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SOUTHERN COMPANY
Energy to Serve Your World

December 14, 2009

Docket Nos.: 50-321
50-366

NL-09-1803

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

Edwin I. Hatch Nuclear Plant
Response to NRC Generic Letter 2008-01
Response to Requests for Additional Information

Ladies and Gentlemen:

On October 10, 2008 (NL-08-1340) SNC submitted the nine-month response to Generic Letter 2008-01 and on August 24, 2009 (NL-09-1067) SNC submitted for the Edwin I Hatch Nuclear Plant(HNP) Unit 2 post-outage response to Nuclear Regulatory Commission (NRC) Generic Letter 2008-01. In a letter dated November 5, 2009 the NRC submitted a request for additional information concerning the latter response referenced above. The requested response date was 45 days from the calendar date of the letter.

The enclosure to this letter contains the SNC response to the referenced NRC request for additional information.

This letter contains an NRC commitment.

Mr. M. J. Ajluni states he is Nuclear Licensing Manager of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

If you have any questions, please advise.

Sincerely,

Mark J Ajluni

M. J. Ajluni
Manager, Nuclear Licensing

Sworn to and subscribed before me this 11 *day of* December, *2009.*

Laura L. Crumpton
Notary Public

My commission expires: 11/02/2013

MJA/PAH/lac

Enclosures:

1. RAI Responses to NRC.
2. Regulatory Commitment for Submitting TS Change after TSTF Approval by NRC.
3. Attachments 1, 2, and 6 of 42EN-MON-001-0, "Monitoring and Trending of Gas Accumulation in Safety Injection Systems."

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser, Executive Vice President
Mr. D. R. Madison, Vice President – Hatch
Ms. P. M. Marino, Vice President – Engineering
RTYPE: CHA02.004

U. S. Nuclear Regulatory Commission
Mr. L. A. Reyes, Regional Administrator
Ms. D. N. Wright, NRR Project Manager – Hatch
Mr. E. D. Morris, Senior Resident Inspector – Hatch

Edwin I Hatch Nuclear Plant
Response to NRC Generic letter 2008-01
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Enclosure 1
RAI Responses to NRC

REQUEST FOR ADDITIONAL INFORMATION

Guidance on Nuclear Regulatory Commission (NRC) staff expectations is provided by Reference 1 which is generally consistent with Nuclear Energy Institute (NEI) guidance provided to industry in Reference 2 as clarified in later NEI communications. The NRC staff recommends that the licensee consult Reference 1 when responding to the following RAIs:

1. Provide a regulatory commitment and a schedule for applying the Technical Specification Task Force (TSTF) process to any Technical Specification (TS) changes resulting from GL 2008-01.

Response: SNC has provided a regulatory commitment in Enclosure 2 to review any TSTF issued by the NRC concerning gas intrusion. SNC will either submit a technical specification change based on the TSTF or submit a plant specific technical specification change for Plant Hatch within a year after the issuance of an NRC approved TSTF concerning gas intrusion.

2. SNC letter dated August 24, 2009 states that the procedure, 42EN-MON-001-0, "Monitoring and Trending of Gas Accumulation in Safety Injection Systems" was implemented on November 19, 2008. The NRC staff requests the following additional information relative to this procedure:

a) Summarize the monitored locations along with the associated surveillance methods:

Response: Details for monitoring method and frequency along with point details for each monitoring location are provided in 42EN-MON-001-0, "Monitoring and Trending of Gas Accumulation in Safety Injection Systems," Attachments 1, 2, and 6. A copy of these attachments is included as Enclosure 3.

b) Discuss the surveillance intervals for the monitored locations, including justifications for surveillance intervals greater than a month;

Response: The applicable system piping was reviewed as per Generic Letter 2008-01 and critical locations were identified where voids could accumulate and the venting process could be challenged. The review concluded that none of the critical locations have active gas accumulation mechanisms.

The Hatch Monitoring Program is focused around these critical locations. The monitoring takes credit for the monthly activity that is performed by Operations as per the Technical Specification surveillance for venting of ECCS systems. The program also takes credit for dynamic flushing that occurs as a result of the quarterly ECCS flow surveillances. All of the monitored locations are vented or dynamically flushed anytime that the section of piping is drained such as for maintenance activities. Confirmatory UT inspections are performed on some locations to ensure the venting or flushing was successful.

