

NRR-PMDAPEm Resource

From: Thompson, Russell R [rrthompson@tva.gov]
Sent: Tuesday, May 26, 2015 11:13 AM
To: Wyman, Stephen
Subject: FW: Advanced Response - WBN ESEP Clarifying Questions
Attachments: Advanced Response - WBN ESEP Clarifying Questions.docx; Attachment - Elevation Reference.docx

I meant to include you on the WBN distribution too.

Russell Thompson

Corporate Nuclear Licensing
W: 423/751-2567
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From: Thompson, Russell R
Sent: Tuesday, May 26, 2015 10:57 AM
To: 'DiFrancesco, Nicholas'
Subject: Advanced Response - WBN ESEP Clarifying Questions

Per our conversation, attached are the advanced responses to the clarifying questions on the WBN ESEP.

The formal response will be submitted in the near future.

Please call me if you have any questions.

Russell Thompson

Corporate Nuclear Licensing
W: 423/751-2567
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Clarifying Question 1

In the March 2014, Seismic Hazard and Screening Report for WBN, the licensee stated that the Safe Shutdown Earthquake (SSE) control point is at an elevation of 664 ft. mean sea level, while in the ESEP report the licensee stated that the SSE control point is at an elevation of 684 ft.

Please clarify the SSE control point elevation and discuss the impact of this elevation on the analyses provided in the ESEP report.

Response

The SSE control point elevation is 664 ft mean sea level as stated in the March 2014 Seismic Hazard and Screening Report for WBN. The ESEP statement that the SSE control point is at an elevation of 684 ft is a typographical error. The ESEP should state that the SSE control point is at an elevation of 664 ft, consistent with the March 2014 Seismic Hazard and Screening Report.

The typographical error in SSE control point elevation does not impact the analyses provided in the ESEP report.

Clarifying Question 2

The ESEP report does not provide elevations for the expedited seismic equipment list (ESEL) items and their mounting heights above grade level. Electric Power Research Institute (EPRI) NP-6041-SL states that elements shall be mounted less than 40 feet above grade level, otherwise, care shall be exercised in using this guidance.

Please provide the elevations for the ESEL items and their mounting heights above grade level, and clarify how these ESEL items are evaluated based on this stipulation regarding 40 feet in the EPRI guidance.

Response

The attached table provides the elevations for the ESEL items. At WBN grade level is 728 ft (FSAR 1.2.1.4 and 2.4).

The ESEL items were evaluated in accordance with the EPRI NP-6041-SL guidance and, as required by EPRI NP-6041, care was exercised in using the guidance for components mounted more than 40 feet above grade. For additional detail, please refer to Clarifying Question 4A.

Clarifying Question3

The ESEP report appears to contain some inconsistencies between the choice of the review level earthquake (RLE) and demand assessment. ESEP Section 5.2 states that the in-structure response spectra (ISRS) used in the updated individual plant examination of external events (IPEEE) are based on the NUREG-0098 median shape for rock with a peak ground acceleration (PGA) of 0.5g. ESEP Section 6.1 refers to the 1998 seismic margin assessment (SMA) of Unit 1 and the 2014 IPEEE Report for Unit 2 and states that “seismic demand was the IPEEE [RLE] for SMA (median NUREG/CR-0098 ground response spectrum for rock anchored to 0.3g PGA).”

Please clarify these two references to the demand. The NRC staff understands that the IPEEE process results that were used in compiling and assessing the ESEL were based on a demand spectrum anchored at 0.3g and not 0.5g.

Response

The IPEEE process results that were used in compiling and assessing the ESEL were based on a demand spectrum anchored at 0.5g. TVA’s Letter CNL-15-027 of March 20, 2015 submitted the IPEEE Final Report process results based on a demand spectrum anchored at 0.5g.

Clarifying Question 4

The ESEP report discusses that following the submittal of the IPEEE Reports, the high confidence of low probability of failure (HCLPF) capacity was updated using a more accurate approach that led to a minimum HCLPF of 0.5g for components of the IPEEE.

(A)Please discuss how the removal of conservatism affected the screening of IPEEE components since the submittal of the IPEEE Reports. **(B)**Clarify whether any items appearing in the ESEL were affected by the updated IPEEE HCLPF and were screened out as a result. **(C)**Please clarify which version of the IPEEE was used for the screening and presentation of HCLPF values.

Response4(A)

TVA’s March 20, 2015 submittal to the NRC (Letter CNL-15-027, WBN2 IPEEE Final Report) provides a detailed discussion of how the removal of conservatism affected the screening of IPEEE components. In all instances the approaches utilized were consistent with the guidance in EPRI NP-6041. Following is a discussion of highlights from the submittal.

A key part of the more accurate approach is the specification of seismic demand. The Set B+C new design/modification spectra were used in the WBN1 IPEEE program (1998, ref. 11) as the basis for defining seismic demand for equipment on the SSEL. Appropriate scale factors were used to boost those amplified response spectra (ARS) to the demand level of the RLE. These scale factors were also used for the WBN2 IPEEE Design Report of 2010

Response 4(A) (continued)

(submitted to NRC by letter dated April 30, 2010 - see NRC Adams document ML111960300) also for a screening level of 0.30g.

However, it was determined that the use of the enveloped WBN B+C design ARS as the basis for scaling of seismic demand loading in HCLPF capacity calculations introduces excessive conservatism.

As part of the more detailed analysis performed for the HCLPF capacity goal of 0.5g, median centered response analysis was utilized to determine the in-structure response spectra (ISRS) seismic demand for the WBN2 IPEEE Final Report, TVA's March 20, 2015 submittal to the NRC (Letter CNL-15-027).

The EPRI SMA guidelines are based on use of median centered response spectra, and not conservative design response spectra. The use of scaled WBN Set B+C design spectra was conservative for screening at the 0.30g HCLPF level. However, as noted above, use of the same WBN ARS at a higher scaled HCLPF level of 0.5g is excessively conservative.

The walkdown screening evaluations were conducted in consideration of the more demanding EPRI NP-6041 0.50g screening level. Walkdown of items unique to WBN2 was performed. In addition a walkby was performed for common items that were previously addressed in the WBN1 program. No outlier configurations or seismic concerns were noted by the walkdown. The governing potential seismic proximity interactions that were identified and evaluated as acceptable by the Integrated Interaction Program (IIP) were revisited for the increased seismic demand associated with 0.50g RLE. In all cases, the IIP conclusions remained valid for the increased seismic demand and were assigned a HCLPF capacity of at least 0.50g.

As a result of the walkdown screening evaluations, the Seismic Review Team (SRT) concurred that the limiting HCLPF capacity components were as identified by the WBN1 IPEEE program, and these components became the focus of the HCLPF evaluations.

These WBN1 HCLPF capacity calculations were reviewed in detail, in light of the target 0.50g RLE for WBN2.

The components that had a HCLPF capacity less than 0.50g based on the WBN1 review and are on the ESEL include:

Component on ESEL and HCLPF < 0.5g WBN1 Review	ESEL Item Number
6900V Shutdown Boards	23, 24, 200
480V Shutdown Board Transformers	57, 58, 59, 60
CCS Heat Exchangers	37, 38
480V RMOV Boards	49, 50, 51, 52
480V Control & Aux Boards	53, 54, 55, 56

Response 4(A) (continued)

With only one exception, all of the as-installed components were found to have a HCLPF capacity greater than 0.50g. The exception was the 480V Shutdown Board Transformers.

After the more detailed analysis, these Transformers fell short of the 0.50g target, so a modification was designed and installed in order to increase the seismic HCLPF capacity above 0.50g. Without this modification, HCLPF capacity was 0.41g. The modification involved replacement of the eight (8) base connection bolts with higher strength capacity bolts, on all of the 480V Shutdown Board Transformers. This modification was completed for all six (6) WBN2 Shutdown Board Transformers and all 6 WBN1 Shutdown Board Transformers.

For the components that had a HCLPF capacity less than 0.50g based on the WBN1 review and are on the ESEL, the updated HCLPF seismic capabilities exceed the target screening value of 0.5g, as summarized in “Table 2-3: WBN2 Updated HCLPF Seismic Capabilities” in the March 20, 2015 WBN2 IPEEE submittal:

Component on ESEL	HCLPF	Failure Mode
6900V Shutdown Boards	0.531g	Functionality
480V Shutdown Board Transformers	0.635g	Functionality
CCS Heat Exchangers	0.508g	Anchorage
480V RMOV Boards	0.560g	Structural Integrity
480V Control & Aux Boards	0.943g	Structural Integrity

However, the supporting calculation (ref. 12) for the WBN IPEEE HCLPF capacities has been revised. For four of the components, the revised HCLPF is larger. For one of the components, the 480V Control & Aux Boards, the revised HCLPF is still larger than the 0.5g target but smaller than the value reported in Table 2-3. In summary, for all five components, the revised HCLPF is far in excess of the target screening value of 0.5g.

HCLPF from Revised Supporting Calculations		
Component on ESEL	HCLPF	Failure Mode
6900V Shutdown Boards	0.567g	Functionality
480V Shutdown Board Transformers	0.854g	Functionality
CCS Heat Exchangers	0.575g	Anchorage
480V RMOV Boards	0.690g	Structural Integrity
480V Control & Aux Boards	0.890g	Structural Integrity

Response 4(A) (continued)

In addition to these more detailed HCLPF capacity evaluations, additional screening evaluations of equipment and systems for 0.50g RLE are required by the EPRI NP-6041 margins methodology and NUREG-1407. The additional screening evaluations pertinent to the ESEP are for active valves, heat exchangers and pressure vessels, and fans and air handlers. All items were screened as adequate for the 0.50g RLE.

