Southern Nuclear
Operating Company, Inc.

SOUTHERN COMPANY
Energy to Serve Your World

December 17, 2009

Docket Nos.: 50-348
50-364

NL-09-1684

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

Joseph M. Farley Nuclear Plant
Response to NRC Generic Letter 2008-01
Response to Requests for Additional Information

Ladies and Gentlemen:

By letter dated October 10, 2008 (NL-08-1340), Southern Nuclear Operating Company (SNC) submitted the nine-month response to the Nuclear Regulatory Commission (NRC) Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" for the Farley Nuclear Plant (FNP). On February 19, 2009 (NL-09-0114) and July 31, 2009 (NL-09-1079) SNC submitted for the Farley Nuclear Plant (FNP) Unit 2 and Unit 1 respectively, the nine-month supplemental post-outage response to Nuclear Regulatory Commission (NRC) Generic Letter 2008-01. In a letter dated 11/25/2009 the NRC submitted a request for additional information concerning the previous responses referenced above.

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

This letter contains one NRC commitment as stated in Enclosure 2.

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Mr. M. J. Ajluni states he is Manager-Nuclear Licensing 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.

Respectfully submitted,

Mark J Ajluni

M. J. Ajluni
Manager-Nuclear Licensing

Sworn to and subscribed before me this 17th *day of* December, *2009.*

Patricia H. Raymond
Notary Public

My commission expires: 7-21-2012

MJA/PAH/phr

Enclosures:

1. RAI Responses to NRC.
2. Regulatory Commitment for Submitting TS Change after TSTF Approval by NRC.
3. Tables 1, 2, 3, and 4 of FNP-0-ETP-4574, "Gas Accumulation Monitoring and Trending".

cc: Southern Nuclear Operating Company

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Mr. J. R. Johnson, Vice President – Farley
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U. S. Nuclear Regulatory Commission
Mr. L. A. Reyes, Regional Administrator
Mr. R. E. Martin, NRR Project Manager – Farley
Mr. E. L. Crowe, Senior Resident Inspector – Farley

Alabama Department of Public Health
Dr. D. E. Williamson, State Health Officer

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Enclosure 1
RAI Responses to NRC

Enclosure 1
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REQUEST FOR ADDITIONAL INFORMATION (RAI)

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 FNP within a year after the issuance of an NRC approved TSTF concerning gas intrusion.

2. SNC Letter dated July 31, 2009 states that the procedure, FNP-0-ETP-4574, "Gas Accumulation Monitoring and Trending" was last revised on July 20, 2009. The 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 Tables 1, 2, 3, and 4 of FNP-0-ETP-4574.0. A copy of these tables 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 base monitoring frequency for locations that had a potential active gas accumulation mechanism was initially set to once per month. Procedure, FNP-0-ETP-4574.0, "Gas Accumulation Monitoring and Trending", controls the monitoring process and specifies the monitoring frequency for all locations. After six months of collecting Ultrasonic Testing (UT) monitoring data, locations were selected where no gas was observed. These locations were evaluated and their monitoring frequencies were increased from monthly to either quarterly, semi-annually or 18 months (refueling outages) based on area temperatures, ALARA, personnel safety and the lack of an active gas accumulation mechanism. If any of these locations are drained for maintenance, UT monitoring will be performed prior to returning the system to service. These monitoring frequency changes were controlled by procedure revisions, which were reviewed and approved by the Engineering Support Manager. If a void is identified during the routine monitoring, the frequency is evaluated to determine if a shorter monitoring period is warranted. Venting frequency remains monthly at all venting locations, pending further evaluations.
>
> For locations for which the initial evaluation did not identify an active gas accumulation mechanism, the frequency was set as once per 18 months (a refueling cycle) or any time that the location is drained such as for maintenance activities.

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

Response: Plant procedure, FNP-0-ETP-4574.0, "Gas Accumulation Monitoring and Trending", requires that for any identified voids a condition report is initiated and the Operations Shift Manager and/or the Shift Supervisor is immediately notified. 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 for voids in multiple locations or any void that exceeds the allowable size.

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

Response: Per plant procedure, FNP-0-ETP-4574.0, "Gas Accumulation Monitoring and Trending", 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. The data packages are retained in the work order system and become plant QA records for later retrieval.

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

Response: 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 FNP 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, documentation of identified voids, etc. From this review, resulting recommendations were evaluated by the plant staff and incorporated into the procedures as deemed appropriate.

A new procedure has been developed that provides additional generic guidance on fill and vent activities. The procedure references simplified piping elevation drawings to be used by Operations and Engineering personnel in developing venting and/or ultrasonic testing plans. It contains "critical" locations that need to be specifically monitored during and after the fill and vent process.

Several additional vents have been installed in piping locations that were determined not to have adequate venting capability. Other areas have been identified and vents will be added during the next refueling outage of each unit.

Operations, maintenance, and engineering personnel have been trained on the issues related to gas accumulation, including the potential causes and impact.

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 incorporated into the FNP continuing training process and provided to Operations and Maintenance personnel as part of the response to INPO SOER 97-1,"Potential Loss of High Pressure Injection and Charging Capability from Gas Intrusion," and 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.

In early 2008, as part of the Operations continuing training on plant and industry events, a portion was devoted to training on NRC generic letter 2008-01 and again focused on the potential for gas accumulation mechanisms and negative impact of voiding on system performance and reliability.

Since that initial training, 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 FNP procedure FNP-0-AP-1, "Development, Review, and Approval of Plant Procedures."

In addition, selected site personnel have been trained and qualified on the use of UT equipment to perform void detection. A new qualification was created to train and qualify engineers to perform UT for detecting gas voids in piping.

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 FNP 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 FNP-0-TCP-6.0, "Systematic Approach to Training." As the remainder of the training modules are completed and become available to the industry, SNC will evaluate them for applicability to FNP. Pending release of remaining products, the schedule for such planned training has not yet been determined.

REFERENCES

1. 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.

2. 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

Joseph M Farley 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 Farley within a year after the issuance of an NRC approved TSTF concerning gas intrusion.	X	After NRC Issuance

Joseph M Farley Nuclear Plant
Response to NRC Generic letter 2008-01
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Enclosure 3
FNP-0-ETP-4754 "Gas Accumulation Monitoring and Trending"
Tables 1, 2, 3, and 4

TABLE 1
UNIT 1 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft./@ Pressure psig)	Monitoring Frequency
1	RWST Outlet	D175038/1	D514755/1	10036D80/1	RWST tank	None	0.375	16	15.25	HCB-42	UT	157-5 1/2"	0.415 @17.98	18 mo. and after draining
2	Sump to 1A RHR	D175038/2	D514394/1	10036D80/1	131	Q1E11V084 A&C	0.375	14	13.25	ECB-6	UT	81'- 3"	0.301 @14.61	18 mo. and after draining
3	1A RHR Suction	D175041/1	D514042/1	10036D80/1	131	Q1E11V079 A&C	0.375	14	13.25	ECB-14	UT	81'-2"	0.222 @51	18 mo. and after draining
4A	RWST to RHR, 40.3' downstream of Q1E11V028	D175038/2	D514394/1	10036D80/1	131	Q1E11V073 A&B	0.375	14	13.25	ECB-105	Vent	93'-0"	1.816 @45.88 (total for 4A,B,C)	18 mo. and after draining
4B	RWST to RHR downstream of Q1E11V028 (at tee)	D175038/2	D514394/1	D175038/2	120	Q1E11V073 A&B	0.375	14	13.25	ECB-105	Vent	93'-0"	1.816 @45.88 (total for 4A,B,C)	18 mo. and after draining
4C	RWST to RHR, 34' upstream of Q1E11V028	D175038/2	D514395/1	D175038/2	109	Q1E11V073 A&B	0.375	14	13.25	HCB-43	Vent	93'-0"	1.816 @45.88 (total for 4A,B,C)	18 mo. and after draining
5	Sump to RHR 1B	D175038/2	D514394/1	10036D80/1	129	Q1E11V084 B&D	0.375	14	13.25	ECB-6	UT	81'- 3"	0.268 @14.61	18 mo. and after draining
6	RHR 1B Suction	D175041/1	D514046/2	10036D80/1	129	Q1E11V079 B&D	0.375	14	13.25	ECB-13	UT	81'-2"	0.253 @45 88	18 mo. and after draining
7	Sump to CSS 1A	D175038/3	D514081/1	10036D80/1	111	Q1E13V040A	0.375	12.75	12	HCB-51	UT	81'-3"	0.312 @14.61	18 mo. and after draining
8	Sump to CSS 1B	D175038/3	D514082	10036D80/1	125	Q1E13V040B	0.375	12.75	12	HCB-54	Vent	81'-3"	0.143 @14.61	18 mo. and after draining
9	RWST to CH/SI downstream of Q1E21V026	D175038/1	D514396/1	10036D80/1	172	None	0.322	8.625	7.981	HCB-42	UT	108'	0.032 @38.95	18 mo. and after draining
10	RWST to CSS downstream of Q1E13V014	D175038/3	D514081/1	10036D80/1	111	None	0.375	12.75	12	HCB-52	UT	92'-6"	0.210 @46.09	18 mo. and after draining
11A	RHR1A to CH/SI (8.95' downstream of upstream elbow)	D175039/6	D514589/1	10036D80/2	223	Q1E21V483	0.322	8.625	7.981	HCB-14	Vent and UT	133	0 576 @32.46 (total for points 11A-D)	18 mo. and after draining

