Progress Energy

Serial: NPD-NRC-2011-074 10CFR52.79
October 4, 2011

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

LEVY NUCLEAR PLANT, UNITS 1 AND 2
DOCKET NOS. 52-029 AND 52-030
SUPPLEMENT 6 TO RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 085 RELATED TO SEISMIC SYSTEM ANALYSIS

References:
1. Letter from Terri Spicher (NRC) to Garry Miller (PEF), dated March 16, 2010, "Request for Additional Information Letter No. 085 Related to SRP Section 3.7.2 for the Levy County Nuclear Plant, Units 1 and 2 Combined License Application"

2. Letter from John Elnitsky (PEF) to U.S. Nuclear Regulatory Commission, dated May 27, 2011, "Supplement 5 to Response to Request for Additional Information Letter No. 085 Related to Seismic System Analysis", Serial: NPD-NRC-2011-047

Ladies and Gentlemen:

Progress Energy Florida, Inc. (PEF) hereby submits a supplemental response to the Nuclear Regulatory Commission's (NRC) request for additional information provided in Reference 1. A revised response to one of the NRC questions (RAI 03.07.02-2) is addressed in the enclosure (refer to Reference 2). The enclosure also identifies changes that will be made in a future revision of the Levy Nuclear Plant Units 1 and 2 application.

In addition, Attachment 1 to this letter provides the Westinghouse proprietary report LNG-1000-S2R-804, Revision 5, entitled "Levy Nuclear Island and RCC Bridging Mat - 3D SASSI SSI Evaluation Report". This report contains information that is considered to be proprietary (i.e., trade secrets) to Westinghouse Electric Company, LLC (Westinghouse). Therefore, a Westinghouse authorization letter, including a supporting affidavit for withholding executed by Westinghouse is provided in Attachment 2. The affidavit sets forth the basis upon which Attachment 1 may be withheld from public disclosure by the NRC and addresses the considerations listed in paragraph (b)(4) of 10 CFR 2.390. Attachment 3 provides a non-proprietary version of the Levy SSI report (LNG-1000-S2R-808, Revision 3).

Accordingly, it is requested that Attachment 1 of this letter, which is proprietary to Westinghouse, be withheld from public disclosure (i.e., non-publicly available) in accordance with 10 CFR 2.390.

Correspondence with respect to the proprietary aspects of Attachment 1 and the supporting application for withholding or the affidavit (Attachment 2) should reference Westinghouse letter CAW-11-3160 and be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company LLC, Suite 428, 1000 Westinghouse Drive, Cranberry Township, PA 16066.

Progress Energy Florida, Inc.
P.O. Box 14042
St. Petersburg, FL 33733

D094
NRO

If you have any further questions, or need additional information, please contact Bob Kitchen at (919) 546-6992, or me at (727) 820-4481.

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

Executed on October 4, 2011.

Sincerely,

John Elnitsky
Vice President
New Generation Programs & Projects

Enclosure/Attachments

cc : U.S. NRC Region II, Regional Administrator
Mr. Brian C. Anderson, U.S. NRC Project Manager

Levy Nuclear Plant Units 1 and 2
Supplement 6 to Response to NRC Request for Additional Information Letter No. 085
Related to SRP Section 3.7.2 for the Combined License Application,
Dated March 16, 2010

NRC RAI #	Progress Energy RAI #	Progress Energy Response
03.07.02-1	L-0736 & L-0863	July 23, 2010; Serial: NPD-NRC-2010-063 & November 10, 2010; Serial: NPD-NRC-2010-086
03.07.02-2	L-0737	January 25, 2011; Serial NPD-NRC-2011-005
03.07.02-2	L-0898	March 1, 2011; Serial NPD-NRC-2011-015 & February 14, 2011; Serial NPD-NRC-2011-007
03.07.02-2	L-0921	May 27, 2011; Serial NPD-NRC-2011-047
03.07.02-2	L-0954	Revised response enclosed – see following pages

NRC Letter No.: LNP-RAI-LTR-085

NRC Letter Date: March 16, 2010

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 03.07.02-2

Text of NRC RAI:

AP1000 DCD (Revision 17) Section 2.5.2.3 addresses site-specific seismic evaluation that should be performed by the Combined License applicant if site-specific design response spectra exceeds the CSDRS or if site soil conditions are outside the range evaluated for AP1000 design certification.

According to the applicant's response to RAI Question 03.07.01-1 of RAI 2318 (NRC Letter # 046), the site-specific surface design response spectra exceeds the CSDRS in vertical motion at the LNP site. Although the applicant views that CSDRS-based in-structure response spectra would envelop the corresponding site-specific FIRS-based in-structure response spectra, no quantitative evaluation has been provided to justify the view. As for site soil conditions, no subsurface profile considered in the AP1000 DCD is similar to that of the LNP site which is characterized by stiff material immediately under the NI basemat with soft material to the sides. In addition, the design and analysis of AP1000 is based on subsurface conditions with uniform properties within horizontal layers, and the RAI response (cited above) does not fully justify this assumption of lateral uniformity of subsurface conditions.

The applicant is requested to provide detailed site-specific seismic evaluation of NI structures and those surrounding structures that may impact the safety function of NI structures. The evaluation should fully incorporate the effects of soil-structure interaction and meet the Acceptance Criteria 4 of SRP Section 3.7.2. If such site-specific seismic evaluation will not be done, the applicant should provide technical justification for not doing so.

PGN RAI ID #: L-0954

PGN Response to NRC RAI:

Subsequent to submittal of NRC Letter 085 RAI 03.07.02-02 revised response via Progress Energy Letter NPD-NRC-2011-047 dated May 27, 2011 (PGN RAI ID #: L-0921), an error was identified in the input time history used for the LNP SSI analysis. This error is described in Progress Energy Letter NPD-NRC-2011-067 dated August 22, 2011. The LNP SSI analysis has been revised using the corrected input time histories. The revisions to the previously submitted response are as follows:

Figures RAI 03.07.02-02-1 through RAI 03.07.02-02-16 have been revised to show the corrected input time histories and the revised Floor Response Spectra (FRS) at the six AP1000 key nodes. The revised FRS are essentially the same as those submitted via Letter NPD-NRC-2011-047. The only exception is the X-direction upper bound soil profile FRS at node 2078, where the revised spectrum is lower than the original FRS in the 30 Hz. frequency range. This reduction is attributed to "slight adjustment of a

frequency no. in SASSI to optimize the un-interpolated/interpolated transfer function". The revised LNP FRS are enveloped by the generic AP1000 FRS at the six key nodes.

The maximum base shear using the corrected time histories decreased to 77,600 kips from 110,500 kips. Paragraph 5 of the NRC Letter 085 RAI 03.07.02-02 response submitted via Progress Energy Letter NPD-NRC-2011-047 is being revised to read as follows:

"Based on the SSI analysis, the maximum bearing pressure on the RCC bridging mat beneath the NI basemat for the BE, UB, LB and LLB soil profiles is 20.29 ksf. The maximum bearing pressure corresponds to the BE soil profile. The LNP site specific maximum bearing pressure is enveloped by the AP1000 maximum bearing pressure of 24 ksf for soft rock sites.

Based on the SSI analysis, the maximum base shear on the RCC bridging mat for the BE, UB, LB and LLB soil cases is 77,600 kips. The maximum base shear corresponds to the BE soil profile. The maximum 77,600 kips base shear yields a base shear to vertical load ratio of 0.12 for the NI. This ratio is enveloped by the AP1000 maximum ratio of 0.55."

Note that the change from "35 ksf" to "24 ksf for soft rock sites" is to make FSAR Subsection 3.7.2.4.1.6 consistent with FSAR subsection 2.5.4 and is not related to the input time history error.

The revised SSI analysis with the corrected input time histories is described in the Westinghouse proprietary report LNG-1000-S2R-804 entitled "Levy Nuclear Island and RCC Bridging Mat – 3D SASSI SSI Evaluation Report," Revision 5; this report is provided in Attachment 1 of this letter.

Associated LNP COL Application Revisions:

The following changes will be made to the FSAR in LNP COLA Revision 3:

1) Revise Subsection 3.7.2.4.1.6 added in NRC Letter 085 RAI 03.07.02-02 response submitted via Progress Energy Letter Serial: NPD-NRC-2011-047 from:

   "Based on the SSI analysis, the maximum bearing pressure on the RCC bridging mat beneath the NI basemat for the BE, UB, LB and LLB soil profiles is 20.07 ksf. The maximum bearing pressure corresponds to the BE soil profile. The LNP site specific maximum bearing pressure is enveloped by the AP1000 maximum bearing pressure of 35 ksf.

   Based on the SSI analysis, the maximum base shear on the RCC bridging mat for the BE, UB, LB and LLB soil cases is 110,500 kips. The maximum base shear corresponds to the BE soil profile. The maximum 110,500 kips base shear yields a base shear to vertical load ratio of 0.17 for the NI. This ratio is enveloped by the AP1000 maximum ratio of 0.55."

   To read:

   "Based on the SSI analysis, the maximum bearing pressure on the RCC bridging mat beneath the NI basemat for the BE, UB, LB and LLB soil profiles is 20.29 ksf. The maximum bearing pressure corresponds to the BE soil profile. The LNP site specific

maximum bearing pressure is enveloped by the AP1000 maximum bearing pressure of 24 ksf for soft rock sites.

Based on the SSI analysis, the maximum base shear on the RCC bridging mat for the BE, UB, LB and LLB soil cases is 77,600 kips. The maximum base shear corresponds to the BE soil profile. The maximum 77,600 kips base shear yields a base shear to vertical load ratio of 0.12 for the NI. This ratio is enveloped by the AP1000 maximum ratio of 0.55."

2) Revise Figures RAI 03.07.02-02-1 through RAI 03.07.02-02-16. These revised figures are included in Attachment 03.07.02-02 S A.

