This letter forwards proprietary information in accordance with 10 CFR 2.390. The balance of this letter may be considered non-proprietary upon removal of Attachments 6 through 8.

Sam Belcher
Vice President-Nine Mile Point

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NINE MILE POINT
NUCLEAR STATION

December 10, 2010

U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ATTENTION: Document Control Desk

SUBJECT: Nine Mile Point Nuclear Station
Unit No. 2; Docket No. 50-410

Response to Request for Additional Information Regarding Nine Mile Point Nuclear Station, Unit No. 2 – Re: The License Amendment Request for Extended Power Uprate Operation (TAC No. ME1476) – Steam Dryer

REFERENCES:

(a) Letter from K. J. Polson (NMPNS) to Document Control Desk (NRC), dated May 27, 2009, License Amendment Request (LAR) Pursuant to 10 CFR 50.90: Extended Power Uprate

(b) Letter from R. Guzman (NRC) to S. L. Belcher (NMPNS), dated October 6, 2010, Request for Additional Information Regarding Nine Mile Point Nuclear Station, Unit No. 2 – Re: The Steam Dryer Review of the Licensing Amendment Request for Extended Power Uprate Operation (TAC No. ME1476)

(c) Letter from J. Pacher (NMPNS) to Document Control Desk (NRC), dated November 5, 2010, Response to Request for Additional Information Regarding Nine Mile Point Nuclear Station, Unit No. 2 – Re: The License Amendment Request for Extended Power Uprate Operation (TAC No. ME1476) – Steam Dryer

Nine Mile Point Nuclear Station, LLC (NMPNS) hereby transmits revised and supplemental information in support of a previously submitted request for amendment to Nine Mile Point Unit 2 (NMP2) Renewed Operating License (OL) NPF-69. The request, dated May 27, 2009 (Reference a), proposed an amendment to increase the power level authorized by OL Section 2.C.(1), Maximum Power Level, from 3467 megawatts-thermal (MWt) to 3988 MWt.

A001
NRR

This letter forwards proprietary information in accordance with 10 CFR 2.390. The balance of this letter may be considered non-proprietary upon removal of Attachments 6 through 8.

By letter dated October 6, 2010 (Reference b), the NRC staff requested additional information (RAI) regarding the steam dryer. Originally, NMPNS responded to the steam dryer RAIs on November 5, 2010 (Reference c). This response included commitments to provide additional information by December 10, 2010. Attachment 1 (non-proprietary) and Attachment 6 (proprietary) provide the additional information in the form of revised RAI responses. Continuum Dynamics Incorporated (CDI) Report No. 10-09 is provided as Attachment 3 (non-proprietary) and Attachment 7 (proprietary). CDI Report No. 10-10 is provided as Attachment 4 (non-proprietary) and Attachment 8 (proprietary).

Attachments 6 through 8 are considered to contain proprietary information exempt from disclosure pursuant to 10 CFR 2.390. Therefore, on behalf of CDI, NMPNS hereby makes application to withhold these attachments from public disclosure in accordance with 10 CFR 2.390(b)(1). The affidavits from CDI detailing the reason for the request to withhold the proprietary information are provided in Attachment 5. A copy of the CDI affidavit originally provided on November 5, 2010 is included because the CDI proprietary information provided in the responses to the RAIs in Attachment 6 was originally submitted on November 5, 2010.

Within two months of final resolution of NRC RAIs regarding the steam dryer analysis methodology, NMPNS will submit a revision to CDI Report No. 10-12, Design and Stress Evaluation of Nine Mile Point Unit 2 Steam Dryer Modifications for EPU Operation. Attachment 2 describes the new commitment contained within this submittal.

Should you have any questions regarding the information in this submittal, please contact J. J. Dosa, Director Licensing, at (315) 349-5219.

Very truly yours,

STATE OF NEW YORK :
: **TO WIT:**
COUNTY OF OSWEGO :

I, Sam Belcher, being duly sworn, state that I am Vice President – Nine Mile Point, and that I am duly authorized to execute and file this response on behalf of Nine Mile Point Nuclear Station, LLC. To the best of my knowledge and belief, the statements contained in this document are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by other Nine Mile Point employees and/or consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.

Subscribed and sworn before me, a Notary Public in and for the State of New York and County of Oswego, this 10 day of December, 2010.

