Xcel Energy®

Monticello Nuclear Generating Plant
2807 W County Road 75
Monticello, MN 55362

December 23, 2014

L-MT-14-093
10 CFR 50.54(f)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Monticello Nuclear Generating Plant
Docket No. 50-263
Renewed Facility Operating License No. DPR-22

Monticello Nuclear Generating Plant: Expedited Seismic Evaluation Process (ESEP) – Augmented Approach to Post-Fukushima Near-Term Task Force (NTTF) 2.1

References:
1) NRC Letter, "Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident" dated March 12, 2012, (ADAMS Accession No. ML12056A046).

2) Letter from K Fili (NSPM) to Document Control Desk (NRC), "Request Commitment Change for Response to NRC Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding the Seismic Aspects of Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident", L-MT-14-027, dated March 31, 2014 (ADAMS Accession No. ML14090A297)

On March 12, 2012, the NRC issued "Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident" ("information request") to all NRC power reactor licensees and holders of construction permits in active or deferred status (Reference 1).

On March 31, 2014, in accordance with this information request, Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, committed to provide an Expedited Seismic Evaluation Process (ESEP) report to the NRC by December 31, 2014 (Reference 2).

The purpose of this letter and enclosure is to provide the NRC with report 14C4247-RPT-002, Rev. 2, entitled, *"Expedited Seismic Evaluation Process (ESEP)*

Report in Response to the 50.54(f) Information Request Regarding Fukushima Near-Term Task Force Recommendation 2.1: Seismic," for the Monticello Nuclear Generating Plant.

The ESEP report was performed to demonstrate that a subset of the plant equipment can be relied upon to protect the reactor core following beyond design basis seismic events. The report results indicate that additional action (e.g. evaluation or modification or other action) is required to assure that sufficient seismic margin is available for a small set of plant equipment. See the attached report for further details. These results are being tracked in the Monticello Corrective Action Program to ensure the actions are taken in a timely manner.

If there are any questions or if additional information is needed, please contact John Fields, Fukushima Response Licensing, at 763-271-6707.

Summary of Commitments

This letter completes the regulatory commitment to provide the ESEP report to the NRC by December 31, 2014.

This letter contains no new commitments and no revisions to existing commitments.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 23, 2014.

Karen D. Fili
Site Vice President, Monticello Nuclear Generating Plant
Northern States Power Company - Minnesota

Enclosure

cc: Administrator, Region III, USNRC
Director of Nuclear Reactor Regulation (NRR), USNRC
NRR Project Manager, MNGP, USNRC
Senior Resident Inspector, MNGP, USNRC

L-MT-14-093

ENCLOSURE

MONTICELLO NUCLEAR GENERATING PLANT

EXPEDITED SEISMIC EVALUATION PROCESS REPORT IN RESPONSE TO THE 50.54(f) INFORMATION REQUEST REGARDING FUKUSHIMA NEAR-TERM TASK FORCE RECOMMENDATION 2.1: SEISMIC

54 pages follow

EXPEDITED SEISMIC EVALUATION PROCESS (ESEP) REPORT

IN RESPONSE TO THE 50.54(f) INFORMATION REQUEST REGARDING FUKUSHIMA NEAR-TERM TASK FORCE RECOMMENDATION 2.1: SEISMIC

for the

Monticello Nuclear Generating Plant
2807 West County Road 75,
Monticello MN 55362
Renewed Facility Operating License No. DPR-22
NRC Docket No. 50-236

Monticello Nuclear Generating Plant
2807 West County Road 75,
Monticello MN 55362

Prepared by:
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Report Number: 14C4247-RPT-002, Rev. 2

	Printed Name	Signature	Date
Preparer:	Jalal Farooq	[signature]	12/22/2014
Reviewer:	Todd Radford	[signature]	12/22/2014
Approver:	Walter Djordjevic	[signature]	12/22/2014
Corporate Acceptance:	Richard J. Rohrer	[signature]	12/23/14

Document Title: EXPEDITED SEISMIC EVALUATION PROCESS (ESEP) REPORT IN RESPONSE TO THE 50.54(f) INFORMATION REQUEST REGARDING FUKUSHIMA NEAR-TERM TASK FORCE RECOMMENDATION 2.1: SEISMIC FOR THE MONTICELLO NUCLEAR GENERATING PLANT

Document Type:
Criteria ☐ Interface ☐ Report ☒ Specification ☐ Other ☐ Drawing ☐

Project Name: Monticello ESEP Program
Job No.: 14C4247
Client: Northern States Power Company, a Minnesota corporation, d/b/a Xcel Energy (NSPM)

This document has been prepared in accordance with the S&A Quality Assurance Program Manual, Revision 17 and project requirements:

Initial Issue: 14C4247-RPT-002, Revision 0	
Prepared by: S. Kim	Date: 12/12/2014
Reviewed by: W. Djordjevic	Date: 12/12/2014
Approved by: W. Djordjevic	Date: 12/12/2014

Revision Record:

Revision No.	Prepared by/ Date	Reviewed by/ Date	Approved by/ Date	Description of Revision
1	Jalal Farooq 12/19/2014	Todd Radford 12/19/2014	Walter Djordjevic 12/19/2014	Incorporation of minor editorial site comments. Equipment ID for LIS-2-3-672E and LIS-2-3-672F changed to LS-2-3-672E and LS-2-3-672F, respectively. References 29 and 30 added.
2	Jalal Farooq 12/22/2014	Todd Radford 12/22/2014	Walter Djordjevic 12/22/2014	Updated Section 8.4.

Stevenson & Associates	DOCUMENT APPROVAL SHEET Figure 2.8	CONTRACT NO. **14C4247**

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1. PURPOSE AND OBJECTIVE

Following the accident at the Fukushima Dai-ichi nuclear power plant resulting from the March 11, 2011, Great Tohoku Earthquake and subsequent tsunami, the Nuclear Regulatory Commission (NRC) established a Near Term Task Force (NTTF) to conduct a systematic review of NRC processes and regulations and to determine if the agency should make additional improvements to its regulatory system. The NTTF developed a set of recommendations intended to clarify and strengthen the regulatory framework for protection against natural phenomena. Subsequently, the NRC issued a 50.54(f) letter on March 12, 2012 [1], requesting information to assure that these recommendations are addressed by all U.S. nuclear power plants. The 50.54(f) letter requests that licensees and holders of construction permits under 10 CFR Part 50 reevaluate the seismic hazards at their sites against present-day NRC requirements and guidance. Depending on the comparison between the reevaluated seismic hazard and the current design basis, further risk assessment may be required. Assessment approaches acceptable to the staff include a seismic probabilistic risk assessment (SPRA), or a seismic margin assessment (SMA). Based upon the assessment results, the NRC staff will determine whether additional regulatory actions are necessary.

This report describes the Expedited Seismic Evaluation Process (ESEP) undertaken for the Monticello Nuclear Generating Plant (MNGP). The intent of the ESEP is to perform an interim action in response to the NRC's 50.54(f) letter [1] to demonstrate seismic margin through a review of a subset of the plant equipment that can be relied upon to protect the reactor core following beyond design basis seismic events.

The ESEP is implemented using the methodologies in the NRC endorsed guidance in EPRI 3002000704, Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic [2]. Note that this process is based on the MNGP FLEX strategy as of October 9, 2014.

The objective of this report is to provide summary information describing the ESEP evaluations and results. The level of detail provided in the report is intended to enable the NRC to understand the inputs used, the evaluations performed, and the decisions made as a result of the interim evaluations

2. BRIEF SUMMARY OF THE FLEX SEISMIC IMPLEMENTATION STRATEGIES

The Monticello Nuclear Generating Plant (MNGP) FLEX strategies for reactor core cooling and heat removal and containment function are summarized below. This summary is derived from the MNGP Overall Integrated Plan (OIP) in response to the March 12, 2012, Commission Order EA-12-049 [3].

Reactor core cooling and heat removal is initially achieved using the Reactor Core Isolation Cooling System (RCIC) and High Pressure Coolant Injection System (HPCI) to provide high pressure makeup to the reactor. Both HPCI and RCIC automatically trip on high reactor water level. The normal suction supply for both HPCI and RCIC is the non-seismically qualified Condensate Storage Tanks (CSTs), if they are available. If the CSTs are unavailable, suction automatically transfers to the suppression pool (torus).

After the initial automatic initiation and trip of HPCI and RCIC, RCIC will be used as the primary strategy to provide makeup to the reactor. HPCI will be secured to extend the Division II battery life. Reactor depressurization will be initiated using safety-relief valves (SRVs) at a rate not to exceed 100 °F/hr to lower and maintain reactor pressure within the range of 150 psig to 300 psig.

The torus performs as the heat sink for core cooling. The Hardened Containment Vent System (HVCS) line for the torus will be opened per the emergency operating procedures to remove heat from the torus and maintain the containment.

The strategy for phase 2 core cooling will rely on RCIC and the torus with venting through the HVCS as long as possible. Once RCIC operation is no longer possible, the reactor will be fully depressurized using SRVs, and core makeup will be provided by a FLEX portable diesel-driven pump, drawing a suction from the discharge canal or the Mississippi River, and injecting to the reactor via a connection to the Residual Heat Removal Service Water (RHRSW) system.

In Phase 2, DC powered equipment will be supported by a FLEX portable diesel generator connected to battery chargers, and supplemental nitrogen will be provided as needed to support operation of the HVCS and SRVs.

3. EQUIPMENT SELECTION PROCESS AND ESEL

The selection of equipment for the ESEL followed the guidelines of EPRI 3002000704 [2]. The ESEL for Monticello Nuclear Generating Plant (MNGP) is presented in Attachment A.

3.1 Equipment Selection Process and ESEL

The selection of equipment on the ESEL was based on installed plant equipment credited in the FLEX strategies during Phase 1, 2 and 3 mitigation of a Beyond Design Basis External Event (BDBEE), as outlined in the MNGP Overall Integrated Plan (OIP) in Response to the March 12, 2012, Commission Order EA-12-049 [3]. The OIP provides the MNGP FLEX mitigation strategy and serves as the basis for equipment selected for the ESEP.

The scope of "installed plant equipment" includes equipment relied upon for the FLEX strategies to sustain the critical functions of core cooling and containment integrity consistent with the MNGP OIP [3]. FLEX recovery actions are excluded from the ESEP scope per EPRI 3002000704 [2]. The overall list of planned FLEX modifications and the scope for consideration herein is limited to those required to support core cooling, reactor coolant inventory, sub-criticality, and containment integrity functions. Portable and pre-staged FLEX equipment (not permanently installed) are excluded from the ESEL per EPRI 3002000704 [2].

The ESEL component selection followed the EPRI guidance outlined in Section 3.2 of EPRI 3002000704 [2].

1. The scope of components is limited to those required to accomplish the core cooling and containment safety functions identified in Table 3-2 of EPRI 3002000704. The instrumentation monitoring requirements for core cooling/containment safety functions are limited to those outlined in the EPRI 3002000704 guidance, and are a subset of those outlined in the MNGP OIP [3].

2. The scope of components is limited to installed plant equipment, and FLEX connections necessary to implement the MNGP OIP [3] as described in Section 2.

3. The scope of components assumes the credited FLEX connection modifications are implemented, and are limited to those required to support a single FLEX success path (i.e., either "Primary" or "Back-up/Alternate").

4. The "Primary" FLEX success path is to be specified. Selection of the "Back-up/Alternate" FLEX success path must be justified.

5. Phase 3 coping strategies are included in the ESEP scope, whereas recovery strategies are excluded.

6. Structures, systems, and components excluded per the EPRI 3002000704 [2] guidance are:

   - Structures (e.g. containment, reactor building, control building, auxiliary building, etc.)
   - Piping, cabling, conduit, HVAC, and their supports.
   - Manual valves and rupture disks.
   - Power-operated valves not required to change state as part of the FLEX mitigation strategies.
   - Nuclear steam supply system components (e.g. reactor pressure vessel and internals, reactor coolant pumps and seals, etc.)

7. For cases in which neither train was specified as a primary or back-up strategy, then only one train component (generally 'A' train) is included in the ESEL.

3.1.1 ESEL Development

The ESEL was developed by reviewing the MNGP OIP [3] to determine the major equipment involved in the FLEX strategies. Further reviews of plant drawings (e.g., Piping and Instrumentation Diagrams (P&IDs) and Electrical One Line Diagrams) were performed to identify the boundaries of the flow paths to be used in the FLEX strategies and to identify specific components in the flow paths needed to support implementation of the FLEX strategies. Boundaries were established at an electrical or mechanical isolation device (e.g., isolation amplifier, valve, etc.) in branch circuits / branch lines off the defined electrical or fluid flow path. P&IDs were the primary reference documents used to identify mechanical components and instrumentation. The flow paths used for FLEX strategies were selected and specific components were identified using detailed equipment and instrument drawings, piping isometrics, electrical schematics and one-line drawings, system descriptions, design basis documents, etc., as necessary.

3.1.2 Power Operated Valves

Page 3-3 of EPRI 3002000704 [2] notes that power operated valves not required to change state are excluded from the ESEL. Page 3-2 also notes that "functional failure modes of electrical and mechanical portions of the installed Phase 1 equipment should be considered (e.g. RCIC/AFW trips)." To address this concern, the following guidance is applied in the MNGP ESEL for functional failure modes associated with power operated valves:

- Power operated valves that remain energized during the Extended Loss of all AC Power (ELAP) events (such as DC powered valves), were included on the ESEL.
- Power operated valves not required to change state as part of the FLEX mitigation strategies were not included on the ESEL. The seismic event also causes the ELAP event; therefore, the valves are incapable of spurious operation as they would be de-energized.
- Power operated valves not required to change state as part of the FLEX mitigation strategies during Phase 1, and are re-energized and operated during subsequent Phase 2 and 3 strategies, were not evaluated for spurious valve operation as the seismic event that caused the ELAP has passed before the valves are re-powered.

3.1.3 Pull Boxes

Pull boxes were deemed unnecessary to add to the ESELs as these components provide completely passive locations for pulling or installing cables. No breaks or connections in the cabling are included in pull boxes. Pull boxes were considered part of conduit and cabling, which are excluded in accordance with EPRI 3002000704 [2].

3.1.4 Termination Cabinets

Termination cabinets, including cabinets necessary for FLEX Phase 2 and Phase 3 connections, provide consolidated locations for permanently connecting multiple cables. The termination cabinets and the internal connections provide a completely passive function; however, the cabinets are included in the ESEL to ensure industry knowledge on panel/anchorage failure vulnerabilities is addressed.

3.1.5 Critical Instrumentation Indicators

Critical indicators and recorders are typically physically located on panels/cabinets and are included as separate components; however, seismic evaluation of the instrument indication may be included in the panel/cabinet seismic evaluation (rule-of-the-box).

