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AR 00676460 Report

Aff Fac:	LaSalle	AR Type:	CR	Status:	APPROVED
Aff Unit:	01	Owed To:	A8630PLCAP	Due Date:	12/11/2007
Aff System:	--			Event Date:	09/26/2007
CR Level/Class:	4/D			Disc Date:	09/26/2007
How Discovered:	H02			Orig Date:	09/27/2007
WR/PIMS AR:		Equip Tag:			

Action Request Details

Subject: CALDON/FW RATIO REACHES 0.999

Description: Originator: WILLIAM G. CHURCH Supv. Contacted: Bonomo

Condition Description:

While performing weekly trending of the Caldon LEFM flows in accordance with LLP-2007-01, it was determined that the Caldon/FW ratio exceeded 0.999 twice on 9/23/07. The ratio has dropped back below 0.999 and is trending at a value near 0.9986. A Caldon/FW ratio of greater than 0.999 is a possible indication of defouling of the venturis.

The Unit 1 Best Estimate Power Monitor (BEPM) is the primary monitoring tool. The BEPM has remained steady and is trending as expected with Core Thermal Power. Current BEPM values are 0.9967 and steady, not approaching the 0.998 BEPM limit.

A review of other secondary parameters (main steam flow, 1st stage pressure, and feedpump flow) has also remained steady. Main steam flow and 1st stage pressure are inputs into the BEPM, therefore the steady trends exhibited by those parameters validate the steady BEPM values. TDRFP flow is an independent point and also shows a steady trend. This is an outside verification showing that plant conditions have not changed despite the change in the Caldon/FW ratio.

This condition was previously described in IR 659060 on 8/9/07.

At the time of the previous event, data was sent to Cameron (Caldon) for review. The potential cause of the approximately 0.15 to 0.2% shift in ratio is discussed in Cameron Engineering Report ER-619 Rev 0, 'Review of LaSalle Feedwater Flow Measurement data 6 months after Installation of an LEFM External Feedwater Flow Measurement System'. Engineering reviewed and concurred with Cameron's report.

The data and subsequent analysis suggests that the most probable cause of the change seen in the LEFM/FW nozzle ratio is a slight defouling of the FW nozzles, accounting for a slight shift in nozzle calibration of approximately -0.1% and a simultaneous change in axial velocity profile occurring at the LEFM installation location, accounting for a slight shift in LEFM calibration of approximately +0.1%

Updated data will be sent to Cameron (Caldon) for additional review. Trending of the BEPM and Caldon/FW ratio will continue to monitor for changes in plant operation. In accordance with LLP-2007-01, the Shift

B-90

Manager was informed and this IR submitted.

Immediate actions taken:

Contacted Shift Manager
Wrote IR

Recommended Actions:

Continue required monitoring in accordance with LLP-2007-01.

What activities, processes, or procedures were involved?

Trending

Why did the condition happen?

Potential changes in venturi defouling, LEFM flow and LEFM drift.

Were any procedural requirements impacted?

LLP-2007-01 requires notification of Shift Manager and IR issuance if the Caldon/FW ratio exceeds 0.999.

Were there any adverse physical conditions?

None

List of knowledgeable individuals:

M. Murskyj
N. Bonomo
J. Tokarz

Repeat or similar condition?

Yes, trend previously identified in IR 659060.

Operable Basis:

According to trending data, this issue only affects the FW flow venturis and the Caldon External LEFM. Main steam flow, 1st stage pressure, and FW pump discharge flows have trended steadily and showed no change corresponding to the increasing Caldon/FW ratio. System Engineering continues to monitor trends weekly in accordance with LLP-2007-001. Maintaining BEPM below limit along with indicated CTP below 3489 MWth assures that thermal power is maintained below our Operating license limit of 3489 MWth.

Reportable Basis:

Does not meet the threshold for reportability.

Reviewed by: WILLIAM J TRAFTON 09/27/2007 13:37:41 CDT

Reviewer Comments:

None

SOC Reviewed by: PETER G HOLLAND SR 10/24/2007 05:23:43 CDT

SOC Comments:

Close to eval to systems Engineering (Gabe Church) and AT generated to System Engineering to obtain results of Cameron (Caldon) for additional review. (JAS)

MRC (10/2/07) Back to SOC to create Eval to Systems Engineering (Gabe Church).

MRC (10/18/07) Send back to Shift for Operability/Reportability.