WITNESS my Hand and Notarial Seal: Lisa M. Doran
Notary Public

My Commission Expires:

9/12/2013
Date

Lisa M. Doran
Notary Public in the State of New York
Oswego County Reg. No. 01DO6029220
My Commission Expires 9/12/2013

SB/STD

Attachments:

1. Response to Request for Additional Information Regarding License Amendment Request for Extended Power Uprate Operation (NON-PROPRIETARY)

2. List of Regulatory Commitments

3. CDI Report No. 10-09NP, ACM Rev. 4.1: Methodology to Predict Full Scale Steam Dryer Loads from In-Plant Measurements, Revision 2 (NON-PROPRIETARY)

4. CDI Report No. 10-10NP, Acoustic and Low Frequency Hydrodynamic Loads at CLTP Power Level on Nine Mile Point Unit 2 Steam Dryer to 250 Hz Using ACM Rev. 4.1, Revision 2 (NON-PROPRIETARY)

5. Affidavits From Continuum Dynamics Incorporated (CDI) Justifying Withholding Proprietary Information

6. Response to Request for Additional Information Regarding License Amendment Request for Extended Power Uprate Operation (PROPRIETARY)

7. CDI Report No. 10-09P, ACM Rev. 4.1: Methodology to Predict Full Scale Steam Dryer Loads from In-Plant Measurements, Revision 2 (PROPRIETARY)

8. CDI Report No. 10-10P, Acoustic and Low Frequency Hydrodynamic Loads at CLTP Power Level on Nine Mile Point Unit 2 Steam Dryer to 250 Hz Using ACM Rev. 4.1, Revision 2 (PROPRIETARY)

cc: NRC Regional Administrator, Region I
NRC Resident Inspector
NRC Project Manager
A. L. Peterson, NYSERDA (w/o Attachments 6 through 8)

ATTACHMENT 1

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT REQUEST FOR EXTENDED POWER UPRATE OPERATION (NON-PROPRIETARY)

Certain information, considered proprietary by Continuum Dynamics Incorporated, has been deleted from this Attachment. The deletions are identified by double square brackets.

ATTACHMENT 1
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT REQUEST FOR EXTENDED POWER UPRATE OPERATION (NON-PROPRIETARY)

By letter dated May 27, 2009, as supplemented on August 28, 2009, December 23, 2009, February 19, 2010, April 16, 2010, May 7, 2010, June 3, 2010, June 30, 2010, July 9, 2010, July 30, 2010, October 8, 2010, October 28, 2010, and November 5, 2010, Nine Mile Point Nuclear Station, LLC (NMPNS) submitted for Nuclear Regulatory Commission (NRC) review and approval, a proposed license amendment requesting an increase in the maximum steady-state power level from 3467 megawatts thermal (MWt) to 3988 MWt for Nine Mile Point Unit 2 (NMP2).

By letter dated October 6, 2010, the NRC staff requested additional information (RAI) regarding the steam dryer. NMPNS responded to the steam dryer RAIs on November 5, 2010. This response included commitments to provide additional information by December 10, 2010. This attachment provides the additional information in the form of revised RAI responses.

The NRC request is repeated (in italics), followed by the NMPNS response.

NMP2-EMCB-SD-RAI-6 S01 (a)

The applicant is requested to provide updated NMP2 main steam line (MSL) data and dryer loads in a revision to Continuum Dynamics, Inc. (CDI) Report No.10-10P, "Acoustic and low frequency hydrodynamic loads at CLTP [current licensed thermal power] level on Nine Mile Point Unit 2 Steam Dryer to 250 hertz (Hz) using ACM Rev. 4.1," following resolution of the follow-up RAI NMP2-EMCB-SD-RAI-8 S01.

Original NMNPS Response

A revised CDI Report No. 10-10P will be provided that includes the details of the response to NMP2-EMCB-SD-RAI-8 S01 by December 10, 2010.

Final NMPNS Response

Revision 2 of CDI Report No. 10-10 is provided as Attachment 4 (non-proprietary) and Attachment 8 (proprietary).

NMP2-EMCB-SD-RAI-6 S01 (b)

As described in CDI Report 10-11P, "Stress Assessment of Nine Mile Point Unit 2 Steam Dryer Using the Acoustic Circuit Model Rev. 4.1," dated June 30, 2010, and CDI Report 10-12P, "Design and Stress Evaluation of Nine Mile Point Unit 2 Steam Dryer Modifications for EPU Operation," dated July 30, 2010, the applicant considered several modifications at high-stress locations and showed that the corresponding minimum alternating stress ratio (SR-a) for the dryer with all the modifications implemented is 2.85 at CLTP power level. With velocity-square bump-up factor [[ ]], the stress ratio at EPU would be greater than 2.0. However, as discussed in supplementary RAI NMP2-EMCB-SD-RAI-17 S01, the bump-up factor may be higher than velocity-square. Therefore, the minimum alternating stress ratio at EPU power level for some of the locations identified in the above three groups may be less than 2.0. The licensee is requested to reevaluate the alternating stress ratios for the high-stress locations (Groups 1-4 locations) after the supplementary RAI NMP2-EMCB-SD-RAI-17 S01 related to bump-up factor and RAI NMP2-EMCB-SD-RAI-8 S01(a) related to coherence estimates are resolved.

