Entergy Nuclear Northeast
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-024
Tel 914 254 6700

Lawrence Coyle
Site Vice President

NL-14-152

December 22, 2014

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
11545 Rockville Pike, TWFN-2F1
Rockville, MD 20852-2738

SUBJECT: Entergy's Expedited Seismic Evaluation Process Report (CEUS Sites), Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident
Indian Point Unit Numbers 2 and 3
Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and 64

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 (Accession No. ML12053A340)
2. NEI Letter, Proposed Path Forward for NTTF Recommendation 2.1: Seismic Reevaluations, dated April 9, 2013, (Accession No. ML13101A345)
3. NRC Letter, Electric Power Research Institute Report XXXXXX, "Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," as an Acceptable Alternative to the March 12, 2012, Information Request for Seismic Reevaluations, dated May 7, 2013, (Accession No. ML13106A331)
4. Electric Power Research Institute Final Report 3002000704, "Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," dated May 2013

Dear Sir / Madam:

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued a 50.54(f) letter to all power reactor licensees and holders of construction permits in active or deferred status.

A010
NRR

Enclosure 1 of Reference 1 requested each addressee located in the Central and Eastern United States (CEUS) to submit a Seismic Hazard Evaluation and Screening Report within 1.5 years from the date of Reference 1.

In Reference 2, the Nuclear Energy Institute (NEI) requested NRC agreement to delay submittal of the final CEUS Seismic Hazard Evaluation and Screening Reports so that an update to the Electric Power Research Institute (EPRI) ground motion attenuation model could be completed and used to develop that information. NEI proposed that descriptions of subsurface materials and properties and base case velocity profiles be submitted to the NRC by September 12, 2013, with the remaining seismic hazard and screening information submitted by March 31, 2014. NRC agreed with that proposed path forward in Reference 3.

Reference 1 requested that licensees provide interim evaluations and actions taken or planned to address the higher seismic hazard relative to the design basis, as appropriate, prior to completion of the risk evaluation. In accordance with the NRC endorsed guidance in Reference 3, the attached Expedited Seismic Evaluation Process Report for Indian Point Units 2 and 3 provides the information described in Section 7 of Reference 4 in accordance with the schedule identified in Reference 2.

This letter contains regulatory commitments in the Attachment. If you have any questions regarding this report, please contact Mr. Robert Walpole, Manager, Regulatory Assurance at (914) 254-6710.

I declare under penalty of perjury that the foregoing is true and correct. Executed on December 22, 2014

Respectfully,

JOHN DINELLI for LARRY COYLE

LC/sp

Enclosures: 1 Expedited Seismic Evaluation Process Report for Indian Point Unit 2
2 Expedited Seismic Evaluation Process Report for Indian Point Unit 3

Attachment: List of Regulatory Commitments

cc: Mr. Douglas Pickett, Senior Project Manager, NRC NRR DORL
Mr. John Boska, Senior Project Manager, NRC NRR DJLL
Mr. Daniel H. Dorman, Regional Administrator, NRC Region 1
NRC Resident Inspector
Mr. John B. Rhodes, President and CEO, NYSERDA
Ms. Bridget Frymire, New York State Dept. of Public Service

ENCLOSURE 1 TO NL-14-152

EXPEDITED SEISMIC EVALUATION PROCESS REPORT FOR

INDIAN POINT UNIT 2

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3
DOCKET NOS. 50-247 AND 50-286

Engineering Report No. IP-RPT-14-00037 Rev 0
Page 1 of 69

Entergy

ENTERGY NUCLEAR
Engineering Report Cover Sheet

Engineering Report Title:
Expedited Seismic Evaluation Process (ESEP) Report for Indian Point Unit 2

Engineering Report Type:

New ☒ Revision ☐ Cancelled ☐ Superseded ☐
Superseded by: _____

Applicable Site(s)

IP1	☐	IP2	☒	IP3	☐	JAF	☐	PNPS	☐	VY	☐	WPO	☐
ANO1	☐	ANO2	☐	ECH	☐	GGNS	☐	RBS	☐	WF3	☐	PLP	☐

EC No. 54070

Report Origin: ☐ Entergy ☒ Vendor
Vendor Document No.: 51-9225674-001

Quality-Related: ☐ Yes ☒ No

Prepared by: Areva — Date: 12/18/14
Responsible Engineer (Print Name/Sign)

Design Verified: N/A — Date: _____
Design Verifier (if required) (Print Name/Sign)

Reviewed by: Frank Madero — Date: 12/19/14
Reviewer (Print Name/Sign)

Approved by: Richard Drake — Date: 12/19/14
Supervisor / Manager (Print Name/Sign)

AREVA

AREVA Inc.

Engineering Information Record

Document No.: 51 - 9225674 - 001

Expedited Seismic Evaluation Process (ESEP) Report for Indian Point Unit 2

Safety Related? ☐ YES ☒ NO

Does this document establish design or technical requirements? ☐ YES ☒ NO

Does this document contain assumptions requiring verification? ☐ YES ☒ NO

Does this document contain Customer Required Format? ☒ YES ☐ NO

Signature Block

Name and Title/Discipline	Signature	P/LP, R/LR, A-CRF, A	Date	Pages/Sections Prepared/Reviewed/ Approved or Comments
Jennifer Butler Project Engineer	Jennifer O Butler	LP	12/12/14	All
Darvin Kapitz Advisory Engineer	Darvin Kapitz	P	12/12/14	Appendix A (Sections 2.0, 3.0, 9.0 and Attachment A)
Bijan Mahnoori Project Engineer II	Bijan Mahnoori	P	12/13/14	Appendix A (Sections 4.0, 5.0, 6.0, 7.0, and 8.0)
Lisa D'Andrea Engineer III	Lisa D'Andrea	P	12-13-14	Appendix A (Attachment B)
Ogden Sawyer Supervisor / PRA	Ogden Sawyer	LR	12-13-14	All
Mark Welsh Principal Engineer	Mark Welsh	R	12/12/14	Appendix A (Sections 2.0, 3.0, 9.0 and Attachment A)
Mark Stewart Engineer IV	Mark Stewart	R	12-13-2014	Appendix A (Sections 4.0, 5.0, 6.0, 7.0, 8.0 and Attachment B)
Kevin Connell Engineering Manager	Kevin Connell	A	12/13/14	All
Mike Terrell Project Manager	J. Butler for M. Terrell Jennifer O Butler	A-CRF	12/13/14	Appendix A

Note: P/LP designates Preparer (P), Lead Preparer (LP)
R/LR designates Reviewer (R), Lead Reviewer (LR)
A-CRF designates Project Manager Approver of Customer Required Format (A-CRF)
A designates Approver/RTM – Verification of Reviewer Independence

Signature Block
(continued)

Project Manager Approval of Customer References (N/A if not applicable)

Name (printed or typed)	Title (printed or typed)	Signature	Date
Mike Terrell	Project Manager	J. Butler for M. Terrell Jennifer DButler	12/13/14

Record of Revision

Revision No.	Pages/Sections/ Paragraphs Changed	Brief Description / Change Authorization
000	All	Initial release
001	Section 2.0 Appendix A – Section 2.0, 3.0, 3.1, 3.1.3, 4.2, 5.1, 6.1, 6.2, 6.3.3, 6.4, 6.6, 7.1, 7.2, 8.1, 8.2, 8.4, 9.0, Attachment A, and Attachment B	Section 2.0 • References were added due to additional components based on new revision of supporting document. Appendix A • Section 2.0, 3.0, 3.1, 3.1.3, 4.2, 5.1, 6.1, 6.2, 6.3.3, 6.4, 6.6, 7.1, 7.2, 8.1, 8.2, 8.4, and 9.0 were modified to incorporate Entergy Comments [91] on Revision 0 of the document and updated with additional components based on new revision of supporting document. • Attachment A modified to incorporate Entergy Comments [91] and to update with additional components based on new revision of supporting document. • Attachment B – modified to incorporate Entergy Comments [91] and to update with additional components based on new revision of supporting document.

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1.0 DOCUMENTATION

This document contains the Expedited Seismic Evaluation Process (ESEP) Report for Indian Point Unit 2. This document is located in Appendix A and is presented in the customer requested format.

2.0 REFERENCES

References identified with an (*) are maintained within Indian Point Unit 2 Records System and are not retrievable from AREVA Records Management. These are acceptable references per AREVA Administrative Procedure 0402-01, Attachment 8. See page 2 for Project Manager Approval of customer 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. EPRI 3002000704, "Seismic Evaluation Guidance, Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," May 2013.
3. *Entergy Letter to U.S. NRC, letter number NL-13-042 "Overall Integrated Plan in Response to March 12, 2012, Commission Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," February 28, 2013, NRC ADAMS Accession No. ML13079A348.
4. *Entergy Letter to U.S. NRC, letter number NL-14-031, "Indian Point Energy Center's Second Six-Month Status Report for the Implementation of Order Number EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," February 27, 2014, NRC ADAMS Accession No. ML14070A365.
5. *Entergy Letter to U.S. NRC, letter number NL-14-110, "Indian Point Energy Center's Third Six-Month Status Report for the Implementation of Order EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," August 27, 2014, NRC ADAMS Accession No. ML14251A227.
6. *Entergy Engineering Evaluation, EC No. 45874, Revision 1, "FLEX-Beyond Design Basis External Event Phases I, II, and III Strategy Development Evaluation."
7. *Entergy Drawing 9321-F-2017, Revision 84, "Flow Diagram – Main Steam."
8. *Entergy Drawing 9321-F-2019, Revision 116, "Flow Diagram – Boiler Feedwater."
9. *Entergy Drawing 251132, Revision 6, "AFW: Aux. Boiler Feed Pump #22 Flow Control Loop No.s 1188, 1213, 1261 & 1264."
10. *Entergy Drawing 251123, Revision 6, "AFW Flow to Steam Gen's. #21 & 22 Loop No's. 405, 406, 1200 & 1201."
11. *Entergy Drawing D251129, Revision 5, "AFW Flow to Steam Gen's. #23 & 24 Loop No's 405, 406, 1202 & 1203."
12. *Entergy Drawing A207567, Revision 9, "Wiring for Transmitter Rack No. 5, 9, & 20."
13. *Entergy Drawing A241172, Revision 23, "Control Room Panel SC (JB1)."

14. *Entergy Drawing 262727, Revision 0, "BLR FD. Water Sys. – Stm. Gen. #22 L/D Level Ind./Recording LOOP-LT-427D."
15. *Entergy Drawing D260512, Revision 4, "Loop Diag. F.W. S.G. #23 Wide Range Level Loop Number: 437."
16. *Entergy Drawing 9321-F-70513, Revision 17, "Transmitter Racks Piping Arrangement – Sheet No. 4 Instrumentation."
17. *Entergy Drawing D252556, Revision 4, "MS Flow & Pressure Channel I (SG #22) Loop Number 429."
18. *Entergy Drawing D252557, Revision 4, "MS Flow & Pressure Channel I (SG #23) Loop Number 439."
19. *Entergy Drawing A241185, Revision 15, "Control Room Panel FB (JA2)."
20. *Entergy Drawing B225317, Revision 4, "Rack A3 Layout Reactor Protection System."
21. *Entergy Drawing 9321-F-2018, Revision 146, "Flow Diagram Condensate & Boiler Feed Pump Suction – UFSAR Figure No. 10.2-5 (Sht. 1)."
22. *Entergy Drawing D262603, Revision 4, "Cond. Storage Tank Level Loops 1102, 1128."
23. *Entergy Drawing IP2--S-000313, Revision 1, "Condensate Storage Tank Level Indicator LI-1128."
24. *Entergy Drawing A235296, Revision 71, "Flow Diagram Safety Injection System UFSAR Figure No. 6.2-1 (Sht. 2)."
25. *Entergy Drawing 9321-F-3006, Revision 97, "Single Line Diagram 480V MCC 26A and 26B."
26. *Entergy Document 9P32.AA/12, "Individual Plant Examination for Indian Point Unit No. 2 External Events and Verification of Seismic Adequacy of Mechanical and Electrical Equipment Project No. 4342/9P32, USI A-46 Summary Report, Task AA: USI A-46," November 4, 1996.
27. *Entergy Drawing 9321-F-2736, Revision 129, "Flow Diagram Chemical & Volume Control System - UFSAR Figure No 9.2-1 (Sht. 1)."
28. *Entergy System Design Description 1.0, Revision 15, "Indian Point Energy Center Unit No. 2 System Description No. 1 Reactor Coolant System."
29. *Entergy Drawing 9321-F-2735, Revision 141, "Flow Diagram Safety Injection System – UFSAR Figure No. 6.2-1 (Sht. 1)."
30. *Entergy Drawing 208093, Revision 13, "Piping Arrangement Remote Reactor Head Vent."
31. *Entergy Drawing IP2--S-000253, Revision 4, "Reactor Head Vent MOV HCV3101."
32. *Entergy System Design Description 30.0, Revision 5, "Indian Point Station Unit No. 2 System Description 30.0 Electric Heat Trace."
33. *Entergy Drawing 9321-F-3005, Revision 110, "One Line Diagram 480V Motor Control Center 27 & 27A."
34. *Entergy Drawing 226076, Revision 8, "I&C Loop Diagram Safety Injection System Containment Pressure Sensing."
35. *Entergy Drawing 241170, Revision 22, "Control Room Panel SB-1 (JB8)."

36. *Entergy Drawing A209762, Revision 72, "Flow Diagram Service Wtr Sys Nuclear Stm Supply Plant Sh 2 of 2 – UFSAR Figure No. 9.6-1 (Sht. 2)."
37. *Entergy Drawing A241169, Revision 18, "Control Room Panel SA (JB6)."
38. *Entergy Drawing 9321-F-2030, Revision 40, "Flow Diagram Fuel Oil to Diesel Generators."
39. *Entergy Drawing 250907, Revision 34, "Electrical Distribution and Transmission System – UFSAR Fig. No. 8.2-1 & 8.2-2."
40. *Entergy Drawing 9321-F-3008, Revision 92, "Single Line Diagram D.C. Power Panels 21, 22, 23, and 24 – UFSAR Figure No. 8.2-16."
41. *Entergy Drawing A208503, Revision 36, "Schem Dia of 118 VAC Inst Buses 21A, 22A, 23A and 24A (Located in CCR)."
42. *Entergy Drawing A225098, Revision 4, "Logic Diagram Nuclear Instrumentation Trip Signals (Sheet #5) UFSAR Figure No. 7.2-5."
43. *Entergy Drawing A241186, Revision 13, "Control Room Panel FC (JA3)."
44. *Entergy Drawing A241187, Revision 22, "Control Room Panel FD (JA4)."
45. *Entergy Drawing 9321-F-2738, Revision 122, "Flow Diagram Reactor Coolant System – UFSAR Figure No. 4.2-1."
46. *Entergy Drawing D260430, Revision 4, "Loop Diagram R.C.S Pressurizer Level Control Loop Number:459."
47. *Entergy Drawing B235537, Revision 2, "Reactor Vessel Level Instrumentation System Tag L-1311 & L-1312."
48. *Entergy Drawing 208538, Revision 11, "Diag. of External Conn's for Reactor Vessel System Process Cabinet "LC1" (Side Bays)."
49. *Entergy Drawing A242186, Revision 08, "Wiring Diagram Core Exit Thermocouple Monitoring System (Rack D8) Loc. in CCR."
50. *Entergy Design Basis Document IP2-MS DBD, Revision 02, "Design Basis Document for Main Steam System."
51. *Entergy Drawing A241171, Revision 29, "Control Room Panel SB-2 (JC3)."
52. *Entergy Drawing 23523, Revision 8, EC-29868, "Atmospheric Steam Dump Panel."
53. *Entergy System Design Description 3, Revision 12, "Indian Point Energy Center Unit No. 2 System Description No. 3 Chemical and Volume Control System."
54. *Entergy Drawing A208800 Revision 5, "Reactor Level Instr. Rack & Piping Details."
55. *Entergy Drawing A208726 Revision 7, "Installation of Reactor Vessel Level System Conduit Layout."
56. *Entergy Drawing D260510 Revision 7, "Loop Diag. F.W. S.G. #21 Wide Range Level Loop Number: 417, 5001."
57. *Entergy Drawing D260513 Revision 4,"Loop Diag. F.W. S.G. #22 Wide Range Level Loop Number: 447."
58. *Entergy Drawing A227551 Revision 64, "Fire Protection System Diagram Details Sheet #1."

59. *Entergy Plant Equipment Database for Indian Point Unit 2.

60. *Entergy Drawing 313113, Revision 0, "RCS Wide Range Press. Transmitter Schematic Wiring Diagram for Ind. Lights for Hydr. Isolator PIS-402 Electrical."

61. *Entergy Drawing A208537 Revision 06, "D/C Misc Field Mounted Equipment for Reactor Vessel Level System."

62. *Entergy System Design Description 10.1, Revision 16, "Indian Point Energy Center Unit No. 2 System Description No. 10.1 Safety Injection System."

63. *Entergy Drawing 9321-F-7015 Revision 34, "Instrument Piping Schematics Sheet No. 6 Instrumentation."

64. *Entergy Drawing 9-9239 DWG 1, Revision 4, "General Plan of 30'-0" Diam x 35'-3" High Dome Roof Tank."

65. *Entergy Drawing D260209, Revision 3, "LOOP Diagram RCS Pressure Loop #1, Loop Number 402."

66. *Entergy Drawing B238709 Revision 2, "Control Schematic – Pressure Reducing Valve PCV-1139 for Auxiliary Boiler Feed Pump #22."

67. *Entergy Drawing A226980 Revision 2, "Aux. Boiler Feed Pump Control Station PT1 Wiring."

68. *Entergy Drawing 208538 Revision 11, "Diag of External Conn's for Reactor Vessel System Process Cabinet "LC1"."

69. *Entergy Drawing 300825 Revision 0, "Steam Gen. 22 Wide Range Level Transmitter LT-427D."

70. *Entergy Drawing A206649, Revision 26, "Conduit Layout Control Building Elevation 33'-0"."

71. *Entergy Drawing A208728 Revision 6, "Supplementary DWG Reactor Vessel Level Sys. Schematic & Tray Schedule."

72. *Entergy Plant Electrical Cable and Conduit Database for Indian Point Unit 2.

73. EPRI 1025287, "Seismic Evaluation Guidance: Screening, Prioritization and Implementation Details (SPID) for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic. Electric Power Research Institute," February 2013.

74. EPRI, "Indian Point Seismic Hazard and Screening Report," Revision 1, October 2013.

75. Entergy Letter to U.S. NRC, letter number NL-14-042, "Entergy Seismic Hazard and Screening Report (CEUS Sites), Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident ," March 31, 2014, NRC ADAMS Accession No. ML14099A110.

76. *"Indian Point Energy Center Unit 2 Updated Final Safety Analysis Report," Revision 25, Docket No. 50-247, 2014.

77. *"Indian Point Energy Center Unit 3 Updated Final Safety Analysis Report," Revision 5, Docket No. 50-286, 2013.

78. EPRI-NP-6041-SL, "Methodology for Assessment of Nuclear Power Plant Seismic Margin," Revision 1, August 1991.

79. EPRI TR-103959, "Methodology for Developing Seismic Fragilities," July 1994.

80. NRC NUREG-1407, "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities," June 1991.

81. *Entergy Document, "Individual Plant Examination of External Events for Indian Point Unit No. 2 Nuclear Generating Station," December 1995.

82. SQUG, "Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Plant Equipment, Seismic Qualification Utility Group," Revision 3A, December 2001.

83. 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.

84. 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.

85. 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. NRC Adams Accession No. ML13101A379.

86. NRC (E Leeds) Letter to NEI (J Pollock), "Electric Power Research Institute Final Draft Report xxxxx, "Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," as an Acceptable Alternative to the March 12, 2012, Information Request for Seismic Reevaluations," May 7, 2013.

87. *Entergy Document EC54070, "ESEP Reports," the following AREVA documents are captured in the plant document management system:

    a. AREVA Document 51-9212950-008, "ESEP Expedited Seismic Equipment List (ESEL) – Indian Point Unit 2."

    b. AREVA Calculation 32-9227343-001, "Indian Point Unit 2 ESEP HCLPF Calculation - BUS 2A, 3A, 5A, and 6A."

    c. AREVA Calculation 32-9227577-000, "Indian Point Unit 2 ESEP HCLPF Calculation - Battery Chargers 21-24."

    d. AREVA Calculation 32-9227719-000, "Indian Point Unit 2 ESEP HCLPF Calculation - 125 VDC Power Panels EPB3, EPA9, PC1, and PC2."

    e. AREVA Calculation 32-9229683-000, "Indian Point Unit 2 ESEP HCLPF Calculation - Battery Room and MCC-24A and 29A Blockwalls."

    f. AREVA Calculation 32-9230350-000, "Indian Point Unit 2 ESEP HCLPF Calculation - Condensate Storage Tank."

    g. AREVA Calculation 32-9230411-000, "Indian Point Unit 2 ESEP HCLPF Calculation – Refueling Water Storage Tank, 0021RWST."

    h. AREVA Document 32-9232862-000, "Indian Point Unit 2 ESEP Calculation – Fire Protection Water Storage Tank."

    i. AREVA Document 32-9232844-000, "Indian Point Unit 2 ESEP Calculation – Primary Water Storage Tank."

The following references are AREVA references which were used as input for Appendix A.

87. AREVA Document 51-9229367-001, "Input to Entergy ESEP Report Sections 2 and 3 for Indian Point Unit 2."

88. AREVA Document 51-9227335-000, "Input to Entergy ESEP Report Sections 4 and 5 for Indian Point Unit 2."

89. AREVA Document 51-9230378-000, "Input to Entergy ESEP Report Sections 6, 7, and 8 for Indian Point Unit 2.

90. AREVA Document 32-9224077-003, "Indian Point Unit 2 ESEP Binning and Screening."

91. AREVA Document 38-9232222-000, "Indian Point Unit 2 ESEP Report Comment Resolution Form."

APPENDIX A: EXPEDITED SEISMIC EVALUATION PROCESS (ESEP) REPORT FOR INDIAN POINT UNIT 2

Note: Customer requested formatting begins on the following page.

EXPEDITED SEISMIC EVALUATION PROCESS (ESEP) REPORT FOR INDIAN POINT UNIT 2 (IP2)

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1.0 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 Indian Point Unit 2. The intent of the ESEP is to perform an interim action in response to the NRC's 50.54(f) letter 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 Electric Power Research Institute (EPRI) 3002000704, Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic [2].

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.

2.0 BRIEF SUMMARY OF THE FLEX SEISMIC IMPLEMENTATION STRATEGIES

The Indian Point Unit 2 FLEX strategies for Reactor Core Cooling and Heat Removal, Reactor Inventory Control/Long Term Subcriticality, and Containment Function are summarized below. This summary is derived from the Indian Point Energy Center Overall Integrated Plan (OIP) in Response to the March 12, 2012, Commission Order EA-12-049 [3], and is consistent with the second and third six-month status reports [4][5] and supplemented by supporting FLEX engineering calculations [6].

Core Cooling and Heat Removal

The Phase 1 FLEX strategy at Indian Point Unit 2 for this function is to use Atmospheric Dump Valves (ADVs) and Main Steam Safety Valves (MSSVs) to remove heat, with the steam generator being fed by the turbine-driven Auxiliary Feedwater (AFW) pump. Backup nitrogen cylinders are available to support cycling the ADVs. Suction for the AFW pump is from the Condensate Storage Tank (CST), the Primary Water Storage Tank (PWST), and the Fire Water Storage Tank (FWST).

During Phase 2 of the FLEX strategy, portable diesel-driven pumps will be staged to provide makeup to the CST or to the steam generator feedwater pump suction. The diesel-driven steam generator FLEX feed pump will be staged to provide feedwater to steam generators when the turbine-driven AFW pump becomes unavailable. Diesel fuel for FLEX equipment will be provided from existing onsite Emergency Diesel Generator (EDG) Fuel Oil Storage Tanks.

The key parameters to be monitored are: steam generator level, steam generator pressure, CST level, Reactor Coolant System (RCS) pressure, and RCS temperature.

RCS Inventory Control

For At Power modes

In Phase 1, plant cooldown and depressurization will occur. RCS Inventory control is achieved via the accumulators.

During Phase 2, to avoid adverse effects on the RCS natural circulation flow, the cold-leg accumulator isolation valves are electrically closed during the cooldown to prevent nitrogen injection into the RCS. A FLEX pump will be used to provide RCS makeup with borated water supplied by the Refueling Water Storage Tank (RWST). To allow borated water injection into the RCS, the reactor head vent can be opened, if necessary, to provide a letdown path.

If an Extended Loss of AC Power (ELAP) event occurs during cold weather months when freezing of the RWST could possibly occur, a FLEX diesel generator can be used to repower the Electric Heat Trace (EHT) system.

For Shutdown modes

In Phase 1, if the refueling canal is full then RCS makeup can be supplied by gravity feed from the RWST.

During Phase 2, a FLEX pump will be used to provide RCS makeup from the RWST in the same manner as for the At Power modes.

Additional key parameters to be monitored are pressurizer level, reactor vessel level, and nuclear instrumentation.

Containment Function

Containment function is not expected to be challenged during Phase 1 or Phase 2 for an ELAP event occurring when the plant is in Mode 1-4. Therefore, no FLEX strategy beyond monitoring containment pressure and temperature was developed to support containment function.

Supporting Systems

Necessary electrical components are outlined in the Indian Point Unit 2 OIP and primarily entail station batteries, Direct Current (DC) buses, distribution panels, inverters, battery chargers, and instrument buses.