The surveillance intervals for the monitored locations are contained in Attachments 1 and 2 of Enclosure 3. Justification for frequencies longer than monthly are based on the lack of an active gas accumulation mechanism, dynamic flushing as a result of quarterly flow surveillances, and confirmatory UT inspections are performed on some locations to ensure the venting or flushing was successful.

Procedure, 42EN-MON-001-0, "Monitoring and Trending of Gas Accumulation in Safety Injection Systems" provides an allowance to modify this frequency based on the results of previous gas monitoring results. If a void is identified during the routine monitoring, the frequency is evaluated to determine if an increase (or shorter monitoring period) is warranted.

c) Provide the surveillance criteria.

The surveillance acceptance criteria are specified in 42EN-MON-001-0, "Monitoring and Trending of Gas Accumulation in Safety Injection Systems," Attachments 1, 2, and 6. A copy of these attachments is included as Enclosure 3.

d) Discuss actions to be taken if surveillance criteria are not met.

Response: Plant procedure, 42EN-MON-001-0, "Monitoring and Trending of Gas Accumulation in Safety Injection Systems," requires that for any identified voids that exceed the allowable size, a condition report is initiated and the Operations Shift Manager and/or the Shift Supervisor is immediately notified. If any voids are identified at any monitoring point that does not have an approved maximum allowable limit, either a formal evaluation will be performed or the void will be removed by venting or flushing. The impact on system operability will be addressed as a result of normal processing of the condition report by the on-shift operations personnel. In addition, Engineering personnel are immediately notified to perform an evaluation.

e) State whether all voids identified will be quantified, recorded, and entered into the Corrective Action Program (CAP).

Response: Per plant procedure, 42EN-MON-001-0, "Monitoring and Trending of Gas Accumulation in Safety Injection Systems," all identified voids, including the measured size, are recorded in a data package and a condition report generated to enter the information into the Corrective Action Program.

3. Describe any process improvements made to guard against gas intrusion due to inadvertent draining, system realignments, incorrect maintenance procedures, or other evolutions.

Plant evolutions involving system re-alignment or specific component manipulation that could result in inadvertent draining or inadvertent gas intrusion are controlled by plant procedures and performed only by trained plant staff. This includes system draining, tagouts, and system restoration fill and vent activities.

The HNP plant procedures applicable to these evolutions (Operations, Maintenance, and Instrument and Controls) were independently reviewed for improvements that could be made to address issues related to Generic Letter 2008-01. The review included such areas as vent scope, proper system vent sequence, precautions and limitations, potential gas accumulation mechanisms, documentations of voids identified, etc. From this review, resulting recommendations were evaluated by the plant staff and incorporated into the procedures as deemed appropriate.

Simplified piping elevation drawings were created as aids to be used by Operations and Engineering personnel to develop vent and/or ultrasonic testing (UT) plans.

Additional vents have been added in Hatch Unit 2 piping locations that were determined not to have adequate venting capability. Vents will be added to Hatch Unit 1 in similar locations during the Spring 2010 refueling outage.

Operations, maintenance, and engineering personnel have been trained on the issues related to gas accumulation, including the potential causes and impact. This training also included the procedural changes described above.

4. Training was not identified in the GL but is considered to be a necessary part of applying procedures and other activities when addressing the issues identified in the GL. Briefly discuss training.

Response: Training on Gas Accumulation and Management has been provided into the HNP continuing training process and provided to Operations and Maintenance personnel as part of the response to INPO SER 02-05, "Gas Intrusion in Safety Systems." This training focused on the potential for gas accumulation mechanisms and negative impact of voiding on system performance and reliability.

Several Operations and Engineering procedures have been developed or revised as a result of the response activities to Generic Letter 2008-01. When any station procedure is modified, an assessment for training needs and change management is required in accordance with HNP procedure DI-TRN-61-1006, "Training Request Worksheet."

In addition, selected site personnel have been trained and qualified on the use of UT equipment to perform void detection.

