

CALCULATION ADDENDUM

NOP-CC-3002-02 Rev. 05

Pg 1 of 2

CALCULATION NO. PRDC-0015	INITIATING DOCUMENT CA 08-44299-1	CALCULATION REV. 2	ADDENDUM NO. A 02
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<input type="checkbox"/> BV1	<input type="checkbox"/> BV2	<input type="checkbox"/> DB	<input checked="" type="checkbox"/> PY
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TITLE/SUBJECT: (MUST MATCH ORIGINAL CALCULATION TITLE (SUBJECT))
Division 2, 125 VDC System Load Evaluation, Voltage Drop, Battery/Battery Charger Sizing Calculation

Classification	<input checked="" type="checkbox"/> Tier 1 Calculation	<input checked="" type="checkbox"/> Safety-Related/Augmented Quality	<input type="checkbox"/> Nonsafety-Related
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Open Assumptions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, Enter Tracking Number N/A	Initiating Document CA 08-44299-1
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(Perry & Davis-Besse Only)	Referenced In Atlas? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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(Perry Only)	Referenced In USAR Validation Database <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Computer Program(S)

Program Name	Version / Revision	Category	Status	Description
DCSDM	3.0	B	Active	Direct Current System Database Module

Originator (Print, Sign & Date) PARI CHATTERJEE <i>P. Chatterjee</i> 8/8/08	Reviewer/Design Verifier (Print, Sign & Date) RYAN BRIGGS <i>Ryan M Briggs</i> 8/8/08	Approver (Print, Sign & Date) RAY TANNEY <i>R. Tanney</i> 8/9/08
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OBJECTIVE OR PURPOSE OF ADDENDUM:
Revise allowable voltage for Battery SVI Load Profile in section 4.6.4 of the calculation as shown in Attachment 1.

SCOPE OF ADDENDUM:
CR 08-44299 identified that Unit 2 Division 2 Battery Service Test did not meet the allowable voltage as shown in the SVI which is derived from Section 4.6.4 of this calculation Addendum A01, R/2. As a result of this CR, Division 2 battery SVI allowable voltage as shown in Section 4.6.4, Addendum A01, R/2 of this calculation will be changed as shown in Attachment 1.

LIST NEW DOCUMENTS TO BE ADDED TO THE DOCUMENT INDEX (DIN).

DIN No.	Document Number/Title	Revision, Edition, Date	Reference	Input	Output
1	Attachment 2, Evaluation of Division 2 Battery SVI Allowable Voltage	N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SUMMARY OF RESULTS/CONCLUSIONS OF ADDENDUM:
The revised load profile for section 4.6.4 is shown in Attachment 1. There is no change or impact on battery/battery charger sizing, device voltage and overall results and conclusion of the calculation. There is no change to USAR Table 8.3-7 load profile currents. Therefore, this Addendum does not change or impact USAR Table 8.3-7. Results of this Addendum will be used to revise the appropriate Division 1 battery SVIs.

LIMITATIONS OR RESTRICTIONS CREATED BY ADDENDUM:
None

IMPACT OF ADDENDUM ON OUTPUT DOCUMENTS:
There is no change or impact on USAR Table 8.3-7. The affected SVIs will be revised per results of this Addendum. Reviewed the other two output documents PRDC-0012 and PSTG-0001 and found no impact on these documents by this Addendum.

DESCRIBE WHERE THE ADDENDUM WILL BE EVALUATED FOR 10CFR50.59 APPLICABILITY:



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CALCULATION NO. PRDC-0015	INITIATING DOCUMENT CA 08-44299-1	CALCULATION REV. 2	ADDENDUM NO. A 02
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There is no change in Battery/Battery Charger sizing, load evaluation and device voltage drop by this Addendum. There is no impact on calculation results and conclusion by this Addendum. Therefore, the 10CFR50.59 Evaluation 08-02693 (RAD & Screen only) for R/3 of this calculation is also applicable for this Addendum.

LIST SUPPORTING DOCUMENTS: (Include total number of pages)

DIS – 3 Pages, DIES – 5 Pages, DVR – 1 Page, Calc Review Checklist - 3 Pages.

LIST ATTACHMENTS: (Include total number of pages)

Attachment 1 – 1 Page

Attachment 2 – 1 Page

Attachment 1 to PRDC-0015, R/2, A01

4.6.4 USAR TABLE 8.3.7 LOAD PROFILE

USAR Table 8.3-7 provides the DC load profile for Division 2 battery for the design basis accident scenario. Service tests (per SVIs) for the batteries are performed utilizing the load profile from Table 8.3-7. The Battery load profile in this Addendum has both the current and the voltage information and is shown in Attachment 2 of this Addendum. **The current at different nodes is obtained from Attachment G of the calculation. The voltage is based on worst case minimum acceptable voltage of the components and adding the cable drop between the components and the battery. See Attachment 2 for detail evaluation.** These currents and voltages were increased to account for measuring instrument error of 0.5 volts [Typical Fluke Model 77 error is $\pm(0.3\%$ of Reading + 1 LSD)] for this load profile

The load profile below is per IEEE Std. 450-1995, Paragraph 6.6 for Service Tests which states that the test should not be corrected for temperature or age, if the battery was sized in accordance with IEEE Std 485-1983 that already accounts for margin for age and temperature. The batteries are sized per above referenced IEEE Std. for discharge voltage of 105 volts in this calculation. To support this load profile, the battery sizing was recalculated per above IEEE Std. for discharge voltage of 1.92 volts/cell (115.2 battery volts) accounting for aging and temperature correction and found to have adequate margin. Attachment 3 shows the battery sizing worksheet for Division 2 battery using the 1.92 volts per cell discharge curve.