3.0 EQUIPMENT SELECTION PROCESS AND ESEL

The selection of equipment for the Expedited Seismic Equipment List (ESEL) followed the guidelines of EPRI 3002000704 [2]. The ESEL for Indian Point Unit 2 is presented in Attachment A. Information presented in Attachment A is drawn from the following references [3], [4], [5], [6], [7], [8], [9], [10], [11], [12], [13], [14], [15], [16], [17], [18], [19], [20], [21], [22], [23], [24], [25], [26], [27], [28], [29], [30], [31], [32], [33], [34], [35], [36], [37], [38], [39], [40], [41], [42], [43], [44], [45], [46], [47], [48], [49], [50], [51], [52], [53], [54], [55], [56], [57], [58], [59], [60], [61], [62], [63], [64], [65], [66], [67], [68], [69], [70], [71], and [72].

3.1 Equipment Selection Process and ESEL

The selection of equipment to be included 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 Indian Point Unit 2 OIP in Response to the March 12, 2012, Commission Order EA-12-049 [3], and is consistent with the second and third six-month status reports issued to the NRC [4] [5]. The OIP provides the Indian Point Unit 2 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 Indian Point Unit 2 OIP. 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 and subcriticality, and containment integrity functions. Portable and pre-staged FLEX equipment (not permanently installed) are excluded from the ESEL per EPRI 3002000704.

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

1. The scope of components is limited to that 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 Indian Point Unit 2 OIP.
2. The scope of components is limited to installed plant equipment, and FLEX connections necessary to implement the Indian Point Unit 2 OIP as described in Section 2 of this report.
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 guidance are:
   - Structures (e.g., containment, reactor building, control building, auxiliary building, etc.).
   - Piping, cabling, conduit, HVAC, and their supports.
   - Manual valves, check 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., RPV 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 Indian Point OIP [3], second and third six-month status reports [4] [5], and supporting FLEX engineering calculations [6] 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 flowpaths to be used in the FLEX strategies and to identify specific components in the flowpaths 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 strategy electrical or fluid flowpath. 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, as necessary.

Cabinets and equipment controls containing relays, contactors, switches, potentiometers, circuit breakers and other electrical and instrumentation that could be affected by high-frequency earthquake motions and that impact the operation of equipment in the ESEL are required to be on the ESEL. These cabinets and components were identified in the ESEL.

For each parameter monitored during the FLEX implementation, a single indication was selected for inclusion in the ESEL. For each parameter indication, the components along the flow path from measurement to indication were included, since any failure along the path would lead to failure of that indication. Components such as flow elements were considered as part of the piping and were not included in the ESEL.

3.1.2 Power Operated Valves

Page 3-3 of EPRI 3002000704 [2] notes that power operated valves not required to change state as part of the FLEX mitigation strategies 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. AFW trips). To address this concern, the following guidance is applied in the Indian Point Unit 2 ESEL for functional failure modes associated with power operated valves:

- Power operated valves that remain energized during the 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 be added to the ESEL as these components provide completely passive locations for pulling or installing cables. No breaks or connections in the cabling were included in pull boxes. Pull boxes were considered part of conduit and cabling, which were 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 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 Indian Point Unit 2 OIP as described in Section 2." Item 3 in Section 3.1 also 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 3.1 above 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 FLEX Phase 2 and Phase 3 connection flow path are included in the ESEL.

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

The Indian Point Unit 2 ESEL is based on the primary means of implementing the FLEX strategy. Therefore, no additional justification is required.

4.0 GROUND MOTION RESPONSE SPECTRUM (GMRS)

4.1 Plot of GMRS Submitted by the Licensee

In accordance with the guidance provided in Section 2.4.2 of the Screening, Prioritization and Implementation Details (SPID) [73] for rock sites, the SSE control point elevation is defined at the top of hard-rock and is applicable at grade in the free field as well as the various foundations elevations [74]. Table 4-1 shows the GMRS acceleration for a range of spectral frequencies [75]. The GMRS at the control point is shown in Figure 4-1.

Table 4-1: GMRS for Indian Point Unit 2

Frequency (Hz)	GMRS (g)
100	4.12E-01
90	4.46E-01
80	5.04E-01
70	5.94E-01
60	7.04E-01
50	8.06E-01
45	8.42E-01
40	8.66E-01
35	8.77E-01
30	8.75E-01
25	8.58E-01
20	8.28E-01
15	7.67E-01
12.5	7.17E-01
10	6.48E-01
9	6.04E-01
8	5.55E-01
7	5.02E-01
6	4.46E-01
5	3.85E-01
4	3.14E-01
3	2.36E-01
2.5	1.94E-01
2	1.59E-01
1.5	1.17E-01
1.25	9.42E-02
1	7.04E-02
0.9	6.40E-02
0.8	5.71E-02
0.7	4.99E-02
0.6	4.25E-02
0.5	3.48E-02

Table 4-1: GMRS for Indian Point Unit 2 (continued)

Frequency (Hz)	GMRS (g)
0.4	2.78E-02
0.3	2.09E-02
0.2	1.39E-02
0.167	1.16E-02
0.125	8.69E-03
0.1	6.95E-03

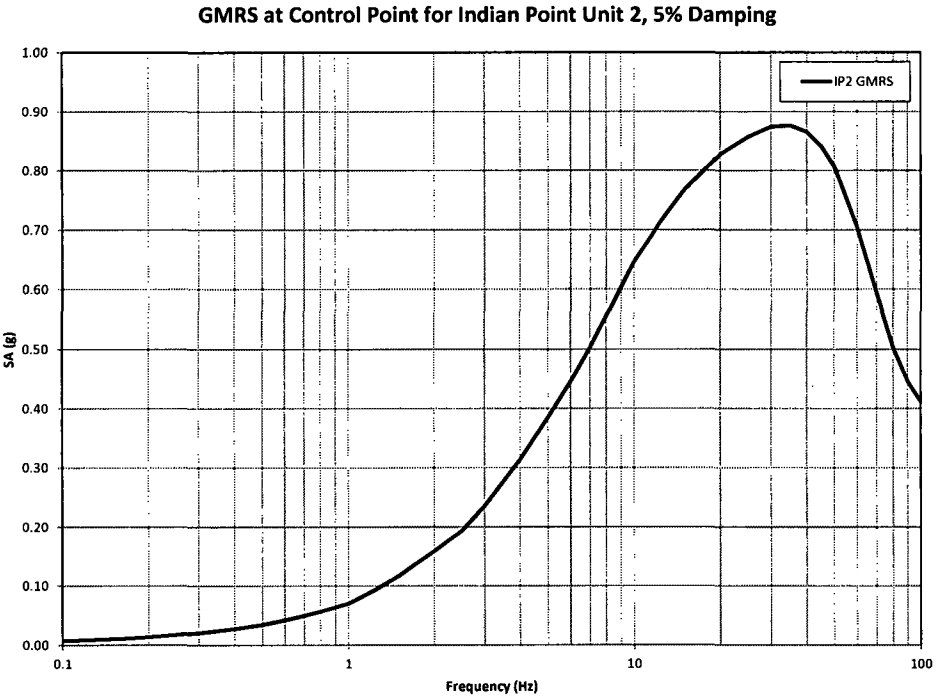

Figure 4-1: GMRS for Indian Point Unit 2

4.2 Comparison to SSE

The SSE corresponds to a horizontal acceleration of 0.15g [76]. The SSE is defined in the FSAR in terms of a PGA and a design response spectrum. These spectra have been digitized and tabulated [75]. Table 4-2 shows these spectral acceleration values at selected frequencies for the 5% damped horizontal SSE.

Table 4-2: SSE for Indian Point Unit 2

Frequency (Hz)	Spectral Acceleration (g)
100	0.15
25	0.15
10	0.168
5	0.228
2.5	0.234
1	0.127
0.5	0.075

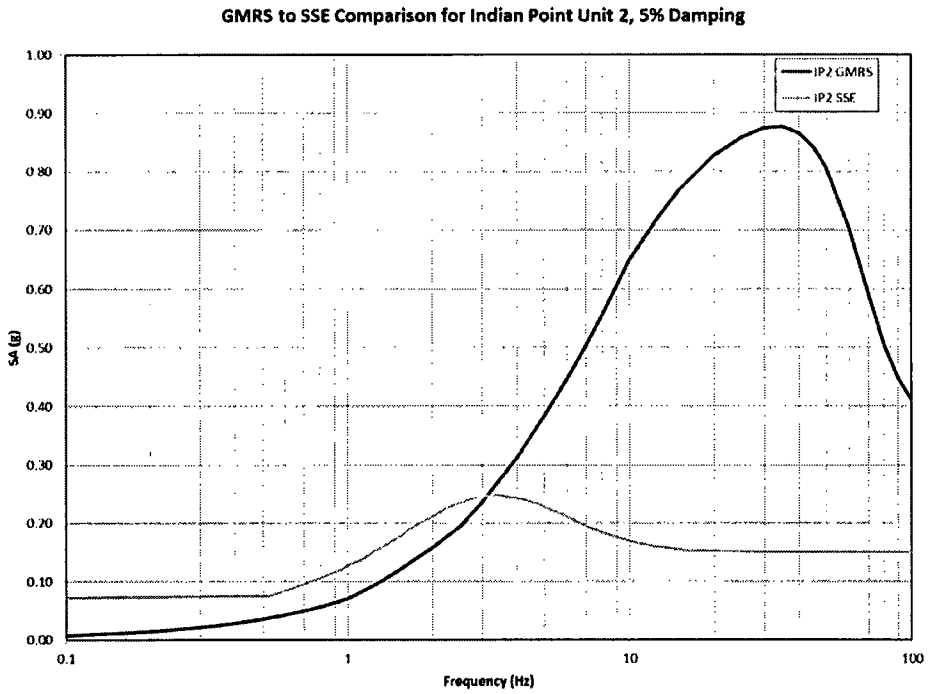

Figure 4-2: GMRS to SSE Comparison for Indian Point Unit 2

The SSE envelops the GMRS for lower frequencies up to nearly 3Hz. The GMRS exceeds the SSE beyond that point. As the GMRS exceeds the SSE in the 1 to 10Hz range, the plant does not screen out of the ESEP according to Section 2.2 of EPRI 3002000704 [2]. The two special screening considerations as described in Section 2.2.1 of EPRI 3002000704, namely a) Low-frequency GMRS exceedances at Low Seismic Hazard Sites and b) Narrow Band Exceedances in the 1 to 10Hz range, provide criteria for accepting specific GMRS exceedances. However, the GMRS exceedances occur in the frequency range of interest and cannot be characterized as narrow-banded exceedances. Therefore, these special screening considerations do not apply for Indian Point Unit 2 and High Confidence of a Low Probability of Failure (HCLPF) evaluations are to be performed.

5.0 REVIEW LEVEL GROUND MOTION (RLGM)

5.1 Description of RLGM Selected

The RLGM is selected based on Approach 1 in Section 4 of EPRI 3002000704 [2]. The RLGM is developed based on the SSE. The maximum GMRS/SSE ratio between 1 and 10Hz range occurs at 10Hz where the ratio is 0.648/0.168 = 3.86. As the maximum ratio of the GMRS to the SSE over the 1 to 10Hz range exceeds a value of 2, the GMRS/SSE ratio is set to the maximum scaling factor value of 2.0 for Indian Point Unit 2 in accordance with Section 4 of EPRI 3002000704. Table 5-1 lists the horizontal ground RLGM acceleration at 5% damping at selected frequencies and the plot is shown in Figure 5-1. The RLGM is generated by plotting the digitized data on a log/linear graph paper, and connecting the points with straight lines.

Table 5-1: RLGM for Indian Point Unit 2

Frequency (Hz)	RLGM at 5% Damping (g)
100.00	0.30
33.00	0.30
15.78	0.31
13.65	0.31
12.20	0.32
10.09	0.34
8.43	0.36
7.23	0.38
6.55	0.40
5.89	0.43
5.34	0.44
4.94	0.46
4.59	0.47
4.17	0.48
3.83	0.49
3.67	0.49
3.41	0.50
3.15	0.49
2.89	0.49
2.65	0.48
2.55	0.47
2.24	0.45
2.02	0.42

Table 5-1: RLGM for Indian Point Unit 2 (continued)

Frequency (Hz)	RLGM at 5% Damping (g)
1.78	0.40
1.64	0.38
1.57	0.36
1.46	0.34
1.34	0.32
1.23	0.30
1.16	0.28
1.09	0.27
1.01	0.26
0.96	0.24
0.91	0.23
0.86	0.22
0.81	0.21
0.76	0.21
0.74	0.20
0.71	0.19
0.68	0.19
0.64	0.18
0.60	0.17
0.56	0.16
0.53	0.15
0.10	0.14

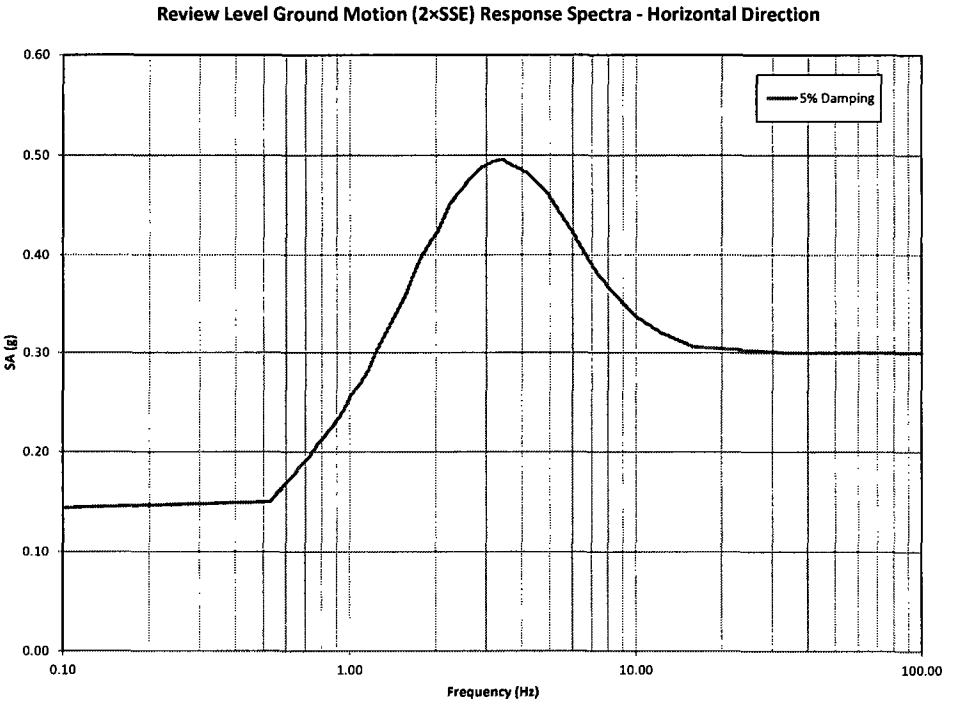

Figure 5-1: RLGM for Indian Point Unit 2

5.2 Method to Estimate In-Structure Response Spectra (ISRS)

The RLGM ISRS for Indian Point Unit 2 are generated by scaling the SSE ISRS [76] [77]. The following steps are used to generate the RLGM ISRS.

1. Obtain the horizontal direction SSE ISRS for a particular damping value.
2. Calculate the horizontal RLGM ISRS by scaling the horizontal direction SSE ISRS by a factor of 2.0.
3. Repeat steps 1 and 2 to obtain RLGM ISRS for multiple damping values.

The vertical direction RLGM ISRS is obtained by scaling the vertical amplified ground response spectrum.

6.0 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 PGA for which there is a HCLPF. The PGA is associated with a specific spectral shape, in this case the 5%-damped RLGM spectral shape. The HCLPF capacity must be equal to or greater than the RLGM PGA. 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-SL, A Methodology for Assessment of Nuclear Power Plant Seismic Margin (Revision 1) [78].

2. Probabilistic approach using the fragility analysis methodology of EPRI TR-103959, Methodology for Developing Seismic Fragilities [79].

6.1 Summary of Methodologies Used

Indian Point Unit 2 was classified as a 0.3g full scope plant in NUREG-1407 [80] and performed a SPRA as part of Individual Plant Examination for External Events (IPEEE) program. The SPRA is documented in [81]. Indian Point Unit 2 IPEEE program followed the NUREG-1407 methodology for seismic evaluation with plant seismic walkdowns using EPRI NP-6041-SL [78] and Generic Implementation Procedure [82]. Walkdown efforts were coordinated for evaluations pertaining to the IPEEE and Unresolved Safety Issue (USI) A-46. Section 3.3 of [75] established that the results of the Indian Point Unit 2 SPRA performed as part of IPEEE will not be used as a basis for Indian Point Unit 2 to screen-out of further risk assessment.

For ESEP, the SMA consisted of screening walkdowns and HCLPF calculations. The screening walkdowns used the screening tables from Chapter 2 of EPRI NP-6041-SL. The walkdowns were conducted by engineers trained in EPRI NP-6041-SL and were documented on Screening Evaluation Work Sheets (SEWS) from EPRI NP-6041-SL. Anchorage capacity calculations used the CDFM criteria from EPRI NP-6041-SL. Seismic demand was based on EPRI 3002000704 [2] using an RLGM of 2xSSE with a PGA of 0.3g as shown on Figure 5-1.

6.2 HCLPF Screening Process

For ESEP, the components are screened at RLGM (2×SSE) with a 0.3g PGA. The screening tables in EPRI NP-6041-SL [78] are based on ground peak spectral accelerations of 0.8g and 1.2g. These both exceed the RLGM peak spectral acceleration.

The ESEL components were prescreened based on Table 2-4 of EPRI NP-6041-SL. Additional pre-screening, specifically for anchorage, considered walkdown results and documentation from NTTF 2.3 and SEWS from IPEEE and USI A-46. Equipment anchorage was screened out in cases where previous evaluations showed large available margin against SSE. The remaining components (i.e., components that do not screen out), were identified as requiring HCLPF calculations. ESEL components were walked down and based on the equipment and anchorage conditions, prescreening decisions were confirmed and a final list of required HCLPF calculations was generated. Equipment for which the screening caveats were met and for which the anchorage capacity exceeded the RLGM seismic demand are screened out from ESEP seismic capacity determination because the HCLPF capacity exceeds the RLGM.

The Indian Point Unit 2 ESEL contains 181 items. Of these, 30 are valves. In accordance with Table 2-4 of EPRI NP-6041-SL, both active and passive 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 are screened out from ESEP seismic capacity determination, subject to the caveat regarding large extended operators on small diameter piping.

The non-valve components in the ESEL are screened based on the SMA results. If the SMA showed that the component met the EPRI NP-6041-SL screening caveats and the CDFM capacity exceeded the RLGM demand, the components are screened out from the ESEP capacity determination.

Block walls in close proximity to Battery Room 21, 22, 23 and 24 as well as MCC-24A and MCC-29A were identified in the proximity of ESEL equipment. These block walls were assessed for potential seismic interaction impact resulting from the RLGM by reviewing the existing plant documents and/or by generating new analyses and found to be acceptable.

6.3 Seismic Walkdown Approach

6.3.1 Walkdown Approach

Walkdowns were performed in accordance with the criteria provided in Section 5 of EPRI 3002000704 [2], which refers to EPRI NP-6041-SL [78] for the Seismic Margin Assessment process. Pages 2-26 through 2-30 of EPRI NP-6041-SL describe 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."

6.3.2 Application of Previous Walkdown Information

Several ESEL items were previously walked down during the Indian Point Unit 2 seismic IPEEE program, which was performed in accordance with USI A-46 evaluation program and NTTF Recommendation 2.3. 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 exist.
- 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 the guidance from EPRI NP-6041-SL [78], no significant outliers or anchorage concerns were identified during the Indian Point Unit 2 seismic walkdowns. Based on walkdown results, HCLPF capacity evaluations were recommended for the following sixteen (16) components:

- BATTCHG21, Battery Charger 21
- BATTCHG22, Battery Charger 22
- BATTCHG23, Battery Charger 23
- BATTCHG24, Battery Charger 24
- BUS 2A, 480VAC Bus 2A
- BUS 3A, 480VAC Bus 3A
- BUS 5A, 480VAC Bus 5A
- BUS 6A, 480VAC BUS 6A
- PC1, 125 VDC Power Panel 21
- PC2, 125 VDC Power Panel 22
- EPB3, 125 VDC Power Panel 23
- EPA9, 125 VDC Power Panel 24
- 0021RWST, 21 Refueling Water Storage Tank
- CST, Condensate Storage Tank
- 300KFPT, Fire Water Storage Tank
- PWST, Primary Water Storage Tank

Several block walls were identified in the proximity of ESEL equipment. These block walls 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 Section 6.6. One (1) HCLPF evaluation was performed addressing the block walls in close proximity to battery rooms 21, 22, and 24 as well as MCC-24A and MCC-29A. The following is the list of the block walls and the wall type.

- Four (4) Walls in Battery Room No. 23 – Partially grouted
- Wall ID 4-033-21 – Brick
- Wall ID 4-033-23 – Brick
- Wall ID 4-033-25 – Brick
- Wall ID 4-033-08 – Hollow Block
- Wall ID 4-033-10 – Hollow Block
- Wall ID 4-033-12 – Hollow Block
- Wall ID 4-033-14 – Hollow Block
- Wall ID 4-033-16 – Hollow Block
- Wall ID 4-033-18 – Hollow Block
- Wall ID 4-033-33 – Hollow Block
- Wall ID 4-033-35 – Hollow Block
- Wall ID 4-033-37 – Hollow Block
- Turbine Building North Block Wall – Partially Grouted
- Turbine Building East Block Wall – Partially Grouted

6.4 HCLPF Calculation Process

ESEL items identified for ESEP at Indian Point Unit 2 were evaluated using the criteria in EPRI NP-6041-SL [78] and Section 5 of EPRI 3002000704 [2]. Those evaluations included the following steps:

- Performing seismic capability walkdowns for equipment not included in previous seismic walkdowns (SQUG, IPEEE, or NTTF 2.3) to evaluate the equipment installed plant conditions
- Performing screening evaluations using the screening tables in EPRI NP-6041-SL as described in Section 6.2
- Performing HCLPF calculations considering various failure modes that include both structural failure modes (e.g. anchorage, load path etc.) and functional failure modes

All HCLPF calculations were performed using the CDFM methodology. Eight (8) HCLPF calculations were performed to address the sixteen (16) components as well as the seismic adequacy of block walls.

- Calculation "Battery Chargers 21-24" addressing four (4) components: BATTCHG21, BATTCHG22, BATTCHG23 and BATTCHG24

- Calculation "BUS 2A, 3A, 5A, and 6A" addressing four (4) components: BUS 2A , BUS 3A, BUS 5A and BUS 6A
- Calculation "125 VDC Power Panels EPB3, EPA9, PC1, and PC2" addressing four (4) components: PC1, PC2, EPB3 and EPA9
- Calculation "Refueling Water Storage Tank, 0021RWST" addressing one (1) component 0021RWST
- Calculation, "Condensate Storage Tank" addressing one (1) component CST
- Calculation "Battery Room and MCC-24A and MCC-29A Blockwalls" addressing eighteen (18) block walls
- Calculation for "300KFPT, Fire Water Storage Tank" addressing one (1) component
- Calculation for "PWST, Primary Water Storage Tank" addressing one (1) component

6.5 Functional Evaluations of Relays

No seal in/lockout type relays were identified on Indian Point Unit 2 ESEL. Therefore, no relay evaluations were performed.

6.6 Tabulated ESEL HCLPF Values (Including Key Failure Modes)

Tabulated ESEL HCLPF values are provided in Attachment B. The following notes apply to the information in the tables.

- For items screened out using EPRI NP-6041-SL [78] screening tables, the HCLPF capacity is provided as >RLGM and the failure mode is listed as "Screened", (unless the controlling HCLPF value is governed by anchorage).
- For items where anchorage controls the HCLPF value, the HCLPF value is listed in the table and the failure mode is noted as "anchorage." For the items where the component function controls the HCLPF value, the HCLPF value is listed in the table and the failure mode is noted as "functional."

After performing the HCLPF calculations, ESEL components were determined to have adequate capacity for the design basis loads and HCLPF greater than RLGM for all components except the following:

- 0021RWST, 21 Refueling Water Storage Tank
- 300KFPT, Fire Water Storage Tank

Modifications are planned for the above component.

7.0 INACCESSIBLE ITEMS

7.1 Identification of ESEL Item Inaccessible for Walkdowns

Forty-one (41) components on the ESEL were inaccessible and not walked down since they are located in the Primary Containment Building in a locked high radiation area or other areas that were inaccessible due to contamination and radiation concerns at the time of the walkdowns and there were no alternate means of evaluating these items:

- ACCUM 21, Accumulator Tank 21
- ACCUM 22, Accumulator Tank 22
- ACCUM 23, Accumulator Tank 23
- ACCUM 24, Accumulator Tank 24
- CH-HCV-133, RHR Purification Line Control Valve
- EXC6, Terminal Box
- EWV8, Terminal Box
- HCV-3100, Remote Reactor Head Vent MOV
- HCV-3101, Remote Reactor Head Vent MOV
- INST RK 21, Instrument Rack 21
- LCV-459, Letdown Isolation Valve
- LIS-1311, Hydraulic Isolator
- LIS-1312, Hydraulic Isolator
- LT-417D, SG 21 WR Level Transmitter
- LT-447D, SG 24 WR Level Transmitter
- LT-427D, Steam Generator 22 WR Level Transmitter
- LT-437D, Steam Generator 23 WR Level Transmitter
- LT-459, Pressurizer Level Transmitter
- MOV-882, RHR Pump Suction Isolation Valve
- MOV-894A, Boronated Water Injection Valve
- MOV-894B, Boronated Water Injection Valve
- MOV-894C, Boronated Water Injection Valve
- MOV-894D, Boronated Water Injection Valve
- NC-31D, Neutron Source Range Detector
- NC-32D, Neutron Source Range Detector
- NC-41D, Neutron Source Range Detector
- NC-42D, Neutron Source Range Detector
- PT-402, RCP WR Pressure Transmitter and RVLIS Train A
- EXG7, Reactor Level Hydraulic Isolator Rack
- TE-411, Temperature Element for RVLIS-Train A
- TE-1203-1, Fan Coil Unit 21 Temperature Element
- TE-1203-2, Fan Coil Unit 22 Temperature Element

- TE-1203-3, Fan Coil Unit 23 Temperature Element
- TE-1203-4, Fan Coil Unit 24 Temperature Element
- TE-1203-5, Fan Coil Unit 25 Temperature Element
- TE-1313, Reactor Vessel Upper Compensation Temp
- TE-1314, Reactor Vessel Upper Compensation Temp
- TE-1317, Reactor Vessel Upper Compensation Temp
- TE-1318, Reactor Vessel Upper Compensation Temp
- TE-1319, Reactor Vessel Lower Tap
- LT-1312, Reactor Vessel Level Transmitter WR

In addition, two (2) heat exchangers listed below were not walked down due to their inaccessibility. These two components were evaluated based review of existing calculations, NTTF 2.3 walkdowns and associated photographs, and a recent scan performed in the area and screened out.