Original NMNPS Response

The response to NMP2-EMCB-SD-RAI-17 S01 concludes that the appropriate bump-up factor remains velocity squared. Thus, re-evaluation is not required to address NMP2-EMCB-SD-RAI-17 S01.

A revision to this RAI response will be issued to address the final response to NMP2-EMCB-SD-RAI-8 S01(a) by December 10, 2010.

Final NMPNS Response

The response to NMP2-EMCB-SD-RAI-17 S01 concludes that the appropriate bump-up factor remains velocity squared. Thus, re-evaluation is not required to address NMP2-EMCB-SD-RAI-17 S01.

The stresses tabulated in Tables 8 - 10 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010, are recomputed using the new Acoustic Circuit Model (ACM) Rev. 4.1 loads described in Revision 2 of CDI Report Nos. 10-09 and 10-10 provided in this letter. Table 8 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010, listed the stress ratios of high stress locations in Groups 1 - 4 before and after the modifications described in the same report. This table is reproduced at the same locations (see Table RAI-6 S01 (b)-1). The first eight columns of Table RAI-6 S01(b)-1 are taken from Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010, with the alternating stress ratios computed using the previous ACM model loads developed in Rev. 1 of CDI Report 10-10 submitted in NMPNS letter dated June 30, 2010. The second to last column of Table RAI-6 S01 (b)-1 reports the stress ratios obtained at the same locations using the new ACM Rev. 4.1 model described in Revision 2 of CDI Report Nos. 10-09 and 10-10 provided in this letter. In general, these stress ratios using the new acoustic loads are higher relative to the prior ones.

For the Group 1 modifications, the limiting stress ratios increase between 20 and 27%, further improving the margins that were already adequate under the previous ACM acoustic loads. Note that the modifications at these locations are still needed to achieve adequate margin at Extended Power Uprate (EPU). The Group 2 locations were addressed by adding a curved reinforcement plate on the middle hood outboard of the closure plate. This modification significantly reduced the alternating stresses. With the revised ACM Rev. 4.1 loads and the modification, these stresses remain low with a limiting alternating

stress ratio on these nodes of 16.37. Group 3 stresses reduce between 9% and 15% (stress ratios increase by these amounts), with the limiting alternating stress ratio on these locations being 3.39 in the post-modification dryer. Of the Group 4 nodes, stresses at all locations remain above the target levels with ample margin in the post-modification dryer. The lowest alternating stress ratio of all Group 4 members is 3.13 using the revised ACM Rev. 4.1 acoustic loads.

These loads lead to alternating stress ratios on the drain channel/skirt weld that meet margin without any modification. Using the previous loads, the limiting alternating stress ratio (SR-a) on these welds was 2.65, which is slightly below the target value. Thus, a wrap-around weld was proposed for these locations to increase the limiting alternating stress ratio to 4.09. Using the new load, the limiting alternating stress ratio with this weld reinforcement increases to 4.75. However, even without this reinforcement, the alternating stress ratio remains above 3.09 as shown in the final column of the modified Table RAI-6 S01 (b) – 1, indicating that no modification of this location is needed.

Tables 9 and 10 in Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010, were developed to list the various kinds of limiting stress ratio (primary, alternating; on or away from a weld). Table 9 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010 was generated by assuming that the closure plate attachment welds were reinforced. Because they only introduce localized changes in the stresses, the attachment weld reinforcements were analyzed on the basis of stress reduction factors (SRFs). These reinforcements were originally necessary because of high stresses caused by vibrations of the closure plate. Subsequently, it was decided to reinforce the closure plates themselves using stiffening ribs. Since stiffening of the closure plate would likely reduce the stresses at the attachment welds, the dryer was reanalyzed without the thickened/reinforced closure plate attachment welds (i.e., without the SRFs applied at these locations). This resulted in Table 10 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010 which listed the alternating stress ratios at the welds.