3.1.6 Phase 2 and Phase 3 Piping Connections

Item 2 in Section 3.1 above notes that the scope of equipment in the ESEL includes "... FLEX connections necessary to implement the MNGP OIP [3] as described in Section 2." Item 3 in Section 3.1 notes that "The scope of components assumes the credited FLEX connection modifications are implemented, and are limited to those required to support a single FLEX success path (i.e., either "Primary" or "Back-up/Alternate")."
Item 6 in Section 3 goes on to explain that "Piping, cabling, conduit, HVAC, and their supports" are excluded from the ESEL scope in accordance with EPRI 3002000704 [2].

Therefore, piping and pipe supports associated with FLEX Phase 2 and Phase 3 connections are excluded from the scope of the ESEP evaluation. However, any active valves in the FLEX Phase 2 and Phase 3 connection flow path are included in the ESEL.

The complete ESEL for MNGP is presented in Attachment A.

3.2 Justification for Use of Equipment That Is Not the Primary Means for FLEX Implementation

No alternate equipment is used to support the "Primary" means for Flex implementation. The complete ESEL for MNGP is presented in Attachment A.

4. GROUND MOTION RESPONSE SPECTRUM (GMRS)

4.1 Plot of GMRS Submitted by the Licensee

MNGP USAR does not explicitly define the Safe Shutdown Earthquake (SSE) control point. Therefore, the MNGP SSE control point is defined per Section 2.4.2 of the SPID [14] for the purposes of the SSE-to-GMRS comparisons as part of the 50.54(f) 2.1 seismic evaluations. As a soil site with generally uniform, horizontally layered stratigraphy and with soil-founded key structures, the control point at MNGP is defined as the highest point in the material where a safety-related structure is founded. The highest soil elevation where a safety-related structure is found is at Elevation 930 ft. Reference [4] also states that the site SSE is anchored to a PGA of 0.12g.

The GMRS, taken from Reference 4 is shown in Table 4-1 and Figure 4-1 below.

Table 4-1: MNGP GMRS

Freq. (Hz)	GMRS (unscaled, g)
0.1	0.01
0.125	0.01
0.15	0.01
0.2	0.01
0.25	0.02
0.3	0.02
0.35	0.02
0.4	0.03
0.5	0.03
0.6	0.03
0.7	0.03
0.8	0.04
0.9	0.04
1	0.04
1.25	0.05
1.5	0.06
2	0.09
2.5	0.12
3	0.14
3.5	0.16
4	0.18
5	0.22
6	0.26
7	0.29
8	0.30
9	0.31
10	0.32
12.5	0.33
15	0.34
20	0.32
25	0.28
30	0.26
35	0.24
40	0.22
50	0.19
60	0.17
70	0.16
80	0.16
90	0.15
100	0.15

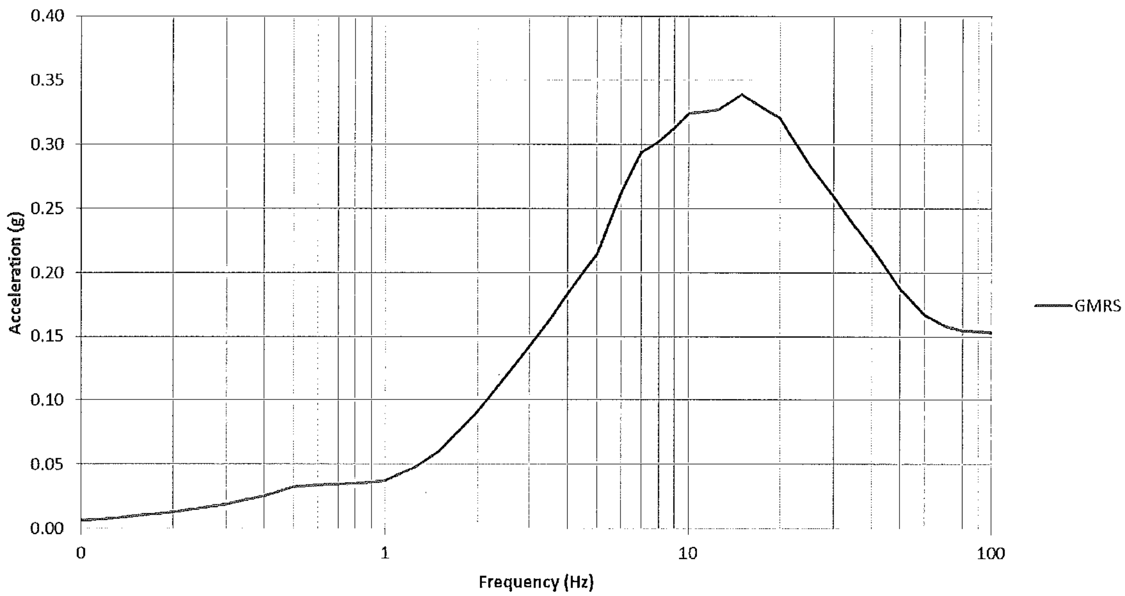

Figure 4-1: MNGP GMRS

4.2 Comparison to SSE

As identified in the Reference 4, the GMRS exceeds the SSE in the 1-10Hz range. A comparison of the GMRS to the SSE between 1-10Hz is shown in Table 4-2 and Figure 4-2.

Table 4-2: MNGP GMRS and SSE_{TAFT} between 1-10Hz

Freq. (Hz)	GMRS (unscaled, g)	Horizontal SSE (g)
1.00	0.038	0.142
1.25	0.048	0.175
1.50	0.060	0.202
2.00	0.091	0.245
2.50	0.119	0.275
3.00	0.143	0.291
3.50	0.164	0.301
4.00	0.184	0.306
5.00	0.215	0.304
6.00	0.263	0.287
7.00	0.294	0.270
8.00	0.302	0.249
9.00	0.313	0.232
10.00	0.324	0.217

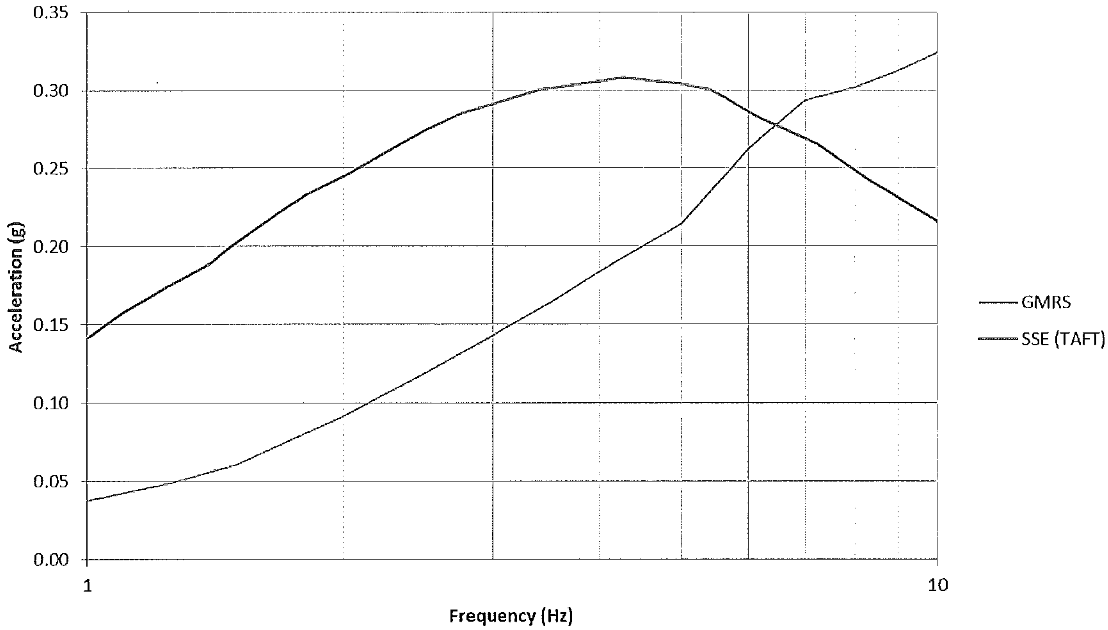

Figure 4-2: MNGP GMRS to SSE_{TAFT} Comparison

In addition to the original SSE, the Emergency Filtration Train (EFT) Building was designed to a Regulatory Guide 1.60 RS shape anchored to 0.12g. Therefore, a second comparison of the GMRS and $SSE_{REG1.60}$ is shown in the following.

Table 4-3: MNGP GMRS and $SSE_{REG1.60}$ between 1-10Hz

Freq (Hz)	GMRS (g)	Horizontal SSE (g)
1.00	0.038	0.177
1.25	0.048	0.221
1.50	0.060	0.256
2.00	0.091	0.313
2.50	0.119	0.376
3.00	0.143	0.366
3.50	0.164	0.358
4.00	0.184	0.351
5.00	0.215	0.340
6.00	0.263	0.332
7.00	0.294	0.325
8.00	0.302	0.318
9.00	0.313	0.313
10.00	0.324	0.290

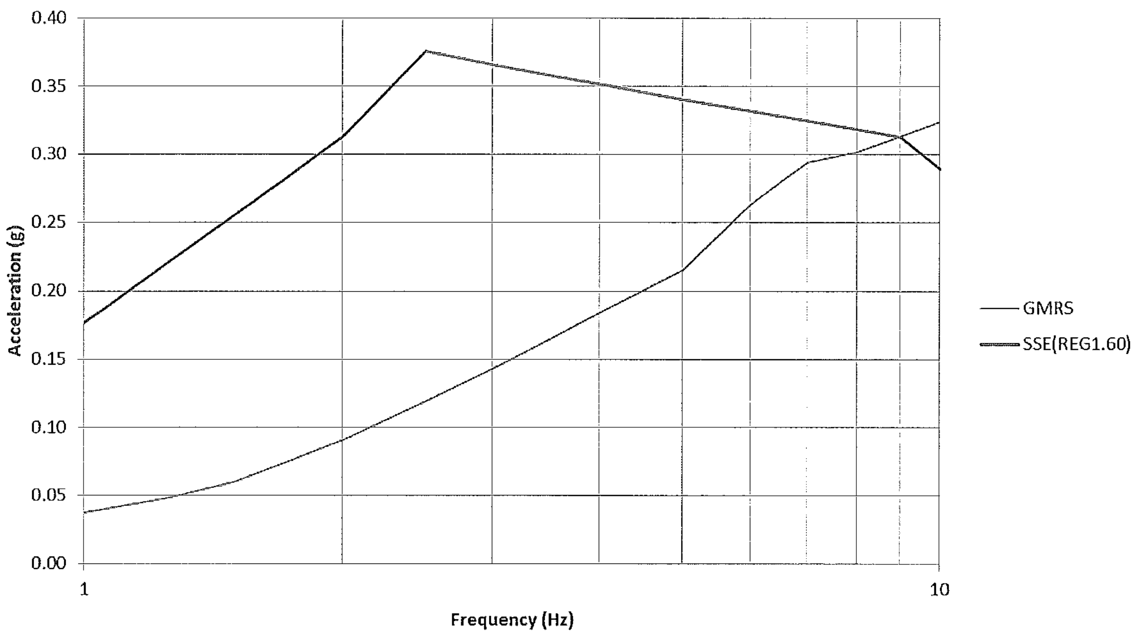

Figure 4-3: MNGP GMRS to $SSE_{REG1.60}$ Comparison

5. REVIEW LEVEL GROUND MOTION (RLGM)

5.1 Description of RLGM Selected

The RLGM for MNGP was determined in accordance with Section 4 of EPRI 3002000704 [2] by linearly scaling the MNGP SSE_{TAFT} by the maximum safety factor (SF = GMRS/SSE_{TAFT} ratio) between the 1 and 10Hz range. This calculation is shown in Table 5-1.

Table 5-1: MNGP Maximum GMRS/SSE_{TAFT} Ratio (SF)

Freq (Hz)	GMRS (g)	Horizontal SSE_{TAFT} (g)	SF = GMRS/SSE
1.00	0.038	0.142	0.26
1.25	0.048	0.175	0.28
1.50	0.060	0.202	0.30
2.00	0.091	0.245	0.37
2.50	0.119	0.275	0.43
3.00	0.143	0.291	0.49
3.50	0.164	0.301	0.54
4.00	0.184	0.306	0.60
5.00	0.215	0.304	0.71
6.00	0.263	0.287	0.92
7.00	0.294	0.270	1.09
8.00	0.302	0.249	1.21
9.00	0.313	0.232	1.35
10.00	0.324	0.217	1.49

As shown above, the maximum GMRS/SSE_{TAFT} ratio for MNGP occurs at 10 Hz and equals 1.49.

The resulting 5% damped RLGM, based on scaling the horizontal SSE_{TAFT} by the SF of 1.49, is shown in Table 5-2 and Figure 5-1 below. Note that the $RLGM_{TAFT}$ PGA is 0.19g.

