

Unit 2

System Status: ATCO NOCO NOFY GPAS
User Status: CRTD MPC STA ACPC
DNC

SONGS

Notification: NN 200834923



Description: 2B008 pilot cell #13 voltage below 2.14

Created on: 03/15/2010 Reported By: (b)(6)

Responsible: (b)(6)

Priority: 4 Medium Required Start: 05/05/2010 14:33

End: 09/01/2010 14:33

Order No: 800480025 Code:

Task Exists? [Y]

Func.Loc.: S2.DCPS.2B008 125V STATION BATTERY 2B008

Equipment:

Assembly:

Quality Class: II

Location: CB

Room:

Elevation:

Column:

Planner Group: Maint Electrical

WorkCenter: EM_EE Electrical Engrg

Plant: 1000 SONGS - Services

Reliability Classification: CRITICAL-A

ARC Review Status: C Completed

Feedback Req'd? []

M Rule: Sig Level: 4 Low Level Issue

Breakdown []

Malfunction Start: 03/19/2010 10:25

Breakdown Duration: H

End: 03/24/2010

Description:

03/15/2010 23:38:31 (b)(6)

/ SO23-I-9.92, STEP # 6.11.3.1 NOTIFY ENGINEERING IF PILOT CELL VOLTAGE IS
BELOW 2.14. CELL #13 IS AT 2.1323.

/

C-38

SONGS

Notification: NN 200834923

Func.Loc.: S2.DCPS.2B008 125V STATION BATTERY 2B008

Location: CB

Room:

Elevation:

Column:

Sort No.: 0001 Code Group:N-TS-IOD Immediate Operability Determination
Short Text: 2B008 pilot cell #13 voltage below 2.14
Task Code: NO50 IOD-Canceled / Not Applicable/No DNC
WorkCenter: EM_SYE Electrical/I&C Systems
Responsible: (b)(6)

Sort No.: 0002 Code Group:N-POD Prompt Operability Determination
Short Text: POD approved OPR.
Task Code: PO40 POD Closed
WorkCenter: EM_EE Electrical Engrg
Responsible: (b)(6)

Sort No.: 0003 Code Group:N-SPT General Support Record
Short Text: Evaluate pilot cell voltage
Task Code: ST04 SPT Complete
WorkCenter: EM_EE Electrical Engrg
Responsible: (b)(6)

Sort No.: 0004 Code Group:N-SPT General Support Record
Short Text: TEMP ECP Request
Task Code: ST05 SPT Canceled
WorkCenter: ED_W EWIN
Responsible: (b)(6)

Sort No.: 0005 Code Group:N-TS-IOD Immediate Operability Determination
Short Text: DNC-2B008 #13 Cell degradation 800480128
Task Code: NO45 IOD-Equipment Restored to Operable
WorkCenter: EM_SYE Electrical/I&C Systems
Responsible: (b)(6)

SONGS

Notification: NN 200834923**Description:** 28008 pilot cell #13 voltage below 2.14

3.8.106.

3. Conclusion:

Determine OPERABLE/INOPERABLE

☒ Operable☐ Inoperable

Basis (provide discussion):

The battery pilot cell voltage is required to be greater than or equal to 2.07 V. The weekly battery SV measured the pilot cell at 2.1323 V.

This is less than the early notification threshold of 2.14 V. The battery remains OPERABLE and a POD will be created for additional Engineering evaluation.

Reviewed by SM (b)(6)

4. Extent of Condition (Required for Inoperable)

EOC Created (YES or NO)? NO

Describe "other train/other unit" findings (if performed):

5. IOD Closure Information

In summary all conditions in LCO 3.8.6 are satisfied, and the battery is able to perform its required safety functions. In the case of LCS 3.8.106.4 which was not satisfied, all required actions are in place to ensure the battery continues to perform its required safety functions.

LCS 3.8.106 Required Action C.1 was satisfied which requires performance of SR 3.8.6.6, that is to verify each battery connected cell voltage is greater than or equal to 2.07 VDC. Electricians completed that assignment satisfactorily within 8 hours. All remaining cells in 28008 are greater than or equal to 2.13 VDC.

SONGS

Notification: NN 200834923

Description: 2B008 pilot cell #13 voltage below 2.14

And per LCS 3.8.106 Required Action C.2 was satisfied by notifying the cognizant engineer (b)(6) by telephone at home) to trend cell performance within 12 hours.

And per LCS 3.8.106 Required Action C.3 was satisfied which requires to initiate action to restore the affected cell to ≥ 2.13 VDC. A Work Order #800477811 was generated and put into effect to perform a battery bank equalize charge to restore its voltage equal to or above 2.13 VDC within 12 hours (SO23-I-9.99).