Using the latest ACM Rev. 4.1 acoustic loads, the stresses are recalculated at the same high stress locations. The main observations are as follows. First, with regard to Table 9 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010, the limiting alternating stress ratio using the most recent loads in Revision 2 of CDI Report Nos. 10-09 and 10-10 provided in this letter increases from 2.85 to 3.09 as shown in Tables RAI-6 S01 (b) - 2 and - 3. The maximum stress ratio (SR-P) increased slightly from 1.25 to 1.26. Most stress ratios show a small increase using the latest ACM acoustic loads. Next, the re-evaluated alternating stress ratios of Table 10 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010, corresponding to the dryer with the existing (non-reinforced) closure plate attachment welds, are seen to remain at 3.09 and higher (see Table RAI-6 S01 (b) - 4. Of the closure plate attachment weld locations listed in Table RAI-6 S01 (b)-3, the limiting alternating stress ratio is 3.52, further confirming that reinforcement of these welds is unnecessary under the acoustic loads estimated using the latest ACM Rev. 4.1 model in Revision 2 of CDI Report Nos. 10-09 and 10-10 provided in this letter.

Within two months of final resolution of NRC RAIs regarding the steam dryer analysis methodology, NMPNS will submit a revision to CDI Report No. 10-12, Design and Stress Evaluation of Nine Mile Point Unit 2 Steam Dryer Modifications for EPU Operation.

Table RAI-6 S01 (b) - 1
Recalculation of Table 8 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010, using Revision 4.1 ACM Model

				Obtained from Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010				Calculated using current ACM 4.1 as summarized in Revision 2 of CDI Report Nos. 10-09 and 10-10	
Location	GROUP	SRF	node	SR-a	% Freq. Shift	Dom. Freq. [Hz]	SR-a Post Mod.(c)	SR-a Post Mod (ACM 4.1) (d)	SR-a w/o SRF (ACM 4.1) (d)
1. Side Plate/Brace	1	0.6(5)	89649	1.56	-5	139.7	5.77	6.95	
3. Side Plate/Brace	1	1	89646	1.74	5	103.3	3.33	4.22	
7. Side Plate/Brace	1	0.6(5)	89652	2.35	-5	139.7	8.03	9.68	
2. Hood Reinforcement/Middle Hood	2	1	98275	1.62	10	109.0	19.74	24.48	
8. Hood Reinforcement/Middle Hood	2	1	90126	2.35	10	109.0	18.39	19.30	
9. Hood Reinforcement/Middle Hood	2	1	98268	2.38	-7.5	146.1	18.66	21.91	
10. Hood Reinforcement/Middle Hood	2	1	90949	2.57	2.5	190.7	21.38	16.37	
4. Hood Support/Inner Hood	3	1(b)	95636	2.17	-10	51.2	3.10	3.53	
5. Hood Support/Inner Hood	3	1(b)	95650	2.27	-10	51.2	4.23	4.61	
6. Hood Support/Inner Hood	3	1(b)	95642	2.28	2.5	44.1	2.94	3.39	
11. Hood Support/Outer Base Plate/Middle Backing Bar	4	1(b)	95428	2.65	5	48.6	4.27	4.67	
14. Hood Support/Outer Cover Plate/Outer Hood	4	1(b)	95267	2.71	-10	60.5	2.88	3.13	
12. Submerged Drain Channel/Submerged Skirt	4	1	93430	2.65	5	51.8	4.18	4.75	3.09
15. Submerged Drain Channel/Submerged Skirt	4	1	84597	2.72	2.5	104.0	4.09	4.93	3.21
13. Hood Support/Middle Hood	4	1(b)	96022	2.68	-5	53.4	4.05	4.22	

Notes.
(a) Node numbers are retained for further reference.
(1-11) Appropriate stress reduction factor for the welds and modifications listed in Table 1 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010, have been applied. The number refers to the particular location and corresponding stress reduction factor in Table 1 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010.
(b) Weld Factor (WF)=1.4
(c) Post – modification value reported in Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010.

(d) Post – modification value obtained using the revised ACM 4.1 loads methodology described in Revision 2 of CDI Report No. 10-09 and applied to the NMP2 steam dryer as described in Revision 2 of CDI Report No 10-10.

Table RAI-6 S01 (b) - 2
Recalculation of stresses, stress ratios and limiting frequency shifts in Table 9 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010, using the Revision 4.1 ACM Model

