very truly yours,

Donald A. Ross
Manager, Nuclear Generating Stations

cs
Enclosures

cc: Mr. J. P. O'Reilly, Director
Directorate of Regulatory Operations, Region I

COPY SENT REGION I

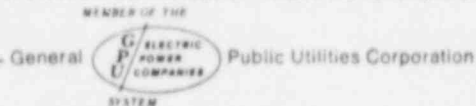
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Handwritten:
50-219

Jersey Central Power & Light Company



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OYSTER CREEK NUCLEAR GENERATING STATION
FORKED RIVER, NEW JERSEY 08731

Abnormal Occurrence
Report No. 50-219/74/35

Report Date

July 15, 1974

Occurrence Date

July 5, 1974

Identification of Occurrence

Violation of the Technical Specifications, paragraph 2.3.7, main steam line low pressure switches RE23B, C, and D were found to trip at pressures less than the minimum required value of 860 psig. This event is considered to be an abnormal occurrence as defined in the Technical Specifications, paragraph 1.15A.

Conditions Prior to Occurrence

The plant was in a routine startup.

The major plant parameters at the time of the event were:

Power:	Reactor, 1200 MWt
	Electric, 399 MWe
Flow:	Recirculation, 8.6×10^4 gpm
	Feedwater, 4.5×10^6 lb/hr
Reactor Pressure:	1020 psig

Description of Occurrence

On Friday, July 5, 1974, at 1540, while performing a routine surveillance test on the four main steam line low pressure switches, it was discovered that switches RE23B, C, and D tripped at 845, 857, and 854 psig, respectively. These

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values are below the minimum required trip point of 860 psig which is derived by adding to the Technical Specification limit of 850 psig a 10 psig head correction factor.

The "as found" and "as left" switch settings were:

	<u>"As Found" Settings</u>	<u>"As Left" Settings</u>
RE23A	864 psig	864 psig
RE23B	845 psig	862 psig
RE23C	857 psig	863 psig
RE23D	854 psig	862 psig

Apparent Cause of Occurrence

Design is considered to be a major factor contributing to this event. Switch repeatability is a recognized problem and work is in progress to formulate a final solution.

Analysis of Occurrence

As indicated in the bases of the Technical Specifications, "The low pressure isolation of the Main Steam Lines at 850 psig was provided to give protection against fast reactor depressurization and the resultant rapid cooldown of the vessel. Advantage was taken of the scram feature which occurs when the Main Steam Isolation Valves are closed to provide the reactor shutdown so that high power operation at low reactor pressure does not occur, thus providing protection for the fuel cladding integrity safety limit."

The adverse consequences of reactor isolation occurring at reactor pressure approximately 15 psig below the specified minimum value of 860 psig is limited to those effects attendant to a greater than normal reactor cooldown rate. The fuel cladding integrity safety limit only comes into effect for power operation at reactor pressures less than 600 psig or for power operation greater than 354 MWt with less than 10% recirculation flow. Therefore, the consequences of a 15 psig lower than normal reactor isolation and scram setpoint has no threatening effect whatsoever on the fuel cladding integrity.

The effects of a too rapid cooldown due to the lower isolation pressure are inconsequential since there is less than 2°F difference between the saturation temperature for 850 psig and 835 psig.

Corrective Action

The corrective actions being taken at this time are:

1. Formal correspondence was initiated with General Electric Company on March 26, 1974 following numerous attempts at informal resolution of this problem. Since then, additional follow up conversation and correspondence, as recent as June 4, 1974, has ensued. General Electric has been

requested to investigate the feasibility of a change to the Technical Specifications which would allow for tolerances or deviations on all instrumentation connected with safety systems and protective functions. If this approach cannot be technically justified, General Electric has been requested to develop a basis for a Technical Specification change to reduce the main steam low pressure setpoint considerably lower than the present 850 psig but with an acceptable margin to the 600 psig fuel cladding integrity limit for power operation. The above actions, if taken, will resolve the problem of the main steam line low pressure deviations. Unfortunately, the approach and response by General Electric has not been entirely satisfactory and has caused delay in our resolution of the matter.

2. The Ashcroft switch that was reported in Abnormal Occurrence Nos. 50-219/74/10, 50-219/74/12, and 50-219/74/22 to have been undergoing tests, has been found to give excellent repeatability under controlled conditions. However, under conditions similar to that presently found during the surveillance of the Barksdale switches, the repeatability of the Ashcroft switches vary within their design limitations ($\pm 1\%$ of full scale). Whereas they may be somewhat superior to the Barksdale switches, they still are unsatisfactory for the Technical Specification limiting safety system settings.

Testing is continuing. Consequently, the above stated results are still considered to be preliminary in nature.

3. The General Office Review Board has been involved in every instance of instrument setpoint repeatability and has assigned to the General Public Utilities Service Corporation's Electrical Engineering Department the task of problem investigation. The item has been pursued in various General Office Review Board meetings when appropriate abnormal occurrences have been discussed, and the General Office Review Board, as well as the Plant Operations Review Committee, is committed to following the problem to a final solution. To date, a total of thirteen abnormal occurrences have been identified this year to be the result of instrumentation repeatability problems. Most, if not all of the setpoint inaccuracies, however, fall within the manufacturer stated tolerances for the instrument involved. This implies that repeatability as such is not in question. Consequently, the preferred action identified in "1" above would appear, at this time, to be the only reasonable solution for this condition. Six of the thirteen reports have been generated as a result of "repeatability" of the main steam line low pressure switches. In this case, the alternate action in "1" above will be pursued in the event that the preferred action is not feasible. Additionally, the General Public Utilities Service Corporation's Electrical Engineering Department has identified other means of monitoring this parameter and has made recommendations to correct the problem, all of which involve redesign of the monitoring network from either a mechanical and/or electrical standpoint. The Jersey Central Power & Light Company Generation Engineering Department is currently investigating with General Electric Company the feasibility of several of these alternate plans recommended by both General Public Utilities Service Corporation and the plant staff.

Manufacturer data pertinent to these switches are as follows:

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Los Angeles, California
Pressure Actuated Switch
Model 372
Catalog #372-6SS49A-293
Range 20-1400 psig
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5. Abnormal Occurrence Report No. 50-219/74/12
6. Abnormal Occurrence Report No. 50-219/74/22