The revised load profile is as follows:

Period 1 is - 0 to 1min → Duration 1 min → 210 amp and voltage is \geq **113** volts
Period 2 is - 1 to 2 min → Duration 1 min → 105 amp and voltage is \geq **113** volts
Period 3 is - 2 to 3 min → Duration 1 min → 125 amp and voltage is \geq **113** volts
Period 4 is - 3 to 10 min → Duration 7 min → 105 amp and voltage is \geq **113** volts
Period 5 is - 10 to 11 min → Duration 1 min → 125 amp and voltage is \geq **113** volts
Period 6 is - 11 to 119 min → Duration 108 min → 105 amp and voltage is \geq **113** volts
Period 7 is - 119 to 120 min → Duration 1 min → 125 amp and voltage is \geq **116.5** volts

CHANGES FOR THIS ADDENDUM ARE SHOWN BOLD

Evaluation of Division 2 Minimum Required Voltage Evaluation

1	2	3	4	5	6	7	8	9	10	11
Device	Node/Panel Sw#	Time Step	Load Step	Battery Voltage	Node Voltage	Device Voltage	Required Voltage	Batt - Node Drop	Node - Load Drop	Min Required Battery Voltage
SPCHGM-1-EH1201-F22	13	5	1	117.669	115.49	85.99	80	2.179	29.5	111.679
SPCHGM-1-EH1212-F22	13	27	7	118.056	115.91	82.25	80	2.146	33.66	115.806
SOL-1E51-F425	ED1B08, Sw #1	W	1-7	117.669	116.81	114.9	100	0.859	1.91	102.769
SOL-1-C11-1F110B	ED1B08, Sw #2	W	1-7	117.669	116.81	112.83	105	0.859	3.98	109.839
RLY-1E12-K3B	ED1B08, Sw #5	W	1-7	117.669	116.81	109.81	100	0.859	7	107.859
RLY-1B21-K6BK7BK8B	ED1B08, Sw #7	W	1-7	117.669	116.81	113.89	100	0.859	2.92	103.779
RLY-1E12-K110B10,12	ED1B08, Sw #8	W	1-7	117.669	116.81	112.12	100	0.859	4.69	105.549
ARI-1C11F1608/F162D/F162B/F163B	ED1B08, Sw #14	W	1-6	117.669	116.357	95.89	90	1.312	20.467	111.779
RLY-1R43-TD1A	ED1B06, Sw #7	W	1-7	117.669	116.764	108.33	100	0.905	8.434	109.339
RLY-1R43-TD1B	ED1B06, Sw #8	W	1-7	117.669	116.764	108.04	100	0.905	8.724	109.629
CNTCTR-K1	ED1B06, Sw #9	W	1-7	117.669	116.206	107.48	100	1.463	8.726	110.189
RLY-2P47-K2LJK3K95	ED1B06, Sw #12	W	1-7	117.669	116.764	114.5	100	0.905	2.264	103.169
PWRSUP-1C95-RACK 1,2	ED1B06, Sw #15	W	1-7	117.669	116.764	110.07	100	0.905	6.694	107.599

Details of the Spreadsheet:

- 1) Breaker EH1212 is required to close at 1 HR 59 MIN when the SPCHGM charges and the Node voltage is 115.91 from Attachment B, PRDC-0015, R/Z.
- 2) Column 1 - Devices in each switch that has lowest margin, obtained from Attachment L1, PRDC-0015, R/Z. SPCHGM that are operated during an accident condition were only considered
- 3) Column 2 - Node numbers from PRDC-0015, R/Z, Attachment B for SPCHGM. For remaining devices that has minimum device voltage for each switch in ED1B06 and ED1B08 panels from Attachment L1.
- 4) Column 3 - Calculation Time Step from PRDC-0015, R/Z. "W" indicates time step with worst case minimum voltage was used
- 5) Column 4 - Applicable SVI Load Step.
- 6) Column 5 - Battery voltage obtained from Attachment F of PRDC-0015, R/Z
- 7) Column 6 - Node voltage obtained from Attachment B of PRDC-0015, R/Z
- 8) Column 7 - Device voltage for SPCHGM is from Attachment I and B. Device voltages for the remaining devices are from Attachment L1 of PRDC-0015, R/Z.
- 9) Column 8 - Required voltage for SPCHGM is from Section 5.2 of PRDC-0015, R/Z based on site results. For all other devices from Attachment L1
- 10) Column 9 - Voltage drop between Battery and the Node (Column 5 - Column 6).
- 11) Column 10 - Voltage drop between Node and the device (Column 6 - Column 7)
- 12) Column 11 - Minimum Required Battery Voltage at the device is Column 8 + Column 9 + Column 10

Devices selected above

An M&TE accuracy error of 0.5V is being used. This is consistent with calculation PRDC-0015