Stress Ratio	Weld	Location	Location (in.)			node(a)	Stress Intensity (psi)			Stress Ratio		% Freq. Shift
			x	y	z		Pm	Pm+Pb	S_{alt}	SR-P	SR-a	
SR-P	No	1. Inner Side Plate	3.1	119	0.5	37229	7499	9024	654	2.25	18.90	7.5
"	"	2. Thin Vane Bank Plate	-15.6	-118.4	0.6	2558	4855	5271	254	3.48	48.75	-2.5
"	"	3. Support/Seismic Block	10.2	123.8	-9.5	113286	4567	4567	1518	3.70	8.15	10
SR-a	No	1. Brace	32.9	-27.2	69.8	70703	1014	4033	3975	6.29	3.11	5
"	"	2. Inner Hood	31.1	-33.7	78.1	70266	1163	3495	3461	7.25	3.57	2.5
"	"	3. Inner Hood	79.6	85.5	75.8	37811	3035	3250	2964	5.57	4.17	-10
SR-P	**Yes**	**1. Upper Support Ring (USR)/Support/Seismic Block**	**-6.9**	**-122.3**	**-9.5**	**113554**	**7378**	**7378**	**1059**	**1.26**	**6.49**	**0**
"	"	2. Side Plate Ext/Inner Base Plate	16.3	119	0	94143	7014	9918	531	1.33	12.94	2.5
"	"	3. Tie Bar	49.3	108.1	88	141275	6058	6058	1034	1.53	6.64	0
"	"	4. Inner Side Plate/Inner Base Plate	-2.3	-119	0	99200	4487	8078	760	1.73	9.04	7.5
"	"	5 Thin Vane Bank Plate/Hood Support/Inner Base Plate	24.1	-59.5	0	85191	5042	5166	1405	1.84	4.89	5
"	"	6. Hood Support/Middle Base Plate/Inner Backing Bar/Inner Hood(b)	-39.9	0	0	85723	4852	5101	1818	1.92	3.78	2.5
"	"	7. Side Plate/Top Plate	17.6	119	88	91215	939	7424	1689	1.88	4.07	5
"	"	8. Closure Plate/Backing Bar/Inner Hood	39.9	108.6	0.5	93062	5018	5074	690	1.85	9.95	7.5
"	"	9. Hood Support/Outer Base Plate/Middle Backing Bar	-71.3	0	0	95428	4714	5220	2015	1.97	3.41	5
"	"	10. Outer Cover Plate/Outer Hood	102.8	-58.1	0	94498	1049	7225	946	1.93	7.26	2.5
"	"	11. Hood Support/Middle Base Plate/Inner Backing Bar/Inner Hood(b)	-39.9	59.5	0	90468	4444	4533	1347	2.09	5.10	0
"	"	12. Hood Support/Outer Cover Plate/Outer Hood(11)	-102.8	28.4	0	95267	4709	4735	2197	1.97	3.13	5

Notes.
(a) Node numbers are retained for further reference.
(1-11) Appropriate stress reduction factor for the welds and modifications listed in Table 1 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010, have been applied. The number refers to the particular location and corresponding stress reduction factor in Table 1 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010.
(b) WF=1.4

Table RAI-6 S01 (b) - 3
Recalculation of stresses, stress ratios and limiting frequency shifts in Table 9 (cont.) of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010 using the Revision 4.1 ACM Model

Stress Ratio	Weld	Location	Location (in.)			node(a)	Stress Intensity (psi)			Stress Ratio		% Freq. Shift
			x	y	z		Pm	Pm+Pb	S_{alt}	SR-P	SR-a	
SR-a	Yes	1. Outer Cover Plate/Outer Hood	-102.8	-1	0	95236	1181	2619	2222	5.32	3.09	-10
"	"	2. Hood Support/Outer Cover Plate/Outer Hood(11)	-102.8	28.4	0	95267	4709	4735	2197	1.97	3.13	5
"	"	3. Hood Support/Inner Hood(b)	-36.8	0	46.9	95644	798	2176	2034	6.41	3.38	-2.5
"	"	4. Top Thick Plate/Inner Hood/Top Plate	24.1	-30.6	88	85512	786	2235	2133	6.24	3.22	2.5
"	"	5. Hood Support/Outer Base Plate/Middle Backing Bar	71.3	0	0	98067	4437	4662	2073	2.10	3.31	2.5
"	"	6. Thick Vane Bank Plate/Thin Vane Bank Plate/Side Plate/Side Plate Ext/End Plate	-24.1	119	11.6	90170	823	2303	2009	6.05	3.42	5
"	"	7. Hood Support/Inner Hood(b)	32.4	0	72.5	99540	593	2522	2166	5.53	3.17	5
"	"	8. Hood Support/Inner Hood(b)	-38.2	0	34.9	95638	797	1983	1955	7.03	3.51	-2.5
"	"	9. Side Plate/Top Plate	-80.2	-85.2	88	93031	506	2347	1888	5.94	3.64	5
"	"	10. Entry Bottom Perf/Side Plate/End Plate	24.1	119	23.7	91154	1283	2701	1954	5.16	3.52	-5
"	"	11. Closure Plate/Middle Hood(3)	60.2	-85.2	87	89317	1072	4195	1677	3.32	4.10	2.5
"	"	12. Side Plate/Brace(5)	79.7	85.2	31.2	89646	1604	1797	1627	5.79	4.22	2.5
"	"	13. Hood Support/Inner Hood(b)	-36.5	59.5	48.8	90430	745	2023	1884	6.89	3.65	-2.5
"	"	14. Hood Support/Middle Hood(b)	-63.8	0	72.5	96037	448	2164	1819	6.44	3.78	7.5
"	"	15. Outer Cover Plate/Man Way Overlap	-106.5	12.5	0	87488	724	2386	1826	5.84	3.76	-10