Because of the HCLPF capacity evaluations performed for WBN2, TVA's March 20, 2015 submittal to the NRC concluded that the HCLPF capacity of WBN is $\geq 0.50g$ RLE, defined at rock outcrop per NUREG CR-0098 median shape rock spectrum.

Response 4(B)

In response to clarifying question 5, a column indicating "IPEEE" or "ESEP" has been added to Table B-1. If, for an item, the table indicates "IPEEE" and "Screened" and "> 0.5", then the item was affected by the updated IPEEE and screened out as a result.

The response to clarifying question 4A lists the components that had a HCLPF capacity less than 0.50g based on the 1998 WBN U1 review and the 2010 WBN2 IPEEE Design Report and are on the ESEL. For these components the original table only indicated "ESEL" and "Screened" and "> 0.5g" meaning that the ESEP was taking credit for the IPEEE work that increased the component's HCLPF to greater than 0.5g. For these components, the revised table now includes the IPEEE "Failure Mode" and HCLPF.

Response 4(C)

For items indicated as "IPEEE" in Table B-1, the version of the IPEEE submitted on March 20, 2015 was used for the screening and presentation of HCLPF values.

Clarifying Question 5

In listing the HCLPF values in Attachment B to the ESEP report for several ESEL items the value is not specified but identified as ">0.5[g]".

Please clarify and indicate on Table B-1 whether the items listed have been screened during the ESEP review or the IPEEE.

Response 5

To clarify Table B-1, a column indicating "IPEEE or ESEP" has been added.

If the table indicates "IPEEE" and "Screened" then the item was screened during the IPEEE review.

The response to clarifying question 4A lists the components that had a HCLPF capacity less than 0.50g based on the 1998 WBN1 and 2010 WBN2 reviews and are on the ESEL. For these components the original table only indicated "ESEL" and "Screened" and "> 0.5g" meaning that the ESEP was taking credit for the IPEEE work that increased the component's HCLPF to greater than 0.5g. For these components, the revised table now includes the IPEEE "Failure Mode" and HCLPF.

ATTACHMENT B

ESEP HCLPF VALUES AND FAILURE MODES TABULATION

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
1	WBN-1-PNL-099-R48-A	Solid State Protection System Train A	708	IPEEE	Screened	> 0.5	47W200-5 47W605-2
2	WBN-2-PNL-099-R50-B	Solid State Protection System Train B	708	IPEEE	Screened	> 0.5	
3	WBN-2-PNL-099-R2-D	Reactor Protection I Process System	708	IPEEE	Screened	> 0.5	
4	WBN-2-PNL-099-R48-A	Solid State Protection System Train A	708	IPEEE	Screened	> 0.5	
5	WBN-1-PNL-099-R50-B	Solid State Protection System Train B	708	IPEEE	Screened	> 0.5	
6	WBN-2-PNL-099-R6-E	Reactor Protection II Process System	708	IPEEE	Screened	> 0.5	
7	WBN-1-PNL-275-R179-A	ICCM System Train A CH 1	708	IPEEE	Screened	> 0.5	
8	WBN-2-PNL-275-R179-A	Common Q PAMS Panel Train A	708	IPEEE	Screened	> 0.5	
9	WBN-1-PNL-275-R180-B	ICCM System Train B CH 2	708	IPEEE	Screened	> 0.5	
10	WBN-2-PNL-275-R180-B	Common Q PAMS Panel Train B	708	IPEEE	Screened	> 0.5	
11	WBN-2-HIC-068-396	RX HEAD VENT FLOW CONTROL	755	IPEEE	Screened	> 0.5	47W605-1 M4
12	WBN-2-PNL-099-R46-A	Solid State Protection System Train A	708	IPEEE	Screened	> 0.5	47W200-5 47W605-2
13	WBN-2-PNL-099-R49-B	Solid State Protection System Train B	708	IPEEE	Screened	> 0.5	
14	WBN-2-PNL-099-R6-E	Reactor Protection II Process System	708	IPEEE	Screened	> 0.5	
15	WBN-1-ACUM-063-0001	SIS Accumulator Tank 1	716	IPEEE	Screened	> 0.5	47W200-14

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
16	WBN-1-ACUM-063-0002	SIS Accumulator Tank 2	716	IPEEE	Screened	> 0.5	
17	WBN-1-ACUM-063-0003	SIS Accumulator Tank 3	716	IPEEE	Screened	> 0.5	47W200-14
18	WBN-1-ACUM-063-0004	SIS Accumulator Tank 4	716	IPEEE	Screened	> 0.5	
19	WBN-0-BAT-236-0001-D	125 V Vital Battery I	772	IPEEE	Screened	> 0.5	45N218
20	WBN-0-BAT-236-0002-E	125 V Vital Battery II	772	IPEEE	Screened	> 0.5	45W202
21	WBN-0-BAT-236-0003-F	125 V Vital Battery III	772	IPEEE	Screened	> 0.5	
22	WBN-0-BAT-236-0004-G	125 V Vital Battery IV	772	IPEEE	Screened	> 0.5	
23	WBN-1-BD-211-A-A	6.9 KV Shutdown Board 1A-A	757	IPEEE	Screened	> 0.5	45W204
24	WBN-2-BD-211-B-B	6.9 KV Shutdown Board 2B-B	757	IPEEE	Screened	> 0.5	
25	WBN-1-BD-212-A001-A	480V Shutdown Board 1A1-A	757	IPEEE	Screened	> 0.5	
26	WBN-2-BD-212-A001-A	480V Shutdown Board 2A1-A	757	IPEEE	Screened	> 0.5	
27	WBN-1-BD-212-A002-A	480V Shutdown Board 1A2-A	757	IPEEE	Screened	> 0.5	
28	WBN-2-BD-212-B002-B	480V Shutdown Board 2B2-B	757	IPEEE	Screened	> 0.5	
29	WBN-0-BD-236-0001-D	125V Vital Battery Board I	757	IPEEE	Screened	> 0.5	
30	WBN-0-BD-236-0002-E	125V Vital Battery Board II	757	IPEEE	Screened	> 0.5	
31	WBN-0-BD-236-0003-F	125V Vital Battery Board III	757	IPEEE	Screened	> 0.5	
32	WBN-0-BD-236-0004-G	125V Vital Battery Board IV	757	IPEEE	Screened	> 0.5	
33	WBN-0-CHGR-236-0001-D	125 V Vital Battery Charger I	772	IPEEE	Screened	> 0.5	45W202
34	WBN-0-CHGR-236-0002/E	125 V Vital Battery Charger	772	IPEEE	Screened	> 0.5	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
		II					
35	WBN-0-CHGR-236-0003/F	125 V Vital Battery Charger III	772	IPEEE	Screened	> 0.5	
36	WBN-0-CHGR-236-0004/G	125 V Vital Battery Charger IV	772	IPEEE	Screened	> 0.5	45W202
37	WBN-1-HTX-070-0185	CCS HEAT EXCHANGER A	737	IPEEE	Screened	> 0.5	47W200-8
38	WBN-2-HTX-070-0185	CCS HEAT EXCHANGER B	737	IPEEE	Screened	> 0.5	
39	WBN-1-HTX-074-0030-A	RHR HEAT EXCHANGER 1A	713	IPEEE	Screened	> 0.5	47W200-5
40	WBN-2-HTX-074-0031-A	RHR HEAT EXCHANGER 2A	713	IPEEE	Screened	> 0.5	
41	WBN-1-INV-235-0001-D	120 V AC Vital Inverter 1-I	772	IPEEE	Screened	> 0.5	45W202
42	WBN-2-INV-235-0001-D	120 V AC Vital Inverter 2-I	772	IPEEE	Screened	> 0.5	
43	WBN-1-INV-235-0002-E	120 V AC Vital Inverter 1-II	772	IPEEE	Screened	> 0.5	
44	WBN-2-INV-235-0002-E	120 V AC Vital Inverter 2-II	772	IPEEE	Screened	> 0.5	
45	WBN-1-INV-235-0003-F	120 V AC Vital Inverter 1-III	772	IPEEE	Screened	> 0.5	
46	WBN-2-INV-235-0003-F	120 V AC Vital Inverter 2-III	772	IPEEE	Screened	> 0.5	
47	WBN-1-INV-235-0004-G	120 V AC Vital Inverter 1-IV	772	IPEEE	Screened	> 0.5	
48	WBN-2-INV-235-0004-G	120 V AC Vital Inverter 2-IV	772	IPEEE	Screened	> 0.5	
49	WBN-1-MCC-213-A001-A	480V Reactor MOV Board 1A1-A	772	IPEEE	Screened	> 0.5	45W202
50	WBN-2-MCC-213-A001-A	480V Reactor MOV Board 2A1-A	772	IPEEE	Screened	> 0.5	
51	WBN-1-MCC-213-B001-B	480V Reactor MOV Board 1B1-	772	IPEEE	Screened	> 0.5	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
		B					
52	WBN-2-MCC-213-B001-B	480V Reactor MOV Board 2B1-B	772	IPEEE	Screened	> 0.5	
53	WBN-1-MCC-214-A001-A	Cont& Aux Bldg Vent Board 1A1-A	757	IPEEE	Screened	> 0.5	45W204
54	WBN-2-MCC-214-B001-B	Cont& Aux Bldg Vent Board 2B1-B	757	IPEEE	Screened	> 0.5	45W204
55	WBN-1-MCC-214-A002-A	Cont& Aux Bldg Vent Board 1A2-A	757	IPEEE	Screened	> 0.5	
56	WBN-2-MCC-214-B002-B	Cont& Aux Bldg Vent Board 2B2-B	757	IPEEE	Screened	> 0.5	
57	WBN-1-OXF-212-A001-A	480 V Transformer 1A1-A	772	IPEEE	Screened	> 0.5	45W202
58	WBN-2-OXF-212-A001-A	480 V Transformer 2A1-A	772	IPEEE	Screened	> 0.5	
59	WBN-1-OXF-212-A002-A	480 V Transformer 1A2-A	772	IPEEE	Screened	> 0.5	
60	WBN-2-OXF-212-B002-B	480 V Transformer 2B2-B	772	IPEEE	Screened	> 0.5	
61	WBN-1-PMP-062-0108-A	Centrifugal Charging Pump 1A-A	692	IPEEE	Screened	> 0.5	47W200-6, 9
62	WBN-2-PMP-062-0108-A	Centrifugal Charging Pump 2A-A	692	IPEEE	Screened	> 0.5	
63	WBN-1-PMP-063-0010-A	SAFETY INJECTION PUMP 1A-A	692	IPEEE	Screened	> 0.5	
64	WBN-2-PMP-063-0015-A	SAFETY INJECTION PUMP 2A-A	692	IPEEE	Screened	> 0.5	
65	WBN-1-PMP-070-0046-A	Component Cooling System Pump 1A-A	713	IPEEE	Screened	> 0.5	47W200-5, 8