Therefore, considering diagnostic instrument accuracy the minimum required voltage is for Step 1-6 $111.779 + 0.5 = 112.279 \approx 113$ volts for SVI Testing.
 Therefore, considering diagnostic instrument accuracy the minimum required voltage is for Step 7 is $115.8 + 0.5 = 116.34 \approx 116.5$ volts for SVI Testing

SECTION I: TO BE COMPLETED BY DESIGN ORIGINATOR

DOCUMENT(S)/ACTIVITY TO BE VERIFIED:

PRDC-0015, Revision 2, Addendum 02

SAFETY RELATED

AUGMENTED QUALITY

NONSAFETY RELATED

SUPPORTING/REFERENCE DOCUMENTS

Calculation Review Checklist

DESIGN ORIGINATOR: *(Print and Sign Name)*

Pari Chatterjee /

DATE

SECTION II: TO BE COMPLETED BY VERIFIER

VERIFICATION METHOD *(Check one)*

DESIGN REVIEW *(Complete Design Review Checklist or Calculation Review Checklist)*

ALTERNATE CALCULATION

QUALIFICATION TESTING

JUSTIFICATION FOR SUPERVISOR PERFORMING VERIFICATION:

N/A

APPROVAL: *(Print and Sign Name)*

N/A

DATE

EXTENT OF VERIFICATION:

A review of PRDC-0015 R/2 was performed, and the sources of the numbers used in Attachment 2 of the addendum were verified. The calculation methodology outlined in the text of Attachment 2 as reviewed and found to be applicable. A complete check of mathematical calculations was performed with no errors found. Lastly it was confirmed that the results from the calculations in Attachment 2 were correctly revised in the SVI Load Profile shown on Attachment 1 of the addendum.

COMMENTS, ERRORS OR DEFICIENCIES IDENTIFIED? YES NO

RESOLUTION: *(For Alternate Calculation or Qualification Testing only)*

RESOLVED BY: *(Print and Sign Name)*

N/A

DATE

VERIFIER: *(Print and Sign Name)*

Ryan M Briggs / 

DATE

8/8/08

APPROVED BY: *(Print and Sign Name)*

Ray Tanney / 

DATE

8/8/08

CALCULATION REVIEW CHECKLIST

NOP-CC-2001-04 Rev. 05

QUESTION	NA	Yes	No	COMMENTS	RESOLUTION
GENERAL					
1. Does the stated objective/purpose clearly describe why the calculation is being performed?		X			
2. Are design input / output documents and references listed and clearly identified in the document index, including edition and addenda, where applicable?		X			
3. Were verbal inputs from third parties properly documented?	X				
4. Are design input parameters, such as physical and geometric characteristic and regulatory or code and standard requirements, accurately taken from the design input documents and correctly incorporated, including tolerances and units?	X				
5. Are the design inputs relevant, current, consistent with design/licensing bases and directly applicable to the purpose of the calculation, including appropriate tolerances and ranges/modes of operation?	X				
6. Are all design inputs retrievable? If not, have they been added as attachments?		X			
7. Are preliminary or conceptual inputs clearly identified for later confirmation as open assumptions?	X				
8. Where applicable, were construction and operating considerations included as input information?	X				
9. Were design input / output documents properly updated to reference this calculation?	X				
ASSUMPTIONS					
10. Have the assumptions necessary to perform the analysis been clearly identified and adequately described?	X				
11. Are all assumptions for the calculation reasonable and consistent with design/licensing bases?	X				
12. Have all open assumptions needing later confirmation been clearly identified on the Calculation cover sheet, including when the open assumption needs to be closed?	X				
13. Has an SAP Activity Initiation Form been created for open assumptions?	X				
14. Have engineering judgments been clearly identified?	X				
15. Are engineering judgments reasonable and adequately documented?	X				
16. Is suitable justification provided for all assumptions/engineering judgements (except those based upon recognized engineering practice, physical constants or elementary scientific principles)?	X				
METHOD OF ANALYSIS					
17. Is the method used appropriate considering the purpose and type of calculation?		X			
18. Is the method in accordance with applicable codes, standards, and design/licensing bases?		X			
IDENTIFICATION OF COMPUTER CODES (Ref: NOP-SS-1001)					
19. Have the versions of the computer codes employed in the design analysis been certified for this application?		X			
20. Are codes properly identified along with source (vendor, organization, etc.)?		X			
21. Is the code applicable for the analysis being performed?		X			
22. Is the computer program(s) being used listed on the FENOC Usable Software List for the site?		X			

