

03/21/2003  
05:28:27 SCOTT  
MAIER (NUSZM)

NOTIFICATION  
SUMMARY [VERIFY  
CURRENT  
REQUIREMENTS  
CONTAINED IN  
NC.WM-AP.ZZ-  
0000(Q)  
"NOTIFICATION  
PROCESS"]:

1) DESCRIBE THE  
ACTUAL CONDITION?

(Do not use  
individual's  
name(s); you may  
use computer ID's  
or badge numbers)

During the  
Turbine Rollup on  
3/21 it was  
noticed that the  
#2 & #3 bypass  
valve response  
was more erratic  
than was observed  
on previous  
turbine rolls.

As the main  
turbine came up  
to rated speed it  
was noticed that  
the bypass valve  
signals and  
actual positions  
swinging as much  
as 40% initially  
which calmed to  
25% (on the  
controlling  
valve) as things  
became steady  
state at a  
slightly higher  
power level.

C-82

2) HOW DOES THIS  
ISSUE IMPACT  
PLANT OR  
PERSONNEL SAFETY?

\*

Preventing  
turbine roll and  
power ascension

3) PSEG NUCLEAR  
OR REGULATORY  
REQUIREMENT NOT  
MET? \*

Bypass valve  
response not as  
desired for  
normal operation

4) WHAT CAUSED  
THE CONDITION? \*  
not sure if  
control or valve  
problem

5) WHAT ACTIONS,  
IF ANY, HAVE BEEN  
TAKEN TO CORRECT  
THE

CONDITION? \*  
notification  
written, CRS  
notified,  
Generator synch  
and power  
ascension placed  
on hold

6) RECOMMENDED  
ACTION/CORRECTIVE  
ACTION AND WORK  
CENTER

RESPONSIBLE  
FOR CORRECTING  
CONDITION.

(Use  
Title/Position,  
not name)

TS&R the cause of  
the Erratic  
response

7) ANY OTHER  
RELEVANT  
INFORMATION? (WHO,  
WHEN, WHERE, WHY,  
REFERENCES,  
ESTIMATED COST,  
EMIS TAG, ECT)

8) HOW WAS THE  
ISSUE IDENTIFIED?

Normal  
observation on  
turbine rollup  
\* = NA FOR  
SIGNIFICANCE  
LEVEL X  
NOTIFICATIONS

03/21/2003

06:00:00 DANIEL  
FROST (NUD2F)

It is expected  
that the bypass  
valves will  
perform their  
design function  
during a turbine  
trip. Power is  
currently not  
above 25% and the  
Bypass valves are  
not required to  
be operable. A  
Tracking LCO is  
currently open  
against the  
bypass valves.  
LCO #03-145.

03/21/2003

13:18:34 RICHARD  
CUMMINS (NUR2C)

Condition was  
corrected when  
load-set was set  
down further from  
indicated zero.

R11 OMAP-3  
submitted.  
03/21/2003  
13:49:03 RICHARD  
CUMMINS (NUR2C)  
Engineering to  
provide  
additional input  
as to likely  
failure cause.  
The load set was  
causing control  
valves to cycle  
slightly, causing  
a responsive  
cycling of bypass  
valves.

03/21/2003  
16:34:32 JOHN  
THOMPSON (NUJRT)  
Engineering  
obtained GETARS  
traces of EHC  
system parameters  
while the BPVs  
were oscillating.  
The following was  
observed:

1. BPV Demand  
(PID 138) was  
oscillating from  
21.3% to 24.3% in  
a sine wave with  
a 6-7 second  
period. A step  
change reduction  
of 0.6% was seen  
just after each  
peak.

2. CV Flow Demand  
(PID 136) was  
oscillating from  
2.6% to 3.7% in a  
sine wave with a  
6-7 second  
period. A step  
change increase  
of 0.13% was seen

just after each  
low point at  
2.87%. The CV  
Flow Demand  
increase preceded  
the BPV Demand  
increases.

3. Sensed  
pressure (PID  
145) was  
oscillating from  
928.4 psig to  
929.0 psig in a  
sine wave with a  
6-7 second  
period.

4. Load Set (PID  
148) was at 3.48%  
and steady.

5. Main Turbine  
Speed (PID 140)  
was varying 0.6  
rpm around 1810  
rpm with same  
period. Speed  
increased after  
the CV Flow  
Demand increase.

6. CV#1 Position  
(PID-128) was  
oscillating from  
1.3% to 1.9% with  
the same period.  
Position followed  
the CV Flow  
Demand.

The following was  
recorded after  
the Load Set was  
reduced.