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
66	WBN-2-PMP-070-0059-A	Component Cooling System Pump 2A-A	713	IPEEE	Screened	> 0.5	
67	WBN-1-PMP-074-0010-A	RHR PUMP 1A-A	676	IPEEE	Screened	> 0.5	47W200-7
68	WBN-2-PMP-074-0020-B	RHR PUMP 2B-B	676	IPEEE	Screened	> 0.5	
69	WBN-1-PNL-276-L011A	Steam Generator Level Control Panel	757	IPEEE	Screened	> 0.5	47W600-2
70	WBN-2-PNL-276-L011A	Steam Generator Level Control Panel	757	IPEEE	Screened	> 0.5	
71	WBN-1-PNL-276-L011B	Steam Generator Level Control Panel	757	IPEEE	Screened	> 0.5	
72	WBN-2-PNL-276-L011B	Steam Generator Level Control Panel	757	IPEEE	Screened	> 0.5	
73	WBN-1-PNL-278-M003	UNIT CONT. BOARD PNL 1-M-3	755	IPEEE	Screened	> 0.5	47W605-1
74	WBN-2-PNL-278-M003	UNIT CONT. BOARD PNL 2-M-3	755	IPEEE	Screened	> 0.5	
75	WBN-1-PNL-278-M004	UNIT CONT. BOARD PNL 1-M-4	755	IPEEE	Screened	> 0.5	
76	WBN-2-PNL-278-M004	UNIT CONT. BOARD PNL 2-M-4	755	IPEEE	Screened	> 0.5	
77	WBN-1-PNL-278-M010	TEMPERATURE MONITORING	755	IPEEE	Screened	> 0.5	
78	WBN-2-PNL-278-M010	TEMPERATURE MONITORING	755	IPEEE	Screened	> 0.5	
79	WBN-1,2-TANK-018-0038, 41	7 Day Fuel Oil Sup Dsl Gen	738	IPEEE	Screened	> 0.5	10N320-5
80	WBN-1-TANK-063-0046	Refueling Water Storage Tank	729	IPEEE	Screened	> 0.5	41N363-3

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
81	WBN-2-TANK-063-0046	Refueling Water Storage Tank	729	IPEEE	Screened	> 0.5	
82	WBN-1-TANK-070-0001	Component Cooling Water Surge Tank	757	IPEEE	Screened	> 0.5	47W200-3, 9
83	WBN-2-TANK-070-0001	Component Cooling Water Surge Tank	757	IPEEE	Screened	> 0.5	
84	WBN-1-FCV-062-0063-A	CVCS SEAL WATER RETURN HEADER ISOL	720	IPEEE	Screened	> 0.5	U1 SSEL page A61
85	WBN-2-FCV-062-0063-A	CVCS SEAL WATER RETURN HEADER ISOL	720	IPEEE	Screened	> 0.5	U1 SSEL page A61
86	WBN-1-FCV-063-0067	Accumulator Isolation Valve 4	716	IPEEE	Screened	> 0.5	47W435-5
87	WBN-2-FCV-063-0067	Accumulator Isolation Valve 4	716	IPEEE	Screened	> 0.5	
88	WBN-1-FCV-063-0080	Accumulator Isolation Valve 3	716	IPEEE	Screened	> 0.5	47W435-4
89	WBN-2-FCV-063-0080	Accumulator Isolation Valve 3	716	IPEEE	Screened	> 0.5	
90	WBN-1-FCV-067-0083	LWR CNTMT A CLRS SUP CIV	719	IPEEE	Screened	> 0.5	U1 SSEL page A75
91	WBN-1-FCV-063-0098	Accumulator Isolation Valve 2	716	IPEEE	Screened	> 0.5	47W435-5
92	WBN-2-FCV-063-0098	Accumulator Isolation Valve 2	716	IPEEE	Screened	> 0.5	
93	WBN-1-FCV-063-0118	Accumulator Isolation Valve 1	716	IPEEE	Screened	> 0.5	
94	WBN-2-FCV-063-0118	Accumulator Isolation Valve 1	716	IPEEE	Screened	> 0.5	
95	WBN-2-FCV-067-0083	LWR CNTMT A CLRS SUP CIV	719	IPEEE	Screened	> 0.5	IPEEE SSEL
96	WBN-1-FCV-067-0091	LWR CNTMT C CLRS SUP CIV	719	IPEEE	Screened	> 0.5	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
97	WBN-2-FCV-067-0091	LWR CNTMT C CLRS SUP CIV	719	IPEEE	Screened	> 0.5	
98	WBN-1-FCV-067-0099	LWR CNTMT B CLRS SUP CIV	720	IPEEE	Screened	> 0.5	
99	WBN-2-FCV-067-0099	LWR CNTMT B CLRS SUP CIV	720	IPEEE	Screened	> 0.5	
100	WBN-1-FCV-067-0107	LWR CNTMT D CLRS SUP CIV	715	IPEEE	Screened	> 0.5	
101	WBN-2-FCV-067-0107	LWR CNTMT D CLRS SUP CIV	715	IPEEE	Screened	> 0.5	
102	WBN-1-FCV-067-0130	UPR CNTMT CLR A SUP CIV	795	IPEEE	Screened	> 0.5	
103	WBN-2-FCV-067-0130	UPR CNTMT CLR A SUP CIV	795	IPEEE	Screened	> 0.5	IPEEE SSEL
104	WBN-1-FCV-067-0133	UPR CNTMT CLR C SUP CIV	798	IPEEE	Screened	> 0.5	
105	WBN-2-FCV-067-0133	UPR CNTMT CLR C SUP CIV	798	IPEEE	Screened	> 0.5	
106	WBN-1-FCV-067-0138	UPR CNTMT CLR B SUP CIV	798	IPEEE	Screened	> 0.5	
107	WBN-2-FCV-067-0138	UPR CNTMT CLR B SUP CIV	798	IPEEE	Screened	> 0.5	
108	WBN-1-FCV-067-0141	UPR CNTMT CLR D SUP CIV	795	IPEEE	Screened	> 0.5	
109	WBN-2-FCV-067-0141	UPR CNTMT CLR D SUP CIV	795	IPEEE	Screened	> 0.5	
110	WBN-2-FCV-067-0143	CCS HX DISCH to HDR B	737	IPEEE	Screened	> 0.5	
111	WBN-1-FCV-067-0143	CCS HX DISCH to HDR B	737	IPEEE	Screened	> 0.5	
112	WBN-0-FCV-067-0144	CCS HX C DISCH to HDR A	737	IPEEE	Screened	> 0.5	
113	WBN-2-FCV-068-0332-B	PRESSURIZER PORV BLOCK VALVE	786	IPEEE	Screened	> 0.5	47W465-211
114	WBN-1-FCV-068-0333	PRESSURIZER PORV BLOCK VALVE	786	IPEEE	Screened	> 0.5	
115	WBN-1-FCV-070-0090-A	RC Pump Therm Barrier Ret CNTNMT Isol	722	IPEEE	Screened	> 0.5	IPEEE SSEL