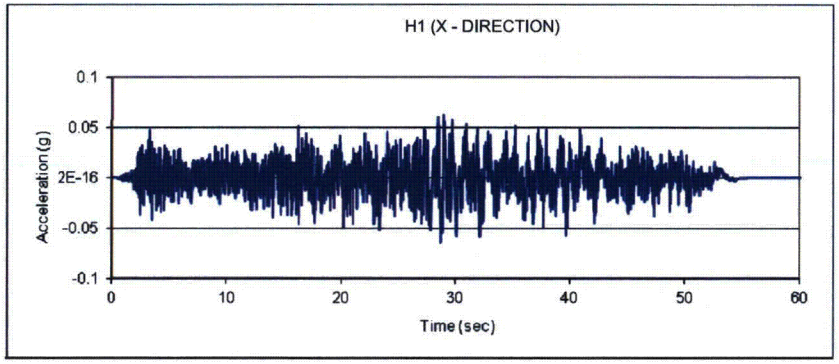
Attachments/Enclosures:

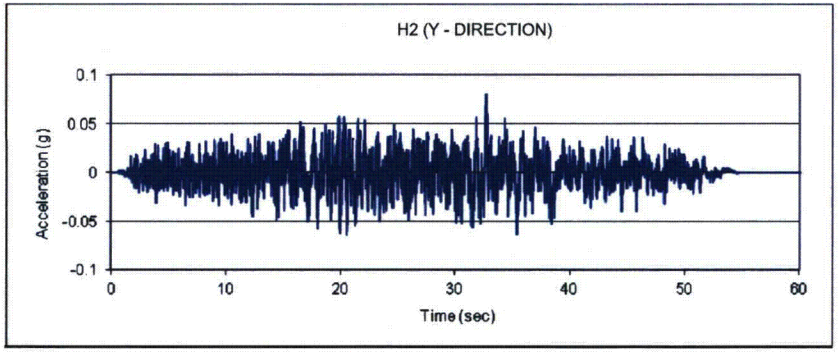
Attachment 03.07.02-02 S2 A: Revised Figures RAI 03.07.02-02-1 through RAI 03.07.02-02-16

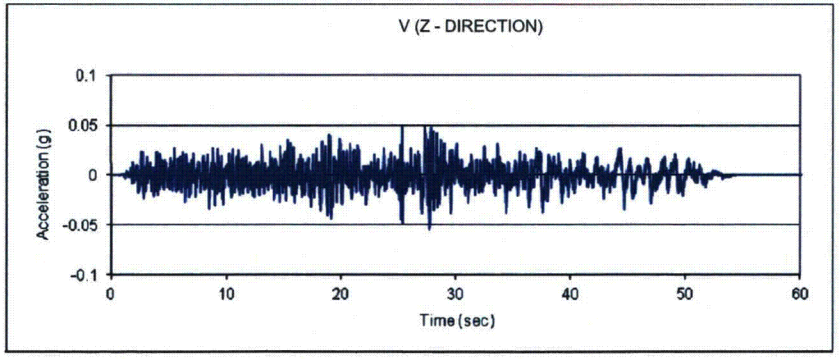
Attachment 03.07.02-02 S2 A

New Figures RAI 03.07.02-02-1 through RAI 03.07.02-02-16

[16 pages attached]



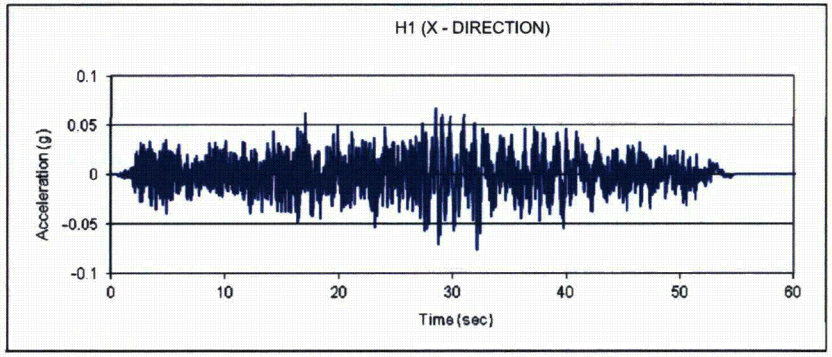


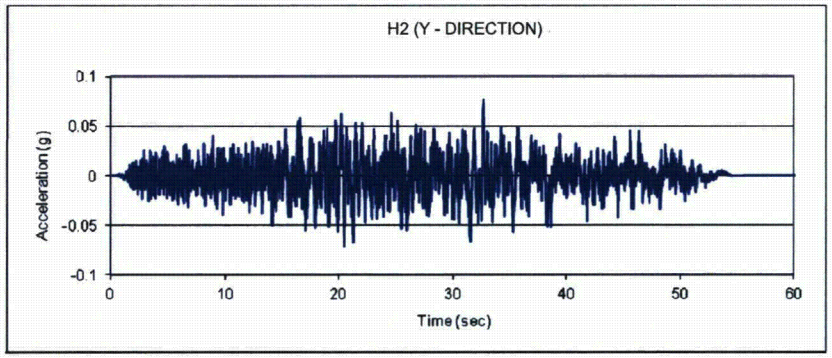


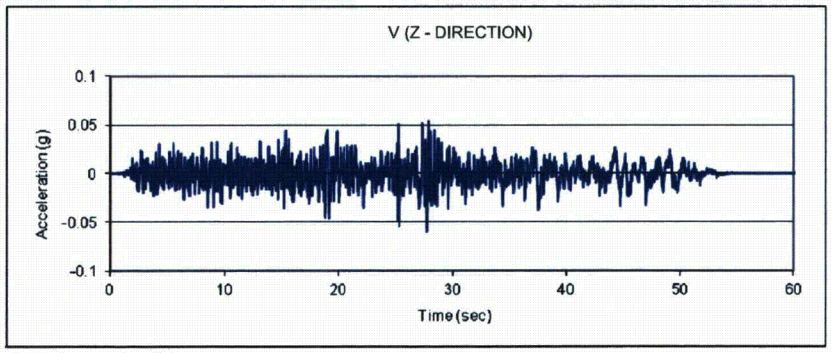
Progress Energy Florida
Levy Nuclear Plant
Units 1 and 2
Part 2, Final Safety Analysis Report

LNP BE Soil Profile Seismic Input
Time History - EL. -24 ft.

FIGURE RAI 03.07.02-02-1 Rev 1







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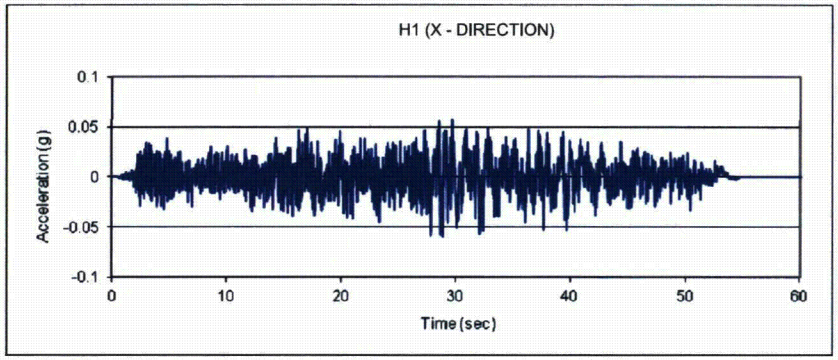
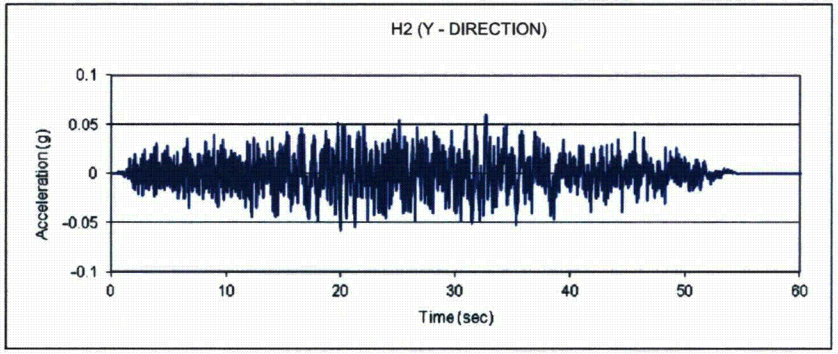
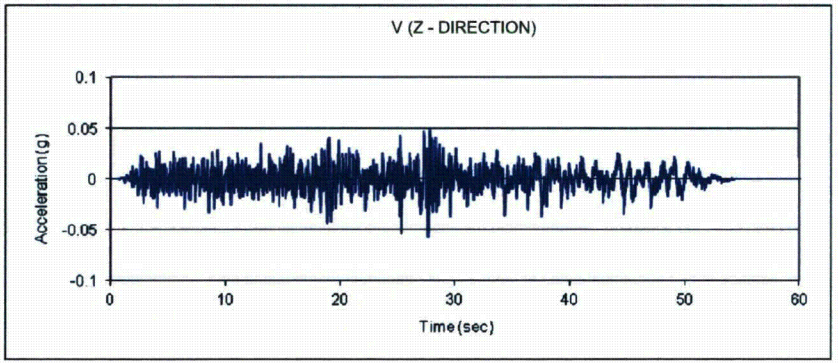
LNP UB Soil Profile Seismic Input
Time History - EL. -24 ft.