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Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft.@ Pressure psig)	Monitoring Frequency
11B	RHR1A to CH/SI (20' upstream of relief valve)	D175039/6	D514589/1	10036D80/2	223	None	0.322	8.625	7.981	HCB-14	UT	133	0.576 @32.46 (total for points 11A-D)	18 mo. and after draining
11C	RHR1A to CH/SI (50' upstream of downstream elbow)	D175039/6	D514589/1	10036D80/2	223	None	0.322	8.625	7.981	HCB-14	UT	133	0.576 @32.46 (total for points 11A-D)	18 mo. and after draining
11D	RHR1A to CH/SI (20' upstream of downstream elbow)	D175039/6	D514589/1	10036D80/2	223	None	0.322	8.625	7.981	HCB-14	UT	133	0.576 @32.46 (total for points 11A-D)	18 mo. and after draining
12A	CCP 1A Suction	D175039/6	D514366/1	10036D80/2	181	Q1E21V911	0.28	6.625	6.065	HCB-19	Vent	109'-6"	0.033 @54.86 (total for points 12A-C)	M
12B	CCP X-Connect	D175039/6	D514366/1	10036D80/2	181	None	0.322	8.625	7.981	HCB-19	UT	109'-6"	0.033 @54.86 (total for points 12A-C)	18 mo. and after draining
12C	CCP X-Connect	D175039/6	D514366/1	10036D80/2	181	None	0.322	8.625	7.981	HCB-19	UT	109'-6"	0.033 @54.86 (total for points 12A-C)	18 mo. and after draining
13	RWST to CCP (1.3' from upstream elbow)	D175039/6	D514366/1	10036D80/2	172	Q1E21V484	0.322	8.625	7.981	HCB-17	Vent UT	114'	0.137 @40.68	M (Vent) 18 mo. and after draining (UT)
14	RWST to CCP	D175039/6	D514365/1	10036D80/2	172	Q1E21V464	0.322	8.625	7.981	HCB-17	Vent	114'	0.172 @40.68	M
15	CCP 1C suction	D175039/6	D514368/1	10036D80/2	173	Q1E21V487	0.28	6.625	6.065	HCB-19	Vent	109'-6"	0.038 @41.55	M
16A	RHR 1B to CH/SI (upstream elbow)	D175039/6	D514364/1	10036D80/2	184	Q1E21V486	0.322	8.625	7.981	HCB-15	Vent	113'	0.346 @41.11 (total for points 16A & 16B)	18 mo. and after draining

TABLE 1
UNIT 1 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft.@ Pressure psig)	Monitoring Frequency
16B	RHR 1B to CH/SI (92.8' downstream of upstream elbow)	D175039/6	D514364/1	10036D80/2	184	Q1E21V263D	0.322	8.625	7.981	HCB-15	Vent	113'	0.346 @41.11 (total for points 16A & 16B)	18 mo. and after draining
17	CCP 1B suction	D175039/6	D514367/1	10036D80/2	174	Q1E21V912	0.28	6.625	6.065	HCB-19	Vent	109'-6"	0.041 @42.63	M
18A	RCS HL 3 to RHR 1A between Q1E11V016A and Q1E11V001A (upstream end of QV001A)	D175041/1	D514690/4	10036D82	IC/OMB	Q1E11V0085 A&B	1.125	12.75	10.5	CCA-16	UT	107'	0.259 @2250 (total for points 18A & 18B)	18 mo, before establishing flowpath, and after draining
18B	RCS HL 3 to RHR 1A between Q1E11V016A and Q1E11V001A (11' downstream of QV016A)	D175041/1	D514690	10036D82	IC/IMB	Q1E11V0085 A&B	1.125	12.75	10.5	CCA-16	UT	107'	0.259 @2250 (total for points 18A & 18B)	18 mo, before establishing flowpath, and after draining
19A	RCS HL 3 to RHR 1A (upstream elbow)	D175041/1	D514040/1	10036D82	IC/OMB	Q1E11V046 A&B	0.375	12.75	12	ECB-14	UT	116'-3"	9.280 @35.81 (total for 19A-C)	18 mo, before establishing flowpath, and after draining
19B	RCS HL 3 to RHR 1A (25' downstream of upstream elbow)	D175041/1	D514040/1	10036D82	IC/OMB	Q1E11V046 A&B	0.375	12.75	12	ECB-14	UT	116'-3"	9.280 @35.81 (total for 19A-C)	18 mo, before establishing flowpath, and after draining
19C	RCS HL 3 to RHR 1A (5' upstream of downstream elbow)	D175041/1	D514041	10036D82	IC/OMB	Q1E11V046 A&B	0.375	12.75	12	ECB-14	UT	116'-3"	9.280 @35.81 (total for 19A-C)	18 mo, before establishing flowpath, and after draining
20	Penetration 16	D175041/1	D514041	10036D82	184	Q1E11V064 A&C	0.375	12.75	12	ECB-14	UT	112'	8.621 @37.65	3 mo.
21	Penetration 15	D175038/2	D514519	10036D82	223	Q1E11V055 A&B	0.365	10.75	10.02	ECB-2	UT	133'-3"	See Table 3 and Table 4	3 mo.
22	RCS HL 1 to RHR 1B at Elevation 112'-6" (upstream elbow)	D175041/1	D514690/2	10036D83	IC/IMB	Q1E11V063 A&B	1.25	14	11.5	CCA-16	UT	112'-6"	0.183 @2250	18 mo, before establishing flowpath, and after draining