1. All parameters  
listed above were  
steady except BPV  
Flow Demand which

was varying about  
0.8% randomly.  
Load Set was at  
2.5%, CV#1  
position 1.6%,  
BPV Demand 19%,  
CV Flow Demand  
2.5%.

Conclusions:

The notch changes  
seen in CV and  
BPV Flow Demand  
indicate some  
type of switching  
action. There is  
a voltage  
comparator switch  
shown as VCP004  
on drawing PM003-  
T1-0036 that  
functions to  
switch the CV  
Flow Demand  
signal from the  
speed/load  
control into the  
BPV Amplifier A60  
when the signal  
increases above  
0.00 vdc (0%  
demand) and  
switches back out  
at #0.10 vdc  
(negative  
demand). If this  
comparator  
setpoint was high  
and switched at  
2.87 vdc instead  
of 0.0 vdc, an  
effective  
pressure setpoint  
change would  
occur because the  
CV Flow demand  
would not be  
subtracted from  
the BPV Demand  
per design until

it had already increased to 2.87%. However, the BPV Demand should have been reduced by 11.5% and this did not occur (0.6%).

The oscillations began when turbine speed was increasing through about 1500 rpm. This indicates the problem was likely to be coming from the speed control section. CV oscillations are not normal for speed control and would cause BPV oscillations due the BPV Demand summer that subtracts CV Flow from Total Flow from pressure control. The Load Set output is not the likely cause because it indicated steady both before and after the oscillations and the oscillations should have been seen before 1500 rpm also.

BPV-2 indicated a slower response during the BPV time response test performed prior to startup.

This can be ruled out as a cause because the oscillations occurred when BPV-3 was operating.

Another possibility is the PMG power supplies. These power supplies are energized around 1200 - 1500 rpm and could take over the 30 and #22 vdc buses. The power buses can affect system setpoints if varied. The power supply outputs were observed to be normal and not in control after the unit synchronized. This is considered unlikely.

The cause of the oscillation is unknown at this time. The impact on plant operation was actually minimal as reactor pressure varied only about 0.5 psig. Speed control is switched out by Pressure Control for normal operations.



Recommendations  
for R11:

1. Verify the calibration of VCP004 FLOC H1CH-1CHXS-C363A15.
2. Perform a speed control simulation at the Load Set values listed above and monitor the system for unusual behavior. This would consist of connecting frequency sources to the speed inputs (see HC.IC-CC.AC-0001), simulating main steam pressure, selecting 1800 rpm and observing the CV Demand signal.

03/25/2003  
07:56:27 RICHARD  
CUMMINS (NUR2C)

03/25/2003  
14:27:18 MARC  
CHASTAIN (NUM3C)

WMSC Data

Planning Group -  
099  
Main Work Center  
- M-PMX  
Maint Act Type -  
PL  
Priority - 4  
Start Date -  
4/20/03

Planning Level -  
3  
Outage  
Requirement - Y  
Performance  
Indicators - NONE  
FEG -

Notes - OMAP-3  
SUBMITTED  
(CUMMINS) - SEE  
ABOVE

03/26/2003  
12:38:26 JOHN  
POWELL (NUJYP)

03/18/2003

08:13:06 JOHN

THOMPSON (NUJRT)

1. Description of  
condition:

Hope Creek main  
turbine bypass  
valves selected  
on the bypass  
valve selector  
switch opens to  
approximately 15%  
when the selector  
switch is rotated  
to select a  
single bypass  
valve.

2. Impact on  
Plant/Personnel  
Safety:

Affects operation  
of BPV test and  
will cause BPV-1  
to stay 15% open  
during normal  
operation.

3. Requirement  
not met:

BPV-1 should  
remain at zero  
with the BPV Jack  
at zero

4. What caused  
the condition to  
occur:

Unknown

5. Actions taken  
to correct  
condition:  
Testing performed  
on 03/17/03 at  
approx. 2000:

Rotated the BPV selector switch from BPV #1 thru #9. When the selector switch was placed on BPV #1, the valve was observed to open approximately 15%. As the selector switch was rotated from BPV #1 to #2, BPV #1 remained open, and BPV #2 was observed to open approximately 15%. As the BPV selector switch was rotated from BPV #2 to BPV #3, BPV #2 was observed to close and BPV #3 was observed to open approximately 15%. As the selector switch was rotated from #3 thru #9, the previous valve would close. Only BPV #1 remained open when not selected.

Main steam line pressure was 0 psig and EHC pressure setpoint was 150 psig (at minimum) during the testing.

At 2230 BPV #1 closed when EHC pumps were removed from service to

support trouble  
shooting for  
BPV#2. Demand  
signal remained  
slightly  
positive, and the  
same as at the  
end of the 2000  
testing.