FIGURE RAI 03.07.02-02-2 Rev 1







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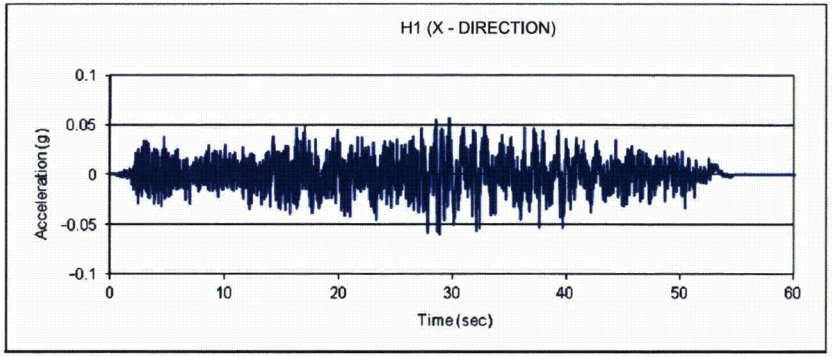
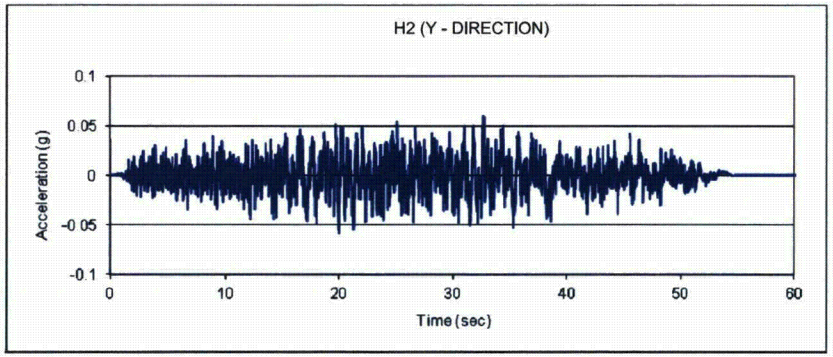
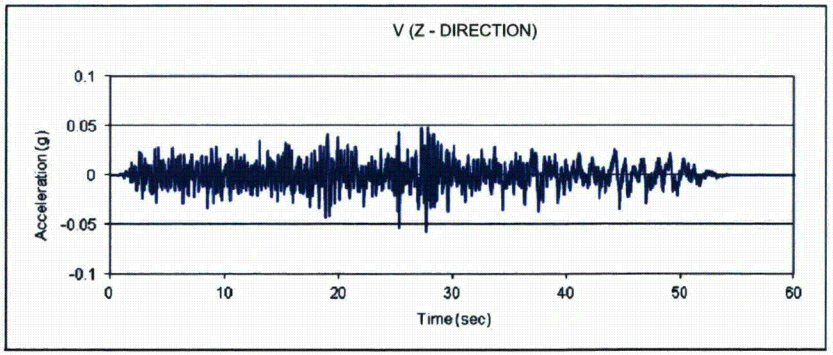
LNP LB Soil Profile Seismic Input
Time History - EL. -24 ft.

FIGURE RAI 03.07.02-02-3 Rev 1







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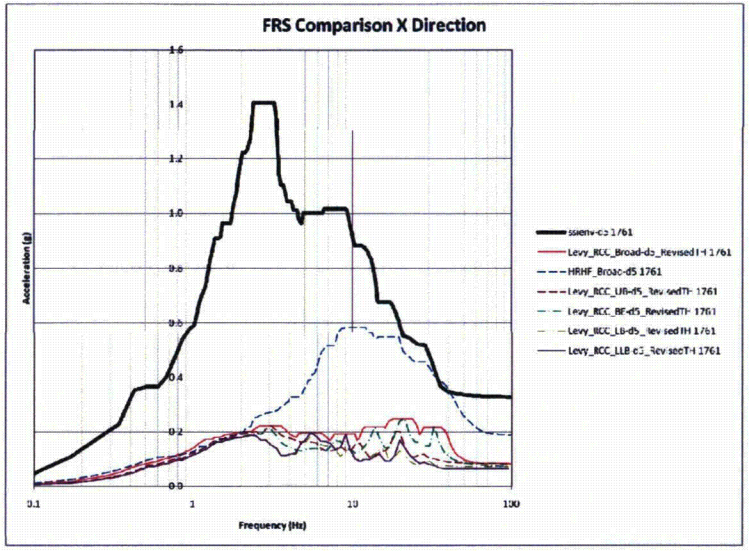
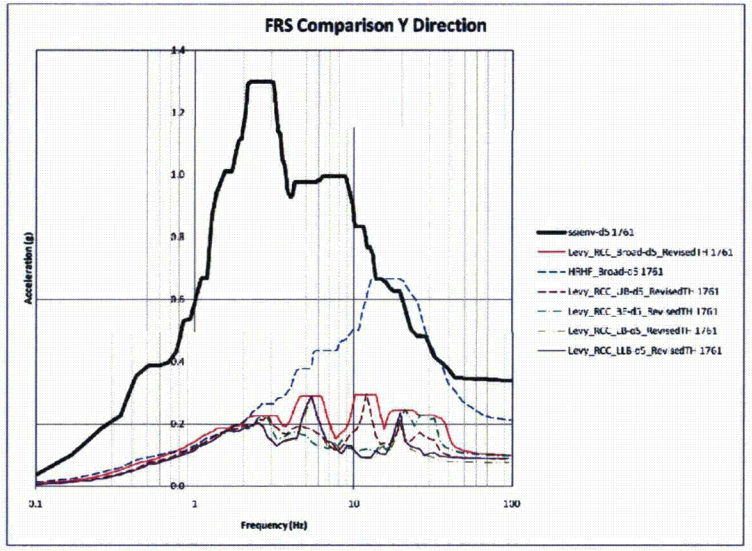
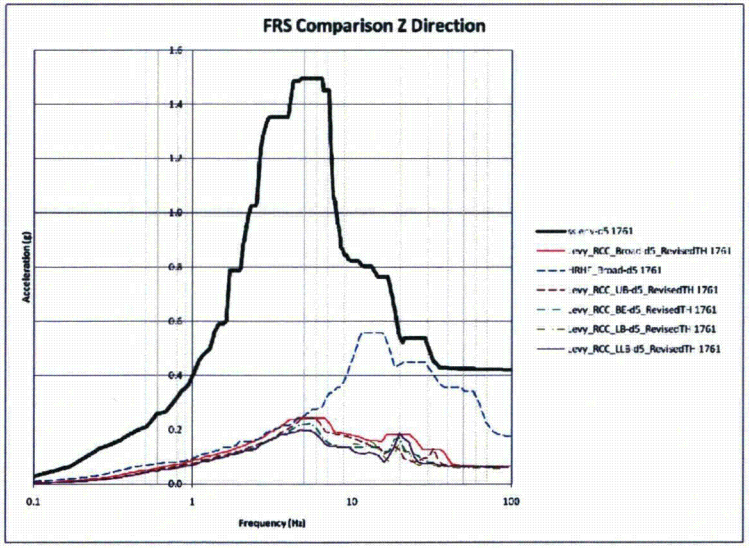
LNP LLB Soil Profile Seismic Input
Time History - EL. -24 ft.

FIGURE RAI 03.07.02-02-4 Rev 1







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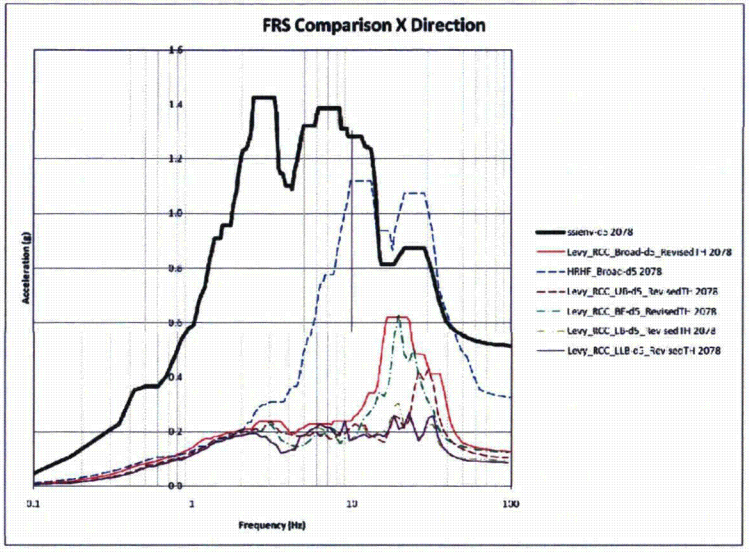
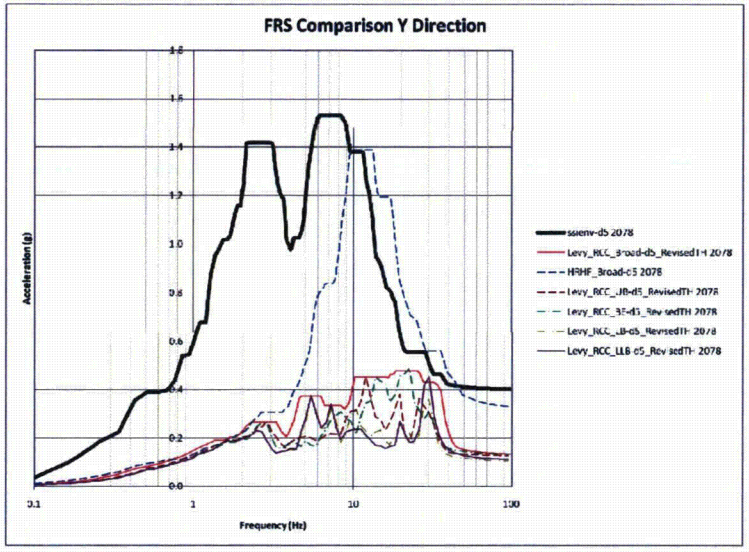
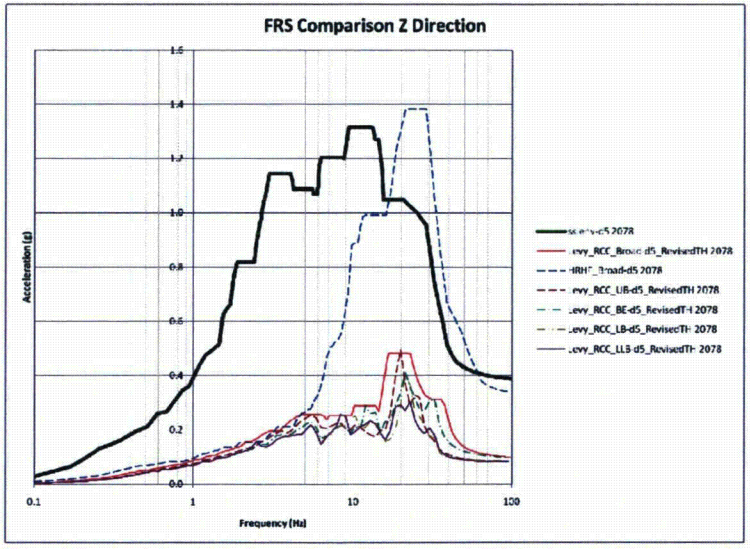
Levy Nuclear Plant
Units 1 and 2
Part 2, Final Safety Analysis Report