CALCULATION REVIEW CHECKLIST

CALCULATION NO. PRDC-0015
REV. 02
ADDENDUM NO. 02
UNIT 1&2

NOP-CC-2001-04 Rev. 05



QUESTION	NA	Yes	No	COMMENTS	RESOLUTION
23. Does the computer model, that has been created, adequately reflect actual (or to be modified) plant conditions (e.g., dimensional accuracy, type of model/code options used, time steps, etc.)?		X			
24. Did the computer output generate any ERROR or WARNING Messages that could invalidate the results?	X				
25. Is the computer output reasonable when compared to inputs and what was expected?		X			
COMPUTATIONS					
26. Are the equations used consistent with recognized engineering practice and design/licensing bases?		X			
27. Is there a reasonable justification provided for the uses of any equations not in common use?	X				
28. Were the mathematical operations performed properly and the results accurate?		X			
29. Have adjustment factors, uncertainties, empirical correlations, etc., used in the analysis been correctly applied?		X			
30. Is the result presented with proper units and tolerance?		X			
31. Has proper consideration been given to results that may be overly sensitive to very small changes in input?	X				
CONCLUSIONS					
32. Is the magnitude of the result reasonable and expected when compared to inputs?		X			
33. Is there a reasonable justification provided for deviations from the acceptance criteria?	X				
34. Are stated conclusions justifiable based on the calculation results?		X			
35. Are all pages sequentially numbered and marked with a valid calculation and revision number?		X			
36. Is all information legible and reproducible?		X			
37. Is the calculation presentation complete and understandable without any need to refer back to the Originator for clarification or explanations?		X			
38. Is calculation format presented in a logical and orderly manner, in conformance with the standard calculation content of NOP-CC-3002 (Attachment 1)?		X			
39. Have all changes in the documentation been initiated (or signed) and dated by the author of the change and all required reviewers?		X			
DESIGN/LICENSING					
40. Have all calculation results stayed within existing design/licensing basis parameters?		X			
41. If the response to Question 40 is NO, has Licensing been notified as appropriate? (i.e. UFSAR or Tech Spec Change Request has been initiated).	X				
42. Is the direction of trends reasonable?	X				
43. Has the calculation Preparer used all applicable design information/requirements provided?		X			
44. Did the calculation Preparer determine if the calculation was referenced in design basis documents and/or databases?	X				
45. Did the Preparer determine if the calculation was used as a reference in the UFSAR?		X			
46. If the calculation is used as a reference in the UFSAR, is a change to the UFSAR required or an update to the UFSAR Validation Database, if applicable, required?			X		
47. If the answer to Question 46 is YES, have the appropriate documents been initiated?	X				

CALCULATION REVIEW CHECKLIST

CALCULATION NO. PRDC-0015
 REV. 02
 ADDENDUM NO. 02
 UNIT 1&2

NOP-CC-2001-04 Rev. 05

QUESTION	NA	Yes	No	COMMENTS	RESOLUTION
48. Has the applicability of 10CFR50.59 to this calculation been considered and documented?		X			
ACCEPTABLE					
49. Does the calculation meet its purpose/objective?		X			
50. Is the calculation acceptable for use?		X			
51. What checking method was used to review the calculation? Check all that apply.					
• spot check for math					
• complete check for math		X			
• comparison with tests					
• check by alternate method					
• comparison with previous calculation					
52. If the calculation was prepared by a vendor, does it comply with the technical and quality requirements described in the Procurement Documents? Reference the Purchase Order number or other procurement document number in the Comments Section of this question.			X		
53. Have Professional Engineer (PE) certification requirements been addressed and documented where required by ASME Code (if applicable).		X			

Review Summary:

Addendum 02 to PRDC-0015, Revision 2 is complete and accurate and is acceptable for use.

Owner's Acceptance Review (Required for calculations prepared by a vendor)	
Reviewer (Print and Sign Name) N/A	Date
Approver (Print and Sign Name) Ryan M Briggs	Date 8/8/08

RT 8/8/08



DESIGN INTERFACE SUMMARY

NOP-CC-2004-09

Calculation No. PRDC-0015, A 02

Rev. No 0

BV1 BV2 PY DB

DIE	Interface Organization	Subject Matter Area
#	Department Name	
	<input type="checkbox"/> SMA #	Subject Matter Area Title

6 Chemistry - Environmental
1.2 General Interfaces, General Impacts
2.1 Mechanical Systems, Misc Mechanical Interfaces
6.11 Special Interests, Chemical / Environmental
6.3 Special Interests, Plant Controls - Human Factors

28 Chemistry - Plant Chemistry
1.2 General Interfaces, General Impacts

19 Design Eng - Configuration Control
1.2 General Interfaces, General Impacts

20 Design Eng - Elec / I&C, Misc Electrical
1.2 General Interfaces, General Impacts
2.1 Mechanical Systems, Misc Mechanical Interfaces
3.1 Electrical Systems, Misc Electrical Interfaces
6.1 Special Interests, FIRE Protection / Safe Shutdown
6.3 Special Interests, Plant Controls - Human Factors

51 Design Eng - Elec / I&C, Misc I&C
1.2 General Interfaces, General Impacts
2.1 Mechanical Systems, Misc Mechanical Interfaces
4.1 Instruments & Controls, Misc I&C Interfaces

81 Design Eng - Elec / I&C, Security Systems
1.2 General Interfaces, General Impacts
6.6 Special Interests, Radiation Protection - ALARA

52 Design Eng - Elec / I&C, Safe Shutdown
1.2 General Interfaces, General Impacts
3.1 Electrical Systems, Misc Electrical Interfaces
6.1 Special Interests, FIRE Protection / Safe Shutdown