Table 5-2: MNGP $RLGM_{TAFT}$

Freq. (Hz)	5% damped Horizontal $RLGM_{TAFT}$ (g)
0.50	0.092
0.53	0.100
0.56	0.108
0.59	0.114
0.63	0.128
0.66	0.136
0.71	0.146
0.76	0.156
0.83	0.174
0.91	0.190
1.00	0.212
1.10	0.235
1.25	0.261
1.40	0.283
1.46	0.295
1.68	0.330
1.82	0.348
2.04	0.368
2.26	0.389

Freq. (Hz)	5% damped Horizontal $RLGM_{TAFT}$ (g)
2.50	0.409
2.76	0.425
3.40	0.448
4.27	0.460
4.95	0.454
5.42	0.447
6.13	0.423
7.23	0.396
8.29	0.362
10.44	0.313
12.26	0.282
14.84	0.243
18.80	0.204
35.25	0.190

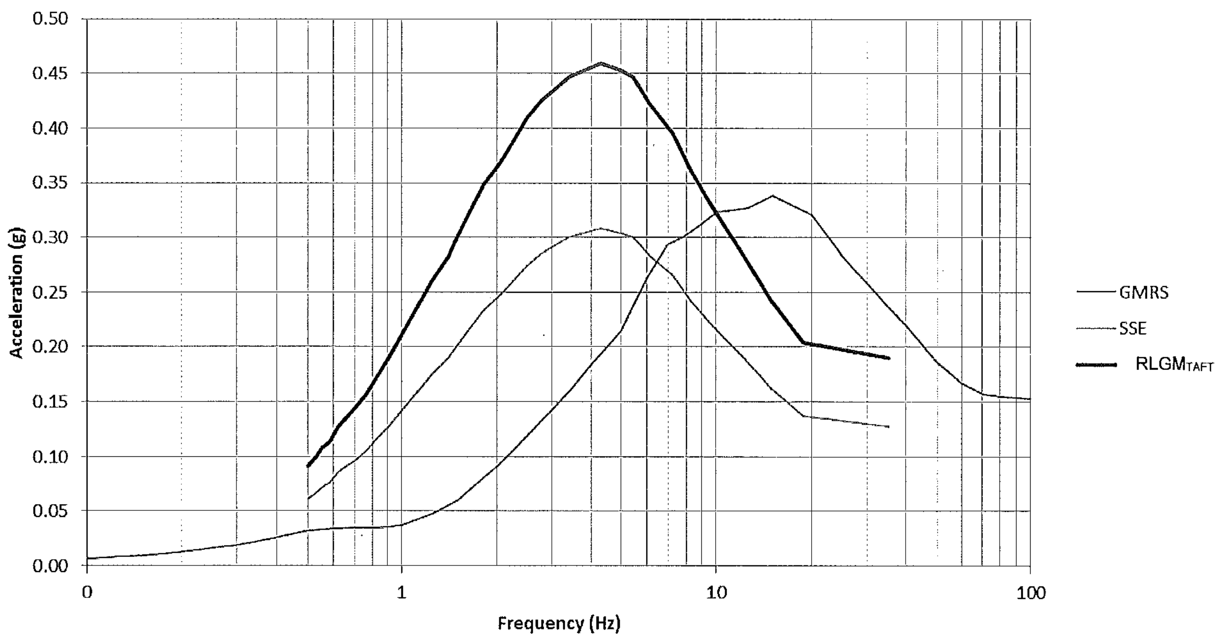

Figure 5-1: MNGP $RLGM_{TAFT}$

As stated previously, the EFT building requires a separate $RLGM_{REG1.60}$. The same methodology is followed, and is presented in the following.

Table 5-3: MNGP Maximum $GMRS/SSE_{REG1.60}$ Ratio (SF)

Freq. (Hz)	GMRS (g)	Horizontal SSE $_{REG1.60}$ (g)	SF = GMRS/SSE
1.00	0.038	0.177	0.21
1.25	0.048	0.221	0.22
1.50	0.060	0.256	0.23
2.00	0.091	0.313	0.29
2.50	0.119	0.376	0.32
3.00	0.143	0.366	0.39
3.50	0.164	0.358	0.46

Freq. (Hz)	GMRS (g)	Horizontal SSE $_{REG1.60}$ (g)	SF = GMRS/SSE
4.00	0.184	0.351	0.52
5.00	0.215	0.340	0.63
6.00	0.263	0.332	0.79
7.00	0.294	0.325	0.91
8.00	0.302	0.318	0.95
9.00	0.313	0.313	1.00
10.00	0.324	0.290	1.12

As shown above, the maximum GMRS/SSE$_{REG1.60}$ ratio for MNGP occurs at 10 Hz and equals 1.12.

The resulting 5% damped RLGM$_{REG1.60}$, based on scaling the horizontal SSE$_{REG1.60}$ by the SF of 1.12, is shown in Table 5-4 and Figure 5-2 below. Note that the RLGM$_{REG1.60}$ PGA is 0.134g.

Table 5-4: MNGP RLGM$_{REG1.60}$

Freq. (Hz)	5% damped Horizontal RLGM $_{REG1.60}$ (g)
0.20	0.041
0.30	0.074
0.40	0.093
0.50	0.112
0.60	0.130
0.70	0.148
0.80	0.165
0.90	0.182
1.00	0.198
1.10	0.214
1.20	0.230
1.30	0.246
1.40	0.261
1.50	0.276
1.60	0.291
1.70	0.306
1.80	0.321
1.90	0.336
2.00	0.350
2.10	0.364
2.20	0.379
2.30	0.393
2.40	0.407
2.50	0.421
2.60	0.418
2.70	0.416
2.80	0.414
2.90	0.412
3.00	0.410
3.15	0.407
3.30	0.404
3.45	0.402
3.60	0.399
3.80	0.396
4.00	0.394

Freq. (Hz)	5% damped Horizontal RLGM $_{REG1.60}$ (g)
4.20	0.391
4.40	0.388
4.60	0.386
4.80	0.383
5.00	0.381
5.25	0.379
5.50	0.376
5.75	0.374
6.00	0.372
6.25	0.369
6.50	0.367
6.75	0.365
7.00	0.364
7.25	0.362
7.50	0.360
7.75	0.358
8.00	0.357
8.50	0.354
9.00	0.351
9.50	0.337
10.00	0.325
10.50	0.313
11.00	0.302
11.50	0.293
12.00	0.284
12.50	0.275
13.00	0.267
13.50	0.260
14.00	0.253
14.50	0.247
15.00	0.241
16.00	0.229
17.00	0.219
18.00	0.210
20.00	0.195
22.00	0.181
25.00	0.165
28.00	0.152
31.00	0.141
34.00	0.134

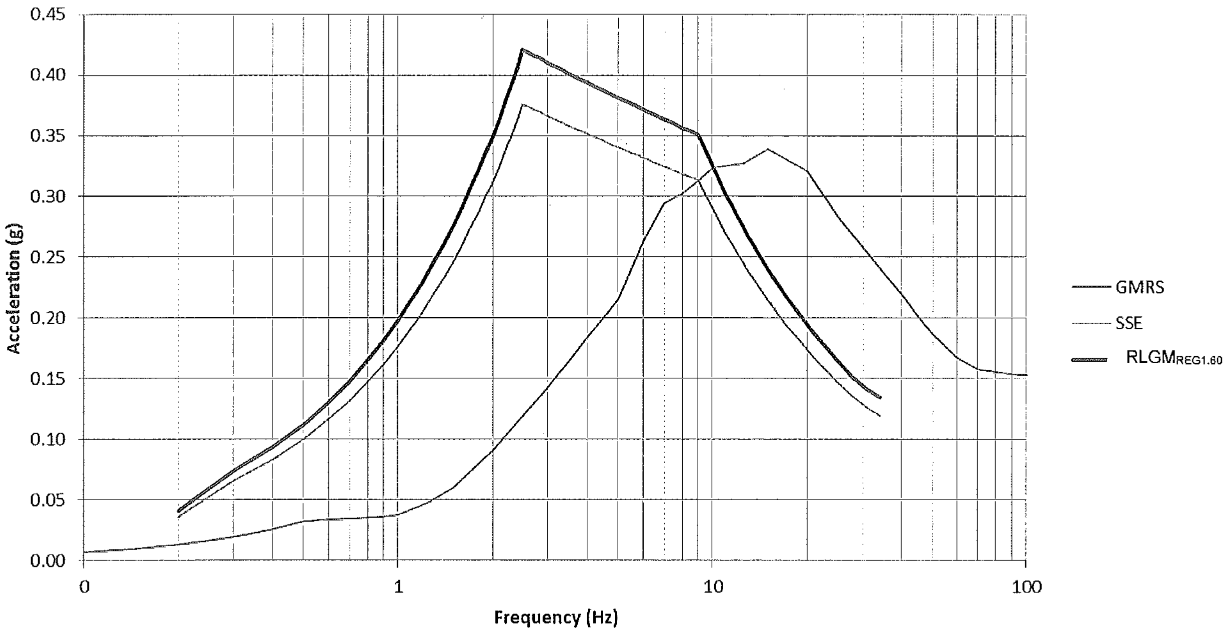

Figure 5-2: MNGP $RLGM_{REG1.60}$

5.2 Method to Estimate ISRS

The method used to derive the ESEP in-structure response spectra (ISRS) was to uniformly scale existing SSE-based ISRS from 50097-R-001 [17] by the maximum SF from Table 5-1 and Table 5-3 of 1.49 and 1.12, respectively. ISRS used for the ESEP were developed for the USI A-46 program. Scaled ISRS are calculated for all buildings and elevations where ESEL items are located at MNGP. These scaled ISRS are documented within S&A Calculation 14C4247-CAL-001 [9].

6. SEISMIC MARGIN EVALUATION APPROACH

It is necessary to demonstrate that ESEL items have sufficient seismic capacity to meet or exceed the demand characterized by the RLGM. The seismic capacity is characterized as the highest peak ground acceleration (PGA) for which there is a high confidence of a low probability of failure (HCLPF). The PGA is associated with a particular spectral shape; in this case the 5% damped RLGM spectral shape. The calculated HCLPF capacity must be equal to or greater than the RLGM PGA (0.19g from Table 5-2 and 0.134g from Table 5-4). The criteria for seismic capacity determination are given in Section 5 of EPRI 3002000704 [2].

There are two basic approaches for developing HCLPF capacities:

1. Deterministic approach using the Conservative Deterministic Failure Margin (CDFM) methodology of EPRI NP-6041 [7].
2. Probabilistic approach using the fragility analysis methodology of EPRI TR-103959 [8].

For MNGP, the deterministic approach using the CDFM methodology of EPRI NP-6041 [7] was used to determine HCLPF capacities.

6.1 Summary of Methodologies Used

MNGP conservatively applied the methodology of EPRI NP-6041 [7] to all items on the ESEL. The screening walkdowns used the screening tables from Chapter 2 of EPRI NP-6041 [7]. The walkdowns were conducted by engineers who as a minimum attended the SQUG Walkdown Screening and Seismic Evaluation Training Course. The walkdowns were documented on Screening Evaluation Work Sheets from EPRI NP-6041 [7]. Anchorage capacity calculations used the CDFM criteria from EPRI NP-6041 [7] with MNGP specific allowables and material strengths used as applicable. The input seismic demand used was the RLGM shown in Table 5-2, Figure 5-1, Table 5-4 and Figure 5-2.

6.2 HCLPF Screening Process

From the two tables Table 5-2 and Table 5-4, the maximum spectral peak of the RLGM for MNGP equals 0.46g. Screening lanes 1 and 2 in Table 2-4 of NP-6041 [7] are bounded by peak spectral accelerations of 0.8g and 1.2g, respectively. Both lane limits exceed the RLGM peak spectral acceleration. MNGP ESEL components were screened to lane 1 of Table 2-4 in NP-6041 [7]. For components located 40' above grade, screening based on ground peak spectral acceleration is not applicable and additional consideration is required. However, only three items are located above 40' above grade. The three items are two (2) temperature elements and one (1) pressure transmitter. These types of components are inherently seismically rugged.

The ESEL contains 83 valves, both power operated and relief. In accordance with Table 2-4 of EPRI NP-6041 [7], active valves may be assigned a functional capacity of 0.8g peak spectral acceleration without any review other than looking for valves with large extended operators on small diameter piping, and anchorage is not a failure mode. Therefore, valves on the ESEL may be screened out from ESEP seismic capacity determination, subject to the caveat regarding large extended operators on small diameter piping. Power operated valves were addressed in the USI A-46 program. These valves were walked down extensively and were evaluated per plant documentations when deemed necessary. In addition, the SRT performed a walkdown and reviewed plant valve drawings for most of the valves, and determined they met the intent of Table 2-4 of EPRI NP-6041 [7].

The non-valve components in the ESEL are generally screened based on the USI A-46 results. Where possible, the results of the USI A-46 analysis were scaled. If the scaling approach was not straight forward, then a more detailed analysis was performed and presented in S&A Calculation 14C4247-CAL-002 [10].

6.3 Seismic Walkdown Approach

6.3.1 Walkdown Approach

Walkdowns for MNGP were performed in accordance with the criteria provided in Section 5 of EPRI 3002000704 [2], which refers to EPRI NP-6041 [7] for the Seismic Margin Assessment process. Pg. 2-26 through 2-30 of EPRI NP-6041 [7] describes the seismic walkdown criteria, including the following key criteria:

> *"The SRT [Seismic Review Team] should "walk by" 100% of all components which are reasonably accessible and in non-radioactive or low radioactive environments. Seismic capability assessment of components which are inaccessible, in high-radioactive environments, or possibly within contaminated containment, will have to rely more on alternate means such as photographic inspection, more reliance on seismic reanalysis, and possibly, smaller inspection teams and more hurried inspections. A 100% "walk by" does not mean complete inspection of each component, nor does it mean requiring an electrician or other technician to de-energize and open cabinets or panels for detailed inspection of all components. This walkdown is not intended to be a QA or QC review or a review of the adequacy of the component at the SSE level.*
>
> *If the SRT has a reasonable basis for assuming that the group of components are similar and are similarly anchored, then it is only necessary to inspect one component out of this group. The "similarity-basis" should be developed before the walkdown during the seismic capability preparatory work (Step 3) by reference to drawings, calculations or specifications. The one component or each type which is selected should be thoroughly inspected which probably does mean de-energizing and opening cabinets or panels for this very limited sample. Generally, a spare representative component can be found so as to enable the inspection to be performed while the plant is in operation. At least for the one component of each type which is selected, anchorage should be thoroughly inspected.*
> *The walkdown procedure should be performed in an ad hoc manner. For each class of components the SRT should look closely at the first items and compare the field configurations with the construction drawings and/or specifications. If a one-to-one correspondence is found, then subsequent items do not have to be inspected in as great a detail. Ultimately the walkdown becomes a "walk by" of the component class as the SRT becomes confident that the construction pattern is typical. This procedure for inspection should be repeated for each component class; although, during the actual walkdown the SRT may be inspecting several classes of components in parallel. If serious exceptions to the drawings or questionable construction practices are found then the system or component class must be inspected in closer detail until the systematic deficiency is defined.*
>
> *The 100% "walk by" is to look for outliers, lack of similarity, anchorage which is different from that shown on drawings or prescribed in criteria for that component, potential SI [Seismic Interaction] problems, situations that are at odds with the team members' past experience, and any other areas of serious seismic concern. If any such concerns surface, then the limited sample size of one component of each type for thorough inspection will have to be increased. The increase in sample size which should be inspected will depend upon the number of outliers and different anchorages, etc., which are observed. It is up to the SRT to ultimately select the sample size since they are the ones who are responsible for the seismic adequacy of all elements which they screen from the margin review. Appendix D gives guidance for sampling selection.*

The MNGP walkdowns included, as a minimum, a 100% walk-by of all "existing" items on the MNGP ESEL except as noted in Section 7. Any previous walkdown information that was relied upon as the basis for SRT judgment in excluding an item walkdown is documented in Section 6.3.2.

6.3.2 Application of Previous Walkdown Information

The seismic walkdowns for MNGP included, as a minimum, a walk-by of all the components on the ESEL by the SRT with the exception of the items inside Drywell or high radiation locations as they were not accessible at the time of the walkdowns:

- Fluid-Operated Valves (RV-3242A, RV-3243A, RV-3244A, RV-3245A, RV-7440A, RV-7441A, RV-7467A, RV-7468A)
- Fluid-Operator Valves (AO-2386 & AO-2387)
- Motor Operated and Solenoid-Operated Valves (MO-2035, MO-2076, SV-2-71A ~ SV-2-71M)
- Temperature Elements (TE-4247A ~ TE-4247H)
- Accumulators (T-57A ~ T-57H)

A detailed discussion and resolution for each item listed above is provided in Section 7.