At 2300, main  
condenser vacuum  
was broken.

At 2345,  
Operations  
checked the BPV#1  
demand and  
reported the  
demand is now  
slightly below  
zero (a change  
from slightly  
positive). This  
indicates the BPV  
Jack output  
changed slightly  
and is producing  
the expected  
demand signal.  
Loss of main  
condenser vacuum  
removes the  
output of the BPV  
amplifier to the  
9 BPV#s. The  
slightly negative  
demand is normal  
for BPV#1 since  
it is the first  
BPV to respond.

Voltage readings  
taken on the BPV  
amplifier  
indicate the BPV  
Jack motor drive  
is either not  
driving far  
enough to achieve

0.00 vdc or the  
potentiometer is  
bad.

6. Recommended  
actions and work  
center:

Troubleshoot and  
repair.

Recommended work  
center:  
Maintenance

7. Other relevant  
information

Initiated by:  
John Thompson,  
Reliability  
Engineering;  
x3656

8. How was the  
issue identified?

During  
troubleshooting  
activities  
related to the  
BPV-2 sticking  
open.

03/20/2003  
13:42:18  
MARGARET THOMAS  
(NUMAT)  
CRRC NOTE:  
UPGRADED TO SL-2  
AT THE SM MEETING  
ON 03/20/03. SEE  
N1  
20136007.

03/14/2003  
23:07:22 PETER  
SCARPATI (NUPSS)

1) DESCRIBE THE  
ACTUAL CONDITION?

(Do not use  
individual's  
name(s); you may  
use computer ID's  
or badge numbers)  
Following the  
synchronization of  
the Main  
Generator to the  
grid, the  
operator applied  
the load to the  
generator, which  
closes the bypass  
valves. The #2  
BPV did not  
stroke closed.  
The indication is  
that the valve is  
37-40% open and  
on CRIDS the  
valve is shown  
NOT CLOSED and  
the BPV position  
is 7% open.  
Local observation  
is that the valve  
is approximately  
3/8" open. All  
other parameters  
are normal.

2) HOW DOES THIS  
ISSUE IMPACT  
PLANT OR  
PERSONNEL SAFETY?

\*

Plant can not run  
> 25% with bypass  
system  
inoperable.

3) PSEG NUCLEAR  
OR REGULATORY

REQUIREMENT NOT  
MET? \*  
Bypass system  
INOP

4) WHAT CAUSED  
THE CONDITION? \*  
Unknown

5) WHAT ACTIONS,  
IF ANY, HAVE BEEN  
TAKEN TO CORRECT  
THE

CONDITION? \*  
Performed visual  
observation of  
the valve. A  
conference call  
between  
Operations,  
Maintenance and  
Engineering will  
discuss the  
issue. Power  
ascension has  
been stopped.

6) RECOMMENDED  
ACTION/CORRECTIVE  
ACTION AND WORK  
CENTER

RESPONSIBLE  
FOR CORRECTING  
CONDITION.

(Use  
Title/Position,  
not name)  
TS&R, recommence  
power ascension.

7) ANY OTHER  
RELEVANT  
INFORMATION? (WHO,  
WHEN, WHERE, WHY,  
REFERENCES,  
ESTIMATED COST,  
EMIS TAG, ECT)

8) HOW WAS THE  
ISSUE IDENTIFIED?



During the  
synchronization  
of the main  
generator to the  
grid.

\* = NA FOR  
SIGNIFICANCE  
LEVEL X  
NOTIFICATIONS

03/16/2003  
00:58:26 GLENN  
FIGUEROA (NUGOF)  
Troubleshooter  
was performed per  
instructions in  
sh.op-ap.zz-0008q  
with the  
following  
results:

1) #2 bypass  
valve was found  
approx 48% open  
with -64mA.  
2) Ops placed  
selector switch  
to #2 bypass  
valve. Valve did  
not appear  
move was 44% open  
with -56 mA.  
3) Ops depressed  
and held test  
button to #2  
bypass valve.  
valve stroked  
full open  
smoothly. Valve  
stroked .522 with  
no noise. stopped

smoothly.

4) Removed  
amphenol  
connector to #2  
bypass valve. No  
valve movement,  
no noise, no

EHC porting pitch  
audible changes.

100% open 0 mA

5) Ops released  
test pushbutton -  
no change to  
valve in field.

6) resistance  
readings on servo  
valve coil pin a  
& b and c & d

a-b 130.1 c-d  
103.3

7) Cleaned and  
inspected  
amphenol

connector. No  
dirt or  
deficiencies  
discovered.