- 0021RHRHX, RHR Heat Exchanger #21
- 0022RHRHX, RHR Heat Exchanger #22

7.2 Planned Walkdown / Evaluation Schedule / Close Out

The walkdowns of the inaccessible items identified in Section 7.1 are scheduled to be performed no later than the second planned refueling outage after December 31, 2014.

8.0 ESEP CONCLUSIONS AND RESULTS

8.1 Supporting Information

Indian Point Unit 2 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 Indian Point Unit 2 response to the NRC's 50.54(f) letter. On March 12, 2014, NEI submitted to the NRC results of a study [84] 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 [83] 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 Indian Point Unit 2 was included in the fleet risk evaluation submitted in the March 12, 2014 NEI letter [84]; therefore, the conclusions in the NRC's May 9 letter also apply to Indian Point Unit 2.

In addition, the March 12, 2014 NEI letter 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 for 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 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
- 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.

The intent of the ESEP is to perform an interim action in response to the NRC's 50.54(f) letter 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 RLGM used for the ESEP evaluation is a scaled version of the plant's SSE rather than the actual GMRS. To more fully characterize the risk impacts of the seismic ground motion represented by the GMRS on a plant specific basis, a more detailed seismic risk assessment (SPRA or risk-based SMA) is to be performed in accordance with EPRI 1025287 [73]. As identified in the Indian Point Unit 2 Seismic Hazard and GMRS submittal [75], Indian Point Unit 2 screens in for a risk evaluation. The complete risk evaluation will more completely characterize the probabilistic seismic ground motion input into the plant, the plant response to that probabilistic seismic ground motion input, and the resulting plant risk characterization. Indian Point Unit 2 will complete that evaluation in accordance with the schedule identified in NEI's letter dated April 9, 2013 [85] and endorsed by the NRC in their May 7, 2013 letter [86].

8.2 Identification of Planned Modifications

Insights from the ESEP identified the following items where the HCLPF is below the RLGM and plant modifications will be made in accordance with EPRI 3002000704 [2] to enhance the seismic capacity of the plant.

- 0021RWST, 21 Refueling Water Storage Tank
- 300KFPT, Fire Water Storage Tank

8.3 Modification Implementation Schedule

Plant modifications will be performed in accordance with the schedule identified in NEI letter dated April 9, 2013 [85], 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

The following actions will be performed as a result of the ESEP.

Action #	Equipment ID	Equipment Description	Action Description	Completion Date
1	N/A	N/A	Perform seismic walkdowns, generate HCLPF calculations and design and implement any necessary modifications for inaccessible items listed in Section 7.1	No later than the end of the second planned refueling outage after December 31, 2014.
2	0021RWST	21 Refueling Water Storage Tank	Modify tank and anchorage such that HCLPF>RLGM	As described in Section 8.3.
3	300KFPT	Fire Water Storage Tank	Modify tank and anchorage such that HCLPF>RLGM	As described in Section 8.3
4	N/A	N/A	Submit a letter to NRC summarizing the HCLPF results of Items 1 to 3 and confirming implementation of the plant modifications associated with items 1 to 3.	Within 60 days following completion of ESEP activities, including items 1 to 3.

9.0 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. EPRI 3002000704, "Seismic Evaluation Guidance, Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," May 2013.
3. Entergy Letter to U.S. NRC, letter number NL-13-042 "Overall Integrated Plan in Response to March 12, 2012, Commission Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," February 28, 2013, NRC ADAMS Accession No. ML13079A348.
4. Entergy Letter to U.S. NRC, letter number NL-14-031, "Indian Point Energy Center's Second Six-Month Status Report for the Implementation of Order Number EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," February 27, 2014, NRC ADAMS Accession No. ML14070A365.
5. Entergy Letter to U.S. NRC, letter number NL-14-110, "Indian Point Energy Center's Third Six-Month Status Report for the Implementation of Order EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," August 27, 2014, NRC ADAMS Accession No. ML14251A227.
6. Entergy Engineering Evaluation, EC No. 45874, Revision 1, "FLEX-Beyond Design Basis External Event Phases I, II, and III Strategy Development Evaluation."
7. Entergy Drawing 9321-F-2017, Revision 84, "Flow Diagram – Main Steam."
8. Entergy Drawing 9321-F-2019, Revision 116, "Flow Diagram – Boiler Feedwater."
9. Entergy Drawing 251132, Revision 6, "AFW: Aux. Boiler Feed Pump #22 Flow Control Loop No.s 1188, 1213, 1261 & 1264."
10. Entergy Drawing 251123, Revision 6, "AFW Flow to Steam Gen's. #21 & 22 Loop No's. 405, 406, 1200 & 1201."
11. Entergy Drawing D251129, Revision 5, "AFW Flow to Steam Gen's. #23 & 24 Loop No's 405, 406, 1202 & 1203."
12. Entergy Drawing A207567, Revision 9, "Wiring for Transmitter Rack No. 5, 9, & 20."
13. Entergy Drawing A241172, Revision 23, "Control Room Panel SC (JB1)."
14. Entergy Drawing 262727, Revision 0, "BLR FD. Water Sys. – Stm. Gen. #22 L/D Level Ind./Recording LOOP-LT-427D."
15. Entergy Drawing D260512, Revision 4, "Loop Diag. F.W. S.G. #23 Wide Range Level Loop Number: 437."
16. Entergy Drawing 9321-F-70513, Revision 17, "Transmitter Racks Piping Arrangement – Sheet No. 4 Instrumentation."
17. Entergy Drawing D252556, Revision 4, "MS Flow & Pressure Channel I (SG #22) Loop Number 429."

18. Entergy Drawing D252557, Revision 4, "MS Flow & Pressure Channel I (SG #23) Loop Number 439."

19. Entergy Drawing A241185, Revision 15, "Control Room Panel FB (JA2)."

20. Entergy Drawing B225317, Revision 4, "Rack A3 Layout Reactor Protection System."

21. Entergy Drawing 9321-F-2018, Revision 146, "Flow Diagram Condensate & Boiler Feed Pump Suction – UFSAR Figure No. 10.2-5 (Sht. 1)."

22. Entergy Drawing D262603, Revision 4, "Cond. Storage Tank Level Loops 1102, 1128."

23. Entergy Drawing IP2--S-000313, Revision 1, "Condensate Storage Tank Level Indicator LI-1128."

24. Entergy Drawing A235296, Revision 71, "Flow Diagram Safety Injection System UFSAR Figure No. 6.2-1 (Sht. 2)."

25. Entergy Drawing 9321-F-3006, Revision 97, "Single Line Diagram 480V MCC 26A and 26B."

26. Entergy Document 9P32.AA/12, "Individual Plant Examination for Indian Point Unit No. 2 External Events and Verification of Seismic Adequacy of Mechanical and Electrical Equipment Project No. 4342/9P32, USI A-46 Summary Report, Task AA: USI A-46," November 4, 1996.

27. Entergy Drawing 9321-F-2736, Revision 129, "Flow Diagram Chemical & Volume Control System - UFSAR Figure No 9.2-1 (Sht. 1)."

28. Entergy System Design Description 1.0, Revision 15, "Indian Point Energy Center Unit No. 2 System Description No. 1 Reactor Coolant System."

29. Entergy Drawing 9321-F-2735, Revision 141, "Flow Diagram Safety Injection System – UFSAR Figure No. 6.2-1 (Sht. 1)."

30. Entergy Drawing 208093, Revision 13, "Piping Arrangement Remote Reactor Head Vent."

31. Entergy Drawing IP2--S-000253, Revision 4, "Reactor Head Vent MOV HCV3101."

32. Entergy System Design Description 30.0, Revision 5, "Indian Point Station Unit No. 2 System Description 30.0 Electric Heat Trace."

33. Entergy Drawing 9321-F-3005, Revision 110, "One Line Diagram 480V Motor Control Center 27 & 27A."

34. Entergy Drawing 226076, Revision 8, "I&C Loop Diagram Safety Injection System Containment Pressure Sensing."

35. Entergy Drawing 241170, Revision 22, "Control Room Panel SB-1 (JB8)."

36. Entergy Drawing A209762, Revision 72, "Flow Diagram Service Wtr Sys Nuclear Stm Supply Plant Sh 2 of 2 – UFSAR Figure No. 9.6-1 (Sht. 2)."

37. Entergy Drawing A241169, Revision 18, "Control Room Panel SA (JB6)."

38. Entergy Drawing 9321-F-2030, Revision 40, "Flow Diagram Fuel Oil to Diesel Generators."

39. Entergy Drawing 250907, Revision 34, "Electrical Distribution and Transmission System – UFSAR Fig. No. 8.2-1 & 8.2-2."

40. Entergy Drawing 9321-F-3008, Revision 92, "Single Line Diagram D.C. Power Panels 21, 22, 23, and 24 – UFSAR Figure No. 8.2-16."

41. Entergy Drawing A208503, Revision 36, "Schem Dia of 118 VAC Inst Buses 21A, 22A, 23A and 24A (Located in CCR)."

42. Entergy Drawing A225098, Revision 4, "Logic Diagram Nuclear Instrumentation Trip Signals (Sheet #5) UFSAR Figure No. 7.2-5."

43. Entergy Drawing A241186, Revision 13, "Control Room Panel FC (JA3)."

44. Entergy Drawing A241187, Revision 22, "Control Room Panel FD (JA4)."

45. Entergy Drawing 9321-F-2738, Revision 122, "Flow Diagram Reactor Coolant System – UFSAR Figure No. 4.2-1."

46. Entergy Drawing D260430, Revision 4, "Loop Diagram R.C.S Pressurizer Level Control Loop Number:459."

47. Entergy Drawing B235537, Revision 2, "Reactor Vessel Level Instrumentation System Tag L-1311 & L-1312."

48. Entergy Drawing 208538, Revision 11, "Diag. of External Conn's for Reactor Vessel System Process Cabinet "LC1" (Side Bays)."

49. Entergy Drawing A242186, Revision 08, "Wiring Diagram Core Exit Thermocouple Monitoring System (Rack D8) Loc. in CCR."

50. Entergy Design Basis Document IP2-MS DBD, Revision 02, "Design Basis Document for Main Steam System."

51. Entergy Drawing A241171, Revision 29, "Control Room Panel SB-2 (JC3)."

52. Entergy Drawing 23523, Revision 8, EC-29868, "Atmospheric Steam Dump Panel."

53. Entergy System Design Description 3, Revision 12, "Indian Point Energy Center Unit No. 2 System Description No. 3 Chemical and Volume Control System."

54. Entergy Drawing A208800 Revision 5, "Reactor Level Instr. Rack & Piping Details."

55. Entergy Drawing A208726 Revision 7, "Installation of Reactor Vessel Level System Conduit Layout."

56. Entergy Drawing D260510 Revision 7, "Loop Diag. F.W. S.G. #21 Wide Range Level Loop Number: 417, 5001."

57. Entergy Drawing D260513 Revision 4,"Loop Diag. F.W. S.G. #22 Wide Range Level Loop Number: 447."

58. Entergy Drawing A227551 Revision 64, "Fire Protection System Diagram Details Sheet #1."

59. Entergy Plant Equipment Database for Indian Point Unit 2.

60. Entergy Drawing 313113, Revision 0, "RCS Wide Range Press. Transmitter Schematic Wiring Diagram for Ind. Lights for Hydr. Isolator PIS-402 Electrical."

61. Entergy Drawing A208537 Revision 06, "D/C Misc Field Mounted Equipment for Reactor Vessel Level System."

62. Entergy System Design Description 10.1, Revision 16, "Indian Point Energy Center Unit No. 2 System Description No. 10.1 Safety Injection System."

63. Entergy Drawing 9321-F-7015 Revision 34, "Instrument Piping Schematics Sheet No. 6 Instrumentation."

64. Entergy Drawing 9-9239 DWG 1, Revision 4, "General Plan of 30'-0" Diam x 35'-3" High Dome Roof Tank."

65. Entergy Drawing D260209, Revision 3, "LOOP Diagram RCS Pressure Loop #1, Loop Number 402."

66. Entergy Drawing B238709 Revision 2, "Control Schematic – Pressure Reducing Valve PCV-1139 for Auxiliary Boiler Feed Pump #22."

67. Entergy Drawing A226980 Revision 2, "Aux. Boiler Feed Pump Control Station PT1 Wiring."

68. Entergy Drawing 208538 Revision 11, "Diag of External Conn's for Reactor Vessel System Process Cabinet "LC1"."

69. Entergy Drawing 300825 Revision 0, "Steam Gen. 22 Wide Range Level Transmitter LT-427D."

70. Entergy Drawing A206649, Revision 26, "Conduit Layout Control Building Elevation 33'-0"."

71. Entergy Drawing A208728 Revision 6, "Supplementary DWG Reactor Vessel Level Sys. Schematic & Tray Schedule."

72. Entergy Plant Electrical Cable and Conduit Database for Indian Point Unit 2.

73. EPRI 1025287, "Seismic Evaluation Guidance: Screening, Prioritization and Implementation Details (SPID) for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic. Electric Power Research Institute," February 2013.

74. EPRI, "Indian Point Seismic Hazard and Screening Report," Revision 1, October 2013.

75. Entergy Letter to U.S. NRC, letter number NL-14-042, "Entergy Seismic Hazard and Screening Report (CEUS Sites), Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident ," March 31, 2014, NRC ADAMS Accession No. ML14099A110.

76. "Indian Point Energy Center Unit 2 Updated Final Safety Analysis Report," Revision 25, Docket No. 50-247, 2014.

77. "Indian Point Energy Center Unit 3 Updated Final Safety Analysis Report," Revision 5, Docket No. 50-286, 2013.

78. EPRI-NP-6041-SL, "Methodology for Assessment of Nuclear Power Plant Seismic Margin," Revision 1, August 1991.

79. EPRI TR-103959, "Methodology for Developing Seismic Fragilities," July 1994.

80. NRC NUREG-1407, "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities," June 1991.

81. Entergy Document, "Individual Plant Examination of External Events for Indian Point Unit No. 2 Nuclear Generating Station," December 1995.

82. SQUG, "Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Plant Equipment, Seismic Qualification Utility Group," Revision 3A, December 2001.

83. 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.

84. 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.

85. 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. NRC ADAMS Accession No. ML13101A379.

86. NRC (E Leeds) Letter to NEI (J Pollock), "Electric Power Research Institute Final Draft Report xxxxx, "Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," as an Acceptable Alternative to the March 12, 2012, Information Request for Seismic Reevaluations," May 7, 2013.

87. Entergy Document EC54070, "ESEP Reports," the following AREVA documents are captured in the plant document management system:

    a. AREVA Document 51-9212950-008, "ESEP Expedited Seismic Equipment List (ESEL) – Indian Point Unit 2."

    b. AREVA Calculation 32-9227343-001, "Indian Point Unit 2 ESEP HCLPF Calculation - BUS 2A, 3A, 5A, and 6A."

    c. AREVA Calculation 32-9227577-000, "Indian Point Unit 2 ESEP HCLPF Calculation - Battery Chargers 21-24."

    d. AREVA Calculation 32-9227719-000, "Indian Point Unit 2 ESEP HCLPF Calculation - 125 VDC Power Panels EPB3, EPA9, PC1, and PC2."

    e. AREVA Calculation 32-9229683-000, "Indian Point Unit 2 ESEP HCLPF Calculation - Battery Room and MCC-24A and 29A Blockwalls."

    f. AREVA Calculation 32-9230350-000, "Indian Point Unit 2 ESEP HCLPF Calculation - Condensate Storage Tank."

    g. AREVA Calculation 32-9230411-000, "Indian Point Unit 2 ESEP HCLPF Calculation – Refueling Water Storage Tank, 0021RWST."

    h. AREVA Document 32-9232862-000, "Indian Point Unit 2 ESEP Calculation – Fire Protection Water Storage Tank."

    i. AREVA Document 32-9232844-000, "Indian Point Unit 2 ESEP Calculation – Primary Water Storage Tank."