Previous seismic walkdowns were used to support the ESEP seismic evaluations. Some of the components on the ESEL were included in the NTTF 2.3 seismic walkdowns [15]. Those walkdowns were recent enough that they did not need to be repeated for the ESEP.

Several ESEL items were previously walked down during the MNGP USI A-46 evaluation. Those walkdown results were reviewed and the following steps were taken to confirm that the previous walkdown conclusions remained valid.

- A walk by was performed to confirm that the equipment material condition and configuration is consistent with the walkdown conclusions and that no new significant interactions related to block walls or piping attached to tanks exists.
- If the ESEL item was screened out based on the previous walkdown, that screening evaluation was reviewed and reconfirmed for the ESEP.

6.3.3 Significant Walkdown Findings

Consistent with that guidance from NP-6041 [7], no significant outliers or anchorage concerns were identified during the MNGP ESEP walkdowns. The following findings were noted during the walkdowns.

- Masonry walls and columns were identified in the proximity of ESEL equipment. These masonry walls and columns were assessed for their structural adequacy to withstand the seismic loads resulting from the RLGM. For any cases where the block wall represented the HCLPF failure mode for an ESEL item, it is noted in the tabulated HCLPF values described in Attachment B.

6.4 HCLPF Calculation Process

ESEL items were evaluated using the criteria in EPRI NP-6041 [7]. Those evaluations included the following steps:

- Performing seismic capability walkdowns for equipment to evaluate the equipment installed plant conditions
- Performing screening evaluations using the screening tables in EPRI NP-6041 [7] as described in Section 6.2
- Performing HCLPF calculations considering various failure modes that include both structural (e.g. anchorage, load path etc.) and functional failure modes.

All HCLPF calculations were performed using the CDFM methodology and are documented in S&A Calculation 14C4247-CAL-002 [10].

Anchorage configurations for non-valve components were evaluated either by SRT judgment, large margins in existing design basis calculations, or CDFM based HCLPF calculations [10]. The results of these analysis methods are documented in Attachment B. For components beyond 40' above grade, Table 2-4 of NP-6041 [7] is not directly applicable.

ESEP equipment items which are beyond 40ft above grade are located in the Reactor Building (RX) at elevation 985' & 994'. However, the three components are pressure transmitter (PT-7251B) and temperature elements (TE-4247G & TE-4247H). These types of components are inherently seismically rugged and were ruggedly attached to structural components.

As described in Section 6.0, for HCLPF calculations the Conservative Deterministic Failure Margin (CDFM) analysis criteria established in Section 6 of EPRI NP-6041 [7] are used for a detailed analysis of components. The relevant CDFM criteria from EPRI NP-6041 [7] are summarized in Table 6-1.

Table 6-1: MNGP Maximum GMRS/SSE Ratio (SF)

Load combination:	Normal + seismic margin earthquake (SME)
Ground response spectrum:	Conservatively specified (84% non-exceedance probability)
Damping:	Conservative estimate of median damping.
Structural model:	Best estimate (median) + uncertainty variation in frequency.
Soil-structure interaction	Best estimate (median) + parameter variation
Material strength:	Code specified minimum strength or 95% exceedance of actual strength if test data is available.
Static capacity equations:	Code ultimate strength (ACI), maximum strength (AISC), Service Level D (ASME) or functional limits. If test data is available to demonstrate excessive conservatism of code equations then use 84% exceedance of test data for capacity equations.
Inelastic energy absorption:	For non-brittle failure modes and linear analysis, use 80% of computed seismic stress in capacity evaluation to account for ductility benefits or perform nonlinear analysis and use 95% exceedance ductility levels.
In-structure (floor) spectra generation:	Use frequency shifting rather than peak broadening to account for uncertainty and use median damping.

The HCLPF capacity is equal to the PGA at which the strength limit is reached. The HCLPF earthquake load is calculated as follows:

U = Normal + Ec

Where:

- U = Ultimate strength per Section 6 of EPRI NP-6041 [7]
- Ec = HCLPF earthquake load
- Normal = Normal operating loads (dead and live load expected to be present, etc.)

For this calculation, the HCLPF earthquake load is related to a fixed reference earthquake:

Ec = SFc*Eref

Where:

- Eref = reference earthquake from the relevant in-structure response spectrum (ISRS)
- SFc = component-specific scale factor that satisfies U = Normal +Ec

The HCLPF will be defined as the PGA produced by Ec. Because the MNGP RLGM PGA is 0.19g or 0.134g depending on building:

$HCLPF_{TAFT}$ = 0.19g*SFc
$HCLPF_{REG1.60}$ = 0.134g*SFc

6.5 Functional Evaluation of Relays

A HCLPF evaluation is performed for all relays and switches which may negatively “seal in” or “lock out” on the MNGP ESEL [19].

For relay evaluations, NP-6041-SL Appendix Q describes the following steps:

- Calculate in-cabinet response spectra (ICRS):
- Establish a clipping factor to be applied to the ICRS:
- Determine a relay's GERS Capacity:
- Establish adjustment factors to convert the relay's GERS capacity to a CDFM level:
- Compare clipped-peak and ZPA demands to the GERS capacity:

The ESEL has 26 relays and 49 switches that have chatter concerns [20] ~ [25]. HCLPF capacities for these components are calculated in S&A Calculation 14C4247-CAL-004 [27] and are presented in Attachment B.

6.6 Tabulated ESEL HCLPF Values (Including Key Failure Modes)

Tabulated ESEL HCLPF values including the key failure modes are included in Attachment B following the criteria below:

- For items screened out using NP 6041 [7] screening tables, the HCLPF is listed as "> RLGM" (> 0.19g or 0.134g, depending on building location) and the failure mode is "Screened out"
- For items where anchorage controls the HCLPF value, the anchorage HCLPF value is listed in the table and the failure mode is set to "Anchorage Capacity"
- For Items whose capacities were controlled by nearby block walls as the nearby block wall capacities were lower than the equipment and the anchorage capacities, the failure mode is noted as "Block Wall Capacity" and the block wall HCLPF value is listed
- For items where a relay or switch HCLPF controls, the relay or switch HCLPF value is listed in the table and the failure mode is set to "Functionality Capacity"
- For items where an equipment capacity is based upon the screening lane values of Table 2-4 of ERPI NP-6041 [7] controls the HCLPF value (e.g. anchorage or relay HCLPF capacity exceeds the equipment capacity derived from screening lanes), the screening lane HCLPF value is listed in the table and the failure mode is set to "Equipment Capacity". Based on NP-6041 Table 2-4 lane 1, this limit is equal to 0.33g ($RLGM_{TAFT}$) and 0.25g ($RLGM_{REG1.60}$) for items below 40 feet above grade.

The "Equipment Capacity" limits from above are calculated as follows:

The upper-bound spectral peak to NP-6041 Table 2-4 lane 1 is 0.8g. From Table 5-2 and Table 5-4, the RLGM spectral peak is 0.46g for $RLGM_{TAFT}$ and 0.421g for $RLGM_{REG1.60}$, and the PGA is 0.19g for $RLGM_{TAFT}$ and 0.134g for $RLGM_{REG1.60}$. Thus, for equipment less than 40 feet above grade, the "Equipment Capacity" HCLPF is limited to 0.8/0.46*0.19 = 0.33g for $RLGM_{TAFT}$ and 0.8/0.421*0.134 = 0.25g for $RLGM_{REG1.60}$.

7. INACCESSIBLE ITEMS

7.1 Identification of ESEL Items Inaccessible for Walkdowns

All items located inside the Drywell or high radiation locations were inaccessible. A description of circumstances and disposition for each of these items is provided below.

Fluid-Operated Valves (RV-2-71A ~ RV-2-71H)

These items were walked down during the MNGP USI A-46 evaluation. The Screening Evaluation Work Sheet (SEWS) provides detailed description of the valves and includes photos. The valves have no vulnerabilities. In addition, valve drawings were reviewed. This inspection was performed to the satisfaction of the SRT and is therefore acceptable.

Fluid-Operated Valves (RV-3242A, RV-3243A, RV-3244A, RV-3245A, RV-7440A, RV-7441A, RV-7467A, RV-7468A)

These items were walked down during the MNGP USI A-46 evaluation. The SEWS provide detailed description of the valves and includes photos. The small valves have no operators or vulnerabilities. In addition, valve drawings were reviewed. This inspection was performed to the satisfaction of the SRT and is therefore acceptable.

Fluid-Operator Valves (AO-2386 & AO-2387)

These items were walked down during the MNGP USI A-46 evaluation. The SEWS provide detailed description of the valves and includes photos. The valves have no vulnerabilities. In addition, valve drawings were reviewed. This inspection was performed to the satisfaction of the SRT and is therefore acceptable.

Motor Operated and Solenoid-Operated Valves (MO-2035, MO-2076, SV-2-71A ~ SV-2-71M)

Same as the fluid operated valves, these motor-operated and solenoid-operated valves were evaluated during the MNGP USI A-46 evaluation. The SEWS provide detailed description of the valves and includes photos. In addition, valve drawings were also reviewed. This inspection was performed to the satisfaction of the SRT and is therefore acceptable.

Temperature Elements (TE-4247A ~ TE-4247H)

These temperature elements were evaluated during the MNGP USI A-46 evaluation. The SEWS provided detailed description of the valves and include photos. These items are inherently seismically rugged and the notes state the items are securely attached to structural components. No other vulnerabilities are noticed. The inspection was performed to the satisfaction of the SRT and is therefore acceptable.

Accumulators (T-57A ~ T-57H)

These accumulators were evaluated during the MNGP USI A-46 evaluation. The SEWS state the 2 large U bolts typically to the structural steel was acceptable due to their large margin. The photos also confirm the accumulators are secured. Therefore, these items were judged to be acceptable by the SRT.

7.2 Planned Walkdown / Evaluation Schedule / Close Out

No additional walkdowns are required.

8. ESEP CONCLUSIONS AND RESULTS

8.1 Supporting Information

MNGP has performed the ESEP as an interim action in response to the NRC's 50.54(f) letter [1]. It was performed using the methodologies in the NRC endorsed guidance in EPRI 3002000704 [2].

The ESEP provides an important demonstration of seismic margin and expedites plant safety enhancements through evaluations and potential near-term modifications of plant equipment that can be relied upon to protect the reactor core following beyond design basis seismic events.

The ESEP is part of the overall MNGP response to the NRC's 50.54(f) letter [1]. On March 12, 2014, NEI submitted to the NRC results of a study [12] of seismic core damage risk estimates based on updated seismic hazard information as it applies to operating nuclear reactors in the Central and Eastern United States (CEUS). The study concluded that "site-specific seismic hazards show that there has not been an overall increase in seismic risk for the fleet of U.S. plants" based on the re-evaluated seismic hazards. As such, the "current seismic design of operating reactors continues to provide a safety margin to withstand potential earthquakes exceeding the seismic design basis."

The NRC's May 9, 2014 NTTF 2.1 Screening and Prioritization letter [13] concluded that the "fleet wide seismic risk estimates are consistent with the approach and results used in the GI-199 safety/risk assessment." The letter also stated that "As a result, the staff has confirmed that the conclusions reached in GI-199 safety/risk assessment remain valid and that the plants can continue to operate while additional evaluations are conducted."

An assessment of the change in seismic risk for MNGP was included in the fleet risk evaluation submitted in the March 12, 2014 NEI letter [12] therefore, the conclusions in the NRC's May 9 letter [13] also apply to MNGP.

In addition, the March 12, 2014 NEI letter [12] provided an attached "Perspectives on the Seismic Capacity of Operating Plants," which (1) assessed a number of qualitative reasons why the design of Structures, Systems, and Components (SSCs) inherently contain margin beyond their design level, (2) discussed industrial seismic experience databases of performance of industry facility components similar to nuclear SSCs, and (3) discussed earthquake experience at operating plants.

The fleet of currently operating nuclear power plants was designed using conservative practices, such that the plants have significant margin to withstand large ground motions safely. This has been borne out of those plants that have actually experienced significant earthquakes. The seismic design process has inherent (and intentional) conservatisms which result in significant seismic margins within SSCs. These conservatisms are reflected in several key aspects of the seismic design process, including:

- Safety factors applied in design calculations
- Damping values used in the dynamic analysis of SSCs
- Bounding synthetic time histories for in-structure response spectra calculations
- Broadening criteria for in-structure response spectra
- Response spectra enveloping criteria typically used in SSC analysis and testing applications
- Response spectra based frequency domain analysis rather than explicit time history based time domain analysis
- Bounding requirements in codes and standards
- Use of minimum strength requirements of structural components (concrete and steel)
- Bounding testing requirements, and
- Ductile behavior of the primary materials (that is, not crediting the additional capacity of materials such as steel and reinforced concrete beyond the essentially elastic range, etc.).

These design practices combine to result in margins such that the SSCs will continue to fulfill their functions at ground motions well above the SSE.

8.2 Identification of Items Requiring Further Resolution

Insights from the ESEP identified the following potential items where the HCLPF is below the RLGM. A more detailed analysis may result in a HCLPF that exceeds the RLGM for these components. If not, modifications or other measures will be considered to provide additional seismic margin such that the HCLPF will exceed the RLGM.

1. RHR Heat Exchanger E-200B has a HCLPF capacity below the RLGM. High strength bolts are used throughout the supporting frame, except for the connection between the heat exchanger supporting frame and the heat exchanger itself. The A307 bolts connecting the heat exchanger support frame and the heat exchanger are currently overstressed by 5%. A potential modification would be to change the existing A307 bolts to an A325 or equivalent to provide the additional seismic margin required.

2. Relays with very low capacities in specific configurations are known as "bad actors". These relays have been shown to perform poorly seismically. All inadequate relays have contacts which are both normally open and normally closed; thus, the (lower) normally closed capacity was used throughout the evaluation. Further evaluation may show that the chatter of the normally closed contacts for these relays would not negatively impact the FLEX plan; then these relays could be qualified. MNGP may also be able to determine that operator actions / workarounds exist for these relays or that they are not truly essential to the success of the FLEX strategy (i.e. removal from ESEL).

   The following are the list of relays that do not screen out.