MRC (10/23/07) Back to SOC. More info to be provided by Al McLaughlin per Ops Director. (JAS)

According to trending data review by Engineering, this issue only affects the FW flow venturis and the Caldon External LEFM. Main steam flow, 1st stage pressure, and FW pump discharge flows have trended steadily and showed no

change corresponding to the increasing Caldon/FW ratio. System

Engineering continues to monitor trends weekly in accordance with LLP-2007-001. Maintaining BEPM below limit along with indicated CTP below 3489 MWth assures that thermal power is maintained below our Operating license limit of 3489 MWth. (MCLAUGHLIN)

Department review performed by: NANCY BONOMO 10/16/2007 17:30:26 CDT

Evaluation Comments:

Problem Statement:

This IR was written in response to the Caldon/FW ratio exceeding 0.999 during weekly trending in accordance with LLP-2007-001 Monitoring Feedwater Flow Correction Factor. During weekly trending it was discovered that the Caldon/FW ratio exceeded the action level in three hourly data points between 9/23 and 9/27. Since these events, the ratio has returned to values below 0.999, and its current one-hour average is 0.9985. The increasing trend in the ratio was previously identified and examined in IR 659060.

Statement of Cause:

Based upon the increasing trend in the Caldon/FW ratio, plant data was sent to Cameron for further evaluation. Cameron completed a review of LaSalle data in late August 2007 and provided their response in Cameron Engineering Report ER-619 Rev 0, Review of LaSalle Feedwater Flow Measurement Data 6 Months After Installation of an LEFM External Feedwater Flow Measurement System. LaSalle Engineering reviewed the report and concurs with its conclusions.

The data analysis suggests that the most likely cause of the change in the ratio is due to a slight defouling of the FW venturis and a simultaneous change in the axial velocity profile at the LEFM installation location. The overall shift in the ratio is approximately 0.1 to 0.2%. Cameron analysis suggests that the venturis and the LEFM are each responsible for approximately 0.1% of that shift. These conclusions are largely inferred because the amount of shift observed is beyond the ability of the instrumentation to detect differences to this amount of precision.

Cameron has been provided with updated data including the September timeframe of the three trigger events. Cameron has reviewed the updated data, and their conclusions have not changed since the August report.

In accordance with LLP-2007-001, monitoring of the Best Estimate Power Monitor (BEPM) and normalized secondary parameters has continued. The BEPM has trended steadily and continues to trend consistently with respect to Core Thermal Power. Secondary flows and pressures have also exhibited steady trends during this timeframe. There is currently no risk to operations of an overpower condition.

No action is recommended or required at this time. Trending will continue to be performed in accordance with LLP-2007-001. If the ratio returns to values greater than 0.999, an IR will be initiated and the condition investigated.

Extent of Condition:

This is applicable to Unit 1 only.

According to trending data, this issue appears to only affect the FW flow venturis and the Caldon External LEFM. Main steam flow, 1st stage pressure, and FW pump discharge flows have trended steadily and showed no change corresponding to the increasing Caldon/FW ratio. System

Engineering continues to monitor trends weekly in accordance with LLP-2007-001.

MRC Reviewed by: JAMES A SCHUSTER 10/18/2007 12:18:10 CDT
 MRC Comments:
 MRC (10/18/07) Send back to SOC/Shift for Operability/Reportability.

Reviewed by: WILLIAM J TRAFTON 10/18/2007 19:51:16 CDT
 Reviewer Comments:
 None

Trend Codes

TC1	TC2	TC3	Proc	Org	Rank
EQIC	*	N	*	*	P

Assignments

Assign #:	01	Assigned To:		Status:	COMPLETE
Aff Fac:	LaSalle	Prim Grp:	ACAPALL	Due Date:	12/04/2007
Assign Type:	TRKG	Sec Grp:		Orig Due Date:	12/04/2007
Priority:					
Schedule Ref:					
Unit Condition:					
Subject/Description:	CALDON/FW RATIO REACHES 0.999				

Assign #:	02	Assigned To:	LASJT	Status:	COMPLETE
Aff Fac:	LaSalle	Prim Grp:	A8630NESSC	Due Date:	12/11/2007
Assign Type:	ACIT	Sec Grp:		Orig Due Date:	12/04/2007
Priority:					
Schedule Ref:					
Unit Condition:					
Subject/Description:	System Engineering to obtain results of Cameron (Caldon) for additional review.				