TABLE 1
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Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft.@ Pressure psig)	Monitoring Frequency
23	Penetration 18	D175041/1	D514045/1	10036D83	184	Q1E11V064 B&D	0.375	14	13.25	ECB-13	UT	111'-6"	7.742 @37.87	3 mo.
24	Penetration 17	D175038/2	D514517	10036D83	223	Q1E11V058 A&B	0.365	10.75	10.02	ECB-2	UT	128'	0.647 @44.18 and See Table 3 and Table 4	3 mo.
25A	Penetration 101	D175038/2	D514518/1	10036D83	223	None	1	10.75	8.75	CCB-29	UT	122'-6"	0.894 @44.58 (total for 25A,B) and See Table 3 and Table 4	3 mo.
25B	From Pen 101, upstream of Q1E21V076A (at reducer)	D175038/2	D514715	10036D83	IC/OMB	None	1	10.75	8.75	CCB-29	UT	122'-6"	0.894 @44.58 (total for 25A,B) and See Table 3	18 mo. and if gas identified at 25A
26	1A Chg Pump discharge upstream of Q1E21V122A	D175039/6	D514373/1	10036D84	181	None	0.375	3.5	2.75	CCB-6	UT	107'-3"	See Table 3	3 mo.
27	1B Chg Pump discharge upstream of Q1E21V122B	D175039/6	D514372	10036D84	174	None	0.375	3.5	2.75	CCB-17	UT	107'-3"	See Table 3	3 mo.
28	1C Chg Pump discharge upstream of Q1E21V122C	D175039/6	D514370	10036D84	173	None	0.375	3.5	2.75	CCB-18	UT	107'-3"	See Table 3	3 mo.
29	Upstream of Penetration 20 (upstream elbow)	D175038/1	D514397	10036D84	184	Q1E21V418 A&B (IC)	0.375	3.5	2.75	CCB-22	UT	108'-6"	See Table 3 and Table 4	3 mo.
30	Upstream of Penetration 80 (upstream elbow)	D175038/1	D514397	10036D84	184	Q1E21V414 A&B (IC)	0.375	3.5	2.75	CCB-31	UT	112'-6"	See Table 3 and Table 4	3 mo.
31	Upstream of Q1E21V062C	D175038/1	D518096	10036D85	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	113'-3"	See Table 3	18 mo. and if gas identified at Pt 34
32A	From Pen 19, upstream of Q1E21V062B (upstream elbow)	D175038/1	D518113	10036D85	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	115'-6"	See Table 3	18 mo. and if gas identified at Pt 34

TABLE 1
UNIT 1 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft./@ Pressure psig)	Monitoring Frequency
32B	From Pen 19, upstream of Q1E21V062B (1st horizontal elbow)	D175038/1	D518115	10036D85	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	115'-6"	See Table 3	18 mo. and if gas identified at Pt 34
32C	From Pen 19, upstream of Q1E21V062B (2nd horizontal elbow)	D175038/1	D518115	10036D85	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	115'-6"	See Table 3	18 mo. and if gas identified at Pt 34
33A	From Pen 19, upstream of Q1E21V062A (upstream elbow)	D175038/1	D518100	10036D85	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	118'-10"	See Table 3	18 mo. and if gas identified at Pt 34
33B	From Pen 19, upstream of Q1E21V062A (33' upstream of downstream elbow)	D175038/1	D518102	10036D85	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	118'-10"	See Table 3	18 mo. and if gas identified at Pt 34
33C	From Pen 19, upstream of Q1E21V062A (downstream elbow)	D175038/1	D518102	10036D85	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	118'-10"	See Table 3	18 mo. and if gas identified at Pt 34
34	Penetration 19	D175038/1	D514521	10036D85	223	Q1E21V416 A7B (IC)	0.375	3.5	2.75	CCB-21	UT	122'-6"	See Table 3 and Table 4	3 mo.
35	Penetration 81	D175038/1	D514520	10036D86	223	Q1E21V413 A&B (IC)	0.375	3.5	2.75	CCB-30	UT	122'-6"	See Table 3 and Table 4	3 mo.
36	Upstream of Q1E21V265	D175039/2	D514380	10036D81	170	Q1E21V633 A&B	0.375	3.5	2.75	CCB-18	Vent	114'-6"	Line solid on fill & vent	System fill & vent
37A	Upstream of Q1E21V194A	D175039/2	D514376	10036D81	170	Q1E21V634	0.216	3.5	3.068	HCB-20	Vent	116'	Line solid on fill & vent	System fill & vent
37B	Downstream of Q1E21V194A	D175039/2	D514376	10036D81	170	Q1E21V635	0.216	3.5	3.068	HCB-20	Vent	116'	Line solid on fill & vent	System fill & vent
38	Downstream of Q1E21V304	D175039/4	D514593	10036D81	310	Q1E21V632	0.216	3.5	3.068	HCB-63	Vent	142'-3"	5.4 @ System Pressure	M
39	Downstream end of Q1E11V042B	D175038/2	D514718/1	10036D82	IC/OMB	None	1.000	10.750	8.750	CCB-32	UT	122'-6"	See Table 3	18 mo. and after draining

TABLE 1
UNIT 1 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft.@ Pressure psig)	Monitoring Frequency
40A	From Pen 15, downstream of Q1E11V021A (11.6' downstream of FO-2886A)	D175038/2	D514718/8	10036D82	IC/OMB	None	0.906	8.625	6.813	CCA-22	UT	114'	See Table 3	18 mo. and if gas identified at 21 or 24
40B	From Pen 15, downstream of Q1E11V021A (40.9' upstream of downstream elbow)	D175038/2	D514718/8	10036D82	IC/OMB	None	0.906	8.625	6.813	CCA-22	UT	114'	See Table 3	18 mo. and if gas identified at 21 or 24
41	From Pen 17, Downstream end of Q1E11V042A	D175038/2	D514718/1	10036D83	IC/OMB	None	1.000	10.750	8.750	CCA-22	UT	122'-6"	See Table 3	18 mo. and if gas identified at 21 or 24
42	From Pen 17, downstream of Q1E11V021C (5' from upstream elbow)	D175038/1	D514718/2	10036D83	IC/IMB	None	0.719	6.625	5.187	CCA-22	UT	118'	See Table 3	18 mo. and if gas identified at 21 or 24
43	From Pen 17, at FO-2886B	D175038/1	D514718/4	10036D83	IC/IMB	None	0.719	6.625	5.187	CCA-22	UT	118'-3"	See Table 3	None 64 in^3 subtracted from Table 3 criteria
44	From Pen 101, upstream of Q1E21V077A (upstream elbow)	D175038/1	D514715/1	10036D83	IC/IMB	Q1B13V072 A&B	0.719	6.625	5.187	CCA-27	UT	126'-4"	See Table 3	None 33 in^3 subtracted from Table 3 criteria
45	From Pen 101, upstream of Q1E21V077B (upstream elbow)	D175038/1	D514715/1	10036D83	IC/IMB	Q1B13V097 A&B	0.719	6.625	5.187	CCA-27	Vent	126'-4"	See Table 3	18 mo. and if gas identified at 25A
46A	From Pen 17, downstream of Q1E11021B (upstream elbow)	D175038/1	D514718/5	10036D83	IC/OMB	None	0.719	6.625	5.187	CCA-22	UT	114'	See Table 3	18 mo. and if gas identified at 21 or 24
46B	From Pen 17, downstream of Q1E11021B (downstream elbow)	D175038/1	D514718/5	10036D83	IC/OMB	None	0.719	6.625	5.187	CCA-22	UT	114'	See Table 3	18 mo. and if gas identified at 21 or 24
46C	From Pen 17, downstream of Q1E11021B (14.7' upstream of reducer)	D175038/1	D514718/5	10036D83	IC/OMB	None	0.719	6.625	5.187	CCA-22	UT	112'-6"	See Table 3	18 mo. and if gas identified at 21 or 24