ATTACHMENT A – INDIAN POINT UNIT 2 ESEL

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
1	MS-45B	Steam Generator 22 Safety Relief Valve	Closed	Open	1 needed for success	[7]
2	MS-45C	Steam Generator 23 Safety Relief Valve	Closed	Open	1 needed for success	[7]
3	PCV-1135	Steam Generator 22 Atmospheric Dump Valve	Closed	Open	Manual operation with compressed nitrogen bottles	[7]
4	PCV-1136	Steam Generator 23 Atmospheric Dump Valve	Closed	Open	Manual operation with compressed nitrogen bottles	[7]
5	0022AFP	Turbine Driven Auxiliary Feed Pump 22	Standby	Operating	Auto start Manual operation	[8][9]
6	HCV-1118	22 AFW Pump Speed Control Valve	Closed	Open	118 V Bus 21	[8]
7	PCV-1139	22 AFW Pump Steam Supply	Closed	Open	Panel 21	[7]
8	PCV-1213	22 AFW Pump Bearing Cooling	Closed	Open	Part of 22AFW pump skid, fails open	[8][9]
9	PCV-1310A	22 AFW Pump Steam Isolation	Open	Open	Per Loss of All AC Power procedure manually open valve	[7]
10	PCV-1310B	22 AFW Pump Steam Isolation	Open	Open	Per Loss of All AC Power procedure manually open valve	[7]
11	FT-1201	AFW to Steam Generator 22 Flow Transmitter	Operating	Operating	-	[8][10][12]
12	FT-1202	AFW to Steam Generator 23 Flow Transmitter	Operating	Operating	-	[8][11][12]
13	FI-1201	AFW to Steam Generator 22 Flow Indication	Operating	Operating	-	[10]
14	FI-1202	AFW to Steam Generator 23 Flow Indication	Operating	Operating	-	[11]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
15	INST RK 5	Instrument Rack 5	Operating	Operating	-	[12][26]
16	PNL SC	Condenser & Feedwater Supervisory Panel	Operating	Operating	-	[10][11] [13]
17	FCV-405B	Auxiliary Feed Flow Control Valve SG 22	Closed	Open	Emergency procedures include manual operation with hand-wheel	[8][10]
18	FCV-405C	Auxiliary Feed Flow Control Valve SG 23	Closed	Open	Emergency procedures include manual operation with hand-wheel	[8][11]
19	LT-427D	Steam Generator 22 WR Level Transmitter	Operating	Operating	-	[8][14][16]
20	LT-437D	Steam Generator 23 WR Level Transmitter	Operating	Operating	-	[8][15][16]
21	LI-427D	Steam Generator 22 WR Level Indicator	Operating	Operating	-	[14]
22	LI-437D	Steam Generator 23 WR Level Indicator	Operating	Operating	-	[15]
23	INST RK 21	Instrument Rack 21	Operating	Operating	-	[14][15][16] [26]
24	PC-429	Steam Generator 22 Steam Pressure Controller	Operating	Operating	-	[50]
25	PC-439	Steam Generator 23 Steam Pressure Controller	Operating	Operating	-	[50]
26	PT-429A	Steam Generator 22 Steam Pressure Transmitter	Operating	Operating	-	[7][12][17]
27	PT-439A	Steam Generator 23 Steam Pressure Transmitter	Operating	Operating	-	[7][12][18]
28	PI-429A	Steam Generator 22 Steam Pressure Indicator	Operating	Operating	-	[17]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
29	PI-439A	Steam Generator 23 Steam Pressure Indicator	Operating	Operating	-	[18]
30	INST RK 9	Instrument Rack 9	Operating	Operating	-	[12][19] [26]
31	PNL FB	Flight Panel FB	Operating	Operating	-	[19]
32	CST	Condensate Storage Tank	Available	Available	-	[21][22]
33	LT-1128	CST Level Transmitter	Operating	Operating	-	[13][21] [22][23]
34	LI-1128	CST Level indicator	Operating	Operating	-	[13][21] [22][23]
35	MOV-894A	Boronated Water Injection Valve	Open	Open	Closed for Phase 2	[24][25]
36	MOV-894B	Boronated Water Injection Valve	Open	Open	Closed for Phase 2	[24][25]
37	MOV-894C	Boronated Water Injection valve	Open	Open	Closed for Phase 2	[24][25]
38	MOV-894D	Boronated Water Injection Valve	Open	Open	Closed for Phase 2	[24][25]
39	MCC-26A	480V Motor Control Center 26A	Operating	Operating	Power to accumulator isolation valve	[24][25]
40	MCC-26B	480V Motor Control Center 26B	Operating	Operating	Power to accumulator isolation valve	[24][25]
41	CH-MOV-222	Seal Water Return Isolation Valve	Open	Closed	Manual operated valve	[26][27]
42	FCV-625	CCW Return from RCP Thermal Barrier	Open	Closed	Manual operated valve	[28]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
43	0021RWST	21 Refueling Water Storage Tank	Available	Available	-	[29]
44	0021RHRHX	RHR Heat Exchanger #21	Available	Available	Gravity feed path through heat exchanger	[24]
45	0022RHRHX	RHR Heat Exchanger #22	Available	Available	Gravity feed path through heat exchanger	[24]
46	HCV-3100	Remote Reactor Head Vent MOV	Available	Available	-	[25][30]
47	HCV-3101	Remote Reactor Head Vent MOV	Available	Available	-	[25][30] [31]
48	PNL SA	Panel SA	Available	Available	Control for remote reactor head vent MOVs	[31][37]
49	EHT PNL 24	Electric Heat Trace Panel 24	Available	Available	RWST line freeze protection	[32]
50	MCC-27	480V Motor Control Center 27	Operating	Operating	Power to EHT PNL 24	[33][39]
51	PT-948A	Containment Pressure Transmitter	Operating	Operating	-	[26][34]
52	PI-948A	Containment Pressure Indicator	Operating	Operating	-	[34][35]
53	TE-1203-1	Fan Coil Unit 21 Temperature Element	Operating	Operating	-	[26][36]
54	TE-1203-2	Fan Coil Unit 22 Temperature Element	Operating	Operating	-	[26][36]
55	TE-1203-3	Fan Coil Unit 23 Temperature Element	Operating	Operating	-	[26][36]
56	TE-1203-4	Fan Coil Unit 24 Temperature Element	Operating	Operating	-	[26][36]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
57	TE-1203-5	Fan Coil Unit 25 Temperature Element	Operating	Operating	-	[26][36]
58	TIC-1203	Temperature Controller Containment Average Temperature	Operating	Operating	-	[26][36]
59	TT-1203	Containment T-Ave Temperature Transmitter	Operating	Operating	-	[26][36]
60	TI-1203A	Containment Temperature Indicator	Operating	Operating	-	[36][37]
61	INST RK 24	Instrument Rack 24	Operating	Operating	-	[26]
62	21FOST	EDG Fuel Oil Storage Tank 21	Available	Available	-	[38]
63	22FOST	EDG Fuel Oil Storage Tank 22	Available	Available	-	[38]
64	23FOST	EDG Fuel Oil Storage Tank 23	Available	Available	-	[38]
65	BATT21	Battery Bank	Operating	Operating	-	[39][40]
66	BATT22	Battery Bank	Operating	Operating	-	[39][40]
67	BATT23	Battery Bank	Operating	Operating	-	[39][40]
68	BATT24	Battery Bank	Operating	Operating	-	[39][40]
69	BATTCHG21	Battery Charger 21	Operating	Operating	-	[39][40]
70	BATTCHG22	Battery Charger 22	Operating	Operating	-	[39][40]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
71	BATTCHG23	Battery Charger 23	Operating	Operating	-	[39][40]
72	BATTCHG24	Battery Charger 24	Operating	Operating	-	[39][40]
73	BUS 2A	480VAC Bus 2A	Operating	Operating	-	[39][40]
74	BUS 3A	480VAC Bus 3A	Operating	Operating	-	[39][40]
75	BUS 5A	480VAC Bus 5A	Operating	Operating	-	[39][40]
76	BUS 6A	480VAC Bus 6A	Operating	Operating	-	[39][40]
77	EPA9	125 VDC Power Panel 24	Operating	Operating	MCC-27A, distribution panel 24AA	[39][40]
78	EPB3	125 VDC Power Panel 23	Operating	Operating	MCC-26C, distribution panel 23AA	[39][40]
79	EPE1	118 VAC Instrument Bus 21A	Operating	Operating	Power for CET	[40][41]
80	EPE2	118 VAC Instrument Bus 22A	Operating	Operating	-	[40][41]
81	EPE3	118 VAC Instrument Bus 23A	Operating	Operating	Power for RVLIS	[40][41]
82	EPF1	125 VDC Distribution Panel 21AA	Operating	Operating	-	[26][39]
83	EPF3	125 VDC Distribution Panel 23AA	Operating	Operating	-	[26][39]
84	MCC-24A	Motor Control Center 24A	Operating	Operating	-	[39]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
85	MCC-29A	Motor Control Center 29A	Operating	Operating	-	[39]
86	PC1	125 VDC Power Panel 21	Operating	Operating	MCC-29A	[26][39] [40]
87	PC2	125 VDC Power Panel 22	Operating	Operating	MCC-24A	[26][39] [40]
88	PC3	125 VDC Distribution Panel 21	Operating	Operating	-	[26][39]
89	PC4	125 VDC Distribution Panel 22	Operating	Operating	-	[26][39]
90	PE-6	118 VAC Instrument Bus 24	Operating	Operating	-	[26][39] [40]
91	PE-7	118 VAC Instrument Bus 23	Operating	Operating	-	[26][39] [40]
92	PE-8	118 VAC Instrument Bus 21	Operating	Operating	-	[26][39] [40]
93	PE-9	118 VAC Instrument Bus 22	Operating	Operating	-	[26][39] [40]
94	NC-31D	Neutron Source Range Detector	Operating	Operating	-	[42]
95	NC-32D	Neutron Source Range Detector	Operating	Operating	-	[42]
96	NC-41D	Neutron Source Range Detector	Operating	Operating	-	[26]
97	NC-42D	Neutron Source Range Detector	Operating	Operating	-	[26]
98	NI-31	Source Range Indication	Operating	Operating	-	[26]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
99	NI-32	Source Range Indication	Operating	Operating	-	[26]
100	NI-35	Source Range Indication	Operating	Operating	-	[26]
101	NI-36	Source Range Indication	Operating	Operating	-	[26]
102	PNL FC	Flight Panel FC	Operating	Operating	-	[43]
103	NI-41	Source Range Indication	Operating	Operating	-	[26]
104	NI-42	Source Range Indication	Operating	Operating	-	[26]
105	PNL FD	Flight Panel FD	Operating	Operating	-	[44]
106	LT-459	Pressurizer Level Transmitter	Operating	Operating	-	[45][46]
107	LI-459	Pressurizer Level Indicator	Operating	Operating	-	[46]
108	LT-1311	Reactor Vessel Level Transmitter Narrow	Operating	Operating	RVLIS input	[47]
109	PT-402	RCP WR Pressure Transmitter and RVLIS Train A	Operating	Operating	-	[26][48]
110	TE-411A	Temperature Element for RVLIS-Train A	Operating	Operating	-	[48]
111	RVLIS Cabinet EPH8	RVLIS Cabinet	Operating	Operating	-	[48]
112	PNL-D8	Core Exit Thermocouple Monitoring (D-8)	Operating	Operating	-	[49]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
113	PM-948A	Containment Pressure Repeater	Operating	Operating	-	[34]
114	RACK B9 MERLIN ID: IP2-CB-53-CCR Rack B9	Reactor Protection CH IV Instrument Logic Rack B9	Operating	Operating	-	[26][34]
115	LI-1311	Reactor Vessel Level Indicator Narrow	Operating	Operating	-	[47]
116	PNL A#3 MERLIN ID: IP2-CB-53-CCR AAS PNL 3	Assessment Panel #3	Operating	Operating	-	[26][47]
117	PM-429A	Steam Generator 22 Steam Pressure Isolator	Operating	Operating	-	[17]
118	RACK A3 MERLIN ID: IP2-CB-53-CCR Rack A3	Reactor Protection CH I Instrument Logic Rack A3	Operating	Operating	-	[17][20] [26]
119	PM-439A	Steam Generator 23 Steam Pressure	Operating	Operating	-	[18]
120	RACK A2 MERLIN ID: IP2-CB-53-CCR Rack A2	Reactor Protection CH I Instrument Logic Rack A2	Operating	Operating	-	[18]
121	LQM-427D	Steam Generator 22 WR Level	Operating	Operating	-	[14]
122	RACK B5 MERLIN ID: IP2-CB-53-CCR Rack B5	Instrument Rack B5	Operating	Operating	-	[14]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
123	LQM-437D	Steam Generator 23 WR Level	Operating	Operating	-	[15]
124	RACK B10 MERLIN ID: IP2-CB-53-CCR Rack B10	Reactor Protection CH IV Instrument Logic Rack B10	Operating	Operating	-	[15][26]
125	LM-459A	Pressurizer Level Module	Operating	Operating	-	[46]
126	RACK A4 MERLIN ID: IP2-CB-53-CCR Rack A4	Reactor Protection CH I Instrument Logic Rack A4	Operating	Operating	-	[26][46]
127	PNL SB-1 MERLIN ID: IP2-CB-53-CCR PNL SB-1	Supervisory Panel SB-1	Operating	Operating	-	[26][35]
128	PNL SB-2 MERLIN ID: IP2-CB-53-CCR PNL SB-2	Supervisory Panel SB-2	Operating	Operating	-	[26][51]
129	MS-45-A	Steam Generator 21 Safety Relief Valve	Closed	Open	1 needed for success	[7]
130	MS-45-D	Steam Generator 24 Safety Relief Valve	Closed	Open	1 needed for success	[7]
131	PCV-1134	Steam Generator 21 Atmospheric Dump Valve	Closed	Open	Manual operation	[6] [7]
132	PCV-1137	Steam Generator 24 Atmospheric Dump Valve	Closed	Open	Manual operation	[6] [7]
133	PNL #1	Atmospheric Steam Dump Panel	Operating	Operating	-	[26]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
134	PNL #2	Atmospheric Steam Dump Panel	Operating	Operating	-	[26]
135	N2 Tanks	Backup Nitrogen Cylinders	Intact	Intact	-	[52]
136	N-854	Nitrogen Pressure Regulator	Closed	Open	-	[52]
137	N-856	Nitrogen Pressure Regulator	Closed	Open	-	[52]
138	FT-1200	AFW to Steam Generator 21 Flow Transmitter	Operating	Operating	-	[8][10][12]
139	FT-1203	AFW to Steam Generator 24 Flow Transmitter	Operating	Operating	-	[8][11][12]
140	FI-1200	AFW to Steam Generator 21 Flow Indication	Operating	Operating	-	[10]
141	FI-1203	AFW to Steam Generator 24 Flow Indication	Operating	Operating	-	[11]
142	FCV-405A	Auxiliary Feed Flow Control Valve SG 21	Closed	Open	Manual operation with handwheel	[8][10]
143	FCV-405D	Auxiliary Feed Flow Control Valve SG 24	Closed	Open	Manual operation with handwheel	[8][11]
144	LT-417D	Steam Generator 21 WR Level Transmitter	Operating	Operating	-	[8][14][16]
145	LT-447D	Steam Generator 24 WR Level Transmitter	Operating	Operating	-	[8][15][16]
146	LI-417D	Steam Generator 21 WR Level Indicator	Operating	Operating	-	[14]
147	LI-447D	Steam Generator 24 WR Level Indicator	Operating	Operating	-	[15]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
148	LQM-417D	SG 21 WR Level	Operating	Operating	-	[26][56]
149	LQM-447D	SG 24 WR Level	Operating	Operating	-	[26][57]
150	PT1	22 AFW Pump Local Control Panel	Operating	Operating	-	[14][67]
151	PI-1354	Steam Generator 22 Steam Pressure Indicator	Operating	Operating	-	[7][58]
152	PI-1355	Steam Generator 23 Steam Pressure Indicator	Operating	Operating	-	[7][58]
153	PI-1353	Steam Generator 21 Steam Pressure Indicator	Operating	Operating	-	[7][59]
154	PI-1356	Steam Generator 24 Steam Pressure Indicator	Operating	Operating	-	[7][59]
155	ACCUM. 21	Accumulator Tank 21	Intact	Intact	-	[24][59]
156	ACCUM. 22	Accumulator Tank 22	Intact	Intact	-	[24][59]
157	ACCUM. 23	Accumulator Tank 23	Intact	Intact	-	[24][59]
158	ACCUM. 24	Accumulator Tank 24	Intact	Intact	-	[24][59]
159	LCV-459	Letdown Isolation Valve	Open	Close	-	[53]
160	CH-HCV-133	RHR Purification Line Control Valve	Open	Close	-	[53]
161	MOV-882	RHR Pump Suction Isolation Valve	Close	Open	-	[59][62]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
162	*EXC6*	*Terminal Box*	Intact	Intact	-	[55]
163	LT-1312	Reactor Vessel Level Transmitter WR	Operating	Operating	-	[54]
164	LI-1312	Reactor Vessel Level Indicator WR	Operating	Operating	-	[47]
165	LIS-1311	Hydraulic Isolators	Intact	Intact	-	[54][55] [59][61]
166	LIS-1312	Hydraulic Isolators	Intact	Intact	-	[54][55] [59][61]
167	EXG7	Reactor Level Hydraulic Isolator Rack	Operating	Operating	-	[60][61]
168	PNL SN	Supervisory Panel SN	Operating	Operating	-	[54]
169	Rack B1	CCR Rack B1	Operating	Operating	-	[26][65]
170	MS-577	TDAFWP Turbine Trip	Standby	Operating	-	[8][9][59] [63][66]
171	22AFPT	TDAFWP Turbine	Standby	Operating	Mounted on TDAFWP skid	[8][9][63]
172	-	TDAFWP Lube Oil Coolers	Standby	Operating	Mounted on TDAFWP skid	[8][9][63]
173	PWST	Primary Water Storage Tank	Intact	Intact	-	[59][64]
174	300KFPT	Fire Water Storage Tank	Intact	Intact	-	[58]
175	TE-1313	Reactor Vessel Upper Compensation Temperature	On	On	-	[55][68]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
176	TE-1314	Reactor Vessel Upper Compensation Temperature	On	On	-	[55][68]
177	TE-1317	Reactor Vessel Conduit Compensation Temperature	On	On	-	[55][68]
178	TE-1318	Reactor Vessel Conduit Compensation Temperature	On	On	-	[55][68]
179	TE-1319	Reactor Vessel Lower Tap	On	On	-	[55][68]
180	SP3	Terminal Box	Intact	Intact	-	[69][70]
181	EWV8	Terminal Box	Intact	Intact	-	[71][72]

ATTACHMENT B – ESEP HCLPF VALUES AND FAILURE MODES TABULATION

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
1	MS-45B	Steam Generator 22 Safety Relief Valve	> RLGM	Screened	
2	MS-45C	Steam Generator 23 Safety Relief Valve	> RLGM	Screened	
3	PCV-1135	Steam Generator 22 Atmospheric Dump Valve	> RLGM	Screened	
4	PCV-1136	Steam Generator 23 Atmospheric Dump Valve	> RLGM	Screened	
5	0022AFP	Turbine Driven Auxiliary Feed Pump 22	> RLGM	Screened	Note 1
6	HCV-1118	22 AFW Pump Speed Control Valve	> RLGM	Screened	
7	PCV-1139	22 AFW Pump Steam Supply	> RLGM	Screened	
8	PCV-1213	22 AFW Pump Bearing Cooling	> RLGM	Screened	
9	PCV-1310A	22 AFW Pump Steam Isolation	> RLGM	Screened	
10	PCV-1310B	22 AFW Pump Steam Isolation	> RLGM	Screened	
11	FT-1201	AFW to Steam Generator 22 Flow Transmitter	> RLGM	Screened	
12	FT-1202	AFW to Steam Generator 23 Flow Transmitter	> RLGM	Screened	
13	FI-1201	AFW to Steam Generator 22 Flow Indication	> RLGM	Screened	
14	FI-1202	AFW to Steam Generator 23 Flow Indication	> RLGM	Screened	
15	INST RK 5	Instrument Rack 5	> RLGM	Screened	Note 1
16	PNL SC	Condenser & Feedwater Supervisory Panel	> RLGM	Screened	Note 1
17	FCV-405B	Auxiliary Feed Flow Control Valve SG 22	> RLGM	Screened	
18	FCV-405C	Auxiliary Feed Flow Control Valve SG 23	> RLGM	Screened	
19	LT-427D	Steam Generator 22 WR Level Transmitter	TBD	TBD	Note 3
20	LT-437D	Steam Generator 23 WR Level Transmitter	TBD	TBD	Note 3
21	LI-427D	Steam Generator 22 WR Level Indicator	> RLGM	Screened	

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
22	LI-437D	Steam Generator 23 WR Level Indicator	> RLGM	Screened	
23	INST RK 21	Instrument Rack 21	TBD	TBD	Note 3
24	PC-429	Steam Generator 22 Steam Pressure Controller	> RLGM	Screened	
25	PC-439	Steam Generator 23 Steam Pressure Controller	> RLGM	Screened	
26	PT-429A	Steam Generator 22 Steam Pressure Transmitter	> RLGM	Screened	
27	PT-439A	Steam Generator 23 Steam Pressure Transmitter	> RLGM	Screened	
28	PI-429A	Steam Generator 22 Steam Pressure Indicator	> RLGM	Screened	
29	PI-439A	Steam Generator 23 Steam Pressure Indicator	> RLGM	Screened	
30	INST RK 9	Instrument Rack 9	> RLGM	Screened	Note 1
31	PNL FB	Flight Panel FB	> RLGM	Screened	Note 2
32	CST	Condensate Storage Tank	0.42	Tank Shell Buckling	
33	LT-1128	CST Level Transmitter	> RLGM	Screened	
34	LI-1128	CST Level indicator	> RLGM	Screened	
35	MOV-894A	Boronated Water Injection Valve	TBD	TBD	Note 3
36	MOV-894B	Boronated Water Injection Valve	TBD	TBD	Note 3
37	MOV-894C	Boronated Water Injection valve	TBD	TBD	Note 3
38	MOV-894D	Boronated Water Injection Valve	TBD	TBD	Note 3
39	MCC-26A	480V Motor Control Center 26A	> RLGM	Screened	Note 2
40	MCC-26B	480V Motor Control Center 26B	> RLGM	Screened	Note 2
41	CH-MOV-222	Seal Water Return Isolation Valve	> RLGM	Screened	
42	FCV-625	CCW Return from RCP Thermal Barrier	> RLGM	Screened	

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
43	0021RWST	21 Refueling Water Storage Tank	0.18	Buckling of Tank Shell	Modifications required.
44	0021RHRHX	RHR Heat Exchanger #21	> RLGM	Screened	Notes 2 and 3
45	0022RHRHX	RHR Heat Exchanger #22	> RLGM	Screened	Notes 2 and 3
46	HCV-3100	Remote Reactor Head Vent MOV	TBD	TBD	Note 3
47	HCV-3101	Remote Reactor Head Vent MOV	TBD	TBD	Note 3
48	PNL SA	Panel SA	> RLGM	Screened	Note 2
49	EHT PNL 24	Electric Heat Trace Panel 24	> RLGM	Screened	Note 2
50	MCC-27	480V Motor Control Center 27	> RLGM	Screened	Note 2
51	PT-948A	Containment Pressure Transmitter	> RLGM	Screened	
52	PI-948A	Containment Pressure Indicator	> RLGM	Screened	
53	TE-1203-1	Fan Coil Unit 21 Temperature Element	TBD	TBD	Note 3
54	TE-1203-2	Fan Coil Unit 22 Temperature Element	TBD	TBD	Note 3
55	TE-1203-3	Fan Coil Unit 23 Temperature Element	TBD	TBD	Note 3
56	TE-1203-4	Fan Coil Unit 24 Temperature Element	TBD	TBD	Note 3
57	TE-1203-5	Fan Coil Unit 25 Temperature Element	TBD	TBD	Note 3
58	TIC-1203	Temperature Controller Containment Average Temperature	> RLGM	Screened	
59	TT-1203	Containment T-Ave Temperature Transmitter	> RLGM	Screened	
60	TI-1203A	Containment Temperature Indicator	> RLGM	Screened	
61	INST RK 24	Instrument Rack 24	> RLGM	Screened	Note 2
62	21FOST	EDG Fuel Oil Storage Tank 21	> RLGM	Screened	

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
63	22FOST	EDG Fuel Oil Storage Tank 22	> RLGM	Screened	
64	23FOST	EDG Fuel Oil Storage Tank 23	> RLGM	Screened	
65	BATT21	Battery Bank	0.31	Blockwall	Note 2
66	BATT22	Battery Bank	0.31	Blockwall	Note 2
67	BATT23	Battery Bank	0.33	Blockwall	Note 1
68	BATT24	Battery Bank	0.31	Blockwall	Note 1
69	BATTCHG21	Battery Charger 21	0.3	Anchorage	
70	BATTCHG22	Battery Charger 22	0.3	Anchorage	
71	BATTCHG23	Battery Charger 23	0.3	Anchorage	
72	BATTCHG24	Battery Charger 24	0.3	Anchorage	
73	BUS 2A	480VAC Bus 2A	0.3	Anchorage	
74	BUS 3A	480VAC Bus 3A	0.3	Anchorage	
75	BUS 5A	480VAC Bus 5A	0.3	Anchorage	
76	BUS 6A	480VAC Bus 6A	0.3	Anchorage	
77	EPA9	125 VDC Power Panel 24	0.38	Blockwall	
78	EPB3	125 VDC Power Panel 23	0.38	Blockwall	
79	EPE1	118 VAC Instrument Bus 21A	> RLGM	Screened	Note 2
80	EPE2	118 VAC Instrument Bus 22A	> RLGM	Screened	Note 2
81	EPE3	118 VAC Instrument Bus 23A	> RLGM	Screened	Note 2
82	EPF1	125 VDC Distribution Panel 21AA	> RLGM	Screened	Note 2
83	EPF3	125 VDC Distribution Panel 23AA	> RLGM	Screened	Note 2

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
84	MCC-24A	Motor Control Center 24A	0.49	Blockwall	Note 1
85	MCC-29A	Motor Control Center 29A	0.3	Blockwall	Note 1
86	PC1	125 VDC Power Panel 21	0.38	Blockwall	
87	PC2	125 VDC Power Panel 22	0.38	Blockwall	
88	PC3	125 VDC Distribution Panel 21	> RLGM	Screened	Note 2
89	PC4	125 VDC Distribution Panel 22	> RLGM	Screened	Note 2
90	PE-6	118 VAC Instrument Bus 24	> RLGM	Screened	Note 2
91	PE-7	118 VAC Instrument Bus 23	> RLGM	Screened	Note 2
92	PE-8	118 VAC Instrument Bus 21	> RLGM	Screened	Note 2
93	PE-9	118 VAC Instrument Bus 22	> RLGM	Screened	Note 2
94	NC-31D	Neutron Source Range Detector	TBD	TBD	Note 3
95	NC-32D	Neutron Source Range Detector	TBD	TBD	Note 3
96	NC-41D	Neutron Source Range Detector	TBD	TBD	Note 3
97	NC-42D	Neutron Source Range Detector	TBD	TBD	Note 3
98	NI-31	Source Range Indication	> RLGM	Screened	
99	NI-32	Source Range Indication	> RLGM	Screened	
100	NI-35	Source Range Indication	> RLGM	Screened	
101	NI-36	Source Range Indication	> RLGM	Screened	
102	PNL FC	Flight Panel FC	> RLGM	Screened	Note 1
103	NI-41	Source Range Indication	> RLGM	Screened	
104	NI-42	Source Range Indication	> RLGM	Screened	

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
105	PNL FD	Flight Panel FD	> RLGM	Screened	Note 1
106	LT-459	Pressurizer Level Transmitter	TBD	TBD	Note 3
107	LI-459	Pressurizer Level Indicator	> RLGM	Screened	
108	LT-1311	Reactor Vessel Level Transmitter Narrow	> RLGM	Screened	
109	PT-402	RCP WR Pressure Transmitter and RVLIS Train A	TBD	TBD	Note 3
110	TE-411A	Temperature Element for RVLIS-Train A	TBD	TBD	Note 3
111	RVLIS Cabinet EPH8	RVLIS Cabinet	> RLGM	Screened	Note 1
112	PNL-D8	Core Exit Thermocouple Monitoring (D-8)	> RLGM	Screened	Note 2
113	PM-948A	Containment Pressure Repeater	> RLGM	Screened	
114	RACK B9 MERLIN ID: IP2-CB-53-CCR Rack B9	Reactor Protection CH IV Instrument Logic Rack B9	> RLGM	Screened	Note 1
115	LI-1311	Reactor Vessel Level Indicator Narrow	> RLGM	Screened	
116	PNL A#3 MERLIN ID: IP2-CB-53-CCR AAS PNL 3	Assessment Panel #3	> RLGM	Screened	Note 1
117	PM-429A	Steam Generator 22 Steam Pressure Isolator	> RLGM	Screened	
118	RACK A3 MERLIN ID: IP2-CB-53-CCR Rack A3	Reactor Protection CH I Instrument Logic Rack A3	> RLGM	Screened	Note 1
119	PM-439A	Steam Generator 23 Steam Pressure	> RLGM	Screened	
120	RACK A2 MERLIN ID: IP2-CB-53-CCR Rack A2	Reactor Protection CH I Instrument Logic Rack A2	> RLGM	Screened	Note 1
121	LQM-427D	Steam Generator 22 WR Level	> RLGM	Screened	

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
122	RACK B5 MERLIN ID: IP2-CB-53-CCR Rack B5	Instrument Rack B5	> RLGM	Screened	Note 1
123	LQM-437D	Steam Generator 23 WR Level	> RLGM	Screened	
124	RACK B10 MERLIN ID: IP2-CB-53-CCR Rack B10	Reactor Protection CH IV Instrument Logic Rack B10	> RLGM	Screened	Note 1
125	LM-459A	Pressurizer Level Module	> RLGM	Screened	
126	RACK A4 MERLIN ID: IP2-CB-53-CCR Rack A4	Reactor Protection CH I Instrument Logic Rack A4	> RLGM	Screened	Note 1
127	PNL SB-1 MERLIN ID: IP2-CB-53-CCR PNL SB-1	Supervisory Panel SB-1	> RLGM	Screened	Note 1
128	PNL SB-2 MERLIN ID: IP2-CB-53-CCR PNL SB-2	Supervisory Panel SB-2	> RLGM	Screened	Note 1
129	MS-45-A	Steam Generator 21 Safety Relief Valve	>RLGM	Screened	
130	MS-45-D	Steam Generator 24 Safety Relief Valve	>RLGM	Screened	
131	PCV-1134	Steam Generator 21 Atmospheric Dump Valve	>RLGM	Screened	
132	PCV-1137	Steam Generator 24 Atmospheric Dump Valve	>RLGM	Screened	
133	PNL #1	Atmospheric Steam Dump Panel	>RLGM	Screened	Note 2
134	PNL #2	Atmospheric Steam Dump Panel	>RLGM	Screened	Note 2
135	N2 Tanks	Backup Nitrogen Cylinders	>RLGM	Screened	Note 2
136	N-854	Nitrogen Pressure Regulator	>RLGM	Screened	
137	N-856	Nitrogen Pressure Regulator	>RLGM	Screened	
138	FT-1200	AFW to Steam Generator 21 Flow Transmitter	>RLGM	Screened	

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
139	FT-1203	AFW to Steam Generator 24 Flow Transmitter	>RLGM	Screened	
140	FI-1200	AFW to Steam Generator 21 Flow Indication	>RLGM	Screened	
141	FI-1203	AFW to Steam Generator 24 Flow Indication	>RLGM	Screened	
142	FCV-405A	Auxiliary Feed Flow Control Valve SG 21	>RLGM	Screened	
143	FCV-405D	Auxiliary Feed Flow Control Valve SG 24	>RLGM	Screened	
144	LT-417D	Steam Generator 21 WR Level Transmitter	TBD	TBD	Note 3
145	LT-447D	Steam Generator 24 WR Level Transmitter	TBD	TBD	Note 3
146	LI-417D	Steam Generator 21 WR Level Indicator	>RLGM	Screened	
147	LI-447D	Steam Generator 24 WR Level Indicator	>RLGM	Screened	
148	LQM-417D	SG 21 WR Level	>RLGM	Screened	
149	LQM-447D	SG 24 WR Level	>RLGM	Screened	
150	PT1	22 AFW Pump Local Control Panel	>RLGM	Screened	Note 2
151	PI-1354	Steam Generator 22 Steam Pressure Indicator	>RLGM	Screened	
152	PI-1355	Steam Generator 23 Steam Pressure Indicator	>RLGM	Screened	
153	PI-1353	Steam Generator 21 Steam Pressure Indicator	>RLGM	Screened	
154	PI-1356	Steam Generator 24 Steam Pressure Indicator	>RLGM	Screened	
155	ACCUM. 21	Accumulator Tank 21	TBD	TBD	Note 3
156	ACCUM. 22	Accumulator Tank 22	TBD	TBD	Note 3
157	ACCUM. 23	Accumulator Tank 23	TBD	TBD	Note 3
158	ACCUM. 24	Accumulator Tank 24	TBD	TBD	Note 3
159	LCV-459	Letdown Isolation Valve	TBD	TBD	Note 3

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
160	CH-HCV-133	RHR Purification Line Control Valve	TBD	TBD	Note 3
161	MOV-882	RHR Pump Suction Isolation Valve	TBD	TBD	Note 3
162	EXC6	Terminal Box	TBD	TBD	Note 3
163	LT-1312	Reactor Vessel Level Transmitter WR	TBD	TBD	Note 3
164	LI-1312	Reactor Vessel Level Indicator WR	>RLGM	Screened	
165	LIS-1311	Hydraulic Isolators	TBD	TBD	Note 3
166	LIS-1312	Hydraulic Isolators	TBD	TBD	Note 3
167	EXG7	Reactor Level Hydraulic isolator Rack	TBD	TBD	Note 3
168	PNL SN	Supervisory Panel SN	>RLGM	Screened	Note 1
169	Rack B1	CCR Rack B1	>RLGM	Screened	Note 1
170	MS-577	TDAFWP Turbine Trip	>RLGM	Screened	
171	22AFPT	TDAFWP Turbine	>RLGM	Screened	
172	-	TDAFWP Lube Oil Coolers	>RLGM	Screened	
173	PWST	Primary Water Storage Tank	0.39	Anchorage	
174	300KFPT	Fire Water Storage Tank	0.17	Anchorage	Modifications required.
175	TE-1313	Reactor Vessel Upper Compensation Temperature	TBD	TBD	Note 3
176	TE-1314	Reactor Vessel Upper Compensation Temperature	TBD	TBD	Note 3
177	TE-1317	Reactor Vessel Conduit Compensation Temperature	TBD	TBD	Note 3
178	TE-1318	Reactor Vessel Conduit Compensation Temperature	TBD	TBD	Note 3
179	TE-1319	Reactor Vessel Lower Tap	TBD	TBD	Note 3
180	SP3	Terminal Box	>RLGM	Screened	Note 2

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
181	EWV8	Terminal Box	TBD	TBD	Note 3

Notes:

1. Anchorage screened out based on available margin during walkdown by SRT.
2. Anchorage screened out during walkdown validation by SRT.
3. Inaccessible. Per EPRI NP-6041-SLR1, Sec. 2, Seismic Capability Walkdown, Step 5 - This component was not walked down.