   - 13A-K13
   - 13A-K14
   - 13A-K17
   - 13A-K3
   - 13A-K5
   - 13A-K29
   - 13A-K30
   - 13A-K28

   Relay K102B is located in the EFT building at Elevation 960', where the in-structure cabinet response exceeds the capacity. Solutions which may be considered are to stiffen or replace host cabinet (C-303B), relocate the subject relay to a more seismically favorable location, replace the subject relay with a compatible relay model or determine a higher capacity by shake table testing of this relay model.

   - K102B

3. The following are switches without capacity data or where capacity data is insufficient. MNGP may seek other measures, i.e., contacting the switch manufacturer and/or look for guidance within the industry, replacing the subject with a compatible model or determine capacity by shake table testing of these items. This applies to the following switches.

   - dPIS-13-83
   - dPIS-13-84
   - PS-13-87A
   - PS-13-87B
   - PS-13-87C
   - PS-13-87D
   - LIS-2-3-672A
   - LIS-2-3-672B
   - LIS-2-3-672C
   - LIS-2-3-672D
   - LS-2-3-672E
   - LS-2-3-672F

- LS-23-74
- LS-23-75

8.3 Implementation Schedule

Per Sec. 8.2, further analysis is warranted for components with HCLPF < RLGM. If more detailed analysis methods cannot produce a HCLPF > RLGM, a modification will be performed. Plant modifications will be performed in accordance with the schedule identified in NEI letter dated April 9, 2013 [28], which states that plant modifications not requiring a planned refueling outage will be completed by December 2016 and modifications requiring a refueling outage will be completed within two planned refueling outages after December 31, 2014.

8.4 Summary of Regulatory Commitments

No regulatory commitments are being made but the equipment identified in Section 8.2 are included in the MNGP corrective action program and will be resolved accordingly.

9. REFERENCES

1 NRC (E Leeds and M Johnson) Letter to All Power Reactor Licensees et al., "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3 and 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," March 12, 2012.

2 Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1 – Seismic. EPRI, Palo Alto, CA: May 2013. 3002000704.

3 Order Number EA-12-049 responses:

3.1 NRC Letter L-MT-13-017 from NSPM (ML13066A066), "Monticello Nuclear Generating Plant's Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)", February 28, 2013.

3.2 NRC Letter L-MT-13-079 from NSPM (ML13241A200), "Monticello's First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)", August 28, 2013.

3.3 NRC Letter L-MT-14-014 from NSPM (ML14065A037), "Monticello Nuclear Generating Plant's Second Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)", February 28, 2014.

3.4 NRC Letter L-MT-14-073 from NSPM (ML14241A262), "Monticello Nuclear Generating Plant's Third Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)", August 28, 2014.

4 14C4229-RPT-001 Rev. 2 (ML14136A289), "Monticello Nuclear Generating Plant Seismic Hazard and Screening Report", May 12, 2014

5 Nuclear Regulatory Commission, NUREG-1407, Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities, June 1991.

6 Nuclear Regulatory Commission, Generic Letter No. 88-20 Supplement 4, Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities - 10CFR 50.54(f), June 1991.

7 A Methodology for Assessment of Nuclear Power Plant Seismic Margin, Rev. 1, August 1991, Electric Power Research Institute, Palo Alto, CA. EPRI NP 6041.

8 Methodology for Developing Seismic Fragilities, August 1991, EPRI, Palo Alto, CA. 1994, TR-103959.

9 S&A Calculation No. 14C4247-CAL-001 Rev 0,"Generation of In-Structure Response Spectra for Use in ESEP Evaluations"

10 S&A Calculation No. 14C4247-CAL-002 Rev 0,"HCLPF Analysis for ESEP Evaluations for MNGP"

11 Nuclear Regulatory Commission, NUREG/CR-0098, Development of Criteria for Seismic Review of Selected Nuclear Power Plants, published May 1978.

12 Nuclear Energy Institute (NEI), A. Pietrangelo, Letter to D. Skeen of the USNRC, "Seismic Core Damage Risk Estimates Using the Updated Seismic Hazards for the Operating Nuclear Plants in the Central and Eastern United States", March 12, 2014.

13 NRC (E Leeds) Letter to All Power Reactor Licensees et al., "Screening and Prioritization Results Regarding Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(F) Regarding Seismic Hazard Re-Evaluations for Recommendation 2.1 of the Near-Term Task Force Review of Insights From the Fukushima Dai-Ichi Accident," May 9, 2014.

14 Seismic Evaluation Guidance: Screening, Prioritization and Implementation Details (SPID) for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic. EPRI, Palo Alto, CA: February 2013. 1025287.

15 NRC Letter L-MT-13-051 from NSPM (ML13263A032), "MNGP Updated Final Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident", dated September 16, 2013.

16 NSP Letter to NRC "Response to Supplement 1 to Generic Letter 87-02, Submittal of A-46 Seismic Evaluation Report (TAC M69460)", November 20th, 1995

17 MNGP Calc. No. 92-369, "Monticello Nuclear Generating Plant Reactor Building In-Structure Response Spectra", Rev. 1, September, 1992

18 Seismic Fragility Applications Guide Update, December 2009, EPRI, Palo Alto, CA. 1994, 1019200.
19 NSPM Calculation (Doc) No.: 14-053 Rev 0, "Monticello FLEX Expedited Seismic Equipment List (ESEL)"
20 Xcel Energy Design Information Transmittal (DIT) No: 24221-04, "Expedited Seismic Equipment List (ESEL), 10/27/2014
21 Xcel Energy Design Information Transmittal (DIT) No: 24221-05, "Expedited Seismic Equipment List (ESEL), 11/07/2014
22 Xcel Energy Design Information Transmittal (DIT) No: 24221-06, "Expedited Seismic Equipment List (ESEL), 11/19/2014
23 Xcel Energy Design Information Transmittal (DIT) No: 24221-07, "Expedited Seismic Equipment List (ESEL), 11/19/2014
24 Xcel Energy Design Information Transmittal (DIT) No.24221-08, "Expedited Seismic Equipment Process (ESEP) Report", 12/11/2014
25 Xcel Energy Design Information Transmittal (DIT) No.24221-09, "Expedited Seismic Equipment Process (ESEP) Report", 12/12/2014
26 Xcel Energy Design Information Transmittal (DIT) No.24221-10, "Expedited Seismic Equipment Process (ESEP) Report", 12/4/2014
27 S&A Calculation No. 14C4247-CAL-004 Rev 0,"ESEP HCLPFs for Relays"
28 Nuclear Energy Institute (NEI), A. Pietrangelo, Letter to D. Skeen of the USNRC, "Proposed Path Forward for NTTF Recommendation 2.1: Seismic Reevaluations", April 9, 2013
29 S&A Calculation No. 14C4247-CAL-003 Rev 0, "ESEP Block Wall HCLPFs"
30 S&A Report No. 14C4247-RPT-001 Rev 0, "Monticello ESEP SEWS Report"

ATTACHMENT A – MNGP ESEL

Table A-1 presents the MNGP ESEL. The selection process for items on this list is described in Section 3. Note that below, the "Normal State" and "Desired State" were determined when it was material to evaluating the seismic capacity of the component. In other cases, those columns are left blank.

Table A-1: MNGP ESEL [19]

ESEL	Equipment		Operating State		
Item Num	ID	Description	Normal State	Desired State	Notes/Comments
1	E-200A	RHR DIV 1 HEAT EXCHANGER			
2	E-200B	RHR DIV 2 HEAT EXCHANGER			
3	MO-2100	RCIC TORUS SUCTION INBOARD	Closed	Open	Interlocks w/MO-2102 (See NX-7822-5, relays 13A-K18 and 13A-K19. MO-2100 (Local) on NX-7822-22-2.
4	MO-2101	RCIC TORUS SUCTION OUTBOARD	Closed	Open	MO-2101 (Local) on NX-7822-22-2.
5	RV-2103	RCIC PUMP SUCTION RELIEF VALVE			
6	P-207	RCIC PUMP			
7	MO-2106	RCIC PUMP DISCHARGE OUTBOARD	Closed	Open	Open on Rx Vessel Lvl Low
8	MO-2107	RCIC PUMP DISCHARGE INBOARD	Closed	Open	Open on Rx Vessel Lvl Low
9	MO-2110	RCIC TEST FLOW ISOLATION	Closed	Closed	Close on Reactor Vessel Low-low Lvl or MO-2100 or MO-2101 Open Full
10	MO-3502	RCIC TEST RETURN ISOLATION	Closed	Closed	Close on Reactor Vessel Low-low Lvl or MO-2100 or MO-2101 Open Full
11	CV-2104	RCIC PUMP MINIMUM FLOW	Closed	Open	Fails Open on Loss of Air
12	PCV-2092	RCIC COOLING WATER TO BAROMETRIC CONDENSER			
13	MO-2096	RCIC BAROMETRIC CONDENSER COOLING WATER SUPPLY	Closed	Open	Close on Rx Vessel Lvl High/Open on Rx Vessel Lvl Low
14	RV-2097	COOLING WATER TO BAROMETRIC CONDENSER RELIEF VALVE			
15	E-205	RCIC OIL COOLER			
16	E-203	RCIC BAROMETRIC CONDENSER			
17	P-210	RCIC TURBINE BAROMETRIC CONDENSER CONDENSATE PUMP	Standby	Operating	
18	P-211	RCIC BAROMETRIC CONDENSER VACUUM PUMP	Standby	Operating	
19	MO-2076	RCIC STEAM LINE ISOLATION OUTBOARD	Open	Open	Close on High Flow/Open on Reactor vessel Low Level/Steam line Monitoring
20	MO-2078	RCIC TURBINE STEAM SUPPLY	Closed	Open	Close on Rx Vessel Lvl High/Open on Rx Vessel Lvl Low
21	MO-2080	RCIC TURBINE TRIP RESET MOTOR (HO-7)	Open	Open	Close on Turbine Trip

ESEL	Equipment		Operating State		Notes/Comments
Item Num	ID	Description	Normal State	Desired State	
22	HO-8	RCIC TURBINE GOVERNING VALVE			
23	S-200	RCIC TERRY TURBINE			
24	T-73	CV-2104 MINIMUM FLOW VALVE ACCUMULATOR TANK			
25	SV-2104	CV-2104 SOLENOID			
26	SV-2848	CV-2848 SOLENOID			
27	SV-2849	CV-2849 SOLENOID			
28	SV-2082A	CV-2082A SOLENOID			
29	SV-2082B	CV-2082B SOLENOID			
30	RV-1745	11 CORE SPRAY PUMP DISCHARGE RELIEF VALVE			
31	RV-2-71H	H SRV			
32	SV-2-71H	H SRV AIR OPERATOR SV			
33	SV-2-71L	H SRV ASDS AIR OPERATOR SV			
34	RV-2-71C	C SRV			
35	SV-2-71C	C SRV AIR OPERATOR SV			
36	RV-2-71D	D SRV			
37	SV-2-71D	D SRV AIR OPERATOR SV			
38	T-57C	PRI STEAM SRV D ACCUMULATOR			
39	T-57D	PRI STEAM SRV D ACCUMULATOR			
40	T-57H	PRI STEAM SRV D ACCUMULATOR			
41	T-57F	PRI STEAM SRV D ACCUMULATOR			
42	RV-2-71F	F SRV			
43	SV-2-71F	F SRV AIR OPERATOR SV			
44	SV-2-71M	F SRV ASDS AIR OPERATOR SV			
45	RV-2-71E	E SRV			
46	SV-2-71E	E SRV AIR OPERATOR SV			
47	SV-2-71J	E SRV ASDS AIR OPERATOR SV			
48	RV-2-71A	A SRV			
49	SV-2-71A	A SRV AIR OPERATOR SV			
50	RV-2-71B	B SRV			
51	SV-2-71B	B SRV AIR OPERATOR SV			
52	RV-2-71G	G SRV			
53	SV-2-71G	G SRV AIR OPERATOR SV			
54	SV-2-71K	G SRV ASDS AIR OPERATOR SV			
55	T-57A	PRI STEAM SRV G ACCUMULATOR			

ESEL	Equipment		Operating State		Notes/Comments
Item Num	ID	Description	Normal State	Desired State	
56	T-57B	PRI STEAM SRV G ACCUMULATOR			
57	T-57E	PRI STEAM SRV G ACCUMULATOR			
58	T-57G	PRI STEAM SRV G ACCUMULATOR			
59	RV-3243A	B SRV DISCH 8" VAC RV			
60	RV-7467A	G SRV DISCH 8" VAC RV			
61	RV-7440A	E SRV DISCH 8" VAC RV			
62	RV-3242A	A SRV DISCH 8" VAC RV			
63	RV-7468A	H SRV DISCH 8" VAC RV			
64	RV-3244A	C SRV DISCH 8" VAC RV			
65	RV-3245A	D SRV DISCH 8" VAC RV			
66	RV-7441A	F SRV DISCH 8" VAC RV			
67	MO-2035	HPCI STEAM LINE ISOLATION OUTBOARD	Open	Closed	HPCI Initiated on Lo-Lo Reactor Water or High Drywell Pressure (OPEN)/Close on High Flow/Close on Steam Leak.[1]
68	CV-3503	HPCI TEST RETURN FLOW			See Footnote 1.
69	MO-2071	HPCI TEST RETURN ISOLATION	Closed	Closed	See Footnote 1.
70	PT-13-65	RCIC PUMP SUCTION PRESSURE			
71	PI-13-96	RCIC PUMP SUCTION			Control Room Indication
72	PS-13-67A	RCIC LOW PUMP SUCTION PRESSURE TURBINE TRIP	energized	energized	RCIC Turbine Trip
73	PT-13-60	RCIC PUMP DISCHARGE PRESSURE			
74	PI-13-93	RCIC PUMP DISCHARGE			Control Room Indication
75	FS-13-57	RCIC PUMP DISCHARGE MINIMUM FLOW CONTROL	energized	energized	
76	FT-13-58	RCIC PUMP DISCHARGE FLOW CONTROL			
77	FIC-13-91	RCIC PUMP FLOW			
78	FI-13-91	RCIC FLOW			
79	FY-13-102	RCIC PUMP FLOW LOOP ISOLATOR			RCIC Turbine Control Logic
80	LS-7323	RCIC CONDENSER HIGH VACUUM TANK LEVEL ALARM			
81	dPIS-13-83	RCIC HIGH STEAM FLOW ISOLATION	energized	energized	

[1] valves **MO-2035, MO-2071** and **CV-3503** are included as part of the ESEL, because although not credited in any FLEX strategy, HPCI is safety-related and would automatically initiate in the event of an SBO, and would be secured as part of the ELAP procedures. The test line return path to the CST represents a potential problem for implementation of FLEX strategies because any water that is directed from the Torus to the CST would be lost should either valve fail to close. Therefore, the HPCI test line valves were included in the ESEL to ensure that if HPCI runs prior to being secured; the flow is only directed to the reactor or Torus. MO-2035 is closed as part of SBO procedures.

