

**Originator:** White,Thomas F**Originator Phone:** 7772**Originator Group:** Eng Design Mgmt**Operability Required:** N**Supervisor Name:** Bethay,Stephen J**Reportability Required:** N**Discovered Date:** 04/19/2003 18:10**Initiated Date:** 04/19/2003 18:25**Condition Description:**

The concrete shield block for the Drywell Equipment Hatch was removed prior to the reactor being less than 212F. An evaluation could not be located which analyzes this condition. Procedural (or other controls) do not exist to control removal of the block. Although in a shutdown (all rods in) condition, questions were raised as to whether EQ or other analyses are applicable for this condition. This condition posed no concern for primary containment integrity since the block is not a part of the containment structure.

**Immediate Action Description:**

None needed.

**Suggested Action Description:**

Review procedural controls for removing the shield blocks.  
Survey other similar BWRs for their approaches to this issue.

**TRENDING (For Reference Purposes Only):****Trend Type****Trend Code**

RD=OUTG

PI=SI

CRT=LOW

**Initiated Date:** 4/19/2003 18:25**Owner Group :**Plan Sched Outage Mgmt**Current Contact:** R. MILLER+**Current Significance:** B - APCA**Closed by:** McWilliams,Dorena C

10/6/2003 13:49

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**Summary Description:****Remarks Description:****Closure Description:**

All CA's associated with this CR were reviewed by the responsible manager. Upon the manager's recommendation, this CR is being closed.

Per ENN-LI-102, Para. 5.8.2.3: Independent reviews are not required for non-significant condition reports. The documented closeout verification performed by the Responsible Management is adequate authorization for closure of the CR

**Version:** 1

**Significance Code:** B - APCA

**Classification Code:** NON-SIGNIFICANT

**Owner Group:** Plan Sched Outage Mgmt

**Performed By:** McWilliams,Dorena C

04/20/2003 02:11

**Assignment Description:**

Responsible Manager: G. Higgs

Directed Actions: S. WOLLMAN: DUE DATE 60 DAYS.

RESEARCH THE DESIGN AND LICENSING BASIS REQUIREMENTS FOR THIS SITUATION (INCLUDING CONTACTING OTHER SIMILAR VINTAGE BWR'S) TO DETERMINE THE NEED FOR DESIGN ANALYSIS. ADDITIONALLY, EVALUATE THE SAFETY SIGNIFICANCE OF THIS CONDITION.

CA Number: 1

**Group****Name**

Assigned By: CRG Mgmt

Dietrich, Peter T

Assigned To: Plan Sched Outage Mgmt

Higgs, Greg

Subassigned To : Plan Sched Outage Staff

Trainor, Thomas A

Originated By: Landeche, David A

4/20/2003 14:04:35

Performed By: Higgs, Greg

5/1/2003 21:47:06

Subperformed By: Trainor, Thomas A

4/30/2003 07:50:44

Approved By:

Closed By: Higgs, Greg

5/1/2003 21:47:06

Current Due Date: 05/19/2003

Initial Due Date: 05/19/2003

CA Type: DISPOSITION - APCA

Plant Constraint: NONE

**CA Description:**

Provide an apparent cause evaluation and develop a corrective action plan to resolve identified condition.1

**Response:**

Concur with subresponse and apparent cause. Necessary additional CA's issued.

**Subresponse :**

see attached

**Closure Comments:**

REM-Trended 05/23/03.

**Attachments:**

Subresp Description

Apparant Cause

# Attachment Header

**Document Name:**

CR-PNP-2003-01414 CA-00001

**Document Location**

Subresp Description

**Attach Title:**

Apparant Cause

## APPARENT CAUSE ANALYSIS

CONDITION REPORT No. CR-PNP-2003-01414

1. Problem Description: The concrete shield block wall for the Drywell Equipment Hatch was removed prior to the Reactor being less than 212. degrees f
2. Apparent Cause: ~~Inadequate controls in place for preventing this wall from being removed prior to 212 degrees f~~
3. Contributing/Underlying Causes: (include here any other human performance, latent organizational or programmatic weaknesses, ineffective barriers, etc..) There were several barriers that were ineffective:
  - 1) The PM that controlled the removal of the Block wall did not have any cautions about removing the concrete wall prior to reaching 212.
  - 2) The PM was reviewed by several Groups including Operations for impact, and there were no comments.
  - 3) The Outage schedule had an activity to remove the block wall at cold shutdown, which means less than 212.but was not understood by those that reviewed it.
  - 4) The final releae from the control room did not add any hold points for this work to wait until less than 212.
4. Extent of problem: This was an isolated incident, No other instances of Equipment being removed prior to required guidelines or milestones.
5. Corrective Actions taken and/or required to correct the identified condition: (include Dates if possible) The S&SA group and Licensing were notified of the condition. There was no concern for primary containment as the block wall is not part of the containment structure.

