FPL

DEC 1 9 2003

L-2003-306
EA-03-009(IV)(F)(2)

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Re: Turkey Point Unit 3
Docket No. 50-250
Order (EA-03-009) Relaxation Request
Examination Coverage of Reactor Pressure Vessel Head
Penetration Nozzles

On February 11, 2003 the NRC issued Order (EA-03-009) requiring specific inspections of the reactor pressure vessel (RPV) head and associated penetration nozzles at pressurized water reactors. Florida Power & Light (FPL) performed the required inspections for Unit 3 during the March 2003 refueling outage. By letters L-2003-067 and L-2003-068, pursuant to the procedure specified in Section IV, paragraph F of the Order, FPL requested relaxation from the requirements specified in Section IV, paragraph C.(1)(b)(i) for Turkey Point Unit 3 for the RPV head penetration nozzles for which ultrasonic testing requirements could not be completed as required. NRC approval of the Order relaxation request was granted by NRC letter dated March 20, 2003.

Following discussions with the NRC staff during the Unit 4 October 2003 refueling outage, FPL determined that a relaxation request was necessary to address all RPV head penetrations inspected with the UT blade probe which contain an area of coverage less than that required by the NRC Order, due to the probe design. Pursuant to the procedure specified in Section IV, paragraph F of the Order, FPL hereby requests relaxation from the requirements specified in Section IV, paragraph C.(1)(b)(i) for Turkey Point Unit 3 for the 65 RPV head penetration nozzles examined with the UT blade probe for which ultrasonic testing requirements could not be completed as required. This request regarding UT blade probe limitations is similar to the Order relaxation request submitted for Turkey Point Unit 4 by FPL letter dated October 21, 2003, and approved by NRC letter dated October 31, 2003 (TAC NO. MC1082).

The attachment to this letter provides the technical justification for the Order relaxation request. As demonstrated in the attachment hereto, the requested relaxation meets item IV.F.(2) of the Order, as compliance with this Order for the specific nozzles would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety. The UT inspection results for the 65 penetration nozzles inspected with the UT blade probe show that UT inspection coverage in all the nozzles extended greater than 1 inch below the weld. The area of limited coverage for which relaxation is requested is within the bounds of the Unit 3 Order relaxation request granted by NRC letter dated March 20, 2003.

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FPL agrees to comply with the conditions specified by NRC letter dated March 20, 2003, Turkey Point Unit 3 – Relaxation of the Requirements of Order (EA-03-009), Regarding Reactor Pressure Vessel Head Inspections (TAC NO. MB7990).

Please contact Walter Parker at (305) 246-6632 if there are any questions about the Order relaxation request.

Very truly yours,

Terry O. Jones
Vice President
Turkey Point Nuclear Plant

Attachment

OH

cc: Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant
Florida Department of Health and Rehabilitative Services

TURKEY POINT UNIT 3 RELAXATION REQUEST FROM US NRC Order EA-03-009

"Hardship or Unusual Difficulty without Compensating Increase In Level of Quality or Safety"

1. ASME COMPONENTS AFFECTED

Turkey Point Unit 3 (PTN-3) has 66 ASME Class 1 reactor pressure vessel (RPV) head penetrations (including the vent).

The Turkey Point Unit 3 Order Inspection Category in accordance with Section (IV.A.) is currently determined as "high" based on 18.3 EDY at the March 2003 refueling outage[1] (RFO).

FPL Drawing No. 5610-M-400-57, Sheet 1, Rev. 2 (PTN-3)

2. US NRC ORDER EA-03-009 APPLICABLE EXAMINATION REQUIREMENTS:

The NRC issued an Order[2] on Februay 11, 2003 establishing interim inspection requirements for reactor pressure vessel heads of pressurized water reactors. Section IV.C. of the Order states the following :

All Licensees shall perform inspections of the RPV head using the following techniques and frequencies :
(1) For those plants in the High category, RPV head and head penetration nozzle inspections shall be performed using the following techniques every refueling outage

(a) Bare metal visual examination of 100% of the RPV head surface (including 360° around each RPV head penetration nozzle), AND

(b) Either:

(i) Ultrasonic testing of each RPV head penetration nozzle (i.e., nozzle base material) from two (2) inches above the J-groove weld to the bottom of the nozzle and an assessment to determine if leakage has occurred into the interference fit zone, OR

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[1] FPL letter L-2002-185, "St. Lucie Units 1 and 2, Docket Nos. 50-335, 50-389, Turkey Point Units 3 and 4, Docket Nos. 50-250 and 50-251, Response to NRC Bulletin 2002-02, Reactor Pressure Vessel Head Penetration Nozzle Inspection Programs," R. S. Kundalkar to NRC, September 11, 2002.

[2] US NRC Letter EA-09-009, "Issuance Of Order Establishing Interim Inspection Requirements For Reactor Pressure Vessel Heads At Pressurized Water Reactors,", from Samuel J. Collins (NRC) to all Pressurized Water Reactor Licensees, Dated February 11, 2003.

(ii) Eddy current testing or dye penetrant testing of the wetted surface of each J-Groove weld and RPV head penetration nozzle base material to at least two (2) inches above the J-groove weld.

Relaxation is requested from part IV.C.(1)(b)(i) of the Order to perform ultrasonic testing (UT) of the RPV head penetration inside the tube from 2 inches above the J-groove weld to the bottom of the penetration at Turkey Point Unit 3.

Specifically, this relaxation is related to the blade probe UT design that limits the UT examination area at the bottom of the non-pressure boundary portion of the RPV penetration nozzle. This condition is applicable to all penetrations inspected with the UT blade probe due to the probe design. In all cases the inspection coverage extended to greater than 1 inch below the weld toe. A previous relaxation was requested, [3] and approved by the NRC [4] for 9 penetrations with limited UT coverage. The remaining 56 penetrations are bounded by the previous request and approval. The inspection results in Table 1 have been revised for the 65 penetrations inspected with the "blade" probe to identify the corresponding examination length below the weld toe.

3. REASON FOR REQUEST:

Pursuant to Order Section IV.F.(2) "Compliance with the Order for specific nozzles would result in hardship or unusual difficulty, without a compensating increase in the level of quality and safety", FPL is requesting this relaxation for Turkey Point Unit 3.

All RPV head penetrations inspected with the UT blade probe contain an area of coverage less than that required by the NRC Order, due to the probe design. The Order requires examination from 2 inches above the J-groove weld to the "bottom of the nozzle." The circumferential blade UT probe used at Turkey Point Unit 3 has been demonstrated for detection of circumferential, off-axis, and axial flaws. This probe has separate transducers (50° longitudinal time of flight diffraction, L-TOFD) for sending and receiving the UT signal. The transducers are arranged vertically approximately 0.787 inches apart. The scanning process requires both transducers to be in contact with the ID surface of the nozzle. Based on the nominal arrangement of the transducers, the portion that can not be scanned is a triangular portion extending from the bottom of the nozzle upward for a distance of approximately 0.39 inches (half the transducer separation) measured on the nozzle OD. The nozzle ID surface is fully

[3] FPL Letter L-2003-068, "Turkey Point Unit 3 Docket No. 50-250, Order (EA-03-009) Relaxation Request Examination Coverage of Reactor Pressure Vessel Head Penetration Nozzles - Supplemental Data," William Jefferson to NRC, March 14, 2003.

[4] NRC SER for Turkey Point Unit 3 — Relaxation of the Requirements of Order (EA-03-009) Regarding Reactor Pressure Vessel Head Inspections (TAC No. MB7990 dated March 20, 2003).

interrogated by the UT transducer to the end of the nozzle.

The hardship is based on the following points:

- The available circumferential UT blade probe inspection technique is not capable of interrogating the bottom triangular segment of the nozzle. This probe design was selected based on its ability to detect and size axial, off-axis, and circumferential flaws. It was also selected for its robustness and ability to obtain more consistent surface contact. The deployment of the axial UT blade probe, in addition to the currently deployed circumferential blade probe, does not significantly increase coverage. The axial probe also has limitations, due to element size, that prohibits interrogation to the bottom of the nozzle. Deployment of both probes provides little additional information and no commensurate increase in safety.

- To employ a rotating UT probe, capable of interrogating all the material to the bottom of the nozzles in penetrations that are not open (thermal guide sleeves, part length drive rods or other permanently installed equipment), would require hardware changes to cut, remove, and replace interfering equipment in the RV head penetrations. The modifications required would be time and dose intensive.

- Manual PTs of the missed OD areas of the penetration base material would be time and dose intensive without a compensating increase in safety. Access to the OD of the nozzles is limited by a "forest" of 45 thermal sleeves and 6 permanently installed part length CRDM drive rods that extend well below the nozzle ends. The dose estimate to perform manual PT surface examination of the 65 RPV nozzle ends examined by blade probe UT would be approximately 17.7 man Rem. This estimate is based on the dose rates of the Turkey Point Unit 3 head, the actual surface examinations of the vent line at Turkey Point Units 3 and 4 and portions of 9 RPV nozzle ends at St. Lucie Unit 2. The PT examination of the 65 penetration base material OD would result in excessive dose without a resultant commensurate increase in safety.

Accordingly, FPL is requesting a reduction of the examination coverage area based on a flaw tolerance analysis approach. As discussed below, this approach will provide an acceptable level of quality and safety, since any flaw in the uninspected area of the nozzle material would not be a challenge to reactor vessel structural integrity or leak integrity.

4. PROPOSED ALTERNATIVE AND BASIS FOR USE:

The proposed alternative is to perform the UT examination to the lowest elevation that can be practically inspected. This is defined as "the examination shall be performed to include 2 inches above the weld to the lowest elevation practical or ≥ 1 inch below the weld, whichever is greatest." This relaxation request documents, and submits to the NRC, deviations from the NRC Order required inspection coverage area along with a justification as to their acceptability.

BASIS FOR RELAXATION:

Additional efforts to achieve the Order required examination area (below the weld) will result in a hardship due to unusual difficulty without a compensating increase in the level of quality and safety.

The Turkey Point Unit 3 has 65 RPV penetration nozzles with a 4-inch outer diameter (OD) and a one-inch OD vent line. The scope of the examination was to perform a 360° volumetric examination from 2 inches above the J-groove weld down to the bottom of the RPV penetration nozzles. The 65 large diameter RPV penetration nozzles are used for a variety of functions and present a variety of examination conditions. The 45 RPV penetration nozzles that are attached to active control rod drive mechanisms (CRDMs) have funnel-ended guide sleeves permanently attached inside the nozzles, leaving only a narrow annulus available for inspection. The 6 RPV penetration nozzles attached to part length CRDMs have threaded drive rods permanently retracted and pinned inside the RPV penetration nozzles that hang down below the nozzle end and create an obstruction. The two RPV penetration nozzles modified for the reactor vessel level measurement system (RVLMS) have a guide sleeve installed and a welded end plate (that required removal for inspection). The other 12 RPV penetration nozzles (8 spares, 4 instrument penetrations) are open once the RPV head is removed from the vessel for inspection and require a special centering adapter or dummy sleeve for scanning with the available blade probe UT equipment. These 65 locations are inspected with a UT blade probe due to their identical inner diameter (ID). These various design conditions, and the normal distortion of the RPV penetration nozzles caused by the welding into the sloped hemispherical head, result in a variety of examination conditions. The UT blade probes are optimized for these examination conditions. The UT blade probe examination technology, available for the Turkey Point Unit 3 RPV penetration nozzle inspections, has resulted in some areas of missed inspection at a plane ≥ 1.00 inches below the weld measured on the downhill side of the nozzle. The small diameter vent line is an open penetration, which is fully interrogated to the bottom of the nozzle using a rotating probe design. Therefore the vent line is not included in this relaxation request.

To evaluate the significance of the lack of UT inspection coverage caused by the UT probe design, a summary table of the Turkey Point Unit 3 inspection results is provided in Table 1. The table shows the 65 RPV penetrations that were inspected with the blade probe UT method. This minimum distance below the toe of the weld is measured on the OD portion of the penetration at the downhill location. The ID is inspected approximately 0.39 inches farther at the downhill location (half the distance of the transducer separation) in all blade probe inspections. The missing coverage distance on the OD is due to the 50° angle of the UT signal and performance of the examination from the ID surface. It is also noted that no recordable indications were identified in any of the UT examinations performed.

The significance of the lack of UT examination coverage below the minimum inspection coverage area is evaluated below.

Greater than 1.00 inches below the weld to the bottom of the nozzle: Axial flaws in the area of non-coverage in the non-pressure boundary nozzle base material below the weld are of no structural significance; however, a postulated flaw could grow above the weld to the point of leakage followed by wastage and/or potential initiation of an OD circumferential flaw.

To determine the significance of an axial flaw that is contained in the non-pressure boundary nozzle material in the un-inspected region greater than 1.00 inch below the weld, a flaw tolerance approach is used. A flaw evaluation was performed postulating an axial flaw in the area of missed coverage below the weld using WCAP-16027-P.[5] A through wall flaw is postulated in the nozzle material from the bottom of the penetration to 1.00 inch from the bottom of the weld. This is a conservative assumption since the inspected region extends 0.39 inches farther below the weld on the ID surface of the nozzle. The flaw evaluation in WCAP-16027-P is based on Turkey Point Unit 3 and 4 specific stresses in the nozzle penetrations. Since the stresses in the region, greater than 1.00 inch below the weld, are too low to propagate an axial flaw, the WCAP-16027-P below weld flaw evaluations start at ½ inch below the weld. WCAP16027-P evaluates the time to propagate the postulated flaw in the nozzle to the bottom of the weld (start of the pressure boundary portion of the nozzle material or toe of the J-groove weld). Assuming a through wall flaw below the weld, with the flaw end located at ½ inch below the weld (which is in the area of complete UT examination coverage), an axial flaw would take greater than 5 years of operation (Figures 6-12 through 6-20 in WCAP-16027-P) in any nozzle location to grow to the point of contact with the weld. This time period is significantly greater than the current inspection frequency of every refueling cycle

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[5] WCAP-16027-P, "Structural Integrity Evaluation of Reactor Vessel Upper Head Penetrations to Support Continued Operation: Turkey Point Units 3 & 4," Westinghouse Electric Co. LLC, Revision 0, March 2003.

(18 months for Turkey Point Unit 3) identified in NRC Order EA-03-009. As an added conservatism, this evaluation does not attempt to evaluate the time for the axial flaw to grow from the bottom of the weld through the pressure boundary. Figure 1 provides a graphical presentation of the above flaw evaluation discussion for the outer most penetration location (most limiting case).

Figures E-1 through E11 in WCAP-16027-P show the Turkey Point Unit 3 and 4 specific hoop stress for the individual nozzle angles. These figures show how the stress levels rapidly decrease as a function of distance from the weld toe. The NRC approved this relaxation approach [4] for 9 nozzles (#14, 16, 25, 28, 31, 43, 63, 64, and 67) for Turkey Point Unit 3 due to probe contact problems. The NRC also approved this approach for the probe design issue for Turkey Point Unit 4, [6] as well as others listed in the precedent section below.

The concern with circumferential cracking in the non-pressure boundary portion of the nozzle below the weld is the potential for loose parts. The UT was performed on 56 of the 65 nozzles, from the ID, for a distance from greater than 2 inches above the weld to end of the nozzle within the probe design limitations. The other 9 nozzles (identified in Reference 4) were UT inspected from the ID for a distance from greater than 2 inches above the weld to the end of the nozzle, with some limitation over a portion of the circumference at the bottom of the nozzles. Both Turkey Point Units 3 and 4 have the same material supplier and many identical heats. Both plants have completed UT examinations of all nozzles and have not identified any circumferential or axial cracking. This includes the high stressed region adjacent to the weld. Therefore, it is unlikely that any flaws (circumferential or axial) would initiate in this lower stressed bottom portion of the nozzle, without also having other corresponding flaws present in the higher stressed areas closer to the weld.

Therefore, there are no concerns with the structural integrity of the Turkey Point Unit 3 RPV penetration nozzles that could be caused by axial cracking in the missed coverage areas in the non-pressure boundary portion of the nozzle material greater than 1.00 inch below the weld for a period of greater than 5 years of operation.

This conclusion is based on the following results:

- UT inspection results of no indications in the nozzle areas examined from a minimum of 1.00 inch below the weld to 2 inches above the weld (100% coverage obtained in this region);
- Acceptable assessment of no "leak path" present into interference fit zone (100% coverage obtained as indicated in Table 1);
- Acceptable bare metal visual examination results of no leakage since the last RFO bare metal RPV head inspection and;

[6] NRC SER for Turkey Point Unit 4 — Relaxation of the Requirements of Order (EA-03-009) Regarding Reactor Pressure Vessel Head Inspections (TAC No. MC1082 dated October 31, 2003).

- Circumferential cracks in this portion of the penetration are of no safety significance and would be identified by the ID inspection before a loose part could develop.

A complete matrix of the UT inspection coverage areas, UT inspection results and the "leak path" results for the nozzles inspected with the blade probe for Turkey Point Unit 3, is provided in Table 1. Table 1 shows that the UT inspection in all nozzles extended greater than 1 inch below the weld in all 65 nozzles inspected with the blade probe.

5. DURATION OF PROPOSED ALTERNATIVE:

This relaxation is applicable to the inspection performed during the March 2003 refueling outage for Turkey Point Unit 3 and one operating cycle. The Turkey Point Unit 3 RPV head is scheduled for replacement at the next refueling outage.

6. PRECEDENTS:

1) Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 –Relaxation of the Requirements of Order (EA-03-009), Regarding Reactor Pressure Vessel Head Inspections (TAC Nos. MB7752 and MB7753 Dated April 18, 2003)

2) Turkey Point Unit 3 — Relaxation of the Requirements of Order (EA-03-009) Regarding Reactor Pressure Vessel Head Inspections (TAC No. MB7990 dated March 20, 2003)

3) Donald C. Cook Unit 2— Relaxation of the Requirements of Order (EA-03-009) Regarding Reactor Pressure Vessel Head Inspections (TAC No. MB8205 and MB8206 dated June 17, 2003)

4) Palo Verde Nuclear Generating Station Unit 3— Relaxation From Order Establishing Interim Inspection Requirements For Reactor Pressure Vessel Heads (TAC No. MB7855 dated April 25, 2003)

5) Saint Lucie Nuclear Plant, Unit 2 — Order EA-03-009 Relaxation Requests Nos. 1 and 2 Regarding Examination Coverage of the Reactor Pressure Vessel Head Penetration Nozzles (TAC Nos. MB8165 and MB8166 dated May 29, 2003)

6) Turkey Point Unit 4 — Relaxation of the Requirements of Order (EA-03-009) Regarding Reactor Pressure Vessel Head Inspections (TAC No. MC1082 dated October 31, 2003)

7) Beaver Valley Unit 1 — Relaxation of the Requirements of Order (EA-03-009) Regarding Reactor Pressure Vessel Head Inspections (TAC No. MB8174 dated April 18, 2003)

Table 1: Turkey Point Unit 3 UT Data Coverage Matrix for RPV Nozzles

ID	Turkey Point Unit 3 Cycle 20 - Extent of UT Coverage in RVHP Nozzle Material							Leak Path Data	
Pen #	Min. Distance Above Weld Root (Inches)	Coverage Above Weld Root (Theta)	Coverage @ Weld Root (Theta)	Weld Region Coverage (Theta)	Below Weld Coverage (Theta)	Min UT Distance Below Weld Toe to Nozzle Bottom (Inches) See Note 1	Comments	Determination Possible?	Leak Path Results
1	3.11	360	360	360	360	1.50	NRI	Yes	NLP
2	3.02	360	360	360	360	1.11	NRI	Yes	NLP
3	3.12	360	360	360	360	1.41	NRI	Yes	NLP
4	2.12	360	360	360	360	1.42	NRI	Yes	NLP
5	3.02	360	360	360	360	1.78	NRI	Yes	NLP
6	3.43	360	360	360	360	1.45	NRI	Yes	NLP
7	2.45	360	360	360	360	1.48	NRI	Yes	NLP
8	3.54	360	360	360	360	1.63	NRI	Yes	NLP
9	3.35	360	360	360	360	1.42	NRI	Yes	NLP
10	3.50	360	360	360	360	1.23	NRI	Yes	NLP
11	3.38	360	360	360	360	1.21	NRI	Yes	NLP
12	3.36	360	360	360	360	1.18	NRI	Yes	NLP
13	3.35	360	360	360	360	1.17	NRI	Yes	NLP
14	3.09	360	360	360	360	1.13 * See Comments	NRI Incomplete coverage below weld for 154°.	Yes	NLP
15	3.43	360	360	360	360	1.58	NRI	Yes	NLP
16	3.27	360	360	360	360	1.54 * See Comments	NRI Incomplete coverage below weld for 324°.	Yes	NLP
17	3.20	360	360	360	360	1.36	NRI	Yes	NLP
18	3.19	360	360	360	360	1.40	NRI	Yes	NLP
19	3.44	360	360	360	360	1.39	NRI	Yes	NLP
20	2.54	360	360	360	360	1.30	NRI	Yes	NLP
21	3.40	360	360	360	360	1.27	NRI	Yes	NLP
22	3.11	360	360	360	360	1.29	NRI	Yes	NLP
23	3.17	360	360	360	360	1.64	NRI	Yes	NLP
24	3.10	360	360	360	360	1.68	NRI	Yes	NLP
25	3.27	360	360	360	360	1.04 * See Comments	NRI Incomplete coverage below weld for 311°.	Yes	NLP
26	2.99	360	360	360	360	1.72	NRI	Yes	NLP
27	2.83	360	360	360	360	1.83	NRI	Yes	NLP
28	3.22	360	360	360	360	1.06 * See Comments	NRI Incomplete coverage below weld for 311°.	Yes	NLP
29	2.88	360	360	360	360	1.59	NRI	Yes	NLP
30	3.35	360	360	360	360	1.42	NRI	Yes	NLP
31	3.62	360	360	360	360	1.30 * See Comments	NRI Incomplete coverage below weld for 54°.	Yes	NLP

32	2.45	360	360	360	360	1.54	NRI	Yes	NLP
33	3.04	360	360	360	360	1.79	NRI	Yes	NLP
34	3.31	360	360	360	360	1.12	NRI	Yes	NLP
35	3.40	360	360	360	360	1.41	NRI	Yes	NLP
36	3.38	360	360	360	360	1.44	NRI	Yes	NLP
37	3.55	360	360	360	360	1.61	NRI	Yes	NLP
38	3.42	360	360	360	360	1.76	NRI	Yes	NLP
39	2.79	360	360	360	360	2.64	NRI	Yes	NLP
40	2.90	360	360	360	360	1.50	NRI	Yes	NLP
41	2.95	360	360	360	360	1.79	NRI	Yes	NLP
42	3.21	360	360	360	360	1.32	NRI	Yes	NLP
43	3.40	360	360	360	360	1.07 * See Comments	NRI Incomplete coverage below weld for 285°.	Yes	NLP
44	2.81	360	360	360	360	1.50	NRI	Yes	NLP
45	2.82	360	360	360	360	1.71	NRI	Yes	NLP
46	2.41	360	360	360	360	1.82	NRI	Yes	NLP
47	2.71	360	360	360	360	1.79	NRI	Yes	NLP
48	2.16	360	360	360	360	1.94	NRI	Yes	NLP
49	2.47	360	360	360	360	2.47	NRI	Yes	NLP
51	2.55	360	360	360	360	2.81	NRI	Yes	NLP
53	2.40	360	360	360	360	1.90	NRI	Yes	NLP
55	2.37	360	360	360	360	2.47	NRI	Yes	NLP
57	2.55	360	360	360	360	2.35	NRI	Yes	NLP
58	3.19	360	360	360	360	1.98	NRI	Yes	NLP
59	2.15	360	360	360	360	3.27	NRI	Yes	NLP
60	3.02	360	360	360	360	2.08	NRI	Yes	NLP
61	3.80	360	360	360	360	1.84	NRI	Yes	NLP
62	3.12	360	360	360	360	1.81	NRI	Yes	NLP
63	2.09	360	360	360	360	1.83 * See Comments	NRI Incomplete coverage below weld for 83°.	Yes	NLP
64	2.52	360	360	360	360	1.53 * See Comments	NRI Incomplete coverage below weld for 76°.	Yes	NLP
65	2.89	360	360	360	360	2.64	NRI	Yes	NLP
66	3.13	360	360	360	360	2.26	NRI	Yes	NLP
67	2.99	360	360	360	360	1.77 * See Comments	NRI Incomplete coverage below weld for 254°.	Yes	NLP
68	3.30	360	360	360	360	2.37	NRI	Yes	NLP
69	2.72	360	360	360	360	3.34	NRI	Yes	NLP

Notes: 1)Minimum distance examined below the weld is measured on the low hillside of the nozzle and is the distance inspected below the weld to the maximum extent of the UT inspection technology.
2) NRI – no recordable indications; 3) NLP – no leak path identified;

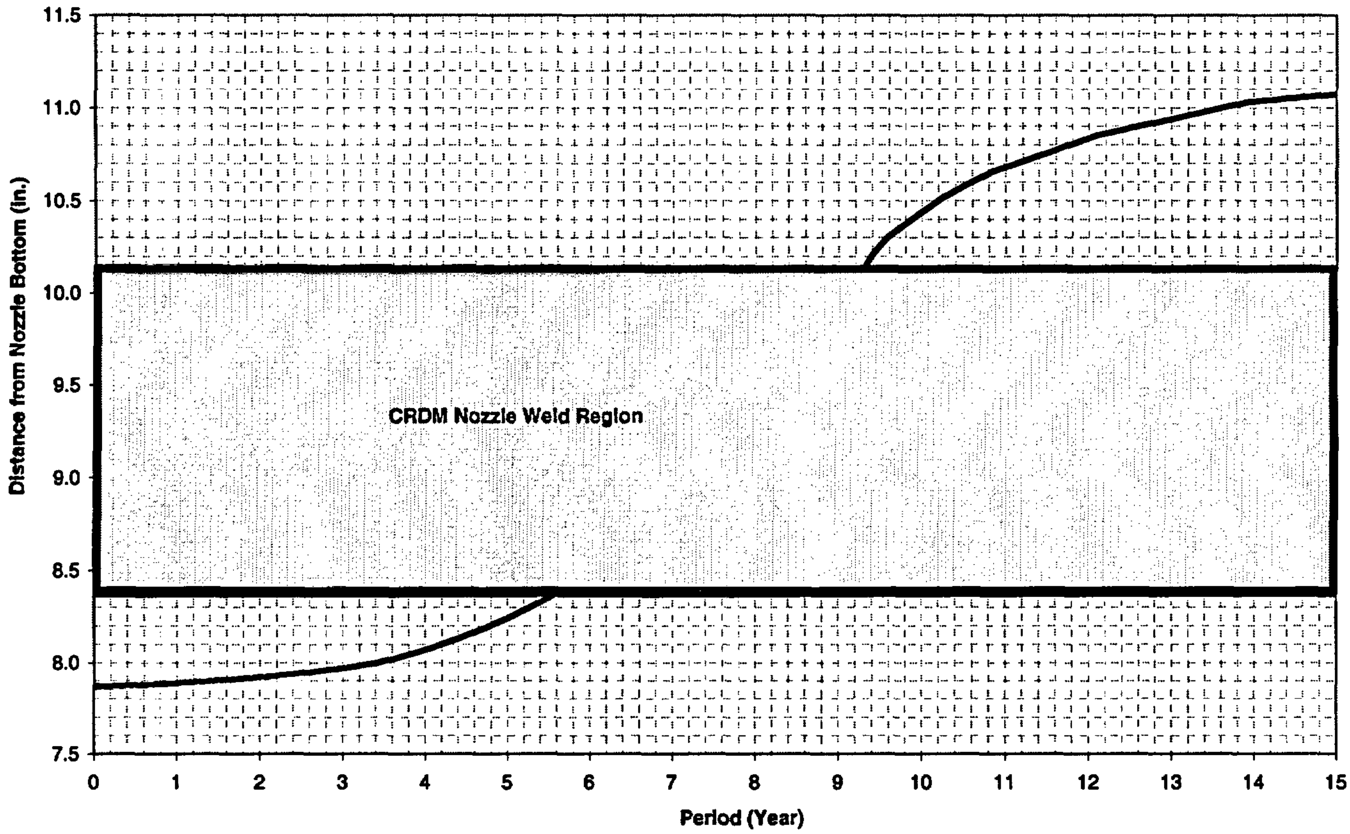

Figure 1: Through-Wall Axial Flaws Located in the 42.6 Degree Row of Penetrations, Uphill Side - Crack Growth Predictions (From Figure 6-19, WCAP-16027-P)