ENCLOSURE 2 TO NL-14-152

EXPEDITED SEISMIC EVALUATION PROCESS REPORT FOR

INDIAN POINT UNIT 3

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3
DOCKET NOS. 50-247 AND 50-286

Engineering Report No. IP-RPT-14-00038 Rev 0
Page 1 of 67

Entergy

ENTERGY NUCLEAR
Engineering Report Cover Sheet

Engineering Report Title:
Expedited Seismic Evaluation Process (ESEP) Report for Indian Point Unit 3

Engineering Report Type:

New ☒ Revision ☐ Cancelled ☐ Superseded ☐
Superseded by: _____

Applicable Site(s)

IP1	☐	IP2	☐	IP3	☒	JAF	☐	PNPS	☐	VY	☐	WPO	☐
ANO1	☐	ANO2	☐	ECH	☐	GGNS	☐	RBS	☐	WF3	☐	PLP	☐

EC No. 54071

Report Origin: ☐ Entergy ☒ Vendor
Vendor Document No.: 51-9230673-001

Quality-Related: ☐ Yes ☒ No

Prepared by: Areva — Date: 12/18/14
Responsible Engineer (Print Name/Sign)

Design Verified: N/A — Date: _____
Design Verifier (if required) (Print Name/Sign)

Reviewed by: Frank Madero/ Frank Madero — Date: 12-19-14
Reviewer (Print Name/Sign)

Approved by: Richard Drake/ Richard H Drake — Date: 12/19/14
Supervisor / Manager (Print Name/Sign)

AREVA

AREVA Inc.

Engineering Information Record

Document No.: 51 - 9230673 - 001

Expedited Seismic Evaluation Process (ESEP) Report for Indian Point Unit 3

Safety Related? ☐ YES ☒ NO

Does this document establish design or technical requirements? ☐ YES ☒ NO

Does this document contain assumptions requiring verification? ☐ YES ☒ NO

Does this document contain Customer Required Format? ☒ YES ☐ NO

Signature Block

Name and Title/Discipline	Signature	P/LP, R/LR, A-CRF, A	Date	Pages/Sections Prepared/Reviewed/ Approved or Comments
Kat Lockhart Engineering Aide		LP	12/13/14	All
Mark Welsh Principal Engineer		P	12/12/14	Appendix A (Sections 2.0, 3.0, 9.0 and Attachment A)
Calvin Wong Advisory Engineer		P	12/13/2014	Appendix A (Sections 4.0 and 5.0)
Bijan Mahnoori Project Engineer II		P	12/13/14	Appendix A (Sections 6.0, 7.0, and 8.0)
Lisa D'Andrea Engineer III		P	12-13-14	Appendix A (Attachment B)
Ogden Sawyer PRA Supervisor		LR	12-13-14	All
Darvin Kapitz Advisory Engineer		R	12/12/14	Appendix A (Sections 2.0, 3.0, 9.0 and Attachment A)
Mark Stewart Engineer IV		R	12-13-2014	Appendix A (Sections 4.0, 5.0, 6.0, 7.0, 8.0 and Attachment B)
Kevin Connell Engineering Manager		A	12/13/14	All
Jennifer Butler Project Manager		A-CRF	12/13/14	Appendix A

Note: P/LP designates Preparer (P), Lead Preparer (LP)
R/LR designates Reviewer (R), Lead Reviewer (LR)
A-CRF designates Project Manager Approver of Customer Required Format (A-CRF)
A designates Approver/RTM – Verification of Reviewer Independence

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(continued)

Project Manager Approval of Customer References (N/A if not applicable)

Name (printed or typed)	Title (printed or typed)	Signature	Date
Jennifer Butler	Project Manager	Jennifer Butler	12/13/14

Record of Revision

Revision No.	Pages/Sections/ Paragraphs Changed	Brief Description / Change Authorization
000	All	Initial release
001	Section 2.0 Appendix A – Section 2.0, 3.0, 3.1, 3.1.3, 4.2, 5.1, 6.0, 6.1, 6.2, 6.3.3, 6.4, 6.5, 7.1, 7.2, 8.1, 8.2, 8.3, 8.4, 9.0, Attachment A, and Attachment B	Section 2.0 • References were added due to additional components based on new revision of supporting document. Appendix A • Section 2.0, 3.0, 3.1, 3.1.3, 4.2, 5.1, 6.0, 6.1, 6.2, 6.3.3, 6.4, 6.5, 7.1, 7.2, 8.1, 8.2, 8.3, and 8.4 were modified to incorporate Entergy Comments [84] on Revision 0 of the document and updated with additional components based on new revision of supporting document. • Attachment A - modified to incorporate Entergy Comments [84] and to update with additional components based on new revision of supporting document. • Attachment B – modified to incorporate Entergy Comments [84] and to update with additional components based on new revision of supporting document.

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1.0 DOCUMENTATION

This document contains the Expedited Seismic Evaluation Process (ESEP) Report for Indian Point Unit 3. This document is located in Appendix A and is presented in the customer requested format.

2.0 REFERENCES

References identified with an (*) are maintained within Indian Point Unit 3 Records System and are not retrievable from AREVA Records Management. These are acceptable references per AREVA Administrative Procedure 0402-01, Attachment 8. See page 2 for Project Manager Approval of customer 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. EPRI 3002000704, "Seismic Evaluation Guidance, Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," May 2013.
3. Entergy Letter to U.S. NRC, letter number NL-13-042 "Overall Integrated Plan in Response to March 12, 2012, Commission Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," February 28, 2013, NRC ADAMS Accession No. ML13079A348.
4. Entergy Letter to U.S. NRC, letter number NL-14-031, "Indian Point Energy Center's Second Six-Month Status Report for the Implementation of Order EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," February 27, 2014, NRC ADAMS Accession No. ML14070A365.
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6. *Entergy Engineering Evaluation, EC No. 45874, Revision 1, "FLEX-Beyond Design Basis External Event Phases I, II, and III Strategy Development Evaluation."
7. *Entergy Drawing 9321-F-20173, Revision 72, "Flow Diagram Main Steam."
8. *Entergy System Design Description 21.2, Revision 8, "System Description 21.2, Auxiliary Feedwater System."
9. *Entergy Drawing 9321-F-70313, Revision 17, "Auxiliary Boiler Feed Pump Room Instrument Piping Sheet No.1 Instrumentation."
10. *Entergy Drawing 9321-F-27233, Revision 40, "Flow Diagram Nitrogen to Nuclear Equipment."
11. *Entergy Plant Equipment Database for IP3.
12. *Entergy Drawing 9321-F-20193, Revision 62, "Flow Diagram Boiler Feedwater."
13. *Entergy Drawing 9321-LD-72123, Sheet 9, Revision 2, "Aux. F.W. Flow to Steam Generator #31 Loop F-1200 Diagram."

14. *Entergy Drawing 9321-LD-72123, Sheet 10 Revision 2, "Aux. F.W. Flow to Steam Generator #32 Loop F-1201 Diagram."

15. *Entergy Drawing 9321-LD-72123, Sheet 11, Revision 2, "Aux. F.W. Flow to Steam Generator #33 Loop F-1202 Diagram."

16. *Entergy Drawing 9321-LD-72123, Sheet 12, Revision 2, "Aux. F.W. Flow to Steam Generator #34 Loop F-1203 Diagram."

17. *Entergy Drawing 9321-F-31673, Revision 28, "Wiring Diagram 480V Switchgear Miscellaneous."

18. *Entergy Drawing 9321-F-70033, Revision 17, "Transmitter Racks Piping Arrangement – Sheet No. 2 Instrumentation for Indian Point Energy Center Unit No. 3."

19. *Entergy System Design Description 21.1, Revision 4, "System Description 21.1, Steam Generator Water Level Control."

20. *Entergy Drawing 9321-F-70253, Revision 10, "Primary Plant Instrument Piping & Supports – Sheet No. 1 Instrumentation."

21. *Entergy Drawing 9321-H-39903 Sheet 70, Revision 5, "Rack D-9 Layout."

22. *Entergy Drawing 9321-F-32273, Revision 41, "Wiring Diagram Supervisory Control Panel SC."

23. *Entergy Drawing 9321-F-70513, Revision 17, "Transmitter Racks Piping Arrangement – Sheet No. 4 Instrumentation."

24. *Entergy Drawing 9321-F-10023, Revision 22, "Plot Plan."

25. *Entergy Drawing 9321-F-20183 Sheet 1, Revision 63, "Flow Diagram Condensate & Boiler Feed Pump Suction."

26. *Entergy Drawing 9321-F-27353, Revision 42, "Flow Diagram Safety Injection System Sheet No. 1."

27. *Entergy System Design Description 10.1, Revision 10, "System Description 10.1, Safety Injection System."

28. *Entergy System Design Description 3.0, Revision 8, "System Description 3.0, Chemical and Volume Control System."

29. *Entergy System Design Description 4.2, Revision 7, "System Description 4.2, Residual Heat Removal System."

30. *Entergy System Design Description 1.4, Revision 7, "System Description 1.4, Pressurizer & Pressurizer Relief Tank."

31. *Entergy Drawing 9321-F-33853, Revision 19, "Electrical Distribution & Transmission System."

32. *Entergy Drawing 9321-F-30063 Sheet 1, Revision 81, "Single Line Diagram 480V Motor Control Center No.'s 36A, 36B & 36C."

33. *Entergy Drawing 9321-F-27363, Revision 52, Flow Diagram Chemical & Volume Control System Sheet No. 1."

34. *Entergy Drawing 9321-F-27513 Sheet 1, Revision 31, "Flow Diagram Auxiliary Coolant System In PAB & FSB Sheet No. 1."

35. *Entergy Drawing 9321-F-27503, Revision 55, "Flow Diagram Safety Injection System Sheet No. 2."

36. *Entergy Drawing 9321-F-27203, Revision 29, "Flow Diagram Auxiliary Coolant System Inside Containment."

37. *Entergy Drawing 9321-F-27473, Revision 43, "Flow Diagram Reactor Coolant System Sheet No. 2."

38. *Entergy Drawing 9321-F-36383, Revision 4, "Miscellaneous Wiring Details RCS-SOV-652, RCS-SOV-653, RCS-SOV-654, & RCS-SOV-655."

39. *Entergy Drawing 9321-F-30053, Revision 72, "Single Line Diagram 480V Motor Control Centers 37, 38, 39, & 311."

40. *Entergy Drawing 9321-F-30083, Revision 60, "Single Line Diagram D.C. System."

41. *Entergy Drawing IP3V-0454-0041, Revision 1, Structural Detail for Seismic Category 1 Instrument Rack."

42. *Entergy Calculation IP-CALC-07-00154, Revision 0, "Containment Atmospheric Temperature."

43. *Entergy Drawing 9321-F-33433, Revision 7, "Containment Parameters System Wiring Diagram."

44. *Entergy Drawing 9321-H-39913 Sheet 8, Revision 8, "External Connection Diagram R.P.S. Rack No. 8 (A-7)."

45. *Entergy Drawing 9321-H-36723, Revision 0, "Cover Plates on Flight Pnl. "FCF" & Supervisory Pnl. "SCF" – Fabrication Mounting Details."

46. *Entergy Drawing 9321-F-20303, Revision 30, "Flow Diagram Fuel Oil to Diesel Generators."

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48. *Entergy Document IP3-RPT-UNSPEC-02182, Indian Point Three Nuclear Power Plant Individual Plant Examination of External Events," September 1997.

49. *Entergy Drawing 9321-F-32723, Revision 28, Wiring Diagram Flight Control Pnl. FCF & FCR."

50. *Entergy Drawing 9321-LD-72453 Sheet 21A, Revision 2, "Overpressurization System Channel 1 Loop P/T-413 Diagram."

51. *Entergy Drawing 9321-LD-72453 Sheet 23A, Revision 2, "Overpressurization System Channel 4 Loop P/T-443 Diagram."

52. *Entergy Drawing 9321-LD-72453 Sheet 21, Revision 3, "Overpressurization System Channel 1 Loop P/T-413 Diagram."

53. *Entergy Drawing 9321-LD-72453 Sheet 23, Revision 3, "Overpressurization System Channel 4 Loop P/T-443 Diagram."

54. *Entergy Drawing 9321-F-27383, Revision 28, "Flow Diagram Reactor Coolant System Sheet No. 1."

55. *Entergy Drawing 9321-LL-36853, Sheet 1, Revision 3, "Schematic Block Diagram Reactor Vessel Level Instrument System Train "A"."

56. *Entergy Drawing 9321-F-33203, Sheet 1, Revision 24, "Conduit & Tray Connection Schematic Containment Building."

57. *Entergy Drawing 9321-F-33313, Sheet 2, Revision 6, "Conduit & Tray Connection Schematic Fan House."

58. *Entergy Drawing 9321-F-30793, Revision 50, "Conduit Layout Containment Building Piping Penetration Area – Fan House."

59. *Entergy Drawing 9321-F-72043, Revision 7, "Containment Building Reactor Vessel Level Instrumentation System Flow Diagram."

60. *Entergy Drawing 9321-F-70283, Revision 25, Containment Building Instrument Arrangement Sheet No. 2 Instrumentation."

61. *Entergy Drawing 9321-F-39933, Revision 19 "Conduit Layout TSI Room, CFM Multiplexer Room, Control Building EL. 53'-0" & Roof El. 72'-7."

62. *Entergy Drawing 9321-F-95273 Sheet 1, Revision 6, "Control Room RVLIS Rack – Train "A" Interconnection Wiring Diagram."

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68. EPRI 1025287, "Seismic Evaluation Guidance: Screening, Prioritization and Implementation Details (SPID) for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic. Electric Power Research Institute," February 2013.

69. Entergy Letter NL-14-043, John A. Ventosa to NRC, "Entergy Seismic Hazard and Screening Report (CEUS Sites), Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident dated March 31, 2014." NRC ADAMS Accession No. ML14099A111.

70. *"Indian Point Energy Center Unit 3 Updated Final Safety Analysis Report," Revision 5, Docket No. 50-286, 2013.

71. EPRI-NP-6041-SL, "Methodology for Assessment of Nuclear Power Plant Seismic Margin," Revision 1, August 1991.

72. EPRI TR-103959, "Methodology for Developing Seismic Fragilities," July 1994.

73. NRC NUREG-1407, "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities," June 1991.

74. SQUG, "Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Plant Equipment, Seismic Qualification Utility Group," Revision 3A, December 2001.

75. 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.

76. 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.

77. 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, NRC ADAMS Accession No. ML13101A379.

78. NRC (E Leeds) Letter to NEI (J Pollock), "Electric Power Research Institute Final Draft Report xxxxx, "Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," as an Acceptable Alternative to the March 12, 2012, Information Request for Seismic Reevaluations," May 7, 2013.

79. *Entergy Document EC54071, "ESEP Reports," the following AREVA documents are captured in the plant document management system:

    a. AREVA Document 51-9212951-006, "ESEP Expedited Seismic Equipment List (ESEL) – Indian Point Unit 3."

    b. AREVA Calculation 32-9227208-000, "Indian Point Unit 3 ESEP HCLPF Calculation – Station Service Transformers 2, 3, 5, and 6."

    c. AREVA Calculation 32-9227381-000, "Indian Point Unit 3 ESEP HCLPF Calculation – Battery Bank 33 (BATT 33)."

    d. AREVA Calculation 32-9227576-000, "Indian Point Unit 3 ESEP HCLPF Calculation – Battery Chargers 31, 32, & 34."

    e. AREVA Calculation 32-9230353-000, "Indian Point Unit 3 ESEP HCLPF Calculation – Refueling Water Storage Tank, RWST-31."

    f. AREVA Calculation 32-9230692-000, "Indian Point Unit 3 ESEP HCLPF Calculation – RCS Overpressure Racks H-1 and H-3."

    g. AREVA Document 32-9232897-000, "Indian Point Unit 3 ESEP Calculation – Fire Water Storage Tanks FP-T-1 and FP-T-2."

The following references are AREVA references which were used as input for Appendix A.

80. AREVA Calculation 32-9224585-002, "Indian Point Unit 3 ESEP Binning and Screening."

81. AREVA Document 51-9230419-001, "Input to Entergy ESEP Report Sections 2 and 3 for Indian Point 3."

82. AREVA Document 51-9227403-000, "Input to Entergy ESEP Report Sections 4 and 5 for Indian Point Unit 3."

83. AREVA Document 51-9230505-000, "Input to Entergy ESEP Report Sections 6, 7, and 8 for Indian Point Unit 3."

84. AREVA Document 38-9232223-000, "Indian Point Unit 3 ESEP Report Comment Resolution Form."

APPENDIX A: EXPEDITED SEISMIC EVALUATION PROCESS (ESEP) REPORT FOR INDIAN POINT UNIT 3

Note: Customer requested formatting begins on the following page.

EXPEDITED SEISMIC EVALUATION PROCESS (ESEP) REPORT FOR INDIAN POINT UNIT 3 (IP3)

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1.0 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 Indian Point Unit 3. The intent of the ESEP is to perform an interim action in response to the NRC's 50.54(f) letter 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 Electric Power Research Institute (EPRI) 3002000704, Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic [2].

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.

2.0 BRIEF SUMMARY OF THE FLEX SEISMIC IMPLEMENTATION STRATEGIES

The Indian Point Unit 3 FLEX strategies for Reactor Core Cooling and Heat Removal, Reactor Inventory Control/Long Term Subcriticality, and Containment Function are summarized below. This summary is derived from the Indian Point Energy Center Overall Integrated Plan (OIP) in Response to the March 12, 2012, Commission Order EA-12-049 [3], and is consistent with the second and third six-month status reports [4][5] and supplemented by supporting FLEX engineering calculations [6].

Core Cooling and Heat Removal

The Phase 1 FLEX strategy at Indian Point Unit 3 for this function is to use Atmospheric Dump Valves (ADVs) and Main Steam Safety Valves (MSSVs) to remove heat, with the steam generator being fed by the turbine-driven Auxiliary Feedwater (AFW) pump. Suction for the AFW pump is from the Condensate Storage Tank (CST). Backup nitrogen cylinders are available to support cycling the ADVs.

During Phase 2 of the FLEX strategy, portable diesel-driven pumps will be staged to provide makeup to the CST or to the steam generator feedwater pump suction. The diesel-driven steam generator FLEX feed pump will be staged to provide feedwater to steam generators in the event that the turbine-driven AFW pump becomes unavailable. The Primary Water Storage Tank (PWST) or Fire Water Storage Tanks (FWSTs) will be used as makeup sources to the CST. Diesel fuel for FLEX equipment can be provided from existing onsite Emergency Diesel Generator (EDG) Fuel Oil Storage Tanks.

The key parameters to be monitored are: steam generator level, steam generator pressure, CST level, Reactor Coolant System (RCS) pressure, and RCS temperature.

RCS Inventory Control

For At Power modes

In Phase 1, plant cooldown and depressurization will occur. Inventory control is achieved via the accumulators.

During Phase 2, to avoid adverse effects on the RCS natural circulation flow, the cold-leg accumulator isolation valves are electrically closed during the cooldown to prevent nitrogen injection into the RCS. A FLEX pump will be used to provide RCS makeup with borated water supplied by the Refueling Water Storage Tank (RWST). To allow borated water injection into the RCS, the reactor head vent can be opened, if necessary, to provide a letdown path.

If the Extended Loss of AC Power (ELAP) event occurs during cold weather months when freezing of the RWST could possibly occur, a FLEX diesel generator can be used to repower the Electric Heat Trace (EHT) system.

For Shutdown modes

In Phase 1, if the refueling canal is full, RCS makeup will be supplied by gravity feed from the RWST.

During Phase 2, a FLEX pump will be used to provide RCS makeup from the RWST in the same manner as for the At Power modes.

Additional key parameters to be monitored are pressurizer level and reactor vessel level and nuclear instrumentation.

Containment Function

Containment function is not expected to be challenged during Phase 1 or Phase 2 for an ELAP event occurring when the plant is in Mode 1-4. Therefore, no FLEX strategy beyond monitoring containment pressure and temperature was developed to support containment function.

For Modes 5 and 6, containment pressure could be challenged unless a vent path is established. Methods to establish a vent path will be used and include: opening penetration UU, which is used during outages as an additional air supply, deflating the sealing ring of the equipment hatch (if installed), or another vent path identified and evaluated.

Supporting Systems

Necessary electrical components are outlined in the Indian Point Unit 3 OIP and primarily entail station batteries, Direct Current (DC) buses, distribution panels, inverters, battery chargers, and instrument buses.

3.0 EQUIPMENT SELECTION PROCESS AND ESEL

The selection of equipment for the Expedited Seismic Equipment List (ESEL) followed the guidelines of EPRI 3002000704 [2]. The ESEL for Indian Point Unit 3 is presented in Attachment A. Information presented in Attachment A is drawn from the following references [3], [4], [5], [6], [7], [8], [9], [10], [11], [12], [13], [14], [15], [16], [17], [18], [19], [20], [21], [22], [23], [24], [25], [26], [27], [28], [29], [30], [31], [32], [33], [34], [35], [36], [37], [38], [39], [40], [41], [42], [43], [44], [45], [46], [47], [48], [49], [50], [51], [52], [53], [54], [55], [56], [57], [58], [59], [60], [61], [62], [63], [64], [65], [66], and [67].

3.1 Equipment Selection Process and ESEL

The selection of equipment to be included 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 Indian Point Unit 3 OIP in Response to the March 12, 2012, Commission Order EA-12-049 [3] and is consistent with the second and third six-month status report issued to the NRC [4][5]. The OIP provides the Indian Point Unit 3 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 Indian Point Unit 3 OIP. 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 and subcriticality, and containment integrity functions. Portable and pre-staged FLEX equipment (not permanently installed) are excluded from the ESEL per EPRI 3002000704.

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

1. The scope of components is limited to that 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 Indian Point Unit 3 OIP.
2. The scope of components is limited to installed plant equipment, and FLEX connections necessary to implement the Indian Point Unit 3 OIP as described in Section 2 of this report.
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. RPV 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 Indian Point OIP [3], second and third six-month status reports [4][5] 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 strategy 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, as necessary.

Cabinets and equipment controls containing relays, contactors, switches, potentiometers, circuit breakers and other electrical and instrumentation that could be affected by high-frequency earthquake motions and that impact the operation of equipment in the ESEL are required to be on the ESEL. These cabinets and components were identified in the ESEL.

For each parameter monitored during the FLEX implementation, a single indication was selected for inclusion in the ESEL. For each parameter indication, the components along the flow path from measurement to indication were included, since any failure along the path would lead to failure of that indication. Components such as flow elements were considered as part of the piping and were not included in the ESEL.

3.1.2 Power Operated Valves

Page 3-3 of EPRI 3002000704 [2] notes that power operated valves not required to change state as part of the FLEX mitigation strategies 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. AFW trips)." To address this concern, the following guidance is applied in the Indian Point Unit 3 ESEL for functional failure modes associated with power operated valves:

- Power operated valves that remain energized during the 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 be added to the ESEL as these components provide completely passive locations for pulling or installing cables. No breaks or connections in the cabling were included in pull boxes. Pull boxes were considered part of conduit and cabling, which were 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 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 Indian Point Unit 3 OIP as described in Section 2." Item 3 in Section 3.1 also 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 3.1 above 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 FLEX Phase 2 and Phase 3 connection flow path are included in the ESEL.

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

No equipment that was not part of the primary success path was selected for the Indian Point Unit 3 ESEL.

4.0 GROUND MOTION RESPONSE SPECTRUM (GMRS)

4.1 Plot of GMRS Submitted by the Licensee

In accordance with the guidance provided in Section 2.4.2 of the SPID [68] for rock sites, the Safe Shutdown Earthquake (SSE) control point elevation is defined at the top of hard-rock and is applicable at grade in the free field as well as the various foundations elevations [69]. Table 4-1 shows the GMRS acceleration for a range of spectral frequencies [69]. The GMRS at the control point is shown in Figure 4-1.