1 Design Eng - Engineering Analysis, Misc.
1.2 General Interfaces, General Impacts
2.1 Mechanical Systems, Misc Mechanical Interfaces
5.3 Structures & Structural, Materials
6.2 Special Interests, Rx Containment Bldg & Drywell
6.3 Special Interests, Plant Controls - Human Factors
6.8 Special Interests, Internal Missile Hazards
6.9 Special Interests, Reactivity Ctrl, Accident, & Core Reload Analysis

2 Design Eng - Engineering Analysis, PSA
6.5 Special Interests, PSA - Probabilistic Safety Assessment

67 Design Eng, Mech / Structural - Buildings & Struct
1.2 General Interfaces, General Impacts

21 Design Eng, Mech / Structural - Misc. Mechanical
1.2 General Interfaces, General Impacts
2.1 Mechanical Systems, Misc Mechanical Interfaces
5.3 Structures & Structural, Materials
6.2 Special Interests, Rx Containment Bldg & Drywell
6.7 Special Interests, NSSS Design Basis

60 Design Eng, Mech / Structural - Misc. Structural
1.2 General Interfaces, General Impacts
2.1 Mechanical Systems, Misc Mechanical Interfaces
5.1 Structures & Structural, Misc Structural Interfaces
5.2 Structures & Structural, Seismic Considerations
6.2 Special Interests, Rx Containment Bldg & Drywell

65 Design Eng, Mech / Structural - Seismic
3.1 Electrical Systems, Misc Electrical Interfaces
5.2 Structures & Structural, Seismic Considerations

9 Emergency Response
1.2 General Interfaces, General Impacts

18 Industrial Safety
1.2 General Interfaces, General Impacts



DESIGN INTERFACE SUMMARY

NOP-CC-2004-09

Calculation No. PRDC-0015, A 02

Rev. No 0

BV1

BV2

PY

DB

DIE	Interface Organization	Subject Matter Area
#	Department Name	
	<input type="checkbox"/> SMA #	Subject Matter Area Title

40 Maintenance - Procedures
 1.1 General Interfaces, Departments / Units

48 Maintenance - Support Programs
 1.2 General Interfaces, General Impacts

33 Maintenance - Work Planning
 1.1 General Interfaces, Departments / Units
 1.2 General Interfaces, General Impacts

5 Operations - Unit 1
 1.2 General Interfaces, General Impacts
 2.1 Mechanical Systems, Misc Mechanical Interfaces
 5.2 Structures & Structural, Seismic Considerations
 6.3 Special Interests, Plant Controls - Human Factors
 6.9 Special Interests, Reactivity Ctrl, Accident, & Core Reload Analysis

54 Operations Services - Fire Marshal
 1.2 General Interfaces, General Impacts
 2.1 Mechanical Systems, Misc Mechanical Interfaces
 6.1 Special Interests, FIRE Protection / Safe Shutdown

30 Operations Services - Procedures
 1.1 General Interfaces, Departments / Units
 1.2 General Interfaces, General Impacts

22 Plant & Equip Reliability Eng
 1.1 General Interfaces, Departments / Units
 1.2 General Interfaces, General Impacts
 2.1 Mechanical Systems, Misc Mechanical Interfaces

76 Plant & Equip Reliability Eng - Cyber Security
 1.2 General Interfaces, General Impacts
 6.3 Special Interests, Plant Controls - Human Factors

24 Plant & Equip Reliability Eng - Reactor Eng
 2.1 Mechanical Systems, Misc Mechanical Interfaces
 6.9 Special Interests, Reactivity Ctrl, Accident, & Core Reload Analysis

77 Project Management - Refueling Engineering
 6.10 Special Interests, Refueling Equipment & Rx Assembly

7 Radiation Protection
 6.6 Special Interests, Radiation Protection - ALARA

42 Site Protection - Operations
 1.2 General Interfaces, General Impacts
 6.6 Special Interests, Radiation Protection - ALARA

59 Tech Svcs Eng, Eng Programs - Appendix J
 3.1 Electrical Systems, Misc Electrical Interfaces
 6.2 Special Interests, Rx Containment Bldg & Drywell

55 Tech Svcs Eng, Eng Programs - EQ
 1.2 General Interfaces, General Impacts
 2.1 Mechanical Systems, Misc Mechanical Interfaces
 3.1 Electrical Systems, Misc Electrical Interfaces

80 Tech Svcs Eng, Eng Programs - FAC
 2.1 Mechanical Systems, Misc Mechanical Interfaces

56 Tech Svcs Eng, Eng Programs - ISI
 1.2 General Interfaces, General Impacts
 2.1 Mechanical Systems, Misc Mechanical Interfaces

57 Tech Svcs Eng, Eng Programs - IST, NDE, Boric Acid
 1.2 General Interfaces, General Impacts
 2.1 Mechanical Systems, Misc Mechanical Interfaces

58 Tech Svcs Eng, Eng Programs - Maintenance Rule
 6.4 Special Interests, Maintenance Rule 10CFR 50.65

27 Tech Svcs Eng, Eng Programs - Misc Programs



DESIGN INTERFACE SUMMARY

NOP-CC-2004-09

Calculation No. PRDC-0015, A 02

Rev. No 0

BV1

BV2

PY

DB

DIE Interface Organization Subject Matter Area

Department Name

	SMA #	Subject Matter Area Title
1.2		General Interfaces, General Impacts
2.1		Mechanical Systems, Misc Mechanical Interfaces

46 Training - Services

- 1.1 General Interfaces, Departments / Units
- 2.1 Mechanical Systems, Misc Mechanical Interfaces

8 Training - Simulator

- 1.1 General Interfaces, Departments / Units
- 1.2 General Interfaces, General Impacts
- 6.3 Special Interests, Plant Controls - Human Factors

Comments

This Addendum revises battery SVI load profile allowable voltage. Review of the DIRC indicates that no DIE from Training and Operations Procedure is necessary or required for this activity. The calculation is prepared by Electrical personnel and question on Electrical System has been considered and addressed in the calculation. In summary, none of the above disciplines except the above two requires a design interface for this addendum.