Action required/new CA number:

(add additional actions as needed)

6. Corrective Actions required to eliminate and/or reduce the likelihood of recurrence of identified cause(s) and contributing cause(s).

(NOTE: Address each cause and contributing cause. If corrective actions are not proposed, for each cause and contributing cause, provide a basis for why no corrective action is necessary.)

Action Required/new CA number:

- 1) The PM to perform this work, Plan 9000835, will be updated by Planning to include a step to verify that the Reactor is less than 212 prior to removing the block wall or hatch. A reference to this will be added to the PSIM as well. Action : Tom Trainor (6/15/03)
- 2) There appears to be a lot of confusion concerning the removal of this wall, and when it is acceptable to do so. S&SA has been assigned an action item from this CR to determine the requirements for this wall. This needs to be communicated to the rest of the Organization. Action: Stan Wollman ) Due 6/15/03.
- 3) The Outage schedule had an activity to remove Block wall at cold shutdown. Mechanical Maintenance needs to review this with all supervisors to stress the importance of recognizing

Deleted:

## APPARENT CAUSE ANALYSIS

key milestones, and the dangers of moving activities up on the schedule without an impact review. Action: Robert Sholler Due 6/15/03

- 4) The Work Plan was released by Operations prior to the Reactor reaching 212. Again, there is much confusion concerning this block wall and its function. Have the response from S&SA included in Ops requal to educate the Operators on the requirements of this wall. Action: Mike England Due 8/15/03

(add additional actions as needed)

### 7. Trend Data for Apparent Cause and underlying/contributing causes:

Inappropriate Action (IA) Description:

IA Job Title: worker  
IA Department: PS&O  
IA Group: Maint  
Employee Type (Select one): Entergy  
Work Process: WM  
Key Activity: DP  
Human Error Type (Select one): /Rule Based  
O&P Failure Mechanism: o05  
HEIA Failure Mechanism: MJ6  
Event Type: OT  
Procedure Number(s): 1.5.20

(add additional trend code(s) as needed to address each cause and contributing cause)

Mentor: A. Shatas

**Deleted:** Equipment Performance Issues: (Seek System Engineer assistance if not known)¶

¶  
System Number: ¶  
Component Number: ¶  
Component Type or Description: ¶  
Maintenance Rule Failure: YES NO N/A 6

**Deleted:** IA Job Title: IA  
Department: IA Group: ¶  
¶

**Deleted:** Work Process:  
Key Activity: ¶

CA Number: 2

Group	Name
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Assigned By: CRG Mgmt

Assigned To: Eng DE Sys Safety Analysis Staff

Wollman,Stanley S

Subassigned To : Eng DE Sys Safety Analysis Staff

Sanchez,Edward R

Originated By: Landeche,David A

4/20/2003 14:08:36

Performed By: Wollman,Stanley S

6/19/2003 16:30:20

Subperformed By: Sanchez,Edward R

6/19/2003 13:57:48

Approved By:

Closed By: Wollman,Stanley S

6/19/2003 16:30:20

Current Due Date: 06/20/2003

Initial Due Date: 06/20/2003

CA Type: CORRECTIVE ACTION

Plant Constraint: NONE

**CA Description:**

DIRECTED ACTION FROM CRG: Research the design and licensing basis requirements for this situation (including contacting other similar vintage BWRs) to determine the need for design analysis. Additionally, evaluate the safety significance of this issue.

**Response:**

Based on the review performed in the document attached to the sub-response the conclusion draw in response to this CR is: While there is no detailed discussion of the concrete shield plugs or details regarding their removal, the various UFSAR discussions about radiation shielding and jet impingement protection for the drywell shell provide ample evidence that the concrete plugs should not be removed prior to reaching cold shutdown as defined by Technical Specifications. Furthermore, all applicable radiological consequence analyses of record, including radiological Environmental Qualification (EQ) analyses, are based on the resulting radiological conditions assuming the drywell shielding is intact. Initial engineering review of the effects on EQ analyses with the plugs removed indicates unfavorable results with some areas currently designated as "mild" becoming "harsh". Other impacts would include various components exceeding their limits for radiation exposure thereby rendering them incapable of meeting their design requirements.