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
116	WBN-2-FCV-070-0090-A	RC Pump Therm Barrier Ret CNTNMT Isol	722	IPEEE	Screened	> 0.5	47W427-4
117	WBN-1-FCV-070-0133-A	RC Thermal Barrier ContIsol Valve	741	IPEEE	Screened	> 0.5	
118	WBN-2-FCV-070-0133-A	RC Thermal Barrier ContIsol Valve	741	IPEEE	Screened	> 0.5	
119	WBN-2-LCV-002-0173-B	TD AFW PUMP SG # 2 Level Control	737	IPEEE	Screened	> 0.5	
120	WBN-1-LCV-003-0172-A	TD AFW PUMP SG # 3 Level Control	737	IPEEE	Screened	> 0.5	
121	WBN-2-LCV-003-0172-A	TD AFW PUMP SG # 3 Level Control	737	IPEEE	Screened	> 0.5	
122	WBN-1-LCV-003-0173-B	TD AFW PUMP SG # 2 Level Control	737	IPEEE	Screened	> 0.5	
123	WBN-1-LCV-003-0174-B	TD AFW PUMP SG # 1 Level Control	729	IPEEE	Screened	> 0.5	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
124	WBN-2-LCV-003-0174-B	TD AFW PUMP SG # 1 Level Control	729	IPEEE	Screened	> 0.5	
125	WBN-1-LCV-003-0175-A	TD AFW PUMP SG # 4 Level Control	729	IPEEE	Screened	> 0.5	
126	WBN-2-LCV-003-0175-A	TD AFW PUMP SG # 4 Level Control	729	IPEEE	Screened	> 0.5	46W427-4
127	WBN-1-PCV-001-0005-T	SG 1Main STM HDR PWR Relief Control Valve	762	IPEEE	Screened	> 0.5	47W400-2
128	WBN-2-PCV-001-0005-T	SG 1Main STM HDR PWR Relief Control Valve	762	IPEEE	Screened	> 0.5	
129	WBN-1-PCV-001-0012-T	SG 2 Main STM HDR PWR Relief Control Valve	762	IPEEE	Screened	> 0.5	
130	WBN-2-PCV-001-0012-T	SG 2 Main STM HDR PWR Relief Control Valve	762	IPEEE	Screened	> 0.5	
131	WBN-1-PCV-001-0023-T	SG 3 Main STM HDR PWR Relief Control Valve	762	IPEEE	Screened	> 0.5	
132	WBN-2-PCV-001-0023-T	SG 3 Main STM HDR PWR Relief Control Valve	762	IPEEE	Screened	> 0.5	
133	WBN-1-PCV-001-0030-T	SG 4Main STM HDR PWR Relief Control Valve	762	IPEEE	Screened	> 0.5	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
134	WBN-2-PCV-001-0030-T	SG 4Main STM HDR PWR Relief Control Valve	762	IPEEE	Screened	> 0.5	
135	WBN-2-PCV-068-0334	PRESSURIZER PORV	783	IPEEE	Screened	> 0.5	47w465-2
136	WBN-1-PCV-068-0340A	PRESSURIZER PORV	783	IPEEE	Screened	> 0.5	
137	WBN-1-SFV-001-0512	Steam Generator #3 Main Steam Safety Valve	729	IPEEE	Screened	> 0.5	47W400-2
138	WBN-2-SFV-001-0512	Steam Generator #3 Main Steam Safety Valve	729	IPEEE	Screened	> 0.5	
139	WBN-1-SFV-001-0517	Steam Generator #2 Main Steam Safety Valve	729	IPEEE	Screened	> 0.5	47W400-2
140	WBN-2-SFV-001-0517	Steam Generator #2 Main Steam Safety Valve	729	IPEEE	Screened	> 0.5	
141	WBN-1-SFV-001-0522	Steam Generator #1 Main Steam Safety Valve	729	IPEEE	Screened	> 0.5	
142	WBN-2-SFV-001-0522	Steam Generator #1 Main Steam Safety Valve	729	IPEEE	Screened	> 0.5	
143	WBN-1-SFV-001-0527	Steam Generator #4 Main Steam Safety Valve	729	IPEEE	Screened	> 0.5	
144	WBN-2-SFV-001-0527	Steam Generator #4 Main Steam Safety Valve	729	IPEEE	Screened	> 0.5	
145	WBN-1-FAN-030-0038	Containment Air Return Fan A-A	740	IPEEE	Screened	> 0.5	47W915-5
146	WBN-2-FAN-030-0039	Containment Air Return Fan B-B	740	IPEEE	Screened	> 0.5	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
147	WBN-1-EI-235-001/A1	AC OUTPUT AMMETER INVERTER 1-I	772	IPEEE	Screened	> 0.5	45N218
148	WBN-1-BD-235-0001-D	120 V AC Vital Instrument Power Board 1-I	757	IPEEE	Screened	> 0.5	
149	WBN-1-EI-235-002/A1	AC OUTPUT AMMETER INVERTER 1-II	772	IPEEE	Screened	> 0.5	
150	WBN-1-BD-235-0002-E	120 V AC Vital Instrument Power Board 1-II	757	IPEEE	Screened	> 0.5	
151	WBN-1-BD-235-0003-F	120 V AC Vital Instrument Power Board 1-III	757	IPEEE	Screened	> 0.5	
152	WBN-1-BD-235-0004-G	120 V AC Vital Instrument Power Board 1-IV	757	IPEEE	Screened	> 0.5	
153	WBN-1-CLR-062-0108A-A	CCP 1A-A LUBE OIL COOLER	692	IPEEE	Screened	> 0.5	
154	WBN-1-CLR-062-0108B-A	CCP 1A-A GEAR OIL COOLER	692	IPEEE	Screened	> 0.5	
155	WBN-1-CLR-063-0010	SAFETY INJECTION PUMP 1A-A LUBE OIL COOLER	692	IPEEE	Screened	> 0.5	
156	WBN-1-CLR-072-0027	CNTMT SPRAY PUMP 1A-A OIL COOLER	676	IPEEE	Screened	> 0.5	47W200-7
157	WBN-1-HTX-074-0010-A	RHR PUMP 1A-A SEAL WATER HEAT EXCHANGER	676	IPEEE	Screened	> 0.5	
158	WBN-1-XS-003-0172A-A	STM GEN #3 TRF SW	757	IPEEE	Screened	> 0.5	47W600-2
159	WBN-1-XS-003-0175A-A	STM GEN #4 TRF SW	757	IPEEE	Screened	> 0.5	L11A and L11B Aux Control Room Panels
160	WBN-1-XS-003-0173A-B	STM GEN #2 TRF SW	757	IPEEE	Screened	> 0.5	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
161	WBN-1-XS-003-0174A-B	STM GEN #1 TRF SW	757	IPEEE	Screened	> 0.5	
162	WBN-1-XI-046-57	TURB AFWP DEMAND	755	IPEEE	Screened	> 0.5	47W605-1
163	WBN-1-FIC-046-0057A-S	AUX FPT FLOW IND CONTROLLER	755	IPEEE	Screened	> 0.5	Main Control Room Panels
164	WBN-1-HS-046-0056A-S	TD AFW PMP Trip/Throttle Valve Handswitch AUTO MAN REMOTE SP FOR FIC-46-57B	755	IPEEE	Screened	> 0.5	
165	WBN-1-SI-046-0056A-S	AFWT A-S SPEED	755	IPEEE	Screened	> 0.5	
166	WBN-1-XI-046-0054A	AFWT A-S MOP POSITION	755	IPEEE	Screened	> 0.5	
167	WBN-1-XI-068-0100	Plasma Display	755	IPEEE	Screened	> 0.5	
168	WBN-1-XS-068-0101	Plasma Display Key Pad	755	IPEEE	Screened	> 0.5	
169	WBN-1-HS-068-340A-A	RCS PRZR PWR RELIEF VALVE	755	IPEEE	Screened	> 0.5	
170	WBN-2-CPU-094-6000	Common Q operator Module Node Box	755	IPEEE	Screened	> 0.5	47W605-1
171	WBN-2-FOC-094-4001A	Common Q first modem	755	IPEEE	Screened	> 0.5	Main Control Room Panels
172	WBN-1-HIC-068-397	RX HEAD VENT FLOW CONTROL	755	IPEEE	Screened	> 0.5	
173	WBN-2-HS-063-0015A	SIS PUMP B-B MOTOR	755	IPEEE	Screened	> 0.5	
174	WBN-1-HS-063-0010A	SIS PUMP A-A MOTOR	755	IPEEE	Screened	> 0.5	
175	WBN-1-HS-030-0038A	AIR RET FAN A-A ON/OFF	755	IPEEE	Screened	> 0.5	
176	WBN-2-HS-030-0039B	AIR RET FAN B-B ON/OFF	755	IPEEE	Screened	> 0.5	
177	WBN-2-EI-235-001/A1	AC OUTPUT AMMETER INVERTER 2-I	772	IPEEE	Screened	> 0.5	45N218

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
178	WBN-2-BD-235-0001-D	120 V AC Vital Instrument Power Board 2-I	757	IPEEE	Screened	> 0.5	
179	WBN-2-BD-235-0002-E	120 V AC Vital Instrument Power Board 2-II	757	IPEEE	Screened	> 0.5	
180	WBN-2-EI-235-002/A1	AC OUTPUT AMMETER INVERTER 2-II	772	IPEEE	Screened	> 0.5	
181	WBN-2-BD-235-0003-F	120 V AC Vital Instrument Power Board 2-III	757	IPEEE	Screened	> 0.5	
182	WBN-2-BD-235-0004-G	120 V AC Vital Instrument Power Board 2-IV	757	IPEEE	Screened	> 0.5	
183	WBN-2-CLR-062-0108A-A	CCP 2A-A LUBE OIL COOLER	692	IPEEE	Screened	> 0.5	47W600-6, 9
184	WBN-2-CLR-062-0108B-A	CCP 2A-A GEAR OIL COOLER	692	IPEEE	Screened	> 0.5	
185	WBN-2-CLR-063-0010	SAFETY INJECTION PUMP 2A-A LUBE OIL COOLER	692	IPEEE	Screened	> 0.5	
186	WBN-2-CLR-072-0027	CNTMT SPRAY PUMP 2A-A OIL COOLER	676	IPEEE	Screened	> 0.5	47W200-7
187	WBN-2-HTX-074-0010-A	RHR PUMP 2A-A SEAL WATER HEAT EXCHANGER	676	IPEEE	Screened	> 0.5	
188	WBN-2-XS-003-0172A-A	STM GEN #3 TRF SW	757	IPEEE	Screened	> 0.5	47W600-2
189	WBN-2-XS-003-0175A-A	STM GEN #4 TRF SW	757	IPEEE	Screened	> 0.5	Aux Instrument Room
190	WBN-2-XS-003-0173A-B	STM GEN #2 TRF SW	757	IPEEE	Screened	> 0.5	Panels L11A L11B
191	WBN-2-XS-003-0174A-B	STM GEN #1 TRF SW	757	IPEEE	Screened	> 0.5	
192	WBN-2-XI-046-57	TURB AFWP DEMAND	755	IPEEE	Screened	> 0.5	47W605-1