SPR: RCT
8/9/08

Prepared By: Chatterjee, Par	<i>[Signature]</i>	Date: 8/8/08	Reviewed By: Ryan M Briggs	<i>[Signature]</i>	Date: 8/8/08
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Interface with EAB on 8/7/08 indicates that this calc. product will be reviewed after Calc. issue on 8/9/08. EAB did review the Pod eval. attachments of CR 08-44289, which mirrors this addendum
8/9/08

**DESIGN INTERFACE EVALUATION**

NOP-CC-2004-07

Modification/Document/Activity ID
Calculation - PRDC-0015, A 02Proposed Rev.
0DIE No./Rev.
22 / 0

SECTION 1 - SUMMARY OF CHANGE & POTENTIAL IMPACT

 BV1 BV2 DB PYTo: Interfacing Organization
Plant & Equip Reliability EngPoint of Contact
Kuntz, MarcMail Stop
PY-A250Due Date
08/21/2008From/Return To: Responsible Engineer
Chatterjee, ParitMail Stop
PY-A165Phone
440-280-5209**DESCRIPTION OF CHANGE/AREAS OF CONCERN**

PRDC 0015 Rev.2 Addendum 2 provides for a minimum acceptable Div. 2 battery terminal voltage of 113VDC for the first six periods of the battery load profile and a minimum acceptable battery terminal voltage of 116.5VDC for the seventh period of the battery load profile.

SECTION 2 - RESPONSE

Refer to NOP-CC-2004, Section 4.2.1 and Attachment 1 for guidance.

DIRC IMPACT(s)

(Evaluate impact identified by the following questions from the Design Interface Checklist)

Topic / Ques No.	QUESTION
1.1 / 3	Does the change impact any Plant Engineering NSSS (Nuclear Steam Supply), BOP (Balance Of Plant), Engineering Electrical & Controls, OR Plant Computer System SSC ? IMPACT:

OTHER IMPACTs

(Evaluate impact from the following General and Subject Matter Expert level questions)

QUESTION
Identify potential failure mechanisms and failure consequences IMPACT: Not within the scope of this review.
Identify any limitations such as open assumptions or engineering holds. Identify what is restrained and what is required to release the hold. IMPACT: Not within the scope of this review.
Describe affect of proposed change on existing design basis. IMPACT: Not within the scope of this evaluation.
Describe the affect on the current licensing basis for the system / structure / component (SSC) involved. IMPACT: Not within the scope of this review.
Describe impact on operational configuration, system interactions, and any other pertinent considerations. Identify required actions. IMPACT: 1. This calculation revision for battery loading makes no physical changes to the plant DC system. Thus system installation and configuration are unchanged. 2. Since no physical changes are being made to the plant Dc system, there is no system operational impact and no change to system maintenance requirements. 3. No component repetitive calibrations need to be added or revised. 4. No SAP functional location or component classification is affected by this calculation revision. 5. Because there is no impact on system configuration, operation or maintenance requirements, no performance monitoring plans or Maintenance Rule functions are affected.
IF the change will add, modify, or delete equipment, components, systems, or processes that result in the need for personnel to acquire additional skills and knowledge, THEN complete the Affected Documents section below. Identify Training as the Document Type, assign an Action Code, and Responsible Organization. IMPACT: 6. No procedures under the control of PES are affected by this calculation revision.
Identify appropriate Installation requirements and acceptance criteria for testing. IMPACT: 7. A calculation revision is being reviewed, nothing is being installed or physically changed, thus Installation requirements are not necessary. This calculation revision changes the acceptance criteria for Division 2 Battery Service Tests. The test instructions are under the control of the Maintenance Dept. and will be revised accordingly. Test methodology and frequency are not changed. The revised acceptance limits will be verified as part of routine battery testing. 8. Because nothing is being procured, no enhanced procurement requirements are necessary. No vendor is involved in this calculation revision, so vendor oversight is not applicable.
Identify relevant design criteria and standards (including applicable revision/addenda). IMPACT: Not within the scope of this review.

COMMENTS/ADDITIONAL INPUT/ INFORMATION

(Include observations, recommendations & suggestions not provided in response to the above questions)

**DESIGN INTERFACE EVALUATION**

NOP-CC-2004-07

Modification/Document/Activity ID
Calculation - PRDC-0015, A 02Proposed Rev.
0DIE No./Rev.
22 / 0**AFFECTED DOCUMENTS LIST**

List new and/or existing documents requiring issue/update as a result of this activity (e.g., drawings, procedures, databases, lesson plans, and vendor manuals). It is presumed the latest revision/version of the document was used when identifying the impact.