SNC is an active participant in the NEI Gas Accumulation Team, which is currently coordinating with the Institute of Nuclear Power Operations in the development of generic training modules for gas accumulation and management. These training modules target the Engineering, Operations, and Maintenance disciplines. The first module has been received by HNP and will be evaluated in the first quarter of 2010 for incorporation into the site personnel training processes in a version tailored to meet the station needs as per DI-TRN-61-1006, "Training Request Worksheet." As the remainder of the training modules are completed and become available to the industry, SNC will evaluate them for applicability to HNP. Pending release of remaining products, the schedule for such planned training has not yet been determined.

REFERENCES

- Ruland, William H., "Preliminary Assessment of Responses to Generic Letter 2008-01, Managing Gas Accumulation in emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems, and Future NRC Staff Review Plans," NRC letter to James H. Riley, Nuclear Energy Institute, ML091390637, May 28, 2009.

- Riley, James H., "Generic Letter (GL) 2008-01, „Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Contain Spray Systems Evaluation and 3 Month Response Template," Letter to Administrative Points of Contact from Director, Engineering Nuclear Generation Division, Nuclear Energy Institute, Enclosure 2, "Generic Letter 2008-01 Response Guidance," March 20, 2008.

Edwin I Hatch Nuclear Plant
Response to NRC Generic letter 2008-01
Response to requests for Additional Information

Enclosure 2
Regulatory Commitment

NRC Commitment	Type One-Time Action	Scheduled Completion Date
SNC will either submit a technical specification based on the TSTF or submit a plant specific technical specification change for Plant Hatch within a year after the issuance of an NRC approved TSTF concerning gas intrusion.	X	Within one year after NRC Issuance

Edwin I Hatch Nuclear Plant
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Enclosure 3
42EN-MON-001-0 "Monitoring and Trending of Gas Accumulation in Safety Injection Systems""
Attachments 1, 2 and 6

Enclosure 3
42EN-MON-001-0 "Monitoring and Trending of Gas Accumulation in Safety Injection Systems""
Attachments 1, 2 and 6