8) Reconnected  
amphenol. Valve  
closed fast.

Heard EHC port.  
Heard loud  
solid stop (metal  
to metal). Valve  
travelled .517  
(.005 less than  
open). 45%

open with -64mA.  
Plant responded  
as expected.

Valve stem was  
visually  
inspected with no  
scoring, stem  
appeared to be  
aligned with  
packing gland.

No external FME  
issues observed  
which may prevent  
valve from  
operating  
properly.

Linkage and LVDT  
rod ends were  
inspected sat. No  
binding or  
excessive wear.

Roll notification  
to order to  
continue  
necessary trouble  
shooting.

Ops depressed and  
held test  
pushbutton to #2  
bypass valve

03/18/2003

07:05:19

MARGARET THOMAS  
(NUMAT)

CRRC NOTE:

VALIDATED AS SL-2  
AT THE SM MEETING  
ON 03/17/03.

NOTF# 20136006

03/18/2003 16:22:57

CHRISTOPHER SERATA  
(NUCLS)

#### 1. DESCRIPTION

During plant shutdown on March 17, the bypass valve response when controlled by the BYPASS VALVE JACK was erratic. At one point with EHC PRESSURE SET in control, 2 bypass valves fully open, and the BYPASS VALVE JACK demand just below the PRESSURE SET demand, a tap on the BYPASS VALVE JACK INCREASE pushbutton resulted in the #3 bypass valve pulsing from 0% to 75% open. This condition caused a 50# drop in reactor pressure in one minute. The drop in pressure caused a lowering in coolant temperature adding positive reactivity and a rise in power. The power rise approached the the APRM upscale SCRAM of 15% and caused the RO to have to range up on 4 IRMs within a minute. It also resulted in a lowering of level from 33" to 25" requiring manual control to maintain level between the low level SCRAM and the high level RFP trip setpoints.

#### 2. IMMEDIATE ACTIONS TAKEN

The plant was stabilized and the IPTE terminated. After evaluating plant response, a meeting was convening. Those present included the IPTE Test Manager and Test Engineer, the Shift Manager and Control Room

Supervisor, the immediate Response Team manger, and additional representatives from the OCC Team. After an evaluation of the conditions and development of a consensus approach, reactor depressurization was continued using EHC PRESSURE SET. No additional anomalies were noted.

#### 4. ADDITIONAL ACTIONS TAKEN

Initiated this notification. Discussed the performance of the BYPASS VALVE JACK with the EHC Specialist (NUJRT). The specialist referred to the BYPASS VALVE JACK performance as erratic, and a notification to replace the BYPASS VALVE JACK potentiometer was initiated.

#### 5. RECOMMENDED CORRECTIVE ACTIONS

Evaluate equipment response, procedure guidance, and crew performance. The recommended evaluation manager for this issue is the Hope Creek Operations 'E' Shift Manager (NUCLS).

03/18/2003 23:15:01  
BERNARD LITKETT  
(NUBXL)

03/19/2003 12:34:16  
MARGARET THOMAS  
(NUMAT)

CRRC NOTE: VALIDATED  
AS SL-2 AT THE SM  
MEETING ON 03/19/03.

03/19/2003 16:32:15  
JAMES STAVELY (NUJ2S)

#### Additional Information

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1) Core Thermal Power (CTP) stayed below 25% RTP so there are no issues involving thermal limit compliance or effects (T/S 3.2.1 through 3.2.4). Similarly, the License Limit on CTP was not approached.

2) Since the APRMs stayed below the scram setpoint, there are no issues involving the RPS system response.

3) Control rod insertions were consistent with the Shutdown Sequence so there are no issues involving control rod movement.

4) The CTP increase portion of this event was similar to an increase in Total Core Flow (i.e. a global effect) and thus violated the 1% RTP/hr limitation for the failed fuel reliability rules. Although this event potentially could cause a further degradation of the fuel defect, there are currently no indications of significant degradation and no corrective actions are practical (consistent with Appendix B of the Cycle Management Report for post fuel reliability rule violations). Increased monitoring of the fuel defect is already in place for the startup due to cesium increases following both recent scrams. The changes in cesium response can not be directly linked to this event since it

also occurred on the  
previous scram.

03/19/2003 20:22:24

DANIEL BOYLE (NUD3B)

This orders ' evaluation and  
corrective actions are  
required to be  
presented to SORC upon  
completion. NUD3B

03/21/2003 13:41:45

MARGARET THOMAS  
(NUMAT)

CRRRC NOTE: UPGRADED TO  
SL-1 AND ASSIGNED TO  
NUKXX AT THE SM  
MEETING ON  
03/21/03.