NSPM CORRECTIVE ACTION EFFECTIVENESS REVIEW

AR Identifier: *EFR*	**EFR Assesses:** ☒ **RCE Corrective Action** ☐ **ACE Corrective Action** ☐ **Other**

Root Cause or Problem Statement Addressed by the Activity under review: *Leakage through the anchor bolts of the internals stands and RCC Change Fixture*

Activity Identifier **Being Reviewed:** *CAPR 1160372-04*	**Activity Description:** *Develop and implement repairs that permanently eliminate leakage through the anchor bolt penetrations of the Unit 2 refueling pool.*

Method of Analysis (check all that apply):

☒ Field Verification	☒ Observation	☐ Records Review (list records)
☐ Audit	☐ Surveillance	☐ Self-Assessment (Focused/SnapShot)
☐ Interviews	☐ Testing	☐ External Assessment
☐ Formal Survey	☐ Informal Survey	☐ Other (list)

Attribute and Measure of Success: *Monitor and document the absence of Unit 2 leakage in typical areas including the Sump B and Regen Hx room for the first pool flood after repair in 2R26. Continued leakage would indicate either the wrong root cause of ineffective repairs.*

Analysis: *Areas where leakage had previously been revealed were routinely inspected during 2R26. Leakage was observed and confirmed on 4/29/10, when leakage into Sump B was validated. The leakage was later measured to be approximately 0.8 gallons per hour. CAP 01230016 was initiated for the deficiency. The leakage was observed within a couple of days of the refueling cavity being flooded. Constant pumping of Sump C was required for the period of time the cavity was flooded during the outage. Leakage was also noted coming from one of the wall penetrations at the 710' elevation of the 21 RCP vault (CAP 1229816). Unlike Unit 1, the Regenerative HX Ceiling and adjacent walls were not observed leaking with the exception of an inspection performed on 5/3/2010 which identified a 1 drop per minute leak from a construction joint.*

Sump B leakage decreased significantly over a period of a few days. On 5/3/2010, the leakage was measured at 0.02 gallons per hour. In order for the leakage to decrease something had to change. It is unlikely anything changed in either the seam welds or the recent repairs to the lower cavity penetrations. It is likely that the leakage was due to sandplug cover or NIS cover. Leakage into sump C remained unchanged which points more towards the covers. Sump C conditions (evidence of significant leakage) and vacuum box testing of the covers(significant leakage of sandplug covers and to a lesser degree NIS covers) support this conclusion (CAP 01232430).

The repairs performed at the beginning of 2R26 and the lower cavity are not suspected to be a source of leakage as a result of repairs and inspections performed prior to cavity flood and inspections performed after cavity flood. The likely source of leakage as confirmed by testing, inspection, and conditions identified during the outage is the sandplug and NIS covers.

Conclusion: *The corrective action was not effective. Although it is believed that the repairs performed during the outage were effective at eliminating the lower cavity as a source of leakage leakage has not been eliminated. The subject CAPR has been extended to the end of 2R27 to allow for completion of repairs to confirmed leakage locations. Extension of the CAPR was approved by PARB on 5/18/2010.*

References: Corrective Action Effectiveness Review Manual
Form retained in accordance with record retention schedule identified in FP-G-RM-01.

- The Corrective Action taken meets the intent of the original Corrective Action assignment and approved changes, and the schedule for planned actions supports prevention of event recurrence:

  ☐ Yes ☒ No *[If No, write a CAP and make recommendations to correct.]Cavity leakage was expected to be eliminated during 2R27. Due to leakage observed, additional actions will be required which will not be validated as eliminating leakage until 2R27 (Spring 2012.) The existing CAPR will track elimination refueling cavity leakage on Unit 2 along with any associated actions that result from CAP 1233806.*

- The Corrective Action taken has been adequately challenged:

  ☒ Yes ☐ No *[If No, generate a new EFR to allow sufficient run time on corrective actions.]*

- The Corrective Action taken has effectively prevented reasonable recurrence of the problem and similar occurrences:

  ☐ Yes ☒ No *[If No, write a CAP and make recommendations to correct.]Cavity leakage was expected to be eliminated during 2R26. Due to leakage observed, additional actions will be required which will not occur or be validated 2R27 (Winter 2012.)*

- The Corrective Action taken has not resulted in a negative impact to plant operation, programs or equipment:

  ☐ Yes ☒ No *[If No, write a CAP and make recommendations to correct.]Cavity leakage is a nuclear safety concern due to the potential for degradation of concrete, rebar and the containment vessel. Recommend that an impact assessment be performed of the additional degradation that could have occurred as a result of continued leakage. This will be included in CAP 01233806*

CAPs written as a result of this review: ☒ Yes ☐ No

Initiated CAP Identifiers (when applicable): *CAP 01233806*

Additional Effectiveness Review Required? ☒ Yes ☐ No

Does Effectiveness Review require PARB Review? ☒ Yes ☐ No *[Yes, for all CAPR related EFRs]*

Performed By: Steven Skoyen 5/21/10 **Approved By:** PARB on 6-1-10

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