Comparison of LNP 3D 8-Layer Model
BE, UB, LB and LLB FRS and AP1000 FRS
Envelope - Node 1761

FIGURE RAI 03.07.02-02-5 Rev 2







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Units 1 and 2
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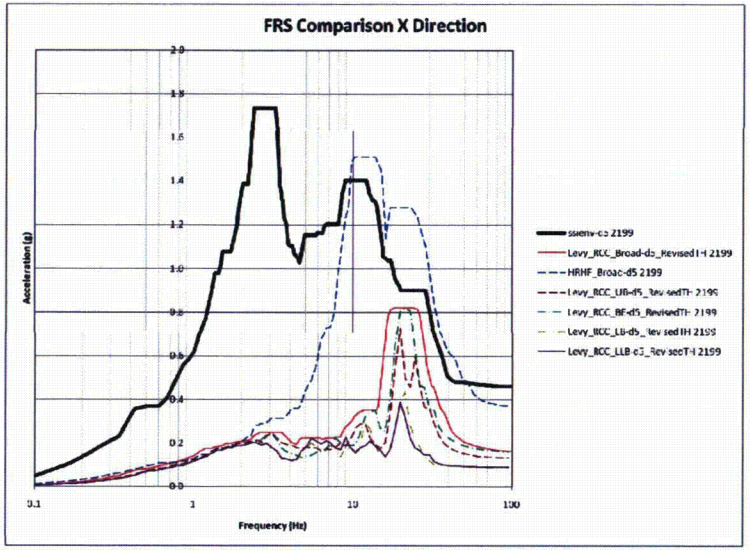
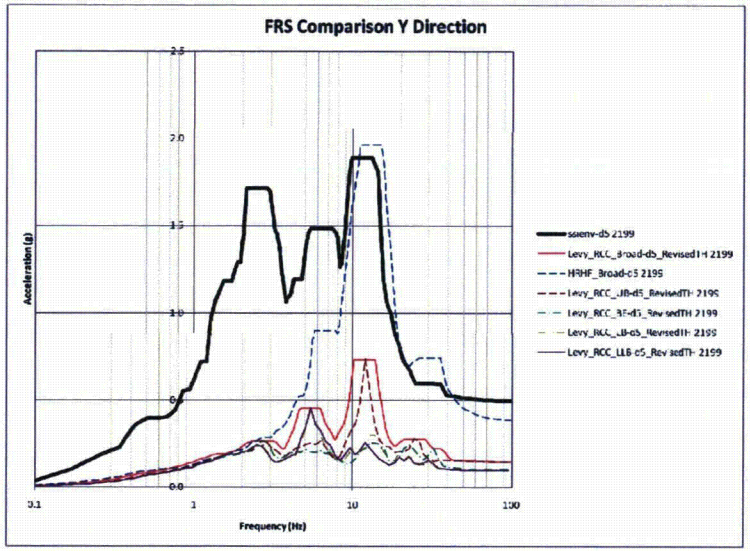
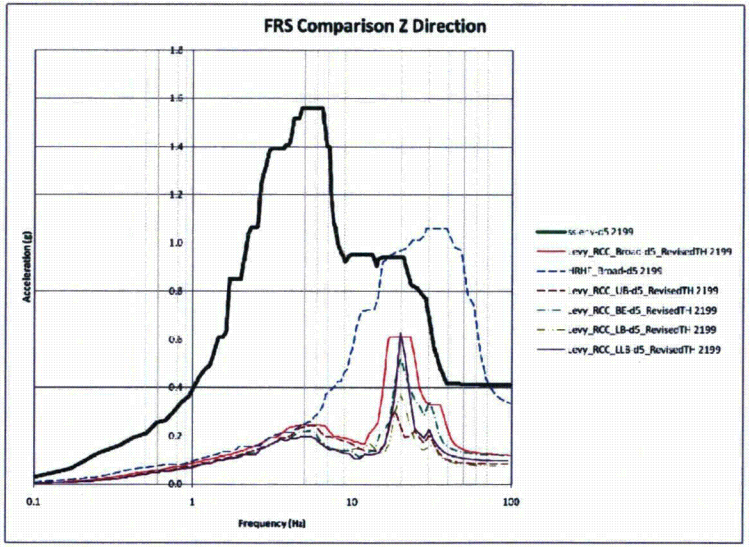
Comparison of LNP 3D 8-Layer Model
BE, UB, LB and LLB FRS and AP1000 FRS
Envelope - Node 2078

FIGURE RAI 03.07.02-02-6 Rev 2







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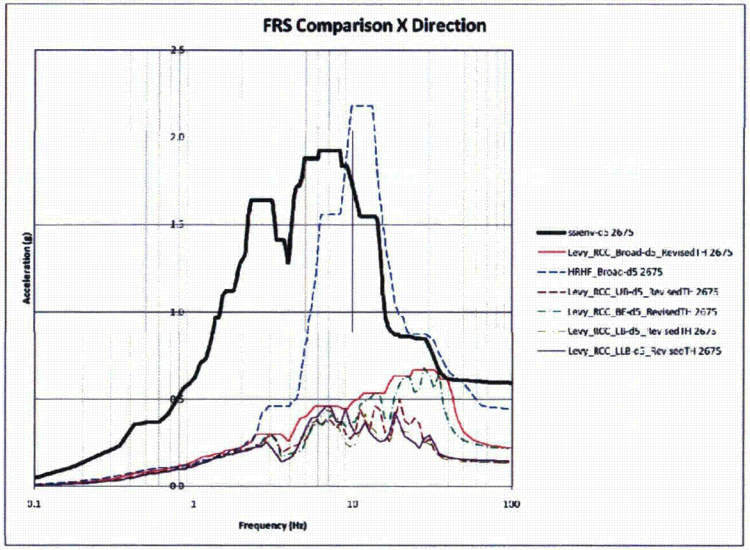
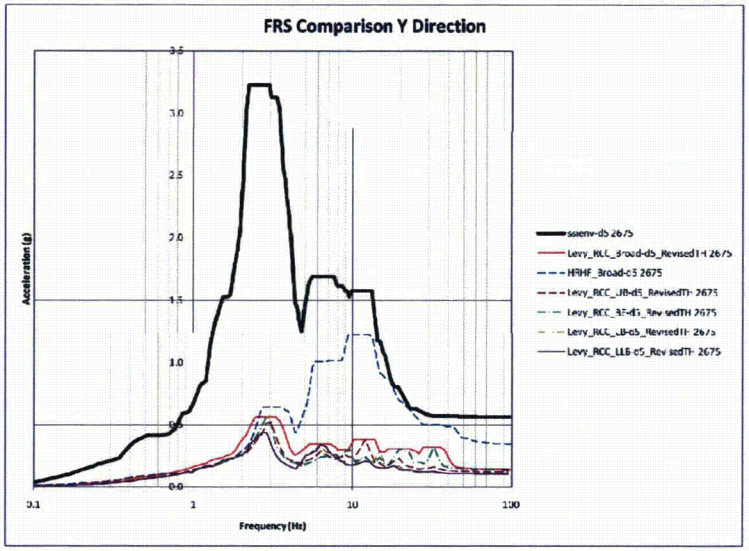
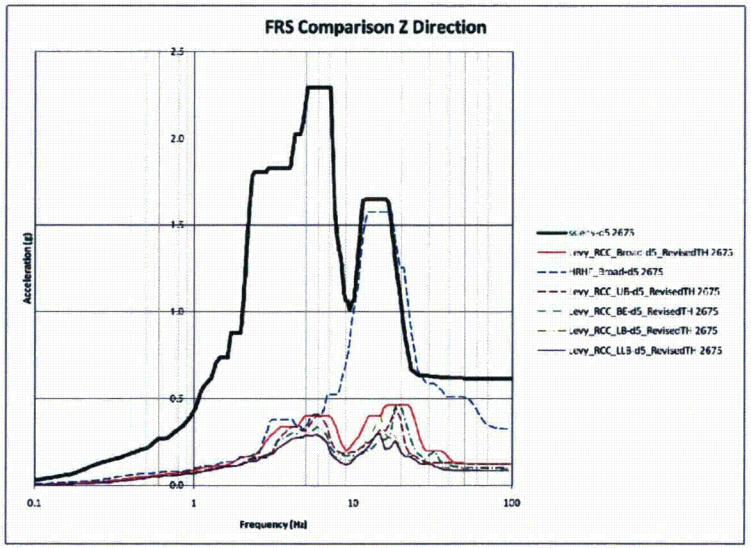
Units 1 and 2
Part 2, Final Safety Analysis Report

Comparison of LNP 3D 8-Layer Model
BE, UB, LB and LLB FRS and AP1000 FRS
Envelope - Node 2199