ESEL	Equipment		Operating State		Notes/Comments
Item Num	ID	Description	Normal State	Desired State	
82	dPIS-13-84	RCIC HIGH STEAM FLOW ISOLATION	energized	energized	
83	PS-13-87A	RCIC TURBINE STEAM SUPPLY LOW PRESS ISOLATION	energized	energized	Local per NX-7822-22-3
84	PS-13-87B	RCIC TURBINE STEAM SUPPLY LOW PRESS ISOLATION	energized	energized	Local per NX-7822-22-3
85	PS-13-87C	RCIC TURBINE STEAM SUPPLY LOW PRESS ISOLATION	energized	energized	Local per NX-7822-22-3
86	PS-13-87D	RCIC TURBINE STEAM SUPPLY LOW PRESS ISOLATION	energized	energized	Local per NX-7822-22-3
87	TS-13-79A-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
88	TS-13-79A-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
89	TS-13-79B-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
90	TS-13-79B-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
91	TS-13-79C-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
92	TS-13-79C-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
93	TS-13-79D-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
94	TS-13-79D-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
95	TS-13-80A-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
96	TS-13-80B-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
97	TS-13-80C-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
98	TS-13-80D-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
99	TS-13-81A-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
100	TS-13-81B-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
101	TS-13-81C-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
102	TS-13-81D-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
103	TS-13-82A-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3

ESEL	Equipment		Operating State		Notes/Comments
Item Num	ID	Description	Normal State	Desired State	
104	TS-13-82B-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
105	TS-13-82C-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
106	TS-13-82D-1	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
107	TS-13-80A-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
108	TS-13-80B-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
109	TS-13-80C-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
110	TS-13-80D-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
111	TS-13-81A-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
112	TS-13-81B-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
113	TS-13-81C-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
114	TS-13-81D-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
115	TS-13-82A-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
116	TS-13-82B-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
117	TS-13-82C-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
118	TS-13-82D-2	RCIC STEAM LINE HIGH AREA TEMPERATURE ISOLATION	energized	energized	Local per NX-7822-22-3
119	PT-13-68	RCIC TURBINE STEAM SUPPLY PRESSURE			
120	PI-13-94	RCIC TURBINE INLET			Control Room Indication
121	SY-7321	RCIC TURBINE SPEED SIGNAL CONVERTER			Control Room Indication
122	SCP-7925	RCIC TURBINE SPEED GOVERNOR EGM			
123	SE-7925	RCIC TURBINE SPEED MAGNETIC PICKUP			
124	LS-5	RCIC TURBINE OVERSPEED TRIP LEVEL SWITCH			
125	PT-13-70	RCIC TURBINE EXHAUST PRESSURE			
126	PI-13-95	RCIC TURBINE EXHAUST			Control Room Indication
127	PS-13-72A	RCIC HIGH TURBINE EXHAUST PRESSURE TURBINE TRIP	energized	energized	Turbine Trip

ESEL	Equipment		Operating State		Notes/Comments
Item Num	ID	Description	Normal State	Desired State	
128	PS-13-72B	RCIC HIGH TURBINE EXHAUST PRESSURE TURBINE TRIP	energized	energized	Turbine Trip
129	LT-2-3-61	REACTOR FLOODING LEVEL			
130	PT-6-53B	REACTOR PRESSURE WIDE RANGE B (REF COLUMN A)			
131	PI-6-90B	FW REACTOR PRESS TO B LVL CONTROL			Control Room Indication
132	LT-2-3-85B	REACTOR VESSEL WATER LEVEL (FROM COLUMN A)			
133	LI-2-3-85B	REACTOR VESSEL WATER LEVEL			
134	LT-2-3-72A	LO LO REACTOR LVL ECCS INITIATION			
135	LT-2-3-72C	LO LO REACTOR LVL ECCS INITIATION			
136	LIS-2-3-672A	HPCI LO LEVEL START	energized	energized	
137	LIS-2-3-672C	HPCI LO LEVEL START	energized	energized	
138	LS-2-3-672E[2]	HPCI/RCIC HI LVL TURB TRIP			
139	LT-2-3-72B	LO LO REACTOR LVL ECCS INITIATION			
140	LT-2-3-72D	LO LO REACTOR LVL ECCS INITIATION			
141	LIS-2-3-672B	HPCI LO LEVEL START	energized	energized	
142	LIS-2-3-672D	HPCI LO LEVEL START	energized	energized	
143	LS-2-3-672F[3]	HPCI/RCIC HI LVL TURB TRIP			
144	LT-2-3-85A	REACTOR VESSEL WATER LEVEL (FROM COLUMN B)			
145	LI-2-3-85A	REACTOR VESSEL WATER LEVEL			
146	PT-6-53A	REACTOR PRESSURE WIDE RANGE A (REF COLUMN B)			
147	PI-6-90A	FW REACTOR PRESS TO A LVL CONTROL			Control Room Indication
148	LT-2-3-112B	RX WTR LEVEL B FUEL ZONE (REF COLUMN A)			
149	PT-4067B	LOW LOW SET REACTOR PRESSURE			
150	PT-4067D	LOW LOW SET REACTOR PRESSURE			
151	LT-2-3-112A	RX WTR LEVEL A FUEL ZONE (REF COLUMN B)			
152	PT-4067A	LOW LOW SET REACTOR PRESSURE			
153	PT-4067C	LOW LOW SET REACTOR PRESSURE			
154	LS-23-74	HPCI COND STORAGE TANK INTLK			RCIC Pump Suction Transfer Instruments
155	LS-23-75	HPCI COND STORAGE TANK INTLK			RCIC Pump Suction Transfer Instruments
156	PCV-4897	ALT N2 TRAIN A PRESSURE REGULATOR			
157	PCV-4879	ALT N2 TRAIN A PRESSURE REGULATOR			

ESEL Item Num	Equipment		Operating State		Notes/Comments
	ID	Description	Normal State	Desired State	
158	PCV-4903	ALT N2 TRAIN A PRESSURE REGULATOR			
159	PCV-4904	ALT N2 TRAIN A PRESSURE REGULATOR			
160	SV-4234	ALT N2 TRAIN A MANIFOLD ISOLATION			
161	RV-4673	ALT N2 TRAIN A MANIFOLD RELIEF			
162	RV-4878	ALT N2 TRAIN A RELIEF			
163	PCV-4898	ALT N2 TRAIN B PRESSURE REGULATOR			
164	PCV-4881	ALT N2 TRAIN B PRESSURE REGULATOR			
165	PCV-4905	ALT N2 TRAIN B PRESSURE REGULATOR			
166	PCV-4906	ALT N2 TRAIN B PRESSURE REGULATOR			
167	RV-4236	ALT N2 TRAIN B MANIFOLD RELIEF			
168	SV-4235	ALT N2 TRAIN B MANIFOLD ISOLATION			
169	RV-4880	ALTERNATE N2 TRAIN B RELIEF			
170	AO-2377	DRYWELL & TORUS PURGE OTBD ISOL			Included for N2 System Integrity Only
171	AO-2387	DW OTBD VENT			Included for N2 System Integrity Only
172	AO-2896	TORUS MAIN EXHAUST			Included for N2 System Integrity Only
173	AO-2378	TORUS PURGE INBD ISOL			Included for N2 System Integrity Only
174	AO-2379	VACUUM RELIEF DAMPER			Included for N2 System Integrity Only
175	SV-2379	SV FOR AO-2379 TORUS TO RX BLDG VACUUM BREAKER			
176	AO-2380	VACUUM RELIEF DAMPER			Included for N2 System Integrity Only
177	SV-2380	SV FOR AO-2380 TORUS VACUUM RELIEF			
178	AO-2381	DRYWELL PURGE INBD ISOL			Included for N2 System Integrity Only
179	AO-2383	TORUS VENT			Included for N2 System Integrity Only
180	AO-2386	DW PURGE EXHAUST INBD			Included for N2 System Integrity Only
181	SV-4539	N2 SUPPLY TO HPV INBOARD ISOLATION A0-4539			
182	SV-4540	N2 SUPPLY FOR HPV OUTBD ISOLATION AO-4540			
183	SV-4541	INBOARD N2 SUPPLY TO HPV RUPTURE DISC			
184	SV-4542	OUTBOARD N2 SUPPLY TO HPV RUPTURE DISC			
185	AO-4539	HARD PIPE VENT INBOARD ISOLATION VALVE			Fail Closed
186	AO-4540	HARD PIPE VENT OUTBOARD ISOLATION VALVE			Fail Closed
187	PS-4662	ALT N2 TRAIN A SUPPLY ISOLATION/ALARM			
188	PS-4237	ALT N2 TRAIN B SUPPLY ISOLATION/ALARM			

ESEL	Equipment		Operating State		Notes/Comments
Item Num	ID	Description	Normal State	Desired State	
189	LT-7338A	TORUS WIDE RANGE LEVEL			
190	LY-7338B	TORUS WIDE RANGE LEVEL			
191	LT-7338B	TORUS WIDE RANGE LEVEL			
192	PT-7251A	DRYWELL WIDE RANGE PRESSURE			
193	PLR-7251A	DW PRESS-TOR LVL-DW RAD-ACCD/RNG			
194	PT-7251B	DRYWELL WIDE RANGE PRESSURE			
195	PY-7251B	PRIMARY CONTAINMENT WIDE RANGE PI ISOLATOR			
196	PLR-7251B	DW PRESS-TOR LVL-DW RAD-ACCD/RNG			
197	TE-4073A	TORUS SENSOR 1 - SRV71H / RCIC DISCHARGE AREA			
198	TE-4074A	TORUS SENSOR 2 - SRV71C DISCHARGE AREA			
199	TE-4075A	TORUS SENSOR 3 - SRV71B DISCHARGE AREA			
200	TE-4076A	TORUS SENSOR 4 - SRV71G / HPCI DISCHARGE AREA			
201	TE-4077A	TORUS SENSOR 5 - SRV71A DISCHARGE AREA			
202	TE-4078A	TORUS SENSOR 6 - SRV71E DISCHARGE AREA			
203	TE-4079A	TORUS SENSOR 7 - SRV71F DISCHARGE AREA			
204	TE-4080A	TORUS SENSOR 8 - SRV71D DISCHARGE AREA			
205	TE-4073B	TORUS SENSOR 1 - SRV71H / RCIC DISCHARGE AREA			
206	TE-4074B	TORUS SENSOR 2 - SRV71C DISCHARGE AREA			
207	TE-4075B	TORUS SENSOR 3 - SRV71B DISCHARGE AREA			
208	TE-4076B	TORUS SENSOR 4 - SRV71G / HPCI DISCHARGE AREA			
209	TE-4077B	TORUS SENSOR 5 - SRV71A DISCHARGE AREA			
210	TE-4078B	TORUS SENSOR 6 - SRV71E DISCHARGE AREA			
211	TE-4079B	TORUS SENSOR 7 - SRV71F DISCHARGE AREA			
212	TE-4080B	TORUS SENSOR 8 - SRV71D DISCHARGE AREA			
213	TI-4072A	DIV 1 TORUS TEMP			

ESEL Item Num	Equipment		Operating State		Notes/Comments
	ID	Description	Normal State	Desired State	
214	TI-4072B	DIV 2 TORUS TEMP			
215	TY-4072A	DIV 1 TORUS TEMP			
216	TY-4072B	DIV 2 TORUS TEMP			
217	TE-4247A	DW TEMPERATURE ELEMENT (DUAL ELEMENT A1/A2)			
218	TE-4247B	DW TEMPERATURE ELEMENT (DUAL ELEMENT B1/B2)			
219	TE-4247C	DW TEMPERATURE ELEMENT (DUAL ELEMENT C1/C2)			
220	TE-4247D	DW TEMPERATURE ELEMENT (DUAL ELEMENT D1/D2)			
221	TE-4247E	DW TEMPERATURE ELEMENT (DUAL ELEMENT E1/E2)			
222	TE-4247F	DW TEMPERATURE ELEMENT (DUAL ELEMENT F1/F2)			
223	TE-4247G	DW TEMPERATURE ELEMENT (DUAL ELEMENT G1/G2)			
224	TE-4247H	DW TEMPERATURE ELEMENT (DUAL ELEMENT H1/H2)			
225	RE-4544	HARD PIPE VENT RADIATION DETECTOR			
226	RM-4544	HARD PIPE VENT RADIATION MONITOR			
227	D10	125 VDC CHARGER FOR #11 BATT			DOOR #110 INSIDE ON SOUTH WALL, EC720 replaced charger,
228	D20	125 VDC CHARGER FOR #12 BATT			DOOR #103 INSIDE ON NORTH WALL, Mod 00Q370 replaced charger
229	D52	CHARGER, D3A (13) BATTERY			DOOR #109 INSIDE ON NORTH WALL
230	D53	CHARGER, D3B (13) BATTERY			DOOR #109 INSIDE ON NORTH WALL
231	D54	CHARGER, SWING D3A,D3B (13) BATTERY			DOOR #109 INSIDE ON NORTH WALL
232	D70	CHARGER, D6B (16) BATTERY			Drawing Available
233	D80	CHARGER, D6A (16) BATTERY			
234	D90	CHARGER, SWING D6A,D6B (16)BATTERY			
235	Y71	DIV 1 120VAC CLASS 1E INVERTER	Energized	Energized	
236	Y75	DIV 1 FUSED DISCONNECT SWITCH	Energized	Energized	
237	Y70	DIV 1 UNINTERRUPTIBLE 120VAC CLASS 1E DIST PANEL	Energized	Energized	
238	Y81	DIV 2 120VAC CLASS 1E INVERTER	Energized	Energized	NORTH SIDE
239	Y85	DIV 2 FUSED DISCONNECT SWITCH	Energized	Energized	
240	Y80	DIV 2 UNINTERRUPTIBLE 120VAC CLASS 1E DIST PANEL	Energized	Energized	NORTH SIDE