Monitor Point #	System	P&ID	Westinghouse One Line Dwg	One Line Location	Room	Description	Vent Valves	Pipe OD [in]	Pipe ID [in]	Isometric	Floor El	Line El	Access Needs	Insulated	Monitoring Method	Monitoring Frequency	Max Allowable Void Size [Cu. Ft.]	Questions/Comments
1	1E11	H16329	10036D99	1	DRYWELL	F067 SDC SUCTION	TBD	20.00	19.000	S01286	TBD	156'-6"	TBD	Y	VENT	SYSTEM DRAIN	TBD	
2	1E11	H16329	10036D99	2	FPC HX ROOM	FPC SUCTION	TBD	8.625	7.981	S00236	158'	186'	NONE	N	UT	SYSTEM DRAIN	TBD	SPECTACLE FLANGE JUST ABOVE FLOOR
3	1E11	H16329	10036D99	3	NE DIAG	PUMP SIDE F006D	TBD	20.00	19.000	S01211	95'	106'	TBD	Y	UT	SYSTEM DRAIN	TBD	
4	1E11	H16329	10036D99	4	NE DIAG	PUMP SIDE F006B	TBD	20.00	19.000	S01259	95'	106'	TBD	Y	UT	SYSTEM DRAIN	TBD	
5	1E11	H16329	10036D99	5	TBD	F083 FLUSH SUPPLY SDC	TBD	1.050	0.742	S00060	130'	136'-11"	TBD	Y	VENT	SYSTEM DRAIN	TBD	
6	1E11	H16329	10036D99	6	TORUS	COMMON SDC SUCTION	TBD	20.00	19.000			123'-4"	TBD	Y	UT	SYSTEM DRAIN	TBD	
7	1E11	H16329	10036D99	7	DRYWELL	F008 TO F009 SDC	NONE	20.00	19.000	S00033	130'	135'	NONE	Y	VENT	SYSTEM DRAIN	TBD	F008 IN DRYWELL ACCESS; F009 IN DRYWELL
8	1E11	H16330	10036D03	1	RX BLDG	F016A CONT SPRAY O/B	Y	16.00	15.250	S00037	158'	160'	NONE	Y	VENT	MONTH	ATTACH 6[3]	OUTSIDE MG SET ROOMS ON FLOOR
9	1E11	H16330	10036D03	2	D/W ACCESS	F010 FLUSH SUPPLY	Y	4.500	4.026	S00052	130'	137'	SCAFF	Y	UT	SYSTEM DRAIN	ATTACH 6[3]	EAST WALL INTO DW ACCESS
10	1E11	H16330	10036D03	3	D/W ACCESS	F010 FLUSH SUPPLY	Y	4.500	4.026	S00052	130'	137'	SCAFF	Y	UT	SYSTEM DRAIN	ATTACH 6[3]	EAST WALL INTO DW ACCESS
11	1E11	H16330	10036D03	4	D/W ACCESS		TBD	20.00	19.000	S01184	130'	138'-9"	TBD	Y	FLUSH/ UT	QUARTER/ SYSTEM DRAIN	ATTACH 6[3]	TOP OF DRYWELL ACCESS
12	1E11	H16330	10036D03	5	SE DIAG	PUMP SIDE F006A	TBD	20.00	19.000	S00034	95'	97'	TBD	Y	UT	SYSTEM DRAIN	TBD	F006A ON GRATING 95'
13	1E11	H16330	10036D03	6	SE DIAG	RHR A HX STEAM COND (CAPPED)	TBD	20.00	19.000	S00036	118'	122'-6"	NONE	Y	UT/ FLUSH[1]	SYSTEM DRAIN/ QUARTER	ATTACH 6[3]	BACK CORNER 118'
14	1E11	H16330	10036D03	7	SE DIAG	U/S F048A	Y	20.00	19.000	S00036	107'	116'-1"	SCAFF	Y	FLUSH	QUARTER	ATTACH 6[3]	INVERTED "U" AT CONFLUENCE OF "A" & "C"
15	1E11	H16330	10036D03	8	SE DIAG	PUMP SIDE F006C	NONE	24.00	22.876	S00034	107'	113'	NONE	Y	UT	SYSTEM DRAIN	TBD	BEHIND 1T41-B002A
16	1E11	H16330	10036D03	9	SE DIAG	F034A TO D005A	TBD	20.00	19.000	S00036	95'	104'-1"	SCAFF	Y	FLUSH	QUARTER	TBD	ABOVE MOTORS ON 95'
17	1E11	H16329	10037D19	1	RX BLDG	CAP ON COND MAKEUP	Y - GOES TO INSTR	4.500	4.026	S00054	185'	193'	NONE	N	VENT	MONTH	ATTACH 6[3]	ISO SHOWS VENT AT 193', TOP 2" CAN'T BE VENTED
18	1E11	H16329	10037D19	2	FPC HX ROOM	TO FPC	N	8.625	7.981	S00054	185'	185'	NONE	N	UT	SYSTEM DRAIN	ATTACH 6[3]	BELOW SPECTACLE FLANGE
19	1E11	H16329	10037D19	3	RX BLDG	F016B TO F021B	Y - HARD PIPED	16.00	15.250	S01169	130'	146'-8.5"	SCAFF	Y	UT	SYSTEM DRAIN	ATTACH 6[3]	
20	1E11	H16329	10037D19	4	DW ACCESS	F015B TO F017B	NONE	24.00	22.876	S00039	130'	138'-9"	SCAFF	Y	VENT	SYSTEM DRAIN	ATTACH 6[3]	TOP DRYWELL ACCESS
21	1E11	H16329	10037D19	5	DW ACCESS	F3031 COND MAKEUP	1E11F3031	4.500	4.026		130'	136	SCAFF	Y	UT	SYSTEM DRAIN	ATTACH 6[3]	VENT IN DRYWELL ACCESS

Enclosure 3
42EN-MON-001-0 "Monitoring and Trending of Gas Accumulation in Safety Injection Systems""
Attachments 1, 2 and 6