FIGURE RAI 03.07.02-02-7 Rev 2







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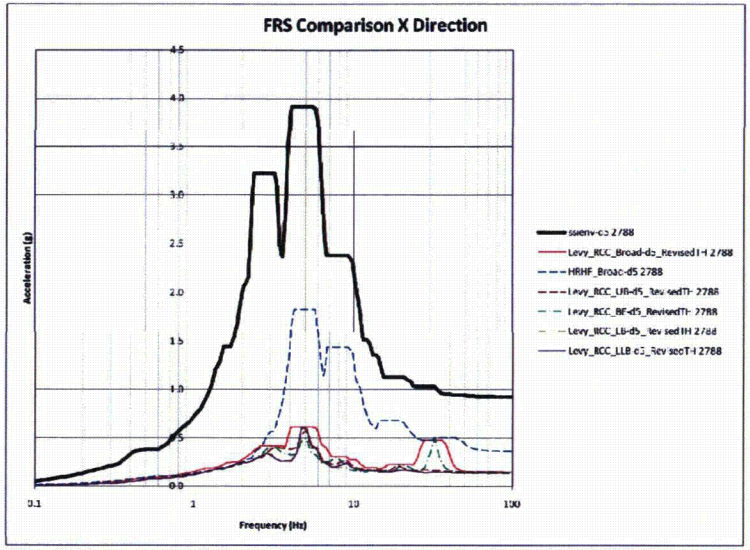
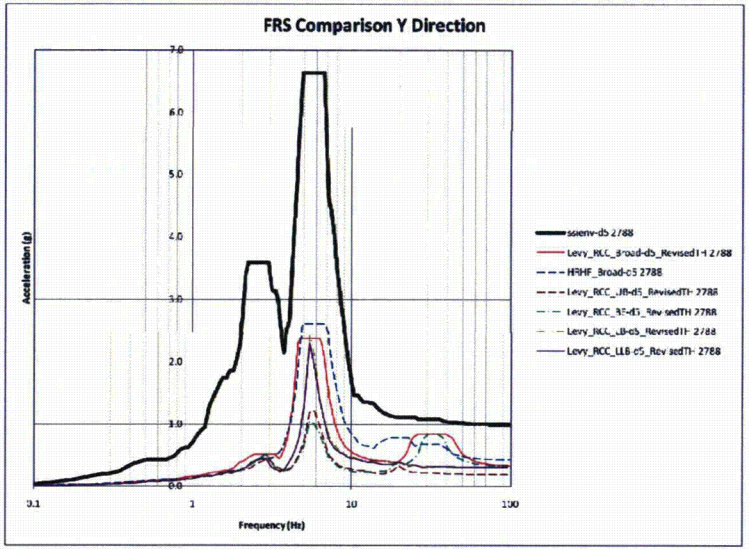
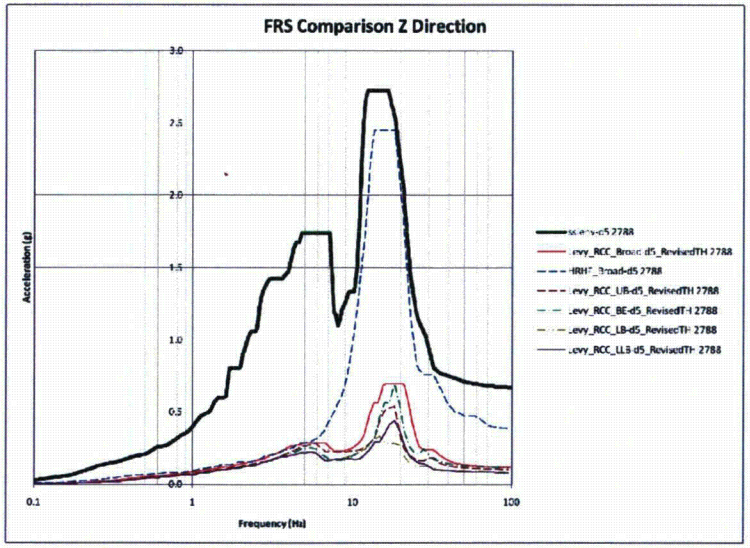
Comparison of LNP 3D 8-Layer Model
BE, UB, LB and LLB FRS and AP1000 FRS
Envelope - Node 2675

FIGURE RAI 03.07.02-02-8 Rev 2







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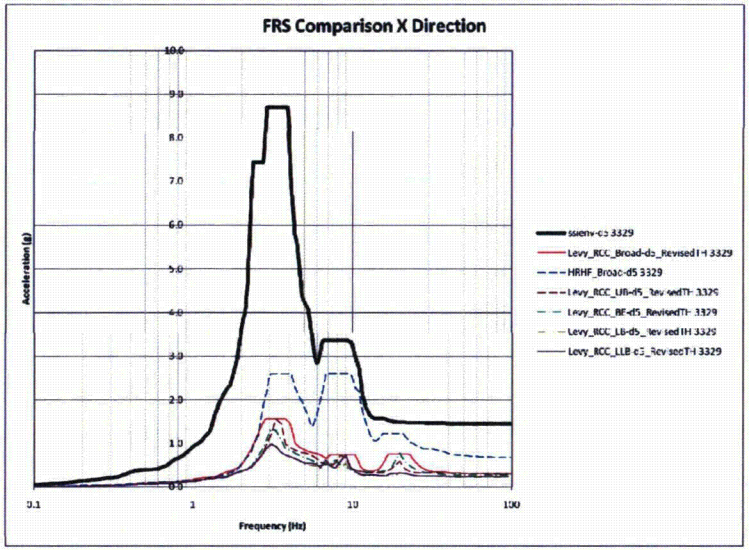
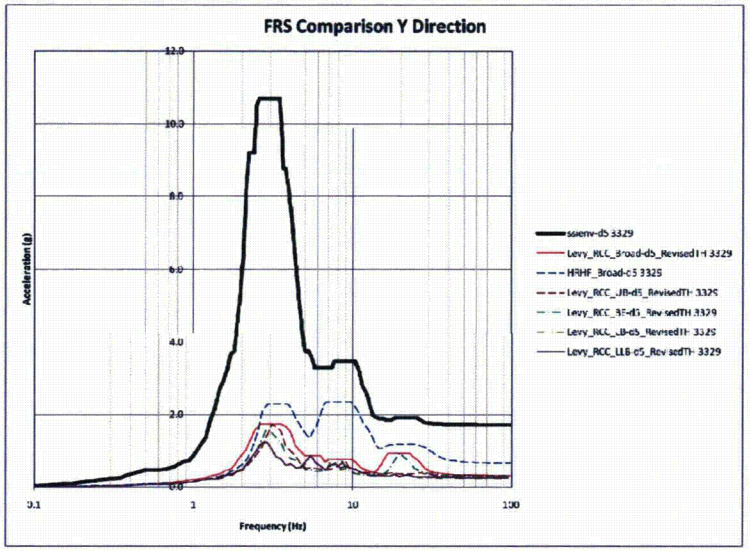
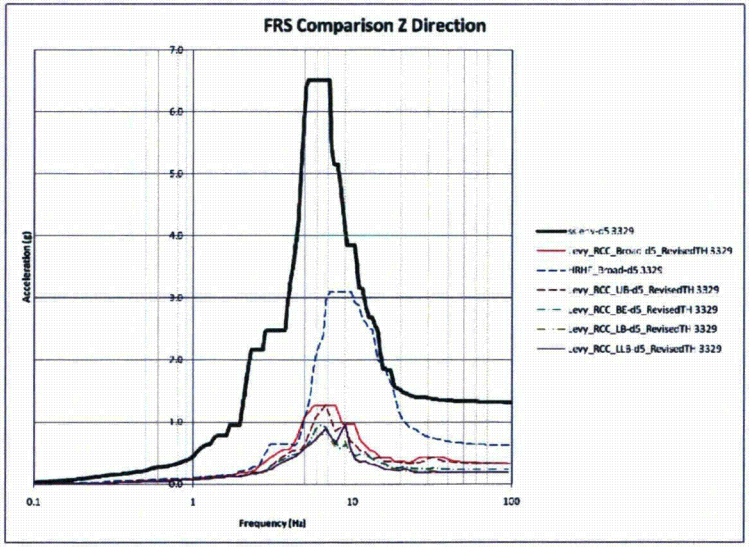
Levy Nuclear Plant
Units 1 and 2
Part 2, Final Safety Analysis Report

Comparison of LNP 3D 8-Layer Model
BE, UB, LB and LLB FRS and AP1000 FRS
Envelope - Node 2788