ESEL	Equipment		Operating State		
Item Num	ID	Description	Normal State	Desired State	Notes/Comments
241	D1	#11 BATTERY 125VDC			DOOR #110
242	D11	DIV I 125VDC DISTRIBUTION CENTER	Energized	Energized	DOOR #110 INSIDE ON SOUTH WALL
243	D2	#12 BATTERY 125VDC			
244	D21	DIV I 125 VDC DISTRIBUTION PANEL	Energized	Energized	DOOR #103 INSIDE ON NORTH WALL
245	D33	125 VDC DISTRIBUTION CENTER	Energized	Energized	DOOR #110 INSIDE ON SOUTH WALL
246	D100	DIV 2 125/250 VDC DISTRIBUTION PANEL			
247	D31	DIV I 125/250 VDC DISTRIBUTION PANEL			DOOR #109
248	D3A	#13 (DIV 1) 125/250VDC BATTERY "A"			DOOR #109
249	D3B	#13 (DIV 1) 125/250VDC BATTERY "B"			DOOR #109
250	D6A	#16 (DIV 2) 125/250VDC BATTERY "A"			SOUTH SIDE
251	D6B	#16 (DIV 2) 125/250VDC BATTERY "B"			NORTH SIDE
252	D311	DIV 1 (RCIC) 250V DC MOTOR CONTROL CENTER 311	Energized	Energized	CENTER
253	D312	DIV 2 (HPCI) 250V DC MOTOR CONTROL CENTER 312	Energized	Energized	
254	D313	DIV 1 (RCIC) 250V DC MOTOR CONTROL CENTER 313	Energized	Energized	CENTER
255	C-03	RX AND CTMT COOLING AND ISOL BENCH BOARD			
256	C-04	RWC RECIRCULATING BENCH BOARD			
257	C-15	CHANNEL A PRIMARY ISOL AND RPS VERTICAL BOARD			NORTH OF C-05
258	C-30	RCIC CABLE SPR RM CONTROL PANEL			
259	C-41	INBOARD ISOLATION RELAY PANEL			
260	C-42	OUTBOARD ISOLATION RELAY PANEL			
261	C-55	REACTOR VESSEL LEVEL AND PRESSURE RACK			
262	C-56	REACTOR VESSEL LEVEL AND PRESSURE RACK			
263	C-121	JET PUMP INSTRUMENT RACK			
264	C-122	JET PUMP INSTRUMENT RACK			
265	C-128	RCIC INSTRUMENT RACK			
266	C-253A	SRV LOW LOW SET DIV 1 CONTROL PANEL			
267	C-253B	SRV LOW LOW SET DIV 2 CONTROL PANEL			
268	C-292	ASDS BENCHBOARD			
269	C-32	A RHR, CORE SPRAY, ADS CONTROL PANEL			
270	C-33	B RHR, CORE SPRAY, ADS CONTROL PANEL			

ESEL	Equipment		Operating State		Notes/Comments
Item Num	ID	Description	Normal State	Desired State	
271	C-303A	ECCS DIV I ANALOG TRIP SYSTEM			
272	C-303B	ECCS DIV II ANALOG TRIP SYSTEM			
273	13A-K1	Control Relay	de-energized		
274	13A-K2	Control Relay	de-energized		
275	13A-K3	Control Relay	de-energized	de-energized	
276	13A-K5	Control Relay	de-energized	de-energized	
277	13A-K6	Control Relay	de-energized		
278	13A-K7	Control Relay	de-energized	de-energized	
279	13A-K10	Control Relay	de-energized	de-energized	
280	13A-K12	Control Relay	de-energized		
281	13A-K13	Control Relay	de-energized		
282	13A-K14	Control Relay	de-energized	de-energized	
283	13A-K16	Control Relay	de-energized		
284	13A-K17	Control Relay	de-energized	de-energized	
285	13A-K18	Control Relay	de-energized	de-energized	
286	13A-K19	Control Relay	de-energized	de-energized	
287	13A-K22	Control Relay	de-energized	de-energized	
288	13A-K27	Control Relay	de-energized		
289	13A-K29	Control Relay	de-energized		
290	13A-K30	Control Relay	de-energized		
291	13A-K31	Control Relay	de-energized	de-energized	
292	13A-K32	Control Relay	de-energized		
293	13A-K33	Control Relay	de-energized	de-energized	
294	13A-K34	Control Relay	de-energized		
295	13A-K37	Control Relay	energized	energized	
295	13A-K28	Control Relay	de-energized	de-energized	
297	K102A	Control Relay	de-energized	de-energized	
298	K102B	Control Relay	de-energized	de-energized	

[2] Listed as LIS-2-3-672E in the MNGP ESEP SEWS (14C4247-RPT-001) and 14C4247-CAL-004.
[3] Listed as LIS-2-3-672F in the MNGP ESEP SEWS (14C4247-RPT-001) and 14C4247-CAL-004.

ATTACHMENT B – ESEP HCLPF VALUES AND FAILURE MODES TABULATION

Table B-1: ESEP HCLPF Values and Failure Modes for EFT Building
($RLGM_{REG1.60}$ = 0.134g)

Equip ID (MPL or TPNS)	Failure Mode	HCLPF (g)	Additional Discussions
D6A	Equipment Capacity	0.25	Component evaluated by HCLPF calculation 14C4247-CAL-002.
D6B	Equipment Capacity	0.25	Component evaluated by HCLPF calculation 14C4247-CAL-002.
D70	Equipment Capacity	0.25	Component evaluated by HCLPF calculation 14C4247-CAL-002.
D80	Equipment Capacity	0.25	Component evaluated by HCLPF calculation 14C4247-CAL-002.
D90	Equipment Capacity	0.25	Component evaluated by HCLPF calculation 14C4247-CAL-002.
Y71	Equipment Capacity	0.25	Component evaluated by HCLPF calculation 14C4247-CAL-002.
Y81	Equipment Capacity	0.25	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-253B	Equipment Capacity	0.25	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-289B [1]	Anchorage Capacity	0.18	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-292	Screened out	> RLGM	Component screened by SRT Judgment.
C-303B	Equipment Capacity	0.25	Component evaluated by HCLPF calculation 14C4247-CAL-002.
LY-7338B	Screened out	> RLGM	Rule of Box to C-292. See Parent
D100	Screened out	> RLGM	Component screened by SRT analysis.
Y70	Equipment Capacity	0.25	Component evaluated by HCLPF calculation 14C4247-CAL-002.
Y75	Screened out	> RLGM	Component screened by SRT Judgment
Y80	Equipment Capacity	0.25	Component evaluated by HCLPF calculation 14C4247-CAL-002.
Y85	Screened out	> RLGM	Component screened by SRT Judgment
LIS-2-3-672B	Functionality Capacity (HCLPF < RLGM)	0.00	Rule of Box to C-303B. See Parent. Functionality was evaluated in 14C4247-CAL-004. No public capacity data available for this item.
LIS-2-3-672D	Functionality Capacity (HCLPF < RLGM)	0.00	Rule of Box to C-303B. See Parent. Functionality was evaluated in 14C4247-CAL-004. No public capacity data available for this item.
LS-2-3-672F	Functionality Capacity (HCLPF < RLGM)	0.00	Rule of Box to C-303B. See Parent. Functionality was evaluated in 14C4247-CAL-004. No public capacity data available for this item.
PY-7251B	Screened out	> RLGM	Rule of Box to C-292. See Parent.
RM-4544	Anchorage Capacity	0.18	Rule of Box to C-289B. See Parent.
TY-4072B	Anchorage Capacity	0.18	Rule of Box to C-289B. See Parent.

Notes:
[1] This item is not included in the ESEL; however, it is evaluated since it is a parent to ESEL items

Table B-2: ESEP HCLPF Values and Failure Modes for RX, ADMIN, & Turbine Building ($RLGM_{TAFT}$ = 0.19g)

Equip ID (MPL or TPNS)	Failure Mode	HCLPF (g)	Additional Discussions
D311	Screened out	> RLGM	Component screened by SRT analysis.
D312	Screened out	> RLGM	Component screened by SRT analysis.
D313	Anchorage Capacity	0.23	Component evaluated by HCLPF calculation 14C4247-CAL-002.
D1	Block Wall Capacity	0.19	Component evaluated by HCLPF calculation 14C4247-CAL-002. Also, adjacent block wall is evaluated in 14C4247-CAL-003.
D2	Block Wall Capacity	0.19	Component evaluated by HCLPF calculation 14C4247-CAL-002. Also, adjacent block wall is evaluated in 14C4247-CAL-003.
D3A	Block Wall Capacity	0.19	Component evaluated by HCLPF calculation 14C4247-CAL-002. Also, adjacent block wall is evaluated in 14C4247-CAL-003.
D3B	Block Wall Capacity	0.19	Component evaluated by HCLPF calculation 14C4247-CAL-002. Also, adjacent block wall is evaluated in 14C4247-CAL-003.
D10	Block Wall Capacity	0.19	Component evaluated by HCLPF calculation 14C4247-CAL-002. Also, adjacent block wall is evaluated in 14C4247-CAL-003.
D20	Block Wall Capacity	0.19	Component evaluated by HCLPF calculation 14C4247-CAL-002. Also, adjacent block wall is evaluated in 14C4247-CAL-003.
D52	Block Wall Capacity	0.19	Component evaluated by HCLPF calculation 14C4247-CAL-002. Also, adjacent block wall is evaluated in 14C4247-CAL-003.
D53	Block Wall Capacity	0.19	Component evaluated by HCLPF calculation 14C4247-CAL-002. Also, adjacent block wall is evaluated in 14C4247-CAL-003.
D54	Block Wall Capacity	0.19	Component evaluated by HCLPF calculation 14C4247-CAL-002. Also, adjacent block wall is evaluated in 14C4247-CAL-003.
C-253A	Anchorage Capacity	0.21	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-289A [1]	Anchorage Capacity	0.21	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-30	Anchorage Capacity	0.21	Component evaluated by HCLPF calculation 14C4247-CAL-002. The cabinet itself is seismically adequate; however, some of the relays inside are "bad actors". These are evaluated separately. See Relay HCLPF calculation 14C4247-CAL-004.
C-303A	Anchorage Capacity	0.21	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-32	Anchorage Capacity	0.21	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-33	Anchorage Capacity	0.21	Component evaluated by HCLPF calculation 14C4247-CAL-002. The cabinet itself is seismically adequate; however, some of the relays inside are "bad actors". These are evaluated separately. See Relay HCLPF calculation 14C4247-CAL-004.
C-41	Anchorage Capacity	0.21	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-42	Anchorage Capacity	0.21	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-03	Equipment Capacity	0.33	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-04	Equipment Capacity	0.33	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-05 [1]	Equipment Capacity	0.33	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-15	Equipment Capacity	0.33	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-02 [1]	Equipment Capacity	0.33	Component evaluated by HCLPF calculation 14C4247-CAL-002.
C-128	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats / anchorage (as applicable) judged to be adequate by SRT.

Equip ID (MPL or TPNS)	Failure Mode	HCLPF (g)	Additional Discussions
LT-7338A	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats / anchorage (as applicable) judged to be adequate by SRT.
LT-7338B	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats / anchorage (as applicable) judged to be adequate by SRT.
C-121	Anchorage Capacity	0.24	Component evaluated by HCLPF calculation 14C4247-CAL-002. Also, adjacent block wall is evaluated in 14C4247-CAL-003.
C-122	Anchorage Capacity	0.24	Component evaluated by HCLPF calculation 14C4247-CAL-002.
LS-23-74	Functionality Capacity (HCLPF < RLGM)	0.00	Functionality was evaluated in 14C4247-CAL-004. No capacity data for these items.
LS-23-75	Functionality Capacity (HCLPF < RLGM)	0.00	Functionality was evaluated in 14C4247-CAL-004. No capacity data for these items.
C-55	Block Wall Capacity & Anchorage Capacity	0.25	Component evaluated by HCLPF calculation 14C4247-CAL-002. Also, adjacent block wall is evaluated in 14C4247-CAL-003.
C-56	Anchorage Capacity	0.25	Component evaluated by HCLPF calculation 14C4247-CAL-002.
PT-7251A	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats / anchorage (as applicable) judged to be adequate by SRT.
PT-7251B	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats / anchorage (as applicable) judged to be adequate by SRT.
IR-PCV-4879 [1]	Screened out	> RLGM	Component is judged to be adequate per SRT.
IR-PCV-4881 [1]	Block Wall Capacity	0.28	Component is judged to be adequate per SRT. Block wall evaluated in HCLPF Calculation 14C4247-CAL-003.
FI-13-102 [2]	Equipment Capacity	0.33	Rule of Box to C-04. See Parent.
LS-5	Screened out	> RLGM	Rule of Box to S-200. See Parent
SCP-7925	Screened out	> RLGM	Rule of Box to S-200. See Parent
SE-7925	Screened out	> RLGM	Rule of Box to P-211. See Parent
C-215 [1]	Anchorage Capacity	0.24	Rule of Box to C-122. See Parent
dPIS-13-83	Functionality Capacity (HCLPF < RLGM)	0.05	Rule of Box to C-122. See Parent. Functionality was evaluated in 14C4247-CAL-004.
dPIS-13-84	Functionality Capacity (HCLPF < RLGM)	0.05	Rule of Box to C-122. See Parent. Functionality was evaluated in 14C4247-CAL-004.
LT-2-3-112A	Anchorage Capacity	0.24	Rule of Box to C-122. See Parent
PS-13-87A	Functionality Capacity (HCLPF < RLGM)	0.00	Rule of Box to C-122. See Parent. Functionality was evaluated in 14C4247-CAL-004. No capacity data for these items.
PS-13-87B	Functionality Capacity (HCLPF < RLGM)	0.00	Rule of Box to C-122. See Parent. Functionality was evaluated in 14C4247-CAL-004. No capacity data for these items.
PS-13-87C	Functionality Capacity (HCLPF < RLGM)	0.00	Rule of Box to C-122. See Parent. Functionality was evaluated in 14C4247-CAL-004. No capacity data for these items.
PS-13-87D	Functionality Capacity (HCLPF < RLGM)	0.00	Rule of Box to C-122. See Parent. Functionality was evaluated in 14C4247-CAL-004. No capacity data for these items.
PT-4067A	Anchorage Capacity	0.24	Rule of Box to C-122. See Parent
PT-4067C	Anchorage Capacity	0.24	Rule of Box to C-122. See Parent
PS-4237	Block Wall Capacity	0.28	Rule of Box to IR-PCV-4881. See Parent
PS-4662	Screened out	> RLGM	Rule of Box to IR-PCV-4879. See Parent
D11	Block Wall Capacity	0.19	Component is judged to be adequate per SRT. Block wall evaluated in HCLPF Calculation 14C4247-CAL-003.