Monitor Point #	System	P&ID	Westinghouse One Line Dwg	One Line Location	Room	Description	Vent Valves	Pipe OD [in]	Pipe ID [in]	Isometric	Floor El	Line El	Access Needs	Insulated	Monitoring Method	Monitoring Frequency	Max Allowable Void Size (Cu. Ft.)	Questions/Comments
22	1E11	H16329	10037D19	6	NE DIAG	F007B TO C002B	N	3.500	3.068	S00049	87'	93	SCAFF	Y	FLUSH	QUARTER	ATTACH 6[3]	MAY BE ABLE TO STAND ON PUMP DISCHARGE PIPE
23	1E11	H16329	10037D19	7	NE DIAG	CAP ON TOP B HX	N (R.V. F055B)	14.00	13.250	S00038	118'	122	NONE	Y	UT/ FLUSH[1]	SYSTEM DRAIN/ QUARTER	ATTACH 6[3]	CAP ON INSIDE TORUS ROOM WALL
24	1E11	H16329	10037D19	8	NE DIAG	AT D005B ORIFICE	NONE	20.00	19.000	S00038	96'	104	SCAFF	Y	FLUSH	QUARTER	ATTACH 6[3]	ABOVE PUMP MOTORS
25	1E11	H16329	10037D19	9	NE DIAG	C002B/D DISCHARGE	1E11F3028	20.00	19.000	S00038	107'	116	SCAFF	Y	UT	SYSTEM DRAIN	ATTACH 6[3]	AT CONFLUENCE OF C002B AND D
26	1E21	H16331	10036D97	1	SE DIAG	CST SUCTION F002A	NONE	14.00	13.625	S00073	87'	92'-7 1/2"	SCAFF	N	UT	SYSTEM DRAIN	0.13	PIPE STUB CAPPED; OPEN F002 TO VENT
27	1E21	H16331	10036D97	2	NE DIAG	CST SUCTION F002B	NONE	14.00	13.625	TBD	87'	92'-7 1/2"	SCAFF	N	UT	SYSTEM DRAIN	0.18	1E21F002B
28	1E21	H16331	10036D98	1	MG SET RM 1A	CST SUPPLY F030A	TBD	2.375	1.939	S01315	158'	173'-10"	TBD	N	FLUSH	CYCLE	ATTACH 6[3]	
29	1E21	H16331	10036D98	2	RX BLDG	CONDENSATE TRANSFER SUPPLY F030B	TBD	2.375	1.939	S01312	158'	174'-3"	TBD	N	FLUSH	CYCLE	ATTACH 6[3]	BEHIND P005 PANEL
30	1E21	H16331	10036D98	3	RX BLDG	CS A INJ LINE D003A - F005A	TBD	10.75	10.020	S00075	158'	172'-9"	TBD	N	VENT	MONTH	ATTACH 6[3]	OUTSIDE MG SET PLATFORM
31	1E21	H16331	10036D98	4	RX BLDG	CS B INJ LINE D003B TO F005B	1E21F013B	10.75	10.020	TBD	158'	172'-9"	TBD	N	VENT	MONTH	ATTACH 6[3]	RWCU HX PLATFORM
32	1E41	H16332	10037D00	1	HPCI	CST SUCTION	F3001	16.00	15.5"	H16868	119'	123'-0"	NONE	N	UT/ FLUSH	SYSTEM DRAIN/ QUARTER	0.88	
33	1E41	H16332	10037D00	2	HPCI	TORUS SUCTION	NONE	16.00	15"	H16868	87'	90'-1"	NONE	N	UT/ FLUSH[1]	SYSTEM DRAIN/ QUARTER	0.10	
34	1E41	H16332	10037D00	N/A	TORUS	DISCHARGE	1E41F3008	14.00	13.00	H16869	123'	123'-6"	NONE	Y	UT/ VENT	SYSTEM DRAIN/ MONTH	4.061	
35	1E51	H16334	10037D01	1	TORUS	DISCHARGE	NONE	4"	3.624"	H16874	114'	123'-11"	SCAFF	N	VENT[2]/ FLUSH[1]	MONTH/ QUARTER	ATTACH 6[3]	INNER CATWALK BAY 1
36	1E51	H16335	10037D01	2	RCIC	CONDENSATE PUMP RETURN	NONE	2"	2.067"	S01466	87'	93'-6 7/16"	SCAFF	N	UT/ QUARTER	SYSTEM DRAIN/ FLUSH	0.03	
37	1E51	H16334	10037D01	3	RCIC	TORUS SUCTION	NONE	6"	6.065"	H16873	87'	89'-8 7/8"	NONE	N	UT	SYSTEM DRAIN	0.02	
38	1E51	H16334	10037D01	4	RCIC	DISCHARGE	NONE	4"	3.826"	H16874	87'	104'-11"	SCAFF	N	UT/ FLUSH	SYSTEM DRAIN/ QUARTER	ATTACH 6[3]	
39	1E21	H16331	10036D97	10[4]	CS A	CST SUCTION	1E21F127	14"	13.25"	H16121	117'	121'-2"	TBD	N	UT	SYSTEM DRAIN	0.73	INNER CATWALK @ COLUMN LINES R6-RJ