Notes
(a) Node numbers are retained for further reference.
(1-11) Appropriate stress reduction factor for the welds and modifications listed in Table 1of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010, have been applied. The number refers to the particular location and corresponding stress reduction factor in Table 1 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010.
(b) WF=1.4

Table RAI-6 S01 (b) - 4
Recalculation of stresses, stress ratios and limiting frequency shifts in Table 10 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010, using the Revision 4.1 ACM Model

Stress Ratio	Weld	Location	Location (in.)			node(a)	Stress Intensity (psi)			Stress Ratio		% Freq. Shift
			x	y	z		Pm	Pm+Pb	S_{alt}	SR-P	SR-a	
SR-a	Yes	1. Closure Plate/Middle Hood	60.2	-85.2	87	89317	1247	4878	1949	2.86	3.52	2.5
"	"	2. Outer Cover Plate/Outer Hood	-102.8	-1	0	95236	1181	2619	2222	5.32	3.09	-10
"	"	3. Hood Support/Outer Cover Plate/Outer Hood (11)	-102.8	28.4	0	95267	4709	4735	2197	1.97	3.13	5
"	"	4. Hood Support/Inner Hood(b)	-36.8	0	46.9	95644	798	2176	2034	6.41	3.38	-2.5
"	"	5. Top Thick Plate/Inner Hood/Top Plate	24.1	-30.6	88	85512	786	2235	2133	6.24	3.22	2.5
"	"	6. Hood Support/Outer Base Plate/Middle Backing Bar	71.3	0	0	98067	4437	4662	2073	2.10	3.31	2.5
"	"	7. Thick Vane Bank Plate/Thin Vane Bank Plate/Side Plate/Side Plate Ext/End Plate	-24.1	119	11.6	90170	823	2303	2009	6.05	3.42	5
"	"	8. Hood Support/Inner Hood(b)	32.4	0	72.5	99540	593	2522	2166	5.53	3.17	5
"	"	9. Hood Support/Inner Hood(b)	-38.2	0	34.9	95638	797	1983	1955	7.03	3.51	-2.5
"	"	10. Side Plate/Top Plate	-80.2	-85.2	88	93031	506	2347	1888	5.94	3.64	5
		11. Closure Plate/Inner Hood	-28.8	-108.6	87	95975	3616	5445	1715	2.56	4.00	5
"	"	12. Entry Bottom Perf/Side Plate/End Plate	24.1	119	23.7	91154	1283	2701	1954	5.16	3.52	-5
"	"	13. Top Thick Plate/Side Plate/Closure Plate	47.1	-108.6	87.2	96096	2488	3735	1679	3.73	4.09	2.5
"	"	14. Side Plate/Brace(5)	79.7	85.2	31.2	89646	1604	1797	1627	5.79	4.22	2.5
"	"	15. Hood Support/Inner Hood(b)	-36.5	59.5	48.8	90430	745	2023	1884	6.89	3.65	-2.5
"	"	16. Hood Support/Middle Hood(b)	-63.8	0	72.5	96037	448	2164	1819	6.44	3.78	7.5
"	"	17. Outer Cover Plate/Man Way Overlap	-106.5	12.5	0	87488	724	2386	1826	5.84	3.76	-10

Notes
(a) Node numbers are retained for further reference.
(1-11) Appropriate stress reduction factor for the welds and modifications listed Table 1 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010, have been applied. The number refers to the particular location and corresponding stress reduction factor in Table 1 of Revision 0 of CDI Report 10-12 submitted in NMPNS letter dated July 30, 2010.
(b) WF=1.4

NMP2-EMCB-SD-RAI-8 S01 (a)

CDI Report No.10-09P, "ACM Rev. 4.1: Methodology to predict full-scale steam dryer loads from in-plant measurements," Rev. 1, June 2010, states that a new version of the ACM, Rev. 4.1, is being used to simulate the NMP2 fluctuating steam dryer loads. The ACM 4.1 uses a [[

]] applied to both the NMP2 data, as well as the QC2 benchmark data, as described in Section 5.1 of the report. The NRC staff has reviewed this [[ ]] and concludes that [[

]]. Also, coherence uncertainties can be computed for very low coherences. Therefore, there is [[

]]. In addition, there is [[

]]. The NRC staff requests the applicant to determine the [[

]] such that they are conservative and provide the technical basis for the estimates.