TABLE 1
UNIT 1 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft.@ Pressure psig)	Monitoring Frequency
46D	From Pen 17, downstream of Q1E11021B (16' downstream of reducer)	D175038/1	D514718/4	10036D83	IC/OMB	None	0.906	8.625	6.813	CCA-22	UT	112'-6"	See Table 3	18 mo. and if gas identified at 21 or 24
46E	From Pen 17, downstream of Q1E11021B (upstream end of expander)	D175038/1	D514718/4	10036D83	IC/OMB	None	0.906	8.625	6.813	CCA-22	UT	112'-6"	See Table 3	18 mo. and if gas identified at 21 or 24
47A	From Pen 20, at Q1E21V066A (upstream end)	D175038/1	D518139	10036D84	IC/OMB	Q1E21V561 A&B	0.344	2.375	1.687	CCB-22	UT	115'-1"	See Table 3	18 mo. and if gas identified at Pt 29
47B	From Pen 20, at Q1E21V066A (downstream end)	D175038/1	D518139	10036D84	IC/OMB	Q1E21V561 A&B	0.344	2.375	1.687	CCB-22	UT	115'-1"	See Table 3	18 mo. and if gas identified at Pt 29
48A	From Pen 20, at Q1E21V066C (upstream elbow)	D175038/1	D518138	10036D84	IC/OMB	Q1E21V559 A&B	0.344	2.375	1.687	CCB-22	UT	116'-5"	See Table 3	18 mo. and if gas identified at Pt 29
48B	From Pen 20, at Q1E21V066C (downstream elbow)	D175038/1	D514981	10036D84	IC/OMB	Q1E21V559 A&B	0.344	2.375	1.687	CCB-22	UT	116'-5"	See Table 3	18 mo. and if gas identified at Pt 29
49	Upstream of Q1E21V079A (1.4' from upstream elbow)	D175038/1	D518136	10036D84	IC/OMB	None	0.344	2.375	1.687	CCB-31	UT	123'-6"	See Table 3	18 mo. and if gas identified at Pt 30
50	Downstream of Q1E21V079B (downstream elbow)	D175038/1	D514980	10036D84	IC/OMB	Q1E21V412 B&E	0.344	2.375	1.687	CCA-30	UT	121'-10"	See Table 3	18 mo. and if gas identified at Pt 30
51	Upstream of Q1E21V079C (upstream elbow)	D175038/1	D518130	10036D84	IC/OMB	Q1E21V412 C&F	0.344	2.375	1.687	CCB-31	UT	121'-7"	See Table 3	18 mo. and if gas identified at Pt 30
52	From Pen 80, upstream of Q1E21V077C (11' from downstream elbow)	D175038/1	D514985	10036D84	IC	None	0.344	2.375	1.687	CCA-28	UT	119'-7"	See Table 3	18 mo. and if gas identified at Pt 30 or 35
55	From Pen 19, downstream of Q1E21V062B (upstream elbow)	D175038/1	D514994	10036D85	IC/IMB	None	0.344	2.375	1.687	CCA-21	UT	126'-3"	See Table 3	None 16 in^3 subtracted from Table 3 criteria

TABLE 1
UNIT 1 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft./@ Pressure psig)	Monitoring Frequency
57	Downstream of Pen 81 (horizontal elbow nearest to downstream vertical)	D175038/1	D514717/1	10036D86	IC/OMB	None	0.438	3.500	2.624	CCB-30	UT	123'-9"	See Table 3	18 mo and if gas identified at Pt 35
58	From Pen 81, downstream of Q1E21V071C (upstream elbow)	D175038/1	D518129	10036D86	IC/OMB	None	0.344	2.375	1.687	CCB-30	UT	123'-9"	See Table 3	18 mo. and if gas identified at Pt 35
59	Downstream of Q1E21V078B (downstream elbow)	D175038/1	D514990	10036D86	IC/OMB	None	0.344	2.375	1.687	CCB-30	UT	123'-9"	See Table 3	18 mo. and if gas identified at Pt 35
60	Upstream of Q1E21V078A (upstream elbow)	D175038/1	D518121	10036D86	IC/OMB	None	0.344	2.375	1.687	CCB-30	UT	121'-6"	See Table 3	None 3 in^3 subtracted from Table 3 criteria
61	Downstream of Q1E21V078A (upstream elbow)	D175038/1	D514989	10036D86	IC/OMB	None	0.344	2.375	1.687	CCA-29	UT	123'-4"	See Table 3	None 29 in^3 subtracted from Table 3 criteria
S-3	CS Suction from RWST (2.6' from upstream elbow)	D175038/3	D514081	10036D80/1	171	None	0.375	12.75	12.00	HCB-52	Vent	102'-6"	0.065 @41.76	18 mo. and after draining
S-10	1B CS pump recirc line (2.8' from tee)	D175038/3	D514094	10036D80/1	125	None	0.216	3.500	3.068	HCB-56	Vent	79'-3"	0.045 @51.83	18 mo. and after draining
S-26	Penetration 16	D175041	D514041	10036D82	IC/OMB	None	0.375	12.75	12.00	ECB-14	UT	108'-6"	5.673 @39.17	18 mo. before establishing flowpath, and after draining
S-27	RCS HL3 TO 1A RHR (Pen 16, upstream elbow)	D175041	D514041	10036D82	IC/OMB	None	0.375	12.75	12.00	ECB-14	UT	113'-3"	4.111 @37.00	18 mo, before establishing flowpath, and after draining
S-32	RCS HL1 TO 1B RHR (Pen 18)	D175041	D514045	10036D83	IC/OMB	None	0.375	12.75	12.00	ECB-13	UT	108'-6"	0.111 @2250	18 mo, before establishing flowpath, and after draining
S-45A	From Pen 15, downstream of Q1E11V021A (upstream elbow)	D175038/1	D514718/7	10036D82	IC/OMB	None	0.906	8.625	6.813	CCA-22	UT	119'-6"	See Table 3	18 mo. and if gas identified at 21 or 24

TABLE 1
UNIT 1 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft.@ Pressure psig)	Monitoring Frequency
S-45B	From Pen 15, downstream of Q1E11V021A (34' upstream of downstream elbow)	D175038/1	D514718/7	10036D82	IC/OMB	None	0.906	8.625	6.813	CCA-22	UT	119'-6"	See Table 3	18 mo. and if gas identified at 21 or 24
S-45C	From Pen 15, downstream of Q1E11V021A (4' upstream of downstream elbow)	D175038/1	D514718/6	10036D82	IC/OMB	None	0.906	8.625	6.813	CCA-22	UT	119'-6"	See Table 3	18 mo. and if gas identified at 21 or 24
S-48	From Pen 101, downstream of Q1E21V076A (upstream elbow)	D175038/1	D514715	10036D83	IC/OMB	None	0.719	6.625	5.187	CCA-27	UT	120'	See Table 3	18 mo. and if gas identified at 25A
S-51	From Pen 101, downstream of Q1E21V076B (2' downstream of 2nd horizontal elbow)	D175038/1	D514715	10036D83	IC MB entrance	None	0.719	6.625	5.187	CCA-27	UT	114'-3"	See Table 3	18 mo. and if gas identified at 25A
S-55	From Pen 17, between Q1E11V043A&B (downstream elbow)	D175038/2	D514718	10036D83	IC/OMB	Q1E11V060 A&B	1.00	10.75	8.75	CCB-32	UT	114'	See Table 3	18 mo. and if gas identified at 21 or 24
S-59U	ECCS suction from RWST (horizontal elbow 17' upstream of slope)	D175038/1	D514396/1	10036D80/1	172	None	0.375	16.00	15.25	HCB-42	UT	116'	0.323 @35.92	18 mo. and after draining
S-59L	ECCS suction from RWST (5' downstream of reducer)	D175038/1	D514396	10036D80/1	171	None	0.375	14.00	13.25	HCB-43	UT	113'-4"	0.285 @37.08	18 mo. and after draining
S-69A	From Pen 81, at Q1E21V078C	D175038/1	D514984	10036D86	IC/OMB	Q1E21V411 C&F	0.344	2.375	1.687	CCA-28	UT	120'-10"	See Table 3	18 mo. and if gas identified at Pt 30 or 35
S-69B	From Pen 81, downstream of Q1E21V078C (downstream elbow)	D175038/1	D514984	10036D84	IC/OMB	Q1E21V411 C&F	0.344	2.375	1.687	CCA-28	UT	120'-10"	See Table 3	18 mo. and if gas identified at Pt 30 or 35
S-71	From Pen 81, downstream of Q1E21V078C (15' from downstream elbow)	D175038/1	D514984	10036D84	IC/OMB	None	0.344	2.375	1.687	CCA-28	UT	117'-2"	See Table 3	None 21 in³ subtracted from Table 3 criteria