3/18/10 at 0600 hour - 2.4055 Volts

3/18/10 at 2200 hour - 2.1748 Volts

NMO 800480316 was created to record the voltage of Pilot cell #13:

Hourly's started on 3/19/10 at 1610. Lowest level prior to equalize was 2.1227 Volts. Administrative action point 2.1317 Volts. Tech Spec >2.07 Volts.

3/19: Pilot Cell #13 voltages:

1610 - 2.1416

1710 - 2.1427

1810 - 2.1422

1910 - 2.1415

2010 - 2.1406

2110 - 2.1407

2210 - 2.1405

2310 - 2.1402

3/20: Pilot Cell #13 voltages:

0010 - 2.1406

0110 - 2.1404

0210 - 2.1404

0310 - 2.1400

0410 - 2.1391

Contact (b)(6) or (b)(6) for more info regarding NMO 800480316. From the trend data above it appears that cell #13 is stabilizing around 2.14 Volts.

2 hr LCO

SONGS

Notification: NN 200834923

Description: 2B008 pilot cell #13 voltage below 2.14

Implementation of these actions satisfies the LCS 3.9.106 that cells are above 2.13 Volts. The TS 3.8.6 LCO is satisfied by the cell voltage being above 2.07 Volts.

(b)(6) 3/19/10

Peer check: (b)(6)

This IOD will be cancelled and closed. The condition of this battery continues to degrade such that it is no longer operable. A need IOD will be created.

(b)(6)
3/20/10

SONGS

Notification: NN 200834923

Func.Loc.: S2.DCPS.2B008 125V STATION BATTERY 2B008

Location: CB

Room:

Elevation:

Column:

Task Details:

Sort No.: 0002

Code Group: N-POD Prompt Operability Determination

Short Text: POD approved OPR.

Task Code: PO40 POD Closed

WorkCenter: EM EE Electrical Engrg

Responsible: (b)(6) n

Status: TSCO

Planned Start: 03/18/2010 08:07

Planned End: 03/18/2010 08:07

Complete: 03/18/2010 08:07

Task Long Text:

PPROMPT OPERABILITY DETERMINATION TEMPLATE

(Refer to SO123-XV-52)

PART 1: DEGRADED/NONCONFORMING/UNANALYZED CONDITION

A. Describe the as-found condition and the equipment affected, assuring that the problem and scope have been clearly identified.

While performing Monthly Surveillance on 2B008 battery IAW Procedure SO23-I-9. 2, step 6.11.3.1, Electricians found pilot cell #13 had a cell voltage of 2.1323. Procedure requirements dictate notifying the cognizant engineer and writing a notification. A further test of pilot cell #13 cell voltage showed the cell voltage to be 2.1218 volts which is less than the acceptance criteria of steps 6.4.1 & 6.4.1.1 (NN 200836402)

B. If it is confirmed at this stage that no degraded, nonconforming or unanalyzed condition exists, record as such and provide justification.

PART 2: SPECIFIED SAFETY FUNCTION(S) OF THE AFFECTED SSC

2B008 is part of the DC electrical subsystem as described in 3.8.4 (DC Sources Operating) and 3.8.5 (DC Sources Shutdown), and the specific battery parameters are identified in 3.8.6 (Battery Parameters). The bases states #The DC electrical power subsystem, each subsystem

SONGS

Notification: NN 200834923**Description:** 2B008 pilot cell #13 voltage below 2.14

consisting of one battery, a battery charger, and the corresponding control equipment and interconnecting cabling within the train are required to be OPERABLE to ensure the availability of the required power to shutdown the reactor and maintain in a safe condition after an AOO or DBA." LCO 3.8.6.A has a specific requirement of One or two batteries on one train with one or more battery cells with float voltage $< 2.07V$. LCS 3.8.106 states that the battery parameters shall be within the limits of the LCS.

PART 3: BASIS FOR DETERMINING IMPACT ON SPECIFIED SAFETY FUNCTION(S)

A. Technical Basis

LCO SR 3.8.6.3 requires verification of each pilot cell voltage is equal to or above 2.07 VDC at 31 days frequency. Pilot cell 13 satisfies this requirement.

LCS SR 3.8.106.4 requirement is to verify battery pilot cell voltage is equal to greater than 2.13 VDC every 31 days. Pilot cell 13 does not satisfy this requirement.

B. Status (As Found)

X Specified Safety Function(s) Satisfied
Specified Safety Function(s) NOT Satisfied

LCS 3.8.106 Required Action C.1 requires performance of SR 3.8.6.6, that is to verify each battery connected cell voltage is greater than or equal to 2.07 VDC. Electricians completed that assignment satisfactorily within 8 hours. All remaining cells in 2B008 are greater than or equal to 2.13 VDC Action C.1 is satisfied

And per LCS 3.8.106 Required Action C.2 requirement, the cognizant engineer was informed by telephone at home to trend cell performance within 12 hours. Action C.2 is satisfied

And per LCS 3.8.106 Required Action C.3, Initiate action to restore the affected cell to ≥ 2.13 VDC. A Work Order #800477811 was generated and put into effect to perform a battery bank equalize charge to restore its voltage equal to or above 2.13 VDC within 12 hours (SO23-I-9.99).