FIGURE RAI 03.07.02-02-9 Rev 2







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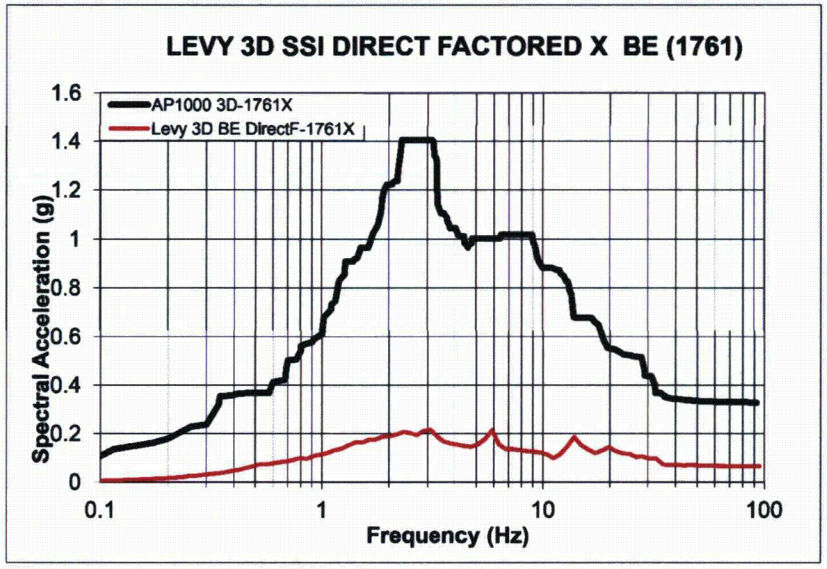
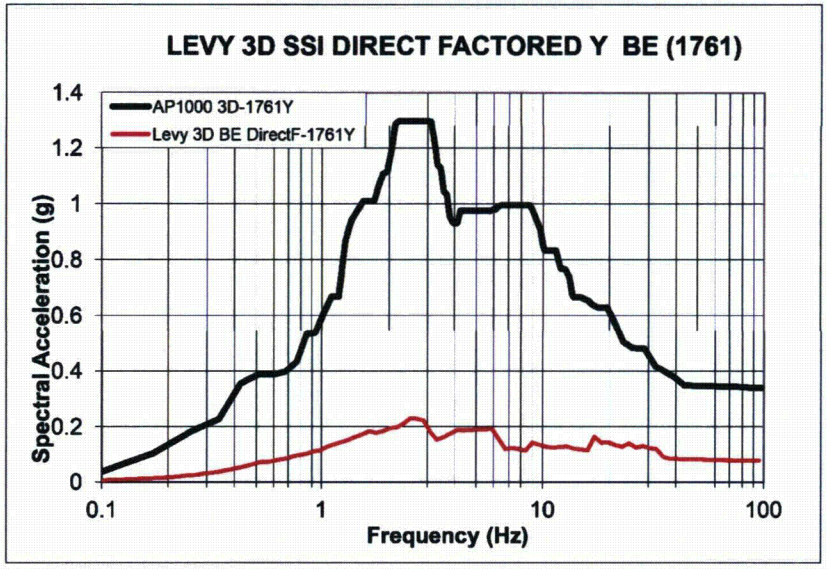
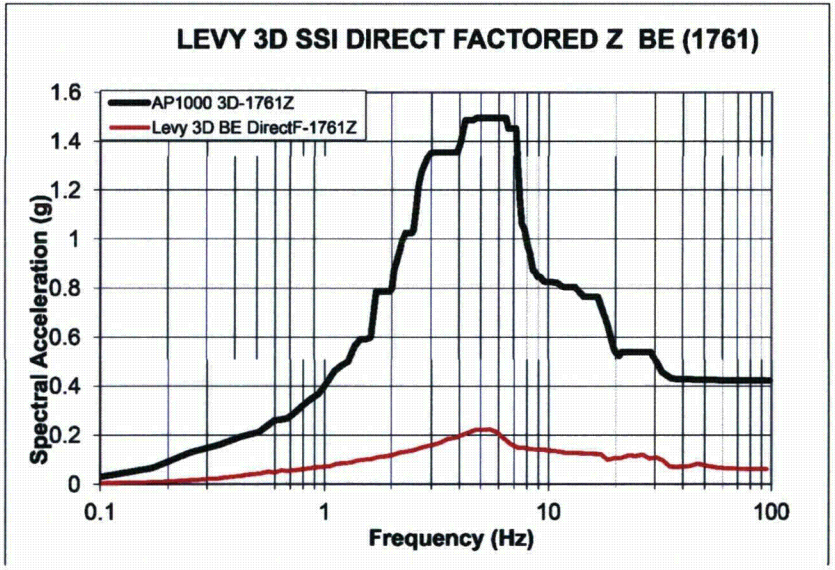
Levy Nuclear Plant
Units 1 and 2
Part 2, Final Safety Analysis Report

Comparison of LNP 3D 8-Layer Model
BE, UB, LB and LLB FRS and AP1000 FRS
Envelope - Node 3329

FIGURE RAI 03.07.02-02-10 Rev 2







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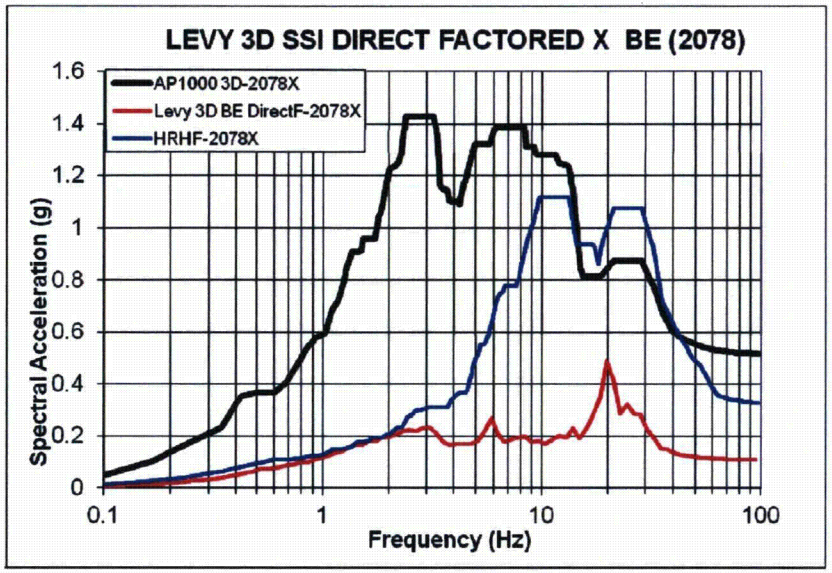
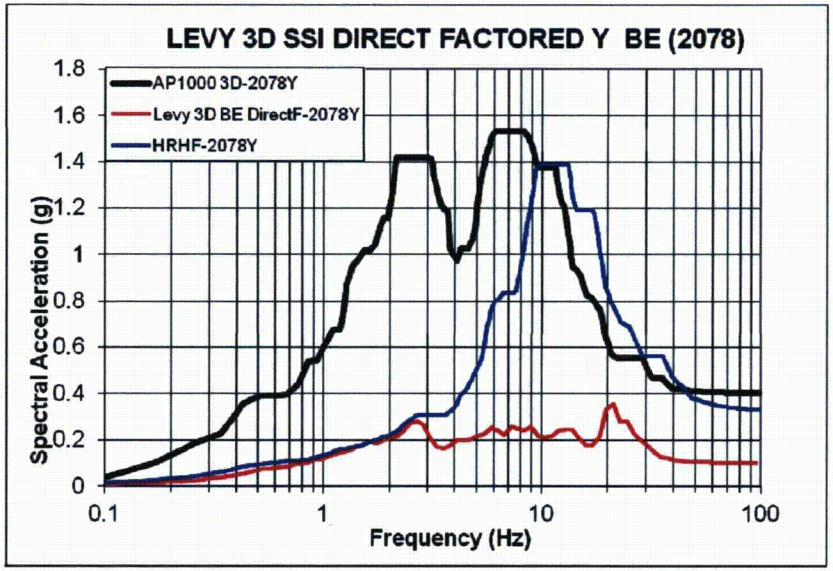
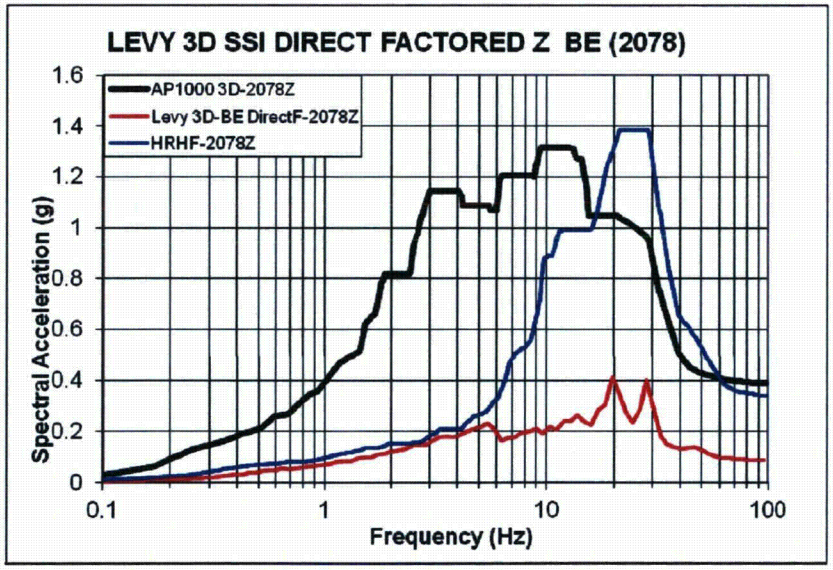
Levy Nuclear Plant
Units 1 and 2
Part 2, Final Safety Analysis Report