TABLE 1
UNIT 1 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft./@ Pressure psig)	Monitoring Frequency
S-75	From Pen 19, downstream of Q1E21V061A	D175038/1	D518099	10036D85	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	113'-3"	See Table 3	18 mo. and if gas identified at Pt 34
S-76A	From Pen 19, downstream of Q1E21V061A (upstream elbow)	D175038/1	D518099	10036D85	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	115'-6"	See Table 3	18 mo. and if gas identified at Pt 34
S-76B	From Pen 19, downstream of Q1E21V061A (37.8' downstream of upstream elbow)	D175038/1	D518100	10036D85	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	115'-6"	See Table 3	18 mo. and if gas identified at Pt 34
S-79	From Pen 19, downstream of Q1E21V061B (2nd horizontal elbow)	D175038/1	D518113	10036D85	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	113'-3"	See Table 3	18 mo. and if gas identified at Pt 34
S-81A	From Pen 19, downstream of Q1E21V062B (upstream elbow)	D175038/1	D514994	10036D85	IC/OMB	None	0.344	2.375	1.687	CCA-21	UT	118'-3"	See Table 3	None 105 in³ subtracted from Table 3 criteria
S-81B	From Pen 19, downstream of Q1E21V062B (horizontal elbow)	D175038/1	D514994	10036D85	IC/IMB	None	0.344	2.375	1.687	CCA-21	UT	118'-3"	See Table 3	None 105 in³ subtracted from Table 3 criteria
S-85A	Downstream of Pen 19 (15' downstream of upstream elbow)	D175038/1	D514717	10036D85	IC/OMB	None	0.438	3.500	2.624	CCB-21	UT	116'-6"	See Table 3	18 mo. and if gas identified at Pt 34
S-85B	Downstream of Pen 19 (downstream elbow)	D175038/1	D514717	10036D85	IC/OMB	None	0.438	3.500	2.624	CCB-21	UT	116'-6"	See Table 3	18 mo. and if gas identified at Pt 34
S-105	From Pen 80, downstream of Q1E21V075C (upstream elbow)	D175038/1	D518130	10036D84	IC/OMB	None	0.344	2.375	1.687	CCB-31	UT	114'-7"	See Table 3	18 mo. and if gas identified at Pt 30
S-112	From Pen 80, downstream of Q1E21V075B (0.7' from upstream elbow)	D175038/1	D518133	10036D84	IC/OMB	None	0.344	2.375	1.687	CCB-31	UT	114'-7"	See Table 3	None 2 in³ subtracted from Table 3 criteria

TABLE 1
UNIT 1 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft.@ Pressure psig)	Monitoring Frequency
S-116	From Pen 20, downstream of Q1E21V080B (upstream elbow)	D175038/1	D518137	10036D84	IC/OMB	Q1E21V560 A&B	0.344	2.375	1.687	CCB-22	UT	115'-1"	See Table 3	18 mo. and if gas identified at Pt 29

TABLE 2
UNIT 2 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft. @ Pressure psig))	Monitoring Frequency
1	RWST Outlet	D205038/1	D515612/1	10036D87/1	N/A	None	0.375	16	15.25	HCB-42	UT	157'-5"	0.453 @17.98	18 mo. and after draining
2	Downstream of Q2E21V026	D205038/1	D515418/1	10036D87/1	2172	None	0.322	8.625	7.981	HCB-42	UT	109'	0.065 @42.85	18 mo. and after draining
3A	RWST to RHR downstream of Q2E11V028	D205038/2	D515420/1	10036D87/1	2120	None	0.375	14	13.25	HCB-43	UT	93'	0.912 @45.88 (total for 3A-D)	18 mo. and after draining
3B	RWST to RHR upstream of Q2E11V028	D205038/2	D515420/1	10036D87/1	2120	None	0.375	14	13.25	HCB-43	UT	93'	0.912 @45.88 (total for 3A-D)	18 mo. and after draining
3C	RWST to RHR downstream of Q2E11V028	D205038/2	D515420/1	10036D87/1	2131	None	0.375	14	13.25	ECB-5	UT	93'	0.912 @45.88 (total for 3A-D)	18 mo. and after draining
3D	RWST to RHR downstream of Q2E11V028	D205038/2	D515420/1	10036D87/1	2131	None	0.375	14	13.25	ECB-5	UT	93'	0.912 @45.88 (total for 3A-D)	18 mo. and after draining
4	CTMT SUMP TO 2B RHR PUMP HDR VENT	D205038/2	D515420/1	10036D87/1	2129	Q2E11V099 A&B	0.375	14	13.25	ECB-7	UT	81' - 3"	0.312 @14.61	18 mo. and after draining
5	2B RHR PUMP SUCTION VENT	D205041/1	D515281/1	10036D87/1	2129	Q2E11V094 B&D	0.375	14	13.25	ECB-13	UT	81'-2"	0.292 @51.00	18 mo. and after draining
6	CTMT SUMP TO 2A RHR PUMP HDR VENT	D205038/2	D515424/1	10036D87/1	2131	Q2E11V100 A&B	0.375	14	13.25	ECB-6	UT	81'-3"	0.296 @14.61	18 mo. and after draining
7	2A RHR PUMP SUCTION VENT	D205041/1	D515285	10036D87/1	2131	Q2E11V094 A&C	0.375	14	13.25	ECB-14	UT	81'-2"	0.266 @51.00	18 mo. and after draining
8A	CTMT SUMP SUCT VENT	D205038/3	D515017	10036D87/1	2111	Q2E13V040A	0.375	12.75	12	HCB-51	Vent	81'-3"	0.158 @14.61 (total for 8A-C)	18 mo. and after draining
8B	CTMT SUMP SUCT	D205038/3	D515017	10036D87/1	2111	Q2E13V040A	0.365	10.75	10.02	HCB-52	Vent	81'-3"	0.158 @14.61 (total for 8A-C)	18 mo. and after draining
8C	CTMT SUMP SUCT	D205038/3	D515017	10036D87/1	2111	Q2E13V040A	0.365	10.75	10.02	HCB-51	Vent	81'-3"	0.158 @14.61 (total for 8A-C)	18 mo. and after draining

TABLE 2
UNIT 2 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft. @ Pressure psig))	Monitoring Frequency
9A	CTMT SPRAY RWST SUCTION, DOWNSTREAM OF CHECK VALVE Q2E13V014	D205038/3	D515016	10036D87/1	2125	None	0.365	10.75	10.02	HCB-53	UT	92'-6"	0.089 @46.09 (total for 9A-C)	18 mo. and after draining
9B	CTMT SPRAY RWST SUCTION, DOWNSTREAM OF CHECK VALVE Q2E13V014	D205038/3	D515016	10036D87/1	2111	None	0.365	10.75	10.02	HCB-53	UT	92'-6"	0.089 @46.09 (total for 9A-C)	18 mo. and after draining
9C	CTMT SPRAY RWST SUCTION, DOWNSTREAM OF CHECK VALVE Q2E13V014	D205038/3	D515016	10036D87/1	2111	None	0.375	12.75	12	HCB-78	UT	92'-6"	0.089 @46.09 (total for 9A-C)	18 mo. and after draining
10	CTMT SUMP SUCT VENT ISO	D205038/3	D515015	10036D87/1	2125	Q2E13V040B	0.375	12.75	12	HCB-54	Vent	81'-3"	0.166 @14.61	18 mo. and after draining
11	2B CHG PUMP SUCTION VENT	D205039/6	D515343/1	10036D87/2	2174	Q2E21V431	0.28	6.625	6.065	HCB-19	Vent	109'-6"	0.041 @42.63	M
12A	A TRN RHR TO CHG PUMP SUCT VENT	D205039/6	D515398	10036D87/2	2223	Q2E21V473	0.322	8.625	7.981	HCB-14	Vent and UT	132'-6"	0.574 @32.68 (total for points 12A & 12B)	18 mo. and after draining
12B	A TRN RHR TO CHG PUMP SUCT VENT	D205039/6	D515398	10036D87/2	2223	Q2E21V473	0.322	8.625	7.981	HCB-14	UT	132'-6"	0.574 @32.68 (total for points 12A & 12B)	18 mo. and after draining
13A	2A CHG PUMP SUCTION LINE VENT	D205039/6	D515342	10036D87/2	2175	Q2E21V922	0.322	8.625	7.981	HCB-14	Vent	114	0.191 @40.68 (total for points 13A, B & C)	M
13B	2A CHG PUMP SUCTION LINE VENT	D205039/6	D515342	10036D87/2	2172	Q2E21V925	0.322	8.625	7.981	HCB-14	Vent	114	0.191 @40.68 (total for points 13A, B & C)	M
13C	2A CHG PUMP SUCTION LINE VENT	D205039/6	D515342	10036D87/2	2181	Q2E21V923	0.322	8.625	7.981	HCB-14	Vent	114	0.191 @40.68 (total for points 13A, B & C)	M