NONGS

Notification: NN 200834923**Description:** 28002 pilot cell #13 voltage below 2.14

Implementation of these actions satisfies the LCS and the LCO is satisfied by the cell voltage being above 2.07V

In summary all conditions in LCO 3.8.6 are satisfied, and the battery is able to perform its required safety functions. In the case of LCS 3.8.106.4 which was not satisfied, all required actions are in place to ensure the battery continues to perform its required safety functions

PART 4: CONTINUED DEGRADATION

Continued degradation is possible for this cell. The purpose of LCS 3.8.106 Action C.3 is to monitor the performance of cell #13. This will identify any further degradation. For SO23-I-9.99, which is being used to perform NMO 800477811, the battery voltage and current, and the pilot cell voltage will be monitored shiftly (every 8 hours) until the current across the battery terminals has stabilized four consecutive readings. Then continue for an additional 35 hours monitoring every 24 hours. Engineering will monitor this data and assess the cell performance.

PART 5: COMPENSATORY MEASURES

N/A

Included (describe)

PART 6: EXTENT OF CONDITION (Required for Inoperable)

EOC Created (YES or NO)?

Describe "other train/other unit" findings (if performed): No-All batteries are surveilled on a 31-day interval no other failing pilot cells identified

POD Prepared By: (b)(6) on 3/17/2010
T3EN13 PQS Verified Valid in EQUIS Until 3/25/2011

POD Reviewed By: (b)(6) on 3/17/2010
T3EN13 PQS Verified Valid in EQUIS Until 9/17/2010

SONGS

Notification: NN 200834923

Description: 2B008 pilot cell #13 voltage below 2.14

POD approved by (b)(6)
Peer Checked by
03/18/2010

SONGS

Notification: NN 200834923

Func.Loc.: S2.DCPS.2B008 125V STATION BATTERY 2B008

Location: CB

Room:

Elevation:

Column:

Task Details:

Sort No.: 0003

Code Group: N-SPT General Support Record

Short Text: Evaluate pilot cell voltage

Task Code: ST04 SPT Complete

WorkCenter: EM EE Electrical Engrg

Responsible: (b)(6)

Status: TSCO

Planned Start: 04/02/2010 02:00

Planned End: 04/02/2010 02:00

Complete: 04/02/2010 02:00

Task Long Text:

SPT (General Support Record)

Describe the General support request:

In summary all conditions in LCO 3.8.6 are satisfied, and the battery is able to perform its required safety functions. In the case of LCS 3.8.106.4 which was not satisfied, all required actions are in place to ensure the battery continues to perform its required safety functions.

And per LCS 3.8.106 Required Action C.3 was satisfied which requires to initiate action to restore the affected cell to ≥ 2.13 VDC. A Work Order #800477811 was generated and put into effect to perform a battery bank equalize charge to restore its voltage equal to or above 2.13 VDC within 12 hours (SO23-I-9.99).

3/18/10 at 0600 hour - 2.4055 Volts

3/18/10 at 2200 hour - 2.1748 Volts

NMO 800480316 was created to record the voltage of Pilot cell #13:

Hourly's started on 3/19/10 at 1610. Lowest level prior to equalize was 2.1227 Volts. Administrative action point 2.1317 Volts. Tech Spec ≥ 2.07 Volts.

3/19: Pilot Cell #13 voltages:

1610 - 2.1416

1710 - 2.1427

1810 - 2.1422

SONGS

Notification: NN 200834923**Description:** 2B008 pilot cell #13 voltage below 2.14

1910 - 2.1415
2010 - 2.1406
2110 - 2.1407
2210 - 2.1405
2310 - 2.1402

3/20: Pilot Cell #13 voltages:

0010 - 2.1406
0110 - 2.1404
0210 - 2.1404
0310 - 2.1400
0410 - 2.1391

Contact (b)(6) or (b)(6) for more info regarding
NMO 800480316.

03/16/2010

S2.DCPS.2B008 battery pilot cell #13 voltage was 2.1227 VDC and 2.1218 taken with two different meters per the procedure. Acceptance Criteria is equal to or greater than 2.1317. So steps 6.4.1 and 6.4.1.1 are unsat and a failed surveillance. Attachment 3 of SO23-I-9.92 will be performed taking all cell voltages.

Battery 2B008 Cell #13 needs to be replaced due to continued degradation after battery bank equalizing charge.

