

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
pushbotton 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 a d d i t i o n a l representatives from the OCC Team. After an evaluation of the conditions and development of a concensus approach, r e a c t o r 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 V A L V E J A C K 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

=====

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)

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