TABLE 2
UNIT 2 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft. @ Pressure psig))	Monitoring Frequency
14	LCV-115D OUTLET LINE VENT	D205039/6	D515345	10036D87/2	2174	Q2E21V433	0.28	6.625	6.065	HCB-19	Vent	112	0.223 @40.68	M
15	2C CHG PUMP SUCTION LINE VENT	D205039/6	D515344	10036D87/2	2173	Q2E21V437	0.28	6.625	6.065	HCB-19	Vent	112'	0.038 @41.55	M
16	2C RCS LOOP TO 2A RHR PUMP HDR VENT	D205041/1	D515012/2	10036D88	IC/OMB	Q2E11V063 A&C	1.125	12.75	10.5	CCA-16	UT	116'	0.926 @450	18 mo. before establishing flowpath, and after draining
17	2C RCS LOOP TO 2A RHR PUMP HDR VENT (Pene 16)	D205041/1	D515284/1	10036D88	2184	Q2E11V064 A&C	0.375	12.75	12	ECB-14	UT	112'	9.026 @37.65	3 mo.
18A	RHR TO 2C RCS COLD LEG HDR VENT (upstream elbow)	D205038/1	D515411	10036D88	IC/OMB	Q2E11V052 A&B	0.906	8.625	6.813	CCA-22	UT	119'-9"	See Table 3	18 mo. and if gas identified at Pt 19 or 24
18B	RHR TO 2C RCS COLD LEG HDR VENT (downstream elbow)	D205038/1	D515411	10036D88	IC/OMB	Q2E11V052 A&B	0.719	6.625	5.182	CCA-22	UT	119'-9"	See Table 3	18 mo. and if gas identified at Pt 19 or 24
19	2A RHR HX TO RCS COLD LEGS HDR VENT	D205038/2	D515417	10036D88	2223	Q2E11V055 A&B	0.365	10.75	10.02	ECB-2	UT	133'-3"	See Table 3 and Table 4	3 mo.
20	RHR TO RCS HOT LEGS HDR TEST CONN (Pene 101)	D205038/2	D515414	10036D88	2223	Q2E11V048 A&E	1	10.75	8.75	CCB-29	UT	122'-6"	See Table 3 and Table 4	3 mo.
21	2A RCS LOOP TO 2B RHR PUMP HDR VENT (upstream elbow)	D205041/1	D515012/1	10036D89	IC/IMB	Q2E11V063 B&D	1.125	12.75	10.5	CCA-16	UT	112'	0.426 @2250	18 mo, before establishing flowpath, and after draining
22A	2A RCS LOOP TO 2B RHR PUMP HDR VENT (downstream elbow)	D205041/1	D515011/1	10036D89	IC/OMB	Q2E11V072 A&B	0.375	12.75	12	ECB-13	UT	116'-3"	16.187 @35.81 (total for 22A & 22B)	18 mo, before establishing flowpath, and after draining
22B	2A RCS LOOP TO 2B RHR PUMP HDR VENT (upstream elbow)	D205041/1	D515011/2	10036D89	IC/OMB	Q2E11V072 A&B	0.375	12.75	12	ECB-13	UT	116'-3"	16.187 @35.81 (total for 22A & 22B)	18 mo, before establishing flowpath, and after draining

TABLE 2
UNIT 2 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft. @ Pressure psig))	Monitoring Frequency
23	2A RCS LOOP TO 2B RHR PUMP HDR VENT (Pene 18)	D205041/1	D515280	10036D89	2184	Q2E11V064 B&D	0.375	12.75	12	ECB-13	UT	111'-6"	7.675 @37.87	3 mo.
24	2B RHR HX TO RCS COLD LEGS HDR VENT (Pene 17)	D205038/2	D515422	10036D89	2223	Q2E11V058 A&B	0.365	10.75	10.02	ECB-2	UT	128	0.950 @44.58 & See Table 3 and Table 4	3 mo.
25	2B RHR HX TO 2B RCS LOOP XCONN HDR VENT	D205038/2	D515414/2	10036D89	IC/OMB	Q2E11V060 A&B	1	10.75	8.75	CCB-22	UT	114'	1.460 @44.58 & See table 3	18 mo. and if gas identified at Pt 19 or 24
26	A CHG PUMP DISCHARGE	D205039/6	D515337	10036D91	2181	None	0.438	3.5	2.624	CCB-16	UT	107'-3"	See Table 3	3 mo.
27	B CHG PUMP DISCHARGE	D205039/6	D515334	10036D91	2174	None	0.438	3.5	2.624	CCB-17	UT	104'-8"	See Table 3	3 mo.
28	C CHG PUMP DISCHARGE	D205039/6	D515336	10036D91	2173	None	0.438	3.5	2.624	CCB-18	UT	107'-3"	See Table 3	3 mo.
29	Pene 80, Monitor from outside CTMT	D2065038/1	D515415	10036D91	2184	Q2E21V414 A&B	0.438	3.5	2.624	CCB-31	UT	112'-6"	See Table 3 and Table 4	3 mo.
30	Pene 20, Monitor from outside CTMT	D2065038/1	D515415	10036D91	2184	Q2E21V418 A&B	0.438	3.5	2.624	CCB-22	UT	108'-6"	See Table 4 (25.9 in^3 subtracted from Table 3 criteria)	3 mo
31	Penetration 81	D2065038/1	D515413	10036D92	2223	Q2E21V413 A&B (IC)	0.438	3.5	2.624	CCB-30	UT	122'-6"	See Table 3 and Table 4	3 mo.
32	Penetration 19	D205038/1	D515423	10036D92	2223	Q2E21V416 A&B (IC)	0.438	3.5	2.624	CCB-21	UT	122'-6"	See Table 3 and Table 4	3 mo.
33	Upstream of Q2E21V062A at elev 115'-6" (upstream elbow)	D205038/1	D515861	10036D92	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	115'-6"	See Table 3	18 mo. and if gas identified at Pt 32
34A	Upstream of Q2E21V062B at elev 115'-6" (upstream elbow)	D205038/1	D515861	10036D92	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	115'-6"	See Table 3	18 mo. and if gas identified at Pt 32
34B	Upstream of Q2E21V062B at elev 115'-6" (downstream elbow)	D205038/1	D515861	10036D92	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	115'-6"	See Table 3	18 mo. and if gas identified at Pt 32