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
193	WBN-2-FIC-046-0057A-S	AUX FPT FLOW IND CONTROLLER	755	IPEEE	Screened	> 0.5	Main Control Room Panels
194	WBN-2-HS-046-0056A-S	TD AFW PMP Trip/Throttle Valve Handswitch AUTO MAN REMOTE SP FOR FIC-46-57B	755	IPEEE	Screened	> 0.5	
195	WBN-2-SI-046-0056A-S	AFWT A-S SPEED	755	IPEEE	Screened	> 0.5	
196	WBN-2-XI-046-0054A	AFWT A-S MOP POSITION	755	IPEEE	Screened	> 0.5	
197	WBN-2-HS-068-333A	RCS PRZR REL FLOW CONTROL	755	IPEEE	Screened	> 0.5	
198	WBN-2-HIC-068-397	RX HEAD VENT FLOW CONTROL	755	IPEEE	Screened	> 0.5	
199	WBN-2-MON-068-0110	Plasma Touch Screen Display	755	IPEEE	Screened	> 0.5	
200	WBN-2-BD-211-A	6.9 KV Shutdown Board 2A-A	757	IPEEE	Screened	> 0.5	45W204
201	WBN-2-ACUM-063-0001	SIS Accumulator Tank 1	716	IPEEE	Screened	> 0.5	47W200-14
202	WBN-2-ACUM-063-0002	SIS Accumulator Tank 2	716	IPEEE	Screened	> 0.5	
203	WBN-2-ACUM-063-0003	SIS Accumulator Tank 3	716	IPEEE	Screened	> 0.5	47W200-14
204	WBN-2-ACUM-063-0004	SIS Accumulator Tank 4	716	IPEEE	Screened	> 0.5	
205	WBN-1-HIC-068-396	RX HEAD VENT FLOW CONTROL	755	IPEEE	Screened	> 0.5	47W605-1 Main Control Room
206	WBN-1-PNL-099-R2-D	Reactor Protection I Process System	708	IPEEE	Screened	> 0.5	47W605-2
207	WBN-1-PNL-099-R46-A	Solid State Protection System Train A	708	IPEEE	Screened	> 0.5	
208	WBN-1-PNL-099-R49-B	Solid State Protection System Train B	708	IPEEE	Screened	> 0.5	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
209	WBN-1-PNL-099-R6-E	Reactor Protection II Process System	708	IPEEE	Screened	> 0.5	
210	WBN-1-PMP-072-0027-A	Containment Spray Pump 1A-A	676	IPEEE	Screened	> 0.5	
211	WBN-2-PI-001-0027D	MAIN STEAM LOOP 4 PRESSURE (typical for each SG)	692	ESEP	Anchorage	0.56	
212	WBN-2-HS-046-0056B-S	TD AFW PMP TRIP/THV 2-FCV-1-51 POS CNTL	692	ESEP	Functionality	0.57	
213	WBN-2-PS-002-0321	Pressure Switch to open U2 AOV 2-FCV-3-6386 from AFW Supply Tank upon low pressure in U1 Condensate supply piping.	723	ESEP	Functionality	0.83	47W420-6
214	WBN-2-FSV-003-6386	Solenoid valve to open U1 AFW Supply Tank insulation Valve 1-FCV-306386	723	ESEP	Functionality	0.83	47W600-409
215	WBN-1-FT-63-151	Safety Injection Pump Flow	692	ESEP	Anchorage	0.52	47W600-136, 325
216	WBN-2-FT-63-20	Safety Injection Pump Flow	692	ESEP	Anchorage	0.52	47W600-136,325
217	WBN-1-PI-001-0027D	MAIN STEAM LOOP 4 PRESSURE (typical for each SG)	692	ESEP	Anchorage	0.56	L-381
218	WBN-1-HS-046-0056B-S	TD AFW PMP TRIP/THV 1-FCV-1-51 POS CNTL	692	ESEP	Functionality	0.57	
219	WBN-0-HS-360-0103C	Fuel Oil Transfer Pmp A Emer Stop SW	742	ESEP	Anchorage	0.66	15W814-1

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
220				Not Used			
221	WBN-0-PMP-360-103, 203	Fuel Oil System Transfer Pump	742	ESEP	Anchorage	0.66	Maxim Location
222	WBN-0-LIT-003-227	Level Indicating Transmitter for the AFW Supply Tank and High/Low Level Alarms	729	ESEP	Anchorage	0.51	47W600-408
223	WBN-0-FU1-360-0103A	Primary Cntrl Fuse for Fuel Oil Pump A Starter	742	ESEP	Anchorage	0.5	Boxed with Item 267
224	WBN-0-FU1-360-0103B	Secondary Cntrl Fuse for Fuel Oil Pump A Starter	742	ESEP	Anchorage	0.5	
225	WBN-0-FU1-360-0103C	Primary Cntrl Fuse for Fuel Oil Pump A Starter	742	ESEP	Anchorage	0.5	
226	WBN-0-FUDS-360-FP/AM	480 V FLEX Main Panel A - Main - Disconnect	772	ESEP	Functionality	0.57	45W758-2 45W202
227	WBN-0-FUDS-360-FP/BM	480 v FLEX Main Panel B - Main - Disconnect	772	ESEP	Functionality	0.57	
228	WBN-0-XSW-236-0004-S	480v AC Vital Transfer Switch IV	772	ESEP	Functionality	0.89	45W709-2
229	WBN-0-XSW-236-0003-S	480v AC Vital Transfer Switch III	772	ESEP	Functionality	0.89	
230	WBN-0-XSW-236-0002-S	480v AC Vital Transfer Switch II	772	ESEP	Functionality	0.89	45W709-2
231	WBN-0-XSW-236-0001-S	480v AC Vital Transfer Switch I	772	ESEP	Functionality	0.89	
232	WBN-0-GNGC-360-DG/A	480 V FLEX DG A Neutral Grounding Resistor Box	786	ESEP	Functionality	0.57	Refer to Item 342
233	WBN-0-BKR-360-DG/A, B	480 V FLEX DG A - Circuit Breaker			Functionality	0.57	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
234	WBN-1-HTR-268- various	Hydrogen Igniters Group A - 34 igniters	Various	ESEP	screened (rugged)	0.5	
235	WBN-2-HTR-268- various	Hydrogen Igniters Group B - 34 igniters	Various	ESEP	screened (rugged)	0.5	
236	WBN-0-RFV-003-0005	Conservation vent valve for the AFW Supply Tank.	729	ESEP	screened (Table 2.4)	0.5	Refer to Item 304 AFW Supply Tank
237	WBN-1-FCV-001-0052	TD Aux FeedwaterPmp Governor Valve	692	IPEEE	screened	0.5	47W200-2, 9
238	WBN-2-FCV-001-0052	TD Aux FeedwaterPmp Governor Valve	692	IPEEE	screened	0.5	
239	WBN-0-PI-003-1	Pressure indicator for the AFW Supply Tank	729	ESEP	screened (rugged)	0.5	47W600-408
240	WBN-1-PS-002-0320	Pressure Switch to open U1 AOV 1-FCV-3-6386 from AFW Supply Tank upon low pressure in U1 Condensate supply piping.	723	ESEP	screened (rugged)	0.5	47W420-6
241	WBN-0-BD-360-0003A, 3B	3MW Diesel Generator 3A 6.9KV Switchgear	742	ESEP	Functionality	0.68	FESB
242	WBN-2-DXF-268-0002-B	Hydrogen Mitigation Transformer	782	ESEP	Anchorage	0.51	45N226-1
243	WBN-1-DXF-268-0001-A	Hydrogen Mitigation Transformer	782	ESEP	Anchorage	0.51	
244	WBN-0-DXF-360-DG/AP, BP	480 V FLEX DG 2 KVA Sealed XFMR	742	ESEP	Functionality	0.57	Rizzo HCLPF calc page 46