Table 4-1: GMRS for Indian Point Unit 3

Frequency (Hz)	GMRS (g)
100	4.12E-01
90	4.46E-01
80	5.04E-01
70	5.94E-01
60	7.04E-01
50	8.06E-01
45	8.42E-01
40	8.66E-01
35	8.77E-01
30	8.75E-01
25	8.58E-01
20	8.28E-01
15	7.67E-01
12.5	7.17E-01
10	6.48E-01
9	6.04E-01
8	5.55E-01
7	5.02E-01
6	4.46E-01
5	3.85E-01
4	3.14E-01
3	2.36E-01
2.5	1.94E-01
2	1.59E-01
1.5	1.17E-01
1.25	9.42E-02
1	7.04E-02
0.9	6.40E-02
0.8	5.71E-02
0.7	4.99E-02
0.6	4.25E-02
0.5	3.48E-02

Table 4-1: GMRS for Indian Point Unit 3 (continued)

Frequency (Hz)	GMRS (g)
0.4	2.78E-02
0.3	2.09E-02
0.2	1.39E-02
0.167	1.16E-02
0.125	8.69E-03
0.1	6.95E-03

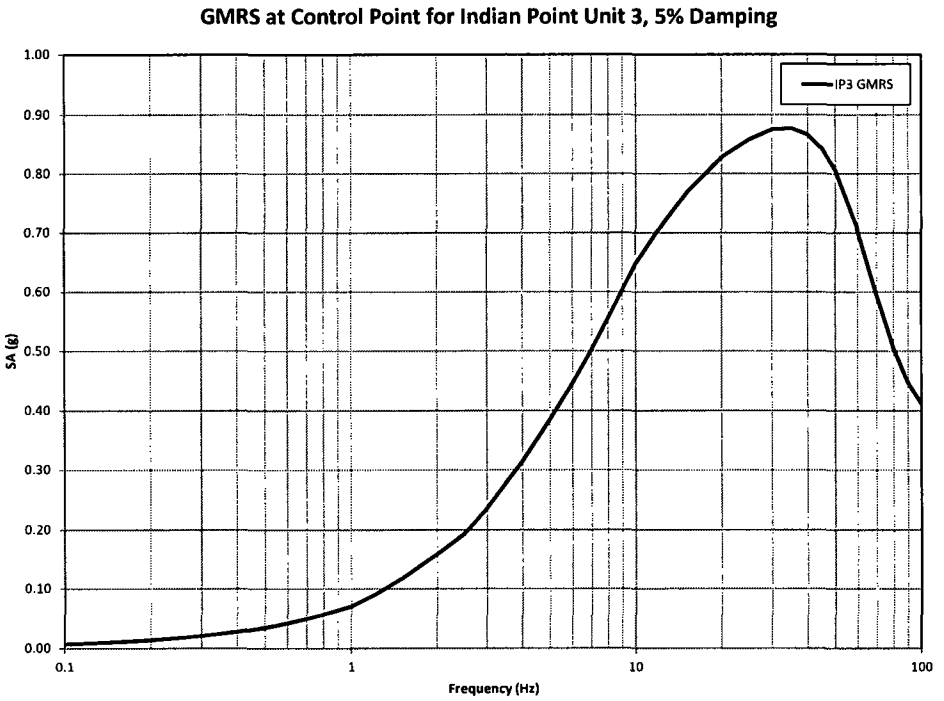

Figure 4-1: GMRS for Indian Point Unit 3

4.2 Comparison to SSE

The SSE corresponds to a horizontal acceleration of 0.15g [70]. The SSE is defined in the Updated Final Safety Analysis Report [70] in terms of a Peak Ground Acceleration (PGA) and a design response spectrum. These spectra have been digitized and tabulated [69]. Table 4-2 shows the spectral acceleration values at selected frequencies for the 5% damped horizontal SSE.

Table 4-2: SSE for Indian Point Unit 3

Frequency (Hz)	Spectral Acceleration (g)
100	0.15
25	0.15
10	0.168
5	0.228
2.5	0.234
1	0.127
0.5	0.075

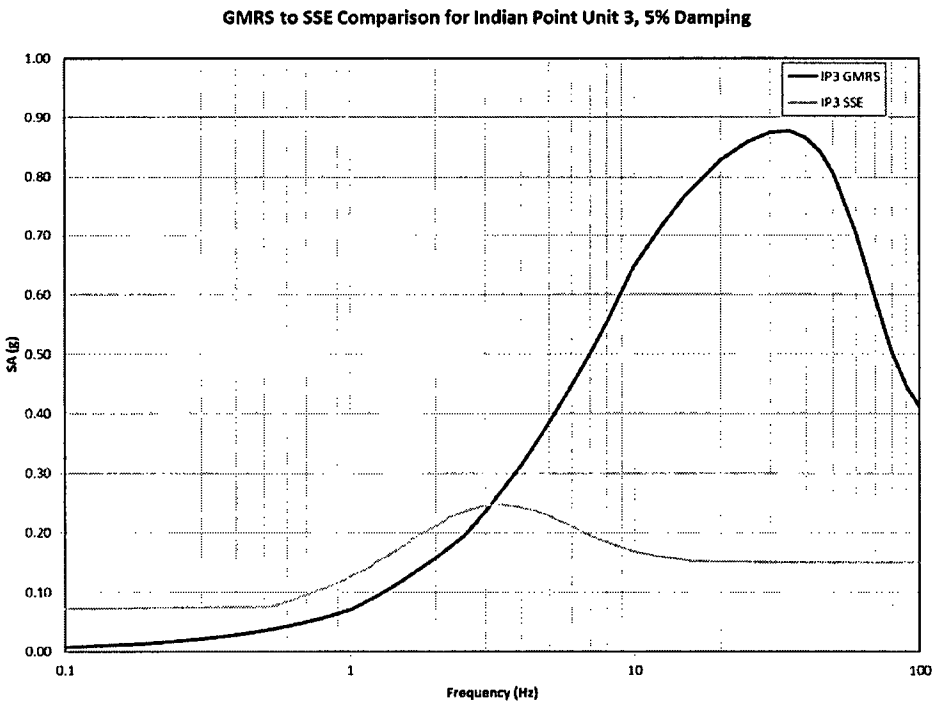

Figure 4-2: GMRS to SSE Comparison for Indian Point Unit 3

The SSE envelops the GMRS for lower frequencies up to nearly 3 Hz. The GMRS exceeds the SSE beyond that point. As the GMRS exceeds the SSE in the 1 to 10 Hz range, the plant does not screen out of the ESEP according to Section 2.2 of EPRI 3002000704 [2]. The two special screening considerations as described in Section 2.2.1 of EPRI 3002000704, namely a) Low-frequency GMRS exceedances at Low Seismic Hazard Sites and b) Narrow Band Exceedances in the 1 to 10Hz range, provide criteria for accepting specific GMRS exceedances. However, the GMRS exceedances occur in the frequency range of interest and cannot be characterized as narrow-band exceedances. Therefore, these special screening considerations do not apply for Indian Point Unit 3 and High Confidence of a Low Probability of Failure (HCLPF) evaluations are to be performed.

5.0 REVIEW LEVEL GROUND MOTION (RLGM)

5.1 Description of RLGM Selected

The RLGM is selected based on Approach 1 in Section 4 of EPRI 3002000704 [2]. The RLGM is developed based on the SSE. The maximum GMRS/SSE ratio between 1 and 10 Hz range occurs at 10 Hz where the ratio is 0.648/0.168 = 3.86. As the maximum ratio of the GMRS to the SSE over the 1 to 10 Hz range exceeds a value of 2, the GMRS/SSE ratio is set to the maximum scaling factor value of 2.0 for IP3 in accordance with Section 4 of EPRI 3002000704. Table 5-1 lists the horizontal ground RLGM acceleration at 5% damping at selected frequencies and the plot is shown in Figure 5-1. The RLGM is generated by plotting the digitized data on a log/linear graph paper, and connecting the points with straight lines.

Table 5-1: RLGM for Indian Point Unit 3

Frequency (Hz)	RLGM at 5% Damping (g)
100.00	0.30
33.00	0.30
15.78	0.31
13.65	0.31
12.20	0.32
10.09	0.34
8.43	0.36
7.23	0.38
6.55	0.40
5.89	0.43
5.34	0.44
4.94	0.46
4.59	0.47
4.17	0.48
3.83	0.49
3.67	0.49
3.41	0.50
3.15	0.49
2.89	0.49
2.65	0.48
2.55	0.47
2.24	0.45
2.02	0.42

Table 5-1: RLGM for Indian Point Unit 3 (continued)

Frequency (Hz)	RLGM at 5% Damping (g)
1.78	0.40
1.64	0.38
1.57	0.36
1.46	0.34
1.34	0.32
1.23	0.30
1.16	0.28
1.09	0.27
1.01	0.26
0.96	0.24
0.91	0.23
0.86	0.22
0.81	0.21
0.76	0.21
0.74	0.20
0.71	0.19
0.68	0.19
0.64	0.18
0.60	0.17
0.56	0.16
0.53	0.15
0.10	0.14

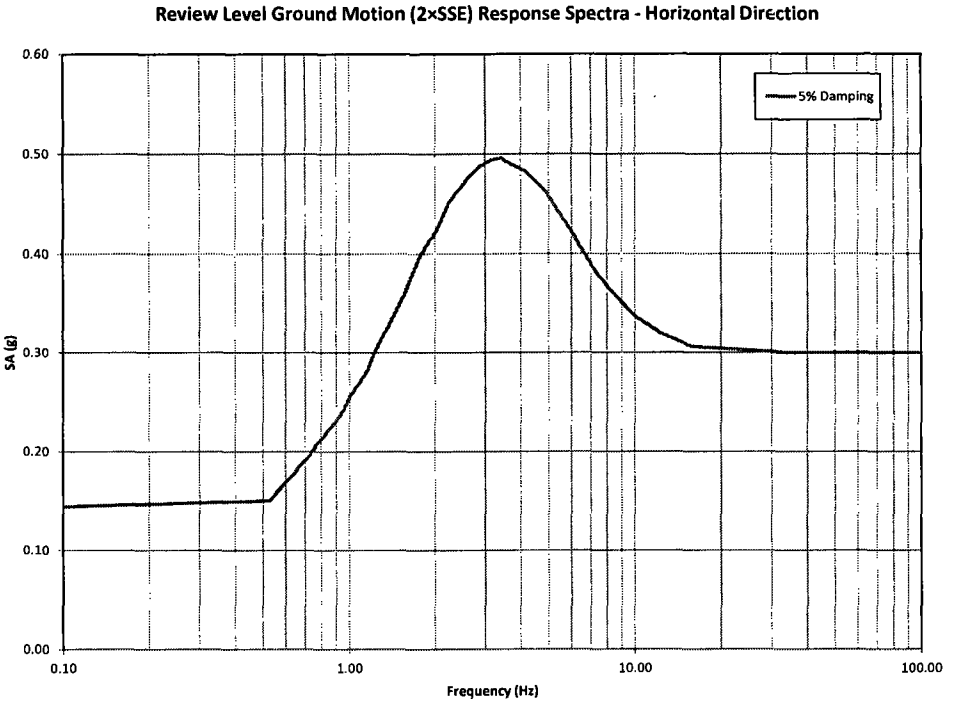

Figure 5-1: RLGM for Indian Point Unit 3

5.2 Method to Estimate In-Structure Response Spectra (ISRS)

The RLGM ISRS for Indian Point Unit 3 are generated by scaling the SSE ISRS [70]. The following steps are used to generate the RLGM ISRS.

1. Obtain the horizontal direction SSE ISRS for a particular damping value.
2. Calculate the horizontal RLGM ISRS by scaling the horizontal direction SSE ISRS by a factor of 2.0.
3. Repeat steps 1 and 2 to obtain RLGM ISRS for multiple damping values.

The vertical direction RLGM ISRS is obtained by scaling the vertical amplified ground response spectrum.

6.0 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 PGA for which there is a HCLPF. The PGA is associated with a specific spectral shape, in this case the 5%-damped RLGM spectral shape. The HCLPF capacity must be equal to or greater than the RLGM PGA. 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-SL, A Methodology for Assessment of Nuclear Power Plant Seismic Margin (Revision 1) [71].

2. Probabilistic approach using the fragility analysis methodology of EPRI TR-103959, Methodology for Developing Seismic Fragilities [72].

6.1 Summary of Methodologies Used

Indian Point Unit 3 was classified as a 0.3g full scope plant in NUREG-1407 [73] and performed a SPRA as part of Individual Plant Examination for External Events (IPEEE) program. The SPRA is documented in [48]. Indian Point Unit 3 IPEEE program followed the NUREG-1407 methodology for seismic evaluation with plant seismic walkdowns using the EPRI NP-6041-SL [71] and Generic Implementation Procedure [74]. Walkdown efforts were coordinated for evaluations pertaining to the IPEEE and Unresolved Safety Issue (USI) A-46. Section 3.3 and Appendix B of [69] established that in accordance with the criteria established in SPID [68] Section 3.3, the IPEEE and reassessment of IHS are adequate to support screening of the updated seismic hazard for Indian Point Unit 3. Hence, the risk insights obtained from the IPEEE are used to assess risk for ESEP where applicable.

For ESEP, the evaluation consisted of screening walkdowns and HCLPF calculations. The screening walkdowns used the screening tables from Chapter 2 of EPRI NP-6041-SL. The walkdowns were conducted by engineers trained in EPRI NP-6041-SL and were documented on Screening Evaluation Work Sheets (SEWS) from EPRI NP-6041-SL. Anchorage capacity calculations used the CDFM criteria from EPRI NP-6041-SL. Seismic demand was based on EPRI 3002000704 [2] using an RLGM of 2×SSE with a PGA of 0.3g PGA as shown on Figure 5-1.

6.2 HCLPF Screening Process

For ESEP, the components are screened considering RLGM (2×SSE) with a 0.3g PGA. The screening tables in EPRI NP-6041-SL [71] are based on ground peak spectral accelerations of 0.8g and 1.2g. These both exceed the RLGM peak spectral acceleration.

The ESEL components were prescreened based on Table 2-4 of EPRI NP-6041-SL. Additional pre-screening, specifically for anchorage, considered walkdown results and documentation from NTTF 2.3 and SEWS from IPEEE and USI A-46. Equipment anchorage was screened out in cases where previous evaluations showed large available margin against SSE. The remaining components (i.e., components that do not screen out), were identified as requiring HCLPF calculations. ESEL components were walked down and based on the equipment and anchorage conditions, prescreening decisions were confirmed and a final list of required HCLPF calculations was generated. Equipment for which the screening caveats were met and for which the anchorage capacity exceeded the RLGM seismic demand are screened out from ESEP seismic capacity determination because the HCLPF capacity exceeds the RLGM.

The Indian Point Unit 3 ESEL contains 194 items. Of these, 30 are valves. In accordance with Table 2-4 of EPRI NP-6041-SL, 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 are screened out from ESEP seismic capacity determination, subject to the caveat regarding large extended operators on small diameter piping.

6.3 Seismic Walkdown Approach

6.3.1 Walkdown Approach

Walkdowns were performed in accordance with the criteria provided in Section 5 of EPRI 3002000704 [2], which refers to EPRI NP-6041-SL [71] for the Seismic Margin Assessment process. Pages 2-26 through 2-30 of EPRI NP-6041-SL describe 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."*

6.3.2 Application of Previous Walkdown Information

Several ESEL items were previously walked down during the Indian Point Unit 3 seismic IPEEE program, for seismic IPEEE outlier resolutions in accordance with USI A-46 evaluation program and NTTF Recommendation 2.3. 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 exist.
- 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 the guidance from EPRI NP-6041-SL [71], no significant outliers or anchorage concerns were identified during the Indian Point Unit 3 seismic walkdowns. Based on walkdown results, HCLPF capacity evaluations were recommended for the following thirteen (13) components:

- RWST-31, Refueling Water Storage Tank
- BATT CHGR 31, Battery Charger 31
- BATT CHGR 32, Battery Charger 32
- BATT CHGR 34, Battery Charger 34
- BATT 33, Battery Bank 33
- BUS2A, Bus 2A 480V
- BUS3A, Bus 3A 480V
- BUS5A, Bus 5A 480V
- BUS6A, Bus 6A 480V
- Rack H1, CCR Aux. Panel Analog Rack H1
- Rack H3, CCR Aux. Panel Analog Rack H3
- FP-T-1, 31 Fire Water Storage Tank
- FP-T-2, 32 Fire Water Storage Tank

6.4 HCLPF Calculation Process

ESEL items identified for ESEP at Indian Point Unit 3 were evaluated using the criteria in EPRI NP-6041-SL [71] and Section 5 of EPRI 3002000704 [2]. Those evaluations included the following steps:

- Performing seismic capability walkdowns for equipment not included in previous seismic walkdowns (SQUG, IPEEE, or NTTF 2.3) to evaluate the equipment installed plant conditions
- Performing screening evaluations using the screening tables in EPRI NP-6041-SL as described in Section 6.2

- Performing HCLPF calculations considering various failure modes that include both structural failure modes (e.g. anchorage, load path etc.) and functional failure modes

All HCLPF calculations were performed using the CDFM methodology. A total of six (6) HCLPF calculations were performed to address the thirteen (13) components.

- Calculation "Battery Chargers 31, 32, & 34" addressing three (3) components BATT CHGR 31, BATT CHGR 32 and BATT CHGR 34
- Calculation "Battery Bank 33" addressing a single component BATT 33
- Calculation "Refueling Water Storage Tank" addressing a single component RWST-31
- Calculation "Station Service Transformers 2, 3, 5, and 6" addressing transformers adjacent to our (4) components BUS2A, BUS3A, BUS5A and BUS6A
- Calculation "RCS Overpressure Racks H-1 and H-3" addressing two (2) instrument racks H1 and H3
- Calculation "Fire Water Storage Tanks FP-T-1 and FP-T-2" addressing two (2) components FP-T-1 and FP-T-2

6.5 Functional Evaluations of Relays

No seal in/lockout type relays were identified on Indian Point Unit 3 ESEL. Therefore, no relay evaluations were performed.

6.6 Tabulated ESEL HCLPF Values (Including Key Failure Modes)

Tabulated ESEL HCLPF values are provided in Attachment B. The following notes apply to the information in the tables.

- For items screened out using EPRI NP-6041-SL [71] screening tables, the HCLPF capacity is provided as >RLGM and the failure mode is listed as "Screened", (unless the controlling HCLPF value is governed by anchorage).
- For items where anchorage controls the HCLPF value, the HCLPF value is listed in the table and the failure mode is noted as "anchorage." For the items where the component function controls the HCLPF value, the HCLPF value is listed in the table and the failure mode is noted as "functional."

After performing the HCLPF calculations, the evaluated ESEL components were determined to have adequate capacity for the design basis loads and HCLPF greater than RLGM.

7.0 INACCESSIBLE ITEMS

7.1 Identification of ESEL Item Inaccessible for Walkdowns

Forty-one (41) components on the ESEL were inaccessible and not walked down since they are located in the Primary Containment Building in a locked high radiation area at the time of the walkdowns and there were no alternate means of evaluating these items:

- ACAHRS1, RHR HTEXCH # 31
- ACAHRS2, RHR HTEXCH # 32

- ACCUM 31, Accumulator Tank 31
- ACCUM 32, Accumulator Tank 32
- ACCUM 33, Accumulator Tank 33
- ACCUM 34, Accumulator Tank 34
- CH-HCV-133, RHR LP BYPASS Valve
- CH-LCV-459, Letdown Isolation Valve
- FE1, Preamplifier For NE-31
- LT-417D, Steam Generator 31 Level Transmitter
- LT-447D, Steam Generator 34 Level Transmitter
- LT-427D, Steam Generator 32 Level Transmitter
- LT-437D, Steam Generator 33 Level Transmitter
- LT-459, Pressure Level Transmitter
- PT-402, Loop 31 Hot Leg Pressure Transmitter
- PT-413, Loop 31 Hot Leg Pressure Transmitter
- PT-443, Loop 34 Hot Leg Pressure Transmitter
- Rack 19, Instrument Rack
- RACK 21, Steam Generators Level Transmitter Rack
- RCS-SOV-652, Reactor Head Vent
- RCS-SOV-653, Reactor Head Vent
- SI-MOV-894A, NO. 31 Accumulator ISOLATION VALVE
- SI-MOV-894B, NO. 32 Accumulator Isolation Valve
- SI-MOV-894C, NO. 33 Accumulator Isolation Valve
- SI-MOV-894D, NO. 34 Accumulator Isolation Valve
- TE423A, Temperature Element
- TE-1313, Upper Tap Compensation Temperature Element
- TE-1314, Upper Tap Compensation Temperature Element
- TE-1317, RVWL Conduit Compensation Temperature Element
- TE-1318, RVWL Conduit Compensation
- TE-1319, RVWL Lower Tap Capillary Temperature Element
- TE-1416-1, Fan 31 Temperature Element
- TE-1416-2, Fan 32 Temperature Element
- TE-1416-3, Fan 33 Temperature Element

- TE-1416-4, Fan 34 Temperature Element
- TE-1416-5, Fan 35 Temperature Element
- TE-413A, RCS Loop 31 Hot Leg Wide Range Temperature Element
- TE-423A3, RCS Loop 32 Hot Leg Wide Range Temperature Element
- Y32, Terminal Box
- Y36, Terminal Box
- Y39, Terminal Box

Also, the two (2) Hydraulic Isolators, one (1) valve and one (1) Terminal Box listed below were not walked down due to the plant condition (inaccessible due to contamination/high radiation) at the time of the walkdowns. Subject components were evaluated based on the review of the recent photos of the components and the general area.

- LIS-1311, Hydraulic Isolator
- LIS-1312, Hydraulic Isolator
- MOV-882, RHR Pump Suction Isolation Valve
- Y29, Terminal Box

7.2 Planned Walkdown / Evaluation Schedule / Close Out

The walkdowns of the inaccessible items identified in Section 7.1 are scheduled to be performed no later than the second planned refueling outage after December 31, 2014.

8.0 ESEP CONCLUSIONS AND RESULTS

8.1 Supporting Information

Indian Point Unit 3 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 Indian Point Unit 3 response to the NRC's 50.54(f) letter. On March 12, 2014, NEI submitted to the NRC results of a study [76] 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 [69]. 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 [75] 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 Indian Point Unit 3 was included in the fleet risk evaluation submitted in the March 12, 2014 NEI letter [76]; therefore, the conclusions in the NRC's May 9 letter also apply to Indian Point Unit 3.

In addition, the March 12, 2014 NEI letter 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 for 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 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
- 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.

The intent of the ESEP is to perform an interim action in response to the NRC's 50.54(f) letter 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 RLGM used for the ESEP evaluation is a scaled version of the plant's SSE rather than the actual GMRS. To more fully characterize the risk impacts of the seismic ground motion represented by the GMRS on a plant specific basis, a more detailed seismic risk assessment (SPRA or risk-based SMA) is to be performed in accordance with EPRI 1025287 [68]. As identified in the Indian Point Unit 3 Seismic Hazard and GMRS submittal [69], Indian Point Unit 3 screens in for a risk evaluation. The complete risk evaluation will more completely characterize the probabilistic seismic ground motion input into the plant, the plant response to that probabilistic seismic ground motion input, and the resulting plant risk

characterization. Indian Point Unit 3 will complete that evaluation in accordance with the schedule identified in NEI's letter dated April 9, 2013 [77] and endorsed by the NRC in their May 7, 2013 letter [78].

8.2 Identification of Planned Modifications

Insights from the ESEP identified the following items where the HCLPF is below the RLGM and plant modifications will be made in accordance with EPRI 3002000704 [2] to enhance the seismic capacity of the plant. Subject modifications are planned to provide additional seismic margin such that the HCLPF will exceed the RLGM.

- FP-T-1, 31 Fire Water Storage Tank
- FP-T-2, 32 Fire Water Storage Tank

8.3 Modification Implementation Schedule

Plant modifications described in Section 8.2 will be performed in accordance with the schedule identified in NEI letter dated April 9, 2013 [77], 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

The following actions will be performed as a result of the ESEP.

Action #	Equipment ID	Equipment Description	Action Description	Completion Date
1	N/A	N/A	Perform seismic walkdowns, generate HCLPF calculations and design and implement any necessary modifications for inaccessible items listed in Section 7.1	No later than the end of the second planned refueling outage after December 31, 2014.
2	FP-T-1	31 Fire Water Storage Tank	Modify tank and anchorage such that HCLPF>RLGM	As described in Section 8.3
3	FP-T-2	32 Fire Water Storage Tank	Modify tank and anchorage such that HCLPF>RLGM	As described in Section 8.3
4	N/A	N/A	Submit a letter to NRC summarizing the HCLPF results of Items 1 through 3 confirming implementation of the plant modifications associated with items 1 through 3.	Within 60 days following completion of ESEP activities, including items 1 through 3.

9.0 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. EPRI 3002000704, "Seismic Evaluation Guidance, Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," May 2013.
3. Entergy Letter to U.S. NRC, letter number NL-13-042 "Overall Integrated Plan in Response to March 12, 2012, Commission Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," February 28, 2013, NRC ADAMS Accession No. ML13079A348.
4. Entergy Letter to U.S. NRC, letter number NL-14-031, "Indian Point Energy Center's Second Six-Month Status Report for the Implementation of Order EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," February 27, 2014, NRC ADAMS Accession No. ML14070A365.
5. Entergy Letter to U.S. NRC, letter number NL-14-110, "Indian Point Energy Center's Third Six-Month Status Report for the Implementation of Order EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," August 27, 2014, NRC ADAMS Accession No. ML14251A227.
6. Entergy Engineering Evaluation, EC No. 45874, Revision 1, "FLEX-Beyond Design Basis External Event Phases I, II, and III Strategy Development Evaluation."
7. Entergy Drawing 9321-F-20173, Revision 72, "Flow Diagram Main Steam."
8. Entergy System Design Description 21.2, Revision 8, "System Description 21.2, Auxiliary Feedwater System."
9. Entergy Drawing 9321-F-70313, Revision 17, "Auxiliary Boiler Feed Pump Room Instrument Piping Sheet No.1 Instrumentation."
10. Entergy Drawing 9321-F-27233, Revision 40, "Flow Diagram Nitrogen to Nuclear Equipment."
11. Entergy Plant Equipment Database for Indian Point Unit 3.
12. Entergy Drawing 9321-F-20193, Revision 62, "Flow Diagram Boiler Feedwater."
13. Entergy Drawing 9321-LD-72123, Sheet 9, Revision 2, "Aux. F.W. Flow to Steam Generator #31 Loop F-1200 Diagram."
14. Entergy Drawing 9321-LD-72123, Sheet 10 Revision 2, "Aux. F.W. Flow to Steam Generator #32 Loop F-1201 Diagram."
15. Entergy Drawing 9321-LD-72123, Sheet 11, Revision 2, "Aux. F.W. Flow to Steam Generator #33 Loop F-1202 Diagram."
16. Entergy Drawing 9321-LD-72123, Sheet 12, Revision 2, "Aux. F.W. Flow to Steam Generator #34 Loop F-1203 Diagram."
17. Entergy Drawing 9321-F-31673, Revision 28, "Wiring Diagram 480V Switchgear Miscellaneous."