Document Type	Document ID	Unit	Rev.	Version	Document Owner/ Responsible Organization	Affected Functional Location(s)	Action Code*	Tracking Number**

*Action Codes:

- 1 - Required for Operational Acceptance
- 2 - Required for Implementation. Requires an Engineering Hold per NOP-CC-2003
- 3 - Required to be issued concurrent with the change package
- 4 - Required for closeout of the activity
- 5 - Later - can be completed when responsible organization deems appropriate. **Requires a SAP Notification number

SECTION 3 - CONCLUSION Interface Not Required (Provide Justification) Interface Provided (Indicate if Final Review Required) Final Review RequiredInterface Evaluator (Print Name and Sign)
Slack, Bill *Bill Slack*Date
08/08/2008Approval*** (Print Name and Sign)
John TELAROLI *John Telaroli*Date
8/9/2008**SECTION 4 - COMPLETE FINAL REVIEW** Comments need to be resolved

Interface Evaluator

Date

 My comments/input have been properly incorporated and/or addressed.

Interface Evaluator

Date

*** Required for Engineering Organizations

**DESIGN INTERFACE EVALUATION**

NOP-CC-2004-07

Modification/Document/Activity ID

Calculation - PRDC-0015, A 02

Proposed Rev.

0

DIE No./Rev.

40 / 0

SECTION 1 - SUMMARY OF CHANGE & POTENTIAL IMPACT BV1 BV2 DB PY**To: Interfacing Organization**

Maintenance - Procedures

Point of Contact

Swartz, R

Mail Stop

PY-A165

Due Date

08/21/2008

From/Return To: Responsible Engineer

Chatterjee, Pari

Mail Stop

PY-A165

Phone

440-280-5209

DESCRIPTION OF CHANGE/AREAS OF CONCERN

Division 2 Battery Service Tests are conducted with:

SVI-R42-T5212, Division 2, Unit 1

SVI-R42-T5214, Division 2, Unit 2

The instructions are currently on hold and are in draft form awaiting the completion of changes to PRDC-0015.

SVI-R42-T5212 and SVI-R42-T5214 will be revised and released from Admin hold following the completion of PRDC-0015.

Reviewed for impact to Maintenance Procedures only.

SECTION 2 - RESPONSE

Refer to NOP-CC-2004, Section 4.2.1 and Attachment 1 for guidance.

DIRC IMPACT(s)

(Evaluate impact identified by the following questions from the Design Interface Checklist)

Topic / Ques No.	QUESTION
1.1 / 1	<p>Does the change impact any Maintenance procedure ? Examples include Corrective or Preventive maintenance procedures impacted by changes in stock codes or special tools or processes.</p> <p>IMPACT: Division 2 Battery Service Tests are conducted with: SVI-R42-T5212, Division 2, Unit 1 SVI-R42-T5214, Division 2, Unit 2</p> <p>The instructions are currently on hold and are in draft form awaiting the completion of changes to PRDC-0015.</p> <p>SVI-R42-T5212 and SVI-R42-T5214 will be revised and released from Admin hold following the completion of PRDC-0015.</p> <p>Reviewed for impact to Maintenance Procedures only.</p>

OTHER IMPACT(s)

(Evaluate impact from the following General and Subject Matter Expert level questions)

QUESTION
<p>Describe affect of proposed change on existing design basis.</p> <p>IMPACT: Division 2 Battery Service Tests are conducted with: SVI-R42-T5212, Division 2, Unit 1 SVI-R42-T5214, Division 2, Unit 2</p> <p>The instructions are currently on hold and are in draft form awaiting the completion of changes to PRDC-0015.</p> <p>SVI-R42-T5212 and SVI-R42-T5214 will be revised and released from Admin hold following the completion of PRDC-0015.</p> <p>Reviewed for impact to Maintenance Procedures only.</p>
<p>Describe impact on operational configuration, system interactions, and any other pertinent considerations. Identify required actions.</p> <p>IMPACT: Division 2 Battery Service Tests are conducted with: SVI-R42-T5212, Division 2, Unit 1 SVI-R42-T5214, Division 2, Unit 2</p> <p>The instructions are currently on hold and are in draft form awaiting the completion of changes to PRDC-0015.</p> <p>SVI-R42-T5212 and SVI-R42-T5214 will be revised and released from Admin hold following the completion of PRDC-0015.</p> <p>Reviewed for impact to Maintenance Procedures only.</p>

**DESIGN INTERFACE EVALUATION**

NOP-CC-2004-07

Modification/Document/Activity ID

Calculation - PRDC-0015, A 02

Proposed Rev.

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DIE No./Rev.

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Describe the affect on the current licensing basis for the system / structure / component (SSC) involved.

IMPACT: Division 2 Battery Service Tests are conducted with:

SVI-R42-T5212, Division 2, Unit 1

SVI-R42-T5214, Division 2, Unit 2

The instructions are currently on hold and are in draft form awaiting the completion of changes to PRDC-0015.

SVI-R42-T5212 and SVI-R42-T5214 will be revised and released from Admin hold following the completion of PRDC-0015.

Reviewed for impact to Maintenance Procedures only.