TABLE 2
UNIT 2 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft. @ Pressure psig))	Monitoring Frequency
35	Upstream of Q2E21V062C, 51.4' from upstream elbow	D205038/1	D515863	10036D92	IC/OMB	None	0.344	2.375	1.687	CCB-21	UT	114'	See Table 3	18 mo. and if gas identified at Pt 32
36	Downstream of Q2E21V259A at El 118'	D205039/6	D515717	10036D93	2174	Q2E21V924 A&B	0.344	2.375	1.687	CCB-16	Vent	118'	Line solid	M (See note 1)
37	Upstream of Q2E21V265 at El 114'-6"	D205039/2	D515339	10036D93	2170	Q2E21V443 A&B	0.438	3.5	2.624	CCB-18	Vent	114'-6"	Line solid on fill & vent	System fill & vent
38	Upstream of Q2E21V194A	D205039/2	D515340	10036D93	2170	Q2E21V442	0.216	3.5	3.068	HCB-20	Vent	116-1"	Line solid on fill & vent	System fill & vent
39	Downstream of Q2E21V304	D205039/4	D515401	10036D93	2216	N/A	0.216	3.5	3.068	HCB-63	UT	N/A Vertical	Line full to elevation 127'-4" (See note 1)	M
40	Upstream of Q2E11V021A	D205038/2	D515414/2	10036D88	IC/OMB	None	0.719	6.625	5.187	CCB-32	UT after Fill and Vent	111'-5"	See Table 3	18 mo. and if gas identified at Pt 19 or 24
41	Upstream of Q2E11V021C	D205038/2	D514414/1	10036D89	IC/OMB	None	0.719	6.625	5.187	CCB-32	UT after Fill and Vent	107'-4"	See Table 3	18 mo. and if gas identified at Pt 19 or 24
42	From Pen 17, downstream end of Q2E11V021B	D205038/2	D515414/2	10036D89	IC/OMB	None	0.719	6.625	5.187	CCB-32	UT after Fill and Vent	114'	See Table 3	18 mo. and if gas identified at Pt 19 or 24
43	Downstream of Q2E11V079A (downstream elbow)	D205038/1	D515974/1	10036D91	IC/OMB	Q2E21V412 A&D	0.344	2.375	1.687	CCB-31	Vent	120'	See Table 3	18 mo. and if gas identified at Pt 29
44	Upstream of Q2E21V079C	D205038/1	D515859	10036D91	IC/OMB	None	0.344	2.375	1.687	CCB-31	UT after Fill and Vent	120'	See Table 3	18 mo. and if gas identified at Pt 29
45	Downstream of Q2E21V079B (downstream elbow)	D205038/1	D515974/2	10036D91	IC/OMB	Q2E21V412 B&E	0.344	2.375	1.687	CCB-31	UT after Fill and Vent	118'-8"	See Table 3	18 mo. and if gas identified at Pt 29
46	Upstream of Q2E21V066C (upstream elbow)	D205038/1	D515846	10036D91	IC/OMB	None	0.344	2.375	1.687	CCB-22	UT after Fill and Vent	114'-11"	See Table 3	18 mo. and if gas identified at Pt 30

TABLE 2
UNIT 2 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft. @ Pressure psig))	Monitoring Frequency
47A	1.7' upstream of Q2E21V066B	D205038/1	D515982	10036D91	IC/OMB	Q2E21V582 B&E	0.344	2.375	1.687	CCB-22	UT after Fill and Vent	117'-1"	See Table 3	18 mo. and if gas identified at Pt 30
47B	Downstream of Q2E21V066B (downstream elbow)	D205038/1	D515982	10036D91	IC/OMB	Q2E21V582 B&E	0.344	2.375	1.687	CCA-26	UT after Fill and Vent	117'-1"	See Table 3	18 mo. and if gas identified at Pt 30
49	Downstream of Q2E21V078B (downstream elbow)	D205038/1	D515974/2	10036D92	IC/OMB	Q2E21V411 B&E	0.344	2.375	1.687	CCA-29	UT after Fill and Vent	120'	See Table 3	18 mo. and if gas identified at Pt 31
50	Upstream of Q2E21V078C (upstream elbow)	D205038/1	D515860	10036D92	IC/OMB	Q2E21V411 C&F	0.344	2.375	1.687	CCB-30	Vent	120'	See Table 3	18 mo. and if gas identified at Pt 31
51	Downstream of Q2E21V078A (downstream elbow)	D205038/1	D515974/1	10036D92	IC/OMB	Q2E21V411 A&D	0.344	2.375	1.687	CCA-29	Vent	119'-11"	See Table 3	18 mo. and if gas identified at Pt 31
52	Downstream of Q2E21V062B (upstream elbow)	D205038/1	D515975	10036D92	IC/OMB	None	0.344	2.375	1.687	CCA-21	UT after Fill and Vent	116'-9"	See Table 3	None 15.6 in^3 subtracted from Table 3 criteria
S-4	2B CS PUMP DISCHARGE	D205038/1	D515015	10036D87/1	2125	Q2E13V010B	0.322	8.625	7.981	HCB-55	UT after Fill and Vent	79'-4"	See Table 3	None, 12.1 in^3 subtracted from Table 3 criteria
S-34	RWST Suction to ECCS (downstream elbow)	D205038/1	D515418	10036D87/1	2609	None	0.375	16	15.25	HCB-42	UT after Fill and Vent	140'-3"	0.354 @25.43	18 mo. and after draining
S-36A	RWST Suction to ECCS	D205038/1	D515418	10036D87/1	2186	None	0.375	16	15.25	HCB-42	UT after Fill and Vent	116'	0.148 @35.92 (total for Pts S-36A & B)	18 mo. and after draining
S-36B	RWST Suction to ECCS	D205038/1	D515419	10036D87/1	2172	None	0.375	16	15.25	HCB-43	UT after Fill and Vent	116'	0.148 @35.92 (total for Pts S-36A & B)	18 mo. and after draining
S-40	RHR discharge to the RHR RWST supply (recirc line)	D205038/1	D515419	None	2162	None	0.322	8.625	7.981	HCB-43	UT after Fill and Vent	113'-4"	Line full at tee-in to the RWST line	18 mo. and after draining

TABLE 2
UNIT 2 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft. @ Pressure psig))	Monitoring Frequency
S-47A	From Pen 101, downstream of Q2E21V076A 14.7'	D205038/1	D515408	10036D88	IC/OMB	None	0.719	6.625	5.187	CCA-27	UT after Fill and Vent	115'	See Table 3	18 mo. and if gas identified at Pt 20
S-47B	From Pen 101, downstream of Q2E21V076A 46'	D205038/1	D515408	10036D88	IC/OMB	None	0.719	6.625	5.187	CCA-27	UT after Fill and Vent	115'	See Table 3	18 mo. and if gas identified at Pt 20
S-47C	From Pen 101, downstream of Q2E21V076A 149'	D205038/1	D515408	10036D88	IC/OMB	None	0.719	6.625	5.187	CCA-27	UT after Fill and Vent	115'	See Table 3	18 mo. and if gas identified at Pt 20
S-51A	From Pen 17, downstream of Q2E11V021C, 47' downstream of upstream elbow	D205038/1	D515409	10036D89	IC/OMB	None	0.906	8.625	6.813	CCA-22	UT after Fill and Vent	114'	See Table 3	18 mo. and if gas identified at Pt 19 or 24
S-51B	From Pen 17, downstream of Q2E11V021C, 87' downstream of upstream elbow	D205038/1	D515409	10036D89	IC/OMB	None	0.906	8.625	6.813	CCA-22	UT after Fill and Vent	114'	See Table 3	18 mo. and if gas identified at Pt 19 or 24
S-51C	From Pen 17, downstream of Q2E11V021C, 108' downstream of upstream elbow	D205038/1	D515409	10036D89	IC/OMB	None	0.906	8.625	6.813	CCA-22	UT after Fill and Vent	114'	See Table 3	18 mo. and if gas identified at Pt 19 or 24
S-51D	From Pen 17, downstream of Q2E11V021C, upstream elbow	D205038/1	D515409	10036D89	IC/OMB	None	0.906	8.625	6.813	CCA-22	UT after Fill and Vent	114'	See Table 3	18 mo. and if gas identified at Pt 19 or 24
S-54	From Pen 19 downstream of Q2E21V062A (upstream elbow)	D205038/1	D515986	10036D92	IC/OMB	None	0.344	2.375	1.687	CCA-21	UT after Fill and Vent	119'-9"	See Table 3	18 mo. and if gas identified at Pt 32
S-58A	From Pen 17, downstream of Q2E11V021B (upstream elbow)	D205038/1	D515412/2	10036D89	IC/IMB	None	0.719	6.625	5.187	CCA-22	UT after Fill and Vent	120'-3"	See Table 3	18 mo. and if gas identified at Pt 19 or 24
S-58B	From Pen 17, downstream of Q2E11V021B (downstream of second reducer)	D205038/1	D515412.2	10036D89	IC/IMB	None	0.719	6.625	5.187	CCA-22	UT after Fill and Vent	120'-3"	See Table 3	18 mo. and if gas identified at Pt 19 or 24