Original NMNPS Response

Based on the NRC RAI and the discussions between NMPNS and the NRC staff on September 23, 2010, NMPNS is re-formulating the Acoustic Circuit Model (ACM) Rev. 4.1 model so that:

1. [[

]]

2. [[

]] The application of the model to the NMP2 steam dryer is then done consistent with the benchmark analysis.

Interim benchmark results are shown in Figure RAI-8 S01 (a) - 1. These figures are typical of the revised benchmark using this approach and should be compared to Figures 6.2f and 6.2h of CDI Report No. 10-09P, Rev. 1 (submitted by NMPNS letter dated June 30, 2010). This approach addresses the concern raised in the RAI with regard to the application of the coherence filter. A revised benchmark report (CDI Report No. 10-09P) and NMP2 specific loads report (CDI Report No. 10-10P) will be provided based on this approach by December 10, 2010.

[[

]]

Figure RAI-8 S01 (a) - 1 - Power Spectral Density (PSD) comparison at 790 Megawatt Electric (MWe) for pressure sensor data (black curves) and current Acoustic Circuit Model (ACM) Rev. 4.1 prediction (red curves), for P12 (top) and P21 (bottom)

Final NMPNS Response

A revised benchmark report (Revision 2 of CDI Report No. 10-09) and NMP2 specific loads report (Revision 2 of CDI Report No. 10-10) are provided in Attachments 3 and 4 (non-proprietary) and Attachments 7 and 8 (proprietary).

NMP2-EMCB-SD-RAI-8 S01 (c)

The applicant is requested to provide the signal processing and time record parameters, such as time record length, window length, window type, number of averages, and any other parameters of interest, used to compute the QC2 benchmark MSL spectra and coherences. The applicant should also explain whether the same time record and signal processing parameters are used for the NMP2 MSL measurements and calculations. If the parameters are different, then the applicant is requested to establish the effects of the differences on the estimated dryer loads and stresses.

NMNPS Response

The differences between the QC2 and NMP2 signals are shown below:

Plant	Samples/sec	Sample Time (sec)	Points Analyzed
QC2	2000	65.5	131,072
NMP2	2500	104.9	262,144

Table RAI-8 S01 (c) – 1 – Differences Between QC2 and NMP2 Signals

The delta frequency is less than 0.16 Hz. The windowing for coherence and power spectral density (PSD) are 1 Hz. There should be no effect on the estimated dryer loads and stresses as a result of the differences summarized in Table RAI-8 S01 (c) - 1.

Revised NMPNS Response

The signals from QC2 and NMP2 are compared as shown in the following table:

Plant	Samples/sec	Sample Time (sec)	Points Analyzed	Windowing
QC2	2000	65.5	131,072	Hanning
NMP2	2500	104.9	262,144	Hanning

Table RAI-8 S01 (c) – 1 – Differences Between QC2 and NMP2 Signals

The delta frequency is less than 0.16 Hz. Windowing for coherence and PSD is 1 Hz. Based on engineering judgment, there is no significant effect on the estimated dryer loads and stresses as a result of the differences summarized in Table RAI-8 S01 (c) - 1.

NMP2-EMCB-SD-RAI-8 S01 (d)

It is well established that the accuracy and uncertainty of complex dynamic fluid-structure simulation tools are frequency dependent. The applicant is requested to provide a table of bias errors and uncertainties for the ACM 4.1 over frequency ranges consistent with those used for the ACM 4.0.

Original NMNPS Response

NMPNS will revise the ACM Rev. 4.1 model to provide bias and uncertainty values over frequency ranges consistent with those used for ACM Rev. 4.0 by December 10, 2010. These bias and uncertainty values will be very similar to those shown in Figure RAI-8 S01 (d) - 1. These were previously provided to the NRC staff at the March 18, 2010 meeting.

[[

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Figure RAI-8 S01 (d) -1 – Bias and Uncertainty Values Provided at Meeting Conducted on March 18, 2010

Final NMPNS Response

A revised benchmark report (Revision 2 of CDI Report No. 10-09) is provided in Attachment 3 (non-proprietary) and Attachment 7 (proprietary).

NMP2-EMCB-SD-RAI-23 S01

In its previous RAI response, the applicant conservatively shows that the drain channel flaw will not experience fatigue crack growth during EPU operation because the fatigue stresses acting at the flaw location are not high. However, the NRC staff requests the applicant to re-evaluate its response to this RAI, in light of addressing the supplementary RAIs above related to the ACM 4.1 code and bump-up factor.