Based on the response above this CR action item is considered closed.

The BWROG network was used to query other plants on removal of their shield plugs. Every plant that responded indicated that they must be in cold shutdown before the plugs can be removed. Additionally, although different at each plant, each had administrative controls in place to prevent premature removal of the plugs prior to cold shutdown.

**Subresponse :**

See attachment.

**Closure Comments:**

**Attachments:**

Subresp Description

Sub-response to CR-PNP-2003-01414 CA 0002

# Attachment Header

**Document Name:**

CR-PNP-2003-01414 CA-00002

**Document Location**

Subresp Description

**Attach Title:**

Sub-response to CR-PNP-2003-01414 CA 0002

## Response to CR-PNP-2003-1414 CA 002

The design and licensing bases for the concrete shield plugs that cover the drywell equipment hatch and CRD exchange hatch were researched. No mention of these hatches or their shielding function was found in any Technical Specifications or Tech Spec Bases. This conclusion was reached by performing electronic word searches of T.S. and T.S. Bases using **PNPS Web Document Search**. The search words used were “shield”, “plug”, “concrete” “drywell hatch”, “equipment hatch”, and “CRD hatch”. Only two hits were returned and were found to have nothing to do with the shield plugs in question. The same search was performed of the UFSAR and relevant hits were returned for the following UFSAR sections:

Section 5.2.3.2 “Drywell”

Section 12.3 “Shielding and Radiation Protection”

Appendix C.2 “Concrete and Steel Structures”

Appendix L.3 “Containment System Design”

According to these sections of the UFSAR, the purpose of the reinforced concrete surrounding the drywell is to provide shielding against radiation and resistance to deformation and bucking in areas where the concrete backs up the steel containment shell. The Drywell shell is considered to be “backed up” by concrete between the 9’, 2” elevation and the 90’ elevation. Appendix L explains that the relatively thin walled drywell shell is fully capable of resisting design pressures, but has little capability to resist concentrated jet forces. Such loads are readily accepted by the massive concrete shield which surrounds the drywell. The concrete will keep the steel shell from exceeding its deformation limit due to jet impingement forces.

While there is no detailed discussion of the concrete shield plugs or details regarding their removal, the various UFSAR discussions about radiation shielding and jet impingement protection for the drywell shell provide ample evidence that the concrete plugs should not be removed prior to reaching cold shutdown as defined by Technical Specifications. Furthermore, all applicable radiological consequence analyses of record, including radiological Environmental Qualification (EQ) analyses, are based on the resulting radiological conditions assuming the drywell shielding is intact. Initial engineering review of the effects on EQ analyses with the plugs removed indicates unfavorable results with some areas currently designated as “mild” becoming “harsh”. Other impacts would include various components exceeding their limits for radiation exposure thereby rendering them incapable of meeting their design requirements.

The BWROG network was used to query other plants on removal of their shield plugs. Every plant that responded indicated that they must be in cold shutdown before the plugs can be removed. Additionally, although different at each plant, each had administrative controls in place to prevent premature removal of the plugs prior to cold shutdown.



CA Number: 3

**Group****Name**

Assigned By: Plan Sched Outage Staff

Trainor,Thomas A

Assigned To: Maint Mechanical Mgmt

Sholler,Robert B

**Subassigned To :**

Originated By: Higgs,Greg

5/1/2003 21:46:05

Performed By: Famulari, Frank N

5/5/2003 16:16:02

**Subperformed By:**

Approved By:

Closed By: Taormina,James L

6/3/2003 05:06:33

**Current Due Date:** 06/15/2003**Initial Due Date:** 06/15/2003**CA Type:** CORRECTIVE ACTION**Plant Constraint:** NONE**CA Description:**

The outage schedule had an activity to remove block wall at cold shutdown. Mechanical Maintenance needs to review this with all supervisors to stress the importance of recognizing key milestones and the dangers of moving activities up on the schedule without an impact review. (Completed issuance of CA for Tom Trainor.)