40	1E51	H16334	10037D01	37[4]	RCIC	CST SUCTION	NONE	6"	6.065"	H16108	87'	108'-7"	SCAFF	Y	UT OR FLUSH	SYSTEM DRAIN	0.29	IN TORUS SOUTH/ SOUTHWEST
41	1E41	H16332	10037D00	21[4]	HPCI	DISCHARGE	1E41F3004	14"	12.500"	H16869	87'	95'-10"	SCAFF	N	FLUSH	SYSTEM DRAIN	ATTACH 6[3]	MAY BE REACHED FROM NEARBY STAIRS
42	1E11B	H16329	10037D19	43[4]	RHR B	DISCHARGE	NONE	16"	15.250"	H16837	117'	119'-6"	NONE	Y	FLUSH	SYSTEM DRAIN	ATTACH 6[3]	NORTHEAST DIAGONAL

[1]Partial flush of piping is performed during full pump flow.
[2]Line is partially vented during each monthly TS surveillance.
[3]See maximum allowable void volume table in Attachment 6.
[4]This location is detailed in Attachment 4 of Westinghouse Report LTR-SEE-III-08-140, rev. 1

Enclosure 3
42EN-MON-001-0 "Monitoring and Trending of Gas Accumulation in Safety Injection Systems""
Attachments 1, 2 and 6

Monitor Point #	System	P&ID	Westinghouse One Line Dwg	One Line Location	Room	Description	Vent Valves	Pipe OD [in]	Pipe ID [in]	Isometric	Floor El	Line El	Access Needs	Insulated	Monitoring Method	Frequency	Max Allowable Void Size (Cu. Ft.)	Questions/Comments
1	2E11A	H26015	10037D04	1	NE DIAG	DISCHARGE C002A	FV022	20.00	19.000	S31755	107'	114'-8"	SCAFF.	Y	UT	SYSTEM DRAIN	ATTACH 6[3]	CONFLUENCE OF C002A/C
2	2E11A	H26015	10037D04	2	NE DIAG	RHR A STEAM COND LINE (CAPPED) AT B001A HX	NONE	16.00	15.250	S28396	118'	123'-8"	NONE	Y	UT/ FLUSH[1]	SYSTEM DRAIN/ QUARTER	ATTACH 6[3]	CAP ON TORUS ROOM WALL
3	2E11A	H26015	10037D04	3	DW ACCESS	F017A	TBD	24.00	22.876	S31899	130'	134'-6"	NONE	Y	UT	SYSTEM DRAIN	ATTACH 6[3]	NORTH END DW ACCESS, LLRT CONNECTION BELOW F017
4	2E11B	H26014	10037D04	4	DW ACCESS	F017B	2E11F058B	24.00	22.876	S28472	130'	134'-6"	NONE	Y	UT	SYSTEM DRAIN	ATTACH 6[3]	SOUTH END DW ACCESS, LLRT CONNECTION BELOW F017