Original NMPNS Response

Based on the response to NMP2-EMCB-SD-RAI-17 S01, a re-evaluation is not required to address NMP2-EMCB-SD-RAI-17 S01.

A revision to this RAI response will be issued to address the final response to NMP2-EMCB-SD-RAI-8 S01(a) by December 10, 2010.

Final NMPNS Response

Based on the response to NMP2-EMCB-SD-RAI-17 S01, a re-evaluation is not required to address NMP2-EMCB-SD-RAI-17 S01.

In the previous response to NMP2-EMCB-SD-RAI-23 submitted by NMPNS on May 7, 2010, a list of the conservatisms utilized in the skirt/drain channel flaw evaluation were provided. It was discussed that the appropriate and conservative stress measure for this evaluation is the alternating stress intensity in the skirt. In the previous analysis submitted by NMPNS on May 7, 2010, this stress intensity at EPU was 215 pounds per square inch (psi) which corresponds to a range in the mode I stress intensity factor, ΔK_I=0.44 ksi-in^{½} (see the second item in the list of conservatisms on page 20 of the previous response to NMP2-EMCB-SD-RAI-23 submitted by NMPNS on May 7, 2010) using the methodology described in Structural Integrity Associates (SIA) Report 0801273.401 Revision 1 submitted in NMPNS letter dated May 27, 2009. That value corresponded to a Rev. 4.0 ACM model and used low power noise subtraction to estimate the EPU loads. Using the most recent ACM Rev. 4.1 model to estimate acoustic loads as described in Revision 2 to CDI Report Nos. 10-09 and 10-10 provided in this letter and no low power noise subtraction, the stress in the skirt at the limiting stress condition is 156 psi at CLTP and 216 psi at the predicted EPU level. This latter value is very close to the previous prediction (215 psi) and yields the same mode I stress intensity factor. Therefore, there is no change in the conclusions of the prior fatigue crack growth (FCG) assessment of this flaw, and since ΔK_I=0.44 ksi-in^{½} is well below the threshold value of ΔK_{TH}=2.0 ksi-in^{½} needed for crack propagation to occur, no FCG at EPU is predicted.

NMP2-EMCB-SD-RAI-24 S01

The applicant states that the inspection and the stress analysis results show that the indication in the drain channel-to-skirt vertical weld is not related to flow-induced vibration (FIV) fatigue because (1) the stresses at this weld are low, and (2) the multiple inspections have not shown any growth. The NRC staff requests the applicant to re-evaluate its response to this RAI, in light of addressing the supplementary RAIs above to show that the stress analysis results for the NMP2 steam dryer at CLTP are acceptable. In addition, the applicant should note the frequency of the fatigue stresses, with amplitude greater than 13,600 pounds per square-inch, can be lower than 1 Hz, and it may take several operating cycles for crack initiation.

Original NMPNS RESPONSE

Based on the response to NMP2-EMCB-SD-RAI-17 S01, a re-evaluation is not required to address NMP2-EMCB-SD-RAI-17 S01.

A revision to this RAI response will be issued to address the final response to NMP2-EMCB-SD-RAI-8 S01(a) by December 10, 2010.

While the potential exists for very low frequency to exist, these frequencies do not increase with steam line velocity. Long term monitoring in accordance with BWRVIP-139 will ensure the indications remain stable. No additional evaluation is warranted.

Final NMPNS Response

Based on the response to NMP2-EMCB-SD-RAI-17 S01, a re-evaluation is not required to address NMP2-EMCB-SD-RAI-17 S01.

As detailed in the current response to NMP2-EMCB-SD-RAI-23 S01, there is virtually no change in the limiting skirt stress, so the conclusion that no FCG of this putative flaw will occur remains valid.

While the potential exists for very low frequencies to exist, these frequencies do not increase with steam line velocity. Long term monitoring in accordance with BWRVIP-139-A will ensure the indications remain stable. No additional evaluation is warranted.

ATTACHMENT 2

LIST OF REGULATORY COMMITMENTS

Nine Mile Point Nuclear Station, LLC
December 10, 2010

ATTACHMENT 2
LIST OF REGULATORY COMMITMENTS

The following table identifies the actions committed to in this document by Nine Mile Point Nuclear Station, LLC. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

Direct questions regarding these commitments to J. J. Dosa, Director Licensing, at (315) 349-5219.

REGULATORY COMMITMENT	DUE DATE
Within two months of final resolution of NRC RAIs regarding the steam dryer analysis methodology, NMPNS will submit a revision to CDI Report No. 10-12, Design and Stress Evaluation of Nine Mile Point Unit 2 Steam Dryer Modifications for EPU Operation.	Within two months of final resolution of NRC RAIs regarding the steam dryer analysis methodology