**Response:**

In accordance with the maintenance work plan (MR#01109836) the maintenance supervisor proceeded with the removal of the drywell equipment hatch. The work plan required that prior to moving the hatch permission from the control room was required. The supervisor contacted the control room for permission to remove the hatch. Permission was granted by the control room supervisor to remove the block.

In addition there is no procedural guidance concerning the removal of the hatch cover.

Based on the information from the work plan it appears that the maintenance supervisor in compliance with the work plan. No further action is required, recommend closure of this corrective action.

**Subresponse :****Closure Comments:**

CA Number: 4

**Group****Name**

Assigned By: Plan Sched Outage Staff

Trainor,Thomas A

Assigned To: Plan Sched Outage Mgmt

Kelly,Gary R

**Subassigned To :**

Originated By: Higgs,Greg

5/1/2003 21:45:27

Performed By: Kelly,Gary R

6/12/2003 10:53:32

**Subperformed By:**

Approved By:

Closed By: Higgs,Greg

6/12/2003 14:18:30

Current Due Date: 06/15/2003

Initial Due Date: 06/15/2003

CA Type: CORRECTIVE ACTION

Plant Constraint: NONE

**CA Description:**

the PM to perform this work, plan # 900835, needs to be updated by planning to include a step to verify the Reactor is less than 212 F prior to removing the block wall or hatch. A reference to this should be added to the PSIM as well. (Completed issuance of CA for Tom Trainor.)

**Response:**

REP TASK P000835 JOB PLAN HAS BEEN UPDATED TO INCLUDE A STEP TO VERIFY REACTOR IS LESS THAN 212 DEGREES F PRIOR TO REMOVING SHIELD PLUG OR OPENING THE HATCH. A REFERENCE HAS BEEN ADDED TO THE PSIM (PLANT SYSTEM IMPACT MATRIX STATING VERIFY REACTOR IS LESS THAN 212 DEGREES F PRIOR TO REMOVING THE SHIELD PLUG OR OPENING THE HATCH.

**Subresponse :****Closure Comments:**

Acceptable to close. Final closure by Greg Higgs for Tom Trainor.

CA Number: 5

Group	Name
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Assigned By: Plan Sched Outage Staff

Trainor, Thomas A

Assigned To: Operations Mgmt

England, Michael D

Subassigned To :

Originated By: Higgs, Greg

5/1/2003 21:44:41

Performed By: Lyons, Brent D

5/4/2003 10:17:23

Subperformed By:

Approved By:

Closed By: Taormina, James L

6/3/2003 05:07:54

Current Due Date: 08/15/2003

Initial Due Date: 08/15/2003

CA Type: CORRECTIVE ACTION

Plant Constraint: NONE

**CA Description:**

The work plan was released by operations prior to the Rx reaching 212 F. Again, there is much confusion concerning this block wall and its function. Have the response from S&SA included in Ops requal training to educate the Operators on the requirements of the wall. (Greg Higgs added due date for Tom Trainor.)

**Response:**

Ops agrees Training should be provided to Operations. Requested M. Santiago to accept action item to provide appropriate training. Assigned CA#6 to track completion of action. No additional action required. This corrective action may be closed.

Subresponse :

Closure Comments:

CA Number: 6

Group	Name
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Assigned By: Operations Mgmt

England,Michael D

Assigned To: Training Operations Mgmt

Santiago,Mark B

Subassigned To :

Originated By: Lyons,Brent D

5/4/2003 10:14:11

Performed By: Santiago,Mark B

8/1/2003 09:38:59

Subperformed By:

Approved By:

Closed By: Santiago,Mark B

8/1/2003 09:38:59

Current Due Date: 09/01/2003

Initial Due Date: 09/01/2003

CA Type: CORRECTIVE ACTION

Plant Constraint: NONE

**CA Description:**

The work plan was released by operations prior to the Rx reaching 212 F. Again, there is much confusion concerning this block wall and its function. Have the response from S&SA included in Ops requal training to educate the Operators on the requirements of the wall. (Greg Higgs added due date for Tom Trainor.)

**Response:**

This item was included in session 5 of the 2003 LORT training program. Training was provided via module O-RQ-04-01-41. Additionally, curriculum change 03-O-84 was issued to the Primary Containment reference text to permanently capture this issue. No further action is required.