Equip ID (MPL or TPNS)	Failure Mode	HCLPF (g)	Additional Discussions
D21	Block Wall Capacity	0.19	Component is judged to be adequate per SRT. Block wall evaluated in HCLPF Calculation 14C4247-CAL-003.
D31	Block Wall Capacity	0.19	Component is judged to be adequate per SRT. Block wall evaluated in HCLPF Calculation 14C4247-CAL-003.
D33	Block Wall Capacity	0.19	Component is judged to be adequate per SRT. Block wall evaluated in HCLPF Calculation 14C4247-CAL-003.
SY-7321	Equipment Capacity	0.33	Rule of Box to C-04. See Parent.
TS-13-82C-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-82C-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-82D-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-82D-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TE-4073A	Screened out	> RLGM	Component screened by SRT Judgment
TE-4073B	Screened out	> RLGM	Component screened by SRT Judgment
TE-4074A	Screened out	> RLGM	Component screened by SRT Judgment
TE-4074B	Screened out	> RLGM	Component screened by SRT Judgment
TE-4075A	Screened out	> RLGM	Component screened by SRT Judgment
TE-4075B	Screened out	> RLGM	Component screened by SRT Judgment
TE-4076A	Screened out	> RLGM	Component screened by SRT Judgment
TE-4076B	Screened out	> RLGM	Component screened by SRT Judgment
TE-4077A	Screened out	> RLGM	Component screened by SRT Judgment
TE-4077B	Screened out	> RLGM	Component screened by SRT Judgment
TE-4078A	Screened out	> RLGM	Component screened by SRT Judgment
TE-4078B	Screened out	> RLGM	Component screened by SRT Judgment
TE-4079A	Screened out	> RLGM	Component screened by SRT Judgment
TE-4079B	Screened out	> RLGM	Component screened by SRT Judgment
TE-4080A	Screened out	> RLGM	Component screened by SRT Judgment
TE-4080B	Screened out	> RLGM	Component screened by SRT Judgment
RE-4544	Screened out	> RLGM	Component screened by SRT Judgment
TE-4247A	Screened out	> RLGM	Component screened by SRT Judgment
TE-4247B	Screened out	> RLGM	Component screened by SRT Judgment
LT-2-3-112B	Screened out	> RLGM	Component screened by SRT Judgment
PT-4067B	Screened out	> RLGM	Component screened by SRT Judgment
PT-4067D	Screened out	> RLGM	Component screened by SRT Judgment
TS-13-79A-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-79A-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.

Equip ID (MPL or TPNS)	Failure Mode	HCLPF (g)	Additional Discussions
TS-13-79B-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-79B-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-79C-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-79C-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-79D-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-79D-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-80A-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-80A-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-80B-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-80B-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-80C-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-80C-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-80D-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-80D-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-81A-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-81A-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-81B-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-81B-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-81C-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-81C-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-81D-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-81D-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-82A-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-82A-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-82B-1	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TS-13-82B-2	Screened out	> RLGM	Component screened by SRT Judgment. Functionality was evaluated in 14C4247-CAL-004.
TE-4247C	Screened out	> RLGM	Component screened by SRT Judgment
TE-4247D	Screened out	> RLGM	Component screened by SRT Judgment
TE-4247E	Screened out	> RLGM	Component screened by SRT Judgment
TE-4247F	Screened out	> RLGM	Component screened by SRT Judgment
TE-4247G	Screened out	> RLGM	Component screened by SRT Judgment
TE-4247H	Screened out	> RLGM	Component screened by SRT Judgment

Equip ID (MPL or TPNS)	Failure Mode	HCLPF (g)	Additional Discussions
LIS-2-3-672A	Functionality Capacity (HCLPF < RLGM)	0.00	Rule of Box to C-303A. See Parent. Functionality was evaluated in 14C4247-CAL-004. No public capacity data available for this item.
LIS-2-3-672C	Functionality Capacity (HCLPF < RLGM)	0.00	Rule of Box to C-303A. See Parent. Functionality was evaluated in 14C4247-CAL-004. No public capacity data available for this item.
LS-2-3-672E	Functionality Capacity (HCLPF < RLGM)	0.00	Rule of Box to C-303A. See Parent. Functionality was evaluated in 14C4247-CAL-004. No public capacity data available for this item.
TY-4072A	Anchorage Capacity	0.21	Rule of Box to C-289A. See Parent.
FI-13-91	Equipment Capacity	0.33	Rule of Box to C-04. See Parent.
FIC-13-91	Equipment Capacity	0.33	Rule of Box to C-04. See Parent.
LI-2-3-85A	Equipment Capacity	0.33	Rule of Box to C-05. See Parent.
LI-2-3-85B	Equipment Capacity	0.33	Rule of Box to C-05. See Parent.
PI-13-93	Equipment Capacity	0.33	Rule of Box to C-04. See Parent.
PI-13-94	Equipment Capacity	0.33	Rule of Box to C-04. See Parent.
PI-13-95	Equipment Capacity	0.33	Rule of Box to C-04. See Parent.
PI-13-96	Equipment Capacity	0.33	Rule of Box to C-04. See Parent.
PI-6-90A	Equipment Capacity	0.33	Rule of Box to C-05. See Parent.
PI-6-90B	Equipment Capacity	0.33	Rule of Box to C-05. See Parent.
PLR-7251A	Equipment Capacity	0.33	Rule of Box to C-03. See Parent.
PLR-7251B	Equipment Capacity	0.33	Rule of Box to C-03. See Parent.
TI-4072A	Equipment Capacity	0.33	Rule of Box to C-02. See Parent.
TI-4072B	Equipment Capacity	0.33	Rule of Box to C-02. See Parent.
FS-13-57	Screened out	> RLGM	Rule of Box to C-128. See Parent.
FT-13-58	Screened out	> RLGM	Rule of Box to C-128. See Parent.
LS-7323	Screened out	> RLGM	Rule of Box to S-200. See Parent
PS-13-67A	Screened out	> RLGM	Rule of Box to C-128. See Parent. Functionality was evaluated in 14C4247-CAL-004.
PS-13-72A	Screened out	> RLGM	Rule of Box to C-128. See Parent.
PS-13-72B	Screened out	> RLGM	Rule of Box to C-128. See Parent.
PT-13-60	Screened out	> RLGM	Rule of Box to C-128. See Parent.
PT-13-65	Screened out	> RLGM	Rule of Box to C-128. See Parent.
PT-13-68	Screened out	> RLGM	Rule of Box to C-128. See Parent.
PT-13-70	Screened out	> RLGM	Rule of Box to C-128. See Parent.
LT-2-3-61	Anchorage Capacity	0.25	Rule of Box to C-55. See Parent.
LT-2-3-72A	Anchorage Capacity	0.25	Rule of Box to C-55. See Parent.
LT-2-3-72B	Anchorage Capacity	0.25	Rule of Box to C-56. See Parent.
LT-2-3-72C	Anchorage Capacity	0.25	Rule of Box to C-55. See Parent.
LT-2-3-72D	Anchorage Capacity	0.25	Rule of Box to C-56. See Parent.

Equip ID (MPL or TPNS)	Failure Mode	HCLPF (g)	Additional Discussions
LT-2-3-85A	Anchorage Capacity	0.25	Rule of Box to C-56. See Parent.
LT-2-3-85B	Anchorage Capacity	0.25	Rule of Box to C-55. See Parent.
PT-6-53A	Anchorage Capacity	0.25	Rule of Box to C-56. See Parent.
PT-6-53B	Anchorage Capacity	0.25	Rule of Box to C-55. See Parent.
S-200	Screened out	> RLGM	Rule of Box to P-207. See Parent.
P-207	Screened out	> RLGM	Component screened by SRT Judgment
P-210	Screened out	> RLGM	Component screened by SRT Judgment
P-211	Screened out	> RLGM	Rule of Box to P-210. See Parent.
CV-2104	Screened out	> RLGM	Component screened by SRT Judgment
PCV-2092	Screened out	> RLGM	Component screened by SRT Judgment
RV-1745	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-2097	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-2103	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
CV-3503	Screened out	> RLGM	Component screened by SRT analysis
AO-2377	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
AO-2378	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
AO-2379	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
AO-2380	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
AO-2381	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
AO-2383	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
AO-2896	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
AO-4539	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
AO-4540	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-4878	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-4880	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-4234	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2-71A	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2-71B	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2-71C	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2-71D	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2-71E	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.

Equip ID (MPL or TPNS)	Failure Mode	HCLPF (g)	Additional Discussions
SV-2-71F	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2-71G	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2-71H	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2-71J	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2-71K	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2-71L	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2-71M	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
AO-2386	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
AO-2387	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-3242A	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-3243A	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-3244A	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-3245A	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-7440A	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-7441A	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-7467A	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-7468A	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-4236	Block Wall Capacity	0.28	Component is judged to be adequate per SRT. Block wall evaluated in HCLPF Calculation 14C4247-CAL-003.
RV-4673	Screened out	> RLGM	Component screened by SRT analysis.
SV-4235	Block Wall Capacity	0.28	Component is judged to be adequate per SRT. Block wall evaluated in HCLPF Calculation 14C4247-CAL-003.
PCV-4879	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT. Also, Rule of Box to IR-PCV-4879, see parent.
PCV-4881	Block Wall Capacity	0.28	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT. Also, Rule of Box to IR-PCV-4881, see parent.
PCV-4897	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT. Also, Rule of Box to IR-PCV-4879, see parent.
PCV-4898	Block Wall Capacity	0.28	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT. Also, Rule of Box to IR-PCV-4881, see parent.
PCV-4903	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT. Also, Rule of Box to IR-PCV-4879, see parent.
PCV-4904	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT. Also, Rule of Box to IR-PCV-4879, see parent.
PCV-4905	Block Wall Capacity	0.28	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT. Also, Rule of Box to IR-PCV-4881, see parent.
PCV-4906	Block Wall Capacity	0.28	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT. Also, Rule of Box to IR-PCV-4881, see parent.
HO-8	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.

Equip ID (MPL or TPNS)	Failure Mode	HCLPF (g)	Additional Discussions
MO-2078	Screened out	> RLGM	Component screened by SRT analysis.
MO-2106	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
MO-2096	Screened out	> RLGM	Component screened by SRT analysis.
MO-2080	Screened out	> RLGM	Component screened by SRT analysis.
MO-2100	Screened out	> RLGM	Component screened by SRT analysis.
MO-2101	Screened out	> RLGM	Component screened by SRT analysis.
MO-2110	Screened out	> RLGM	Component screened by SRT analysis.
MO-2071	Screened out	> RLGM	Component screened by SRT analysis.
MO-3502	Screened out	> RLGM	Component screened by SRT analysis.
MO-2035	Screened out	> RLGM	Component screened by SRT analysis.
MO-2076	Screened out	> RLGM	Component screened by SRT analysis.
MO-2107	Screened out	> RLGM	Component screened by SRT Judgment
SV-2082A	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2082B	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2104	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2848	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2849	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-4541	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-4542	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2379	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-2380	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-4539	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
SV-4540	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-2-71A	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-2-71B	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-2-71C	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-2-71D	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-2-71E	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-2-71F	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-2-71G	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.
RV-2-71H	Screened out	> RLGM	Meets NP-6041 Table 2-4 caveats (as applicable) judged to be adequate by SRT.

Equip ID (MPL or TPNS)	Failure Mode	HCLPF (g)	Additional Discussions
E-200A	Anchorage Capacity	0.19	Component evaluated by HCLPF calculation 14C4247-CAL-002.
E-200B	Anchorage Capacity (HCLPF < RLGM)	0.181	Component does not screen out; a more detailed evaluation is required.
E-203	Screened out	> RLGM	Component screened by SRT analysis.
E-205	Screened out.	> RLGM	Rule of Box to P-207. See Parent.
T-73	Screened out	> RLGM	Component screened by SRT Judgment
T-57A	Screened out	> RLGM	Component screened by SRT Judgment.
T-57B	Screened out	> RLGM	Component screened by SRT Judgment.
T-57C	Screened out	> RLGM	Component screened by SRT Judgment.
T-57D	Screened out	> RLGM	Component screened by SRT Judgment.
T-57E	Screened out	> RLGM	Component screened by SRT Judgment.
T-57F	Screened out	> RLGM	Component screened by SRT Judgment.
T-57G	Screened out	> RLGM	Component screened by SRT Judgment.
T-57H	Screened out	> RLGM	Component screened by SRT Judgment.
13A-K1	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
13A-K10	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
13A-K12	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
13A-K13	Functionality Capacity (HCLPF < RLGM)	0.00	Component evaluated in Relay Calculation 14C4247-CAL-004. This relay is a "bad actor", and does not have any seismic capacity under the undesirable state. The relay is ROB to C-30.
13A-K14	Functionality Capacity (HCLPF < RLGM)	0.00	Component evaluated in Relay Calculation 14C4247-CAL-004. This relay is a "bad actor", and does not have any seismic capacity under the undesirable state. The relay is ROB to C-30.
13A-K16	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
13A-K17	Functionality Capacity (HCLPF < RLGM)	0.00	Component evaluated in Relay Calculation 14C4247-CAL-004. This relay is a "bad actor", and does not have any seismic capacity under the undesirable state. The relays is ROB to C-30.
13A-K18	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
13A-K19	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
13A-K2	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
13A-K22	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
13A-K27	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
13A-K28	Functionality Capacity (HCLPF < RLGM)	0.00	Component evaluated in Relay Calculation 14C4247-CAL-004. This relay is a "bad actor", and does not have any seismic capacity under the undesirable state. The relay is ROB to C-33.
13A-K29	Functionality Capacity (HCLPF < RLGM)	0.00	Component evaluated in Relay Calculation 14C4247-CAL-004. This relay is a "bad actor", and does not have any seismic capacity under the undesirable state. The relay is ROB to C-33.

Equip ID (MPL or TPNS)	Failure Mode	HCLPF (g)	Additional Discussions
13A-K3	Functionality Capacity (HCLPF < RLGM)	0.00	Component evaluated in Relay Calculation 14C4247-CAL-004. This relay is a "bad actor", and does not have any seismic capacity under the undesirable state. The relay is ROB to C-30.
13A-K30	Functionality Capacity (HCLPF < RLGM)	0.00	Component evaluated in Relay Calculation 14C4247-CAL-004. This relay is a "bad actor", and does not have any seismic capacity under the undesirable state. The relay is ROB to C-33.
13A-K31	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-33, and is governed by the host HCLPF.
13A-K32	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-33, and is governed by the host HCLPF.
13A-K33	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
13A-K34	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
13A-K37	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
13A-K5	Functionality Capacity (HCLPF < RLGM)	0.00	Component evaluated in Relay Calculation 14C4247-CAL-004. This relay is a "bad actor", and does not have any seismic capacity under the undesirable state. The relay is ROB to C-30.
13A-K6	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
13A-K7	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-30, and is governed by the host HCLPF.
K102A	Anchorage Capacity	0.21	Component evaluated in Relay Calculation 14C4247-CAL-004. The relay is a ROB to C-303A, and is governed by the host HCLPF.
K102B	Functionality Capacity (HCLPF < RLGM)	0.06	Component evaluated in Relay Calculation 14C4247-CAL-004. This relay is ROB to C-303B. The in-cabinet structure response exceeds the capacity of the relay.

Notes:
[1] This item is not included in the ESEL; however, it is evaluated since it is a parent to ESEL items