Comparison of LNP 3D 5-Layer Model
BE FRS and AP1000 FRS Envelope - Node 1761

FIGURE RAI 03.07.02-02-11 Rev 1



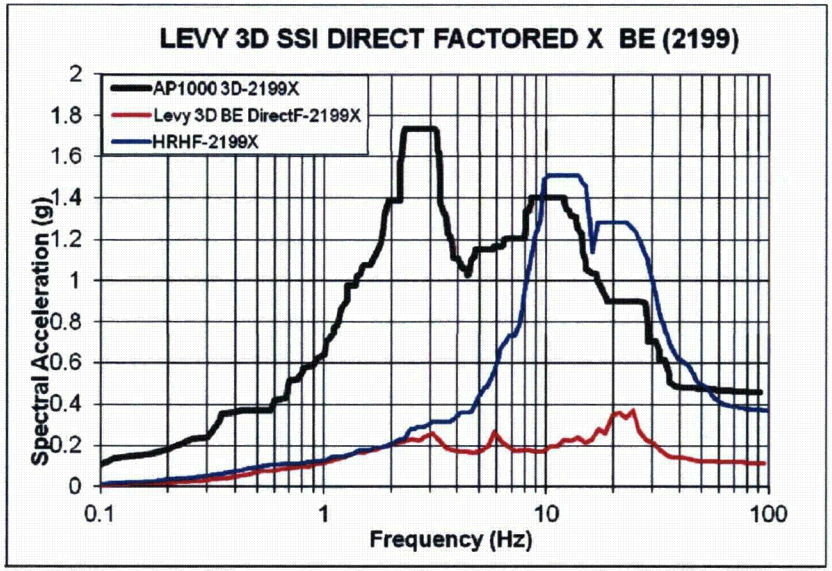


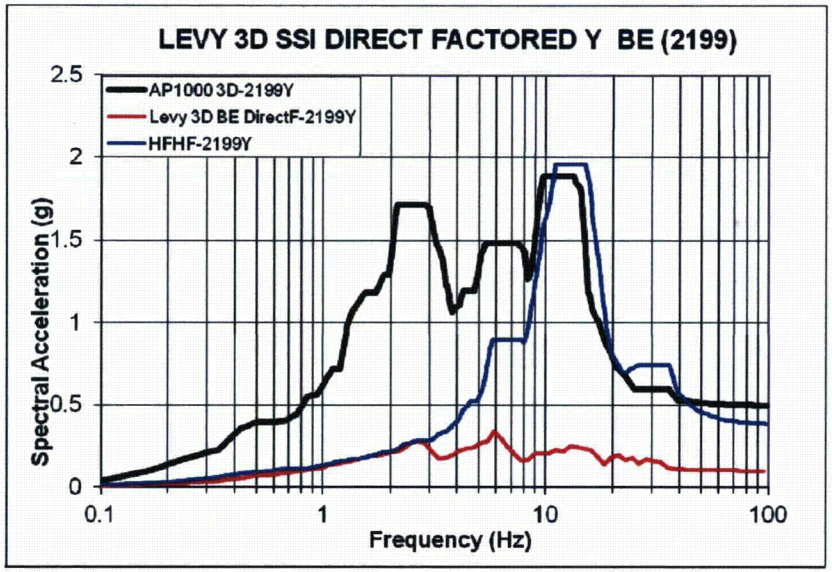


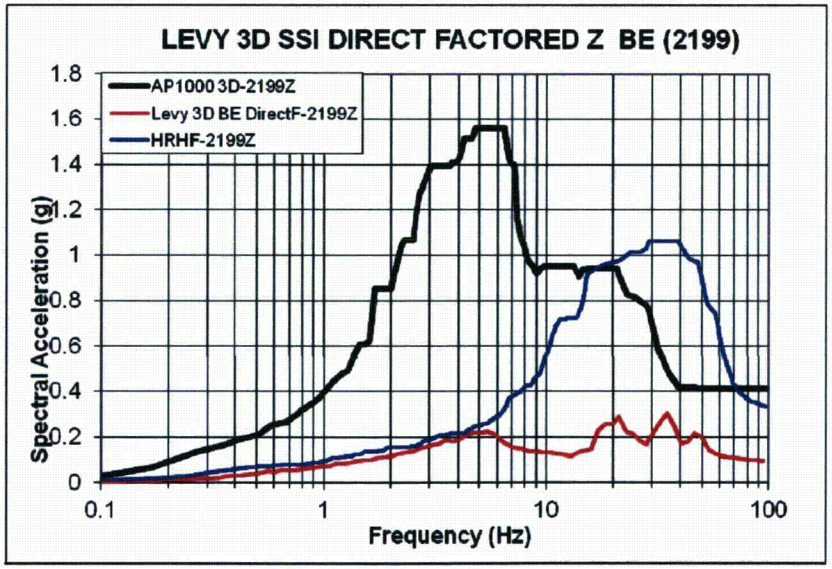
Progress Energy Florida
Levy Nuclear Plant
Units 1 and 2
Part 2, Final Safety Analysis Report

Comparison of LNP 3D 5-Layer Model
BE FRS and AP1000 FRS Envelope - Node 2078

FIGURE RAI 03.07.02-02-12 Rev 1







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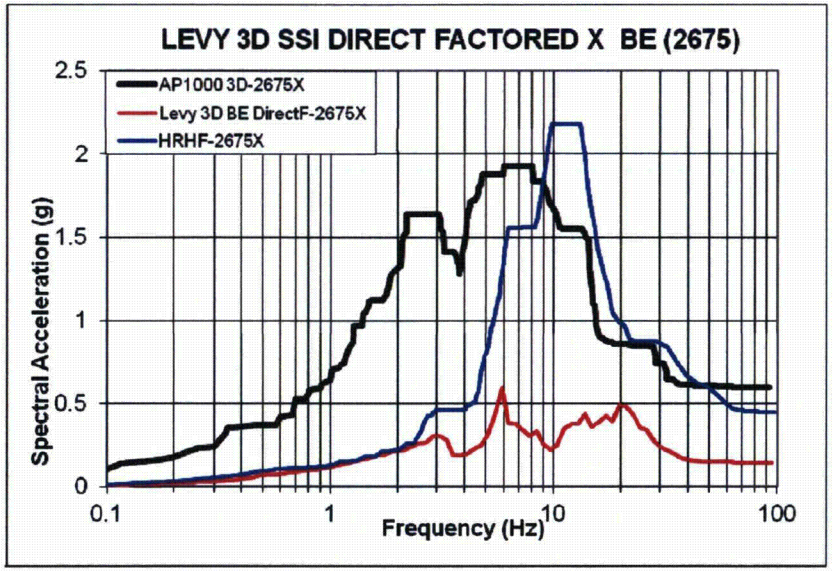
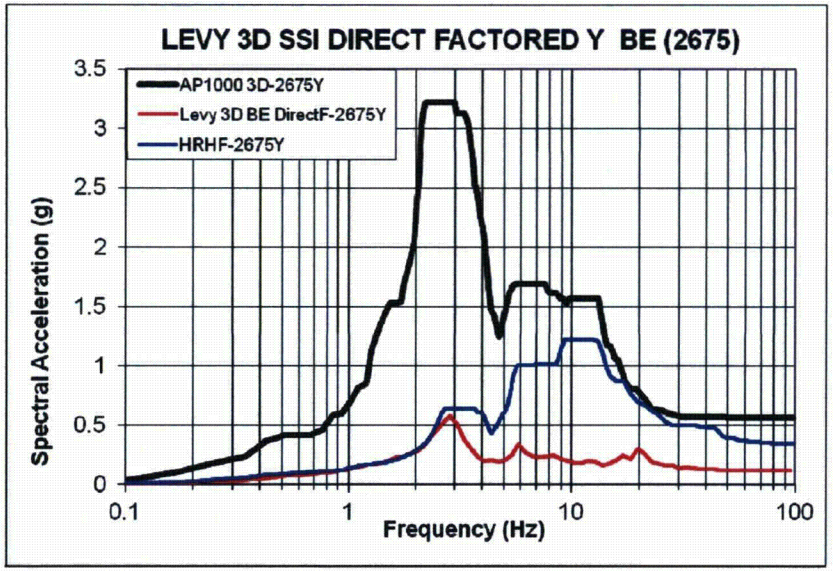
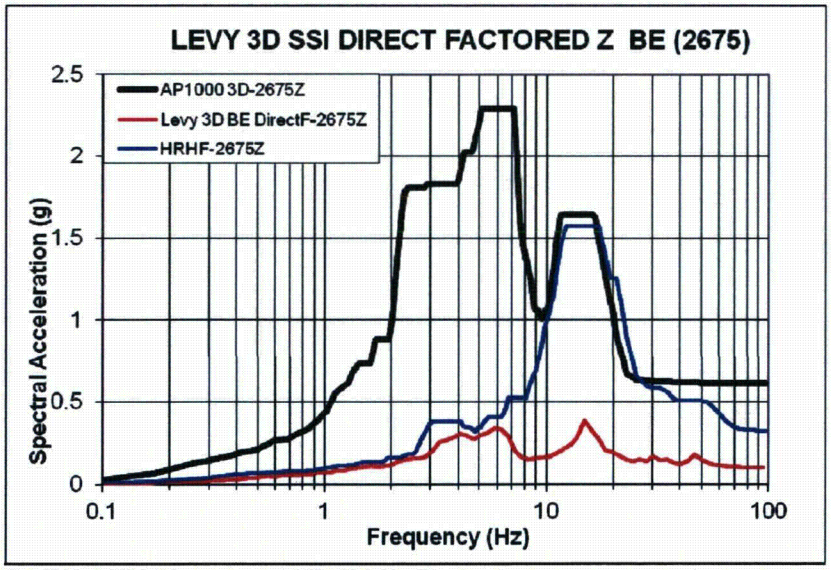
Comparison of LNP 3D 5-Layer Model
BE FRS and AP1000 FRS Envelope - Node 2199

FIGURE RAI 03.07.02-02-13 Rev 1







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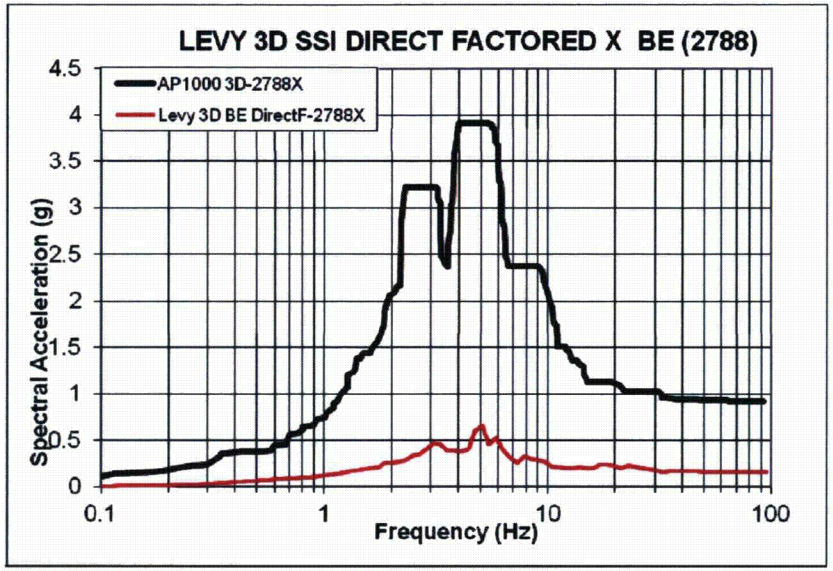
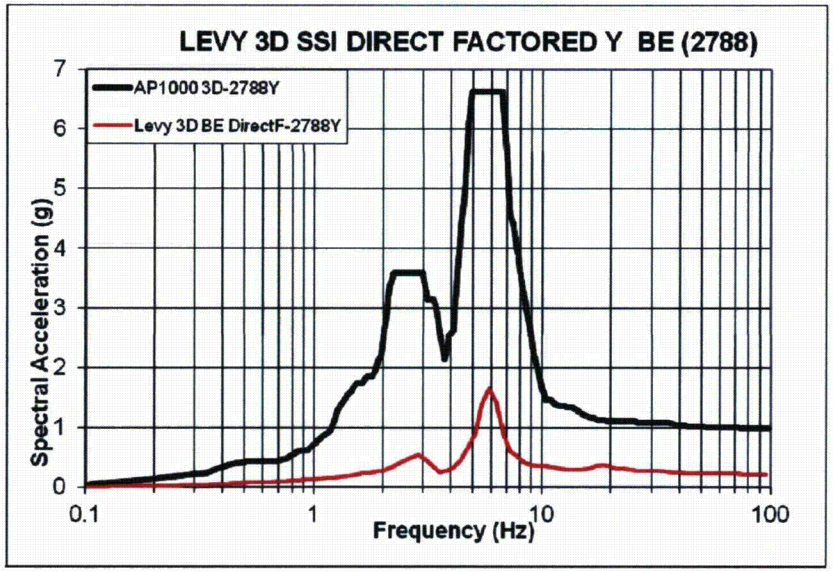
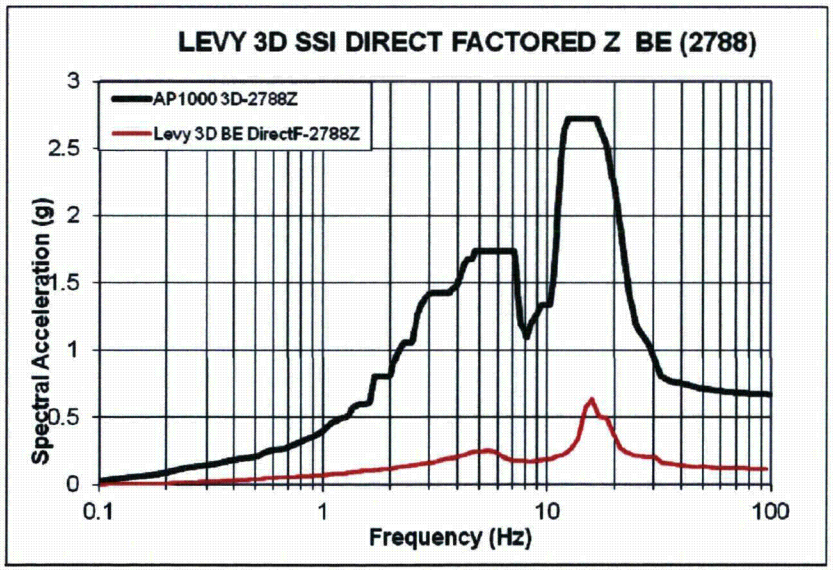
Comparison of LNP 3D 5-Layer Model
BE FRS and AP1000 FRS Envelope - Node 2675