Subresponse :

Closure Comments:

CA Number: 7

Group	Name
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Assigned By: CA&amp;A Staff

Assigned To: Plan Sched Outage Mgmt

Higgs,Greg

Subassigned To :

Originated By: McWilliams,Dorena C

8/5/2003 09:30:21

Performed By: Higgs,Greg

8/7/2003 18:24:02

Subperformed By:

Approved By:

Closed By: Higgs,Greg

8/7/2003 18:24:02

Current Due Date: 08/20/2003

Initial Due Date: 08/20/2003

CA Type: CR CLOSURE REQUEST

Plant Constraint: NONE

**CA Description:**

Please review the closed corrective action(s) to verify adequacy and completeness to remedy the identified condition, by using the guidance in Section 5.8.1 of LI-102. If the CR is appropriate for closure, please indicate your concurrence by closure of this action. Should the closure not be satisfactory, issue a new action item to correct the deficiency.

**Response:**

All corrective actions associated with this CR have been reviewed in accordance with the guidance provided in LI-102. All actions were closed satisfactorily except action item 03. This action requested that Mechanical Maintenance review this occurrence with appropriate personnel as a lessons learned. The response indicates that Mechanical Maintenance followed directions that they were given and no further actions were required. An additional action has been assigned to Mechanical Maintenance to ensure that this occurrence is reviewed with appropriate personnel as a lesson learned. Following completion of that additional action, this CR may be closed.

Subresponse :

Closure Comments:

CA Number: 8

Group	Name
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Assigned By: Plan Sched Outage Mgmt

Higgs,Greg

Assigned To: Maint Mechanical Mgmt

Sholler,Robert B

Subassigned To :

Originated By: Higgs,Greg

8/7/2003 18:22:44

Performed By: Famulari, Frank N

9/25/2003 14:41:53

Subperformed By:

Approved By:

Closed By: Higgs,Greg

9/25/2003 14:50:25

Current Due Date: 10/01/2003

Initial Due Date: 10/01/2003

CA Type: CORRECTIVE ACTION

Plant Constraint: NONE

**CA Description:**

Action item 03 of this CR requested that this occurrence be reviewed with appropriate Mechanical Maintenance personnel as a lesson learned. Action item 03 was closed without completing the lessons learned review. Therefore, this additional action is assigned to Mechanical Maintenance to complete the appropriate lessons learned review of this occurrence with appropriate personnel.

**Response:**

Mechanical maintenance personnel were briefed on the results of the apparent cause and the importance of working to the schedule. Based on the actions taken recommend closure of this corrective action

Subresponse :

**Closure Comments:**

Acceptable to close.

CA Number: 9

Group	Name
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Assigned By: CA&A Staff

Assigned To: Plan Sched Outage Mgmt

Higgs,Greg

Subassigned To :

Originated By: McWilliams,Dorena C

10/1/2003 12:13:16

Performed By: Higgs,Greg

10/4/2003 00:14:46

Subperformed By:

Approved By:

Closed By: Higgs,Greg

10/4/2003 00:14:46

Current Due Date: 10/15/2003

Initial Due Date: 10/15/2003

CA Type: CR CLOSURE REQUEST

Plant Constraint: NONE

**CA Description:**

NOTE: THE APCA STATED THAT AN ACTION TO S&SA TO DETERMINE THE REQUIREMENTS OF THE WALL HAS ALREADY BEEN ISSUED THE APCA CONTINUES TO REQUEST "THIS NEEDS TO BE COMMUNICATED TO THE REST OF THE ORGANIZATION" THIS STATEMENT WAS NOT IN CRG'S ORIGINAL CA. HAS THIS REQUIREMENT BEEN MET. Please review the closed corrective action(s) to verify adequacy and completeness to remedy the identified condition, by using the guidance in Section 5.8.1 of LI-102. If the CR is appropriate for closure, please indicate your concurrence by closure of this action. Should the closure not be satisfactory, issue a new action item to correct the deficiency.

**Response:**

Subsequent review of the apparent cause and actions taken resulted in the conclusion that the intent of the statement to communicate the purpose of the block wall to the organization has been met. Operations has been trained on the findings of S&SA. Mechanical Maintenance personnel have been briefed on this condition report. Planning has revised the work instructions for the repetitive task adding a note about the correct time for block removal. These organizations are the primary groups involved in this work activity. In addition, the findings of S&SA are documented in the UFSAR and are available to all station personnel. This CR may be closed.

Subresponse :

Closure Comments: