VERMONT YANKEE
NUCLEAR POWER CORPORATION

RD 5, Box 169, Ferry Road, Brattleboro, VT 05301

FVY 88-09

REPLY TO:
ENGINEERING OFFICE
1671 WORCESTER ROAD
FRAMINGHAM, MASSACHUSETTS 01701
TELEPHONE 617-872-8100

February 12, 1988

U.S. Nuclear Regulatory Commission
Washington, D.C.

Attn: Document Control Desk

References: a) License No. DPR-28 (Docket No. 50-271)
b) Letter, USNRC to VYNPC, NVY 87-[illegible], dated 12/9/87

Dear Sir:

Subject: Response to Request for Additional Information Regarding Revision 9 to the Vermont Yankee ISI Program Plan

The attachment to this letter provides our initial response to your request for additional information regarding Revision 9 to Vermont Yankee's ISI Program Plan [Reference b)]. As described in the attachment, portions of the program will require further revision. It is Vermont Yankee's intent to complete the necessary revisions and submit the revised program by June 1, 1988 for your review and approval.

We trust this response provides all the information you require at this time. Should you have any questions or require additional information in this regard, please do not hesitate to contact us.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Warren P. Murphy
Vice President and
Manager of Operations

cc: V.L. Rooney
USNRC, Region I
USNRC Resident Inspector, VYNPC

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ATTACHMENT 1

NRC Inquiry

A. The following exemptions were previously denied in the NRC's February 10, 1987 SER:

Exemption Number	System or Component	Exemption Criteria
2	RCIC System Discharge Piping	IWC-1220(c)
3	RCIC System Steam Supply Piping and Condensate Handling Equipment and Piping	IWC-1220(c)
4	RCIC System Lube Oil Cooler and Piping	IWC-1220(c)
6	SLC System Discharge Piping	IWC-1220(c)
7	Service and Instrument Air Systems	IWC-1220(c)
8	Sampling System	IWC-1220(c)
9	CAD/Nitrogen Inerting System	IWC-1220(c)
12	HPCI System Lube Oil Cooler and Piping	IWC-1220(c)
13	HPCI System Condensate Handling Equipment	IWC-1220(c)
14	HPCI Test Loop to Torus	IWC-1220(c)
15	Reactor Water Cleanup System	IWC-1220(c)
16	CRD Piping (except Scram Discharge Instrument Volumes and Headers)	IWC-1220(c)
17	Radwaste System	IWC-1220(c)
21	RHR Lines as follows:	
	RHR-4A	IWC-1220(c)
	RHR-11	IWC-1220(c)
	RHR-13A through D	IWC-1220(c)
	RHR-16	IWC-1220(c)
	RHR-21	IWC-1220(c)
	RHR-22	IWC-1220(c)
	RHR-24A and B	IWC-1220(c)
	RHR-25	IWC-1220(c)

Exemption Number	System or Component	Exemption Criteria
	RHR-34A	IWC-1220(c)
	RHR-35A	IWC-1220(c)
	RHR-36A	IWC-1220(c)
	RHR-38A and B	IWC-1220(c)
	RHR-44A through D	IWC-1220(c)
	RHR-45A through D	IWC-1220(c)

The Licensee has claimed these same exemptions in Revision 9 of the ISI Program Plan. The Licensee should not be using the control of water chemistry exemption of IWC-1220(c). The control of water chemistry to minimize stress corrosion described in Paragraph IWC-1220(c) of the 1974 Edition through the Summer 1975 Addenda of Section XI of the ASME Code is not an acceptable basis for exempting components from examination because practical evaluation, review, and acceptance standards cannot be defined. Therefore, examination should be included for any components for which exemption is selected by the Licensee under Paragraph IWC-1220(c) of the 1974 Edition and Addenda of Section XI of the ASME Code. Verify that the chemistry control exclusion will not be used and that the ISI Program Plan will be revised to include examinations for these components, as applicable.

Vermont Yankee Response

Vermont Yankee has determined upon further evaluation that some of those lines exempted under IWC-1220(c) may also be exempted under IWC-1220(a), (b) and/or (d). Vermont Yankee is re-evaluating all Class 2 piping examinations in light of this, as explained in the response to Inquiry B.

NRC Inquiry

B. The staff notes that the Licensee is not performing volumetric examination of any of the Class 2 piping welds in the RHR system.

Paragraph 10CFR50.55a(b)(2)(iv) requires that ASME Code Class 2 piping welds in the Residual Heat Removal (RHR), Emergency Core Cooling (ECC), and Containment Heat Removal (CHR) systems shall be examined. These systems should not be completely exempted from inservice volumetric examination based on Section XI exclusion criteria contained in IWC-1220. Later editions and addenda of the Code require volumetric examination of Class 2 piping welds greater than or equal to 3/8-inch nominal wall thickness for piping greater than four-inch Nominal Pipe Size (NPS). The staff has previously determined that a 7.5% augmented volumetric sample constitutes an acceptable resolution at similar plants.

Verify that volumetric examination will be performed on at least a 7.5% sample of the Class 2 piping welds in the RHR System.

Vermont Yankee Response

Vermont Yankee has determined that the work necessary to revise the ISI Program to include the non-exempted lines of Item A and augmentation requested in Item B constitutes a significant effort. It has been determined upon review that adoption of Code Case N408, as allowed by Reg. Guide 1.147, Revision 5, "Inservice Inspection Code Case Acceptability ASME Section XI, Division 1" is an acceptable and the most expeditious method to update the Vermont Yankee ISI Program. The revised program will resolve the stated concerns of Items A and B.

This will require a significant effort to make the necessary revisions. Vermont Yankee intends to develop the ISI Program in a time frame consistent with our June 1 revision. Implementation will begin in 1989 with completion of a pro-rated interval requirement at the end of the scheduled second inspection interval. Inspection scheduling will dictate completion of program details, weld preparation, and calibration standard development through the first ten years of implementation. These updates will be incorporated into future revisions of the program.

NRC Inquiry

C. Review of the ISI Program Plan for the Control Rod Drive (CRD) Scram Discharge Volume (SDV) piping shows that a total of four of the six-inch Schedule 80 Class 2 piping welds are scheduled to receive surface examination and that none of the ten-inch Schedule 80 Class 2 piping welds are scheduled to receive examinations. The NRC established the position of NUREG-0803, "Generic Safety Evaluation Report Regarding Integrity of BWR Scram System Piping", that licensees for BWR plants should perform periodic inservice inspection of the SDV system to meet the requirement for Class 2 piping in Section XI of the ASME Code.

Because the SDV piping is designed and fabricated according to the requirements of ASME Section III Class 2 and because of its importance in achieving the scram function, it should as a minimum be subjected to the ISI requirements for Class 2 piping in ASME Code Section XI and the recommendations of NUREG-0803. Verify that the requirements of ASME Code Section XI and the recommendations of NUREG-0803 will be incorporated in the CRD section of the Vermont Yankee Nuclear Power Plant Second Ten-Year Interval ISI Program Plan.

Vermont Yankee Response

Vermont Yankee does consider the SDV in its ISI Program. The latest revision submitted to the NRC for approval inadvertently left the inspection requirement out. This piping has been part of and is intended to remain in the VY ISI Program. A correction will be provided in the June 1, 1988 revision.

NRC Inquiry

D. The six-inch branch pipe connecting welds in the Main Steam System are listed in ASME Code Item No. B9.32 on pages I-69 and I-70 of the ISI Program Plan. Since these welds are greater than four inches NPS, they

should be listed as Item No. B9.31. Verify that the item number will be changed. Also, why are these six-inch NPS Item No. B9.31 welds in the Recirculation System excluded from volumetric and surface examinations during the second inspection interval?

Vermont Yankee Response

Vermont Yankee has reviewed the main steam branch connections shown on Pages I-69 and I-70. The item number will be changed at the next revision submittal. An appropriate sample will be selected for examination.

Inspection Item 9.31 Recirculation System branch connections have been both volumetrically and surface examined as a baseline during the 1985 replacement of the Recirculation System. Nominal application of the selection criteria of the 1974 Edition, Summer 1975 Addenda to Section XI has therefore been exceeded, however, Vermont Yankee will select an appropriate sample for completion in Interval 2.

NRC Inquiry

E. The Licensee listed 105 Item No. B9.11 Class 1 piping welds (Item No. B4.5 in 74S75) that are scheduled to be examined during the second inspection interval in Revision 8 of the ISI Program Plan. In Revision 9 of the ISI Program Plan, there appear to be only 81 Item B9.11 Class 1 piping welds scheduled for examination. Also, it appears that the examination samples for Item No. B9.11 piping welds in the Recirculation, Reactor Water Cleanup, and Core Spray Systems have been reduced. Discuss and justify why the examination samples have been reduced.

Vermont Yankee Response

As establised in the preface to Revision 9 of the Vermont Yankee ISI Program, a major cause for this revision was the replacemet of major portions of Residual Heat Removal, Recirculation, and Reactor Water Cleanup. This replacement reconfigured and significantly reduced the number of welds in both the Recirculation and RHR Systems. Thus, the sample criteria is based on a smaller number.

Weld selection for these new portions is pro-rated over the life of the plant at an equivalent of 25% of the total welds per inspection interval and further to account for approximately 1/3 of that 25% in any given period. Existing systems reflect selection based on Revision 8. Revision 9 will be reviewed following this philosophy and errors or inconsistencies, if identified, will be corrected in the upcoming revision due for submittal in June of 1988.

NRC Inquiry

F. Provide a revised listing of the Class 1 and 2 components to be examined during the second inspection interval which includes the welds added to the ISI Program Plan as a result of Items A, B, C, D, and E above. Also, provide the applicable isometric drawings showing the welds added to the second interval inspection schedule.

Vermont Yankee Response

Consistent with our replies to Items A, B, C, D, and E, Vermont Yankee will supply both a revised listing and items requested on or before June 1, 1988.

NRC Inquiry

G. Provide Inspection Summary Tables for both Class 1 and Class 2 components similar to those included in Revision 8 to aid in the review of Revision 9 of the ISI Program Plan.

Vermont Yankee Response

A summary listing will be provided and included in our June 1, 1988 revision.

NRC Inquiry

H. Address the degree of compliance with each of the following: Regulatory Guide 1.150; NUREG-0312, NUREG-0313; NUREG-0619; and NUREG-0800, Section 3.6.1. Discuss any other augmented examinations that will be performed during the second ten-year interval.

Vermont Yankee Response

Vermont Yankee complies with the inquiry documents as follows:

o Regulatory Guide 1.150 Compliance

Vermont Yankee generally subscribes to the provisions of Regulatory Guide 1.150, Revision 1, utilizing the alternative method of Appendix A of that document. Compliance with the alternative method is as follows:

1. Inspection Performance Checks

Prior to examination performance, Vermont Yankee records the RF waveform of all transducers used in RPV examinations. Waveforms are reviewed to aid in assuring nominal transducer performance.

Both screen height and amplitude control linearity are verified consistent with the requirements of Article 4 of ASME Code Section V.

All beam angles including 0° longitudinal beams are characterized as to beam profile on each calibration standard utilized. Beams are characterized in accordance with Article 4 of Section V to both the -6 dB and -14 dB profiles. Additional beam profiles are also recorded for the far side notch reflector.

2. Calibration

Calibrations are confirmed before and after each examination.

Calibration is performed statically, as examinations employ manual examinations with static sizing.

Mechanized scanning is not employed.

Calibration is confirmed at least every four hours during examination.

Calibration blocks comply with the ASME Code. Blocks have not been modified.

3. Examination

Gating is not employed in examination.

Transducer overlap is a minimum of 25%.

Examinations are generally 1/2V from the OD surface demonstrating 2% notch sensitivity.

Beam angles employed are either those of Article 4 of Section V or as described in Section 3.2 of the Appendix for the intended geometries.

4. Recording and Sizing

All indications are recorded at the 20% DAC level and evaluated at either 20% or 50% DAC based upon determined location and echo-dynamic activity as described in the regulatory guide.

Vermont Yankee has not pre-qualified sizing techniques. If flaw indications are discovered, flaw sizing methodology will be developed based on location, orientation, and nature. Appropriate pre- or post-qualification will be dictated by the flaw detected.

5. Reporting of Results

Records and reports are maintained on-site to the extent required by the regulatory guide.

o NUREG-0312 Compliance

This NUREG has been superseded in its entirety by NUREG-0619. Please see section on compliance to NUREG-0619 below.

o NUREG-0313 Compliance

Vermont Yankee has replaced all its service-sensitive piping material and, therefore,, all stainless steel piping welds would be classified Category A as per NUREG-0313, Revision 2. A full position is under development with the recent issue of the NUREG revision. Augmentations of this type are maintained on an as-needed basis separate from the Section XI Program.

o NUREG-0619 Compliance

Two issues are significant to inservice inspection with respect to NUREG-0619 from Vermont Yankee's perspective.

The first issue, the inspection of the tee where CRD return flow enters Reactor Water Cleanup, was addressed in a Vermont Yankee letter to the NRC, FVY 82-3, dated January 15, 1982. These inspections were completed as detailed with no flaws found. No additional examinations are planned for this area.

The second issue, feedwater nozzle inner radius examinations are most currently summarized in a USNRC letter to Vermont Yankee (NVY 87-123), dated August 7, 1987. Pursuant to this letter, Vermont Yankee has an established schedule for UT and PT examinations as well as visual examinations. These examinations are scheduled and maintained on an ongoing basis external to the Inservice Inspection Program.

o NUREG-0800 Section 3.6.1 Compliance

Issues similar to those of NUREG-0800, Section 3.6.1 were addressed by Vermont Yankee, prior to the NUREG's issuance. The Vermont Yankee position on this is reported in "Report on Effects of a Postulated Break in a High Energy Piping System Outside the Containment", dated July 1973, Docket No. 50-271.

NRC Inquiry

I. Provide a complete list of ultrasonic calibration blocks, including identifications, material specifications, and sizes.

Vermont Yankee Response

Vermont Yankee has included, as follows, a list of ultrasonic calibration blocks. Vermont Yankee continuously reviews and upgrades the ultrasonic examination techniques used. Calibration standards are often added or modified and as such the list continually changes. The calibration standard list is maintained outside the Vermont Yankee ISI Program control and is supplied for information.

VERMONT YANKEE ULTRASONIC CALIBRATION STANDARDS

Serial No.	Size	Schedule	Nominal Wall	ASTM No.
VY-1	2½"	80	.276	312 - 304
VY-2	2½"	160	.375	106 GR C
VY-3	3"	80	.300	312 - 304
VY-4	3"	160	.438	106 GR C
VY-5	4"	80	.337	312 - 304
VY-6	4"	80	.337	106 GR B
VY-7	8"	100	.393	312 - 304
VY-8	10"	160	1.125	106 GR B
VY-9	12"	80	.687	312 - 304
VY-10	14"	120	1.093	106 GR C
VY-11	18"	80	.937	106 GR C
VY-12	6x4x1.44			312 - 304
VY-13	6x4x1.44			515 - 72
VY-14	10"		.500	B168 INCONEL
*VY-15	4"			312 - 316L
*+VY-16	16"	30	.375	106 GR A
VY-17	4"	80	.337	A-451-CPF8M
VY-18	4"	80	.337	A-451-CPF8M
+VY-19	8"	80	.500	106 GR B
VY-20	8"	100	.594	312 - 316L
VY-21	2½"	80	.276	376 - 304
VY-22	4"	80	.337	376 - 304
VY-23	10"	120	.844	106 GR B
VY-24	16"	80	.844	106 GR B
VY-25	16"	120	1.219	106 GR B
VY-26	18"	80	.938	106 GR B
VY-27	20"	80	1.031	106 GR B
VY-28	24"	80	1.219	106 GR B
VY-29	10"	80	.394	106 GR B
VY-30	15 13/32" OD	-	.875	336 C1. F8
VY-31	12.840" OD	-	.667	336 C1. F8
VY-32	20"		1.095	A358 - 304
VY-33	22"	80	1.125	A357 - 304
VY-34	24"		1.312	A358 - 304
VY-35	25.870" Nom.	ID	1.138	A358 - 304
VY-36	28"		2.00	A358 - 304
VY-37	4"	120	0.437	A312 - 304 A376 - 304
VY-38	6"	160	0.718	A106 GR B
**VY-CUW-1	4"	120	.438	A312-316L
VY-40	8"	120	.719	A106 GR B
VY-CRD-H	5 13/16" OD	3.170 ID	.321	A376 - 304

* Destroyed (not required)
\+ Manufactured by B&W
** 5% notches for ASME Section V compliance

VERMONT YANKEE ULTRASONIC CALIBRATION STANDARDS

Reactor Vessel and Reactor Pressure Bolting
Reactor Nozzle Safe-Ends

Serial No.	Size	ASTM No.
RV-1	16 x 6 5.62"	A-533-65 GR B
RV-2	9 x 6 x 3"	A-533-65 GR B
RV-3	35 x 6 x 5 5/8"	A-533-65 GR B
*RV-4	15½" OD x 13 3/4" ID	A 508 C1. II
RPB-1	2½ x 12½"	A-193
#+RPB-2	5.75" x 24.25"	A-540 GR B-23
#+RPB-3	8.5" OD Nominal Wall: 1.125"	A-540 GR B-23
RPB-4	2½" x 14"	A-193 B7
CRD-1	5½" OD x 3 3/4" ID	A-403 WP316L
NZL-2A/K	12.984 OD x 11.349 ID	A-376 TY 316
CRD-2	6" OD x 3 3/8" ID (Clad)	A-508 CL II
CS-1	8" x 10" Conc. Reducer	A-403 WP 316L
NZL-2	15½" OD x 13 3/4" ID (Clad)	A-508 CL II
NZL-4	12" OD x 10 3/4" ID	A-508 CL I
NZL-5	13 7/16" OD x 11 3/4" ID (Clad)	A-508 CL II
NZL-1	28 7/8" OD x 26 1/8" ID (Clad)	A-508 CL II
NZL-5-SE	13 7/17" OD x 11 3/4" ID	B-168 INCONEL
NZL-8-SE	5 9/16" OD x 3 13/16" ID	A-336 F8
NZL-10	3 11/16" OD x 1 15/16" ID (Clad)	A-508 CL II
NZL-10-SE	3 11/16" OD x 1 15/16" ID (Clad)	A-336 F8

+ Manufactured by B&W
# Manufactured from scrap - No mill certs
* Clad Block NZL - 2 replaces this item

VERMONT YANKEE ULTRASONIC CALIBRATION STANDARDS

SAFETY CLASS 2 PIPING AND VESSELS

Serial No.	Size	Schedule	Nominal Wall	ASTM No.
VY-50	6"	80	.432	A-106 GR B
VY-51	8"	STD/40	.332	A-106 GR B
VY-52	10"	STD/40	.365	A-106 GR B
VY-53	10"	100	.719	A-106 GR B
VY-54	12"	STD	.375	A-106 GR B
VY-55	12"	40	.406	A-106 GR B
VY-56	12"	80	.688	A-106 GR B
VY-57	14"	STD	.375	A-106 GR B
VY-58	14"	80	.750	A-106 GR B
VY-59	14"	160	1.406	A-106 GR C
VY-60	18"	STD	.375	A-106 GR B
VY-61	20"	STD	.375	A-106 GR B
VY-62	20"	30	.500	A-106 GR B
VY-63	24"	STD	.375	A-106 GR B
VY-64	24"	30	.562	A-106 GR B
VY-65	26"	STD	.375	A-105 GR B
VY-66	6.230 x 6.250	N/A	.690	A-515 GR 70

SAFETY CLASS 3 PIPING

Serial No.	Size	Schedule	Nominal Wall	ASTM No.
VY-75	4"	120	.438	A-106 GR B

RECIRCULATION/RHR REPLACEMENT CALIBRATION STANDARD

Serial No.	Size	Schedule	Nominal Wall	ASTM No.
VY-68	28" Recirc		1.238	A 376 TP 316
VY-69	28" Recirc		1.140	A 376 TP 316
VY-70	24" RHR	80	1.110	A 376 TP 316
VY-71	22" Recirc		0.99	A 376 TP 316
VY-72	20" RHR		0.985	A 376 TP 316
VY-73	12" Recirc	90	0.690	A 376 TP 316
VY-78	8" N2SE		0.975	A 167-82 A 240-82c
VY-79	8" N1SE		1.5	A 480-83 A 240-84a A 167-82 A 262-81
VY-81	3"x9"		1.125	A 167-82 A 240-82c

NRC Inquiry

J. With regard to Request for Relief B-1 on the reactor pressure vessel circumferential and longitudinal shell welds, the procedure for the examination of these welds is currently under review by the regulatory staff. Identify those welds which could be examined if the insulation is removed.

Vermont Yankee Response

Vermont Yankee currently removes all insulation which can be removed and replaced. All other insulation is installed with permanent fasteners in the annulus between the bio-shield and the vessel. Replacement is not considered feasible. This insulation is not considered removable. As such, the Vermont Yankee ISI Program currently identifies all those welds which can be examined if the insulation is removed.

NRC Inquiry

K. In the Licensee's August 1, 1986 response to Question No. 1 of the NRC's May 27, 1986 Request for Additional Information (RAI) with regard to Relief Request B-2, the Licensee states: "At the time of program submittal, no belt line repairs could be identified." It was concluded, however, that if repairs were later identified, these welds would certainly not be accessible for inspection. The relief request was therefore submitted. Since that time, all construction records have been reviewed and it is determined that no "repair welds" were performed in this area. This Relief Request is no longer needed and Relief Request B-2 will be removed from the program in the next revision." Why was Relief Request B-2 not deleted from Revision 9 of the ISI Program Plan?

Vermont Yankee Response

This relief request will be removed in the June 1, 1988 submittal.

NRC Inquiry

L. In the Licensee's August 1, 1986 response to Question No. 4 of the NRC's May 27, 1986 RAI with regard to Relief Request B-6, the Licensee states: "Vermont Yankee is not requesting relief for any piping that exceeds the code exemption limited of three inches and smaller, further, Vermont Yankee has committed to the 80W80 Edition and will meet IWF-2410(a). Relief Request B-6 will be removed from this program in Revision 9, which is scheduled to be submitted to the NRC by December 31, 1986." Why was Relief Request B-6 not deleted from Revision 9 of the ISI Program Plan?

Vermont Yankee Response

This relief request will be removed in the June 1, 1988 submittal.

NRC Inquiry

M. In addition to not deleting from Revision 9 of the ISI Program Plan relief requests that have previously been withdrawn by the Licensee, relief requests that were previously denied or determined to be not required in the NRC's February 10, 1987 SER were also not deleted from Revision 9 of the ISI Program Plan. At present, the staff has no reason to change its position on the relief requests that were denied in the February 10, 1987 SER. The Licensee should provide the following and revise the ISI Program Plan accordingly:

1. Revised relief requests or a table showing the status of the relief requests (e.g., withdrawn and deleted; denied and deleted; denied but submitting explicit additional justification, etc.);

2. Address any changes made to the relief requests from Revision 8 to Revision 9; and

3. Note any new relief requests that were not included in Revision 8 of the ISI Program plan or were not evaluated in the February 10, 1987 SER.

Vermont Yankee Response

This will be included in the June 1, 1988 submittal.