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
245	WBN-0-XFMR-360-3A/1, 3B/1	6900V 3MW FLEX Diesel GEN 20 KVA Dry Type Transformer	742	ESEP	Functionality	0.67	0-15W860-1
246	WBN-0-XFMR-360-3A/2, 3B/2	6900V 3MW FLEX Diesel GEN 5 KVA Dry Type Transformer	742	ESEP	Functionality	0.57	Rizzo HCLPF calc page 75
247	WBN-1-PNL-276-L381	TDAFWP Control Panel	792	ESEP	Anchorage	0.56	
248	WBN-2-PNL-276-L381	TDAFWP Control Panel	792	ESEP	Anchorage	0.56	
249	WBN-0-PNL-360-DG/A1	Fuel Oil Transfer Pump Control Panel	742	ESEP	Functionality	0.65	Rizzo HCLPF calc page 86, 104 group 3
250	WBN-0-XSW-236-0001A-S	125V Vital Batt CHGR 1 480 V FLEX Transfer Switch	772	ESEP	Functionality	0.58	45N218
251	WBN-0-XSW-236-0002A-S	125V Vital Batt CHGR 2 480 V FLEX Transfer Switch	772	ESEP	Functionality	0.58	
252	WBN-0-XSW-236-0003A-S	125V Vital Batt CHGR 3 480 V FLEX Transfer Switch	772	ESEP	Functionality	0.58	
253	WBN-0-XSW-236-0004A-S	125V Vital Batt CHGR 4 480 V FLEX Transfer Switch	772	ESEP	Functionality	0.58	
254	WBN-0-PNL-360-FP/A	480 V FLEX Fuse Panel A	772	ESEP	Functionality	0.57	47W200-2
255	WBN-0-PNL-360-FP/B	480 V FLEX Fuse Panel B	772	ESEP	Functionality	0.57	47W200-2
256	WBN-1-PNL-276-L326-S	AUX FW TURBINE SPEED CONTROL PANEL	692	ESEP	Functionality	0.85	47W600-120
257	WBN-2-PNL-276-L326-S	AUX FW TURBINE SPEED CONTROL PANEL	692	ESEP	Functionality	0.85	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
258	WBN-0-RES-360-003A, 3B	3MW Diesel Generator A Neutral Grounding Resistor	742	ESEP	Functionality	0.79	15W860-1A
259	WBN-1-PNL-276-L381A	AUX FEEDWATER CONTROL	692	ESEP	Functionality	0.57	47W600-120
260	WBN-2-PNL-276-L381A	AUX FEEDWATER CONTROL	692	ESEP	Functionality	0.57	
261	WBN-0-XSW-360-HPCS	FLEX COMMON SPARE HP PUMP TRANSFER SWITCH	757	ESEP	Functionality	0.57	45W828-7
262	WBN-1-XSW-82-A	DG 1A-A Transfer Switch TO 6.9KV SD BD 1A-A	742	ESEP	Functionality	0.57	15N211-1
263	WBN-2-XSW-82-A	DG 2A-A Transfer Switch TO 6.9KV SD BD 2A-A	742	ESEP	Functionality	0.57	
264	WBN-1-XSW-82-B	DG 1B-B Transfer Switch DG to SD BD 1B-B	742	ESEP	Functionality	0.57	
265	WBN-2-XSW-82-B	DG 2B-B Transfer Switch DG to SD BD 2B-B	742	ESEP	Functionality	0.57	
266	WBN-0-FUDS-360-DG/AP2, BP2	480 V FLEX DG Pump Disconnect Switch	742	ESEP	Functionality	0.57	Rizzo HCLPF calc page 186
267	WBN-0-STR-360-0103, 203	3MW FLEX Diesel GEN PMP Starter	742	ESEP	Anchorage	0.54	Rizzo HCLPF calc page 191
268	WBN-0-SW-360-0003A/1, 3B/1	6900V 3MW FLEX Diesel GEN Fused Disconnect Switch	742	ESEP	Anchorage	0.5	15W680-1