5	2E11B	H26014	10037D04	5	SE DIAG	RHR B STEAM COND LINE (CAPPED) AT B001B HX	NONE	16.00	15.250	TBD	118'	123'	NONE	Y	UT/ FLUSH[1]	SYSTEM DRAIN/ QUARTER	ATTACH 6[3]	CAPPED IN DIAGONAL
6	2E11B	H26014	10037D04	6	SE DIAG	C002B/D CONFLUENCE	FV021	20.00	19.000	S31754	107'	114'	SCAFF.	Y	FLUSH	QUARTER	ATTACH 6[3]	UPSIDE DOWN U AT CONFLUENCE
7A	2E11A	H26014	10037D04	NOT SHOWN	TBD	VERTICAL PIPING UNDER F016A	TBD	16.00	15.250	TBD	130'	TBD	TBD	TBD	UT	SYSTEM DRAIN	ATTACH 6[3]	
7B	2E11B	H26014	10037D04	7	RWCU HX	VERTICAL PIPING UNDER F016B	F036B	16.00	15.250	S31425	158'	169'	SCAFF.	N	UT	SYSTEM DRAIN	ATTACH 6[3]	RWCU HX ROOM INSIDE DOOR
8	2E11B	H26014	10037D04	8	RX BLDG	F023 HEAD SPRAY	HARD PIPE	4.500	4.026	S31419	185'	193'	SCAFF.	Y	VENT	MONTH	ATTACH 6[3]	EAST SIDE BY HI POINT VENTS
9	2E11	H26015	10037D04	1	DW	F067 RECIRC SUCTION SDC	TBD	20.00	19.000	S28478	147'	154'-6"	SCAFF.	Y	UT	SYSTEM DRAIN	TBD	JUST OFF 147' GRATING IN DW
10	2E11B	H26014	10037D04	2	SE DIAG	BELOW F006D	NONE	20.00	19.000	S28406	107'	107'	SCAFF.	Y	UT	SYSTEM DRAIN	TBD	EVEN WITH GRATING ON 107'
11	2E11B	H26014	10037D04	3	SE DIAG	BELOW F006B	NONE	20.00	19.000	S28412	107'	110'	NONE	Y	UT	SYSTEM DRAIN	TBD	ON 97' GRATING (MAY NEED TO COME FROM BELOW)
12	2E11A	H26015	10037D04	4	NE DIAG	BELOW F006A	NONE	20.00	19.000	S28398	107'	112'	NONE	Y	UT	SYSTEM DRAIN	TBD	
13	2E11A	H26015	10037D04	5	NE DIAG	BELOW F006C	NONE	20.00	19.000	S28398	107'	107'	SCAFF.	Y	UT	SYSTEM DRAIN	TBD	BACK CORNER NEED SCAFF FROM 97'
14	2E11	H26015	10037D04	6	DW	F008 TO F009	NONE	20.00	19.000	S28478	127'	135'	SCAFF.	Y	UT	SYSTEM DRAIN	TBD	
15	2E21A	H26018	10037D07	1	NE DIAG	E21F002A	NONE	14.00	13.250	S27015	97'	100'	NONE	N	UT	SYSTEM DRAIN	TBD	
16	2E21B	H26018	10037D07	2	SE DIAG	F002B	NONE	14.00	13.250	S26991	97'	100	NONE	N	UT	SYSTEM DRAIN	TBD	
17	2E21A	H26018	10037D07	3	RX BLDG	CS 2A INJECTION LINE	NONE	10.75	10.020	TBD	158'	171'-3"	NONE	N	UT/ VENT[2]	SYSTEM DRAIN/ MONTH	ATTACH 6[3]	D003A