18. Entergy Drawing 9321-F-70033, Revision 17, "Transmitter Racks Piping Arrangement – Sheet No. 2 Instrumentation for Indian Point Energy Center Unit No. 3."

19. Entergy System Design Description 21.1, Revision 4, "System Description 21.1, Steam Generator Water Level Control."

20. Entergy Drawing 9321-F-70253, Revision 10, "Primary Plant Instrument Piping & Supports – Sheet No. 1 Instrumentation."

21. Entergy Drawing 9321-H-39903 Sheet 70, Revision 5, "Rack D-9 Layout."

22. Entergy Drawing 9321-F-32273, Revision 41, "Wiring Diagram Supervisory Control Panel SC."

23. Entergy Drawing 9321-F-70513, Revision 17, "Transmitter Racks Piping Arrangement – Sheet No. 4 Instrumentation."

24. Entergy Drawing 9321-F-10023, Revision 22, "Plot Plan."

25. Entergy Drawing 9321-F-20183 Sheet 1, Revision 63, "Flow Diagram Condensate & Boiler Feed Pump Suction."

26. Entergy Drawing 9321-F-27353, Revision 42, "Flow Diagram Safety Injection System Sheet No. 1."

27. Entergy System Design Description 10.1, Revision 10, "System Description 10.1, Safety Injection System."

28. Entergy System Design Description 3.0, Revision 8, "System Description 3.0, Chemical and Volume Control System."

29. Entergy System Design Description 4.2, Revision 7, "System Description 4.2, Residual Heat Removal System."

30. Entergy System Design Description 1.4, Revision 7, "System Description 1.4, Pressurizer & Pressurizer Relief Tank."

31. Entergy Drawing 9321-F-33853, Revision 19, "Electrical Distribution & Transmission System."

32. Entergy Drawing 9321-F-30063 Sheet 1, Revision 81, "Single Line Diagram 480V Motor Control Center No.'s 36A, 36B & 36C."

33. Entergy Drawing 9321-F-27363, Revision 52, Flow Diagram Chemical & Volume Control System Sheet No. 1."

34. Entergy Drawing 9321-F-27513 Sheet 1, Revision 31, "Flow Diagram Auxiliary Coolant System In PAB & FSB Sheet No. 1."

35. Entergy Drawing 9321-F-27503, Revision 55, "Flow Diagram Safety Injection System Sheet No. 2."

36. Entergy Drawing 9321-F-27203, Revision 29, "Flow Diagram Auxiliary Coolant System Inside Containment."

37. Entergy Drawing 9321-F-27473, Revision 43, "Flow Diagram Reactor Coolant System Sheet No. 2."

38. Entergy Drawing 9321-F-36383, Revision 4, "Miscellaneous Wiring Details RCS-SOV-652, RCS-SOV-653, RCS-SOV-654, & RCS-SOV-655."

39. Entergy Drawing 9321-F-30053, Revision 72, "Single Line Diagram 480V Motor Control Centers 37, 38, 39, & 311."

40. Entergy Drawing 9321-F-30083, Revision 60, "Single Line Diagram D.C. System."

41. Entergy Drawing IP3V-0454-0041, Revision 1, Structural Detail for Seismic Category 1 Instrument Rack."

42. Entergy Calculation IP-CALC-07-00154, Revision 0, "Containment Atmospheric Temperature."

43. Entergy Drawing 9321-F-33433, Revision 7, "Containment Parameters System Wiring Diagram."

44. Entergy Drawing 9321-H-39913 Sheet 8, Revision 8, "External Connection Diagram R.P.S. Rack No. 8 (A-7)."

45. Entergy Drawing 9321-H-36723, Revision 0, "Cover Plates on Flight Pnl. "FCF" & Supervisory Pnl. "SCF" – Fabrication Mounting Details."

46. Entergy Drawing 9321-F-20303, Revision 30, "Flow Diagram Fuel Oil to Diesel Generators."

47. Entergy Drawing 9321-F-39893, Revision 43, "Single Line Diagram 118VAC Instrument Buses 31, 31A, 32, 32A, 33, 33A, 34, & 34A."

48. Entergy Document IP3-RPT-UNSPEC-02182, Indian Point Three Nuclear Power Plant Individual Plant Examination of External Events," September 1997.

49. Entergy Drawing 9321-F-32723, Revision 28, Wiring Diagram Flight Control Pnl. FCF & FCR."

50. Entergy Drawing 9321-LD-72453 Sheet 21A, Revision 2, "Overpressurization System Channel 1 Loop P/T-413 Diagram."

51. Entergy Drawing 9321-LD-72453 Sheet 23A, Revision 2, "Overpressurization System Channel 4 Loop P/T-443 Diagram."

52. Entergy Drawing 9321-LD-72453 Sheet 21, Revision 3, "Overpressurization System Channel 1 Loop P/T-413 Diagram."

53. Entergy Drawing 9321-LD-72453 Sheet 23, Revision 3, "Overpressurization System Channel 4 Loop P/T-443 Diagram."

54. Entergy Drawing 9321-F-27383, Revision 28, "Flow Diagram Reactor Coolant System Sheet No. 1."

55. Entergy Drawing 9321-LL-36853, Sheet 1, Revision 3, "Schematic Block Diagram Reactor Vessel Level Instrument System Train "A"."

56. Entergy Drawing 9321-F-33203, Sheet 1, Revision 24, "Conduit & Tray Connection Schematic Containment Building."

57. Entergy Drawing 9321-F-33313, Sheet 2, Revision 6, "Conduit & Tray Connection Schematic Fan House."

58. Entergy Drawing 9321-F-30793, Revision 50, "Conduit Layout Containment Building Piping Penetration Area – Fan House."

59. Entergy Drawing 9321-F-72043, Revision 7, "Containment Building Reactor Vessel Level Instrumentation System Flow Diagram."

60. Entergy Drawing 9321-F-70283, Revision 25, Containment Building Instrument Arrangement Sheet No. 2 Instrumentation."

61. Entergy Drawing 9321-F-39933, Revision 19 "Conduit Layout TSI Room, CFM Multiplexer Room, Control Building EL. 53'-0" & Roof El. 72'-7."

62. Entergy Drawing 9321-F-95273 Sheet 1, Revision 6, "Control Room RVLIS Rack – Train "A" Interconnection Wiring Diagram."

63. Entergy Procedure 3-ECA-0.0, Revision 9, "Loss of All AC Power."

64. Entergy Drawing 9321-F-32383, Revision 31, "Wiring Diagram Supervisory Control Panel SB2."

65. Entergy System Design Description 1.1, Revision 5, "System Description 1.1, Reactor Coolant System."

66. Entergy Drawing IP3V-0245-0001, Revision 0, "40'-0" OD x 40'-0" High Fire Protection Water Storage Tanks "FP-Tk-1" & "FP-Tk-2" Pipe Support Details."

67. Entergy System Design Description 18.0, Revision 7, "System Description 18.0, Main and Reheat Steam."

68. EPRI 1025287, "Seismic Evaluation Guidance: Screening, Prioritization and Implementation Details (SPID) for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic. Electric Power Research Institute," February 2013.

69. Entergy Letter NL-14-043, John A. Ventosa to NRC, "Entergy Seismic Hazard and Screening Report (CEUS Sites), Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident dated March 31, 2014." NRC ADAMS Accession No. ML14099A111.

70. "Indian Point Energy Center Unit 3 Updated Final Safety Analysis Report," Revision 5, Docket No. 50-286, 2013.

71. EPRI-NP-6041-SL, "Methodology for Assessment of Nuclear Power Plant Seismic Margin," Revision 1, August 1991.

72. EPRI TR-103959, "Methodology for Developing Seismic Fragilities," July 1994.

73. NRC NUREG-1407, "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities," June 1991.

74. SQUG, "Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Plant Equipment, Seismic Qualification Utility Group," Revision 3A, December 2001.

75. 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.

76. 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.

77. 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, NRC ADAMS Accession No. ML13101A379.

78. NRC (E Leeds) Letter to NEI (J Pollock), "Electric Power Research Institute Final Draft Report xxxxx, "Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," as an Acceptable Alternative to the March 12, 2012, Information Request for Seismic Reevaluations," May 7, 2013.

79. Entergy Document EC54071, "ESEP Reports," the following AREVA documents are captured in the plant document management system:

    a. AREVA Document 51-9212951-006, "ESEP Expedited Seismic Equipment List (ESEL) – Indian Point Unit 3."

    b. AREVA Calculation 32-9227208-000, "Indian Point Unit 3 ESEP HCLPF Calculation – Station Service Transformers 2, 3, 5, and 6."

    c. AREVA Calculation 32-9227381-000, "Indian Point Unit 3 ESEP HCLPF Calculation – Battery Bank 33 (BATT 33)."

    d. AREVA Calculation 32-9227576-000, "Indian Point Unit 3 ESEP HCLPF Calculation – Battery Chargers 31, 32, & 34."

    e. AREVA Calculation 32-9230353-000, "Indian Point Unit 3 ESEP HCLPF Calculation – Refueling Water Storage Tank, RWST-31."

    f. AREVA Calculation 32-9230692-000, "Indian Point Unit 3 ESEP HCLPF Calculation – RCS Overpressure Racks H-1 and H-3."

    g. AREVA Document 32-9232897-000, "Indian Point Unit 3 ESEP Calculation – Fire Water Storage Tanks FP-T-1 and FP-T-2."

ATTACHMENT A – INDIAN POINT UNIT 3 ESEL

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
1	MS-45-2	Steam Generator 32 Safety Relief Valve	Closed	Open	-	[7]
2	MS-45-3	Steam Generator 33 Safety Relief Valve	Closed	Open	-	[7]
3	PCV-1135	ATM Steam Relief Valve 32 Steam Generator	Closed	Cycled	-	[7]
4	PCV-1136	ATM Steam Relief Valve 33 Steam Generator	Closed	Cycled	-	[7]
5	PNL #1	ATM Steam Dump Panel #1	On	On	-	[9][67]
6	PNL #2	ATM Steam Dump Panel #2	On	On	-	[9][67]
7	32 ABFP	Turbine Driven Auxiliary Feedwater Pump No. 32	Standby	Operating	-	[7][12][8]
8	BFD-PCV-1213	Pressure Control Valve for Bearing Cooler	Closed	Open	-	[12][8]
9	HCV-1118	32 AFW Pump Turbine Governor	Closed	Open	-	[12][8]
10	MS-PCV-1139	Main Steam to AFW Turbine PCV	Closed	Open	-	[7][8]
11	MS-PCV-1310A	32 Auxiliary Boiler Feed Pump Steam Supply First Isolation	Closed	Open	Fails open on loss of instrument air or manually open per procedure	[7][63][8]
12	MS-PCV-1310B	32 Auxiliary Boiler Feed Pump Steam Supply Second Isolation	Closed	Open	Fails open on loss of instrument air or manually open per procedure	[7][63][8]
13	PNL PT2	Auxiliary Boiler Feed Pump Control Station	Off	On	-	[17][8]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
14	FT-1201	AFW to SG 32 Flow Transmitter	Off	On	-	[12][14]
15	FT-1202	AFW to SG 33 Flow Transmitter	Off	On	-	[12][15]
16	FI-1201	AFW to SG 32 Flow Indicator	On	On	-	[12][14]
17	FI-1202	AFW to SG 33 Flow Indicator	On	On	-	[12][15]
18	RACK 26	Pressure Transmitter Rack #26	On	On	-	[18][13][14] [15][16]
19	RACK D-9	CCR Rack "D9" (NIS MISC Instrument)	On	On	-	[21] [13][14][15] [16]
20	PNL SC Supervisory Panel	Condenser & Feedwater Supervisory Panel	On	On	-	[22] [13][14][15] [16]
21	BFD-FCV-405B	No. 32 AFW Pump Manual Flow Control to 32 SG	Closed	Open	Per Local Equipment Procedure Manually Open Valves	[12][8]
22	BFD-FCV-405C	No. 32 AFW Pump Manual Flow Control to 33 SG	Closed	Open	Per Local Equipment Procedure Manually Open Valves	[12][8]
23	LT-427D	SG 32 Level Transmitter	On	On	-	[12][23][19] [11][20]
24	LT-437D	SG 33 Level Transmitter	On	On	-	[12][23][19] [11][20]
25	LI-427D	SG 32 Level Indicator	On	On	-	[19]
26	LI-437D	SG 33 Level Indicator	On	On	-	[19]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
27	RACK 21	Steam Generators Level Transmitter Rack	On	On	-	[23][20]
28	PT-429C	SG 32 Steam Pressure Transmitter	On	On	-	[7][18]
29	PT-439C	SG 33 Steam Pressure Transmitter	On	On	-	[7][18]
30	PI-1354	SG 32 Steam Pressure Indicator	On	On	Indication in AFW Pump Local Control Station	[7]
31	PI-1355	SG 33 Steam Pressure Indicator	On	On	Indication in AFW Pump Local Control Station	[7]
32	RACK 9	Instrument Rack 9	Operating	Operating	-	[18]
33	CST	Condensate Storage Tank	Available	Available	-	[24][25]
34	LI 1102-S	CST Level Indicator	Operating	Operating	-	[25]
35	LCV-1158-2	CST Low Level Control Valve	Open	Closed	-	[25]
36	LCV-1158-1	CST to Condensers Level Control Valve	Open	Closed	-	[25]
37	SI-MOV-894A	No. 31 Accumulator Isolation Valve	Open	Closed	-	[26][27]
38	SI-MOV-894B	No. 32 Accumulator Isolation Valve	Open	Closed	-	[26][27]
39	SI-MOV-894C	No. 33 Accumulator Isolation Valve	Open	Closed	-	[26][27]
40	SI-MOV-894D	No. 34 Accumulator Isolation Valve	Open	Closed	-	[26][27]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
41	36AMCC	Primary Auxiliary Building Motor Control Center 36A	On	On	-	[31][32]
42	36BMCC	Primary Auxiliary Building Motor Control Center 36B	On	On	-	[31][32]
43	CH-MOV-222	RCP Seal Water Return *Isolation Valve*	Open	Closed	Per Loss of All AC Power Procedure *Manually Close Valves*	[33][63]
44	AC-FCV-625	Thermal Barrier Isolation Valve	Open	Closed	Per Loss of All AC Power Procedure Manually Close Valves	[34][63]
45	RWST-31	Refueling Water Storage Tank	Available	Available	-	[35]
46	ACAHRS1	RHR HTEXCH # 31	Intact	Intact	Gravity feed path from RWST through heat exchanger	[36][29]
47	ACAHRS2	RHR HTEXCH # 32	Intact	Intact	Gravity feed path from RWST through heat exchanger	[36][29]
48	RCS-SOV-652	Reactor Head Vent	Closed	Open	125VDC Distribution Panel 32A	[37][38][65]
49	RCS-SOV-653	Reactor Head Vent	Closed	Open	125VDC Distribution Panel 32A	[37][38][65]
50	PNL SBF-1	Supervisory Panel SBF1	On	On	-	[38]
51	EHT Panel 34	Electric Heat Trace Panel 34	On	On	Powered by MCC 37	[39]
52	37MCC	Primary Auxiliary Building Motor Control Center 37	On	On	480VAC Bus 6A feeds to Primary Auxiliary Building 480V MCC 37 which powers Battery Charger 32	[31][39]
53	PNL K49	125 VDC Distribution Panel 32A	On	On	-	[31][40]
54	PT-1421	CTMT Pressure Transmitter	On	On	-	[35][41]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
55	PR-1421	CTMT Pressure Recorder	On	On	-	[43]
56	TE-1416-1	Fan 31 Temperature Element	On	On	-	[44][42]
57	TE-1416-2	Fan 32 Temperature Element	On	On	-	[44][42]
58	TE-1416-3	Fan 33 Temperature Element	On	On	-	[44][42]
59	TE-1416-4	Fan 34 Temperature Element	On	On	-	[44][42]
60	TE-1416-5	Fan 35 Temperature Element	On	On	-	[44][42]
61	RACK 24A	Instrument Rack	On	On	-	[41]
62	EDG-31-FO-STNK	Fuel Oil Storage Tank 31	Available	Available	-	[46][48]
63	EDG-32-FO-STNK	Fuel Oil Storage Tank 32	Available	Available	-	[46][48]
64	EDG-33-FO-STNK	Fuel Oil Storage Tank 33	Available	Available	-	[46][48]
65	31IB	118V AC Instrument Bus 31 Channel II	On	On	-	[31][47]
66	32IB	118V AC Instrument Bus 32 Channel I	On	On	-	[31][47]
67	34IB	118V AC Instrument Bus 34 Channel III	On	On	-	[31][47]
68	33IB	118V AC Instrument Bus 33 Channel IV	On	On	-	[31][47]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
69	31AIB	118V AC Instrument Bus 31A Channel II	On	On	-	[31][47]
70	32AIB	118V AC Instrument Bus 32A Channel I	On	On	-	[31][47]
71	34AIB	118V AC Instrument Bus 34A Channel III	On	On	-	[31][47]
72	33AIB	118V AC Instrument Bus 33A Channel IV	On	On	-	[31][47]
73	34 INVERTER	Static Inverter 34	On	On	-	[31][40][48]
74	33 INVERTER	Static Inverter 33	On	On	-	[31][40][48]
75	31 INVERTER	Static Inverter 31	On	On	-	[31][40][48]
76	32 INVERTER	Static Inverter 32	On	On	-	[31][40][48]
77	31DP	125VDC Distribution Panel 31	On	On	-	[31][40][48]
78	32DP	125VDC Distribution Panel 32	On	On	-	[31][40]
79	33DP	125VDC Distribution Panel 33	On	On	-	[31][40][48]
80	34DP	125VDC Distribution Panel 34	On	On	-	[31][40][48]
81	PNL K48	125 VDC Distribution Panel 31A	On	On	-	[31][40][48]
82	31PP	125VDC Power Panel 31	On	On	-	[31][40][48]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
83	32PP	125VDC Power Panel 32	On	On	-	[31][40][48]
84	33PP	125VDC Power Panel 33	On	On	-	[31][40][48]
85	34PP	125VDC Power Panel 34	On	On	-	[31][40][48]
86	BATT CHGR 31	Battery Charger 31	On	On	-	[31][40]
87	BATT CHGR 32	Battery Charger 32	On	On	-	[31][40]
88	BATT CHGR 33	Battery Charger 33	On	On	-	[31][40]
89	BATT CHGR 34	Battery Charger 34	On	On	-	[31][40]
90	BATT 31	Battery Bank 31	On	On	-	[31][40]
91	BATT 32	Battery Bank 32	On	On	-	[31][40]
92	BATT 34	Battery Bank 34	On	On		[31][40]
93	BATT 33	Battery Bank 33	On	On	-	[31][40]
94	BUS2A	480V(SWGR 31) Bus 2A	On	On	-	[31]
95	BUS3A	480V(SWGR 32) Bus 3A	On	On	-	[31]
96	BUS5A	480V(SWGR31) Bus 5A	On	On	-	[31]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
97	BUS6A	480V(SWGR 32) Bus 6A	On	On	-	[31]
98	36CMCC	Primary Auxiliary Building Motor Control Center 36C	On	On	-	[31]
99	39MCC	Control Building Motor Control Center 39	On	On	-	[31]
100	32MCC	Turbine-Generator Building Motor Control Center 32	On	On	-	[31]
101	NI 31B	Source Range Count Rate Meter	On	On	-	[48]
102	NI 31D	Source Range Count Rate Meter	On	On	-	[48]
103	FE1	Preamplifier For NE-31	On	On	-	[48]
104	PNL FCF	Flight Control Panel FC	On	On	-	[48][49]
105	PI-413K	Loop 31 Hot Leg Pressure Indicator	On	On	-	[50]
106	PI-443K	Loop 34 Hot Leg Pressure Indicator	On	On	-	[51]
107	PT-413	Loop 31 Hot Leg Pressure Transmitter	On	On	-	[52][54]
108	PT-443	Loop 34 Hot Leg Pressure Transmitter	On	On	-	[53][54]
109	TE-1313	Upper Tap Compensation Temperature Element	On	On	-	[59]
110	TE-1314	Upper Tap Compensation Temperature Element	On	On	-	[59]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
111	TE-1317	RVWL Conduit Compensation Temperature Element	On	On	-	[59]
112	TE-1318	RVWL Conduit Compensation	On	On	-	[59]
113	TE-1319	RVWL Lower Tap Capillary Temperature Element	On	On	-	[59]
114	TE-413A	RCS Loop 31 Hot Leg Wide Range Temperature Element	On	On	-	[60]
115	TE-423A3	RCS Loop 32 Hot Leg Wide Range Temperature Element	On	On	-	[48][60]
116	CAB JR9	RVLIS Cabinet	On	On	-	[48][61][62]
117	LI-1311	RVWL Narrow Range Indicator	On	On	-	[48]
118	LI-1312	RVWL Wide Range Indicator	On	On	-	[48]
119	LT-1311	Reactor Vessel Level Transmitter Narrow Range	On	On	-	[48][59]
120	LT-1312	Reactor Vessel Level Transmitter Narrow Range	On	On	-	[48][59]
121	TI-1416	Containment Atmospheric Temperature Indicator	On	On	-	[44]
122	PM-413K	Loop 31 Hot Leg Pressure	On	On	-	[50]
123	31AIB-2 (J01)	Containment Parameters Recording Cabinet (Channel I)	On	On	-	[43]
124	PM-443K	Loop 34 Hot Leg Pressure	On	On	-	[51]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
125	PC-413	Loop 31 Hot Leg Pressure	On	On	-	[52]
126	PC-443	Loop 34 Hot Leg Pressure	On	On	-	[53]
127	PQ-413	Loop 31 Hot Leg Pressure	On	On	-	[52]
128	PQ-443	Loop 34 Hot Leg Pressure	On	On	-	[53]
129	PNL SBF-2	Supervisory Control Panel SB-2	On	On	-	[64]
130	RACK H1	CCR Auxiliary Panel Analog Rack H1	On	On	-	[52]
131	RACK H3	CCR Auxiliary Panel Analog Rack H3	On	On	-	[53]
132	Panel SFF	Supervisory Panel SF	On	On	-	[50][51]
133	RVLIS RACK TRAIN A	RVLIS Rack Train A	On	On	-	[48][59]
134	MS-45-1	Steam Generator 31 Safety Relief Valve	Closed	Open	-	[7]
135	MS-45-4	Steam Generator 34 Safety Relief Valve	Closed	Open	-	[7]
136	PCV-1134	ATM Steam Relief Valve 31 Steam Generator	Closed	Cycled	Manual Operation	[7]
137	PCV-1137	ATM Steam Relief Valve 34 Steam Generator	Closed	Cycled	Manual Operation	[7]
138	N2 TANKS	Backup Nitrogen Cylinders	Intact	Intact	-	[67][9]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
139	IA-PCV-1278	Nitrogen Pressure Regulator	Closed	Open	-	[67][9][10] [11]
140	IA-PCV-1277	Nitrogen Pressure Regulator	Closed	Open	-	[67][9][10] [11]
141	MS-577	32 AFW Pump Overspeed Trip & Governor Valve	Intact	Intact	Part of the TDAFWP Skid	[8][11]
142	FT-1200	AFW to SG 31 Flow Transmitter	Off	On	-	[12][13]
143	FT-1203	AFW to SG 34 Flow Transmitter	Off	On	-	[12][16]
144	FI-1200	AFW to SG 31 Flow Indicator	On	On	-	[12][13]
145	FI-1203	AFW to SG 34 Flow Indicator	On	On	-	[12][16]
146	BFD-FCV-405A	No. 32 AFW Pump Manual Flow Control to 31 SG	Closed	Open	Manually Open Valves	[12]
147	BFD-FCV-405D	No. 32 AFW Pump Manual Flow Control to 34 SG	Closed	Open	Manually Open Valves	[12]
148	LT-417D	SG 31 Level Transmitter	On	On	-	[12][23][19] [11][20]
149	LT-447D	SG 34 Level Transmitter	On	On	-	[12][23][19] [11][20]
150	LI-417D	SG 31 Level Indicator	On	On	-	[19]
151	LI-447D	SG 34 Level Indicator	On	On	-	[19]
152	LQ-417D	Steam Generator Level	On	On	-	[11]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
153	LQ-427D	Steam Generator Level	On	On	-	[11]
154	LQ-437D	Steam Generator Level	On	On	-	[11]
155	LQ-447D	Steam Generator Level	On	On	-	[11]
156	RACK B10	Instrument Rack	On	On	-	[11]
157	RACK B5	Instrument Rack	On	On	-	[11]
158	PI-1353	SG 31 Steam Pressure Indicator	On	On	Local Indication	[7]
159	PI-1356	SG 34 Steam Pressure Indicator	On	On	Local Indication	[7]
160	ACCUM. 31	Accumulator Tank 31	Intact	Intact	-	[26][27][11]
161	ACCUM. 32	Accumulator Tank 32	Intact	Intact	-	[26][27][11]
162	ACCUM. 33	Accumulator Tank 33	Intact	Intact	-	[26][27][11]
163	ACCUM. 34	Accumulator Tank 34	Intact	Intact	-	[26][27][11]
164	CH-LCV-459	Letdown Isolation Valve	Open	Closed	Fail Closed on Loss of instrument air	[28][11]
165	CH-HCV-133	RHR LP Bypass Valve	Open	Closed	-	[28][11]
166	MOV-882	RHR Pump Suction Isolation Valve	Closed	Open	Powered from MCC 36B	[29]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
167	LT-459	Pressurizer Level Transmitter	On	On	-	[30]
168	LI-459A	Pressurizer Level Indicator	On	On	-	[30]
169	LM-459A	Pressurizer Level	On	On	-	[11]
170	Rack A4	CCR Rack A4	On	On	-	[11]
171	Rack 19	Instrument Rack	On	On	-	[11]
172	Y39	Terminal Box	Intact	Intact	-	[55]
173	Y32	Terminal Box	Intact	Intact	-	[55]
174	Y36	Terminal Box	Intact	Intact	-	[55][56]
175	LIS-1311	Hydraulic Isolators	Intact	Intact	-	[55][11]
176	LIS-1312	Hydraulic Isolators	Intact	Intact	-	[55][11]
177	Y29	Terminal Box	Intact	Intact	-	[55][57][58]
178	PNL SN	Supervisory Panel SN (JB9)	On	On	-	[55]
179	PT-402	Pressure Transmitter	On	On	-	[55]
180	TE 423A	Temperature Element	On	On	-	[55]