TABLE 2
UNIT 2 GAS ACCUMULATION LOCATIONS FOR PERIODIC MONITORING

Monitor Point #	Description	P&ID	Isometric	West. One Line Dwg	Room Number	Vent Valves	Wall Thickness	OD	ID	Line Number	Monitoring Method	Line Elev.	Max Allowable Void Size (cu. Ft. @ Pressure psig))	Monitoring Frequency
S-62	From Pen 101, downstream of Q2E21V076B (upstream elbow)	D205038/1	D515412/1	10036D88	IC/IMB	None	0.719	6.625	5.187	CCA-27	UT after Fill and Vent	120'-7"	See Table 3	18 mo. and if gas identified at Pt 20
S-63	From Pen 101, downstream of Q2E21V076B (1' from downstream elbow)	D205038/1	D515412/1	10036D88	IC/IMB	None	0.719	6.625	5.187	CCA-27	UT after Fill and Vent	116'	See Table 3	None 3.5 in^3 subtracted from Table 3 Criteria
S-64	From Pen 101, downstream of Q2E21V076B	D205038/1	D515412/1	10036D88	IC/OMB	Q2E21V412 B&E	0.719	6.625	5.187	CCA-27	Vent	118'-9"	See Table 3	18 mo. and if gas identified at Pt 20
S-88	From Pen 15, downstream of Q2E11V021A	D205038/1	D515411	10036D88	IC/OMB	None	0.719	6.625	5.187	CCA-22	UT	119'-9"	See Table 3	18 mo. and if gas identified at Pt 19 or 24

Note 1: See linked documents for e-mail from John Moorehead (Westinghouse) dated April 21, 2009

Table 3
Allowable Volumes in the Discharge Piping of the RHR and HHSI Systems

Unit 1 Discharge Acceptance Criteria (Note This table is derived from Westinghouse Letters LTR-SEE-III-09-47 and LTR-SEE-III-08-138 and is used-to determine the specific Monitoring Points to apply to each Sequence)		
Sequence	**Maximum Void Volume (Adjusted for Valve Bonnet Volumes) Cubic Inches**	**Includes Monitoring Points***
Cooldown RHR-A	5645	21,24,39,40,41,42,46,S-45,S-55
Cooldown RHR-B	3053	21,24,39,40,41,42, 46,S-45,S-55
Hot Leg Charging -A	255	26,35,57,58,59,S-69
Hot Leg Charging-C	168	28,30,49,50,51,53,S-69,S-105
Hot Leg Charging-B FE940	206	27, 30,49,50,51,53,S-69,S-105
Hot Leg Charging-B FE943	1508	27,35,57,58,59
Hot Leg RHR-A	70	21,24,25,45,S-48,S-51
Hot Leg RHR-B	70	21,24,25,45,S-48,S-51
LOCA Charging-A&B	3729	26,27,34,31,32,33,54,56,S-75,S-76,S-79,S-85
LOCA Charging-B&C	1733	27,28,29,46,47,48,S-116
LOCA RHR-A&B	1508	21,24,39,40,41,42,46,S-45,S-55
Surveillance-Charging-A	3729	26,31,32,33,34,54,56,S-75,S-76,S-79,S-85
Surveillance-Charging-B FE940	308	27,29,46,47,48,S-116
Surveillance-Charging-B FE943	3729	27,31,32,33,34,54,56,S-75,S-76,S-79,S-85
Surveillance-Charging-C	3658	28,29,46,47,48,S-116
Surveillance-RHR-A	992	21,24,39,40,41,42,46,S-45,S-55
Surveillance-RHR-B	992	21,24,39,40,41,42,46,S-45,S-55

*Some of the points listed are set of points. Ensure all points (A, B, etc.) are included in calculation.

Table 3
Allowable Volumes in the Discharge Piping of the RHR and HHSI Systems

Unit 2 Discharge Acceptance Criteria (Note This table is derived from Westinghouse Letters LTR-SEE-III-09-25 and LTR-SEE-III-08-139 and is used-to determine the specific Monitoring Points to apply to each Sequence)

Sequence	Maximum Void Volume (Adjusted for Valve Bonnet Volumes) Cubic Inches	Includes Monitoring Points*
Cooldown RHR-A	5,694	18,19,24,25,40,41,42, S-51, S-58, S-88
Cooldown RHR-B	9,816	18,19,24,25,40,41,42, S-51, S-58, S-88
Hot Leg Charging -A	122	26,31,49,50,51
Hot Leg Charging-C	3,850	28,29,43,44,45
Hot Leg Charging-B FE940	77	27,29,43,44,45
Hot Leg Charging-B FE943	91	27,31,49,50,51
Hot Leg RHR-A	99.5	19,20,24, S-47, S-62, S-64
Hot Leg RHR-B	99.5	19,20,24, S-47, S-62, S-64
LOCA Charging-A&B	765.4	26,27,32,33,34,35, S-54
LOCA Charging-B&C	590	27,28,46,47,48
LOCA RHR-A&B	1,572	18,19,24,25,40,41,42, S-51, S-58, S-88
Surveillance-Charging-A	1,068.4	26,32,33,34,35, S-54
Surveillance-Charging-B FE940	3,824	27,46,47,48
Surveillance-Charging-B FE943	2,253.4	27,32,33,34,35, S-54
Surveillance-Charging-C	2,862	28,46,47,48
Surveillance-RHR-A	1,056	18,19,24,25,40,41,42, S-51, S-58, S-88
Surveillance-RHR-B	1,572	18,19,24,25,40,41,42, S-51, S-58, S-88
CS-B	1,630	None

*Some of the points listed are set of points. Ensure all points (A, B, etc.) are included in calculation.

Table 4
Determination of Conditional Monitoring Locations

Unit 1

Monitor Point #	Gas Found?	If Yes, add Pts to monitoring scope
21	Yes No	40A,40B,41,42,46A,46B,46C,46D,46E,S-45A,S-45B,S-45C,S-55
24	Yes No	40A,40B,41,42,46A,46B,46C,46D,46E, S-45A,S-45B,S-45C,S-55
25A	Yes No	25B,45,S-48,S-51
29	Yes No	47A,47B,48A,48B,S-116
30	Yes No	49,50,51,52,S-69A,S-69B,S-105
34	Yes No	32A,32B,32C,33A,33B,33C,S-75,S-76A,S-76B,S-79,S-85A,S-85B
35	Yes No	52,57,58,59,S-69A,S-69B

Unit 2

Monitor Point #	Gas Found?	If Yes, add Pts to monitoring scope
19	Yes No	18A,18B,25,40,41,42,S-51A,S-51B,S-51C,S-58A,S-58B,S-88
20	Yes No	S-47A,S-47B,S-47C,S-62,S-64
24	Yes No	18A,18B,25,40,41,42,S-51A,S-51B,S-51C,S-58A,S-58B,S-88
29	Yes No	43,44,45
30	Yes No	46,47A,47B
31	Yes No	49,50,51
32	Yes No	33,34A,34B,35,S-54