IF the change will add, modify, or delete equipment, components, systems, or processes that result in the need for personnel to acquire additional skills and knowledge, THEN complete the Affected Documents section below. Identify Training as the Document Type, assign an Action Code, and Responsible Organization.

IMPACT: Division 2 Battery Service Tests are conducted with:

SVI-R42-T5212, Division 2, Unit 1

SVI-R42-T5214, Division 2, Unit 2

The instructions are currently on hold and are in draft form awaiting the completion of changes to PRDC-0015.

SVI-R42-T5212 and SVI-R42-T5214 will be revised and released from Admin hold following the completion of PRDC-0015.

Reviewed for impact to Maintenance Procedures only.

Identify any limitations such as open assumptions or engineering holds. Identify what is restrained and what is required to release the hold.

IMPACT: Division 2 Battery Service Tests are conducted with:

SVI-R42-T5212, Division 2, Unit 1

SVI-R42-T5214, Division 2, Unit 2

The instructions are currently on hold and are in draft form awaiting the completion of changes to PRDC-0015.

SVI-R42-T5212 and SVI-R42-T5214 will be revised and released from Admin hold following the completion of PRDC-0015.

Reviewed for impact to Maintenance Procedures only.

Identify appropriate installation requirements and acceptance criteria for testing.

IMPACT: Division 2 Battery Service Tests are conducted with:

SVI-R42-T5212, Division 2, Unit 1

SVI-R42-T5214, Division 2, Unit 2

The instructions are currently on hold and are in draft form awaiting the completion of changes to PRDC-0015.

SVI-R42-T5212 and SVI-R42-T5214 will be revised and released from Admin hold following the completion of PRDC-0015.

Reviewed for impact to Maintenance Procedures only.

Identify potential failure mechanisms and failure consequences

IMPACT: Division 2 Battery Service Tests are conducted with:

SVI-R42-T5212, Division 2, Unit 1

SVI-R42-T5214, Division 2, Unit 2

The instructions are currently on hold and are in draft form awaiting the completion of changes to PRDC-0015.

SVI-R42-T5212 and SVI-R42-T5214 will be revised and released from Admin hold following the completion of PRDC-0015.

Reviewed for impact to Maintenance Procedures only.

Identify relevant design criteria and standards (including applicable revision/addenda).

IMPACT: Division 2 Battery Service Tests are conducted with:

SVI-R42-T5212, Division 2, Unit 1

SVI-R42-T5214, Division 2, Unit 2

The instructions are currently on hold and are in draft form awaiting the completion of changes to PRDC-0015.

SVI-R42-T5212 and SVI-R42-T5214 will be revised and released from Admin hold following the completion of PRDC-0015.

Reviewed for impact to Maintenance Procedures only.



DESIGN INTERFACE EVALUATION

NOP-CC-2004-07

Modification/Document/Activity ID

Calculation - PRDC-0015, A 02

Proposed Rev.

0

DIE No./Rev.

40 / 0

COMMENTS/ADDITIONAL INPUT/ INFORMATION

(Include observations, recommendations & suggestions not provided in response to the above questions)

Division 2 Battery Service Tests are conducted with:
SVI-R42-T5212, Division 2, Unit 1
SVI-R42-T5214, Division 2, Unit 2

The instructions are currently on hold and are in draft form awaiting the completion of changes to PRDC-0015.

SVI-R42-T5212 and SVI-R42-T5214 will be revised and released from Admin hold following the completion of PRDC-0015.

Reviewed for impact to Maintenance Procedures only.

AFFECTED DOCUMENTS LIST

List new and/or existing documents requiring issue/update as a result of this activity (e.g., drawings, procedures, databases, lesson plans, and vendor manuals). It is presumed the latest revision/version of the document was used when identifying the impact.

Document Type	Document ID	Unit	Rev.	Version	Document Owner/ Responsible Organization	Affected Functional Location(s)	Action Code*	Tracking Number**
Proced., non-eng	SVI-R42-T5212	1	7	-	Maintenance - Procedures	Enter FLOC	5	CR 08-39315
	Enter Document Here		-	-		Enter FLOC		NA
	Enter Document Here		-	-		Enter FLOC		NA
Proced., non-eng	SVI-R42-T5214	1	6	-	Maintenance - Procedures	Enter FLOC	5	CR 08-39315

*Action Codes:

- 1 - Required for Operational Acceptance
- 2 - Required for Implementation. Requires an Engineering Hold per NOP-CC-2003
- 3 - Required to be issued concurrent with the change package
- 4 - Required for closeout of the activity
- 5 - Later - can be completed when responsible organization deems appropriate. **Requires a SAP Notification number

SECTION 3 - CONCLUSION

Interface Not Required (Provide Justification)

Interface Provided (Indicate if Final Review Required)

Final Review Required

Interface Evaluator (Print Name and Sign)

Tom Santoni Tom

Date

8-7-08

Approval*** (Print Name and Sign)

NOT REQUIRED

Date

N/A

SECTION 4 - COMPLETE FINAL REVIEW

Comments need to be resolved

Interface Evaluator

Date

My comments/input have been properly incorporated and/or addressed.

Interface Evaluator

Date

*** Required for Engineering Organizations