ESEL Item Number	Equipment		Operating State		Notes/Comments	References
	ID	Description	Normal State	Desired State		
181	RACK 22 (C9)	Instrument Rack	On	On	-	[55][11]
182	RACK 6 (A9)	Instrument Rack	On	On	-	[55][11]
183	-	TDAFWP Turbine	Standby	Operating	Part of the TDAFWP skid	[7][12][8]
184	-	TDAFWP Lube Oil Coolers	Standby	Operating	Part of the TDAFWP skid	[7][12][8]
185	TC-1416-1	Temperature Converter	On	On	-	[42]
186	TC-1416-2	Temperature Converter	On	On	-	[42]
187	TC-1416-3	Temperature Converter	On	On	-	[42]
188	TC-1416-4	Temperature Converter	On	On	-	[42]
189	TC-1416-5	Temperature Converter	On	On	-	[42]
190	Rack A-7	CCR Rack A-7	On	On	-	[42]
191	FP-T-1	31 Fire Water Storage Tank	Intact	Intact	-	[66]
192	FP-T-2	32 Fire Water Storage Tank	Intact	Intact	-	[66]
193	PW-S-TK	31 Primary Water Storage Tank	Intact	Intact	-	[11]
194	Rack B4	CCR Rack B-4	On	On	-	[11]

ATTACHMENT B – ESEP HCLPF VALUES AND FAILURE MODES TABULATION

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
1	MS-45-2	Steam Generator 32 Safety Relief Valve	>RLGM	Screened	
2	MS-45-3	Steam Generator 33 Safety Relief Valve	>RLGM	Screened	
3	PCV-1135	ATM Steam Relief Valve 32 Steam Generator	>RLGM	Screened	
4	PCV-1136	ATM Steam Relief Valve 33 Steam Generator	>RLGM	Screened	
5	PNL #1	ATM Steam Dump Panel #1	>RLGM	Screened	Note 2
6	PNL #2	ATM Steam Dump Panel #2	>RLGM	Screened	Note 2
7	32 ABFP	Turbine Driven Auxiliary Feedwater Pump No. 32	>RLGM	Screened	Note 1
8	BFD-PCV-1213	Pressure Control Valve for Bearing Cooler	>RLGM	Screened	
9	HCV-1118	32 AFW Pump Turbine Governor	>RLGM	Screened	
10	MS-PCV-1139	Main Steam to AFW Turbine PCV	>RLGM	Screened	
11	MS-PCV-1310A	32 Auxiliary Boiler Feed Pump Steam Supply First Isolation	>RLGM	Screened	
12	MS-PCV-1310B	32 Auxiliary Boiler Feed Pump Steam Supply Second Isolation	>RLGM	Screened	
13	PNL PT2	Auxiliary Boiler Feed Pump Control Station	>RLGM	Screened	Note 1
14	FT-1201	AFW to SG 32 Flow Transmitter	>RLGM	Screened	
15	FT-1202	AFW to SG 33 Flow Transmitter	>RLGM	Screened	
16	FI-1201	AFW to SG 32 Flow Indicator	>RLGM	Screened	
17	FI-1202	AFW to SG 33 Flow Indicator	>RLGM	Screened	
18	RACK 26	Pressure Transmitter Rack #26	>RLGM	Screened	Note 2
19	RACK D-9	CCR Rack "D9" (NIS MISC Instrument)	>RLGM	Screened	Note 2
20	PNL SC Supervisory Panel	Condenser & Feedwater Supervisory Panel	>RLGM	Screened	Note 2

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
21	BFD-FCV-405B	No. 32 AFW Pump Manual Flow Control to 32 SG	>RLGM	Screened	
22	BFD-FCV-405C	No. 32 AFW Pump Manual Flow Control to 33 SG	>RLGM	Screened	
23	LT-427D	SG 32 Level Transmitter	TBD	TBD	Note 3
24	LT-437D	SG 33 Level Transmitter	TBD	TBD	Note 3
25	LI-427D	SG 32 Level Indicator	>RLGM	Screened	
26	LI-437D	SG 33 Level Indicator	>RLGM	Screened	
27	RACK 21	Steam Generators Level Transmitter Rack	TBD	TBD	Note 3
28	PT-429C	SG 32 Steam Pressure Transmitter	>RLGM	Screened	
29	PT-439C	SG 33 Steam Pressure Transmitter	>RLGM	Screened	
30	PI-1354	SG 32 Steam Pressure Indicator	>RLGM	Screened	
31	PI-1355	SG 33 Steam Pressure Indicator	>RLGM	Screened	
32	RACK 9	Instrument Rack 9	>RLGM	Screened	Note 2
33	CST	Condensate Storage Tank	>RLGM	Screened	Note 1
34	LI 1102-S	CST Level Indicator	>RLGM	Screened	
35	LCV-1158-2	CST Low Level Control Valve	>RLGM	Screened	
36	LCV-1158-1	CST to Condensers Level Control Valve	>RLGM	Screened	
37	SI-MOV-894A	No. 31 Accumulator Isolation Valve	TBD	TBD	Note 3
38	SI-MOV-894B	No. 32 Accumulator Isolation Valve	TBD	TBD	Note 3
39	SI-MOV-894C	No. 33 Accumulator Isolation Valve	TBD	TBD	Note 3
40	SI-MOV-894D	No. 34 Accumulator Isolation Valve	TBD	TBD	Note 3
41	36AMCC	Primary Auxiliary Building Motor Control Center 36A	>RLGM	Screened	Note 1

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
42	36BMCC	Primary Auxiliary Building Motor Control Center 36B	>RLGM	Screened	Note 1
43	CH-MOV-222	RCP Seal Water Return Isolation Valve	>RLGM	Screened	
44	AC-FCV-625	Thermal Barrier Isolation Valve	>RLGM	Screened	
45	RWST-31	Refueling Water Storage Tank	0.41	Tank Sloshing	
46	ACAHRS1	RHR HTEXCH # 31	TBD	TBD	Note 3
47	ACAHRS2	RHR HTEXCH # 32	TBD	TBD	Note 3
48	RCS-SOV-652	Reactor Head Vent	TBD	TBD	Note 3
49	RCS-SOV-653	Reactor Head Vent	TBD	TBD	Note 3
50	PNL SBF-1	Supervisory Panel SBF1	>RLGM	Screened	Note 2
51	EHT Panel 34	Electric Heat Trace Panel 34	>RLGM	Screened	
52	37MCC	Primary Auxiliary Building Motor Control Center 37	>RLGM	Screened	Note 1
53	PNL K49	125 VDC Distribution Panel 32A	>RLGM	Screened	Note 2
54	PT-1421	CTMT Pressure Transmitter	>RLGM	Screened	
55	PR-1421	CTMT Pressure Recorder	>RLGM	Screened	
56	TE-1416-1	Fan 31 Temperature Element	TBD	TBD	Note 3
57	TE-1416-2	Fan 32 Temperature Element	TBD	TBD	Note 3
58	TE-1416-3	Fan 33 Temperature Element	TBD	TBD	Note 3
59	TE-1416-4	Fan 34 Temperature Element	TBD	TBD	Note 3
60	TE-1416-5	Fan 35 Temperature Element	TBD	TBD	Note 3
61	RACK 24A	Instrument Rack	>RLGM	Screened	Note 2
62	EDG-31-FO-STNK	Fuel Oil Storage Tank 31	>RLGM	Screened	Note 2

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
63	EDG-32-FO-STNK	Fuel Oil Storage Tank 32	>RLGM	Screened	Note 2
64	EDG-33-FO-STNK	Fuel Oil Storage Tank 33	>RLGM	Screened	Note 2
65	31IB	118V AC Instrument Bus 31 Channel II	>RLGM	Screened	Note 2
66	32IB	118V AC Instrument Bus 32 Channel I	>RLGM	Screened	Note 2
67	34IB	118V AC Instrument Bus 34 Channel III	>RLGM	Screened	Note 2
68	33IB	118V AC Instrument Bus 33 Channel IV	>RLGM	Screened	Note 2
69	31AIB	118V AC Instrument Bus 31A Channel II	>RLGM	Screened	Note 2
70	32AIB	118V AC Instrument Bus 32A Channel I	>RLGM	Screened	Note 2
71	34AIB	118V AC Instrument Bus 34A Channel III	>RLGM	Screened	Note 2
72	33AIB	118V AC Instrument Bus 33A Channel IV	>RLGM	Screened	Note 2
73	34 INVERTER	Static Inverter 34	>RLGM	Screened	Note 1
74	33 INVERTER	Static Inverter 33	>RLGM	Screened	Note 2
75	31 INVERTER	Static Inverter 31	>RLGM	Screened	Note 2
76	32 INVERTER	Static Inverter 32	>RLGM	Screened	Note 2
77	31DP	125VDC Distribution Panel 31	>RLGM	Screened	Note 2
78	32DP	125VDC Distribution Panel 32	>RLGM	Screened	Note 2
79	33DP	125VDC Distribution Panel 33	>RLGM	Screened	Note 2
80	34DP	125VDC Distribution Panel 34	>RLGM	Screened	Note 2
81	PNL K48	125 VDC Distribution Panel 31A	>RLGM	Screened	Note 2
82	31PP	125VDC Power Panel 31	>RLGM	Screened	Note 2
83	32PP	125VDC Power Panel 32	>RLGM	Screened	Note 2

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
84	33PP	125VDC Power Panel 33	>RLGM	Screened	Note 2
85	34PP	125VDC Power Panel 34	>RLGM	Screened	Note 2
86	BATT CHGR 31	Battery Charger 31	0.36	Anchorage	
87	BATT CHGR 32	Battery Charger 32	0.36	Anchorage	
88	BATT CHGR 33	Battery Charger 33	>RLGM	Screened	Note 1
89	BATT CHGR 34	Battery Charger 34	0.36	Anchorage	
90	BATT 31	Battery Bank 31	>RLGM	Screened	Note 1
91	BATT 32	Battery Bank 32	>RLGM	Screened	Note 1
92	BATT 34	Battery Bank 34	>RLGM	Screened	Note 2
93	BATT 33	Battery Bank 33	0.41	Anchorage	
94	BUS2A	480V(SWGR 31) Bus 2A	>RLGM	Screened	Note 2
95	BUS3A	480V(SWGR 32) Bus 3A	>RLGM	Screened	Note 2
96	BUS5A	480V(SWGR31) Bus 5A	>RLGM	Screened	Note 2
97	BUS6A	480V(SWGR 32) Bus 6A	>RLGM	Screened	Note 2
98	36CMCC	Primary Auxiliary Building Motor Control Center 36C	>RLGM	Screened	Note 2
99	39MCC	Control Building Motor Control Center 39	>RLGM	Screened	Note 2
100	32MCC	Turbine-Generator Building Motor Control Center 32	>RLGM	Screened	Note 1
101	NI 31B	Source Range Count Rate Meter	>RLGM	Screened	
102	NI 31D	Source Range Count Rate Meter	>RLGM	Screened	
103	FE1	Preamplifier For NE-31	TBD	TBD	Note 3

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
104	PNL FCF	Flight Control Panel FC	>RLGM	Screened	Note 2
105	PI-413K	Loop 31 Hot Leg Pressure Indicator	>RLGM	Screened	
106	PI-443K	Loop 34 Hot Leg Pressure Indicator	>RLGM	Screened	
107	PT-413	Loop 31 Hot Leg Pressure Transmitter	TBD	TBD	Note 3
108	PT-443	Loop 34 Hot Leg Pressure Transmitter	TBD	TBD	Note 3
109	TE-1313	Upper Tap Compensation Temperature Element	TBD	TBD	Note 3
110	TE-1314	Upper Tap Compensation Temperature Element	TBD	TBD	Note 3
111	TE-1317	RVWL Conduit Compensation Temperature Element	TBD	TBD	Note 3
112	TE-1318	RVWL Conduit Compensation	TBD	TBD	Note 3
113	TE-1319	RVWL Lower Tap Capillary Temperature Element	TBD	TBD	Note 3
114	TE-413A	RCS Loop 31 Hot Leg Wide Range Temperature Element	TBD	TBD	Note 3
115	TE-423A3	RCS Loop 32 Hot Leg Wide Range Temperature Element	TBD	TBD	Note 3
116	CAB JR9	RVLIS Cabinet	>RLGM	Screened	Note 2
117	LI-1311	RVWL Narrow Range Indicator	>RLGM	Screened	
118	LI-1312	RVWL Wide Range Indicator	>RLGM	Screened	
119	LT-1311	Reactor Vessel Level Transmitter Narrow Range	>RLGM	Screened	
120	LT-1312	Reactor Vessel Level Transmitter Narrow Range	>RLGM	Screened	
121	TI-1416	Containment Atmospheric Temperature Indicator	>RLGM	Screened	
122	PM-413K	Loop 31 Hot Leg Pressure	>RLGM	Screened	

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
123	31AIB-2 (J01)	Containment Parameters Recording Cabinet (Channel I)	>RLGM	Screened	Note 2
124	PM-443K	Loop 34 Hot Leg Pressure	>RLGM	Screened	
125	PC-413	Loop 31 Hot Leg Pressure	>RLGM	Screened	
126	PC-443	Loop 34 Hot Leg Pressure	>RLGM	Screened	
127	PQ-413	Loop 31 Hot Leg Pressure	>RLGM	Screened	
128	PQ-443	Loop 34 Hot Leg Pressure	>RLGM	Screened	
129	PNL SBF-2	Supervisory Control Panel SB-2	>RLGM	Screened	Note 1
130	Rack H1	CCR Auxiliary Panel Analog Rack H1	0.47	Functional	
131	Rack H3	CCR Auxiliary Panel Analog Rack H3	0.47	Functional	
132	PANEL SFF	Supervisory Panel SF	>RLGM	Screened	Note 2
133	RVLIS RACK TRAIN A	RVLIS Rack Train A	>RLGM	Screened	Note 2
134	MS-45-1	Steam Generator 31 Safety Relief Valve	>RLGM	Screened	
135	MS-45-4	Steam Generator 34 Safety Relief Valve	>RLGM	Screened	
136	PCV-1134	ATM Steam Relief Valve 31 Steam Generator	>RLGM	Screened	
137	PCV-1137	ATM Steam Relief Valve 34 Steam Generator	>RLGM	Screened	
138	N2 TANKS	Backup Nitrogen Cylinders	>RLGM	Screened	Note 2
139	IA-PCV-1278	Nitrogen Pressure Regulator	>RLGM	Screened	
140	IA-PCV-1277	Nitrogen Pressure Regulator	>RLGM	Screened	
141	MS-577	32 AFW Pump Overspeed Trip & Governor Valve	>RLGM	Screened	
142	FT-1200	AFW to SG 31 Flow Transmitter	>RLGM	Screened	

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
143	FT-1203	AFW to SG 34 Flow Transmitter	>RLGM	Screened	
144	FI-1200	AFW to SG 31 Flow Indicator	>RLGM	Screened	
145	FI-1203	AFW to SG 34 Flow Indicator	>RLGM	Screened	
146	BFD-FCV-405A	No. 32 AFW Pump Manual Flow Control to 31 SG	>RLGM	Screened	
147	BFD-FCV-405D	No. 32 AFW Pump Manual Flow Control to 34 SG	>RLGM	Screened	
148	LT-417D	SG 31 Level Transmitter	TBD	TBD	Note 3
149	LT-447D	SG 34 Level Transmitter	TBD	TBD	Note 3
150	LI-417D	SG 31 Level Indicator	>RLGM	Screened	
151	LI-447D	SG 34 Level Indicator	>RLGM	Screened	
152	LQ-417D	Steam Generator Level	>RLGM	Screened	
153	LQ-427D	Steam Generator Level	>RLGM	Screened	
154	LQ-437D	Steam Generator Level	>RLGM	Screened	
155	LQ-447D	Steam Generator Level	>RLGM	Screened	
156	RACK B10	Instrument Rack	>RLGM	Screened	Note 1
157	RACK B5	Instrument Rack	>RLGM	Screened	Note 1
158	PI-1353	SG 31 Steam Pressure Indicator	>RLGM	Screened	
159	PI-1356	SG 34 Steam Pressure Indicator	>RLGM	Screened	
160	ACCUM. 31	Accumulator Tank 31	TBD	TBD	Note 3
161	ACCUM. 32	Accumulator Tank 32	TBD	TBD	Note 3
162	ACCUM. 33	Accumulator Tank 33	TBD	TBD	Note 3
163	ACCUM. 34	Accumulator Tank 34	TBD	TBD	Note 3

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
164	CH-LCV-459	Letdown Isolation Valve	TBD	TBD	Note 3
165	CH-HCV-133	RHR LP Bypass Valve	TBD	TBD	Note 3
166	MOV-882	RHR Pump Suction Isolation Valve	>RLGM	Screened	
167	LT-459	Pressurizer Level Transmitter	TBD	TBD	Note 3
168	LI-459A	Pressurizer Level Indicator	>RLGM	Screened	
169	LM-459A	Pressurizer Level	>RLGM	Screened	
170	Rack A4	CCR Rack A4	>RLGM	Screened	Note 1
171	Rack 19	Instrument Rack	TBD	TBD	Note 3
172	Y39	Terminal Box	TBD	TBD	Note 3
173	Y32	Terminal Box	TBD	TBD	Note 3
174	Y36	Terminal Box	TBD	TBD	Note 3
175	LIS-1311	Hydraulic Isolators	>RLGM	Screened	Note 2
176	LIS-1312	Hydraulic Isolators	>RLGM	Screened	Note 2
177	Y29	Terminal Box	>RLGM	Screened	Note 2
178	PNL SN	Supervisory Panel SN (JB9)	>RLGM	Screened	Note 1
179	PT-402	Pressure Transmitter	TBD	TBD	Note 3
180	TE 423A	Temperature Element	TBD	TBD	Note 3
181	RACK 22 (C9)	Instrument Rack	>RLGM	Screened	Note 1
182	RACK 6 (A9)	Instrument Rack	>RLGM	Screened	Note 1
183	-	TDAFWP Turbine	>RLGM	Screened	
184	-	TDAFWP Lube Oil Coolers	>RLGM	Screened	

Item No.	Equipment ID	Equipment Description	HCLPF (g) / Screening Level	Failure Mode	Comments
185	TC-1416-1	Temperature Converter	>RLGM	Screened	
186	TC-1416-2	Temperature Converter	>RLGM	Screened	
187	TC-1416-3	Temperature Converter	>RLGM	Screened	
188	TC-1416-4	Temperature Converter	>RLGM	Screened	
189	TC-1416-5	Temperature Converter	>RLGM	Screened	
190	Rack A-7	CCR Rack A-7	>RLGM	Screened	Note 1
191	FP-T-1	31 Fire Water Storage Tank	0.24	Anchorage	Modifications required.
192	FP-T-2	32 Fire Water Storage Tank	0.24	Anchorage	Modifications required.
193	PW-S-TK	31 Primary Water Storage Tank	>RLGM	Screened	Note 1
194	Rack B4	CCR Rack B-4	>RLGM	Screened	Note 1

Notes:

1. Anchorage screened out based on available margin during walkdown by SRT.
2. Anchorage screened out during walkdown validation by SRT.
3. Inaccessible. Per EPRI NP-6041-SLR1, Sec. 2, Seismic Capability Walkdown, Step 5 - This component was not walked down.

Iglande

http://w0710s13.enne.entergy.com/pcrs/asp/crdeta
12/22/14 08:24 AM

PCRS Condition Summary CR-IP3-2014-3313

PCRS WebLink

This report contains only summary information. Please consult PCRS application for full detail.

Discovered date/time:	12/22/2014 12:49:06 AM	**CR Status:**	Open
Originated By:	Dignam,John M (Operations Shift Staff IP3)	**Responsible Dept:**	
Operability:	EQUIP NON-FUNCTIONAL	**Classification:**	
Reportability:		**Significance:**	
Affected Systems:		**Affected Equipment:**	

Condition Description:

The Met tower 10 meter wind direction appears to be stuck at about 175 degrees. See Unit 2 CR IP2-2014-06587

Immediate Action Description:

Verified wind direction is available through alternate means per IP-EP-510

Suggested Action Description:

Corrective Actions:

No Corrective action has been issued for this CR.

Close Window

Tagout Tag Hang List
Clearance: 3-PLANT LABEL
Tagout: LO -10-0004

Indian Point
Tag Hang Sheet

12/22/2014 07:44:29

Tag Type Serial No.	Equipment * Equipment Description * Equipment Location	Ver. Req.	Place. Seq.	Placement Configuration * Notes	Place. 1st Verif Date/Time	Place. 2nd Verif Date/Time
Plant Label 562	2-LO -VALVE -LO-988 * 22 MBFP HIGH PRESSURE STOP VALVE TEST SOLENOID * TH -15 - - - - -			*		
Plant Label 563	2-LO -VALVE -LO-987 * 22 MBFP LOW PRESSURE STOP VALVE TEST SOLENOID * TH -15 - - - - -			*		
Plant Label 564	2-LO -VALVE -LO-974 * 21 MBFP LOW PRESSURE TEST STOP SOLENOID * TH -15 - - - - -			*		
Plant Label 565	2-LO -VALVE -LO-973 * 21 MBFP HIGH PRESSURE STOP VLV TEST SOLENOID * TH -15 - - - - -			*		

ATTACHMENT TO NL-14-152

LIST OF REGULATORY COMMITMENTS

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3
DOCKET NOS. 50-247 AND 50-286

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check One)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Entergy will perform seismic walkdowns at IP2 for inaccessible items listed in Section 7.1	[✓]		No later than the end of the first planned IP2 refueling outage after December 31, 2014.
Entergy will generate HCLPF calculations for IP2 inaccessible items listed in Section 7.1	[✓]		No later than 90 days following the end of the first planned IP2 refueling outage after December 31, 2014.
Entergy will implement any necessary IP2 modifications for inaccessible items listed in Section 7.1 based on the schedule commitment to complete this activity in NL-13-069 dated April 29, 2013	[✓]		December 31, 2016 or no later than the end of the second planned IP2 refueling outage after December 31, 2014 per NL-13-069
Entergy will modify the IP2 RWST and Fire Water Storage Tank and anchorages so that HCLPF>RLGM based on the schedule commitment to complete this activity in NL-13-069 dated April 29, 2013	[✓]		December 31, 2016 or no later than the end of the second planned IP2 refueling outage after December 31, 2014 per NL-13-069
Entergy will submit a letter to NRC summarizing the IP2 HCLPF results and confirming implementation of the plant modifications associated with the IP2 commitments to complete modifications for inaccessible items and modifications of the RWST and Fire Water Storage Tank.	[✓]		Within 60 days following completion of IP2 ESEP activities
Entergy will perform seismic walkdowns at IP3 for inaccessible items listed in Section 7.1	[✓]		No later than the end of the first planned IP3 refueling outage after December 31, 2014.
Entergy will generate HCLPF calculations for IP3 inaccessible items listed in Section 7.1	[✓]		No later than 90 days following the end of the first planned IP3 refueling outage after December 31, 2014.

Entergy will implement any necessary IP3 modifications for inaccessible items listed in Section 7.1 based on the schedule commitment to complete this activity in NL-13-069 dated April 29, 2013	[✓]		December 31, 2016 or no later than the end of the second planned IP3 refueling outage after December 31, 2014 per NL-13-069
Entergy will modify the IP3 Fire Water Storage Tanks 31 and 32 and anchorages so that HCLPF>RLGM on the schedule commitment to complete this activity in NL-13-069 dated April 29, 2013	[✓]		December 31, 2016 or no later than the end of the second planned IP3 refueling outage after December 31, 2014 per NL-13-069
Entergy will submit a letter to NRC summarizing the IP3 HCLPF results and confirming implementation of the plant modifications associated with the IP3 commitments to complete modifications for inaccessible items and modifications of the Fire Water Storage Tanks 31 and 32.	[✓]		Within 60 days following completion of IP3 ESEP activities