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
269	WBN-1-TE-068-0380-E	Reactor Level Cap tube Temp Comp	713	ESEP	Anchorage	0.52	47W600-292
270	WBN-2-PNL-276-L340	Reactor Vessel instrumentation System II Panel	714	ESEP	Anchorage	0.52	47W600-314
271	WBN-1-PNL-276-L388	Reactor Vessel instrumentation System I Panel	714	ESEP	Anchorage	0.52	47W600-297
272	WBN-2-TE-068-0380-E	Reactor Level Cap tube Temp Comp	714	ESEP	Anchorage	0.52	
273	WBN-0-LI-3-227	AFW Supply Tank Level Indicator	708	ESEP	Anchorage	0.52	57W600-63
274	WBN-1-LI-63-51	RWST Level	755	IPEEE	Anchorage	0.52	47W605-1
275	WBN-2-LI-63-51	RWST Level	755	IPEEE	Anchorage	0.52	
276	WBN-1-LPF-3-142	TDAFW Pump Flow	755	ESEP	Anchorage	0.52	
277	WBN-2-LPF-3-142	TDAFW Pump Flow	755	ESEP	Anchorage	0.52	
278	WBN-1-LPF-3-147B	AFW Flow S/G 3	755	ESEP	Anchorage	0.52	
279	WBN-2-LPF-3-147B	AFW Flow S/G 3	755	ESEP	Anchorage	0.52	
280	WBN-1-LPF-3-155A	AFW Flow S/G 2	755	ESEP	Anchorage	0.52	
281	WBN-2-LPF-3-155A	AFW Flow S/G 2	755	ESEP	Anchorage	0.52	
282	WBN-1-LPF-3-163B	AFW Flow S/G 1	755	ESEP	Anchorage	0.52	
283	WBN-2-LPF-3-163B	AFW Flow S/G 1	755	ESEP	Anchorage	0.52	
284	WBN-1-LPF-3-170A	AFW Flow S/G 4	755	ESEP	Anchorage	0.52	
285	WBN-2-LPF-3-170A	AFW Flow S/G 4	755	ESEP	Anchorage	0.52	
286	WBN-1-LPL-3-111	S/G WR Level Loop 4	755	ESEP	Anchorage	0.52	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
287	WBN-2-LPL-3-111	S/G WR Level Loop 4	755	ESEP	Anchorage	0.52	
288	WBN-1-LPL-3-148	S/G NR Level Loop 3	755	ESEP	Anchorage	0.52	
289	WBN-2-LPL-3-148	S/G NR Level Loop 3	755	ESEP	Anchorage	0.52	
290	WBN-1-LPL-3-156	S/G NR Level Loop 2	755	ESEP	Anchorage	0.52	
291	WBN-2-LPL-3-156	S/G NR Level Loop 2	755	ESEP	Anchorage	0.52	
292	WBN-1-LPL-3-164	S/G NR Level Loop 1	755	ESEP	Anchorage	0.52	
293	WBN-2-LPL-3-164	S/G NR Level Loop 1	755	ESEP	Anchorage	0.52	
294	WBN-1-LPL-3-171	S/G NR Level Loop 4	755	ESEP	Anchorage	0.52	
295	WBN-2-LPL-3-171	S/G NR Level Loop 4	755	ESEP	Anchorage	0.52	
296	WBN-1-LPL-3-43	S/G WR Level Loop 1	755	ESEP	Anchorage	0.52	
297	WBN-2-LPL-3-43	S/G WR Level Loop 1	755	ESEP	Anchorage	0.52	
298	WBN-1-LPL-3-56	S/G WR Level Loop 1	755	ESEP	Anchorage	0.52	
299	WBN-2-LPL-3-56	S/G WR Level Loop 2	755	ESEP	Anchorage	0.52	
300	WBN-1-LPL-3-98	S/G WR Level Loop 3	755	ESEP	Anchorage	0.52	
301	WBN-2-LPL-3-98	S/G WR Level Loop 3	755	ESEP	Anchorage	0.52	
302	WBN-1-LPL-68-335	PZR Level	755	ESEP	Anchorage	0.52	
303	WBN-2-LPL-68-335	PZR Level	755	ESEP	Anchorage	0.52	
304	WBN-0-LPL-78-42	SFP Level	755	ESEP	Anchorage	0.52	
305	WBN-1-LPN-92-131	Nuclear Flux	755	ESEP	Anchorage	0.52	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
306	WBN-2-LPN-92-132	Nuclear Flux	755	ESEP	Anchorage	0.52	
307	WBN-1-LPP-1-20A	S/G Pressure Loop 3	755	ESEP	Anchorage	0.52	
308	WBN-2-LPP-1-20A	S/G Pressure Loop 3	755	ESEP	Anchorage	0.52	
309	WBN-1-LPP-1-27B	S/G Pressure Loop 4	755	ESEP	Anchorage	0.52	
310	WBN-2-LPP-1-27B	S/G Pressure Loop 4	755	ESEP	Anchorage	0.52	
311	WBN-1-LPP-1-2A	S/G Pressure Loop 1	755	ESEP	Anchorage	0.52	
312	WBN-2-LPP-1-2A	S/G Pressure Loop 1	755	ESEP	Anchorage	0.52	
313	WBN-1-LPP-1-9A	S/G Pressure Loop 2	755	ESEP	Anchorage	0.52	
314	WBN-2-LPP-1-9A	S/G Pressure Loop 2	755	ESEP	Anchorage	0.52	
315	WBN-1-LPP-68-68	RCS WR Pressure	755	ESEP	Anchorage	0.52	
316	WBN-2-LPP-68-66	RCS WR Pressure	755	ESEP	Anchorage	0.52	
317	WBN-1-LPPD-30-310	Containment Pressure	755	ESEP	Anchorage	0.52	
318	WBN-2-LPPD-30-310	Containment Pressure	755	ESEP	Anchorage	0.52	
319	WBN-1-LPT-30-1032	Containment Temperature	755	ESEP	Anchorage	0.52	
320	WBN-2-LPT-30-1032	Containment Temperature	755	ESEP	Anchorage	0.52	
321	WBN-1-LPT-68-1	RCS WR T _{hot} Loop 1	755	ESEP	Anchorage	0.52	
322	WBN-2-LPT-68-1	RCS WR T _{hot} Loop 1	755	ESEP	Anchorage	0.52	
323	WBN-1-LPT-68-18	RCS WR T _{cold} Loop 1	755	ESEP	Anchorage	0.52	
324	WBN-2-LPT-68-18	RCS WR T _{cold} Loop 1	755	ESEP	Anchorage	0.52	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
325	WBN-1-LPT-68-41	RCS WR T _{cold} Loop 2	755	ESEP	Anchorage	0.52	
326	WBN-2-LPT-68-41	RCS WR T _{cold} Loop 2	755	ESEP	Anchorage	0.52	
327	WBN-1-LPT-68-60	RCS WR T _{cold} Loop 3	755	ESEP	Anchorage	0.52	
328	WBN-2-LPT-68-60	RCS WR T _{cold} Loop 3	755	ESEP	Anchorage	0.52	
329	WBN-1-LPT-68-83	RCS WR T _{cold} Loop 4	755	ESEP	Anchorage	0.52	
330	WBN-2-LPT-68-83	RCS WR T _{cold} Loop 4	755	ESEP	Anchorage	0.52	
331	WBN-1-PNL-276-L1000	PORV AND AFW-LCV STM GEN 3 & 4 PNL	757	ESEP	Anchorage	0.52	47W600-88
332	WBN-2-PNL-276-L1000	PORV AND AFW-LCV STM GEN 3 & 4 PNL	755	ESEP	Anchorage	0.52	
333	WBN-1-PNL-276-L1001	PORV AND AFW-LCV STM GEN 1 & 2 PNL	755	ESEP	Anchorage	0.52	
334	WBN-2-PNL-276-L1001	PORV AND AFW-LCV STM GEN 1 & 2 PNL	755	ESEP	Anchorage	0.52	
335	WBN-1-PNL-094-0008A-J	Incore Thermocouple Mon Sys Jbox	716	ESEP	Anchorage	0.52	47W600-138
336	WBN-1-PNL-094-0008B-J	Incore Thermocouple Mon Sys Jbox	716	ESEP	Anchorage	0.52	
337	WBN-0-DPL-360-0003A/1, 3B/1	480-Volt Distribution Panel	742	ESEP	Functionality	0.68	15W771
338	WBN-0-DPL-360-0003A/2, 3B/2	120/240 VAC Panelboard	742	ESEP	Functionality	0.68	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
339	WBN-2-DPL-268-0002-B	Hydrogen Mitigation Distribution Panel	782	ESEP	Functionality	0.57	45W2772-7 45W1770-8
340	WBN-1-DPL-268-0001-A	Hydrogen Mitigation Distribution Panel	782	ESEP	Functionality	0.57	45W2772-7 45W1770-8
341	WBN-0-FUSD-360-DG/AP1, BP/1	480 V FLEX DG Pump A - Fusible Disc Switch	742	ESEP	Functionality	0.57	
342	WBN-0-DG-360-000A, 000B	480V FLEX/ESBO 225 KVA Diesel Generator	786	ESEP	Functionality	0.57	45W204
343	WBN-0-DG-360-0003A, 3B	6900V 3MW Diesel Generator	742	ESEP	Anchorage	0.87	16W370-1
344	WBN-1-PMP-003-0001A-S	TD Aux Feedwater Pump 1A-S	692	ESEP	Anchorage	0.59	47W600-6, 9
345	WBN-2-PMP-003-0002A-S	TD Aux Feedwater Pump 2A-S	692	ESEP	Screened	0.59	
346	WBN-0-PMP-360-DG/A1, B1	Fuel Oil Transfer Pump	742	ESEP	Functionality	0.57	18N302
347	WBN-1-PMP-360-HP01	HP FLEX Pump	692	ESEP	Functionality	0.5	47W436-1
348	WBN-2-PMP-360-HP01	HP FLEX Pump	692	ESEP	Functionality	0.5	
349	WBN-1-PMP-360-IP01	FLEX IP PUMP 01	737	ESEP	Functionality	0.5	
350	WBN-2-PMP-360-IP01	FLEX IP PUMP 01	737	ESEP	Functionality	0.5	
351	WBN-1-PMP-360-IP02	FLEX IP PUMP 02	692	ESEP	Functionality	0.5	
352	WBN-2-PMP-360-IP02	FLEX IP PUMP 02	692	ESEP	Functionality	0.5	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
353	WBN-1-FCV-003-6386	FCV SHARED AFW TANK OUTLET PIPE TO U1 CONDENSATE	724	ESEP	Functionality	0.83	47W427-14
354	WBN-2-FCV-003-6386	FCV FOR AFW Supply Tank Outlet Piping to U2 Condensate	724	ESEP	Functionality	0.83	47W427-14
355	WBN-0-FCV-070-0194-B	SFP HEAT EXCHANGER B CCS SUPPLY	737	ESEP	Functionality	0.69	Maximo Location
356	WBN-0-FCV-070-0197-A	SFP HEAT EXCHANGER A CCS SUPPLY	737	ESEP	Functionality	0.69	
357	WBN-0-FCV-067-0205	StaSer&Cntl Air Cmpr Supply Hdr A Isol valve	713	ESEP	Functionality	0.83	
358	WBN-0-FCV-067-0208	StaSer&Cntl Air Cmpr Supply Hdr B Isol valve	713	ESEP	Functionality	0.83	
359	WBN-1-FCV-001-051	TD Aux FeedwaterPmp Trip & Throttle Valve	692	ESEP	Functionality	0.7	47W200-6, 9
360	WBN-2-FCV-001-051	TD Aux FeedwaterPmp Trip & Throttle Valve	692	ESEP	Functionality	0.7	
361	WBN-2-FCV-003-0179A-B	ERCW Header B TD AFW PMP SUCT (PS-144)	692	ESEP	Functionality	1.14	47W427-1
362	WBN-2-FCV-003-0136A-A	ERCW Header A TD AFW PMP SUCT (PS-139)	692	ESEP	Functionality	1.14	
363	WBN-2-FCV-003-0136B-A	ERCW Header A TD AFW PMP SUCT	692	ESEP	Functionality	1.14	
364	WBN-2-FCV-003-0179B-B	ERCW Header B TD AFW PMP SUCT	692	ESEP	Functionality	1.14	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
365	WBN-1-FCV-003-0136A-A	ERCW Header A TD AFW PMP SUCT (PS-139)	692	ESEP	Functionality	1.14	
366	WBN-1-FCV-003-0136B-A	ERCW Header A TD AFW PMP SUCT	692	ESEP	Functionality	1.14	
367	WBN-1-FCV-003-0179A-B	ERCW Header B TD AFW PMP SUCT (PS-144)	692	ESEP	Functionality	1.14	47W427-1
368	WBN-1-FCV-003-0179B-B	ERCW Header B TD AFW PMP SUCT	692	ESEP	Functionality	1.14	
369	WBN-1-FCV-067-0147A	CCS HX C SUP FROM HDR 1A	757	ESEP	Functionality	0.92	47W450-4, 19
370	WBN-1-FCV-067-0458A	CCS HX C SUP FROM HDR 1B	757	ESEP	Functionality	0.92	
371	WBN-1-TANK-3-0402A	N2 TANK NO. 1 SUPPLY TO 1-LCV-003-0173-B	757	ESEP	Anchorage	0.63	48W1210
372	WBN-1-TANK-001-0405A	N2 TANK NO. 1 SUP TO 1-PCV-001-0012-B	757	ESEP	Anchorage	0.63	
373	WBN-2-TANK-001-0405A	N2 TANK NO. 1 SUP TO 2-PCV-001-0012-B	757	ESEP	Anchorage	0.63	
374	WBN-1-TANK-001-0405B	N2 TANK NO. 2 SUP TO 1-PCV-001-0012-B	757	ESEP	Anchorage	0.63	
375	WBN-2-TANK-001-0405B	N2 TANK NO. 2 SUP TO 2-PCV-001-0012-B	757	ESEP	Anchorage	0.63	
376	WBN-1-TANK-001-0406A	N2 TANK NO. 1 SUP TO 1-PCV-001-0030-B	757	ESEP	Anchorage	0.63	
377	WBN-2-TANK-001-0406A	N2 TANK NO. 1 SUP TO 2-PCV-001-0030-B	757	ESEP	Anchorage	0.63	
378	WBN-1-TANK-001-0406B	N2 TANK NO. 2 SUP TO 1-PCV-001-0030-B	757	ESEP	Anchorage	0.63	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
379	WBN-2-TANK-001-0406B	N2 TANK NO. 2 SUP TO 2-PCV-001-0030-B	757	ESEP	Anchorage	0.63	48W1210
380	WBN-1-TANK-001-0407A	N2 TANK NO. 1 SUP TO 1-PCV-001-0023-A	757	ESEP	Anchorage	0.63	
381	WBN-2-TANK-001-0407A	N2 TANK NO. 1 SUP TO 2-PCV-1-0023-A	757	ESEP	Anchorage	0.63	
382	WBN-1-TANK-001-0407B	N2 TANK NO. 2 SUP TO 1-PCV-001-0023-A	757	ESEP	Anchorage	0.63	
383	WBN-2-TANK-001-0407B	N2 TANK NO. 2 SUP TO 2-PCV-1-0023-A	757	ESEP	Anchorage	0.63	
384	WBN-1-TANK-001-0408A	N2 TANK NO. 1 SUP TO 1-PCV-001-0005-A	757	ESEP	Anchorage	0.63	
385	WBN-2-TANK-001-0408A	N2 TANK NO. 1 SUP TO 2-PCV-001-0005-A	757	ESEP	Anchorage	0.63	
386	WBN-1-TANK-001-0408B	N2 TANK NO. 2 SUP TO 1-PCV-001-0005-A	757	ESEP	Anchorage	0.63	
387	WBN-2-TANK-001-0408B	N2 TANK NO. 1 SUP TO 2-PCV-001-0005-A	757	ESEP	Anchorage	0.63	
388	WBN-2-TANK-3-0402A	N2 TANK NO. 1 SUPPLY TO 2-LCV-003-0173-B	757	ESEP	Anchorage	0.63	
389	WBN-1-TANK-3-0402B	N2 TANK NO. 2 SUPPLY TO 1-LCV-003-0173-B	757	ESEP	Anchorage	0.63	
390	WBN-2-TANK-3-0402B	N2 TANK NO. 2 SUPPLY TO 2-LCV-003-0173-B	757	ESEP	Anchorage	0.63	
391	WBN-1-TANK-3-0402C	N2 TANK NO. 1 SUPPLY TO 1-LCV-003-0174-B	757	ESEP	Anchorage	0.63	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference	
392	WBN-2-TANK-3-0402C	N2 TANK NO. 1 SUPPLY TO 2-LCV-003-0174-B	757	ESEP	Anchorage	0.63		
393	WBN-1-TANK-3-0402D	N2 TANK NO. 2 SUPPLY TO 1-LCV-003-0174-B	757	ESEP	Anchorage	0.63		
394	WBN-2-TANK-3-0402D	N2 TANK NO. 2 SUPPLY TO 2-LCV-003-0174-B	757	ESEP	Anchorage	0.63		
395	WBN-1-TANK-3-0403A	N2 TANK NO. 1 SUP TO 1-LCV-003-0172-A	757	ESEP	Anchorage	0.63		
396	WBN-2-TANK-3-0403A	N2 TANK NO. 1 SUP TO 2-LCV-3-172-A	757	ESEP	Anchorage	0.63		48W1210
397	WBN-1-TANK-3-0403B	N2 TANK NO. 2 SUP TO 1-LCV-003-172-A	757	ESEP	Anchorage	0.63		
398	WBN-2-TANK-3-0403B	N2 TANK NO. 2 SUP TO 2-LCV-3-172-A	757	ESEP	Anchorage	0.63		
399	WBN-1-TANK-3-0403C	N2 TANK NO. 1 SUP TO 1-LCV-003-0175-A	757	ESEP	Anchorage	0.63		
400	WBN-2-TANK-3-0403C	N2 TANK NO. 1 SUP TO 2-LCV-3-175-A	757	ESEP	Anchorage	0.63		
401	WBN-1-TANK-3-0403D	N2 TANK NO. 2 SUP TO 1-LCV-003-0175-A	757	ESEP	Anchorage	0.63		
402	WBN-2-TANK-3-0403D	N2 TANK NO. 2 SUP TO 2-LCV-3-175-A	757	ESEP	Anchorage	0.63		
403	WBN-0-TANK-003-0226	AFW Supply Tank 500,000 gallons	729	ESEP	Anchorage	0.51	17W361-2	
404	WBN-0-TANK-360-113	6900V 3MW FLEX DG Fuel Oil Storage Tank 3A	742	ESEP	Anchorage	0.66	10W370-4	
405	WBN-1-CLR-003-0001-B	TD Aux FW PMP Oil Cooler	692	ESEP	Functionality	3	47W200-6, 9	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
406	WBN-2-CLR-003-0001-B	TD Aux FW PMP Oil Cooler	692	ESEP	Functionality	3	
407	WBN-2-RLY-046-0057-S	Transfer Sw in Aux PosIsol Rly	692	ESEP	Chatter	1.55	Rizzo Relay Report
408	WBN-2-RLY-046-B002/1-S	B2-1 Relay AFPT Trip & Throttle Vlv Photo Iso	692	ESEP	Chatter	1.3	
409	WBN-2-RLY-046-B002/2-S	B2-2 Relay AFPT Trip & Throttle Vlv Photo Iso	692	ESEP	Chatter	1.3	
410	WBN-2-RLY-046-B002/3-S	B2-3 Relay AFPT Speed Control InstrPwr	692	ESEP	Chatter	1.55	
411	WBN-2-RLY-046-BA-S	BA & BB Relay AFPT Speed Control Buffer Relay	692	ESEP	Chatter	1.79	
412	WBN-2-RLY-046-BA1-S	BA1 Relay AFPT Speed Control Buffer	692	ESEP	Chatter	1.79	
413	WBN-2-RLY-046-BB-S	BA & BB Relay AFPT Speed Control Buffer Relay	692	ESEP	Chatter	1.79	
414	WBN-2-RLY-046-R/A-A	Aux FW Pump Vlv Sep Relay	708	ESEP	Chatter	1.4	
415	WBN-2-RLY-046-R/B-B	Aux FW Pump Vlv Sep Relay	708	ESEP	Chatter	1.4	
416	WBN-2-RLY-046-R1-S	AFPT ACC Reset Relay	692	ESEP	Chatter	1.79	
417	WBN-2-RLY-046-R2-S	AFPT ACC Reset Relay	692	ESEP	Chatter	1.79	
418	WBN-2-RLY-046-R4-A	AFPT SUP Xfer FCV-1-15,-16 & -51 Sep Relay TR A	708	ESEP	Chatter	1.79	
419	WBN-2-RLY-046-R5-A	Aux Feed Pump TrbStm Supply Xfer Sep Relay TR A	708	ESEP	Chatter	1.62	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
420	WBN-2-RLY-046-RA1-A	Turb/Mtr Driven Aux FW Pump Vlvs Aux Relay	708	ESEP	Chatter	1.4	
421	WBN-2-RLY-046-RA2-A	Turb/Mtr Driven Aux FW Pump Vlv SSEP Relay	708	ESEP	Chatter	1.4	
422	WBN-2-RLY-046-RAS-S	AFPT Pump 2-FCV-1-51 MtrDrVlv 2-LCV-3-156 & 164	708	ESEP	Chatter	1.4	
423	WBN-2-RLY-046-RB1-B	Turb/Mtr Driven Aux FW Pump Vlvs Aux Relay	708	ESEP	Chatter	1.4	
424	WBN-2-RLY-046-RB2-B	Turb Driven Aux FW Pump Vlv SEP Relay	708	ESEP	Chatter	1.4	
425	WBN-2-RLY-046-RBS-S	AFPT Pump 2-FCV-1-51 MtrDrVlv 2-LCV-3-171 & 148	708	ESEP	Chatter	1.4	Rizzo Relay Report
426	WBN-2-RLY-046-SST-S	AFPT SUP Xfer FCV-1-15,-16 & -51 Sep Relay	708	ESEP	Chatter	1.79	
427	WBN-1-RLY-046-0057-S	Transfer Sw in Aux PosIsol Rly	692	ESEP	Chatter	1.55	
428	WBN-1-RLY-046-B002/1-S	B2-1 Relay AFPT Trip & Throttle Vlv Photo Iso	692	ESEP	Chatter	1.3	
429	WBN-1-RLY-046-B002/2-S	B2-2 Relay AFPT Trip & Throttle Vlv Photo Iso	692	ESEP	Chatter	1.3	
430	WBN-1-RLY-046-B002/3-S	B2-3 Relay AFPT Speed Control InstrPwr	692	ESEP	Chatter	1.55	
431	WBN-1-RLY-046-BA-S	BA & BB Relay AFPT Speed Control Buffer Relay	692	ESEP	Chatter	1.79	
432	WBN-1-RLY-046-BA1-S	BA1 Relay AFPT Speed Control Buffer	692	ESEP	Chatter	1.79	