FIGURE RAI 03.07.02-02-14 Rev 1







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Levy Nuclear Plant
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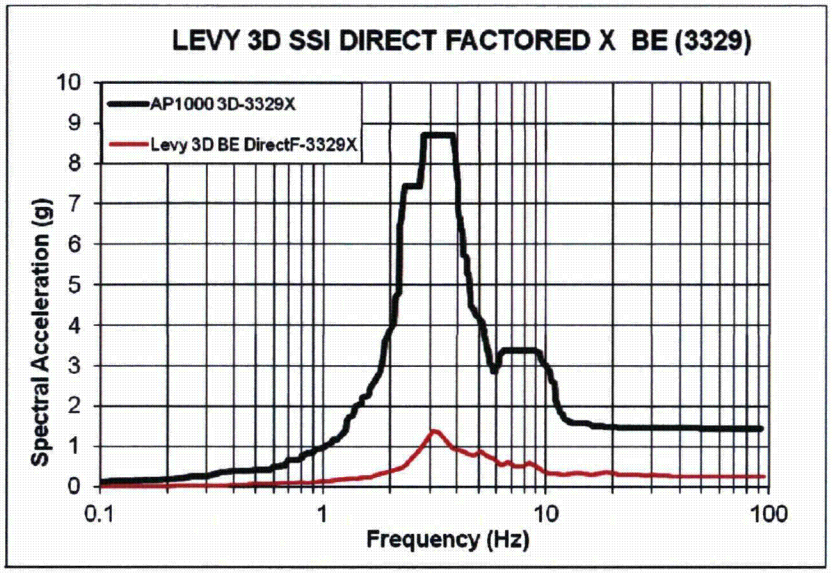
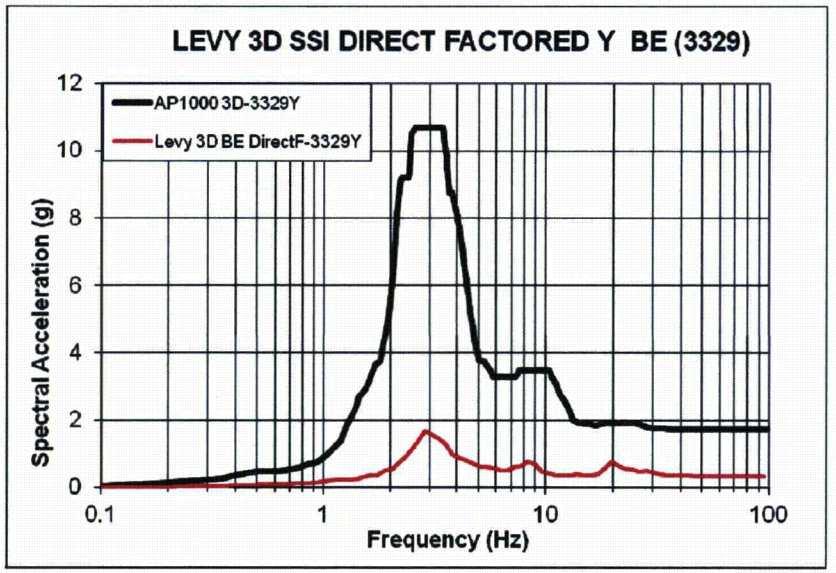
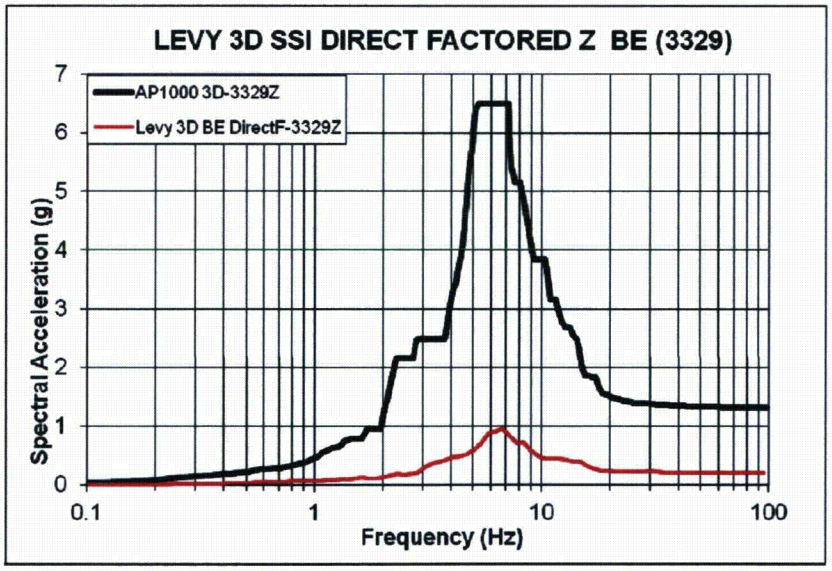
Part 2, Final Safety Analysis Report

Comparison of LNP 3D 5-Layer Model
BE FRS and AP1000 FRS Envelope - Node 2788

FIGURE RAI 03.07.02-02-15 Rev 1







Progress Energy Florida
Levy Nuclear Plant
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Comparison of LNP 3D 5-Layer Model
BE FRS and AP1000 FRS Envelope - Node 3329

FIGURE RAI 03.07.02-02-16 Rev 1

Attachment 2

Westinghouse Application for Withholding Proprietary Information

And Accompanying Affidavit

[6 pages attached]

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Direct fax: 724-940-8505
e-mail: ziesinrf@westinghouse.com

Our ref: CAW-11-3234

September 22, 2011

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: Transmittal of LNG-1000-S2R-804 Rev. 5 & LNG-1000-S2R-808 Rev. 3 – LNP Soil Structure Interaction Report

The proprietary information for which withholding is being requested in the above-referenced letter is further identified in the affidavit signed by Westinghouse Electric Company LLC. The affidavit accompanying this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and address with specificity the considerations listed in paragraph (b) (4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Progress Energy.

Correspondence with respect to the proprietary aspects of this application for withholding or the accompanying affidavit should reference CAW-11-3234 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company LLC, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,

R. F. Ziesing, Director
U. S. Licensing

CAW-11-3234
September 22, 2011

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF BUTLER:

Before me, the undersigned authority, personally appeared R. F. Ziesing, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

R. F. Ziesing, Director
U. S. Licensing

Sworn to and subscribed
before me this 22nd day
of September 2011.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Linda J. Bugle, Notary Public
City of Pittsburgh, Allegheny County
My Commission Expires June 18, 2013
Member, Pennsylvania Association of Notaries

Notary Public

(1) I am Director, U. S. Licensing, Westinghouse Electric Company, LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.

(2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse "Application for Withholding" accompanying this Affidavit.

(3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.

(4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.

(i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.

(ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitute Westinghouse policy and provide the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

(a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

(b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.

(c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.

(d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.

(e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.

(f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

(a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.

(b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.

(c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

(d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component

may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.

(e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.

(f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

(iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390; it is to be received in confidence by the Commission.

(iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.

(v) The proprietary information sought to be withheld from within the "Transmittal of LNG-1000-S2R-804 Rev. 5 Proprietary & LNG-1000-S2R-808 Rev. 3 – Non-Proprietary" (APC_LVG_000061) relates to an SSI (Soil Structure Interaction) Analysis for the Levy site and the creation of a Levy SSI Analysis Report.

The information requested to be withheld reveals details of the AP1000 design; timing and content of procurement; sequence and method of construction; and timing and content of inspection and testing. This information was developed and continues to be developed by Westinghouse. The information is part of that which enables Westinghouse to manufacture and deliver products to utilities based on proprietary designs.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar commercial power reactors without commensurate expenses.

The information requested to be withheld is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.