Several NMOs were generated to replace the degraded cell so that the battery can perform its specified safety function.

The NMOs are:

800480098 2B002/2B004-Optimum Load Sharing- 3/20 CPL

800480128 2B008-Swap jar 13/14 with spare 17/18- 3/26 F/C (CSR, closed)

(b)(6) 3/20/2010

Peer Check: (b)(6)

Update by (b)(6) 3/21/10 at 3:45PM (PQS T3EN13 expires 12/16/10)

2B008 was placed in service and battery checks completed by Electricians

3/21/2010 @ 1741 (b)(6)

Verified work complete. (b)(6) 3/21/010 1943

SONGS

Notification: NN 200834923

Description: 2B008 pilot cell #13 voltage below 2.14

Task Details

SONGS

Notification: NN 200834923

Func.Loc.: S2.DCPS.2B008 125V STATION BATTERY 2B008

Location: CB

Room:

Elevation:

Column:

Task Details:

Sort No.: 0004

Code Group: N-SPT General Support Record

Short Text: TEMP ECP Request

Task Code: ST05 SPT Canceled

WorkCenter: ED_W EWIN

Responsible: (b)(6)

Status: TSCO

Planned Start: 03/20/2010 16:44

Planned End: 03/20/2010 16:44

Complete: 03/20/2010 16:44

Task Long Text:

SPT (General Support Record)

Describe the General support request: Request Temp ECP to install B00X on the 2D2 dc Swgr to support cell jumpering on 2B008

Based on discussion in OCC with shift manager the 2B008 was declared inoperable due to continuing degradation [though still above admin and license values]. Tech spec 3.8.4 was entered to implement cross tie from 2D2 = 2D4 and expectation for temp ecp was retracted. This assignment will be cancelled as not needed now. (b)(6) 3/20 1600

SONGS

Notification: NN 200834923

Func.Loc.: S2.DCPS.2B008 125V STATION BATTERY 2B008

Location: CB

Room:

Elevation:

Column:

Task Details:

Sort No.: 0005

Code Group: N-TS-IOD Immediate Operability Determination

Short Text: DNC-2B008 #13 Cell degradation 800480128

Task Code: NO45 IOD-Equipment Restored to Operable

WorkCenter: EM_SYE Electrical/I&C Systems

Responsible: (b)(6)

Status: TSCO

Planned Start: 03/30/2010

Planned End: 03/30/2010

Complete: 03/21/2010 19:43

Task Long Text:

NN 200834923

NOTES:

1) Parts 1 through 4 will be completed by the STA.

2) Part 5 may be completed by Operations (STA) or Engineering (Responsible Engineer) when the SSC has been restored to a fully qualified status. IOD (Immediate Operability Determination)

This is an Immediate Operability Determination (IOD).

1. Deficiency Identified and the Affected Functional

Location:

S2.DCPS.2B008, PILOT CELL VOLTAGE IS BELOW 2.14 volts and continuing to degrade.

2. Identify the Specified Safety Function(s); include mission time (if applicable):

1E 125V batteries provide DC power to 125VDC switchboards and instrument busses in the event of a loss of plant AC power. The mission time of the 125VDC batteries is approximately 8 hours.

The batteries need be OPERABLE in accordance with TS 2.8.6 and LCS 3.8.106.

3. Conclusion:

Determine OPERABLE/INOPERABLE

SONGS

Notification: NN 200834923

Description: 2B008 pilot cell #13 voltage below 2.14

☐ Operable☒ Inoperable

Basis (provide discussion):

Because of its continued degradation after the equalizing charge, there is not a reasonable expectation the battery will perform its specified safety function. A graph of the pilot cell voltage is attached.

4. Extent of Condition (Required for Inoperable)

EOC Created (YES or NO)? No, EOC will be caught by periodic surveillances.

Describe "other train/other unit" findings (if performed):

5. IOD Closure Information

Line item added to 2-EDMR-2010-0051

Battery 2B008 Cell #13 needs to be replaced due to continued degradation after battery bank equalizing charge.

Several NMOs were generated to replace the degraded cell so that the battery can perform its specified safety function.

The NMOs are:

800480098 2B002/2B004-Optimum Load Sharing- 3/20 CPL (This NMO is WIP as of 3/21/10 3:45PM???)

800480128 2B008-Swap jar 13/14 with spare 17/18- 3/26 F/C (This NMO is in cat.50 CSR, closed)

(b)(6) 3/20/2010

Peer Check: (b)(6)

Update in () by (b)(6) 3/21/10 at 3:45PM (PQS T3EN13 expires 12/16/10)

2B008 was placed in service and battery checks completed by Electricians

3/21/2010 @ 1741 (b)(6)

Verified work complete. (b)(6) 3/21/010 1943