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference	
433	WBN-1-RLY-046-BB-S	BA & BB Relay AFPT Speed Control Buffer Relay	692	ESEP	Chatter	1.79		
434	WBN-1-RLY-046-R/A-A	Aux FW Pump Vlv Sep Relay	708	ESEP	Chatter	1.4		
435	WBN-1-RLY-046-R/B-B	Aux FW Pump Vlv Sep Relay	708	ESEP	Chatter	1.4		
436	WBN-1-RLY-046-R1-S	AFPT ACC Reset Relay	692	ESEP	Chatter	1.79		
437	WBN-1-RLY-046-R2-S	AFPT ACC Reset Relay	692	ESEP	Chatter	1.79		
438	WBN-1-RLY-046-R4-A	AFPT SUP Xfer FCV-1-15,-16 & - 51 Sep Relay TR A	708	ESEP	Chatter	1.79		
439	WBN-1-RLY-046-R5-A	Aux Feed Pump TrbStm Supply Xfer Sep Relay TR A	708	ESEP	Chatter	1.62		Rizzo Relay Report
440	WBN-1-RLY-046-RA1-A	Turb/Mtr Driven Aux FW Pump Vlvs Aux Relay	708	ESEP	Chatter	1.4		
441	WBN-1-RLY-046-RA2-A	Turb/Mtr Driven Aux FW Pump Vlv SSEP Relay	708	ESEP	Chatter	1.4		
442	WBN-1-RLY-046-RAS-S	AFPT Pump 2- FCV-1-51 MtrDrVlv 2-LCV- 3-156 & 164	692	ESEP	Chatter	1.4		
443	WBN-1-RLY-046-RB1-B	Turb/Mtr Driven Aux FW Pump Vlvs Aux Relay	708	ESEP	Chatter	1.4		
444	WBN-1-RLY-046-RB2-B	Turb Driven Aux FW Pump Vlv SEP Relay	708	ESEP	Chatter	1.4		
445	WBN-1-RLY-046-RBS-S	AFPT Pump 2- FCV-1-51 MtrDrVlv 2-LCV- 3-171 & 148	692	ESEP	Chatter	1.4		

Item #	UNID	Description	Elevation (ft)	IPEEE or ESEP	Failure Mode	HCLPF (g)	Elev Reference
446	WBN-1-RLY-046-SST-S	AFPT SUP Xfer FCV-1-15,-16 & -51 Sep Relay	692	ESEP	Chatter	1.79	
447	WBN-1-STR-046-0056A-S	TDAFW Trip/Throttle Motor Starter	692	ESEP	Functionality	0.57	
448	WBN-2-STR-046-0056A-S	TDAFW Trip/Throttle Motor Starter	692	ESEP	Functionality	0.57	
449	WBN-1-FSV-69-394	Reactor Vessel Head Vent Isolation Valve	725	ESEP	Screened	> 0.5	WBNEQ-SOL-009
450	WBN-1-FSV-68-397	Reactor Vessel Head Vent Throttle Valve	725	ESEP	Screened	> 0.5	
451	WBN-2-FSV-68-395	Reactor Vessel Head Vent Isolation Valve	725	ESEP	Screened	> 0.5	
452	WBN-2-FSV-68-396	Reactor Vessel Head Vent Throttle Valve	725	ESEP	Screened	> 0.5	WBNEQ-SOL-009