Enclosure 3
42EN-MON-001-0 "Monitoring and Trending of Gas Accumulation in Safety Injection Systems""
Attachments 1, 2 and 6

Monitor Point #	System	P&ID	Westinghouse One Line Dwg	One Line Location	Room	Description	Vent Valves	Pipe OD [in]	Pipe ID [in]	Isometric	Floor El	Line El	Access Needs	Insulated	Monitoring Method	Frequency	Max Allowable Void Size (Cu. Ft.)	Questions/Comments
18	2E21B	H26018	10037D07	4	RWCU HX	CS 2B INJECTION LINE	NONE	10.75	10.020	TBD	158'	171'-3"	SCAFF.	N	UT/ VENT[2]	SYSTEM DRAIN/ MONTH	ATTACH 6[3]	D003B
19	2E21A	H26018	10037D07	5	NE DIAG	CS 2A DISCHARGE LINE	NONE	12.75	12.090	TBD	118'	123'-2"	NONE	N	UT	SYSTEM DRAIN	ATTACH 6[3]	F015A
20	2E21B	H26018	10037D07	6	SE DIAG	CS 2B DISCHARGE LINE	NONE	12.75	12.090	TBD	118'	123'-2"	NONE	N	UT	SYSTEM DRAIN	ATTACH 6[3]	F015B
21	2E41	H26020	10037D05	1	HPCI	COMMON SUCTION	NONE	14	13.25	H26839	87'	92'-6"	NONE	N	FLUSH[1]	QUARTER	TBD	
22	2E41	H26020	10037D05	2	TORUS	DISCHARGE	NONE	14	12.5	H26840	114'	109'-6"	NONE	Y	VENT/ FLUSH	MONTH/ QUARTER	ATTACH 6[3]	OUTER CATWALK BAY 2
23	2E51	H26023	10037D06	1	TORUS	RHR SUCTION	FV101	4	4.026	H26844	87'	107'-9"	YES	Y	UT	SYSTEM DRAIN	TBD	S.E.DIAGONAL AGAINST TORUS WALL
24	2E51	H26023	10037D06	2	TORUS	DISCHARGE / FEED	NONE	4	3.826	H26845	114'	123'-0"	YES	Y	FLUSH[1]	QUARTER	ATTACH 6[3]	INNER TORUS BAY 9
25	2E51	H26024	10037D06	3	RCIC DIAG	CONDENSATE PUMP RETURN	NONE	2	1.939	S31014	87'	90'-4"	NONE	Y	FLUSH	QUARTER	0.02	
26	2E51	H26023	10037D06	4	RCIC DIAG	TORUS SUCTION	NONE	6	6.065	H26844	87'	89'-5"	NONE	Y	UT	SYSTEM DRAIN	0.03	
27	2E11A	H26015	10037D04	42[4]	NE DIAG	DISCHARGE	NONE	24	22.876"	H26820	117'	121'-5"	NONE	Y	FLUSH	SYSTEM DRAIN	ATTACH 6[3]	UPSTREAM OF FLOW ORIFICE 2E11N014A
28	2E11A	H26015	10037D04	50[4]	NE DIAG	SDC SUCTION TO C002C	NONE	20	19.000"	H26819	115'	115'-1"	LADDER	Y	UT OR FLUSH	SYSTEM DRAIN	0.58	
29	2E51	H26023	10037D06	24A/B[4]	TORUS	CST SUCTION	NONE	6	6.065"	H26844	87'	108'-7"	SCAFF	Y	UT OR FLUSH	SYSTEM DRAIN	0.09	
30	2E51	H26023	10037D06	34[4]	RCIC DIAG	DISCHARGE	NONE	4	5.761"	H26845	87'	104'-1"	SCAFF	Y	UT OR FLUSH	SYSTEM DRAIN	ATTACH 6[3]	

[1]Partial flush of piping is performed during full pump flow.
[2]Line is partially vented during each monthly TS surveillance.
[3]See maximum allowable void volume table in Attachment 6.
[4]This location is detailed in Attachment 4 of Westinghouse Report LTR-SEE-III-08-141, rev. 1

Enclosure 3
42EN-MON-001-0 "Monitoring and Trending of Gas Accumulation in Safety Injection Systems""
Attachments 1, 2 and 6

		TOTAL ALLOWABLE VOLUME[2]			
SYSTEM	**INCLUDED MONITORING LOCATIONS[1]**	**RELIEF VALVE LIFTING [in^3]**	**RELIEF VALVE LIFTING [ft^3]**	**LOAD – SUPPORT DAMAGE [in^3]**	**LOAD – SUPPORT DAMAGE [ft^3]**
1E11A	8,9,10,11,13,14	10746.3	6.219	7403.3	4.284
1E11B	17,18,19,20,21,22,23,24,25	9976.8	5.774	9976.8	5.774
1E11B @ FPC	17,18,19,21,22,23,24,25	3276.8	1.896	5876.8	3.401
1E21A	28,30	934.2	0.541	994.2	0.575
1E21B	29,31	1014.2	0.587	1034.2	0.598
1E41		N/A	N/A	2218.7	1.284
1E51	34,37	N/A	N/A	2342.6	1.356
2E11A	1,2,3,7A	14062.8	8.138	15462.8	8.948
2E11B	4,5,6,7B	9362.8	5.418	9262.8	5.360
2E11B @ F023	4,5,6,7B,8	5576.8	3.227	6093.8	3.527
2E21A	17,19	270.0	0.156	910.0	0.527
2E21B	18,20	300.0	0.174	1000.0	0.579
2E41	22	N/A	N/A	3518.7	2.036
2E51	24	N/A	N/A	4895.6	2.833

[1]Due to the nature of pump start (pressure wave) and void collapse water hammer phenomena, the sum of all the voids in the discharge piping must be used.

[2]The left hand columns provide the void size required to potentially lift the system discharge relief valve due to water hammer related pressure spikes. The right hand columns provide the void size required to potentially damage piping supports due to excessive water hammer related loading. The lower of the given values should be used as the system maximum total allowable void volume. In general, this is the volume associated with relief valve lifting.